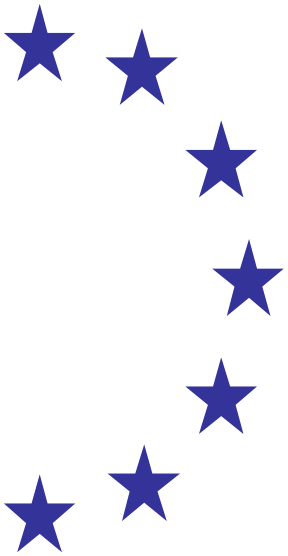
Special Report n° 1/2006

EUROPEAN ECONOMY

EUROPEAN COMMISSION
DIRECTORATE-GENERAL FOR
ECONOMIC AND FINANCIAL AFFAIRS



The impact of ageing on public expenditure: projections for the EU25 Member States on pensions, health care, long-term care, education and unemployment transfers (2004-2050)

Report prepared by the
Economic Policy Committee and the European Commission (DG ECFIN)

The impact of ageing on public expenditure: projections for the EU25 Member States on pensions, health care, long-term care, education and unemployment transfers (2004-2050)

This report, along with the country fiches prepared by national authorities, is available on the web sites of the Economic Policy Committee and the Directorate General for Economic and Financial Affairs of the European Commission:

http://europa.eu.int/comm/economy_finance/epc/epc_publications_en.htm
http://europa.eu.int/comm/economy_finance/publications/eespecialreports_en.htm

SUMMARY AND MAIN CONCLUSIONS

The challenge in making comparable cross-country age-related expenditure projections

In the coming decades, the size and age-structure of Europe's population will undergo dramatic changes due to low fertility rates, continuous increases in life expectancy and the retirement of baby-boom generation. There has been a growing recognition at national and European level of the profound economic, budgetary and social consequences of ageing populations. Prompted by the launch of the euro, the Economic Policy Committee (EPC) established the Working Group on Ageing Populations (AWG) to examine the economic and budgetary consequences of ageing, which led to the publication of age-related expenditure projections in 2001 and 2003. On the basis of this work, an assessment of the long-term sustainability of public finances was integrated into the surveillance of EU Member States' budgetary positions, and takes place annually on the basis of stability and convergence programmes.

In 2003, the ECOFIN Council gave the Economic Policy Committee (EPC) a mandate to produce a new set of age-related public expenditure projections for all twenty-five Member States covering pensions, health care, long-term care, education, unemployment transfers and, where possible, contributions to pensions/social security systems.[1] This report presents these new budgetary projections. It covers the EU10 Member States which has enriched the exercise, but also increased its complexity and the heterogeneity of the findings. The projections now provide a better scrutinized and more comparable set of information for in-depth analysis of risks to the sustainability of public finances.

The unique value-added of these age-related expenditure projections is that they are produced in a multilateral setting involving national authorities and international organisations. The projections are made on the basis of a common population projection and agreed common underlying economic assumptions that have been endorsed by the EPC.

The projections are generally - and for the reference scenario in particular - made on the basis of "no policy change", i.e. only reflecting enacted legislation but not possible future policy changes (although account is taken of provisions in enacted legislation that enter into force over time). The pension projections are made on the basis of legislation enacted by mid 2005. They are also made on the basis of the current behaviour of economic agents, without assuming any future changes in behaviour over time: for example, this is reflected in the assumptions on participation rates which are based on the most recently observed trends by age and gender. While the underlying assumptions have been made by applying a common methodology uniformly to all Member States, for several countries adjustments have been made to avoid an overly mechanical approach that leads to economically unsound outcomes and to take due account of significant country-specific circumstances.

[1] The projections for the EPC were made by the Ageing Working Group of the EPC chaired by Henri Bogaert and the European Commission's Directorate General for Economic and Financial Affairs.

The pension projections were made using the models of national authorities, and thus reflect the current institutional features of national pension systems. In contrast, the projections for health care, long-term care, education and unemployment transfers were made using common models developed by the European Commission in close co-operation with the EPC and its Working Group on Ageing Populations. While these projections can point to key drivers of public spending, it needs to be noted that they can not completely model the specific institutional arrangements and policies which exist at national level. Caution must be exercised when interpreting the long-run budgetary projections and the degree of uncertainty increases the further into the future the projections go. The projections are not forecasts. Instead, they provide an indication on the potential timing and scale of budgetary challenges that could result from ageing population based on a "no policy change" scenario. The projection methodologies employed can not be completely comprehensive, and there are limitations with the data in several respects.

The age-related expenditure projections presented in this document only portray a partial picture of the economic and budgetary consequences of ageing populations. For example, the projected impact of ageing on the labour market and potential GDP growth rates is based on a partial analysis that does not take account all channels and feedback effects through which an ageing population could impact on real economic activity. Account should also be taken of the positive or negative impact of ageing on other public expenditure and revenue items not covered in this projection exercise. Moreover, and as recognised in the current framework at EU level for assessing the sustainability of public finances, account also needs to be taken of the starting underlying budget positions and outstanding debt levels. In line with the three-pronged strategy, running down public debt can contribute to the sustainability of public finances.

Improvements compared with the 2001 budgetary projection exercise

The 2005 age-related expenditure projections contain many improvements compared with the 2001/2003 projection exercise. Many of the shortcomings listed in the EPC report of 2001 have been addressed, and the following improvements should be highlighted. With the assistance of Eurostat, a much better understanding of the factors driving demographic developments has been acquired and particular attention has been paid to trends in life expectancy. The underlying macroeconomic assumptions were established in a more coherent and transparent manner; they have been published by the EPC and European Commission (2005) with quantitative indications of key assumptions provided wherever possible.[2] A more coherent and relevant set of sensitivity tests have been devised and executed, so that the most important sources of risk to public finances are examined. Enhanced transparency has been achieved through a structured peer review process of the results and the national pension models.

The pension projection exercise is broader, now covering nearly all important public pension schemes, including the old-age provisions for civil servants. To complement their budgetary projections, countries with statutory private pension schemes have provided data for these schemes. Some countries have also provided projections for private occupational pension schemes (with the exception of Denmark and the United Kingdom).

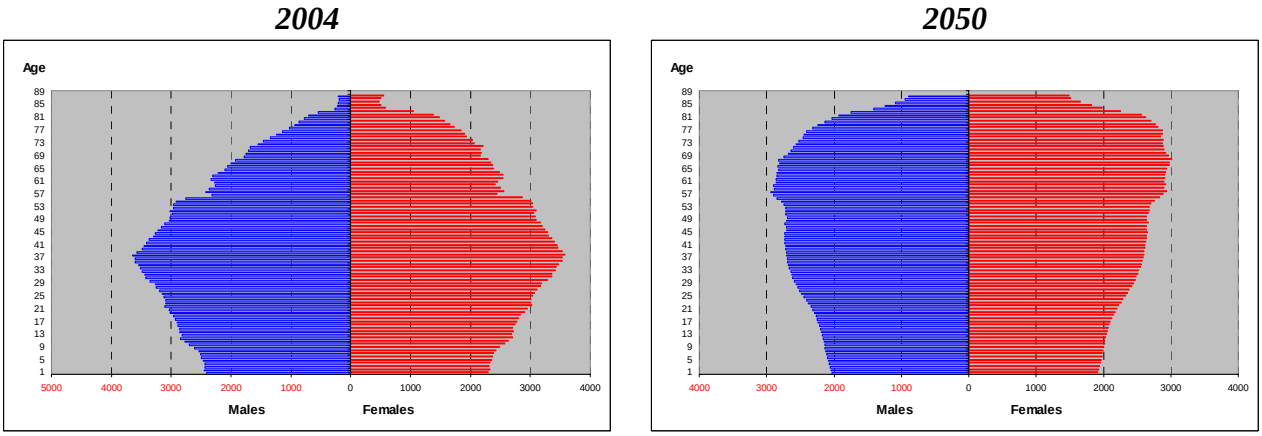
[2] Available under: http://europa.eu.int/comm/economy_finance/publications/european_economy /2005/ eespecialreport0405_en.htm

The inclusion of non-demographic drivers in the projection methodology for health care spending is a significant development. Most progress has been made as regards modelling the potential impact of changes in the health care status of elderly citizens on public spending, and on the role played by death-related costs. While data limitations have been severe, the methodology for projecting public spending on long-term care has also been significantly extended. *Inter alia*, it now looks at age-specific disability rates and enables simulations to be run on future policy changes, such as greater public sector involvement in the provision/financing of long-term care services and changes in the balance between the share of formal care provided in institutions and at home.

Large demographic changes are underway

Europe's population will be slightly smaller, and significantly older, in 2050. Fertility rates in all countries are projected to remain well below the natural replacement rate. Life expectancy at birth, having risen by some 8 years since 1960, is projected to rise by a further 6 years in the next five decades. Inward migration flows will only partially offset these trends. The total population of the EU25 will register a small fall from 457 to 454 million between 2004 and 2050. Of greater economic significance are the dramatic changes in the age structure of the population. Starting already from 2010, the working-age population (15 to 64) is projected to fall by 48 million (or 16%) by 2050. In contrast, the elderly population aged 65+ will rise sharply, by 58 million (or 77%) by 2050. The old-age dependency ratio, that is the number of people aged 65 years and above relative to those between 15 and 64, is projected to double, reaching 51% in 2050. Europe will go from having four people of working age for every elderly citizen currently to a ratio of two to one by 2050.

Age pyramids for EU25 population in 2004 and 2050



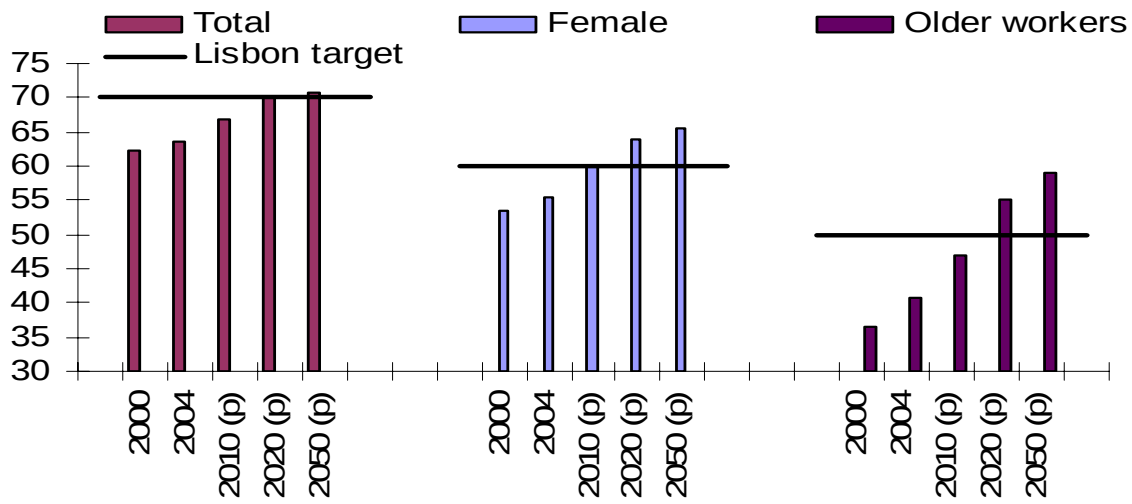
Source: EPC and European Commission (2005)

The change will have major impact on labour market developments

The labour force projection used to make the age-related budgetary projections captures the impact of an ageing population. The overall employment rate is projected to rise from 63% in 2003 to 67% in 2010 and to reach the 70% Lisbon employment rate target in 2020. The projected increase is mainly due to higher female employment rates, which will rise from 55% in 2004 to almost 65% by 2025 as older women with low employment rates retire and are gradually replaced by younger women: the 60% Lisbon employment rate target for females will be reached in 2010. Even sharper is the projected increase in the employment rate of older workers, by 19 percentage points from 40% in 2004 to 59% in 2025. This is well in excess of the 50% Lisbon employment target, which would be reached by 2013. Half of this increase is due to positive effects of already

enacted pension reforms, which is a good illustration of the potential benefits of structural reform.

Projected employment rates and Lisbon targets in the EU25

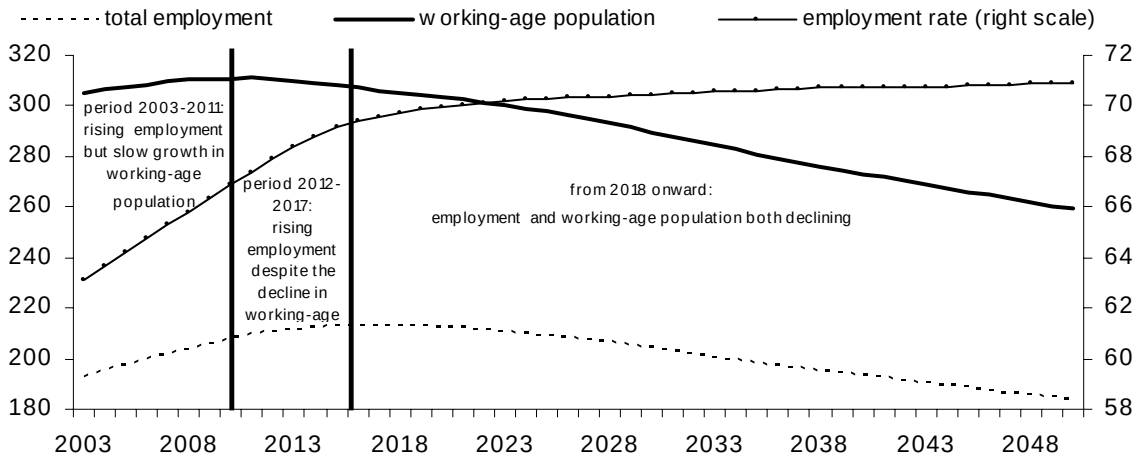


Note: (p) means projected figures; actual figures are given for 2000 and 2004.
Source: EPC and European Commission (2005)

But demographic forces will dominate and the number of persons employed will eventually decline

Meeting the Lisbon employment target, even if not on time, will temporarily cushion the economic effects of ageing. The total number of persons employed is projected to increase up to 2017, but after 2017, the demographic effects of an ageing population outweigh this effect. After increasing by some 20 million between 2004 and 2017, employment will contract by almost 30 million by 2050, i.e. a fall of nearly 10 million over the entire projection period. Three distinct periods can be identified. Between 2004 and 2011, both demographic and employment developments will be supportive of growth: this period can be viewed as a window of opportunity for pursuing structural reforms. Between 2012 and 2017, rising employment rates will offset the decline in the working-age population: during this period, the working-age population will start to decline as the baby-boom generation enters retirement. The ageing effect will dominate as of 2018, and both the size of the working-age population and the number of persons employed will be on a downward trajectory.

Projected working-age population and total employment, EU25



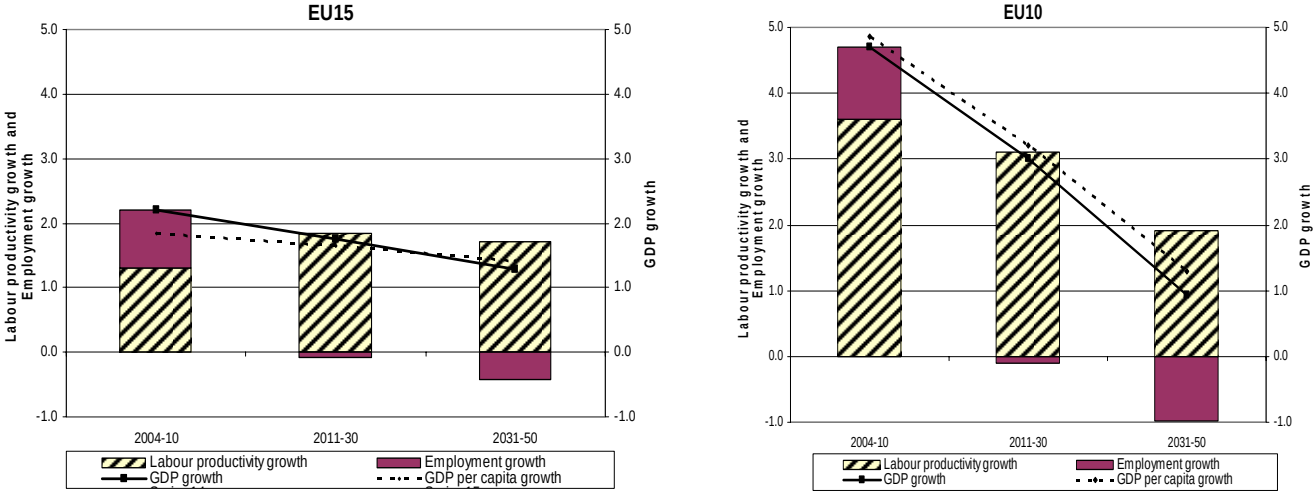
Source: *DG ECFIN*

Potential GDP growth is projected to decline

As a result of these employment trends and the agreed assumptions on productivity, potential GDP growth is projected to decline in the decades to come. For the EU15, the annual average potential GDP growth rate will fall from 2.2% in the period 2004-2010 to 1.8 % in the period 2011-2030 and to 1.3% between 2031 and 2050. An even steeper decline is foreseen in the EU10, from 4.3% in the period 2004-10 to 3% in the period 2011-30 and to 0.9% between 2031 and 2050. This is not only due to unfavourable demographic developments, but also to the underlying assumptions for these countries which assume productivity growth rates coming closer to those of EU15 countries as they complete the convergence process.

In addition, the sources of economic growth will alter dramatically. Employment will make a positive contribution to growth up to 2010, become neutral in the period 2011-2030, and turn significantly negative thereafter. Over time, labour productivity (due to the progress of technology) will become the dominant, and in some countries the only, source of growth. If the projected rise in productivity and in the employment rate will not materialise in the future, the potential growth may fall even more.

Projected (annual average) potential growth rates in the EU15 and EU10 and their determinants (employment/productivity)



Source: *EPC and European Commission (2005)*

Overview of the results of the age-related expenditure projections

The table below provides an overview of the projected change in public spending on all age-related expenditure items between 2004 and 2050. It combines the baseline pension projection, the 'AWG reference scenario' used for health care and long-term care, the baseline projected spending on education and the baseline projection for public spending on unemployment benefits.

Overall, ageing populations is projected to lead to increases in public spending in most Member States by 2050 on the basis of current policies, although there is a wide degree of diversity across countries. The following points should be highlighted:

- for the EU15 and the Euro area as a whole, public spending is projected to increase by about 4 percentage points between 2004 and 2050;

- for the EU10, the increase in the overall age-related spending is projected to rise by only about 1.5 percentage points. This apparently low budgetary impact of ageing is mainly due to the sharp projected drop in public pension spending in Poland, which (in common with several other EU10 countries) is partly the result of the switch from a public pension scheme into a private funded scheme. Excluding Poland, age-related spending in the other EU10 countries would increase by more than 5 percentage points of GDP;

- most of the projected increase in public spending will be on pensions, health care and long-term care. Potential offsetting savings in terms of public spending on education and unemployment benefits are likely to be limited;
- the budgetary impact of ageing in most Member States starts becoming apparent as of 2010. However, the largest increases in spending are projected to take place between 2020 and 2040;

Projected changes in age-related public expenditure between 2004 and 2030/50 (% of GDP)

	Pensions			Health care			Long-term care			Unemployment benefits			Education			Total* (without long term care)		Total* (without education)		Total* of all available items*		
	Level	Change from 2004 to:		Level	Change from 2004 to:		Level	Change from 2004 to:		Level	Change from 2004 to:		Level	Change from 2004 to:		Change from 2004 to:		Change from 2004 to:		Change from 2004 to:		
	2004	2030	2050	2004	2030	2050	2004	2030	2050	2004	2030	2050	2004	2030	2050	2030	2050	2030	2050	2030	2050	
BE	10.4	4.3	5.1	6.2	0.9	1.4	0.9	0.4	1.0	2.3	-0.5	-0.5	5.6	-0.6	-0.7	4.1	5.3	5.1	7.0	4.5	6.3	**BE**
DK	9.5	3.3	3.3	6.9	0.8	1.0	1.1	0.6	1.1	1.5	-0.3	-0.3	7.8	-0.4	-0.3	3.4	3.7	4.4	5.1	4.0	4.8	**DK**
DE	11.4	0.9	1.7	6.0	0.9	1.2	1.0	0.4	1.0	1.3	-0.4	-0.4	4.0	-0.8	-0.9	0.6	1.7	1.8	3.6	1.0	2.7	**DE**
GR				5.1	0.8	1.7				0.3	-0.1	-0.1	3.5	-0.5	-0.4	:	:	:	:	:	:	**GR**
ES	8.6	3.3	7.1	6.1	1.2	2.2	0.5	0.0	0.2	1.1	-0.4	-0.4	3.7	-0.7	-0.6	3.3	8.3	4.0	9.1	3.3	8.5	**ES**
FR	12.8	1.5	2.0	7.7	1.2	1.8				1.2	-0.3	-0.3	5.0	-0.5	-0.5	1.9	2.9	2.4	3.4	1.9	2.9	**FR**
IE	4.7	3.1	6.4	5.3	1.2	2.0	0.6	0.1	0.6	0.7	-0.2	-0.2	4.1	-0.9	-1.0	3.2	7.2	4.3	8.8	3.3	7.8	**IE**
IT	14.2	0.8	0.4	5.8	0.9	1.3	1.5	0.2	0.7	0.4	-0.1	-0.1	4.3	-0.8	-0.6	0.9	1.1	1.8	2.4	1.0	1.7	**IT**
LU	10.0	5.0	7.4	5.1	0.8	1.2	0.9	0.2	0.6	0.3	-0.0	-0.1	3.3	-0.5	-0.9	5.2	7.6	6.0	9.1	5.4	8.2	**LU**
NL	7.7	2.9	3.5	6.1	1.0	1.3	0.5	0.3	0.6	1.8	-0.2	-0.2	4.8	-0.2	-0.2	3.5	4.4	4.0	5.2	3.8	5.0	**NL**
AT	13.4	0.6	-1.2	5.3	1.0	1.6	0.6	0.3	0.9	0.8	-0.1	-0.1	5.1	-0.9	-1.0	0.5	-0.7	1.8	1.2	0.9	0.2	**AT**
PT	11.1	4.9	9.7	6.7	-0.1	0.5				1.0	-0.1	-0.1	5.1	-0.6	-0.4	4.1	9.7	4.7	10.1	4.1	9.7	**PT**
FI	10.7	3.3	3.1	5.6	1.1	1.4	1.7	1.2	1.8	1.5	-0.4	-0.4	6.0	-0.6	-0.7	3.5	3.4	5.3	5.9	4.7	5.2	**FI**
SE	10.6	0.4	0.6	6.7	0.7	1.0	3.8	1.1	1.7	1.1	-0.2	-0.2	7.3	-0.7	-0.9	0.3	0.5	2.0	3.1	1.3	2.2	**SE**
UK	6.6	1.3	2.0	7.0	1.1	1.9	1.0	0.3	0.8	0.4	-0.0	-0.0	4.6	-0.5	-0.6	1.9	3.2	2.7	4.6	2.2	4.0	**UK**
CY	6.9	5.3	12.9	2.9	0.7	1.1				0.4	-0.0	-0.0	6.3	-1.9	-2.2	4.1	11.8	6.0	14.1	4.1	11.8	**CY**
CZ	8.5	1.1	5.6	6.4	1.4	2.0	0.3	0.2	0.4	0.2	-0.0	-0.0	3.8	-0.9	-0.7	1.6	6.8	2.6	7.9	1.8	7.2	**CZ**
EE	6.7	-1.9	-2.5	5.4	0.8	1.1				0.1	-0.0	-0.0	5.0	-1.1	-1.3	-2.3	-2.7	-1.2	-1.4	-2.3	-2.7	**EE**
HU	10.4	3.1	6.7	5.5	0.8	1.0				0.2	-0.0	-0.0	4.5	-1.0	-0.7	2.8	7.0	3.8	7.7	2.8	7.0	**HU**
LT	6.7	1.2	1.8	3.7	0.7	0.9	0.5	0.2	0.4	0.1	-0.1	-0.1	5.0	-1.6	-1.6	0.2	1.0	2.0	3.1	0.3	1.4	**LT**
LV	6.8	-1.2	-1.2	5.1	0.8	1.1	0.4	0.1	0.3	0.3	-0.1	-0.1	4.9	-1.2	-1.4	-1.7	-1.6	-0.4	0.1	-1.5	-1.3	**LV**
MT	7.4	1.7	-0.4	4.2	1.3	1.8	0.9	0.2	0.2	1.2	-0.2	-0.2	4.4	-1.2	-1.2	1.6	0.1	2.9	1.5	1.8	0.3	**MT**
PL	13.9	-4.7	-5.9	4.1	1.0	1.4	0.1	0.0	0.1	0.5	-0.4	-0.4	5.0	-2.0	-1.9	-6.1	-6.8	-4.1	-4.8	-6.1	-6.7	**PL**
SK	7.2	0.5	1.8	4.4	1.3	1.9	0.7	0.2	0.6	0.3	-0.2	-0.2	3.7	-1.5	-1.3	0.1	2.3	1.8	4.1	0.3	2.9	**SK**
SI	11.0	3.4	7.3	6.4	1.2	1.6	0.9	0.5	1.2	0.5	-0.1	-0.1	5.3	-0.7	-0.4	3.9	8.4	5.1	10.1	4.4	9.7	**SI**
EU25	10.6	1.3	2.2	6.4	1.0	1.6	0.9	0.2	0.6	0.9	-0.3	-0.3	4.6	-0.7	-0.6	1.3	2.8	2.2	4.0	1.6	3.4	**EU25**
EU15	10.6	1.5	2.3	6.4	1.0	1.6	0.9	0.3	0.7	0.9	-0.2	-0.2	4.6	-0.6	-0.6	1.6	3.0	2.5	4.3	1.9	3.7	**EU15**
EU12	11.5	1.6	2.6	6.3	1.0	1.5	0.7	0.2	0.5	1.0	-0.3	-0.3	4.4	-0.7	-0.6	1.7	3.2	2.5	4.4	1.9	3.7	**EU12**
EU10	10.9	-1.0	0.3	4.9	0.9	1.3	0.2	0.1	0.2	0.4	-0.2	-0.2	4.7	-1.5	-1.3	-1.8	0.0	-0.3	1.6	-1.8	0.2	**EU10**
EU9 *(EU10-PL)*	8.8	1.6	4.8	5.5	0.9	1.3	0.3	0.2	0.3	0.3	-0.1	-0.1	4.4	-1.1	-0.9	1.4	5.1	2.6	6.4	1.5	5.4	***EU9 (EU10-PL)***

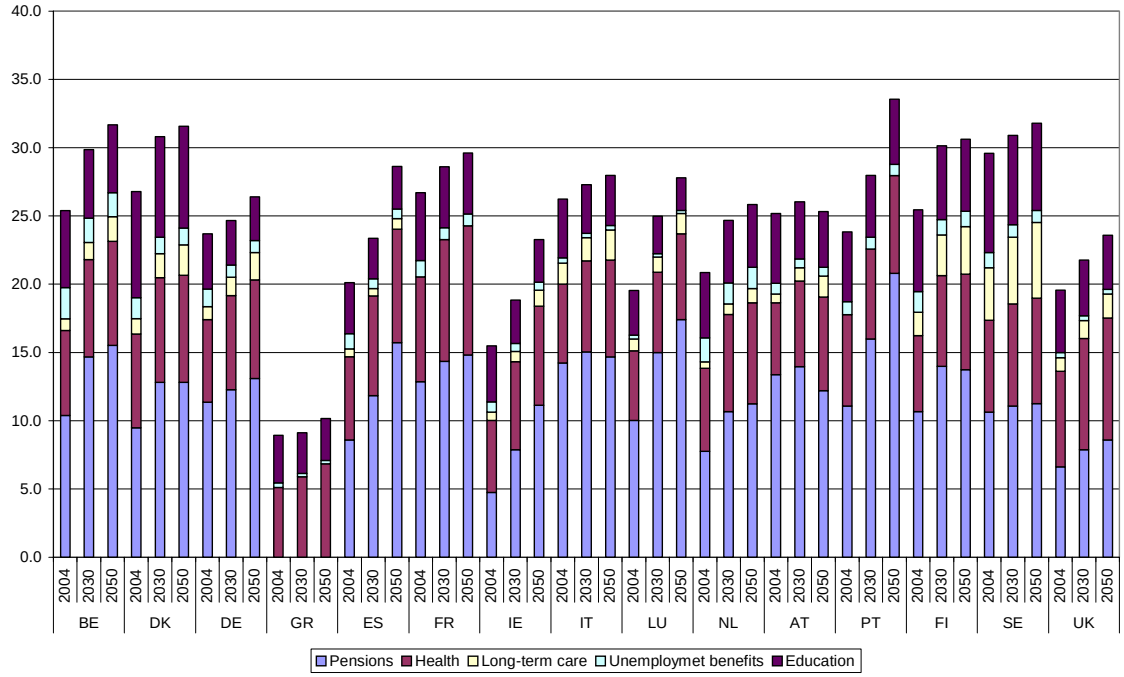
*1) Total expenditure for GR does not include pension expenditure. The Greek authorities have agreed to provide the pension projections in 2006. In the context of the most recent assessment of the sustainability of public finances based on the Greek stability programme, public spending on pensions was projected to increase by 10.3% of GDP between 2004 and 2050.

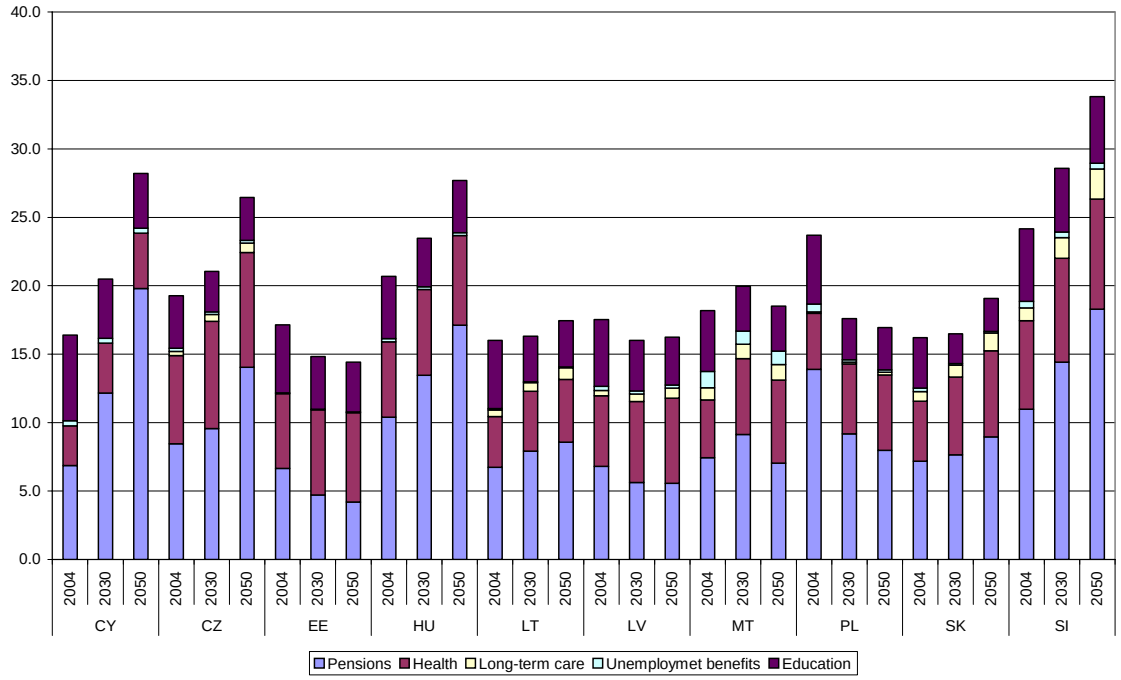
2) Total expenditure for: GR, FR, PT, CY, EE, HU does not include long-term care.

3) The projection results for public spending on long-term care for Germany does not reflect current legislation where benefit levels are fixed. A scenario which comes closer to the current setting of legislation projects that public spending would remain constant as a share of GDP over the projection period.

Note: these figures refer to the baseline projections for social security spending on pensions, education and unemployment transfers. For health care and long-term care, the projections refer to "AWG reference scenarios"

Age-related spending as a % of GDP in EU Member States, 2004, 2030 and 2050





The projection results regarding pensions

For EU15 Member States, public pension spending is projected to increase in all countries, except Austria, on account of its reforms since 2000. Very small increases in spending on pensions are projected in Italy and Sweden due to their notional contribution-defined schemes where pension benefits are based on effective working-life contributions Relatively moderate increases (between 1.5 and 3.5 percentage points of GDP) are projected in most other EU countries, with the largest increases projected for Ireland (6.4 p.p.), Spain (7.1 p.p.),

Luxembourg (7.4 p.p.) and Portugal (9.7 p.p.). Reforms enacted in several EU15 countries, since the last age-related expenditure projection exercise of 2001, appear to have curtailed the projected increase in public spending on pensions significantly in half of all EU15 Member States[3].

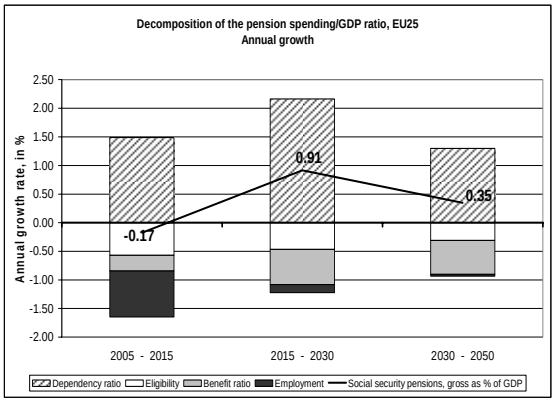
The inclusion of the EU10 Member States increases the diversity of the results. Between 2004 and 2030, public pension expenditure is projected to decrease by 1 p.p. of GDP and thereafter to increase by 1.3 p.p., resulting in an overall increase of 0.3 p.p. of GDP on average between 2004 and 2050. However, the trends are very diverse across countries, ranging from a decrease of 5.9 p.p. of GDP in Poland and to an increase of 6.7 p.p. in Hungary, 7.3 p.p. in Slovenia and 12.9 p.p. in Cyprus. The projected decreases in Poland, Estonia and Latvia, as well as small projected increases in Lithuania and Slovakia, stem partly from pension reforms enacted during the last 10 years which involve a partial switch of the public old-age pension scheme into private funded schemes. Thus, the public provision of pensions will decrease over time while the private part will increase. The challenges faced by Cyprus, Slovenia, Hungary and the Czech Republic are among the biggest in the EU. While Slovenia and the Czech Republic have undertaken parametric reforms in their pension system during the 1990s, the systems remain fully pay-as-you-go public pension schemes.

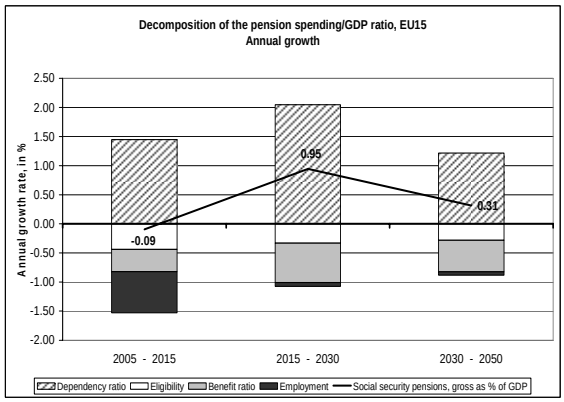
Decomposing the drivers of public pension spending

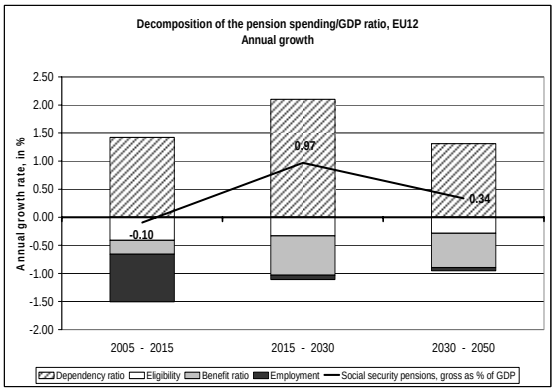
A decomposition clearly shows that the rise in the old-age dependency ratio is the dominant factor pushing up public spending in the coming decades. However, other factors such as employment rate, eligibility rate and relative benefit level will offset part of the demographic pressure. In the EU15, these factors are projected to curtail some 70% of the pressure caused by demographic developments alone, and in the EU10 they would offset almost all the demographic pressure. The strongest effect will come from the benefit ratio, and in the EU10 countries also from the take-up ratio of pensions. An increase in the employment rate is projected to help in particular during the next decade, especially in countries with currently low employment rates.

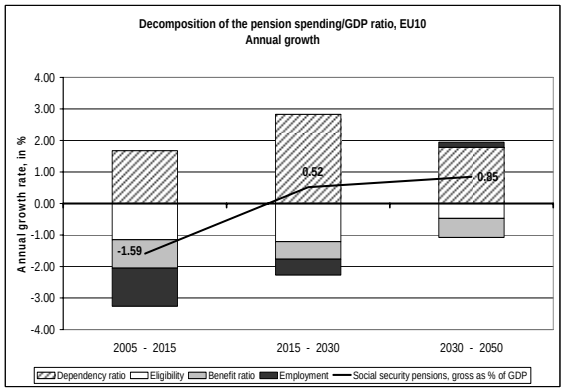
[3] More detailed information about the impacts of enacted reforms are provided in the 'country fiches" published on the web site of the Economic and Policy Committee: *http://europa.eu.int/comm/economy_finance/epc/epc_sustainability_ageing_en.htm*

Decomposition of the annual growth of pension spending (as % of GDP)









One of the most striking results is the projected decline in "benefit ratio" of public pensions relative to wages. It should be noted however, that the benefit ratio, measuring the evolution of average pensions relative to output per worker, only provides an approximate indication on the evolution of the generosity of pension systems and is not an equivalent to the usual replacement rate indicator. The projected fall in the "benefit ratio" is partly due to reforms, which index pension benefits to prices instead of wages thus reducing the generosity of public pensions over time. While resulting in budgetary savings, the adequacy of pensions, including for mixed funded systems, should be kept under review, as it may lead to future pressure for policy changes. The projected fall in the "benefit ratio" is also the result of the partial switch from statutory social security pension provision to private funded schemes. While reducing explicit public finance liabilities and improving the sustainability of public finances, moves towards more private sector pension provision create new challenges and forms of risks for policy makers, and in particular, underline the importance of appropriate regulation of private pension funds and of careful surveillance of their performance for securing adequate retirement income.

Pension spending is especially sensitive to life expectancy, but less so to changes in the employment rate

Sensitivity tests show that public spending on pensions appears to be most sensitive to changes in life expectancy and in some countries to the labour productivity growth rate. However, the projected change in public spending on pensions are relatively robust regarding the changes in employment rates and the changes in interest rates affect only funded schemes. More specifically:

- higher life expectancy leads to increased public spending in countries with defined-benefit schemes, whereas defined-contribution schemes inherently takes into account the length of retirement. As part of recent pension reforms, some Member States have introduced a link between life expectancy at retirement and pension benefits: the projection results indicate that these measures appear to achieve a better sharing of demographic risk.

- a change in the labour productivity assumption only has a significant impact on pension spending in countries where pension benefits are indexed to prices. In this case, pension spending as a percentage of GDP will be lower with a higher productivity growth rate assumption;

- higher employment rates, especially if due to higher employment rates of older workers, reduce the projected increase in pension spending as a share of GDP. However, the effect is limited as higher/longer employment results in the accumulation of greater pension entitlements. Notwithstanding the apparently small impact on public spending, raising the employment rate is welfare enhancing. It leads to an improved economic performance, and on the budgetary side it delays somewhat the onset of increased public spending on pensions. Moreover, higher employment generates increased contributions to pension schemes, and if it is the result of lower unemployment, additional budgetary savings may emerge. Finally, longer working lives enable workers to acquire greater pension entitlements offsetting some of the impact of less generous public pensions.

- interest rates affect the pension spending only in countries where funding is important. Moreover, it also affects the contribution rate and asset accumulation of funded schemes, albeit in opposite directions in defined-benefit and defined-contribution schemes. In defined-benefit schemes, with a higher interest rate, the contribution rate can be lowered to cover the targeted benefit, whereas in a defined-contribution scheme, the contribution rate remains unchanged but results in a higher accumulation of assets.

The projection results for health care spending

To project public spending on health care over the long-run is an extremely complex exercise. There are uncertainties regarding future trends in key drivers of spending, the availability of comparable data is limited, and the projection methodology which is feasible in a cross-country exercise is somewhat mechanical and does not reflect the institutional settings for the provision of health care services in each Member State. A particular challenge has been to include other non-demographic drivers of spending on both the demand and supply side.

According to the "AWG reference scenario" (a prudent scenario which takes account of the combined effects of ageing, the health care status of elderly citizens and the income elasticity of demand), public expenditure on health care is projected to increase by between 1 and 2 percentage points of GDP in most Member States up to 2050**.** While age itself is not the causal factor of health care spending (but rather the health condition of a person), the projections illustrate that the pure effect of an ageing population would put pressure for increased public spending.

The projections, however, also illustrate that non-demographic factors are relevant drivers of spending. In particular, the projections show that changes in the health care status of elderly citizens would have a large effect on health spending. If healthy life expectancy (falling morbidity rates) evolve broadly in line with change in age-specific life expectancy (a development which would be equivalent to the so-called dynamic equilibrium hypothesis),

then the projected increase in spending on health care due to ageing would be approximately halved. Caution should be exercised, however, as there is inconclusive evidence that these 'positive' trends will occur nor of the scale of their likely impact. Some additional evidence emerges from a scenario that incorporates death-related costs, i.e. taking account of the fact that a large share of total spending on health care during a persons lifetime occurs in the final phase of life.

Compared with the effects of the health care status of elderly citizens, less progress has been made in incorporating other important supply side drivers of spending into the projection model. Stylised scenarios indicate that the projected increase in public spending on health care is very sensitive to the assumption on the income elasticity of demand and on the evolution of unit costs. Spending on health as a share of GDP could increase at a fast pace if unit costs (wages, pharmaceutical prices) grow faster than their equivalents in the economy as a whole, on account of public policies to improve access to health or improve quality (reduce waiting lists, increase choice), or if rising per capita income levels and the impact of technology lead to increased demand for health care services. The effective management of technology is of utmost importance: otherwise the expenditure savings resulting from lower unit costs could easily be outstripped by the costs of meeting additional demand for new and better treatments.

The projection results for public spending on long-term care

An ageing population will create a strong upward impact on public spending for long term care. This is because frailty and disability rises sharply at older ages, especially amongst the very old (aged 80+) which will be the fastest growing segment of the population in the decades to come. The projection methodology has been upgraded considerably since the 2001 exercise, and has enabled scenarios to run which examine non-demographic drivers of spending.

According to the "AWG reference scenario" based on current policy settings, public spending on long-term care is projected to increase by between 0.1 percentage points and 1.8 percentage points of GDP between 2004 and 2050. This range reflects very different approaches to the provision/financing of formal care. Countries with very low projected increases in public spending currently have very low levels of formal care. The projections show that with an ageing population, a growing gap may occur between the number of elderly citizens with disability who are in need of care (which will more than double by 2050) and the actual supply of formal care services. On top of an ageing population, this gap could further grow due to less informal care being available within households on account of trends in family size and projected increase in the participation of women in the labour market. In brief, for countries with less developed formal care systems today, the headline projected increase in public spending on long-term care may not fully capture the pressure on public finances, as future policy changes in favour of more formal care provision may be needed.

Public spending is very sensitive to trends in the disability rates of elderly citizens. Compared with a "pure ageing" scenario, projected change in spending would be between 40% and 60% lower if the disability status of elderly citizens improves broadly in line with the projected increase in life expectancy. Policy measures, which can either reduce disability, limit the need for formal care amongst elderly citizens with disabilities, or which favour formal care at home rather than in institutions can have a very large impact on public spending.

The projection results for public spending on education

The ratio of children and young people to the working-age population is expected to fall over the coming decades, pointing to fewer students relative to the working population. The pure consequences of expected demographic changes indicate a potential for a decline in public expenditure on education in all Member States over the next 50 years, but significant savings are only projected for some countries. However, this result could be altered substantially, and public expenditure on education as a share of GDP could even increase if account is taken of potential rises in enrolment rates due to government efforts to raise skill levels. Overall, education expenditure cannot be expected to offset the projected increase in spending on pension and health care expenditures.

The projection results for public spending on unemployment transfers

In order to get a more comprehensive assessment of the total impact of ageing on public finances, and to guarantee consistency with the macroeconomic scenario, projections on unemployment benefit spending were also carried out. Unemployment benefit spending in the EU25 is projected to fall from about 1% of GDP in 2002-2003 to 0.6% in 2025-2050. This primarily reflects the assumed lower proportions of unemployed people over the projection period. In terms of percentage points of GDP, the decrease is very modest (given the relatively low starting levels) and relatively small when compared to projected effects of ageing on pension and health care spending.

The results overall provide a sound basis for assessing risks to the sustainability of public finances at EU level…

Overall, the 2005 age-related expenditure projections provide a much more comparable, transparent and sound basis for the assessment to take place at EU level on the risks to the sustainability of Member States' public finances. In the coming months, further analysis is needed to achieve a fuller understanding of the new projection results, and in particular to get clearer insights of the key driving factors for each Member States.

Consideration also needs to be given on the possibilities which these new projections offer in terms of assessing the sustainability of public finances – the annexes provide an overview on the existing framework. In addressing these issues, the following elements may need to be taken on board:

- a major effort has been made to run comparable sensitivity tests on the key drivers of age-related expenditures. Currently at EU level, a quantitative assessment of fiscal sustainability is only carried out with reference to a baseline/central projection for age-related spending (either based on the existing EPC projections or national projections reported in stability and convergence programmes). The new sensitivity tests offer the possibility of addressing this shortcoming;
- for each age-related expenditure item, the reference scenario is to be used for making a quantitative assessment of the sustainability of public finances. Moreover, national projections may also be taken into account in the assessment where differences with the reference scenario and underlying assumptions are clearly described and explained.

…but there is scope for further refinements and analysis

While this new set of common ageing-related expenditure projections represent a substantial advance compared with earlier exercises, there is scope for further improvements in the following areas:

- there is a great deal of uncertainty as regards future trends in life expectancies, and how these should be handled in a population projection that is used as a basis for making budgetary projections. The population projection underlying these age-related expenditure projections embodies considerable differences in projected changes in life expectancies across countries, which invariably influences the results of the budgetary projection exercise;

- migration is also a topic where further analysis is required. Comparable data is very limited, and there appears to be scope to examine more systematically at EU level the economic determinants of migration;

- as regards the macroeconomic assumptions, there appears to be some scope for improving the approach used regarding productivity, in particular some specific assumptions and important feedback channels may usefully be further investigated on the basis of empirical analysis;

- consideration could be given to projecting an increase in the educational attainment levels and modelling not only ensuing budgetary effects but also its potential impact on overall labour productivity;

- for health care and long-term care, a key challenge is to get to grips with supply side factors, including the effects of technological changes in health care costs, as well as to get a better understanding on institutional settings and the incentive effects that they provide to medical professionals and patients to consume health care services in a rational manner. An additional element is that the projections only cover public sector spending, and the interaction with private sector spending on health care would be a useful extension.

- regarding the coverage of the exercise, an open question remains to whether additional age-related expenditure items should be covered, and also on the merits of projecting the impact of an ageing population on different tax bases and revenues.

- an area where transparency could be further improved concerns the models used by Member States to project public spending on pensions. National models are used given their capacity to capture important institutional characteristics of national pension systems. This is certainly an important element that is not present in the other expenditure projections, which can not capture important and specific institutional features of different national systems. The different approaches to modelling pension spending have been looked at in a series of peer review, even though the necessarily high complexity of national models presents some difficulty. Overall, transparency can be further enhanced by examining in more detail key features of pension models, not only their general design, but also assumptions regarding the evolution of thresholds over time, how the transition from work to retirement is modelled and assumptions on transitions from old to reformed pension schemes.

- Finally, the age-related expenditure projections provide valuable insights on the budgetary impact of structural reforms, and their use in the context of the Stability and Growth Pact will be explored further, in time for the assessment of next round of Stability and Convergence Programmes.

1. INTRODUCTION

The mandate

In the coming decades, the size and age-structure of Europe's population will undergo dramatic changes due to low fertility rates, continuous increases in life expectancy and the retirement of the baby-boom generation. Recently, there has been a growing recognition at national and European level of the profound economic, budgetary and social consequences of ageing populations. Prompted by the launch of the euro, the Economic Policy Committee (EPC) established the Ageing Working Group (AWG) to examine the economic and budgetary consequences of ageing, which led to the publication of age-related expenditure projections in 2001 and 2003. [4]

In 2003, the ECOFIN Council gave the Economic Policy Committee (EPC) a mandate to produce a new set of age-related public expenditure projections for all twenty-five Member States covering pensions, health care, long-term care, education, unemployment transfers and, where possible, contributions to pensions/social security systems. [5] This report presents these new budgetary projections. It now covers the EU10 Member States which has enriched the exercise, but also increased its complexity and the heterogeneity of the findings.

This report presents the results of the age-related expenditure projection exercise. The projections for the EPC were made by the Ageing Working Group of the EPC Chaired by Henri Bogaert and the European Commission's Directorate General for Economic and Financial Affairs. The AWG members[6] are experts from national authorities of all 25 Member States, the European Commission (represented by the Directorate General for Economic and Financial Affairs) and the European Central Bank. Eurostat have played a central role by preparing a population projection.[7] Other Commission services are also associated with this work, especially the Directorate General for Employment, Social Affairs and Equal Opportunities and the Health and Consumer Protection Directorate General. In addition, several international organisations have also participated in the AWG's work on the budgetary projections, notably the OECD and IMF.[8] The EPC has moreover coordinated its work with other Council formations, especially the Social Protection Committee.[9]

Overview of the entire age-related expenditure projection exercise

The unique value-added of these age-related expenditure projections is that they are produced in a multilateral setting involving national authorities and international organisations. The projections are made on the basis of a common population projection and common underlying

---

4 Economic Policy Committee (2001) and Economic Policy Committee (2003).

5 Member States can also submit projections for additional expenditure and revenue items, for example family allowances provided they are based on the agreed underlying assumptions.

6 A list of AWG members can be found in Annex 16.

7 In preparing the population projection, Eurostat has closely involved national statistical institutes via the "Population Projection" Interest Group on CIRCA, and through meetings of Eurostat's Working Group on Population Projections.

8 The work of the AWG does not reflect the positions of these international organisations.

9 Its Indicators Sub-Group Chaired by David Stanton.

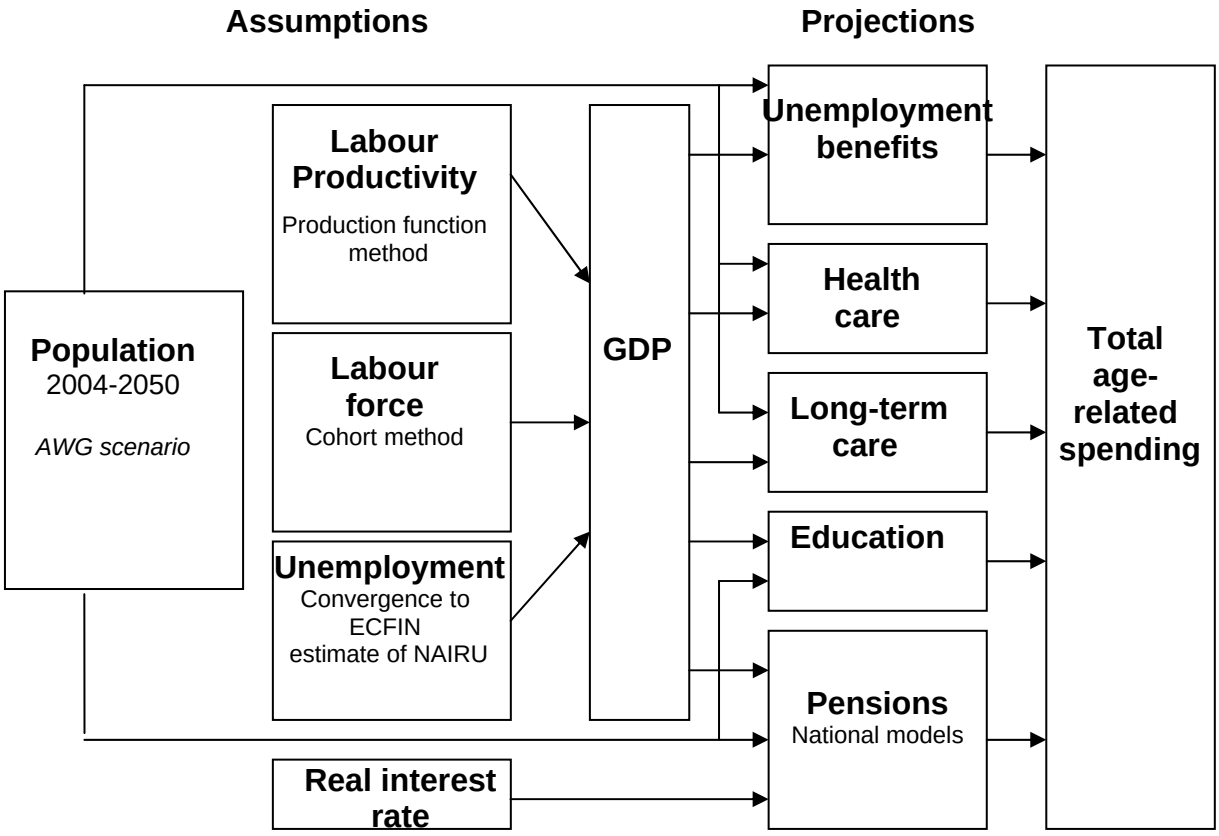
economic assumptions that have been endorsed by the EPC and forwarded to the ECOFIN Council. The projections are made on the basis of "no policy change", i.e. only reflecting enacted legislation but not possible future policy changes (although account would be taken of provisions in enacted legislation that will enter into force). They are also made on the basis of the current behaviour of economic agents, i.e. without assuming any future changes in behaviour over time: for example, this is reflected in the assumptions on participation rates which is based on the most recently observed participation rates by age and gender (for details see section 2.2). Every effort has been made to maximise the comparability of the projection exercise across countries. While the underlying assumptions have been made by applying a common methodology uniformly to all Member States, for several countries adjustments have been made to avoid an overly mechanical approach that would lead to economically unsound outcomes and to take account of significant relevant country-specific circumstances.

Caution must be exercised when interpreting the long-run budgetary projections and the degree of uncertainty increases the further into the future the projections go. The projections are not forecasts. There are limitations with the data in several respects and the projection methodologies employed are not fully comprehensive. Instead, they provide an indication on the potential timing and scale of budgetary changes that could result from an ageing population based on a "no policy change" scenario.

It should be emphasised that the budgetary projections presented in this document show only a partial picture of the economic and budgetary consequences of ageing populations. For example, the projected impact of ageing on the labour market and on potential GDP growth rates is based on a partial analysis that does not take into account some channels and feedback effects through which an ageing population could affect real economic activity. Further the age-related expenditure projections covered in this exercise may not provide a fully comprehensive picture of the pressure which demographic change may have on public finances. For example, the impact of ageing on other public expenditure and revenue items are not covered in this projection exercise. Moreover, and as recognised in the current framework at EU level for assessing the sustainability of public finances, account also needs to be taken of the starting underlying budget positions and outstanding debt levels.

Graph 1-1 below presents an overview of the entire age-related expenditure projection exercise. The starting point is a common "AWG scenario" population projection for the period 2004 to 2050. Next, a common set of exogenous macroeconomic assumptions were agreed, covering the labour force (participation, employment and unemployment rates), labour productivity and the real interest rate. These combined assumptions enable the computation of GDP for all Member States up to 2050. On the basis of these assumptions, separate projections are run for five age-related expenditure items. The projections for pensions are run by the Member States using their own national model(s). The projections for health care, long-term care, education and unemployment are run by the European Commission, on the basis of a common projection model. The results of the set of projections are aggregated to provide an overall projection of age-related public expenditures.

Graph 1-1 Overview of the 2005 projection of age-related expenditure



Underlying assumptions endorsed by the ECOFIN Council of November 2005

The population and macroeconomic assumptions to be used for making all the age-related expenditure projections were endorsed by the EPC and forwarded to the ECOFIN Council in November 2005. Full details of the underlying assumptions can be found in EPC and European Commission (2005b). The input data used to calculate the underlying assumptions, as well as a more detailed description of the projection methodologies can be found in EPC and European Commission (2005a).

In arriving at the underlying assumptions, the following approach was adopted:

- a review of the economic literature was carried out to identify best practices amongst international organisations and national authorities in making long-run budgetary projections;

- on issues where specific expertise was required, a series of workshops were organised at which external academics and experts were invited;[10]

[10] A list of the conferences can be found in annex 2 of EPC and European Commission (2005 a). The papers and presentations delivered at the conference on *Trends in the health care status and disabilities of elderly citizens* held on 21/22 February 2005 can be downloaded from http://europa.eu.int/comm/economy_finance/events/2005/events_brussels_0205_en.htm . DG ECFIN and the AWG would like to express their gratitude to Adelina Comas-Herrera and Ilija Batljan who provided advice on projection methodologies to be used to project health care and long-term care spending during their periods as Visiting Research Fellows in DG ECFIN. The work of the AWG does not reflect the positions of these individuals, nor of any of the contributors to the workshops/conferences.

- the EPC endorsed the underlying assumptions and projection methodologies for the budgetary projections. Thus, underlying assumptions have been made by applying a common methodology uniformly to all Member States. To avoid an overly mechanical approach that can lead to economically unsound outcomes, and to take account of significant relevant country-specific circumstances, several adjustments were made to the common approach for several countries. Table 1-1 below provides a summary of these adjustments which have improved the basis for making the budgetary projections. To ensure full transparency, the common underlying assumptions and the adjustments are explained in detail in EPC and European Commission (2005a);

- The AWG invited a number of external experts to provide comments on the robustness of the underlying assumptions and feasibility of the sensitivity tests. The feedback received were broadly taken on board;[11]

Table 1-1 Overview of underlying assumptions and adjustments for certain Member States

	Population AWG scenario (differences compared with EUROPOP2004)		**Labour force projections**			**Productivity**		
	Convergence in life-expectancy across EU15	**Data adjustment for migration**	**Data adjustment for pension reforms**	**Data adjustment for conversion into national account equivalent**	**Special convergence rule on NAIRU**	**Data adjustment for conversion into national account equivalent**	**TFP adjustment to speed the catch up with EU15 countries**	**Real convergence of EU10**
BE								
CZ								
DK								
DE								
EE								
EL								
ES								
FR								
IE								
IT								
CY								
LV								
LT								
LU								
HU								
MT								
NL								
AT								
PT								
PO								
SI								
SK								
FI								
SE								
UK								

source: EPC and European Commission (2005a)
Note: The grey areas indicate the adjustments that have been made.

[11] For a summary of the comments and suggestions of the external experts, see annex 11 of EPC and European Commission (2005a).

Outline of this report

The remainder of this report presents the results of the age-related expenditure projections. Section 2 recalls the underlying population and macroeconomic assumptions, and draws some conclusions on the economic impact of ageing populations[12]. Section 3 portrays the results for the projections on pension expenditure. Section 4 presents the budgetary projection results for health care spending and section 5 describes for public spending on long-term care. Lastly, sections 6 and 7 show the projection results for public spending on education and unemployment transfers respectively.

This report is complemented with individual country fiches prepared by the authorities of each Member State. These country fiches are issued under the responsibility of each national authority. The content of the country fiches is somewhat heterogeneous, but *inter alia* they contain a description of the national pension system, a description of the model(s) used to make the pension projections and an analysis of the main factors driving the results of the pension projections. Some country fiches contain additional information on the results of the other age-related expenditure projections as well as information on national strategies to meet the economic and budgetary impact of ageing.

2. UNDERLYING ASSUMPTIONS

2.1. Demographic projections

2.1.1. The AWG population scenario

The population projection used to make the age-related expenditure projection was prepared by Eurostat. It is based on, but is not identical to, the EUROPOP2004 projection released by Eurostat in May 2005,[13] and hereafter it is referred to as the "AWG scenario". In particular:

- the fertility rate assumptions are the same as those in the baseline of EUROPOP2004 for all 25 Member States;

- for the EU10, the assumptions on life expectancy at birth are the same as those in the baseline of EUROPOP2004. For the EU15, the assumptions on life expectancy at birth are based on an AWG scenario produced by Eurostat;

- the migration assumptions are the same as those in the baseline of EUROPOP2004 for all Member States, except Germany, Italy and Spain, where specific adjustments were made to the level and/ or age structure of migrants in the AWG scenario.[14]

[12] For a more detailed analysis of the impact of ageing on the real economy and, in particular, on EU labour markets and potential growth rates, see Carone G., D.Costello, N. Diez Guardia, G. Mourre, B. Przywara, A. Salomäki (2005).

[13] '*EU25 population rises until 2025, then falls*', Eurostat press release 448/2005 of 8 April 2005. For simplicity, the baseline variant of the trend scenario of EUROPOP2004 is referred to as EUROPOP2004 baseline in the text.

[14] The migration projections used by the AWG can differ substantially from the migration projections of national authorities. For example, the Maltese authorities consider that their national projections provide a more reasonable picture of likely future trends and, therefore, have expressed reservation on the common migration projections.

2.1.2. Fertility rates well below replacement levels

The fertility rate assumptions in the AWG scenario are the same as those used in the baseline of EUROPOP2004 for all 25 Member States. For the EU15 Member States, fertility is derived from an analysis of postponement of childbearing and recuperation of fertility rates at a later age.[15] The fertility assumptions for the EU10 Member States have been prepared on the basis of a study made for Eurostat by the Netherlands Interdisciplinary Demographic Institute (NIDI). Fertility is postponed as a consequence of modernisation and westernisation; at the end of the projection period, fertility rates in most EU10 countries are assumed to converge to an EU average median age at childbearing of 30 years.

Table 2-1 and Graph 2-1 present the fertility assumptions used in the AWG population scenario. Total fertility rates increase over the projection period in all Member States, except France, Ireland and Malta, where small declines are projected. In all cases, fertility rates will remain well below the natural replacement rate of 2.1 needed to stabilise the population size and age structure. For the EU25,[16] fertility rates are projected to rise from 1.48 in 2004 to 1.60 by 2030 and to stay constant around that level until 2050.

[15] For an overview of the methodology used, see Eurostat (2004 a).

[16] Note that all EU averages are weighted by the population size.

Graph 2-1 Past and projected fertility rates for the EU25

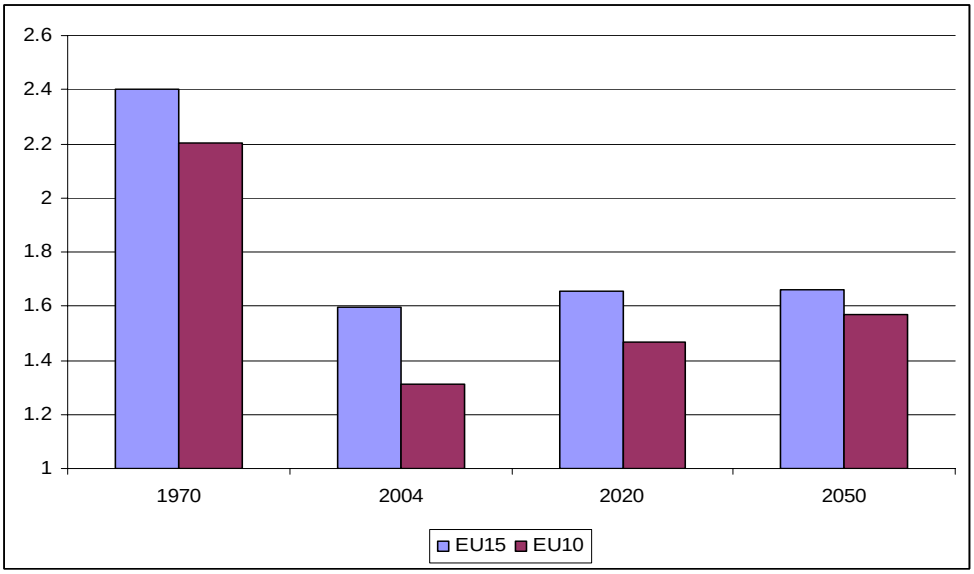


Table 2-1 Baseline assumptions on fertility rates in EU Member states

	2004	2010	2020	2030	2040	2050	*change*
BE	1.62	1.66	1.69	1.70	1.70	1.70	*0.08*
DK	1.76	1.78	1.79	1.79	1.80	1.80	*0.04*
DE	1.35	1.41	1.44	1.45	1.45	1.45	*0.10*
GR	1.29	1.41	1.49	1.50	1.50	1.50	*0.21*
ES	1.30	1.36	1.40	1.40	1.40	1.40	*0.10*
FR	1.89	1.87	1.86	1.85	1.85	1.85	*-0.04*
IE	1.97	1.89	1.81	1.80	1.80	1.80	*-0.17*
IT	1.31	1.38	1.40	1.40	1.40	1.40	*0.09*
LU	1.65	1.73	1.78	1.79	1.80	1.80	*0.15*
NL	1.75	1.76	1.75	1.75	1.75	1.75	*0.00*
AT	1.40	1.42	1.44	1.45	1.45	1.45	*0.05*
PT	1.45	1.52	1.59	1.60	1.60	1.60	*0.15*
FI	1.76	1.78	1.79	1.80	1.80	1.80	*0.04*
SE	1.74	1.84	1.85	1.85	1.85	1.85	*0.11*
UK	1.72	1.74	1.75	1.75	1.75	1.75	*0.03*
CY	1.47	1.43	1.49	1.50	1.50	1.50	*0.03*
CZ	1.15	1.24	1.44	1.50	1.50	1.50	*0.35*
EE	1.39	1.45	1.54	1.60	1.60	1.60	*0.21*
HU	1.30	1.33	1.51	1.59	1.60	1.60	*0.30*
LT	1.29	1.30	1.41	1.55	1.60	1.60	*0.31*
LV	1.30	1.42	1.53	1.59	1.60	1.60	*0.30*
MT	1.66	1.49	1.54	1.60	1.60	1.60	*-0.06*
PL	1.21	1.19	1.42	1.58	1.60	1.60	*0.39*
SK	1.19	1.18	1.33	1.52	1.59	1.60	*0.41*
SI	1.18	1.27	1.46	1.50	1.50	1.50	*0.32*
EU25	*1.48*	*1.52*	*1.57*	*1.59*	*1.60*	*1.60*	*0.12*
EU15	*1.53*	*1.57*	*1.60*	*1.60*	*1.60*	*1.61*	*0.07*
Euro area	*1.49*	*1.53*	*1.55*	*1.56*	*1.56*	*1.56*	*0.08*
EU10	*1.23*	*1.24*	*1.44*	*1.56*	*1.58*	*1.58*	*0.36*

Source: EPC and European Commission (2005a)

These projected increases are modest as compared with fertility rates observed in other developed countries such as the US, and point to the prospect of a sustained fall in the size of the European population. There is substantial divergence in fertility rates between neighbouring EU countries with similar levels of economic development (e.g. 1.9 children per woman in FR compared with 1.3 in DE and IT). If sustained over the very long run, these gaps would lead to very different population prospects. While many countries have public policies to support families, the majority have not considered explicit strategies targeting fertility. However, the interaction of a variety of public policies (labour market, education, and housing) may be inadvertently constrains choices on childbearing, and there is an emerging interest at EU level as to whether public interventions (e.g. childcare availability, flexible working-time and leave arrangements) can in practice affect fertility patterns.[17]

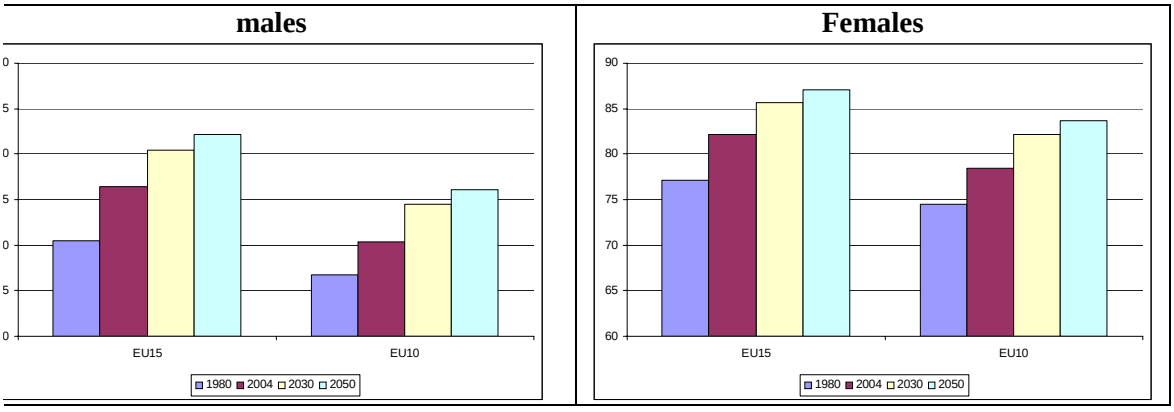
2.1.3. Continuous increases in life expectancy of more than one year per decade

Life expectancy at birth increased by some 8 years in EU countries between 1960 and 2000, equivalent to a gain of some 3 months per annum. Eurostat projects these increases to continue in the decades to come, albeit at a somewhat slower pace.

Table 2-2 and Graph 2-2 present the agreed baseline assumptions on life expectancy at birth for males and females respectively. Life expectancy at birth for males is projected to increase by 6.3 years and by 5.1 years for females in the EU25. While this results in some convergence female life expectancy is nonetheless projected to be 5 years higher than for males in 2050, at 86.6 years for the EU25 as a whole.

There are significant differences in the life expectancy improvements projected across Member States. They range from 4.6 years in Sweden to 9.6 in Hungary for males, and from 3.9 years in Spain to 6.6 in Hungary for females. The largest gains in life expectancy are projected to take place in the EU10, where levels are currently lower than in the EU15 (except for Cyprus and Malta). Despite this, life expectancy at birth in the EU10 will remain below the EU15 average according to the projection. This is especially the case for men, with a projected life expectancy of 78.7 years in 2050 as compared to 82.1 years for the EU15 on average.

Graph 2-2 Baseline assumptions for life expectancy at birth, EU 15 and EU10



Source: EPC and European Commission (2005a)

[17] In June 2005, the Commission adopted a Green paper *Faced with demographic change, a new solidarity between the generations* (COM(2005) 94).

These cross-country differences in part reflect the separate approaches used to project life expectancy at birth between the EU15 and the EU10 countries:

- for the EU10, the assumptions are the same as in the baseline of EUROPOP2004.[18] The method is based on age-specific mortality rates (ASMR) and other mortality indicators resulting from life tables. Eurostat assumes that the trend of decreasing mortality rates observed over the period of 1985 to 2002 will continue at the same speed until 2019, and slow down thereafter. This assumption results in bigger improvements in life expectancy at birth until 2019 than during the period of 2019 to 2050. Additional assumptions were made whereby in the medium and long-run, the speed of improvements in mortality reduction will converge gradually towards the pattern of average improvements in the EU15.

- For the EU15 Member States, the assumptions are based on an AWG scenario produced by Eurostat on request, for the purpose of making the 2005 budgetary projections. In brief, the AWG scenario introduces a convergence factor in life expectancy at birth towards the average outcome of EU15 Member States emerging from the baseline scenario of EUROPOP2004[19].

Table 2-2 Baseline assumptions on life expectancy at birth for males and females

	Males							Females						
	2004	**2010**	**2020**	**2030**	**2040**	**2050**	***change***	**2004**	**2010**	**2020**	**2030**	**2040**	**2050**	***change***
BE	75.5	76.9	78.9	80.3	81.4	82.1	*6.6*	81.6	82.9	84.8	86.1	87.0	87.5	*5.9*
DK	75.2	76.4	78.1	79.5	80.6	81.4	*6.2*	79.6	80.5	82.1	83.3	84.3	85.2	*5.6*
DE	76.1	77.2	78.9	80.2	81.2	82.0	*5.9*	81.7	82.7	84.2	85.4	86.2	86.8	*5.1*
GR	76.4	77.1	78.2	79.3	80.2	81.1	*4.6*	81.4	82.1	83.3	84.4	85.2	85.9	*4.5*
ES	76.6	77.6	79.1	80.2	81.0	81.7	*5.1*	83.4	84.3	85.6	86.5	87.0	87.3	*3.9*
FR	76.2	77.4	79.3	80.6	81.6	82.3	*6.1*	83.4	84.4	85.8	86.8	87.5	87.9	*4.5*
IE	75.5	76.8	78.7	80.2	81.3	82.2	*6.6*	80.7	81.8	83.6	85.0	86.0	86.8	*6.2*
IT	77.3	78.3	79.9	81.1	82.1	82.8	*5.5*	83.2	84.0	85.3	86.4	87.2	87.8	*4.6*
LU	75.0	76.4	78.4	79.9	81.0	81.8	*6.8*	81.4	82.4	83.9	85.1	86.0	86.7	*5.3*
NL	76.2	77.0	78.3	79.4	80.3	81.1	*4.8*	80.8	81.4	82.5	83.5	84.4	85.2	*4.3*
AT	76.2	77.4	79.3	80.8	81.9	82.8	*6.6*	82.1	83.2	84.7	85.9	86.7	87.2	*5.2*
PT	74.2	75.5	77.4	79.0	80.2	81.2	*6.9*	81.0	82.2	83.9	85.2	86.0	86.7	*5.7*
FI	75.3	76.7	78.7	80.2	81.2	81.9	*6.6*	81.9	82.8	84.2	85.3	86.0	86.6	*4.8*
SE	78.1	79.0	80.4	81.4	82.1	82.6	*4.6*	82.4	83.2	84.4	85.4	86.1	86.6	*4.3*
UK	76.4	77.6	79.4	80.7	81.7	82.4	*6.0*	80.9	82.1	83.8	85.1	86.0	86.7	*5.7*
CY	76.3	77.5	79.0	80.2	81.1	81.9	*5.6*	80.8	81.6	82.8	83.7	84.5	85.1	*4.3*
CZ	72.4	73.7	75.9	77.8	78.8	79.7	*7.4*	78.8	79.8	81.3	82.7	83.5	84.1	*5.3*
EE	65.5	66.5	68.9	71.6	73.5	74.9	*9.4*	76.9	77.8	79.5	81.2	82.3	83.1	*6.3*
HU	68.5	70.1	72.8	75.2	77.0	78.1	*9.6*	76.8	78.0	79.8	81.5	82.6	83.4	*6.6*
LT	66.5	67.4	69.6	72.3	74.3	75.5	*9.0*	77.6	78.5	80.1	81.8	82.9	83.7	*6.1*
LV	64.9	65.8	68.0	70.9	72.9	74.3	*9.3*	76.2	76.9	78.6	80.4	81.6	82.5	*6.3*
MT	76.2	77.4	79.0	80.1	81.0	81.8	*5.6*	80.7	81.7	82.9	83.7	84.4	85.0	*4.3*
PL	70.5	72.0	74.6	76.8	78.2	79.1	*8.7*	78.5	79.6	81.3	82.8	83.7	84.4	*5.9*
SK	69.7	70.9	73.1	75.3	76.7	77.7	*8.0*	77.8	78.7	80.3	81.8	82.7	83.4	*5.6*
SI	72.6	73.9	76.1	77.9	78.9	79.8	*7.3*	80.2	81.2	82.8	83.8	84.6	85.1	*5.0*
EU25	*75.3*	*76.5*	*78.3*	*79.8*	*80.8*	*81.6*	*6.3*	*81.5*	*82.5*	*84.1*	*85.2*	*86.0*	*86.6*	*5.1*
EU15	*76.4*	*77.5*	*79.1*	*80.4*	*81.4*	*82.1*	*5.8*	*82.2*	*83.2*	*84.6*	*85.7*	*86.5*	*87.0*	*4.9*
Euro area	*76.3*	*77.4*	*79.1*	*80.3*	*81.3*	*82.1*	*5.7*	*82.5*	*83.4*	*84.8*	*85.9*	*86.6*	*87.2*	*4.7*
EU10	*70.1*	*71.6*	*74.0*	*76.3*	*77.7*	*78.7*	*8.6*	*78.2*	*79.2*	*80.9*	*82.4*	*83.4*	*84.1*	*5.9*

[18] Eurostat (2004 b)

[19] This change was made as the assumptions on life expectancy at birth in EUROPOP2004 are based on an extrapolation until 2050 of the trends observed during the past 17 years (20 years in some cases), which leads to some divergences across Member States, including neighbouring countries. The AWG considered that the life expectancy assumptions in the EUROPOP2004 baseline may not be fully suitable as a starting point for making long-run budgetary projections whose primary use is to help assess the sustainability of Member States' public finances. Projected changes in age-related public expenditures would be heavily determined by the projected (diverging) changes in life expectancy at birth: this would make it difficult for policy-makers to disentangle the changes in age-related expenditures due to projected increases in life expectancy from those which are due to the institutional characteristics of national pensions and health care systems.

Source: EPC and European Commission (2005a)

From an economic policy perspective, the following factors regarding life expectancy warrant special emphasis:

- much of the projected gains in life expectancy will result from lower mortality rates at older ages. Life expectancy at 65 for the EU 25 will increase by about 4 years until 2050. This is especially relevant when considering pension policy as it influences the duration of retirement relative to work;

- although life expectancy at birth is expected to increase, what is not so clear is whether future gains in life expectancy will be spent in broadly good health and free of disability, i.e. whether the overall share of life spent in good health will alter. It is a highly significant question, not only for the general well-being of older persons, but also because of its repercussions for health care policy, and is examined in more depth in section 4;

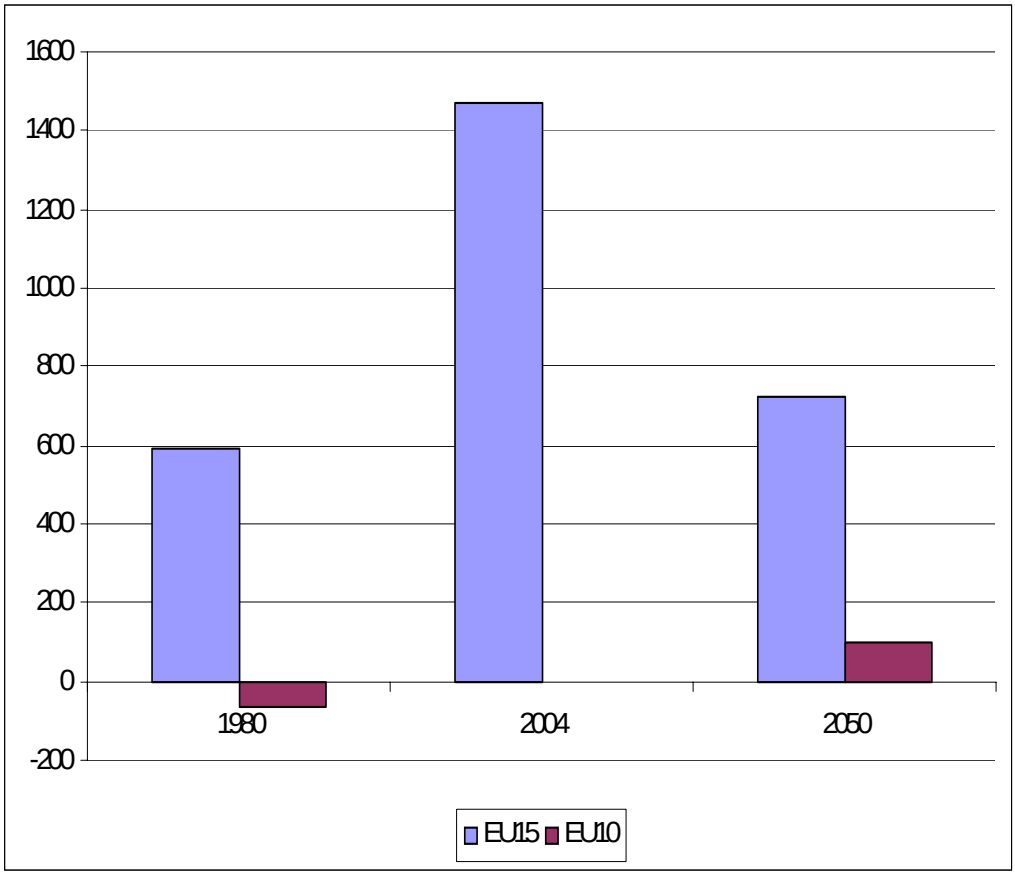
- life expectancy projections are subject to uncertainty. Past projections from official sources have regularly underestimated the gains in life expectancy, and consultations with external demographic experts suggest that this could also be a risk for current population projections. Until recently, the so-called 'demographic risk' of larger-than-expected gains in life expectancy has been borne by governments, adding extra costs to pension systems. Uncertainty has led to a number of technical and policy responses. To begin with, demographers are trying to improve the understanding of trend developments and create stochastic population projections attaching probabilities to future possible outcomes. In addition, some Member States have (through different means) linked pension benefits to life expectancy at retirement age, thus sharing the demographic risk between government and pension beneficiary.

2.1.4. Net inward migration to the EU projected to continue

Annual net migration inflows to the EU25 currently amount to 1.3 million people or 0.35% of the population. The majority of these inflows goes to EU15 countries whereas some EU10 Member States currently experience net outward migration. The assumptions on net migration in the AWG population scenario are presented on Table 2-3 and

Graph **2-3**. These are the same as those used in the baseline of EUROPOP2004 for all Member States, except for Germany[20], Italy and Spain. For the latter two specific adjustments were made to the level and age structure of migrants (for Spain, changes were only made to the age structure of migrants). This was done to enable more recent information on migration flows to be taken on board. The AWG population scenario involves large net flows into the EU25 over the projection period. For the EU25 as a whole, annual net inflows are projected to fall from an estimated 1.3 million people in 2004, equivalent to 0.3% of the EU25 population, to inflows of some 800,000 people by 2015 and thereafter hovering around 850,000 people, or 0.2% of the population.

Graph 2-3 Baseline assumptions on net migration flows, EU 15 and EU10



Source: EPC and European Commission (2005a)

[20] The assumptions on net migration in Germany were changed to take into account that the age-structure of migration was significantly influenced by the reunification and the immigration of German resettlers (Aussiedler) from Eastern Europe. In addition, the level of net migration was adjusted with a constant net migration of 200,000 "foreigners" p.a. and a decreasing net migration of German resettlers.

Table 2-3 Baseline assumptions on net migration flows for EU Member States

	in thousands							as % of total population	
	2004	**2010**	**2020**	**2030**	**2040**	**2050**	***cumulated***	**2004**	**2050**
BE	24	20	19	19	19	19	*897*	*0.2*	*0.2*
DK	8	7	7	7	7	7	*323*	*0.1*	*0.1*
DE	270	230	215	205	200	200	*10180*	*0.3*	*0.3*
GR	43	40	39	35	35	35	*1743*	*0.4*	*0.3*
ES	508	112	110	105	104	102	*6235*	*1.2*	*0.2*
FR	64	62	60	59	59	59	*2823*	*0.1*	*0.1*
IE	16	15	14	13	13	12	*645*	*0.4*	*0.2*
IT	150	150	150	150	150	150	*7050*	*0.3*	*0.3*
LU	3	3	3	3	3	3	*132*	*0.6*	*0.4*
NL	21	33	33	32	31	31	*1480*	*0.1*	*0.2*
AT	25	24	21	19	20	20	*985*	*0.3*	*0.2*
PT	42	18	16	15	15	15	*808*	*0.4*	*0.1*
FI	6	6	6	6	6	6	*288*	*0.1*	*0.1*
SE	28	24	23	22	22	21	*1069*	*0.3*	*0.2*
UK	139	116	103	99	99	98	*4939*	*0.2*	*0.2*
CY	6	6	5	5	5	5	*238*	*0.0*	*0.2*
CZ	4	3	10	22	21	20	*647*	*0.1*	*0.2*
EE	1	-2	0	2	2	2	*19*	*0.8*	*0.5*
HU	15	13	14	21	21	20	*795*	*-0.1*	*0.1*
LT	-6	-6	-1	5	4	4	*28*	*-0.2*	*0.2*
LV	-2	-3	-1	3	3	3	*30*	*0.1*	*0.2*
MT	3	2	2	2	2	3	*113*	*0.6*	*0.5*
PL	-28	-35	-11	36	35	34	*318*	*-0.1*	*0.1*
SK	-2	-2	1	5	5	5	*109*	*0.3*	*0.4*
SI	6	6	5	7	7	7	*287*	*0.0*	*0.1*
EU25	*1343*	*841*	*841*	*895*	*886*	*879*	*42182*	*0.3*	*0.2*
EU15	*1347*	*859*	*817*	*788*	*781*	*778*	*39596*	*0.4*	*0.2*
Euro area	*1171*	*712*	*685*	*660*	*654*	*651*	*33264*	*0.4*	*0.2*
EU10	*-3*	*-18*	*24*	*107*	*105*	*101*	*2586*	*0.0*	*0.1*

Source: EPC and European Commission (2005a)

These net inflows cumulate to close to 40 million people between 2004 and 2050. Migration is high on the political agenda due to its potential to offset some of the economic effects of ageing. From an economic policy perspective, the following factors require special emphasis:

- The data on migration flows are sketchy and it is extremely difficult to project migration flows.[21] The static snapshot of net inflows of the AWG population scenario fails to capture the complexity of the situation, not least because gross flows (both inwards and outwards) are neglected. Moreover, migration has a dynamic impact on the population of the host country, and account needs to be taken of factors such as the extent to which migrants return to their home country, family reunification and whether the fertility and mortality patterns of migrants' offspring and subsequent generations converge to that of the host country. Migration flows are also uncertain due to the influence of a variety of push and pull factors in both host and home countries (over which the EU have little or no influence). Natural disasters, war and political instability play a role, but these are too uncertain to project. Relative income disparities and public policy towards migrants are the major determining factors of migration over the long-run, and these can be analysed more

[21] Eurostat (2004 c).

systematically. From an analytical point of view, it is striking to note the very large diversity in approaches to modelling migration flows across official agencies.[22] This suggests that there may be scope for developing better collaboration at EU level on analysing migration flows, and in particular to quantify the repercussions of relevant policy decisions. In addition, for the EU, another important policy determinant is the accession of new Member States, given the Treaty provisions on the free movement of workers.

- Indeed, several European countries already rely on migrants to fill shortages for certain skilled and unskilled tasks (e.g. in health care sector). It has been argued that migration could bolster the financial sustainability of public pay-as-you-go pension schemes. For these benefits to materialise fully, however, it is necessary for migrants to be employed in the formal economy (contributing to the tax and social security systems), for pension schemes to be broadly in actuarial balance (otherwise the contributions of migrants will be insufficient to cover their future pension entitlements, making the funding of pension systems potentially not sustainable), and for the skill structure of migrants to match labour market needs.[23] However, in practice however, these conditions are often not met: immigrants tend to have lower employment rates than EU nationals in many countries, and their unemployment rates are roughly three times higher than average. Therefore, a key the challenge is to better integrate immigrants in the society.

2.1.5. The size and age structure of the population in the baseline scenario

According to the AWG scenario, the population in the EU25 will be both smaller and older in 2050. Table 2-4 provides an overview of these changes. The EU25 population is projected to rise from 457 million in 2004 to a peak of 470 million in 2025, and thereafter decline to 454 million in 2050. This aggregate picture hides a sharply diverged representation at country level. Whereas, the total population is projected to increase in some Member States (e.g. BE +4%, FR +9%, IE +36%, SE +13%, UK +8%), this contrasts with large projected falls in other countries (DE –6%, IT –7% PL –12%).

[22] Howe and Jackson (2005).

[23] European Commission Green Paper of January 2005 on managing economic migration (COM (2004) 811 final).

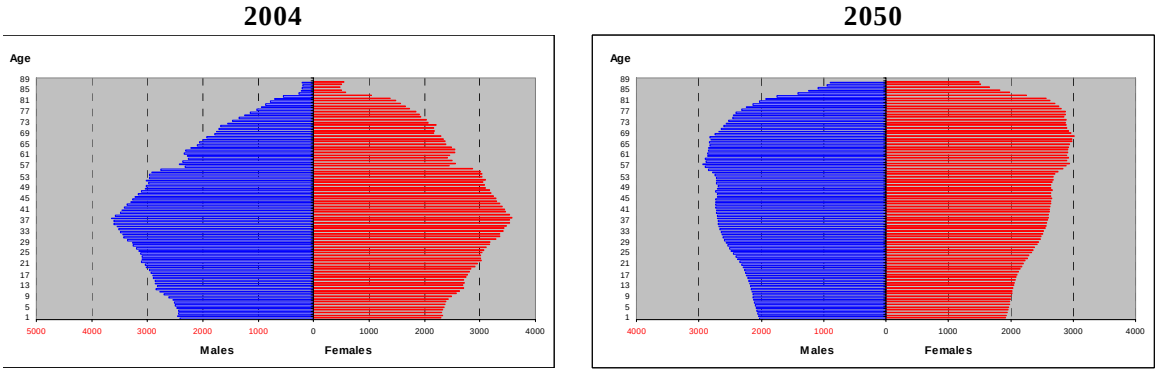
Table 2-4 Overview of the projected changes in the size and age structure of the population, in millions

	Total population			Young population (0-14)			Working-age population (15-64)			Elderly population (65+)			Very old population (80+)		
	2004	2050	% change	2004	2050	% change	2004	2050	% change	2004	2050	% change	2004	2050	% change
BE	10.4	10.8	*4*	1.8	1.6	*-11*	6.8	6.3	*-8*	1.8	3.0	*15*	0.4	1.2	*173*
DK	5.4	5.5	*2*	1.0	0.9	*-16*	3.6	3.3	*-8*	0.8	1.4	*7*	0.2	0.5	*140*
DE	82.5	77.7	*-6*	12.2	9.5	*-22*	55.5	45.0	*-19*	14.9	23.3	*105*	3.4	9.9	*187*
GR	11.0	10.7	*-3*	1.6	1.3	*-18*	7.5	5.9	*-21*	2.0	3.6	*20*	0.4	1.2	*227*
ES	42.3	43.0	*1*	6.2	5.0	*-19*	29.1	22.9	*-21*	7.1	15.0	*99*	1.8	5.3	*199*
FR	59.9	65.1	*9*	11.1	10.4	*-7*	39.0	37.4	*-4*	9.8	17.4	*94*	2.6	6.9	*163*
IE	4.0	5.5	*36*	0.8	0.9	*4*	2.7	3.2	*16*	0.4	1.4	*12*	0.1	0.4	*313*
IT	57.9	53.8	*-7*	8.2	6.2	*-25*	38.5	29.3	*-24*	11.1	18.2	*89*	2.8	7.2	*158*
LU	0.5	0.6	*42*	0.1	0.1	*26*	0.3	0.4	*30*	0.1	0.1	*1*	0.0	0.1	*279*
NL	16.3	17.6	*8*	3.0	2.8	*-9*	11.0	10.6	*-4*	2.3	4.3	*26*	0.6	1.6	*191*
AT	8.1	8.2	*1*	1.3	1.0	*-24*	5.5	4.7	*-15*	1.3	2.5	*15*	0.3	1.0	*204*
PT	10.5	10.1	*-4*	1.6	1.3	*-21*	7.1	5.5	*-22*	1.8	3.2	*18*	0.4	1.1	*181*
FI	5.2	5.2	*0*	0.9	0.8	*-13*	3.5	3.0	*-14*	0.8	1.4	*7*	0.2	0.5	*174*
SE	9.0	10.2	*13*	1.6	1.7	*4*	5.8	6.0	*4*	1.5	2.5	*12*	0.5	0.9	*95*
UK	59.7	64.2	*8*	10.9	9.4	*-13*	39.2	37.8	*-4*	9.5	17.0	*93*	2.6	6.5	*150*
CY	0.7	1.0	*34*	0.1	0.1	*-11*	0.5	0.6	*19*	0.1	0.3	*2*	0.0	0.1	*319*
CZ	10.2	8.9	*-13*	1.6	1.1	*-28*	7.2	5.0	*-31*	1.4	2.8	*17*	0.3	0.8	*164*
EE	1.4	1.1	*-17*	0.2	0.2	*-23*	0.9	0.7	*-27*	0.2	0.3	*1*	0.0	0.1	*124*
HU	10.1	8.9	*-12*	1.6	1.2	*-24*	6.9	5.2	*-25*	1.6	2.5	*12*	0.3	0.8	*131*
LT	3.4	2.9	*-16*	0.6	0.4	*-35*	2.3	1.7	*-26*	0.5	0.8	*3*	0.1	0.3	*171*
LV	2.3	1.9	*-19*	0.4	0.3	*-22*	1.6	1.1	*-30*	0.4	0.5	*1*	0.1	0.2	*131*
MT	0.4	0.5	*27*	0.1	0.1	*1*	0.3	0.3	*12*	0.1	0.1	*1*	0.0	0.0	*254*
PL	38.2	33.7	*-12*	6.6	4.4	*-33*	26.7	19.4	*-27*	5.0	9.9	*62*	0.9	3.0	*226*
SK	5.4	4.7	*-12*	0.9	0.6	*-36*	3.8	2.7	*-28*	0.6	1.4	*10*	0.1	0.4	*210*
SI	2.0	1.9	*-5*	0.3	0.2	*-16*	1.4	1.1	*-24*	0.3	0.6	*4*	0.1	0.2	*252*
EU25	*456.8*	*453.8*	*-1*	74.8	61.4	*-18*	306.8	259.1	*-16*	75.3	133.3	*725*	18.2	49.9	*174*
EU15	*382.7*	*388.3*	*1*	62.4	52.7	*-15*	255.1	221.3	*-13*	65.2	114.2	*613*	16.3	44.2	*172*
Euro area	*308.6*	*308.4*	*0*	48.9	40.8	*-17*	206.5	174.2	*-16*	53.3	93.4	*501*	13.0	36.3	*180*
EU10	*74.1*	*65.5*	*-12*	12.4	8.6	*-30*	51.7	37.8	*-27*	10.1	19.1	*112*	1.9	5.7	*193*

Source: EPC and European Commission (2005a)

Even more dramatic changes will occur at the age structure of the population. Population pyramids on Graph 2-4 provide a snapshot contrast of the EU25 population in 2004 and 2050. In 2004, the large bulges are persons of working age, with 39 being the most numerous age cohorts. By 2050, an inverted cone shape is evident, reflecting the passage of baby-boomers into retirement years, increasing life expectancy and the effects of prolonged low fertility rates.

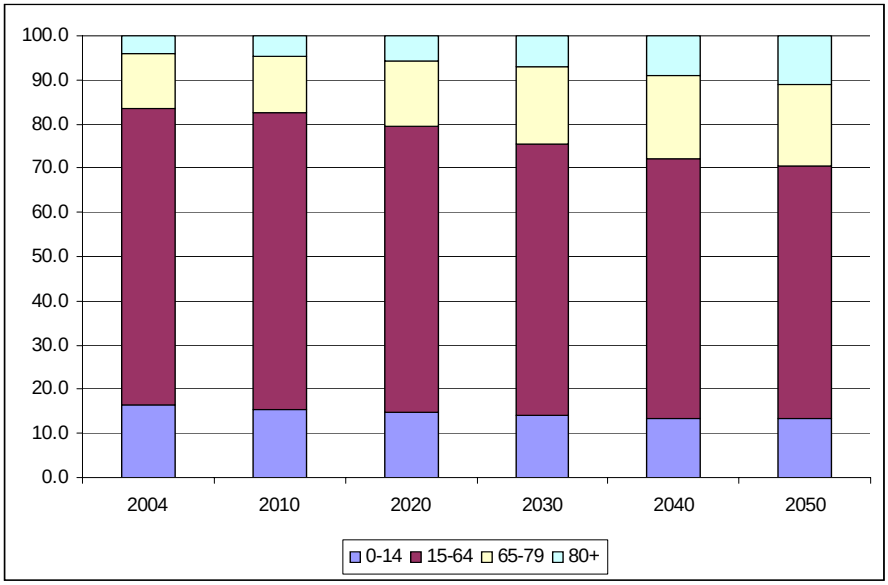
Graph 2-4 Age pyramids for the EU25 population in 2004 and 2050



Source: EPC and European Commission (2005a)

As illustrated on Graph 2-5, the share of young persons aged 0-14 in the total population is projected to decline, and their overall numbers in the EU25 will drop by 19% (-30% in EU10). From an economic perspective, the most interesting change concerns the working-age population (15-64). This group will start to fall as of 2010 in the EU25 (sooner in some countries), and drop by 48 million or 16% by 2050. Here Member State divergences are wide, with declines of more than 20 percentage points projected in 13 countries (DE, GR, ES, IT, PT, CZ, EE, HU, LT, LV, PL, SK, SI). In contrast, the elderly population aged 65+ will rise sharply, by 58 million (or 77%), by 2050. The fastest growing segment of the population will be the very old (80+) and rise by almost 32 million or 174%.

Graph 2-5 Projected changes in the age structure of the EU25 population



Source: EPC and European Commission (2005a)

2.2. Labour force projections

2.2.1. The cohort component methodology

"No policy change" assumption in baseline scenario

The labour force projection is based on an age-cohort methodology developed by the OECD[24] and refined by DG ECFIN[25] and the AWG. The methodology takes into account explicitly the evolution of lifetime profiles of participation. It is based on the calculation of the probability of labour market entry and labour market exit for each of the latest cohorts available (based on the average rates between 1998 and 2003). These probabilities are kept constant and, in the baseline scenario, reflect a working assumption of "no policy change". In essence:

- the cohort methodology reflects the tendency for women belonging to any given cohort or generation to have their own specific level of participation, which is usually higher at all ages than the corresponding level of participation of older cohorts. Thus, the simulation produces an autonomous increase of female participation – referred to as a "cohort effect" – as older women are gradually replaced by younger cohorts;

- captures the effects of demographic change on the labour force. Besides the reduction in the size of the working-age population (aged 15-64), an ageing population also increases the share of older workers (aged 55-64) in the total labour force, whose participation rate is significantly lower than that of younger age groups.

Projections on the future size and structure of the labour force are obtained by combing projections of activity rates (of each single year of age and gender of people in the labour market) with the baseline working-age population projection described in section 2.1. The employment projections only refer to the number of persons, and it is assumed that over the projection period, there will be no changes in the hours worked, the breakdown between private and public sector, the share of self-employed and employees, or the share of part-time work.

Some additional assumptions on participation rates

The following additional adjustments were also included in making the labour force projections:

- a correction mechanism for young cohorts: a floor at the rate observed in 2003 was applied to the participation rates of young cohorts (aged 15-19) in some countries. This is to avoid extrapolating over the next 50 years the recently observed drop in the participation rates of young cohorts as a result of the extended duration of full-time education;

- the potential effects of recently enacted pension reforms that will be phased-in in 17 EU Member States are considered. These include reforms to increase statutory retirement ages, to curtail access to early retirement schemes and to remove financial incentives that have

[24] Burniaux J., M., R. Duval and F. Jaumotte (2003).

[25] A more detailed description of the projection methodology and results can be found in Carone (2005).

encouraged workers to leave the labour force[26]. The effects of these pension reforms have been modelled using a probabilistic model already used within the European Commission for the calculation of the "average exit age" from the labour force;

- for a number of Member States, the conversion of labour force projections is based on Labour Force Surveys that have been converted into national account equivalents.[27]

2.2.2. Projection results for labour force participation and labour supply

Projected increases in overall participation rates

Table 2-5 presents the participation rates by age group and gender in the EU25 Member States in 2003, and Table 2-6 shows the projected change up to 2050 used in the baseline scenario. Overall participation rates (for the age group 15-64) in the EU25 are projected to increase by about 6 percentage points over the period 2003-2050 (from 69.4% in 2003 to 74.6% in 2025 and to 75.2% in 2050).

[26] Detailed information on pension reforms enacted in the EU Member States (also migration policy) can be found in a new database on labour market reforms (LABREF) recently launched by the European Commission-Directorate General for Economic and Financial Affairs together with Labour Market Working Group attached to the EPC. LABREF can be found at: http://europa.eu.int/comm/economy_finance/indicators/labref_en.htm. A description of the database can be found in Arpaia A, D. Costello, G. Mourre and F. Pierini (2005), and the economic rationale for tracking changes in labour market institutions can be found in Arpaia and Mourre (2005).

[27] In many countries, employment data from Labour Force Surveys differ significantly from data from National Accounts due to different statistical methodologies. For some countries, where e.g. pension models are based on National Accounts, a conversion was implemented to avoid inconsistencies.

Table 2-5 Participation rates by gender and age group in 2003 in EU Member States

	Total				Male				Female			
	Total (15-64)	Young (15-24)	Prime age (25-54)	Older (55-64)	Total (15-64)	Young (15-24)	Prime age (25-54)	Older (55-64)	Total (15-64)	Young (15-24)	Prime age (25-54)	Older (55-64)
BE	65.0	35.2	82.3	28.9	72.9	38.6	90.9	38.8	56.9	31.6	73.6	19.3
DK	79.3	65.2	87.8	62.8	83.7	67.8	91.7	70.4	74.8	62.4	83.8	55.2
DE	72.6	50.1	86.2	45.2	79.5	52.9	93.3	54.7	65.4	47.1	78.8	35.9
GR	65.3	35.8	80.0	43.5	78.1	39.3	94.4	61.4	52.4	32.0	65.4	27.1
ES	67.5	44.7	79.6	43.6	79.9	49.8	92.5	62.8	55.1	39.3	66.5	25.6
FR	69.3	38.5	86.3	38.3	75.4	42.7	93.4	42.7	63.3	34.2	79.2	34.0
IE	68.8	52.4	79.1	50.1	79.2	56.1	91.0	66.2	58.3	48.6	67.2	33.6
IT	62.9	37.8	77.9	30.5	74.9	41.6	91.6	43.1	50.9	34.0	64.1	18.8
LU	65.0	29.0	81.4	30.7	75.5	29.9	94.5	40.2	54.3	28.2	68.0	21.3
NL	76.4	72.7	85.2	45.6	84.0	73.3	93.3	58.3	68.7	72.1	76.9	32.7
AT	72.2	55.6	87.4	31.9	79.9	60.9	94.7	42.9	64.4	50.1	80.1	21.5
PT	72.7	45.2	86.0	53.7	79.3	49.2	92.3	64.9	66.3	41.2	79.7	43.8
FI	74.5	51.2	87.5	53.4	76.7	52.0	90.1	55.1	72.3	50.3	84.8	51.8
SE	77.5	48.0	87.7	72.1	79.4	47.6	89.9	75.1	75.6	48.5	85.4	69.1
UK	75.3	63.3	83.8	57.2	82.4	66.4	91.3	67.4	68.3	60.0	76.4	47.2
CY	70.8	42.0	85.7	52.6	79.6	43.8	95.2	72.7	62.3	40.1	76.7	33.5
CZ	70.3	37.6	87.8	44.5	77.9	40.6	94.4	60.3	62.8	34.6	81.1	30.2
EE	70.1	36.9	85.8	56.8	74.7	42.5	89.5	64.7	65.9	31.1	82.3	50.8
HU	60.5	31.6	77.9	29.5	67.5	35.5	84.9	38.8	53.7	27.5	71.0	22.0
LT	70.0	30.4	88.8	51.3	73.6	34.6	90.6	63.6	66.6	26.0	87.2	42.0
LV	69.3	39.0	86.3	47.8	74.3	45.3	89.7	56.6	64.7	32.4	83.0	41.2
MT	58.6	56.8	66.0	32.9	79.9	59.1	93.8	54.2	36.8	54.4	37.5	12.9
PL	63.8	36.2	81.5	29.9	69.8	40.4	87.2	39.3	57.9	31.9	75.8	21.8
SK	70.1	41.5	89.4	29.1	76.8	45.4	94.1	48.9	63.4	37.5	84.6	12.7
SI	67.3	34.0	87.6	24.2	72.0	38.5	90.7	34.0	62.5	29.1	84.4	15.1
EU25	*69.6*	*45.8*	*83.4*	*42.7*	*77.5*	*49.4*	*91.9*	*53.5*	*61.6*	*42.1*	*74.9*	*32.6*
EU15	*70.4*	*48.2*	*83.5*	*44.2*	*78.7*	*51.7*	*92.5*	*54.8*	*62.1*	*44.7*	*74.4*	*34.0*
Euro area	*69.1*	*44.9*	*83.2*	*40.4*	*77.8*	*48.6*	*92.8*	*51.3*	*60.3*	*41.2*	*73.6*	*29.9*
EU10	*65.4*	*36.2*	*83.1*	*34.5*	*71.7*	*40.2*	*88.9*	*45.9*	*59.2*	*32.0*	*77.4*	*24.8*

Source: EPC and European Commission (2005a)

Table 2-6 Projected changes in participation rates up to 2050 used in the baseline scenario

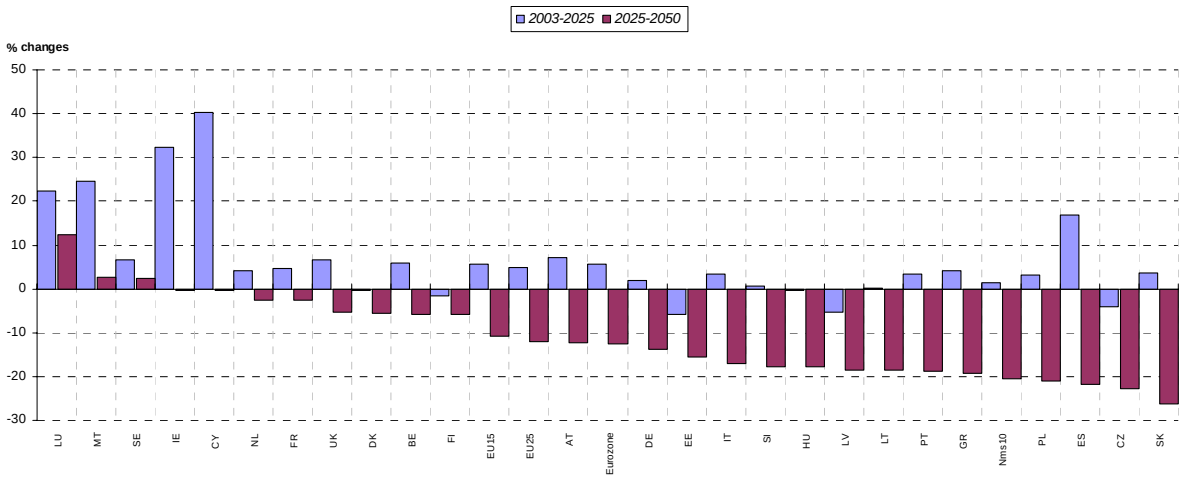
Country	Total				Male				Female			
	Total (15-64)	***Young*** (15-24)	***Prime age*** (25-54)	***Older*** (55-64)	***Total*** (15-64)	***Young*** (15-24)	***Prime age*** (25-54)	***Older*** (55-64)	***Total*** (15-64)	***Young*** (15-24)	***Prime age*** (25-54)	***Older*** (55-64)
BE	5.0	1.7	6.3	16.0	1.6	1.7	3.3	7.9	8.5	1.5	9.3	23.8
DK	2.1	3.0	1.9	6.2	1.8	4.5	1.7	4.0	2.2	1.3	2.0	8.3
DE	6.4	2.0	3.6	24.0	5.4	2.6	2.3	22.8	7.5	1.3	5.1	25.2
GR	4.6	-1.4	5.3	10.2	-0.1	-1.8	0.4	0.0	9.2	-1.0	10.2	18.8
ES	9.2	-2.6	10.3	20.3	3.1	-2.1	3.6	7.2	15.3	-3.1	16.9	32.2
FR	3.8	0.9	3.8	15.8	2.0	0.5	1.6	14.1	5.3	1.3	5.7	17.5
IE	8.4	-0.3	7.7	19.4	3.9	-0.4	3.5	6.1	12.8	-0.3	11.8	33.1
IT	7.4	-0.8	6.3	24.8	4.3	-0.7	2.5	21.9	10.2	-0.9	9.7	26.8
LU	3.4	0.0	6.7	11.4	-0.7	0.8	2.1	6.6	7.5	-0.8	11.4	16.3
NL	4.0	1.0	5.3	10.5	-0.8	0.7	-0.2	2.7	9.0	1.3	10.9	18.4
AT	6.9	1.6	5.1	27.3	3.9	1.0	1.4	24.0	9.8	2.3	8.7	30.1
PT	5.0	-1.2	5.1	12.5	1.9	-0.5	1.7	5.6	7.8	-1.9	8.2	18.2
FI	5.1	1.3	4.7	14.1	4.8	0.9	4.4	14.4	5.3	1.8	5.0	13.7
SE	3.6	3.7	3.5	6.9	3.3	3.0	2.9	7.4	3.9	4.4	4.0	6.3
UK	3.0	1.9	3.2	8.1	0.1	1.7	0.5	1.1	5.7	2.1	5.5	14.7
CY	9.9	5.1	8.6	18.0	6.5	5.8	2.0	11.8	13.0	4.3	14.6	22.8
CZ	4.2	-0.8	2.8	15.6	1.9	-1.1	0.6	9.1	6.4	-0.5	5.2	20.8
EE	6.0	2.0	5.5	7.0	5.2	2.4	5.3	1.4	6.5	1.6	5.3	10.9
HU	5.9	0.1	4.6	20.6	4.0	0.2	3.3	15.8	7.5	0.1	5.8	23.9
LT	7.1	2.3	4.6	17.1	6.4	-0.2	4.2	12.8	7.6	4.8	4.9	19.3
LV	7.4	3.5	6.6	12.7	7.5	3.6	7.3	10.0	7.2	3.3	5.7	14.1
MT	7.4	2.6	13.9	0.9	0.2	0.4	2.9	-2.2	15.0	4.8	25.7	2.9
PL	7.2	3.0	8.2	19.4	6.6	2.8	5.6	20.6	7.8	3.2	10.6	17.2
SK	3.8	0.7	3.4	22.9	1.9	-0.1	1.8	12.2	5.6	1.4	4.9	30.8
SI	6.1	-2.6	4.7	28.8	4.4	-3.8	4.0	23.8	7.9	-1.2	5.5	33.2
EU25	***5.9***	***2.2***	***5.3***	***17.7***	***3.3***	***2.0***	***2.3***	***13.2***	***8.4***	***2.3***	***8.1***	***21.6***
EU15	***5.7***	***1.4***	***5.1***	***17.8***	***2.8***	***1.3***	***1.9***	***12.9***	***8.5***	***1.4***	***8.2***	***22.2***
Euro area	***6.2***	***0.7***	***5.6***	***20.1***	***3.2***	***0.7***	***2.2***	***15.5***	***9.1***	***0.6***	***8.9***	***24.3***
EU10	***6.4***	***1.7***	***6.2***	***18.3***	***5.1***	***1.3***	***4.2***	***16.0***	***7.4***	***2.1***	***8.1***	***19.3***

Source: EPC and European Commission (2005a

… but labour supply will decline because of population trends

The size of the overall labour force (age 15-64) in the EU25 is estimated to increase by 5% from 2003 to 2025 (see Graph 2-6). This is a result of combining the projected population and rates of participation in each gender/age group. This translates into an increase in the labour force of roughly 10.5 million persons. The increase is mainly due to the rise in female labour supply, while the male labour force is projected to remain largely unchanged (only about 2 million additional people). However, this positive trend in female labour supply is projected to reverse during the period 2025-2050 and along with the drop in male supply, the overall labour force is expected to decrease by as much as 12% (equivalent to around 27.5 million people, 16.5 million if compared with the level in 2003) although there are wide differences across countries.

Graph 2-6 Baseline labour force projection (change in % of people aged 15-64 between 2003 and 2050)



Source: EPC and European Commission (2005a)

2.2.3. Assumptions on unemployment

To move from labour force projections to employment projections, one should look at the rate of unemployment. It was agreed that unemployment rates converge to their structural level, or NAIRU (Commission estimates for the NAIRU as agreed upon in the Output Gap Working Group of the EPC) by 2008 and that they remain constant thereafter. The following adjustments are made to this general rule:

- countries with a NAIRU rate in 2008 higher than the average rate of the EU15 had their unemployment rates further reduced so as to converge to the 2008 EU15 average (7%) by 2015;

- the EU10 countries with a NAIRU above the EU15 average (i.e. PL and SK) have 20 years for their unemployment rates to converge to the EU15 average;

- to avoid significant changes in the rankings across countries, the structural unemployment rate is reduced by an additional 0.5 percentage points (to reach 6.5%in 2015) for Belgium, the Czech Republic and Italy.

The outcome of these assumptions is presented in Table 2-7. In aggregate terms, unemployment rates in the EU25 are assumed to fall from 9.3% in 2003 to 7.8% in 2010 and to 6.1% by 2025. A much bigger fall is projected for the EU10 countries, from 14.8% in 2003 to 12% in 2010. The approach to making assumptions results in large projected falls in countries with the highest unemployment rates in the base year of 2003, i.e. a fall of over 10 percentage points in Poland and Slovakia, and of 4.6 percentage points in Spain.

Table 2-7 Assumptions on unemployment rates

	2003	*2010*	*2015*	*2025*	*2050*	*Change 2003-2025*
BE	8.2	7.0	6.5	6.5	6.5	-1.7
DK	5.5	4.3	4.3	4.3	4.3	-1.2
DE	9.9	8.5	7.0	7.0	7.0	-2.9
GR	9.8	8.6	7.0	7.0	7.0	-2.8
ES	11.6	8.7	7.0	7.0	7.0	-4.6
FR	9.0	8.3	7.0	7.0	7.0	-2.0
IE	4.8	3.4	3.4	3.4	3.4	-1.4
IT	8.9	7.3	6.5	6.5	6.5	-2.4
LU	3.7	4.2	4.2	4.2	4.2	0.6
NL	3.7	3.2	3.2	3.2	3.2	-0.5
AT	4.3	3.4	3.4	3.4	3.4	-0.9
PT	6.7	5.6	5.6	5.6	5.6	-1.1
FI	9.2	6.8	6.5	6.5	6.5	-2.7
SE	5.7	4.3	4.3	4.3	4.3	-1.4
UK	5.1	4.6	4.6	4.6	4.6	-0.5
CY	4.4	4.2	4.2	4.2	4.2	-0.2
CZ	7.9	7.3	6.5	6.5	6.5	-1.4
EE	10.3	7.8	7.0	7.0	7.0	-3.3
HU	5.9	4.8	4.8	4.8	4.8	-1.2
LT	12.5	8.9	7.0	7.0	7.0	-5.5
LV	10.7	7.6	7.0	7.0	7.0	-3.7
MT	7.6	8.3	7.0	7.0	7.0	-0.6
PL	20.1	15.8	12.9	7.0	7.0	-13.1
SK	17.6	15.2	12.5	7.0	7.0	-10.6
SI	6.8	5.5	5.5	5.5	5.5	-1.2
EU25	**9.3**	**7.8**	**6.7**	**6.1**	**6.1**	**-3.1**
EU15	**8.2**	**7.0**	**6.1**	**6.1**	**6.0**	**-2.2**
Euro area	**9.0**	**7.6**	**6.5**	**6.5**	**6.4**	**-2.5**
EU10	**14.8**	**12.0**	**10.0**	**6.6**	**6.6**	**-8.3**

Source: EPC and European Commission (2005a)

2.2.4. Employment rate projections

A breakdown of employment rates by age and gender

Graph 2-7 shows the projected employment rates relative to the various Lisbon employment targets. [28] The projected change in employment rates is due to the following developments:[29]

- *young persons (15-24):* the projections were made by extrapolating forward the trends observed in the past 5 years. Whilst in many countries (especially EU10) employment rates of young persons have been falling, it has risen in some EU15 countries. This is linked to more persons completing secondary education and higher enrolment in tertiary studies;

- *women*: the projections show female employment rates rising from just over 55% in 2004 to almost 65% by 2025 and remaining stable thereafter. This increase, which would imply that the 60% Lisbon employment target is reached in 2010, is attributable to the gradual replacement of older women with low participation rates by younger women who have a much stronger attachment to the labour force. A trend of rising employment rates of women has been observed for several decades, and is largely explained by higher educational attainment and socio-cultural factors on the role of women in the society. Whether the projected increases in female employment rates materialise in practice may in part depend on supportive public policies or collective agreements being put in place. For example, policies to promote access to affordable childcare, the reconciliation between professional and private lives and to better achieve gender equality could be important in this regard.[30] Moreover, a rise in female participation may have an impact on fertility rates and working hours, although the magnitude of such effects and the sense of causality remain very uncertain;

- *older workers (55-64):* the employment rate of older workers is projected to increase sharply by 19 p.p. from 40% in 2004 for the EU25 to 47% by 2010 and 59% in 2025: this is well in excess of the 50% Lisbon target that is projected to be reached by 2013. The projection reflects the observed increase in employment rates of older workers in recent years (up by 4.4 p.p. since 2000). It also incorporates the expected (albeit uncertain) positive effects of enacted pension reforms. These reforms have, *inter alia*, curtailed access to early retirement schemes, raised statutory retirement ages (including minimum ages when pension income can be drawn) and strengthened financial incentives to remain in the labour force. Note, the increase in the employment rates for males (by 15 p.p. from 50% to 65%) is less than the projected increase for females (23 p.p. from 30% to 53%). The difference arises due to a stronger cohort effect for females. The increase in the participation rate due to pensions is some 10 p.p. for both male and females, whereas the cohort effect for females is almost 13 p.p. compared with 6 p.p. for males.

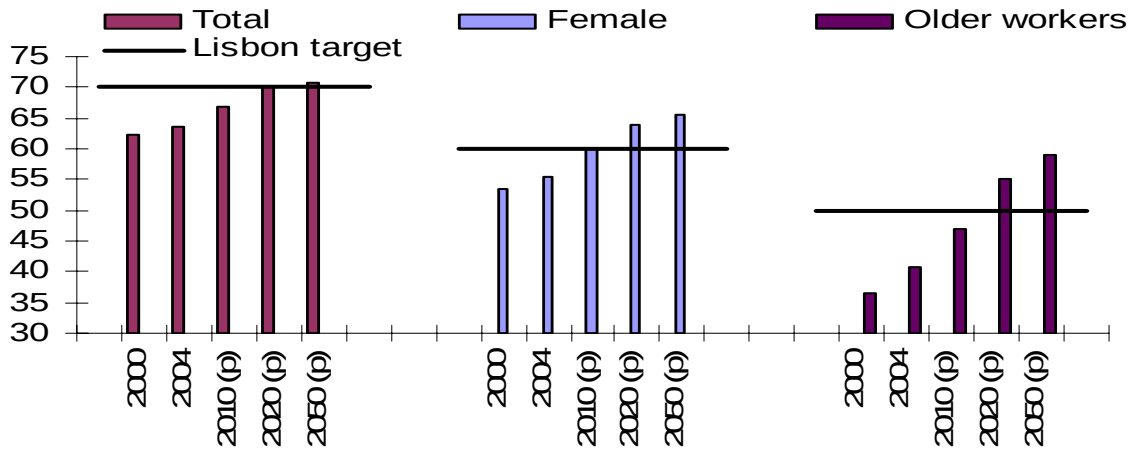
---

[28] The Lisbon European Council (March 2000) Heads of State and Government set targets of raising the overall EU15 employment rate at 70% and 60% for women. The Stockholm European Council (March 2001) added two intermediate and one additional target: the employment rate should be raised to 67% overall by 2005, 57% for women by 2005 and 50% for older workers by 2010.

[29] The analysis below is based on Carone (2005).

[30] See chapter 3 in European Commission (2004a).

Graph 2-7 Projected employment rates and Lisbon targets in the EU25



Note: *(p) means projected figures, while 2000 and 2004 figures are the actual ones.*
Source: ECFIN calculations based on EPC and European Commission (2005a).

Given the population projections, the unemployment rate assumptions and the labour force projections, the overall employment rate (age 15-64) in the EU25 is projected to increase from 63% in 2003 to 70% in 2025, and to stabilise at 70.7% at the end of the projection period, see Table 2-7. The female employment rate is projected to increase by some 10 percentage points to 65.5% by 2050, above the Lisbon employment target of 60%. The employment rate of older workers is projected to increase by some 18 percentage points over the projection period to 60.4% in 2050, and the Lisbon employment target of 50% is projected to be reached by 2013.

Table 2-8 Projected employments rates used in the 2005 EPC budgetary projection exercise

	Total (15-64)				*Females (15-64)*				*Older workers(55-64)*			
	2003	2010	2025	2050	2003	2010	2025	2050	2003	2010	2025	2050
BE	59.6	62.1	64.7	65.5	51.8	56.0	60.3	61.0	28.1	33.2	42.8	44.4
DK	74.9	76.4	77.3	77.9	70.2	72.0	72.7	73.3	59.8	61.5	65.6	66.7
DE	65.4	70.9	73.2	73.5	59.3	65.8	67.8	68.3	39.5	56.4	65.8	65.7
GR	58.9	62.7	64.9	65.1	44.6	50.0	54.6	55.6	42.1	44.4	51.9	52.9
ES	59.7	66.4	70.3	71.4	46.2	55.6	62.5	64.2	40.6	45.6	59.6	62.5
FR	63.1	64.4	66.7	68.0	57.0	58.9	61.8	63.4	36.3	42.3	49.4	52.9
IE	65.5	70.9	73.6	74.6	55.7	62.7	67.7	69.1	48.8	55.5	66.8	68.9
IT	57.2	61.0	63.6	65.7	44.9	50.0	53.9	56.1	29.4	35.9	49.4	54.6
LU	62.6	64.4	64.9	65.4	51.7	55.6	58.1	58.7	30.3	35.3	40.2	41.8
NL	73.6	75.3	76.5	77.9	66.0	70.1	73.4	75.2	44.4	48.1	53.5	55.2
AT	69.1	73.5	75.1	76.4	61.7	67.8	70.5	71.8	30.1	40.1	54.2	58.0
PT	67.8	71.9	72.9	73.4	61.2	66.4	68.7	69.5	51.4	56.5	63.0	64.7
FI	67.7	70.2	73.8	74.4	65.8	67.9	71.9	72.7	49.4	54.1	62.3	64.9
SE	73.1	74.9	77.4	77.6	71.6	73.5	76.1	76.4	68.8	70.9	75.1	76.6
UK	71.5	72.9	74.2	74.7	65.3	67.3	70.0	71.1	55.4	56.9	62.5	63.9
CY	67.7	73.6	78.2	77.3	59.3	67.0	72.8	72.0	50.2	60.7	65.2	69.1
CZ	64.8	66.8	72.1	69.7	56.6	59.8	66.5	63.8	42.5	48.1	59.8	58.9
EE	62.9	68.4	71.9	70.8	59.3	64.7	68.9	67.4	52.7	55.3	61.7	61.7
HU	56.9	60.8	65.3	63.2	50.7	54.2	60.3	58.6	28.7	39.6	49.8	49.5
LT	61.2	67.3	73.4	71.7	58.4	64.6	71.3	69.0	45.3	53.1	65.1	66.2
LV	61.9	69.9	73.1	71.4	57.8	65.3	69.1	66.7	44.1	53.4	59.2	58.7
MT	54.1	56.7	62.4	61.3	33.7	39.6	49.0	48.6	32.0	29.3	30.3	33.1
PL	51.0	57.0	68.4	66.1	45.8	51.8	64.3	60.9	26.7	35.2	42.7	48.7
SK	57.8	62.1	72.7	68.7	52.2	56.9	68.9	64.3	25.2	38.5	51.7	51.2
SI	62.8	67.7	69.9	69.3	58.0	62.5	65.9	66.4	23.5	40.4	50.0	52.6
EU25	***63.1***	***66.9***	***70.3***	***70.9***	***55.4***	***60.2***	***64.7***	***65.5***	***39.9***	***47.1***	***56.8***	***58.9***
EU15	***64.6***	***68.1***	***70.5***	***71.5***	***56.5***	***61.2***	***64.6***	***66.1***	***41.4***	***48.6***	***58.0***	***60.2***
Euro area	***62.9***	***66.9***	***69.4***	***70.5***	***54.1***	***59.4***	***63.1***	***64.6***	***37.4***	***46.0***	***56.5***	***58.8***
EU10	***55.7***	***60.7***	***69.4***	***67.1***	***50.0***	***55.2***	***65.0***	***62.1***	***31.7***	***39.8***	***49.2***	***51.9***

Source: EPC and European Commission (2005a)

As shown on Table 2-9 the number of persons employed (according to the European Labour Force Survey definition) is expected to record a positive annual growth rate of only 0.4% over the period 2003-2025, and then reverse to a larger negative annual growth rate of about -0.5% in the subsequent period (2025-2050). As a result, the overall number of people employed in the EU25 in 2050 is projected to be about 9 million below the level recorded in 2003 (a drop of 600,000 women and 8.2 million of men).

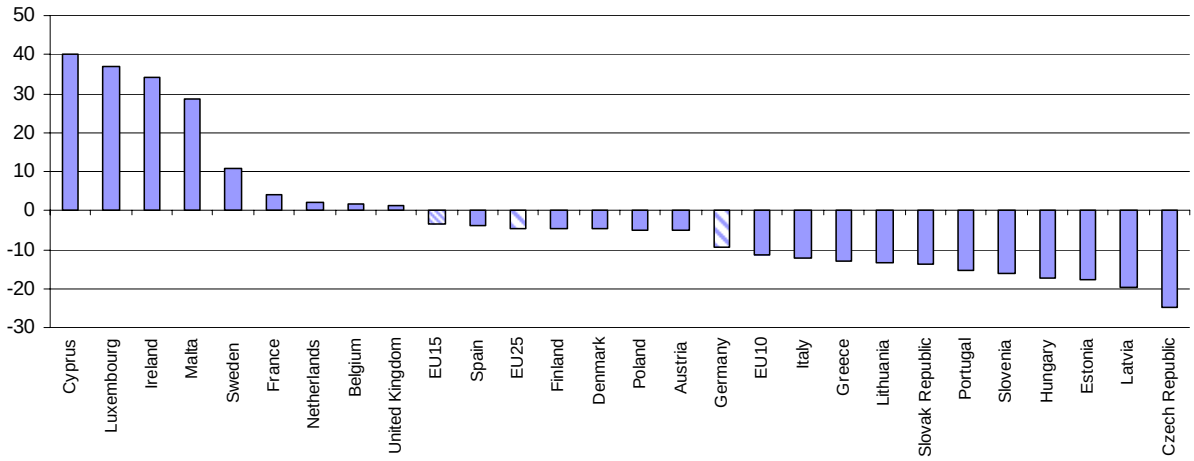
Table 2-9 Projected changes in employment (aged 15-64)

	Changes						Annual Growth rate	
	(thousands)			(as %)				
	2003-2025	*2025-2050*	*2003-2050*	*2003-2025*	*2025-2050*	*2003-2050*	*2003-2025*	*2025-2050*
BE	315	-249	66	7.8	-5.7	1.6	0.3	-0.2
DK	23	-151	-129	0.8	-5.6	-4.8	0.0	-0.2
DE	1887	-5260	-3373	5.2	-13.7	-9.3	0.2	-0.6
GR	331	-908	-577	7.5	-19.2	-13.1	0.3	-0.8
ES	3906	-4552	-646	22.9	-21.7	-3.8	0.9	-1.0
FR	1664	-694	969	6.8	-2.7	4.0	0.3	-0.1
IE	604	-5	599	34.3	-0.2	34.0	1.3	0.0
IT	1348	-3985	-2637	6.2	-17.1	-12.0	0.3	-0.7
LU	41	28	69	21.7	12.4	36.8	0.9	0.5
NL	381	-212	168	4.7	-2.5	2.1	0.2	-0.1
AT	304	-502	-198	8.0	-12.3	-5.2	0.4	-0.5
PT	218	-940	-722	4.6	-18.9	-15.2	0.2	-0.8
FI	28	-141	-112	1.2	-5.9	-4.8	0.1	-0.2
SE	353	107	460	8.3	2.3	10.9	0.4	0.1
UK	1972	-1625	347	7.1	-5.4	1.2	0.3	-0.2
CY	132	-1	131	40.5	-0.3	40.1	1.6	0.0
CZ	-126	-1034	-1160	-2.7	-22.8	-24.9	-0.1	-1.0
EE	-14	-87	-101	-2.4	-15.6	-17.6	-0.1	-0.7
HU	35	-713	-678	0.9	-17.9	-17.1	0.0	-0.8
LT	92	-281	-189	6.5	-18.6	-13.3	0.3	-0.8
LV	-14	-179	-193	-1.5	-18.5	-19.7	-0.1	-0.8
MT	37	5	42	25.3	2.7	28.7	1.0	0.1
PL	2698	-3404	-705	20.0	-21.0	-5.2	0.8	-0.9
SK	369	-672	-303	16.9	-26.3	-13.9	0.7	-1.2
SI	18	-159	-141	2.1	-17.8	-16.1	0.1	-0.8
EU25	**16603**	**-25615**	**-9012**	**8.6**	**-12.2**	**-4.7**	**0.4**	**-0.5**
EU15	**13376**	**-19090**	**-5714**	**8.2**	**-10.8**	**-3.5**	**0.4**	**-0.5**
Euro area	**11028**	**-17420**	**-6392**	**8.5**	**-12.4**	**-4.9**	**0.4**	**-0.5**
EU10	**3227**	**-6525**	**-3298**	**11.3**	**-20.5**	**-11.5**	**0.5**	**-0.9**

Source: EPC and European Commission (2005a).

The broad trends described above are common to many countries, but they are not uniform and the geographical patterns are striking. As shown in Graph 2-8, five smaller Member States (CY, IE, LU, SE, MT) are projected to experience a pronounced rise in employment between 2003 and 2050, while the change in employment in four EU15 Member States (FR, NL, BE and UK) is projected to be slightly positive or stable. Eleven Member States are projected to see falls in employment that are well above the average for the EU25 of -4.6% (DE, GR, IT, PT, CZ, EE, HU, LT, LV, SK, SI).

Graph 2-8 Projected changes in employment (% change of employed people aged 15-64 between 2003 and 2050)



Source: EPC and European Commission (2005a)

2.2.5. A closer look at the impact of ageing on labour supply and employment

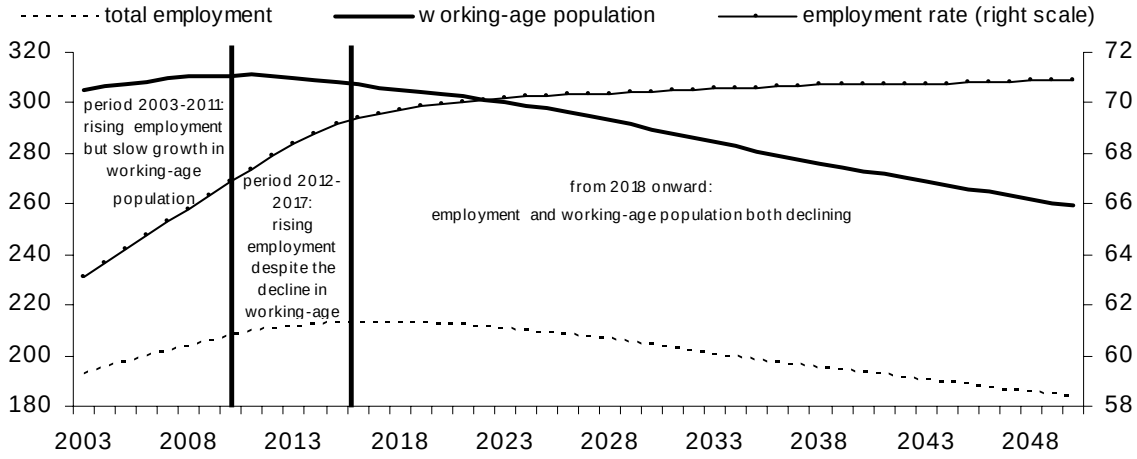
The projected increases in the employment rates of women and older workers will, as illustrated in Graph 2-9, temporarily cushion the effects of ageing on the labour force. Three distinct time periods can be observed (with Table 2-10 below providing more information on the peaks and troughs as regards the size of the working age population and the numbers of persons employed per Member State):

- *2004-2011 – window of opportunity when both demographic and employment developments are supportive of growth:* both the working-age population and the number of persons employed increase during this period. However, the rate of increase slows down, as the effects of an ageing population take hold even if not yet visible in aggregate terms. This period can be viewed as a window of opportunity, since both demographics and labour force trends are supportive of growth. Conditions for pursuing structural reforms may be relatively more favourable than in subsequent years;

- *2012-2017 – rising employment rates offset the decline in the working-age population:* during this period, the working-age population will start to decline as the baby-boom generation enter retirement. However, the continued projected increase in the employment rates of women and older worker will cushion the demographic factors, and the overall number of persons employed will continue to increase albeit at a slower pace. This period could be characterised by tightening labour market conditions with potentially growing mismatches and the risk of heightened wage pressures. The window of opportunity will be closing rapidly;

- *the ageing effect dominates from 2018:* the trend increase in female employment rates will broadly have worked itself through by 2017. In the absence of further pension reforms, the employment rate of older workers is also projected to reach a steady state. Consequently, there is no counter-balancing factor to ageing, and thus both the size of the working-age population and the number of persons employed both enter a downward trajectory.

Graph 2-9 Projected working-age population and total employment, EU25



Source: DG ECFIN and the EPC

Table 2-10-Peaks and troughs for the size of the working-age population and the total number of persons employed (aged 15-64)

	Working-age population (15-64)			Employment (15-64)		
	peak year	% change 2003-peak	% change peak-trough	peak year	% change 2003-peak	% change peak-trough
BE	2011	2.9	-10.0	2017	10.3	-7.8
DK	2008	0.7	-9.8	2009	2.4	-8.1
DE	2003	0.0	-19.2	2015	10.7	-18.0
GR	2010	1.2	-22.2	2015	10.8	-21.6
ES	2010	6.3	-24.3	2020	24.1	-22.5
FR	2011	3.3	-6.6	2015	7.3	-3.1
IE	2035	23.1	-4.4	2035	39.8	-4.1
IT	2004	0.7	-23.9	2018	8.6	-19.0
LU	2050	30.9		2050	36.8	
NL	2011	2.5	-7.2	2019	6.0	-4.8
AT	2012	2.3	-16.2	2019	11.1	-14.7
PT	2008	1.6	-22.7	2013	7.9	-21.4
FI	2010	1.3	-14.5	2011	5.3	-9.6
SE	2050	4.3		2050	10.9	
UK	2011	3.8	-6.7	2018	7.8	-6.1
CY	2043	26.3	-2.9	2041	44.2	-2.8
CZ	2007	0.8	-30.7	2013	3.4	-27.3
EE	2006	0.2	-26.9	2011	7.2	-23.1
HU	2003	0.0	-25.4	2011	5.5	-21.5
LT	2006	0.1	-26.1	2016	12.7	-23.1
LV	2003	0.0	-30.3	2012	10.5	-27.3
MT	2041	14.5	-0.8	2037	29.8	-0.9
PL	2011	2.4	-28.6	2025	20.0	-21.0
SK	2010	2.7	-29.5	2020	17.4	-26.6
SI	2011	0.9	-24.7	2012	9.0	-23.0
EU25	*2011*	*1.9*	-16.7	*2017*	*10.6*	-13.8
EU15	*2011*	*2.1*	-14.6	*2017*	*10.2*	-12.4
Euro area	*2011*	*1.7*	-16.6	*2016*	*11.0*	-14.3
EU10	*2009*	*1.3*	-27.5	*2015*	*13.1*	-21.8

Note: *The trough for the size of the working-age population is 2050 for all countries except DK (2044) and NL (2039). Trough for number of persons employed is 2050 for all countries except DK (2041) and NL (2041).*
Source**:** DG ECFIN calculations based on EPC and European Commission (2005a).

2.3. Labour productivity and potential growth rates[31]

Assumptions on productivity based on a 'production function approach'

It has been agreed to use a 'production function approach' to estimate labour productivity growth. Labour productivity (output per worker) is derived from the calculations based on the labour input projections, the assumptions concerning Total Factor Productivity (TFP) and the investment scenario. This approach aims at shedding light on the reasons behind productivity developments and obtaining a richer medium-term dynamic including the effect of population growth on labour productivity in the medium run through the change in capital intensity.

As explained in EPC and European Commission (2005a), the following assumptions have been agreed:

- to take the scenario of the Output Gap Working Group (OGWG) over the medium run (2007-2009) while sorting out the level differences between the OGWG and (cohort-approach-based) AWG labour input series;

- for the EU15 countries, the growth rate of Total Factor Productivity (TFP) will converge to 1.1% (i.e. the US trend labour productivity growth) by 2030, with different speeds of convergence across Member States[32]. For the EU10, TFP will converge to 1.75% by 2030 and thereafter converge at the same pace so as to reach 1.1% in 2050;

- in order to allow for a faster convergence across the EU10 Member States, three quarters of the convergence towards 1.75% and 1.1% is achieved in 2015 and 2035, respectively. Indeed, while a longer period of convergence (by 2050) is necessary for the EU10 Member States, there is a clear need for countries to converge to the same growth of output per worker at the end of the projection horizon;

- as regards the capital deepening assumptions, the EPC agreed to hold the investment/ GDP ratio constant until 2010 in the baseline scenario. A transition to a constant capital/ labour[33] ratio assumption is introduced gradually (in a linear manner) over the period 2010 to 2030. Finally, the capital/labour ratio expressed in efficiency units (capital per effective worker) is held constant from 2030 to 2050. This implies that both the capital stock per worker and labour productivity grows at the same pace, which coincides with labour-augmenting technical progress (i.e. TFP growth - equal to 1.1- divided by the labour share, set equal to 0.65).

Projection results for potential GDP growth in the baseline scenario

By combining the employment and productivity projections, a projection for potential GDP growth rates up to 2050 is obtained. Table 2-11 presents the outcome of these assumptions in

[31] A more detailed description of the approach used to make the assumptions and projections on labour productivity and GDP growth can be found in Carone G., C.Denis, K. Mc Morrow, G. Mourre, W. Röger (2006), forthcoming.

[32] Some countries underwent specific adjustments in their TFP profile in the period 2010-2030 such as GR, IT, PT and ES, in order to allow for stronger real convergence in productivity level.

[33] Labour here refers to technical-progress-augmented labour (i.e. labour measured by efficiency unit).

terms of the projections for potential growth rates up to 2050 as well as its determinants. For the EU25, the annual average potential GDP growth rate in the period 2004 to 2010 is projected to decline from 2.4% to 1.2% in the period 2031-2050. The projected fall in potential growth rates is much higher in the EU10. For the EU10, potential GDP growth rates of 4.5% between 2004 and 2010 are projected to fall to 0.9% between 2031 and 2050. This occurs in part because the productivity growth rates between the EU10 and EU15 are assumed to have converged by then, but especially because of their less favourable demographic projections.

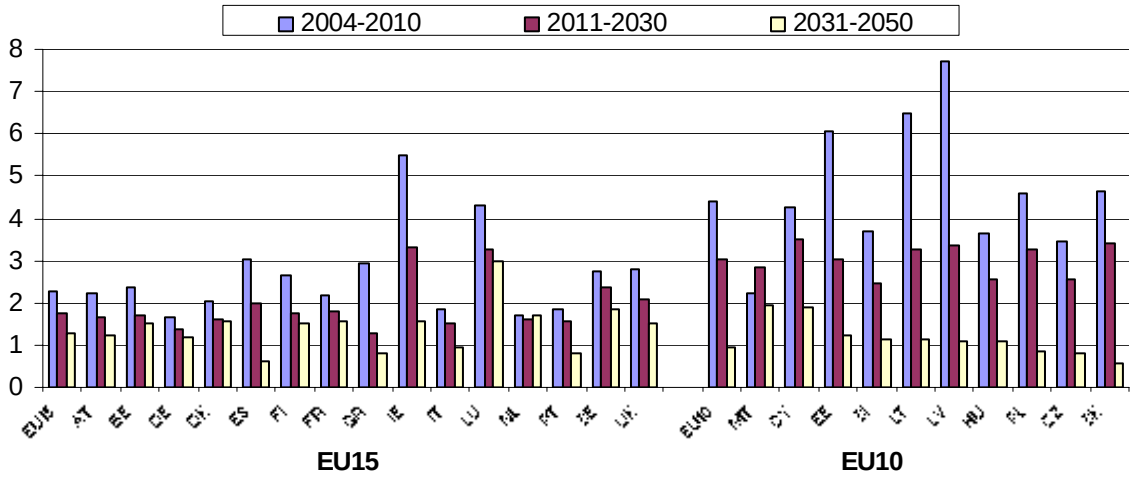
Table 2-11 Projected potential growth rates and determinants

	Potential Growth			Labour productivity			Employment		
	2004-2010	2011-30	2031-50	2004-2010	2011-30	2031-50	2004-2010	2011-30	2031-50
BE	2.4	1.8	1.5	1.5	1.8	1.7	0.9	0.0	-0.2
DK	2.0	1.6	1.6	1.9	1.8	1.7	0.1	-0.2	-0.1
DE	1.7	1.4	1.2	0.9	1.6	1.7	0.8	-0.3	-0.5
GR	2.9	1.6	0.8	2.1	1.8	1.7	0.9	-0.2	-0.9
ES	3.0	2.0	0.6	1.1	1.9	1.7	1.9	0.1	-1.1
FR	2.2	1.8	1.6	1.4	1.7	1.7	0.8	0.1	-0.1
IE	5.5	3.3	1.6	3.4	2.5	1.7	2.0	0.8	-0.1
IT	1.9	1.5	0.9	0.7	1.7	1.7	1.1	-0.2	-0.8
LU	4.0	3.0	3.0	1.8	1.9	1.7	2.2	1.0	1.3
NL	1.7	1.6	1.7	1.1	1.7	1.7	0.6	-0.1	0.0
AT	2.2	1.6	1.2	1.5	1.8	1.7	0.7	-0.2	-0.5
PT	1.9	2.1	0.8	1.2	2.4	1.7	0.7	-0.3	-0.9
FI	2.7	1.7	1.5	2.1	2.0	1.7	0.6	-0.3	-0.2
SE	2.7	2.4	1.8	2.2	2.3	1.7	0.6	0.1	0.1
UK	2.8	2.1	1.5	2.1	2.1	1.7	0.7	0.0	-0.2
CY	4.3	3.5	1.9	2.4	2.9	1.9	1.9	0.6	0.0
CZ	3.5	2.6	0.8	3.4	3.0	1.9	0.1	-0.4	-1.1
EE	6.1	3.0	1.2	5.3	3.6	1.9	0.7	-0.6	-0.7
HU	3.7	2.6	1.1	3.2	2.9	1.9	0.5	-0.3	-0.9
LT	6.5	3.3	1.1	5.7	3.6	1.9	0.8	-0.4	-0.8
LV	7.7	3.4	1.1	6.5	4.1	1.9	1.2	-0.7	-0.8
MT	2.2	2.8	2.0	1.0	2.2	1.9	1.2	0.6	0.0
PL	4.6	3.2	0.9	3.8	3.1	1.9	0.7	0.1	-1.1
SK	4.6	3.4	0.6	3.9	3.3	1.9	0.7	0.1	-1.3
SI	3.7	2.5	1.1	3.3	3.0	1.9	0.4	-0.5	-0.8
EU25	2.4	1.9	1.2	1.5	2.0	1.7	0.9	-0.1	-0.5
EU15	2.2	1.8	1.3	1.3	1.8	1.7	0.9	-0.1	-0.4
Euro area	2.1	1.7	1.2	1.1	1.8	1.7	1.0	-0.1	-0.5
EU10	4.5	3.0	0.9	3.6	3.1	1.9	0.9	-0.1	-1.0

Source: EPC and European Commission (2005a)

The projected potential GDP growth rates for all countries are shown in Graph 2-10. Almost all countries are projected to experience a steady decline. It will become apparent as of 2010, and will be most significant in countries with the highest starting point, notably the EU10. In many countries, potential annual growth rates will have dropped to close to, or below, 1% during the period 2030 to 2050. Only a few small countries (LU, LV, CY, IE, LT, and EE) are projected to enjoy an average growth rate higher than 2.5%, while a few larger countries (DE, GR, IT and PT) are expected to grow at a rate lower than 1.5% over the whole period.

Graph 2-10 Projected potential GDP growth (annual average) in the EU25 Member States

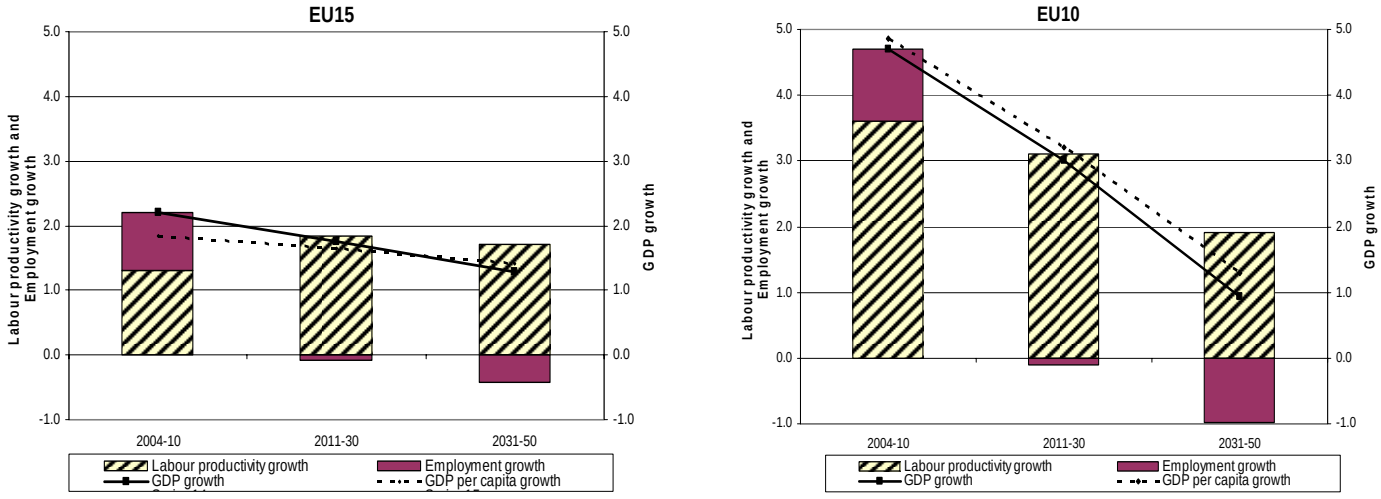


Source: EPC and European Commission (2005a)

The sources of economic growth are also projected to change

In addition to falling potential GDP growth rates, the sources of growth will alter dramatically. Employment will make a positive contribution to growth in both the EU15 and the EU10 up to 2010, but becomes neutral in the period 2011-2030 and turn significantly negative thereafter. Over time, productivity will become the dominant source of growth.

Graph 2-11 Projected (annual average) potential growth rates in the EU15 and EU10 and their determinants (employment/productivity)



Source: EPC and European Commission (2005a)

In order to assess the relative contribution to GDP growth of its two main components, labour productivity and labour utilisation, Table 2-12 uses the standard accounting framework. One can see the compensating effects of an increasing employment rate (which on average contributes 0.2 percentage points to average GDP growth over the projection period) and a

decline in the share of the working-age population (which is a negative drag on growth by an average of -0.3 percentage points).

Table 2-12 GDP growth and its sources, 2004-2050

	AVERAGE 2004-2050			
	EU25	**EU15**	**Euro area**	**EU10**
GDP growth	1.7	1.6	1.5	2.4
due to % change in:				
Productivity (GDP/per employee)	1.8	1.7	1.6	2.7
of which:				
Total factor productivity	1.2	1.1	1.1	1.6
Capital deepening	0.6	0.6	0.6	1.1
Labour utilisation	-0.1	-0.1	-0.1	-0.3
of which:				
Employment rate	0.2	0.2	0.3	0.4
Share of working age population	-0.3	-0.3	-0.4	-0.4
Population	0.00	0.04	0.01	-0.27

Note: *The level of GDP is given by the product of labour productivity (GDP per hour worked) by the different components of labour utilisation (average hours worked per person, the employment rate and the share of working-age population) and the population. GDP growth is (roughly) equivalent to the sum of the growth rates of these variables.*

Source: DG ECFIN calculations based on EPC and European Commission (2005a).

Developments in terms of GDP per capita

Table 2-13 presents the projections for GDP per capita growth rates and provides an indication of GDP per capita and productivity levels relative to the average for the EU15. The effects of an ageing population on living standards can more closely be observed by looking at growth rates in terms of GDP per capita. As expected, the projected decline in GDP per capita growth rates in both the EU15 and the EU10 is less than the projected fall in potential output growth rates, since total population growth rates should drop over the period 2004-2050. Hence, living standards should hold up better than what is suggested by the trend in headline GDP growth rate.[34] It is also interesting to note from Table 2-13 that per capita income levels in EU10 are projected to increase from 50% of EU15 average in 2004 to 78% in 2050**.**

[34] A further distinction worth noting is that the retirement of the baby-boom generation will lead to some slowdown in GDP per capita growth in comparison with GDP per worker. To the extent that wages over the long-run reflect developments in GDP per worker, a shift could occur in the relative income position of different age cohorts.

Table 2-13 GDP per capita growth: growth rates and levels relative to EU15 average

	GDP per capita growth rates (%)			GDP per capita (EU15=100)			Productivity levels (EU15=100)		
	2004-10	2011-30	2031-50	2004	2030	2050	2004	2030	2050
BE	2.1	1.6	1.6	108	107	109	122	115	115
DK	1.8	1.5	1.7	110	107	111	98	100	100
DE	1.6	1.4	1.5	101	94	95	94	88	88
GR	2.6	1.6	1.1	72	72	68	84	79	79
ES	2.0	1.9	0.9	85	90	81	91	88	88
FR	1.7	1.5	1.6	105	101	103	113	110	110
IE	4.2	2.5	1.2	132	177	167	128	161	161
IT	1.6	1.6	1.3	100	97	94	116	108	108
LU	3.1	2.1	2.4	194	226	270	129	135	135
NL	1.3	1.3	1.7	108	98	103	93	92	92
AT	1.9	1.5	1.4	116	113	112	109	106	106
PT	1.5	2.1	1.1	68	73	68	60	71	71
FI	2.4	1.6	1.7	108	110	115	104	112	112
SE	2.3	2.0	1.7	112	123	129	104	116	116
UK	2.4	1.8	1.5	104	111	113	95	107	107
CY	2.9	2.7	1.6	81	107	110	77	94	97
CZ	3.6	2.8	1.3	64	89	86	59	87	90
EE	6.6	3.5	1.6	46	86	87	46	82	86
HU	3.9	2.8	1.4	54	76	75	61	81	85
LT	7.0	3.7	1.5	43	86	87	46	80	84
LV	8.3	3.9	1.5	42	93	94	42	88	92
MT	1.3	2.2	1.7	68	73	76	80	81	84
PL	4.7	3.4	1.3	45	75	73	54	76	79
SK	4.7	3.6	1.0	48	83	77	52	76	80
SI	3.6	2.5	1.4	73	94	94	71	96	100
EU25	2.2	1.8	1.4	92	97	97	93	97	98
EU15	1.9	1.7	1.4	100	100	100	100	100	100
Euro area	1.8	1.6	1.4	99	97	96	101	98	98
EU10	4.6	3.2	1.3	50	80	78	56	80	83

Source: EPC and European Commission (2005a)

2.4. Other macroeconomic assumptions

Real interest rates: the EPC agreed to assume a real interest rate of 3%.

Inflation: projections will be reported in 2004 prices. However, for technical reasons, some countries may need to introduce an assumption on inflation into their models, and in this event, the EPC agreed that it should be 2% for all countries.

Growth of real wages: it is assumed that real wages grow in line with labour productivity. As a result, the wage share will remain constant over the projection period. The rule is applied to all Member States uniformly.[35]

2.5. Some overall conclusions on economic impact of ageing

Significant policy challenges lie ahead

The projection results described above suggest that ageing populations will have a significant impact on Europe's economies in the decades ahead. From an economic perspective, potential

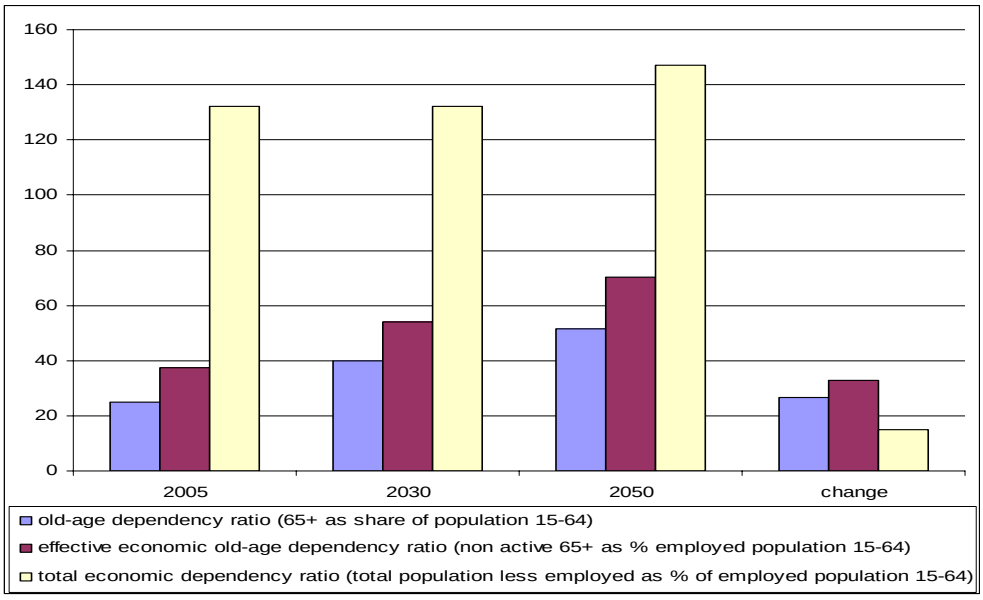
[35] The assumption is well-founded in economic theory. If the real wage is equal to the marginal productivity of labour, it follows that under the standard features of the production function, real wage growth is equal to labour productivity growth and real unit labour costs remain constant.

growth rates will fall to levels below those observed in recent decades: however, living standards as measured by GDP per capita should hold up better than what is suggested by the trend in headline GDP growth rate. Pressure for increased public spending will result from having a higher share of the total population in older age cohorts that receive larger public transfers (e.g. pensions) and services (health care, long-term care). The financing side may also be affected, with a decline in the support ratio of contributors to beneficiaries.

These developments can best be viewed by comparing the projected demographic dependency ratios (that emerge from the AWG population scenario) with the economic dependency ratios (that result from the employment and GDP projections), see Graph 2-12 and Table 2-14.

Over the next decades the old-age dependency ratio, that is the number of people aged 65 years and above, relative to those between 15 and 64, is projected to double, reaching 51% in 2050. This means in the EU, the current situation of having four people of working-age for every elderly citizen change into a ratio of 2 to 1 (even higher in some countries). The effective economic old-age dependency is also shown on Table 2-14, which is the number of non-active persons aged 65 and above as a percentage of employed persons aged 15 to 64. As expected, this ratio is higher than the old age-dependency ratio, and projected to rise sharply for the EU25 from 37% in 2003 to 48% in 2025 and 70% in 2050, raising complex issues on the role of public transfers in achieving an appropriate distribution of resources between a smaller active population and a larger inactive retired population.

Graph 2-12 Projected demographic and economic dependency ratios for the EU 25



Source: EPC and European Commission (2005a)

The total economic dependency ratio measures the total inactive population (total population less persons employed) as a percentage of persons employed (aged 15 to 64). It gives an indication of the average number of people which each economically active person 'supports', and thus is relevant when considering the prospects for potential GDP per capita growth. For the EU 25, this ratio actually falls from 136% in 2003 to 125% in 2025, but thereafter increases to 147% by 2050. The overall economic dependency is projected to decline up to 2025 mostly due to a better labour market performance (especially the projected trend increase in female employment rates), but also due to low fertility (as smaller numbers of

young people imply a decline in the youth dependency ratio). However, these effects taper off after 2025, and the increase in the total economic dependency ratio between 2025 and 2050 is noticeably steeper.

Table 2-14 Projected changes in demographic and economic dependency ratios

	Old-age dependency ratio (population aged 65 and above as a percentage of the population aged 15-64*)				**Effective economic old-age dependency ratio** (non active population aged 65 and above as a percentage of employed population aged 15-64)				**Total economic dependency ratio** (total population less employed as a percentage of employed population aged 15-64)			
	2003	**2025**	**2050**	***change 2003-50***	**2003**	**2025**	**2050**	***change 2003-50***	**2003**	**2025**	**2050**	***change 2003-50***
BE	26	36	47	*21*	43	55	71	*28*	156	150	164	*8*
DK	22	34	42	*20*	28	42	52	*24*	101	106	116	*14*
DE	26	38	52	*26*	39	50	69	*30*	127	117	135	*9*
GR	26	36	60	*35*	41	52	88	*47*	150	141	181	*31*
ES	25	33	66	*41*	40	45	88	*48*	144	118	162	*18*
FR	25	37	46	*21*	39	53	66	*27*	144	146	156	*12*
IE	16	25	45	*29*	23	31	56	*33*	125	108	132	*7*
IT	28	39	62	*34*	49	60	93	*44*	162	149	179	*17*
LU	21	28	36	*15*	33	42	55	*22*	138	137	149	*11*
NL	20	33	41	*20*	27	41	51	*24*	101	107	114	*13*
AT	23	34	52	*30*	33	45	67	*35*	113	108	128	*15*
PT	23	35	59	*36*	30	43	73	*43*	118	116	149	*30*
FI	23	41	47	*24*	33	54	60	*27*	121	128	133	*12*
SE	26	36	41	*14*	35	45	50	*15*	111	113	117	*6*
UK	24	33	45	*21*	32	42	57	*25*	113	114	128	*14*
CY	14	29	43	*30*	18	35	52	*33*	120	96	114	*-6*
CZ	20	35	55	*35*	29	47	76	*46*	119	116	154	*35*
EE	23	31	43	*20*	35	41	57	*22*	135	118	137	*2*
HU	22	34	48	*26*	39	51	74	*35*	156	140	172	*16*
LT	22	29	45	*23*	35	38	60	*25*	144	107	134	*-10*
LV	23	31	44	*21*	35	39	58	*23*	137	113	137	*0*
MT	19	34	41	*22*	34	54	66	*32*	170	154	168	*-2*
PL	18	33	51	*33*	35	46	74	*40*	183	127	163	*-20*
SK	16	28	51	*34*	28	38	73	*45*	146	105	151	*6*
SI	21	36	56	*35*	32	49	77	*44*	127	124	157	*31*
EU25	*24*	*35*	*51*	*27*	*37*	*48*	*70*	*33*	*136*	*125*	*147*	*11*
EU15	*25*	*36*	*52*	*26*	*38*	*49*	*70*	*32*	*132*	*126*	*145*	*13*
EU10	*19*	*33*	*50*	*31*	*34*	*45*	*73*	*39*	*159*	*124*	*158*	*-1*

Source: EPC and European Commission (2005a)

Some positive developments are underway, in part due to reforms already carried out.

There are some positive indications which emerge from the analysis:

- first, employment rates and levels are projected to continue rising for at least a decade, which will offset somewhat the projected decline in the size of the working-age populations and provides a window of opportunity to undertake necessary reform measures;

- second, the projections confirm the validity of the Lisbon strategy. They already embody the achievement of the overall Lisbon employment targets (although only reached in 2020 for the EU25), but also confirm the importance of policies to raise

productivity potential. Higher levels of investment in physical and human capital could yield substantial productivity gains over the long run, especially against a background of a knowledge-based society. There is strong evidence that higher educational attainment leads to enhanced labour productivity and adaptability to a knowledge-based economy. The higher enrolment rates in second and third level education observed in many countries, coupled with a greater focus on quality and efficiency, may contribute to improved productivity in the future, albeit with a lag of several years even decades. The interaction between labour- and product market reforms is worth highlighting in this context, as more flexibility in these markets facilitates resource re-allocation to more innovative and productive activities.

- the projections illustrate the effects of successful structural reforms, and that policy action can have a substantial impact on our capacity to meet the challenge of ageing. The projections indicate that pension reforms already enacted by Member States, could lead to a 10 percentage point increase in the employment rate of older workers, thus reaching levels above the Lisbon employment targets.

3. PENSIONS

3.1. Introduction

This chapter presents the projection results for spending on pensions. It builds upon the 2001 projection exercise of the EPC, which in addition to being used in the assessment at EU level of the sustainability of public finances, also fed into the open method of co-ordination on pensions[36]. Considerable efforts have been made to improve upon the 2001 exercise in two important respects:

- the coverage of pension schemes included in the exercise is more complete and comparable. In the 2001 projection exercise, the coverage of early retirement and disability pension schemes, as well as some specific schemes such as those covering public sector employees, was incomplete;

- the decomposition of projection results has been improved. The 2001 projection results lacked clarity and were not disaggregated, e.g. no breakdown of pension expenditure was presented and old-age pensions could not be analysed separately.

The remainder of the chapter is structured as follows. The next section deals with the coverage of the exercise. After briefly summarising the very different pension schemes that exist in the EU Member States, a detailed description is provided of those pension schemes included in this projection exercise. Section 3.3 presents the results for the baseline scenario. Section 3.4 presents the results of the sensitivity tests.

3.2. Pension schemes and their coverage in the projections

3.2.1. Overview of the pension systems

Pension systems are very diverse in the EU Member States. However, all countries have a strong public sector involvement in the pension system through their social security systems, while the importance of occupational and private pension provisions varies. In most countries, the core of the social security pension system is a statutory earnings-related old-age pension scheme, either a common scheme for all employees or several parallel schemes in different sectors or occupational groups. In addition, the social security pension system often provides a minimum guaranteed pension to those who have not qualified for the earnings-related scheme or have accrued only a small earnings-related pension. Usually, such minimum guarantee pensions are means-tested and provided either by a specific minimum pension scheme or through a general social assistance scheme. In a few Member States, notably in Denmark, the Netherlands, Ireland and the United Kingdom, however, the social security pension system provides in the first instance a flat-rate pension, which is supplemented by earnings-related private occupational pension schemes (in the UK, also by a public earnings-related pension scheme (State Second Pension) and in Ireland by an earnings-related pension scheme for public sector employees). In these countries, the occupational pension provision is

[36] Council of the European Union (2003), 'Adequate and sustainable pensions. Joint Report by the Commission and the Council', 7165/03.

equivalent to the earnings-related social security pension schemes in most of the EU countries.

A further source of diversity relates to the fact that a number of Member States, including Sweden and a number of new Member States such as Estonia, Latvia, Lithuania, Hungary, Poland and Slovakia, have switched a part of their social security pension schemes into private funded schemes. Usually, this provision is statutory but the insurance policy is made between the individual and the pension fund. Participation in a funded scheme is conditional on participation in the public pension scheme and is mandatory for new entrants to the labour market (in Sweden for all employees), while it is voluntary for older workers (in Lithuania it is voluntary for all people).

According to the decision of EUROSTAT[37], these schemes should be included in the private sector in national accounts because the transactions are between the individual and the pension fund. Thus, they are not recorded as government revenues or expenditure, and consequently, they do not have an impact on the government surplus or deficit. In addition, the insured persons have the ownership of the assets of the fund and, thus, they bear the risks and enjoy the rewards regarding the value of the assets. Furthermore, the EUROSTAT decision specifies that a possible government guarantee for such a fund is not an adequate condition to classify such schemes as social security (public) schemes, because such a guarantee is a contingent liability and these are not considered as economic transactions until they materialise.

Social security pension systems diverge from each other as regards the type of benefits provided by the pension system. Most pension schemes provide not only old-age pensions but also early retirement pensions, disability and survivors' pensions. Some countries, however, have specific schemes for some of these benefit types, in particular, some countries do not consider disability benefits as pensions, despite the fact that they are granted for long periods, and may be covered by the sickness insurance scheme.

Furthermore, pension systems differ across countries regarding the financing method of the schemes. Most social security schemes are financed on a pay-as-you-go (PAYG) basis, indicating that the contribution revenues are used for the payments of current pensions. In addition, there is a considerable variation between countries regarding the extent to which the contribution revenues cover all pension expenditure. In most countries, minimum guarantee pensions are covered by general taxes. However, it is also common that earnings-related schemes are subsidised to varying degrees from general government funds or some specific schemes (notably public sector employees' pensions) do not constitute a clear scheme but, instead, pensions appear directly as expenditure in the government budget. On the other hand, some predominantly PAYG pension schemes (FI, LU, SE) have statutory requirements for partial pre-funding and, in view of the increasing pension expenditure, many governments have started to collect reserve funds for their public pension schemes. Occupational and private pension schemes are usually funded. However, the degree of funding relative to the pension promises may differ due to the fact that benefits can be defined either on the basis of benefit rights linked to the salary and career length (defined-benefit principle) or of paid contributions (defined-contribution principle).

[37] Classification of funded pension schemes in the case of government responsibility and guarantee, EUROSTAT 20/2004, 2 March 2004

Table 3-1 Overview of the pension systems in Member States

	Social security pensions (public sector schemes)	Occupational pension schemes (private sector schemes)	Individual (private) pension schemes (private sector schemes)
BE	*Minimum guarantee pensions:* Means-tested minimum pensions through social assistance (GRAPA-IGO) *Earnings-related social security pensions:* Separate schemes for private and public sector employees, self-employed; schemes cover old-age and survivors' pensions, and disability pensions in the case of civil servants (which are included in public (social security) pensions in this report); Disability pension schemes for private sector employees and self-employed. Early retirement ("pre-pension") through an unemployment benefit and a supplement from the employer	Legal framework has been established. The provision of occupational pensions is minor (pensions accounted for 1.3% of GDP in 2004).	Voluntary private schemes exist only to a minor extent
CZ	*Minimum guarantee pensions:* No special scheme, it is embedded in the pension formula (flat-rate component) *Earnings-related social security pensions:* One scheme covering the whole population, also providing a flat-rate pension to economically inactive persons; covering old-age, disability and survivors' pensions; Public security personnel (armed forces, police, custom officers, firemen) pensions paid from the state budget.	Do not exist	Voluntary private pension scheme at an early accumulation stage; low replacement rate (contribution 2.1% of wage; covers about half labour force
DK	*Minimum guarantee pensions:* Universal flat-rate pensions for every citizen (subject to the time lived in DK), means-tested supplements to those without occupational pensions, tax-financed; Disability pensions to those below 65. *Earnings-related social security pensions:* Voluntary early retirement pensions (requires 25 years of contributions; pension benefit dependent on age, not on contributions); Civil servants' pensions for central and local government employees (in coming years these schemes are replaced by ordinary labour market (occupational) pensions.	Labour market (occupational) pensions (private sectorcovering 90% of the employees), Labour market supplementary pensions (ATP), Special pension savings plan (SP), Labour market supplementary pensions for recipients of anticipatory pensions (SAP) Employees' capital fund (LD); All these schemes are fully funded.	Individual pension savings plans (1.1 million contributors)
DE	*Minimum guarantee pensions:* No special scheme but disabled and older people without sufficient income are entitled to means-tested benefits (social assistance) *Earnings-related social security pensions:* General scheme covering private and public sector employees, the scheme covers old-age, disability, early retirement and widow's pensions; specific schemes for life-time civil servants as well as farmers and miners;	Occupational pension provision existing; benefits account for 1.3% of GDP; supported by SSC exemptions up to 4% of SSC ceiling, equal to 2472€ in 2004, and by tax exemption up to 4300€. In 2003, about 30% of newly retired received occupational pensions. In 2005, about 60% contribute to such schemes (including private funded schemes, about 70% of employees contribute to supplementary schemes).	Individual funded pensions of growing importance since the 2001 reform (supported by tax exemptions and direct allowances; contribution rate 2% of wages in 2004, to be increased to 4% by 2008). Currently, about 4.7 mill. so-called Riester-contracts exist.

EE	*Minimum guarantee pensions:* National pension equal to the base amount of the pension ins. scheme, available to those not qualifying for insurance scheme. *Earnings-related social security pensions:* One scheme covering the whole population; covering old-age, disability and survivors' pensions; benefits are flat-rate + a length-of-service supplement for careers before 1999, as of 1999 benefits are earnings-related	Do not exist	Statutory private schemes for the switched part of the social security pension scheme, mandatory for persons born 1983 or later and voluntary for old persons; in 2005, over 50% of workers had joined the funded scheme. The switched contribution rate 4% + an additional 2% contribution paid by the insured person.
GR	*Minimum guarantee pensions:* Means-tested minimum pensions through? *Earnings-related social security pensions:* A great number of separate pension insurance and auxiliary funds for different sectors and occupational groups; schemes cover old-age, early retirement, disability and survivors' pensions; benefit levels differ across schemes	Do not exist (legal framework has been established but no scheme was operational yet in 2004)	Voluntary private pension schemes cover about 5% of the population.
ES	*Minimum guarantee pensions:* Means-tested minimum pension scheme (non-contributory) *Earnings-related social security pensions:* One main social insurance scheme, covering the private sector employees, self-employed and the regional and local public administrations, providing earnings-related old-age, disability and survivors' pensions; Public sector employees' (contributory) pension scheme (CPE) for the civil servants of the central public administration and the military, providing mainly flat-rate old-age, disability and survivors' pensions, though 5 different levels of pensions according to the career level	Voluntary enterprise pension schemes for private sector employees (funded DC schemes); Mandatory supplementary pension scheme for public sector employees of the central administration (funded DC scheme); Schemes are of some importance.	Voluntary private schemes (funded DC schemes);
FR	*Minimum guarantee pensions:* Means-tested minimum pension scheme; *Earnings-related social security pensions:* A great number of separate pension insurance schemes for different sectors and occupational groups providing earnings-related pensions, additionally mandatory 'second tier' supplementary funds that complement the pension provision; schemes cover old-age, early retirement and survivors' pensions; benefit levels across insurance schemes were aligned in the 2004 reform. Disability pensions (benefits) covered by the health insurance scheme.	Do not exist	Legal framework has been established and some schemes have been introduced but they are not yet operational)
IE	*Minimum guarantee pensions:* Means-tested minimum flat-rate pensions and age-related benefits (old-age, widows, disability and pre-retirement allowances) through non-contributory social assistance scheme *Contributory social insurance pensions:* Contributory social insurance scheme provides flat-rate pensions and age-related benefits (old-age, retirement, and widow(er)'s pensions, invalidity and disability benefits) Public service occupational pension scheme (benefits 1.1% of GDP in 2004).	Voluntary occupational schemes for private sector employees. 33% of current pensioners receive also occupational pensions, amounting to 25% of total pension income. Contributor coverage to occupational schemes is just over half the employees.	Voluntary individual schemes also play a role in the Irish pension system. In recent years, a series of significant tax incentives have been introduced for the purpose of promoting pension provision amongst self-employed, employers in non-pensionable employment and proprietary directors.

IT	*Minimum guarantee pensions:* Means-tested social assistance pensions to those not qualifying for or not having accrued the minimum level of earnings-related scheme *Earnings-related social security pensions:* One main social security pension scheme covering the whole population, providing old-age, early retirement (seniority), disability and survivors' pensions; NDC scheme fully applied to persons entering the labour market as of 1996, transition schemes for workers already in the labour market in 1995; old DB scheme applied to the workers with at least 18 years of contributions at the end of 1995.	Voluntary supplementary funds exist. The 2004 reform increased the provisions for occupational pensions through the possibility to transform TFR (end-of-service allowance) into an occupational pension scheme.	Voluntary private pension scheme; 0.1% of total pension expenditure
CY	*Minimum guarantee pensions:* Through Social (means-tested) Pension scheme and special allowances to pensioners *Earnings-related social security pensions:* One general social insurance scheme covering all employees and self-employed persons, providing old-age, disability and survivors' pensions; Government Employees Pension Scheme (paid from the Government budget) and other public sector (local gov.) employees pension schemes	Voluntary Provident Funds (providing defined-contribution lump-sum benefits), covering about 103.000 employees.	
LV	*Minimum guarantee pensions:* Through the state social security benefit, if the person's insurance record <10years. *Earnings-related social security pensions:* The minimum of the earnings-related pension system is paid with a length-of-service supplement to the amount of the state social security benefit, if the contribution record exceeds 10 years. One social insurance old-age pension scheme, which is a defined-benefit scheme for those, retired before 1996 and a notional defined contribution scheme for those retired as of 1996, providing old-age pensions. Also survivors' pensions are based on NDC contributions (except for those retired before 1996). Separate provisions for disability pensions, though under the general social security system Specific public sector service pensions (selected professions) paid from the state budget.	Do not exist	Statutory private schemes for the switched part of the social security pension scheme (mandatory for persons under the age of 30 on 1st July 2001, voluntary to persons aged 30-49. The contribution rate to be raised from 2 to 10% of wages between 2006 and 2010. Voluntary private schemes
LT	*Minimum guarantee pensions:* Through a social assistance pension (also to young disabled persons and orphans) *Earnings-related social security pensions:* One social insurance pension scheme covering all employees and the self-employed, providing old-age, disability and survivors' pensions, and early retirement pensions as of 2004, Special state (old-age, disability and survivors') pensions paid from the state budget to specific groups (meritorious persons, scientists, judges, casualties, officers and servicemen)	Do not exist	Voluntary switch of a part of the Social Insurance pension to a private fund (started in 2004 with a contribution rate of 2.5% of wages, which will increase to 5.5% by 2007)

LU	*Minimum guarantee pensions:* Through means-tested minimum income provision (RMG) *Earnings-related social security pensions:* A general social insurance pension scheme for private sector workers, providing old-age, disability and survivors' pensions A special pension scheme for public sector employees (10% of pensioners)	Exists for some sectors such as banking and for large foreign companies	
HU	*Minimum guarantee pensions:* Through means-tested social assistance; *Earnings-related social security pensions:* One social security pension scheme covering all employees and the self-employed, providing old-age, early retirement, disability and survivors' pensions.	Do not exist	Statutory private schemes for the switched part of the social security pension scheme (mandatory for new entrants to the labour market as of 1998, voluntary to workers already in the labour market). The contribution rate is 8% of wages. The scheme covers 60% of all workers. Voluntary private pension schemes cover 30% of all workers.
MT	*Minimum guarantee pensions:* Means-tested minimum pensions through social assistance (non-contributory) scheme to persons not qualified for the contributory scheme *Earnings-related social security pensions:* One social security (contributory) pension scheme covering all employees and the self-employed, providing old-age, disability and survivors' pensions (apart from unemployment, sickness and work injury benefits)	Exists only to a minor extent	Exists only to a minor extent
NL	*Minimum guarantee pensions:* social assistance to those not qualifying (not lived in NL for 50 years) to contributory flat-rate scheme *Contributory social insurance pensions:* General flat-rate old-age pensions (AOW) to all citizens; Separate disability benefits (WAO) and survivors' pensions (ANW); flat-rate or earnings-related benefits.	A high number of funds (industry-wide, company-specific and professional group specific) for the provision of occupational old-age pensions and early retirement schemes (VUT), covering over 90% of employees	Exists to some degree
AT	*Minimum guarantee pensions:* Means-tested minimum pensions through social assistance scheme *Earnings-related social security pensions:* Harmonised social security pension schemes covering all employees and the self-employed (gradually harmonised as of 2005), providing old-age, disability and survivors' pensions .	The 2002 reform increased occupational pension provision through the obligation to transform the earlier severance pay into a supplementary occupational scheme (with a contribution rate of 1.53% of wages).	Exists only to a minor extent but the introduction of tax-favoured private scheme (Zukunftsvorsorge) will increase their importance

PL	*Minimum guarantee pensions:* Means-tested minimum pensions financed from the state budget, topping-up benefits paid out from mandatory pension schemes. *Earnings-related social security pensions:* One social insurance pension scheme (ZUS), covering all employees and the self-employed (except farmers), which is a defined-benefit scheme to those born before 1949 and a notional defined contribution scheme to those born after 1948, providing old-age pensions. Separate schemes for disability and survivors' pensions under the social sec. system. A separate scheme for farmers (KRUS), providing old-age, disability and survivors' pensions. Specific public sector service pensions (armed forces, police, judges etc.) paid from the state budget. Pre-retirement benefits paid out from the state budget.	Exists only to a very minor extent, with a very low coverage (2% of employees).	Statutory private schemes for the switched part of the social security pension scheme as of 1999 (mandatory for new entrants; voluntary switch already closed). Contribution rate is 7.3% of wages.
PT	*Minimum guarantee pensions:* Means-tested minimum pensions through social assistance scheme *Earnings-related social security pensions:* A general social security pension scheme covering all employees and the self-employed in the private sector, providing old-age, disability and survivors' pensions (apart from short-term benefits). A separate pension scheme (CGA) for public sector employees (incl. police and military forces), benefits paid from the state budget.	Exists mainly for banking, insurance and telecommunication sectors as a substitute for the general social security scheme.	Exists only to a very minor extent
SI	*Minimum guarantee pensions:* National, means-tested pensions *Earnings-related social security pensions:* One social security pension scheme covering all employees and the self-employed, providing old-age, disability and survivors' pensions Flat-rate pensions to farmers, military personnel of the Yugoslav army and for retirees from other republics of the former SFRY	Mandatory supplementary insurance for some high-risk professions (about 26000 workers, minor importance), voluntary collective supplementary pensions (covering half the employees)	voluntary individual supplementary pensions (of minor importance in 2003)
SK	*Minimum guarantee pensions:* No special minimum pension scheme, minimum subsistence for old people and widows provided through means-tested social assistance paid out from the state budget *Earnings-related social security pensions:* One social security pension scheme covering all employees and the self-employed, providing old-age, disability and survivors' pensions.	Do not exist	Statutory private schemes for the switched part of the social security pension scheme as of 2005 (mandatory for new entrants and voluntary for current employees). Contribution rate is 9% of wages.
FI	*Minimum guarantee pensions:* National pension scheme provides means-tested (against other pensions) minimum pensions to all citizens, a full national pension after 40 years of living in FI. Also means-tested housing allowances for pensioners. *Earnings-related social security pensions:* Several but harmonised social security pension schemes for different sectors of employees and the self-employed, covering all gainfully employed, providing old-age, early retirement, disability and survivors' pensions	Supplementary occupational pensions, accounting for about 2 % of total pension benefits	Voluntary individual private pension insurance, accounting for about 1% of total pension benefits but the insured people account for about 15% of working-age population

SE	*Minimum guarantee pensions:* National pension scheme provides means-tested (against other pensions) minimum pensions to all citizens, a full national pension after 40 years of living in SE. Also means-tested housing allowances for pensioners. *Earnings-related social security pensions:* One general social security (NDC) pension scheme covering all employees and the self-employed, providing old-age pensions. The old earnings-related ATP schemes for local and central government employees work in parallel during the phasing-out period. Separate disability and survivors' pension schemes. The former formally counted as health insurance. The widow's pension (part of survivors' pensions) is being phased out.	Supplementary occupational old-age pensions for all sectors, covering 80-90% of employees.	Statutory private schemes (premium pension) for the funded part of the social security pension scheme; contribution rate is 2% of wages. (Note: reported as social security pension until 2007)
UK	*Minimum guaranteed and contributory social insurance pensions:* Flat-rate (contributory) state basic (old-age) pensions to all citizens and means-tested supplements through pension credits and Council taxes (financed out of taxes) *Earnings-related social security and other public pensions:* State second pension scheme, of which people can opt out of occupational pensions Public service pensions paid from the state budget. Separate disability and widows' allowance schemes.	A high number of funds for the provision of occupational pensions (about 60% of employees are contributing either to occupational or personal pension schemes).	Personal pension provisions with tax subsidies for persons without access to occupational schemes were introduced in 1998; Stakeholder pension provision with tax subsidies without access to company (occupational) pension schemes was introduced in 2001.

3.2.2. Coverage of the pension expenditure projections

These projections cover social security and other public pensions as well as mandatory private pensions. Projections have been made both for gross and net pensions. As far as the projections of occupational pensions are concerned, some Member States where these pensions are of major importance have provided also these projections.

Social security and other public pensions are broken down into two categories:

- old-age and early retirement pensions (including minimum and earnings-related pensions), with a preference to include also disability and widow's pensions paid out to persons over the standard retirement age;

- other pensions (disability, survivors', partial pensions without any lower age limit, including minimum and earnings-related pensions).

Occupational and mandatory private pensions are not broken down into sub-groups.

In general, in the 2005 projections, the coverage of public pension schemes is very good. They include social security schemes, which are statutory and involve a contribution to the scheme, and other public pensions which do not constitute a scheme but are paid out directly as government expenditure (such as government sector employees or armed forces' pensions) or which are equivalent benefits to pensions such as minimum guaranteed benefits from general social assistance scheme. For a couple of countries, the coverage has been improved compared with the 2001 projection exercise by including also public sector employees' pensions in the projections (Luxembourg and the United Kingdom) as well as disability pensions or benefits (in Sweden). In the case of Denmark, the coverage has been made consistent with the new definition of the general government sector by moving supplementary occupational pensions (ATP) from public pensions into occupational pensions. Greece was not able to provide projections covering all pension funds; partial results for the main fund have not been included in this report.

Regarding private mandatory pensions, their inclusion in the projections is of great importance as it concerns pension provision that has been switched from social security schemes to private funds. In all of the new Member States, where these private mandatory schemes exist, they are recorded under the private sector pensions. Such a scheme also exists in the Swedish pension system. However, this scheme will be included in the general government sector in the national accounts up to 2007. Accordingly, the Swedish private mandatory scheme is included in the public sector schemes in these projections (additional information on its importance is provided in Table 3-16). All voluntary private schemes (except the part in Lithuania that can be voluntarily switched from the social security scheme into a private scheme) are excluded from these projections.

Regarding the coverage of occupational pension schemes, only the Netherlands and Sweden provided a full coverage of occupational pensions. However, occupational pensions form a significant proportion of total pensions also in Denmark, Ireland and the United Kingdom and can be considered being equivalent to earnings-related social security pensions in most Member States. Their absence in these projections is a major caveat in the coverage of total pensions. For Denmark, occupational pensions currently amount to over 3 per cent of GDP. In the United Kingdom, spending on funded defined benefit private pensions and private money purchase schemes (occupational and personal) in 2005 is estimated to have been around 4

percent of GDP[38]. Furthermore, a growing number of Member States are increasing the provision of complementary occupational pensions, for instance Belgium, Germany, Spain, Italy, Austria and Poland. Currently, their importance is at most in the order of 1-2 per cent of GDP. All countries (except Slovenia and Sweden) have excluded such complementary occupational pensions in the projections.

Table 3-2 Coverage of pension schemes in the 2004 projections

	Schemes covered in the projections and their desegregation [1)]	**Schemes <u>not</u> covered**
BE	***Social security pensions: old age and early pensions*** Minimum benefits w63/m65+ E-r old-age 60+ and widows, public sector E-r old-age 60+ and widows, private sector E-r old-age 60+ and widows, self-employed Early pensions (pre-pensions) 58+, private sector Early retirement pensions (pre-pension) for labour market reasons 50-57, private sector ***Social security pensions: other*** Disability pensions -64, private sector Disability pensions -64, self-employed	Pre-pensions include only the part paid from unemployment benefit scheme, not the complement paid by the employer. ***Occupational pension schemes*** (pensions 1.3% of GDP in 2004)
CZ	***Social security pensions: old age and early pensions*** Minimum and e-r old-age pensions, 61+ (63+ as of 2013), all sectors Proportional old-age pensions, 65+, all sectors Widows and disability pensions, 55+ Early pensions (with temporary or permanent reductions) ***Social security pensions: other*** Widows and disability pensions -54 Orphans pensions	
DK	***Social security pensions: old age and early pensions*** Public flat-rate old-age pensions and means-tested supplements, all citizens 65+ Civil servants old-age pensions 65+, central and local government Voluntary early retirement schemes, all wage earners ***Social security pensions: other*** Disability and survivors' pensions, -64	***Occupational pensions*** Labour market pensions (e-r old-age, disability and spouse's pensions), private sector (ATP) Labour market pensions (e-r old-age, disability and spouse's pensions), new public sector schemes (ATP) Labour market supplementary pensions (SP) Special pension savings plan (SAP) Labour market supplementary pensions for recipients of anticipatory pension
DE	***Social security pensions: old age and early pensions*** E-r old-age, widows and disability schemes, all ages, General scheme and life-time civil servants Early pensions for long-time workers Early pensions for labour market reasons Early pensions for women Early pensions for severely handicapped ***Social security pensions: other*** (covered above; not shown separately)	*Social security* Minimum benefits to elderly (social assistance); 0.3% of GDP Farmers and miners pensions (0.8% of GDP) *Occupational pensions*, of growing importance (1.3% of GDP in 2004). 30% of newly retired persons receive also occupational pensions and 60% of employees contribute to such schemes. *Individual funded pensions*, schemes at an early

[38] UK: This estimate is from the second report of the UK Pensions Commission (*A New Pension Settlement for the Twenty-First Century*, November 2005), which also includes projections of future private pension spending. The projections are not produced on the same basis (in terms of the underlying assumptions and the modelling and projection methodologies used) as the UK projections of state and public service pensions included in public pensions in this report and are therefore not directly comparable. Further details can be found at http://www.pensionscommission.org.uk/publications/2005/annrep/annrep-index.asp.

		building stage, only contributions to the schemes.
EE	***Social security pensions: old age and early pensions*** Minimum flat-rate pensions, all citizens E-r old-age pensions; length-of-service component to 59.5+w and 63+m in 2005, 63+ for both sexes as of 2016, all sectors (Pension Ins. Fund) Early pensions (possible to retire 3 years before the statutory retirement age), all sectors ***Social security pensions: other*** Disability and widows' pensions, all ages, all sectors (Pension Insurance Fund) ***Private mandatory pensions*** Individual funded pensions, mandatory for young persons born 1983 -	
GR	***Social security pensions: old age and early pensions (<u>planned coverage</u>, projections not yet completed)*** Minimum pensions (State budget and EKAS (Pensioners Social solidarity Fund) Old-age flat-rate? pensions, farmers aged? (OGA) Old-age pensions, other self-employed (TEVE) E-r old-age and supplementary old-age pensions, private sector (IKA and merged funds) E-r old-age pensions, public sector (civil servants, army, public power corporation), aged? E-r supplementary pensions, public sector (auxiliary funds) Disability pensions, all ages? Widows pensions, all ages? Early pensions, aged ? ***Social security pensions: other*** Orphans pensions	
ES	***Social security pensions: old age and early pensions*** E-r old-age and early retirement pensions for private sector employees, the self-employed, regional and local government Flat-rate old-age and early retirement pensions for central government employees. ***Social security pensions: other*** Disability and survivors' pensions for private sector employees, self-employed, regional, local and central government War pensions	
FR	***Social security pensions: old age and early pensions*** Minimum old-age and widows' pensions (State budget) E-r old-age pensions, 60+, private sector (CNAVTS, national pension fund for salaried workers) E-r old-age pensions, 60+, agricultural workers (MSA, mutual agricultural solidarity fund) Mandatory supplementary funded old-age pensions, all workers in the private sector (ARRCO, association of suppl. pension schemes for non-executive employees) Mandatory supplementary funded old-age pensions, executive workers, private sector (AGIRC, general association of pension institutions for executives) E-r old-age pensions, 57.5+ (60+ as of 2008), public sector (Civil and military pension code, CNRACL, local government and hospitals), specific funds for public sector enterprise workers) E-r old-age pensions, self-employed (CANCAVA (craftsmen), ORGANIC (tradesmen), CNBF (lawyers), CNAVPL (independent professions)) Disability and widows pensions, 60+, all sectors (FSV) Anticipated old-age and early retirement pension (UNEDIC)	Small anticipatory pension schemes The new disability scheme (within health insurance), established in 2004.

IE	***Social security pensions: old age and early pensions*** Minimum flat-rate old-age **non-contributory** pensions, 66+ (dependant adults only), all sectors [39] Widow(er)s non-contributory pensions, 66+ , all sectors [3] Blind persons, carers and lone parents, 66+, all sectors [3] Flat-rate **contributory** and retirement pensions, 65+ (dependant adults only), private sector, self-employed and some civil servants [40] Invalidity pensions, 65+, private sector, self-employed, Widow(er)s contributory pensions, 66+, all sectors [3] ***Social security pensions: others*** Widow(er)s non-contributory and non-contributory pensions, -65, all sectors [3] Blind persons, carers, -65, all sectors [3] Disability pensions, -66, and invalidity pensions -64, private sector, self-employed, some civil servants [4] Pre-retirement allowance, 55-64, all sectors [3] Public sector (occupational) pensions (Civil service, defence, Gardai, education, health and local authorities, non-commercial state bodies)	*Occupational pensions:* Private sector schemes
IT	***Social security pensions: old age and early pensions*** Social assistance pensions (State budget) E-r old-age, disability and widows pensions, w60+/m65+, all sectors (AGO, general social insur. scheme) Early retirement, disability and widows pensions, w55-59/m55-64, all sectors (AGO) Early (seniority) pensions, all sectors (AGO) ***Social security pensions: other*** Disability and widows pensions, -54, all sectors	*Occupational pensions;* of minor importance
CY	***Social security pensions: old age and early pensions*** General Social Insurance scheme covering e-r old-age and widows' pensions Early old-age pensions, 58-64, Invalidity and disablement pensions, -62 Government Employees Pension scheme covering old-age, widows' and disability pensions	***Social security pensions: old age and early pensions*** Social (minimum) pension scheme and special allowances to pensioners *Occupational pensions:* Voluntary provident Funds
LV	***Social security pensions: old age and early pensions*** State (social security) benefits (those with less than 10 years insurance records), 67+ , (State budget) Old-age minimum guaranteed pension, 62+ E-r old-age DB pensions, granted -1995, all sectors E-r old-age NDC pensions, 62+, granted 1996+, all sectors Special service pensions (early pensions), selected professions, public sector Disability pensions, granted -1995 and not transformed to old-age pensions, all sectors Survivors' pensions (for widows during the transition period) ***Social security pensions: other*** Disability pensions, -62, all sectors Survivors' pensions -24, Special service survivors pensions, public sector ***Private mandatory pensions*** Individual funded old-age pension, mandatory for persons born 1971+	
LT	***Social security pensions: old age and early pensions*** Social assistance pensions, w60+/m62.5+ ; (State budget) Old-age, disability and widows pensions,	

[39] IE: while all sectors of the economy are eligible to apply for these pensions, some sectors may not be eligible to receive them given the means-tested nature of the schemes.

[40] IE: Civil and Public Servants recruited after 6 April 1995 are in the full Pay Related Social Insurance class and will therefore receive an integrated Social Security contributory and occupational pension upon retirement. Those recruited before 6 April 1995 pay a lower rate of Pay Related Social Insurance and are not entitled to all benefits.

	w60+/m62.5+, all sectors (Soc insurance scheme) Officials and military personnel disability and widows pensions, w60+/m62.5+, public sector (State budget) Special public service (state) pensions, selected professions (State budget) ***Social security pensions: other*** Social assistance pensions, -w59/-m62.4 Disability and widows pensions, -w59/-m62.4, all sectors (Soc. Insurance scheme) Officials and military personnel disability and widows pensions, -w59/-m62.4, public sector (State budget) Length of service pensions, selected professions, public sector (Soc. sec. scheme) Early retirement unemployment benefit (Unemployment fund), changed into early retirement pension as of mid 2004 (Social insurance scheme as of mid 2004) ***Private mandatory pensions*** Individual funded old-age pension, voluntary, all sectors	
LU	***Social security pensions: old age and early pensions*** E-r old-age, early retirement and disability pensions, 65+, private sector & self-employed (RGAP (general pension insurance scheme) E-r old-age, early retirement and disability pensions, 65+ , public sector (RSP, special pension scheme), state budget ***Social security pensions: other*** Disability (-64 years) and survivors' pensions, all sectors	Minimum benefits (RMG, social assistance)
HU	***Social security pensions: old age and early pensions*** Social allowances equivalent to pensions to persons 62+ E-r old-age and anticipatory old-age pensions, all sectors Survivors pensions, 62+, all sectors Disability pensions, 62+, all sectors ***Social security pensions: other*** Disability pensions, -61, all sectors Survivors pensions, -61, all sectors Pension-like regular social allowances, -61 ***Private mandatory pensions*** Individual funded pensions, mandatory to persons entering the labour market	Handicap support, political compensation allowances
MT	***Social security pensions: old age and early pensions*** National minimum pensions and increased national minimum pensions E-r old-age (two-thirds) pensions, w60+/m61+; s-e 65+ ***Social security pensions: other*** Pensions other than those listed above, notably disability and survivors' pensions and some pensions, which will be phased out over a transition period, to specific groups of pensioners	
NL	***Social security pensions: old age and early pensions*** Public flat-rate old-age pensions, 65+, all citizens (AOW) Widows pensions, w55+, all sectors (ANW) ***Social security pensions: other*** Disability benefits, all sectors (WAO) ***Occupational pensions*** Occupational old-age pensions, 65+, all sectors Occupational early retirement pensions, all sectors (VUT)	
AT	***Social security pensions: old age and early pensions*** E-r old-age, disability and early retirement pensions, w60+/m65+, private sector (ASVG, gen. soc. ins. Scheme) E-r old-age, disability and early retirement pensions, w60+/m65+, public sector E-r old-age, disability and early retirement pensions, w60+/m65+, farmers and self-amployed ***Social security pensions: other*** Survivors' pensions, all ages, all sectors	***Social security pensions: old age and early pensions:*** Minimum pensions (Ausgleichszulagen), financed by taxes
PL	***Social security pensions: old age and early pensions*** E-r DB old-age, w60+/m65+, disability, widows and early retirement pensions, w55-59/m55-64, to persons born -1948 and to those people who earned fully their	***Social security pensions: old age and early pensions:*** Minimum means-tested pensions

	pension rights before the end of 2006, private and public sector, self-employed (ZUS, Social ins. institute) E-r NDC old-age and anticipatory pensions, to persons born 1949- (with the exception of the transitional group), private and public sector, self-employed (ZUS, Social insurance fund) E-r DB old-age, disability and widows pensions, all ages, farmers (KRUS, Farmers social ins. scheme) Armed forces old-age pensions (State budget) ***Social security pensions: other*** Disability and widows pensions, -54, private and public sector, self-employed (ZUS) ***Private mandatory pensions*** Individual funded old-age pensions, mandatory to persons born 1969+ and voluntary to those born 1949-68 joining the scheme by the end of 1999	Occupational pensions (of minor importance)
PT	***Social security pensions: old age and early pensions*** Social pensions (minimum, means-tested and non-Contributory, State budget): old-age, 65+, disability pensions, 65+ General Contributory (social insurance) scheme: e-r old-age 55+; disability pensions, 65+; employees and self-employed of the private sector RESSAA, (Spec. soc. sec. scheme for agriculture workers), e-r old-age, 65+, disability pensions, 65+ CGA (Civil servants' pension scheme), e-r old-age, 55+, disability pensions, all ages ***Social security pensions: other*** Social pensions (means-tested non-contributory), disability pensions, -64, widows and orphans pensions, all ages General contributory scheme & RESSAA, disability pensions, -64, widows and orphans pensions, all ages Civil servants scheme, widows and orphans pensions, all ages	*Occupational pensions:* Supplementary schemes for some sectors (banking and insurance)
SI	***Social security pensions: old age and early pensions*** National (state) minimum pensions (State budget) E-r old-age (w58-63+/m58-65+), Disability and widows pensions, all ages, all sectors Special compulsory pensions to workers in high-risk occupations, private and public sector Flat-rate pensions for farmers, the military personnel of the Yugoslav army and retirees from other republics of former SFRY ***Occupational pensions :*** Collective supplementary pensions	
SK	***Social security pensions: old age and early pensions*** Social pensions, 65+, all sectors (State budget) E-r old-age, w53-57+/m60+ (w62+ 2016 and m62+ 2006), disability and widows pensions, w55-56/ m55-64, all sectors (Social insurance scheme) ***Social security pensions: other*** Disability and widows pensions, -54, orphans pensions ***Private mandatory pensions*** Individual funded old-age pension, mandatory to persons entering labour market 2005+	
FI	***Social security pensions: old age and early pensions*** National (minimum) pension (Nat. pension insurance), 65+ ; E-r old-age, 63+, early pensions, private sector and the self-employed: (TEL, private sector employees, most industries), (LEL, private sector industries with short-time contracts), (YEL, self-employed), (MYEL,farmers), (TaEL , artists); and the public sector: (VEL (central government employees), KVTEL (municipal sector employees), KiEL (church empl.), unemployment pensions, 60-62, ***Social security pensions: other*** National (minimum) disability and survivors' pensions, -64;	

	E-r disability and survivors pensions, -62, all sectors (early pensions changed into old- age pensions at the age of 63 and, then, included in the above category) *Occupational pensions:* Collective mandatory and voluntary supplementary schemes	
SE	***Social security pensions: old age and early pensions*** Minimum pensions (State budget) E-r NDC old-age and anticipated pensions, flexible age, all sectors (Social insurance scheme) Individual mandatory funded old-age pensions, premium pensions, (Note: reported as part of social security scheme for the whole projection period but should be included in the private insurance sector as of 2007) ***Social security pensions: other*** Disability pensions, 19-64, and survivors benefits, all ages ***Occupational pensions*** Occupational (supplementary) pensions, private and public sector employees (old and new schemes)	
UK	***Social security (and other public) pensions: old age and early pensions*** Basic state (minimum) pensions + their additions (winter fuel allowance), 66+, all citizens (National insurance scheme) Pension credits and Council tax benefits, 60+, all citizens (State budget) State second pension (S2P)/ State earnings-related pensions (SERPS), w60+/m65+ (w65+ 2020), all sectors (National insurance scheme) Widows benefits + their additions, 55+, all sectors E-r old-age pensions, 60+, public sector employees (State budget) ***Social security pensions: other*** Widows benefits, -54, all sectors	***Public pensions*** Disability benefits ***Occupational pensions*** Supplementary funded old-age pensions, private sector; important part of the pension system

[1] E-r = earnings-related

Pension contributions and asset accumulation in pension funds have been included in these projections on a voluntary basis. Most Member States were able to provide these projections. However, some Member States (Belgium, Spain) indicated that they had difficulties projecting contributions as the pension contribution is not defined separately but is included in the overall social security contribution covering all social security benefits. Portugal and Malta have provided projections for the total social security contribution (including also the part of the contribution which is used for benefits other than pensions). Further, it should be noted that, in Denmark, social security pensions are financed by general taxes and virtually no contributions (except a minor contribution to voluntary early retirement schemes) are paid by the employers or employees.

The projections on assets in pension funds (with the exception concerning the coverage of occupational pensions) have been provided by all countries where these assets are important.

3.2.3. The concepts of pensions, contributions and assets

The following concepts have been used in the projection exercise:

Pensions cover pensions and equivalent cash benefits granted for a long period (over one year) for old-age, early retirement, disability, survivors (widows and orphans) and other specific purposes which should be considered as equivalents or substitutes for the above-

mentioned types of pensions, including pensions due to reduced capacity to work or due to labour market reasons. Pensions and benefits can be paid out from specific schemes or directly from government budgets. Pensions should not include (additional) benefits in the form of reimbursements of certain costs to the beneficiaries or directly provided goods and services for the specific needs of the beneficiaries, including transfers from pension institutions to other social security schemes such as health schemes. The administrative costs of pension schemes should not be included.

Gross pensions cover pensions recorded as gross benefits, i.e. without a deduction of tax and compulsory social security contributions by beneficiaries paid on benefits. In those countries where pensions are not taxable income the gross pensions are equal to net pensions.

Net pensions cover pensions recorded as net benefits, i.e. deducting from the gross pension the estimated tax and compulsory social security contributions by beneficiaries paid on pensions. Member States were advised to use relatively straightforward approximations for taxes and social security contributions paid by the pensioners. The aim of presenting net pensions as a share of GDP is to give a picture of the order of magnitude which taxation plays in the magnitude of pension expenditure. Regarding the evolution of the taxation over the projection period, it is assumed that the taxation in real terms remains at the level of 2004 - unless there are changes in the taxation regime of pensions - and, thus, the 2004 rules can be applied over the whole projection period.

Social security and other public pensions (later in the report also called 'public pensions') cover, first, social security schemes that are statutory and that the general government sector administers. The pensions provided by the social security schemes can be either earnings-related, flat-rate or means-tested. In addition, this category covers also pensions that are paid directly from the state or other public sector entity budgets without forming a specific scheme such as special pensions to public sector and armed force's employees. Also cash benefits that are equivalent to pensions, notably social assistance, are included. The aim is to cover those pension schemes that affect the public finances, in other words, the schemes that are considered to belong to the general government sector in the national accounts system.

Occupational pensions are pensions provided by schemes that link the access of an individual to such a scheme to an employment relationship between him/her and the scheme provider and that are based on contractual agreements between employers and employees either at the company level or their organisations at the union level rather than being statutory by law. The schemes are run by private sector pension funds, insurance companies or the sponsoring companies themselves (the latter may appear only in balance sheets).

Private mandatory pensions are private individual pensions that are statutory and based on individual insurance contracts between the individual and the private pension scheme provider, usually an insurance company or a pension fund. In particular, the pension expenditure projections cover the individual schemes that switch a part either voluntarily or statutorily (especially to new entrants to the labour market) of the current social security scheme to private funds. Such schemes will have an increasing relevance in the future in a number of countries (SE, EE, HU, LV, LT, PL and SK).

Old-age and early pensions are considered as one category of pensions due to the fact that in many countries a proper distinction between these pensions cannot be made, either because early retirement is built-in into the old-age pension system, or because the standard retirement age varies between sexes and will increase or become more flexible with time. Early pensions

include, in addition to genuine (actuarial) early retirement schemes, other early pensions that are granted for a specified age group below the statutory retirement age primarily on the basis of reduced work capacity or due to labour market reasons. In addition, disability and widow's pensions paid out to persons over the standard retirement age are included in this category in order to properly reflect the expenditure related to old-age. Pensions in this category include both earnings-related pensions and flat-rate or means-tested minimum pensions.

Other pensions include disability, survivors' and partial pensions paid to persons below the standard retirement age and without any lower age limit. These include both earnings-related pensions and flat-rate or means-tested minimum pensions of these types.

Contributions include contributions to pension schemes paid both by employers and employees as well as self-employed persons. The projection of the contributions is based on the unchanged contribution rate of 2004, unless there are clear policies that the contribution rate changes over time. The purpose is to provide information as to whether a financial gap in the pension system exists. If the pension contribution is part of a broader social security contribution rate, an estimate should be provided for the share of the pension contribution, e.g. on the basis of the most recent expenditure structure. If the pension is financed by general tax revenues, no estimate should be provided here. If the state is defined as a third contributor to the pension scheme (Luxembourg and Malta, in both countries paying an equal share (1/3) of the total contribution along with the employer and the employee), also the state contribution can be included in the contributions.

Assets of pension funds take into account both the increases in the revenues of the pension funds and the withdrawals for the payment of pensions. For the rate of return on assets, defined as the average of the assets at the beginning and the end of the year, the assumption of the fixed annual real return of 3.0% is used. This rate is assumed to cover also the administrative expenses of the fund and no calculations have been made on the accumulation of the funds, net of administrative expenses. The information on the total value of assets in pension funds, including pre-financing to specific reserves within the government sector, is provided separately concerning social security schemes, occupational pension schemes and private pension schemes.

Inclusion of the impact of pension reforms: The (future) impact of pension reforms enacted by the end of 2004 (in the case of Portugal, also the impact of the Spring 2005 reform) is included in the projections.

3.3. Baseline projection results

3.3.1. Projected trend in public pension expenditure and a comparison with the 2001 projection

Gross social security and other public pensions correspond conceptually to the coverage of the 2001 projections of public pension expenditure. Table 3-3 presents the projections for public pension spending before taxes and social security contributions paid out to the beneficiaries, as a percentage of GDP. Concerning the coverage of public pension schemes in these projections, it can be considered as being very good for all countries, including all significant schemes.

Table 3-3 Gross public pension expenditure as a share of GDP between 2004 and 2050

Public pensions, gross as % of GDP									Change	Change	Change
Country	2004	2010	2015	2020	2025	2030	2040	2050	2004-2030	2030-2050	2004-2050
BE	10,4	10,4	11,0	12,1	13,4	14,7	15,7	15,5	4,3	0,8	5,1
CZ	8,5	8,2	8,2	8,4	8,9	9,6	12,2	14,0	1,1	4,5	5,6
DK	9,5	10,1	10,8	11,3	12,0	12,8	13,5	12,8	3,3	0,0	3,3
DE	11,4	10,5	10,5	11,0	11,6	12,3	12,8	13,1	0,9	0,8	1,7
EE	6,7	6,8	6,0	5,4	5,1	4,7	4,4	4,2	-1,9	-0,5	-2,5
GR											
ES	8,6	8,9	8,8	9,3	10,4	11,8	15,2	15,7	3,3	3,9	7,1
FR	12,8	12,9	13,2	13,7	14,0	14,3	15,0	14,8	1,5	0,5	2,0
IE	4,7	5,2	5,9	6,5	7,2	7,9	9,3	11,1	3,1	3,2	6,4
IT	14,2	14,0	13,8	14,0	14,4	15,0	15,9	14,7	0,8	-0,4	0,4
CY	6,9	8,0	8,8	9,9	10,8	12,2	15,0	19,8	5,3	7,6	12,9
LV	6,8	4,9	4,6	4,9	5,3	5,6	5,9	5,6	-1,2	-0,1	-1,2
LT	6,7	6,6	6,6	7,0	7,6	7,9	8,2	8,6	1,2	0,7	1,8
LU	10,0	9,8	10,9	11,9	13,7	15,0	17,0	17,4	5,0	2,4	7,4
HU	10,4	11,1	11,6	12,5	13,0	13,5	16,0	17,1	3,1	3,7	6,7
MT	7,4	8,8	9,8	10,2	10,0	9,1	7,9	7,0	1,7	-2,1	-0,4
NL	7,7	7,6	8,3	9,0	9,7	10,7	11,7	11,2	2,9	0,6	3,5
AT	13,4	12,8	12,7	12,8	13,5	14,0	13,4	12,2	0,6	-1,7	-1,2
PL	13,9	11,3	9,8	9,7	9,5	9,2	8,6	8,0	-4,7	-1,2	-5,9
PT	11,1	11,9	12,6	14,1	15,0	16,0	18,8	20,8	4,9	4,8	9,7
SI	11,0	11,1	11,6	12,3	13,3	14,4	16,8	18,3	3,4	3,9	7,3
SK	7,2	6,7	6,6	7,0	7,3	7,7	8,2	9,0	0,5	1,3	1,8
FI	10,7	11,2	12,0	12,9	13,5	14,0	13,8	13,7	3,3	-0,3	3,1
SE	10,6	10,1	10,3	10,4	10,7	11,1	11,6	11,2	0,4	0,2	0,6
UK	6,6	6,6	6,7	6,9	7,3	7,9	8,4	8,6	1,3	0,7	2,0
EU15 [1)]	10,6	10,4	10,5	10,8	11,4	12,1	12,9	12,9	1,5	0,8	2,3
EU10	10,9	9,8	9,2	9,5	9,7	9,8	10,6	11,1	-1,0	1,3	0,3
EU12 [1)]	11,5	11,3	11,4	11,8	12,5	13,2	14,2	14,1	1,6	0,9	2,6
EU25 [1)]	10,6	10,3	10,4	10,7	11,3	11,9	12,8	12,8	1,3	0,8	2,2

1) excluding Greece

As regards the starting position in 2004, public pension spending accounted for an average of about 10.6% of GDP in the EU Member States, with a large variation from 4.7% of GDP in Ireland to 14.2% of GDP in Italy. The low levels of public spending on pensions in Ireland and the United Kingdom stem from the fact that the public pension schemes primarily provide flat-rate pensions, while occupational pensions play an important role in the total provision of pensions. Public pension spending is clearly below the EU average also in a number of EU10 Member States such as Cyprus and Malta as well as Estonia, Latvia, Lithuania, and Slovakia. In the latter group of countries, this can be attributed partially to the fact that the current pensions are relatively flat-rate as most of pensioners acquired their pension rights before the collapse of the communist regime in societies which had relatively small wage differences, and in some cases to the fact that the levels of pensions have been based only on the length of service. It is also partially due to the fact that, in recent years, economic growth rate has been rapid thereby reducing spending as a percentage of GDP from the figures seen, for example, in 2000.

In contrast, high GDP percentages of public spending in countries, such as France, Austria, Poland and Italy, reflect the fact that the pension provision mainly relies on social security schemes and that the main scheme is an earnings-related one.

The main results of the 2005 projections can be presented as follows:

- the projections show very different increases in public pension spending over the period between 2004 and 2050, ranging from a decrease of 5.9 percentage points of GDP in Poland to an increase of 9.7 p.p. of GDP in Portugal and 12.9 p.p. of GDP in Cyprus;

- in the EU15 Member States, public pension spending is projected to rise by 2.3 p.p. of GDP on average and to rise in all countries except in Austria. In Austria, the spending peaks around 2035 but decreases thereafter. This can be attributed to the effects of the latest reforms since 2000. These reforms have increased legal retirement age, linked contributions more closely to benefits with actuarial reductions for early pensions and will switch from a wage to a price indexation of pensions as of 2006;

- in Italy and Sweden, the projected increases are very small due to the fact that the schemes are defined-contribution and, thus, the spending on pensions is driven primarily by the accumulation of contributions;

- relatively moderate increases (between 1.7 and 3.5 percentage points) in public pension expenditures are projected in a great number of the EU15 Member States such as Germany, the United Kingdom, France, Finland, Denmark and the Netherlands. Somewhat larger increases are projected in Belgium (5.1 p.p.) and Ireland (6.4 p.p.). In Ireland, the increase will largely be due to the maturing of the social security pension system;

- the largest challenges on pension expenditure in the EU are faced by Portugal (an increase of 9.7 p.p. of GDP), Luxembourg (7.4 p.p.) and Spain (7.1 p.p.);

- in the EU10 Member States, public pension expenditure is projected to decrease by 1 p.p. of GDP by 2030 on average but then to rise by 1.3 p.p. by 2050, with an overall increase by 0.3 p.p. between 2004 and 2050. However, the developments show very diverse trends in different countries: from a decrease of 5.9 p.p. of GDP in Poland to an increase of 6.7 p.p. in Hungary ,7.3 p.p. of GDP in Slovenia and 12.9 p.p. in Cyprus. Excluding Poland, in the remaining 9 new Member States, the projected increase in public pension spending is 4.9 p.p. of GDP.

- the projected decreases in Poland, Estonia and Latvia, as well as the projected small increases in Lithuania and Slovakia, stem partly from the pension reforms enacted during the last decade. These countries have switched part of the public old-age pension scheme into private funded schemes. Thus, the public provision of pensions will decrease while the private part, which remains mandatory, will increase. Another reason for the projected decrease in terms of the percentage of GDP is that the GDP growth rate is projected to be relatively high, in particular during the next two decades. This growth rate will be higher than the increase in the level of pensions, as pensions are indexed to prices only or only partially to wages.

- in Malta, the projected decrease in pension spending after 2020 stems from the current parameters of the pension scheme, notably, the indexation of the maximum pension to prices, which would lead to relatively flat-rate pensions over time.

- the challenges faced by Cyprus, Slovenia, Hungary and the Czech Republic are among the biggest in the whole of the EU. While Slovenia and the Czech Republic have undertaken parametric reforms of their pension systems during the 1990s, these systems remain predominantly pay-as-you-go public pension schemes. The large increase in the Slovenian pension system is largely due to the fact that pensions will be fully indexed to the net wage growth as of 2006 (in 2001-2005, 80% to wages and 20% to prices).

- in Hungary, the dynamic effect of the increasing wage level on the level of new pensions is projected to weigh more than the decrease due to the partial switch into a private scheme. Also, recent measures include improvements in the widow's pension level and a gradual introduction of the 13th month pension. Furthermore, the introduction of taxes on pensions in 2013 will result in an additional increase in gross pensions while it should not affect net pensions. As a result, a significant overall increase in (gross) public pension spending as a share of GDP is projected.

Table 3-4 Comparison of the 2005 projections of gross public pension expenditure as a share of GDP with the 2001 projections

	2005 projections			2001 projections		
Country	2004	2050	2004-50	2005	2050	2005-50
BE	10,4	15,5	5,1	9,5	13,3	3,8
CZ	8,5	14,0	5,6			
DK	9,5	12,8	3,3	11,3	13,3	2,0
DE	11,4	13,1	1,7	11,4	16,9	5,5
EE	6,7	4,2	-2,5			
GR				12,2	24,8	12,4
ES	8,6	15,7	7,1	8,8	17,3	8,5
FR [1)]	12,8	14,8	2,0	12,2	15,8 [1)]	3,6
IE [2)]	4,7	11,1	6,4	4,5 [2)]	9 [2)]	4,5
IT	14,2	14,7	0,4	13,8	14,1	0,3
CY	6,9	19,8	12,9			
LV	6,8	5,6	-1,2			
LT	6,7	8,6	1,8			
LU	10,0	17,4	7,4	7,4	9,3	1,9
HU	10,4	17,1	6,7			
MT	7,4	7,0	-0,4			
NL	7,7	11,2	3,5	8,3	13,6	5,3
AT	13,4	12,2	-1,2	14,5	17,0	2,5
PL	13,9	8,0	-5,9			
PT	11,1	20,8	9,7	10,9	13,2	2,3
SI	11,0	18,3	7,3			
SK	7,2	9,0	1,8			
FI	10,7	13,7	3,1	10,9	15,9	5,0
SE	10,6	11,2	0,6	9,2	10,7	1,5
UK	6,6	8,6	2,0	5,3	4,4	-0,9
EU15	10,6	12,9	2,3	10,4	13,3	2,9

1) FR: 2040 in the 2001 projection

2) IE: as % of GNP in the 2001 projection, corresponding appr. to 3.8% and 7.7% of GDP.

The comparison between the results of the 2005 and 2001 projections presented in Table 3-4 can be made only for the EU15 Member States because only they were included in the 2001 projection exercise. Before comparing the projected increases, changes in the starting positions should be taken into account. It is more appropriate to compare the 2004 base year in the current projection with the projection for 2005 in the 2001 projection than the base year of 2001. In about half the countries (DE, ES, FR, IT, NL, PT, FI), the level of public pension expenditure as a percentage of GDP in the starting position is broadly the same as in the 2001 projections, while in most of the remaining countries the starting level is 1-2 percentage points higher. In many cases, this difference can be attributed to a broader coverage of pensions such as the inclusion of public sector employees' pensions in Luxembourg and the United Kingdom. In Sweden, the disability pensions have been added in the 2005 projection.

In contrast, the Danish spending is almost 2 percentage points lower due to the exclusion of supplementary occupational pensions (ATP) from the government sector.

The main findings of a comparison between the two projections can be concluded as follows:

- in half the EU15 Member States (DE, ES, FR, NL, AT, FI and SE), the projected increase in public pension spending between 2005 and 2050, according to the current projections, is smaller than in the 2001 projections. The smaller increase can be largely attributed to major pension reforms undertaken since 2001, in particular in DE, FR, AT and FI. Reforms undertaken in other countries have probably affected the projected evolution of pension expenditure, but their effect is more difficult to disentangle by comparing the results of the 2001 and 2005 projections. Table 2-6 of the Annex provides a short description of recent reforms in Member States;

- in Italy, the projected increase in public pension spending between 2004 and 2050 is virtually the same, while the recent reform increasing the standard retirement age as of 2008 will decrease pension spending over the period of 2010-2040. Belgium, Denmark, Ireland, Luxembourg, Portugal and the United Kingdom project larger increases than in the 2001 projection. The projected larger increase in public pension spending in the United Kingdom is mainly due to the measures that have increased the level of social insurance pensions;

- in Luxembourg and Portugal, the 2005 and 2001 projections differ greatly from each other and the differences are due to several factors. In the case of Portugal, the revised population projections are significantly more unfavourable than those in the 2001 exercise and, consequently, they result in a less favourable macroeconomic framework. Moreover, minimum pensions have converged to minimum wages, thereby increasing the average level of pensions. For Luxembourg, the macroeconomic framework has been substantially revised, resulting in a less favourable projection regarding long-term economic development. Furthermore, the projection models have been improved.

Another explanation for changes in projected public pension expenditure is the population projections, notable changes in life expectancy and old-age dependency ratios. Table 3-5 below provides an overview of the changes in forecasted life expectancies and Table 3-6 of changes in the old-age dependency ratio between the 2005 and 2001 projections. The most significant changes in demographic projections (the 2001 projections were based on the 1995 census and the 2005 projections on the 2000 census) were the following:

- in the EU15, life expectancies at birth in the base year of the projections are, on average, more than one year higher for men and almost one year higher for women in the 2005 projections than in the previous one;

- the projected increase in life expectancies at birth up to 2050 are about two years higher in Portugal and for men in Italy, and about 1.5 years higher in Spain and Ireland in the 2005 projections compared with the 2001 exercise;

- in the EU15, on average, the old-age dependency ratio is 1.5 percentage points higher both at the beginning and at the end of the projection period in the 2005 projections

compared with the previous projection. The increase in the old-age dependency ratio is the same in both population projections.

- the old-age dependency ratios have risen most in Portugal (10 p.p.), Ireland and Greece (6 p.p.) and Denmark and Spain (5 p.p.) when compared the 2005 projections with the 2001 ones.

Table 3-5 Life expectancies in the 2004 and 2001 population projections

	2005 projections				2001 projections			
	Male 2004	change 2004-2050	Female 2004	change 2004-2050	Male 2000	change 2000-2050	Female 2000	change 2000-2050
BE	75,5	6,6	81,6	5,9	75,3	5,2	81,4	4,0
DK	75,2	6,2	79,6	5,6	75,2	4,2	79,6	3,5
DE	76,1	5,9	81,7	5,1	74,7	5,3	80,8	4,2
GR	76,4	4,6	81,4	4,5	75,9	5,1	81,0	4,0
ES	76,6	5,1	83,4	3,9	74,9	4,1	82,1	2,9
FR	76,2	6,1	83,4	4,5	74,8	5,2	82,8	4,2
IE	75,5	6,6	80,7	6,2	74,0	5,0	79,4	4,6
IT	77,3	5,5	83,2	4,6	75,5	5,5	82,0	4,1
LU	75,0	6,8	81,4	5,3	74,4	5,6	80,8	4,2
NL	76,2	4,8	80,8	4,3	75,5	4,5	80,9	4,1
AT	76,2	6,6	82,1	5,2	75,0	6,0	81,2	4,8
PT	74,2	6,9	81,0	5,7	72,0	6,0	79,2	4,8
FI	75,3	6,6	81,9	4,8	73,9	6,1	81,1	3,9
SE	78,1	4,6	82,4	4,3	77,3	4,7	82,0	4,0
UK	76,4	6,0	80,9	5,7	75,2	4,8	80,0	5,0
CY	76,3	5,6	80,8	4,3				
CZ	72,4	7,4	78,8	5,3				
EE	65,5	9,4	76,9	6,3				
HU	68,5	9,6	76,8	6,6				
LT	66,5	9,0	77,6	6,1				
LV	64,9	9,3	76,2	6,3				
MT	76,2	5,6	80,7	4,3				
PL	70,5	8,7	78,5	5,9				
SK	69,7	8,0	77,8	5,6				
SI	72,6	7,3	80,2	5,0				
EU15	*76,4*	*5,8*	*82,2*	*4,9*	75,0	5,0	81,3	4,2
EU10	*70,1*	*8,6*	*78,2*	*5,9*				
EU25	*75,4*	*6,3*	*81,5*	*5,1*				

Table 3-6 Dependency ratios in the 2004 and 2001 population projections

	2005 projections			2001 projections		
	2004	2050	change	2000	2050	change
BE	26,1	47,2	21	26	45	20
DK	22,5	41,9	19	22	36	14
DE	26,8	51,7	25	24	49	25
GR	26,4	60,4	34	26	54	28
ES	24,6	65,4	41	25	60	36
FR	25,2	46,4	21	24	46	22
IE	16,4	45,2	29	17	40	23
IT	28,9	62,2	33	27	61	35
LU	21,0	36,1	15	21	38	16
NL	20,5	40,6	20	20	41	21
AT	22,8	52,4	30	23	54	31
PT	24,9	58,5	34	23	46	24
FI	23,3	46,7	23	22	44	22
SE	26,4	40,9	14	27	42	16
UK	24,3	45,0	21	24	42	18
CY	17,5	43,2	26			
CZ	19,7	54,8	35			
EE	23,8	43,1	19			
HU	22,6	48,3	26			
LT	22,3	44,9	23			
LV	23,6	44,1	20			
MT	19,0	40,6	22			
PL	18,6	51,0	32			
SK	16,3	50,6	34			
SI	21,4	55,6	34			
EU15	25,5	51,6	26	24	49	26
EU10	19,6	50,4	31			
EU25	24,5	51,4	27			

3.3.2. The change in public pension expenditure and its driving factors

3.3.2.1. Peaks in public pension expenditures

The pressure for increased public pension spending over the projection period may vary for different reasons, notably due to the retirement of the baby-boom generation. Many countries see the peak in the level of public pension spending before the end of the projection period. For instance, the peak in pension spending is around 2040 in BE, DK, FR, IT, NL and SE, and already around 2030 in AT and FI. On the other hand, a number of countries face a growing trend in public pension expenditure up to the end of the projection period of 2050, such as DE, ES, IE, LU, PT and UK.

Table 3-7 Peaks in public pension expenditure as a share of GDP

Country	Starting year 2004	Peak year	Value	Difference: from 2004 to the peak	
				Absolute	%
BE	10,4	2042	15,7	5,3	51,5
CZ	8,5	2050	14,0	5,6	66,1
DK	9,5	2039	13,5	4,0	42,1
DE	11,4	2050	13,1	1,7	15,2
EE	6,7	2006	7,7	1,0	15,4
GR					
ES	8,6	2046	16,2	7,6	88,6
FR	12,8	2040	15,0	2,1	16,6
IE	4,7	2050	11,1	6,4	134,8
IT	14,2	2039	15,9	1,7	11,7
CY	6,9	2050	19,8	12,9	188,5
LV	6,8	2004	6,8	0,0	0,0
LT	6,7	2050	8,6	1,8	27,3
LU	10,0	2047	17,7	7,7	77,1
HU	10,4	2050	17,1	6,7	64,8
MT	7,4	2021	10,2	2,8	37,6
NL	7,7	2039	11,7	3,9	50,7
AT	13,4	2033	14,1	0,7	5,2
PL	13,9	2004	13,9	0,0	0,0
PT	11,1	2050	20,8	9,7	87,8
SI	11,0	2050	18,3	7,3	66,4
SK	7,2	2050	9,0	1,8	24,7
FI	10,7	2033	14,1	3,4	32,0
SE	10,6	2040	11,6	1,0	9,1
UK	6,6	2050	8,6	2,0	29,8
EU15 [1)]	10,6	2043	13,0	2,4	22,5
EU10	10,9	2050	11,1	0,3	2,5
EU12 [1)]	11,5	2044	14,3	2,7	23,8
EU25 [1)]	10,6	2044	12,8	2,2	21,0

1) excluding Greece

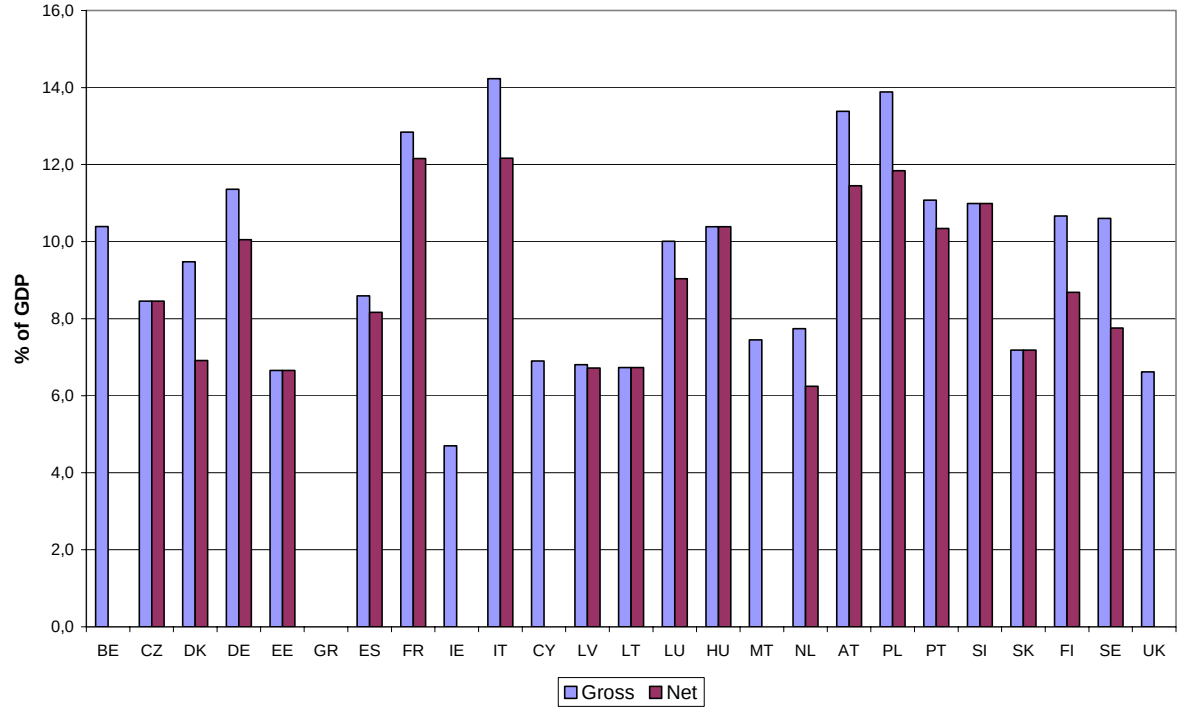
For the EU10 Member States, one has to look at total pension spending in order to get a picture of the path of the demographic pressure (see Table 3-17). In most of the EU10 Member States, demographic pressures will materialise only during the later part of the projection period and the main increase in pension spending will be seen over the period 2030-2050. A growing trend in total pension spending up to the end of the projection period is projected in CY, LT, HU, SK and SI. In Malta, the peak in pension spending does not match that of the demographic pressures. The decrease in pension spending after the peak year of 2021 is driven by the parameters of the pension system, which will lead to virtually no real increase in average pensions and a sharp decrease in the benefit ratio (that is the average

pension relative to output per worker), while the dependency ratio will remain on an increasing trend over the whole projection period.

3.3.2.2. The taxation of pensions

The comparison of the level of gross pension spending across countries is distorted by the fact that Member States tax pension benefits differently. While countries such as Denmark and Sweden tax pensions almost in the same way as wages, with a tax rate of 27% in 2004, no taxes are levied on pensions in Lithuania, Slovenia and Slovakia. Also in the Czech Republic and Estonia public pensions and in the United Kingdom state pensions are in practice tax-free because the tax threshold is set at such a level that only a very small number of public pensions are subject to taxes. In a large group of countries (DE, ES, FR, IT, LU, AT, PL, PT), taxes levied on pensions are in the range of 5-15%, and in Finland and the Netherlands about 19%.

Graph 3-1 Gross and net public pension expenditure as a share of GDP in 2004



Graph 3-1 provides an approximation of the impact of income taxes levied on pensions. It should be noted that Member States may have applied different methods in estimating the average effective tax rate on pensions. It was generally assumed that, unless there will be a clear change to the current tax regime of pensions, the same effective tax rate can be applied over the whole projection period. In fact, only Germany and Hungary indicated a change in the tax regime: in both of the countries, this would lead to an increase in the taxation of public pensions; in Germany, from an average tax rate of 12% in 2004 to 17% in 2050, when both taxes and social security contributions are considered; in Hungary, the taxation will be introduced in 2013, leading from the current zero level of taxation to a 15% tax rate in 2050, thereby pushing also the gross level of pension expenditure upwards. Some countries (BE, IE, CY, MT and UK) did not provide estimates on net pension expenditure developments.

Taking the taxation of public pensions into account, the differences in the levels of spending are equalised to some degree, as the countries with the highest level of pension spending tend to tax pensions while those with the lowest level of pension spending do not. Also the projected increases in net pension spending are slightly lower than in gross spending in the countries where the taxation matters, even notably lower in Germany and Hungary. In contrast, Portugal and Slovenia stand out in that they have, already at the beginning of the projection period, relatively high levels of pension spending and the highest increases. As there is no taxation on pensions in Slovenia and only a light taxation in Portugal, at the end of the projection period, their net spending on pensions would be by far the highest of all EU countries.

3.3.2.3. Old-age and early pensions

In order to have a better understanding of the importance of demographic pressures, and to examine the effect of pension policies to reduce the take-up of disability pensions, it is important to separately analyse the developments of old-age pensions and other (disability and survivors') pensions. In this exercise, it was aimed to separate old-age and early pensions from others on the basis of the age of the pension beneficiary rather than according to the type of the pension in the national scheme. In particular, in some Member States, the type of the pension (i.e. disability pension) remains unchanged irrespective of the fact that the pensioner reaches the statutory old-age retirement age. The purpose of categorising more closely according to the age was to include in old-age and early pensions, all pensions that can be considered as age-related pensions and, thus, their evolution is mainly driven by the age. It was instructed to include in this category all pensions that are provided to persons above the statutory old-age pension age and that are provided to persons in the age bracket typical for early pensions (usually 55-64 years) if these pensions could be considered as substitutes for early retirement pensions as it is often the case regarding disability pensions.

While there are differences across Member States as to how much pensions other than old-age pensions are provided, there are also differences in the data availability as to how well old-age and early pensions can be separated from other pensions. For instance, the French pension schemes mainly provide only old-age pensions, whilst disabled people are entitled to sickness benefits rather than disability pensions. Although such pensions have existed, their share in the total number of pensions has been very small and they have not been shown separately in the statistics[41]. Furthermore, in many countries, there have been problems to apply the agreed common age brackets for the disaggregation of pensions. Germany, France, Cyprus and Slovenia did not break down public pensions into the requested categories. All public pensions are thus included in the category of 'old-age and early pensions'. The UK did not provide data on public disability benefits.

Table 3-2 reports in detail how Member States have applied the break-down between old-age and early pensions, on one hand, and other pensions, on the other hand. It is thus obvious that the share of old-age and early pensions in total public pensions shown in Table 3-8 is not fully comparable across countries, but it might be indicative as to the extent to which the ageing of the population influences the total public pension expenditure. Also, the projected development over time can be considered to provide a picture of the changes in national pension provisions as to the role of old-age pensions, on the one hand, and that of other pensions, on the other hand.

[41] For instance, Slovenia reported that disability pensions account for 3% of all pensions.

Table 3-8 Old-age and early pensions, gross, as a share of all public pensions

Old-age and early pensions, gross / Public pensions, gross									Change	Change	Change
Country	2004	2010	2015	2020	2025	2030	2040	2050	2004-2030	2030-2050	2004-2050
BE	92	92	93	94	94	95	96	96	3	1	3
CZ	90	91	91	91	90	91	93	94	1	3	4
DK	77	81	83	83	83	84	85	84	8	-1	7
DE 2)	100	100	100	100	100	100	100	100	0	0	0
EE	89	88	88	88	88	89	89	90	0	2	2
GR											
ES	65	65	65	66	68	71	76	78	6	7	13
FR 2)	100	100	100	100	100	100	100	100	0	0	0
IE	74	76	79	81	82	84	86	88	10	5	15
IT	98	98	98	98	99	99	99	99	1	0	1
CY 2)	100	100	100	100	100	100	100	100	0	0	0
LV	84	88	88	88	88	88	88	89	4	1	4
LT	85	85	85	85	86	86	86	86	1	0	1
LU	61	62	64	68	72	75	79	80	15	5	19
HU	80	81	86	90	90	90	92	92	10	2	12
MT	52	59	65	69	73	76	83	92	24	16	40
NL	64	68	72	75	78	80	84	83	17	3	20
AT	84	85	87	88	89	90	91	92	7	2	9
PL	77	83	84	86	87	86	83	82	9	-3	5
PT	78	79	80	82	82	82	82	83	4	0	5
SI 2)	100	100	100	100	100	100	100	100	0	0	0
SK	75	71	67	66	65	65	67	70	-11	5	-5
FI	74	79	81	83	85	86	87	88	12	2	14
SE	74	76	80	82	83	85	88	88	11	4	15
UK	100	100	100	100	100	100	100	100	0	0	0
EU15 1)	96	97	97	97	97	97	98	98	1	0	1
EU10	81	84	85	87	88	87	87	88	6	1	7
EU12 1)	94	94	95	95	95	96	96	96	2	0	2
EU25 1)	96	96	96	96	97	97	97	97	1	0	2

1) excluding Greece

2) DE, FR, CY and SI: no break-down according to the type of pension has been provided.

It can be seen that there is a general tendency towards an increasing share for old-age pensions. This is a consequence of demographic developments and, secondly, a consequence of pension policies that aim to reduce the use of disability pension schemes as substitutes for early pensions and to redirect their use to genuine disability cases. Large increases in the share of old-age pensions are projected in the Netherlands (+20 p.p.), Luxembourg (+19p.p.), Ireland and Sweden (+15 p.p.), Finland (+14 p.p.), Spain (+13 p.p.) and Hungary (+12 p.p.)[42]. Only in Slovakia is the share of public old-age pensions projected to decrease. However, this development must be attributed primarily to the partial switch of old-age pensions to a private scheme while disability pensions will remain in the public system.

42 The share of old-age pensions is projected to increase by 40 percentage points in Malta. However, this figure is largely driven by the break-down applied, the category of old-age pensions was limited to main schemes while other pensions included also specific pensions - but rather equivalent to old-age pensions - being phased out over a transition period.

3.3.2.4. Disability and survivors' pensions

Looking at the evolution of disability and survivors' pensions[43] provides insights into the projected impact of pension reforms with the aim of tightening access to disability pensions in particular. In most cases, where a significant decrease in other pension expenditure is projected, the access to disability pension schemes has been tightened and its use as a substitute for an early pension reduced. In addition, in some countries, in particular in Sweden, the provision of widows' pensions will be phased out. A significant decrease in these pensions is projected for Poland (by 1.8 percentage points of GDP), Sweden (by 1.5 p.p.), Austria[44] (by 1.2 p.p.), Finland (by 1.1 p.p.), the Netherlands (by 1 p.p.) and Hungary (by 0.8 p.p.)[45]. Public spending on disability and survivors' pensions is projected to increase only in Portugal (by 1.2 p.p.), Slovakia (by 0.9 p.p.), Spain (by 0.5 p.p.) and Lithuania (by 0.2p.p.). In particular, in Lithuania, the projected increase reflects recent measures, which made the disability pension more accessible.

Table 3-9 Disability and survivors' pensions as a share of GDP between 2004 and 2050

Other pensions (disability, survivors), gross as % of GDP									Change	Change	Change
Country	2004	2010	2015	2020	2025	2030	2040	2050	2004-2030	2030-2050	2004-2050
BE	0,8	0,8	0,8	0,8	0,7	0,7	0,7	0,7	-0,1	-0,1	-0,1
CZ	0,8	0,8	0,8	0,8	0,9	0,8	0,8	0,8	0,0	-0,1	-0,1
DK	2,2	1,9	1,9	1,9	2,0	2,0	2,0	2,1	-0,2	0,1	-0,1
DE											
EE	0,8	0,8	0,7	0,6	0,6	0,5	0,5	0,4	-0,2	-0,1	-0,4
GR											
ES	3,0	3,1	3,1	3,2	3,3	3,4	3,6	3,5	0,5	0,0	0,5
FR											
IE	1,3	1,2	1,3	1,3	1,3	1,3	1,3	1,3	0,0	0,0	0,0
IT	0,3	0,3	0,2	0,2	0,2	0,2	0,2	0,2	-0,1	0,0	-0,1
CY											
LV	1,1	0,6	0,6	0,6	0,6	0,7	0,7	0,6	-0,4	-0,1	-0,4
LT	1,0	1,0	1,0	1,0	1,1	1,1	1,2	1,2	0,1	0,1	0,2
LU	3,9	3,7	3,9	3,9	3,9	3,7	3,6	3,5	-0,3	-0,2	-0,5
HU	2,1	2,1	1,6	1,3	1,2	1,3	1,3	1,3	-0,7	0,0	-0,8
MT	3,6	3,6	3,5	3,2	2,7	2,2	1,3	0,5	-1,4	-1,6	-3,0
NL	2,8	2,4	2,3	2,3	2,2	2,1	1,9	1,9	-0,7	-0,2	-1,0
AT	2,2	1,9	1,7	1,6	1,5	1,3	1,2	0,9	-0,8	-0,4	-1,2
PL	3,2	2,0	1,6	1,3	1,3	1,3	1,5	1,4	-1,9	0,1	-1,8
PT	2,4	2,5	2,5	2,6	2,7	2,8	3,3	3,6	0,4	0,8	1,2
SI											
SK	1,8	1,9	2,1	2,3	2,5	2,7	2,7	2,7	0,9	0,0	0,9
FI	2,8	2,4	2,3	2,2	2,1	2,0	1,8	1,7	-0,8	-0,3	-1,1
SE	2,8	2,4	2,1	1,9	1,8	1,7	1,4	1,3	-1,1	-0,4	-1,5
UK [2)]											
EU15 [1)]	1,8	1,7	1,6	1,6	1,6	1,6	1,6	1,5	-0,1	-0,1	-0,2
EU10 [1)]	2,2	1,6	1,4	1,3	1,3	1,3	1,4	1,3	-0,9	0,0	-0,9
EU12 [1)]	1,6	1,6	1,6	1,6	1,6	1,6	1,6	1,5	0,0	-0,1	-0,1
EU25 [1)]	1,8	1,7	1,6	1,6	1,6	1,6	1,6	1,5	-0,2	-0,1	-0,3

1) excluding countries which have not provided data or been able to show this catecory separately

2) UK: no data provided on disability benefits

43 The caveats concerning the separation of disability and survivors' pensions described in the context of Table 3-8 apply to this table, too.

44 AT: The figures of this table include only survivors' pensions.

45 MT: the category includes also pensions other than disability pensions, cf. footnote 42.

3.3.2.5. The factors driving the change in pension spending

The factors driving the increases in pension spending can be further analysed by decomposing the results of the projections into four main explanatory factors, namely:

- *A dependency effect (or a population ageing effect),* which measures the changes in the dependency ratio over the projection period as the ratio of persons aged 65 and over to the population aged 15 to 64;

- *an employment effect* which measures changes in the share of the population of working age (15 to 64) relative to the number of the employed, i.e. an inverse employment rate;

- *a take-up effect of pensions*[46], which measures changes in the share of pensioners relative to the population aged 65 and over. In effect, it measures the take-up of pensions relative to the number of old people. For some countries, the reported number of pensioners represents the number of pensions rather than the number of pensioners. However, this bias should not affect the evolution in the take-up ratio over time;

- *a benefit effect*, which captures changes in the average pension relative to output per employed person. Average pension and output per worker, approximating the average wage, are measured each year of the projection exercise for the total population of pensioners and employees. Thus, the benefit ratio also captures changes in the structure of the respective population groups, in addition to the assumed increases in pensions due to the indexation rules, the maturation of the pension system and longer contribution periods as well as in wages due to the assumptions of labour productivity growth rates. In particular, it should be noted that the benefit ratio does not measure the level of the pension for any individual relative to his/her own wage and, hence, is not equivalent to a replacement rate indicator[47].

The following equation is used:

$$\frac{PensExp}{GDP} = \frac{Pop>65}{Pop(15\text{-}64)} \times \frac{Pop\ (15\text{-}64)}{EmplNo} \times \frac{PensNo}{Pop>65} \times \frac{PensExp/PensNo}{GDP/EmplNo}$$

The following tables (Table 3-10 and Table 3-12) decompose the projected change in public spending, as a per cent of GDP, into the changes in the dependency ratio, employment rate, take-up ratio of pensions and benefit ratio. Further tables (Table 3-13 and Table 3-14) present then the contributions in terms of the increase in pension spending over the whole projection period relative to spending in 2004. The contributions of the different factors to the changes in pension spending have been measured as the sum of changes over 5-year periods in order to reduce the magnitude of the residual component. Table 3-15 presents annual growth rates in pension spending over selected time periods.

---

[46] This effect is also known as 'eligibility effect' in the literature.

[47] Table 2-2 of the Annex presents the gross and net replacement ratios of pensions calculated for a hypothetical individual with a full career of 40 years at average earnings.

Table 3-10 The contribution of the decomposed factors to the change (in percentage points) in all public pensions relative to GDP

	Public pensions, gross as % of GDP		Due to growth in:				Interaction effect (residual)
			Dependency ratio	Employment rate	Take up ratio	Benefit ratio	
	start level 2005 [2]	p.p. change 2005-50	Pop(65+) / Pop(15-64)	Employed / Pop(15-64)	Pensioners / Pop65+	Average pension / GDP per worker	
BE	10,4	5,1	7,7	-1,5	-0,4	-0,6	-0,1
DK	9,6	3,2	7,2	-0,4	-2,8	-0,5	-0,3
DE	11,1	1,9	7,5	-1,1	-0,6	-3,5	-0,4
GR	:						
ES	8,7	7,0	12,4	-1,8	-2,3	-0,8	-0,4
FR	12,8	2,0	8,7	-0,9	-1,8	-3,5	-0,5
IE	4,6	6,5	7,9	-0,5	-1,4	0,8	-0,2
IT	14,3	0,4	11,5	-2,0	-3,2	-5,3	-0,7
LU	10,0	7,4	7,2	-4,4	2,5	2,1	0,0
NL	7,4	3,8	6,3	-0,2	-1,6	-0,4	-0,3
AT	13,2	-1,0	11,3	-1,3	-5,8	-4,3	-0,8
PT	11,5	9,3	13,7	-0,2	-0,9	-3,0	-0,4
FI	10,4	3,3	8,8	-0,9	-3,1	-0,9	-0,6
SE	10,4	0,9	4,8	-0,6	-0,2	-2,8	-0,2
UK	6,7	1,9	4,7	-0,1			-2,6
CY	7,0	12,8	10,2	-1,2	1,2	2,5	0,1
CZ	8,5	5,6	10,5	-0,3	-3,5	-0,6	-0,6
EE	7,1	-3,0	3,1	-0,6	-1,5	-3,8	-0,2
HU	10,7	6,4	10,5	-1,1	-4,5	2,0	-0,4
LT	6,7	1,9	5,4	-1,0	-2,1	-0,2	-0,2
LV	6,4	-0,9	3,4	-0,7	-1,3	-2,4	0,0
MT	7,5	-0,5	7,3	-1,2	-1,0	-5,0	-0,6
PL	13,7	-5,7	10,4	-3,2	-4,5	-7,5	-0,8
SK	7,4	1,5	9,0	-1,3	-2,5	-3,1	-0,6
SI	11,0	7,3	13,3	-1,0	-3,6	-0,9	-0,6
EU15 [1]	10,5	2,3	8,2	-1,0	-1,7	-2,8	-0,4
EU10	11,5	0,3	9,9	-1,7	-3,8	-3,5	-0,6
EU12 [1]	10,6	2,7	9,3	-1,3	-1,8	-3,1	-0,4
EU25 [1]	10,6	2,2	8,6	-1,1	-2,1	-2,7	-0,4

1) excluding countries which have not provided information

2) The base year of the decomposition calculations is 2005 (insted of 2004 in other tables) because the changes have been measured as the sum of changes over 5-year periods.

Table 3-10 shows the impact of the decomposed factors in terms of percentage point changes in public pension expenditure relative to GDP. The findings can be summarised as follows:

- In almost all countries, the old-age dependency ratio weighs on the increase in pension spending by far more than the total increase, while the other factors offset part of the increase coming from the ageing of the population. The strongest offsetting effect comes from the benefit ratio and in the EU10 Member States also from the eligibility ratio.

- Demographic change alone, measured by the dependency ratio, would result in expenditure increases by over 10 percentage points of GDP in Spain, Italy, Austria, Portugal, Cyprus, the Czech Republic, Hungary, Poland and Slovenia. On average, in the EU15, the demographic pressure alone would push public pension spending upwards by over 8 percentage points of GDP and in the EU10 by almost 10 percentage points.

- The offsetting factors, notably the projected reduction in the benefit ratio, are projected to have a very large impact on the increase. In the EU15, these factors are expected to offset some 70% of the pressure caused by demographic development alone and in the EU10 almost all the pressure.

- The contribution of the relative benefit ratio reflects for a number of countries institutional changes, notably the partial switch of social security pensions into private schemes (PL, SK, LV and EE). Secondly, it reflects the change in the indexation rules of pensions. If the indexation of pensions is shifted towards prices only, the average benefit to average output per employee (average wage) will decrease over time. The earlier switch to price indexation of pension in Italy and the recently reformed indexation rules in Germany, France and Austria explain the relatively large offsetting impact of the relative benefit ratio on the pension expenditure increase. In the case of Malta, the indexation of the maximum pension to a price index explains a large decrease in the relative benefit ratio. In contrast, subjecting pensions more to taxes, as in Hungary, will increase the gross pension, which is measured by the benefit ratio, but not to the same degree the net pension. The level of pensions relative to wages (approximated by output per employee is projected to increase also in Ireland, Luxembourg and the most strongly in Cyprus, reflecting largely the maturation of their pension systems, which takes account of longer careers with contributions paid to the system.

- Large decreases in the take-up ratio of pensions are projected in particular for Austria, Hungary and Poland but also in the Czech Republic, Italy, Finland and Slovenia. These reflect changes in pension policies that have aimed at increasing the effective retirement age either through increases in the statutory retirement age and/or through tightening access to early and disability pension schemes. In contrast, the number of pensioners relative to the number of older people in the population is projected to remain, by and large, unchanged in Belgium, Germany and Sweden. However, this may include structural changes in the take-up of pensions, for instance, a higher take-up of pensions by women thanks to their increasing participation in the labour market and a lower take-up of pensions by men due to reforms undertaken.

- Employment rates are projected to increase in all countries and, consequently, this would help to offset some of the demographic pressures on pension expenditure. Particularly large contributions from higher employment are projected for Poland. Other countries with relatively low current employment rates such as Spain, Belgium, Italy, Austria and Slovakia are also projected to get relief from higher employment rates. In the remaining countries, the offsetting impact of employment is projected to be about one percentage point or less.

- In Luxembourg, the pressure on public pension spending coming from changes in dependency ratio, employment rate and eligibility rate should be considered together because a considerable part of the labour supply is provided by cross-border workers, making the trends of the employed persons and the resident population inconsistent with each other. Thus, the population components alone do not reflect correctly the driving forces of pension expenditure developments, while the three components together reflect the evolution of the number of persons accruing pension rights in the system.

Table 3-11 The projected benefit ratio: average public pension relative to output per worker

Benefit ratio: Average public pension relative to output per worker									p.p. change	p.p. change	p.p. change
Country	2004	2010	2015	2020	2025	2030	2040	2050	2004-2030	2030-2050	2004-2050
BE	17,7	17,8	17,8	17,8	17,6	17,4	16,9	16,4	-0,3	-1,0	-1,3
CZ	15,7	14,1	13,5	13,2	13,0	13,1	13,7	14,1	-2,7	1,0	-1,7
DK	20,2	19,9	19,5	19,4	19,3	19,2	19,0	19,2	-1,0	0,0	-1,1
DE	18,5	16,6	16,6	16,2	15,6	14,8	13,9	13,3	-3,6	-1,5	-5,2
EE	10,5	11,3	10,2	9,0	8,0	7,2	6,2	5,3	-3,4	-1,9	-5,3
GR											
ES	17,2	19,6	19,1	18,9	19,0	19,1	18,8	17,1	2,0	-2,0	-0,1
FR	24,4	24,1	23,0	22,0	21,1	20,3	19,3	18,9	-4,2	-1,3	-5,5
IE	14,3	14,9	15,9	16,2	16,6	16,5	16,1	15,7	2,2	-0,8	1,4
IT	20,0	20,8	20,4	19,8	18,8	17,7	15,7	14,0	-2,2	-3,7	-6,0
CY	25,6	28,6	27,9	26,9	25,5	25,7	28,9	30,8	0,1	5,1	5,2
LV	11,4	9,9	9,4	9,2	9,1	9,1	8,9	7,2	-2,2	-1,9	-4,2
LT	7,7	7,9	8,1	8,4	8,6	8,4	8,0	7,5	0,8	-0,9	-0,1
LU	23,5	23,4	24,7	25,0	26,4	26,6	27,5	28,0	3,1	1,4	4,5
HU	13,4	14,4	14,7	15,3	15,5	15,6	16,1	16,2	2,3	0,5	2,8
MT	18,4	19,9	20,1	19,0	17,2	15,2	12,4	10,3	-3,2	-4,9	-8,1
NL	19,5	18,8	18,6	18,4	18,2	18,1	18,0	18,1	-1,4	0,0	-1,4
AT	21,8	21,4	21,0	20,6	19,9	19,0	16,7	15,2	-2,8	-3,8	-6,6
PL	25,0	24,1	21,1	19,7	18,4	16,9	13,8	10,7	-8,1	-6,2	-14,3
PT	18,6	18,4	18,1	17,9	17,2	16,5	15,9	15,4	-2,1	-1,0	-3,2
SI	18,9	18,5	18,0	17,7	17,4	17,3	17,2	17,3	-1,6	0,0	-1,6
SK	13,0	12,6	12,4	12,3	12,0	11,4	9,9	8,8	-1,7	-2,6	-4,2
FI	19,8	19,6	19,4	19,1	18,8	18,5	18,3	18,0	-1,3	-0,5	-1,9
SE	21,3	20,0	18,7	17,5	16,9	16,5	16,2	15,9	-4,8	-0,6	-5,4
UK											
EU15 [1)]	22,6	22,1	21,6	21,0	20,3	19,6	18,4	17,6	-3,0	-2,0	-5,0
EU10 [1)]	18,2	17,8	16,6	16,2	15,7	15,1	14,1	12,8	-3,1	-2,3	-5,4
EU12 [1)]	20,2	19,9	19,5	19,0	18,4	17,6	16,5	15,6	-2,5	-2,0	-4,6
EU25 [1)]	21,7	21,4	21,0	20,4	19,8	19,1	18,0	17,0	-2,6	-2,2	-4,7

1) excluding countries which have not provided data

Table 3-11 shows more specifically the evolution of the benefit ratios embedded in the projections. Only four countries (CY, IE, LU and HU) project that average pension benefits will increase relative to wages (approximated by output per employee). A projected decrease in the benefit ratio mainly reflects that pensions in payment will not be raised at the same pace as the wages increase. Among the EU15 Member States, particularly large decreases in the benefit ratios are projected in countries that have already moved (Italy) or decided recently to move to price indexation such as France and Austria[48]. However, the initial level of benefits is at a relatively high level at the beginning of the projection period and the benefit level at the end of the projection period would still be close to the EU average level. In Germany, the sustainability factor as part of the indexation formula will reduce the relative benefit level to about the same degree as the price indexation in some other countries. In the EU10 Member States, the projected decrease is partially due to the indexation and partially due to the switch to private schemes. For these countries, the level of public pensions alone should not be interpreted as an indicator of the future pension generosity. The level of total pensions is shown in Table 3-17 and the benefit ratio for total pensions in Table 3-18.

48 Table 2-3 of the Annex describes the indexation rules of Member States' pension schemes.

Table 3-12 The contribution of the decomposed factors to the change (in percentage points) in the public old-age and early pensions relative to GDP

	Old-age and early pensions, gross as % of GDP		Due to growth in:				Interaction effect (residual)
			Dependency ratio	Employment rate	Take up ratio	Benefit ratio	
	start level 2005 [2]	p.p. change 2005-2050	Pop(65+) / Pop(15-64)	Employed / Pop(15-64)	Pensioners / Pop65+	Average pension / GDP per worker	
BE	9,6	5,3	7,3	-0,8	0,1	-1,2	-0,1
DK	7,5	3,3	5,9	-0,3	-1,6	-0,5	-0,2
DE	11,1	1,9	7,5	-1,1	-0,6	-3,5	-0,4
GR	:						
ES	5,7	6,6	8,9	-1,2	0,0	-1,0	-0,1
FR	12,8	2,0	8,7	-0,9	-1,8	-3,5	-0,5
IE	3,5	6,4	6,5	-0,4	0,3	0,0	-0,1
IT	14,0	0,5	11,4	-2,0	-2,9	-5,3	-0,7
LU	6,1	7,8	5,0	-3,2	4,3	1,5	0,2
NL	4,8	4,6	4,6	-0,2	0,0	0,1	0,0
AT	11,0	0,2	9,9	-1,1	-4,5	-3,3	-0,7
PT	9,0	8,1	11,2	-0,1	0,4	-3,0	-0,3
FI	8,0	4,0	7,1	-0,7	-1,1	-0,9	-0,4
SE	7,6	2,3	3,8	-0,5	0,9	-1,7	-0,1
UK	6,7	1,9	4,7	-0,1	-0,7	-1,7	-0,2
CY	7,0	12,8	10,2	-1,2			3,8
CZ	7,6	5,6	9,6	-0,3	-2,6	-0,6	-0,5
EE	6,3	-2,5	2,8	-0,5	-1,1	-3,5	-0,2
HU	8,6	7,2	9,3	-0,9	-1,9	0,9	-0,2
LT	5,7	1,7	4,6	-0,9	-1,6	-0,3	-0,2
LV	5,7	-0,8	3,0	-0,6	-1,0	-2,2	0,0
MT	3,9	2,6	4,8	-0,7	2,6	-3,9	-0,3
PL	11,1	-4,5	8,7	-2,6	-3,6	-6,2	-0,8
SK	5,6	0,7	6,1	-0,9	-1,5	-2,6	-0,4
SI	11,0	7,3	13,3	-1,0	-0,5	-4,0	-0,6
EU15 [1]	9,8	2,4	7,7	-0,9	-1,2	-2,8	-0,3
EU10	10,7	0,9	8,6	-1,4	-2,8	-3,0	-0,5
EU12 [1]	9,8	2,7	8,7	-1,2	-1,4	-3,1	-0,4
EU25 [1]	9,8	2,3	8,0	-1,1	-1,5	-2,8	-0,4

1) excluding countries which have not provided information

2) The base year of the decomposition calculations is 2005 (insted of 2004 in other tables) because the changes have been measured as the sum of changes over 5-year periods.

The main findings concerning the driving forces for the increase in public old-age and early pensions can be summarised as follows:

- as old-age pensions constitute the greatest share of all social security pensions, the decomposition of the old-age pension expenditure increase confirms the findings for all public pensions;

- the main difference relative to the decomposition of the increase in all pensions comes from the take-up ratio. In the case of the old-age pensions, the take-up ratio has a smaller offsetting impact, reflecting a closer relationship between the number of old-age pensioners and the older population. This suggests that the gains in a lower take-up of pensions would result more from changes in the take-up of pensions other than old-age pensions, i.e., among persons below the age of 65. This can be expected as a consequence of increased statutory retirement ages and tightened access to early retirement or pre-retirement pensions. Nevertheless, notable decreases in the take-up ratio of old-age pensions are projected in particular in Austria, Poland, the Czech Republic and Italy;

- an increase in the take-up ratio reflects in the first instance the increasing number of old-age people, due to larger age cohorts reaching the age of retirement and the increasing longevity. This impact is particularly large in Malta, but positive also in Belgium, Ireland, Portugal and Sweden. In some countries, in particular in Belgium, Spain and Malta, this reflects the increase in the female participation rate and, subsequently, the accrual of own pension rights of women and a higher number of female pensioners. It could be noted that the number of pensioners may also include persons receiving pensions abroad while they are excluded from the resident population. In the Swedish case, this explains the rising eligibility ratio;

- when only old-age pension spending is concerned, the demographic challenge is the largest in Slovenia, Italy, Portugal and Cyprus.

The following tables present the decomposition effects in terms of the increase of pension spending (in %) over the projection period relative to the spending in 2005. The findings largely support those presented above by the analysis of the contribution to the percentage point increase relative to GDP.

Table 3-13 Decomposition of the increase (in %) in public pension expenditure between 2005 and 2050

	Public pensions, gross as % of GDP		Due to growth in:				Interaction effect (residual)
	start level 2005 [2]	% change 2005-50	Dependency ratio Pop (65+) / Pop(15-64)	Employment rate Employed / Pop(15-64)	Take up ratio Pensioners / Pop65+	Benefit ratio Average pension / GDP per worker	
BE	10,4	49,7	61,6	-13,8	-2,4	-2,7	7,0
DK	9,6	33,3	65,1	-3,7	-24,1	-4,7	0,6
DE	11,1	17,4	65,8	-10,3	-5,6	-29,6	-2,8
GR	:		85,4	-16,1			
ES	8,7	81,4	105,0	-19,7	-17,5	-1,3	14,9
FR	12,8	15,4	63,6	-7,0	-12,9	-25,7	-2,6
IE	4,6	141,9	107,0	-9,9	-20,7	19,3	46,2
IT	14,3	2,8	78,5	-13,8	-21,4	-35,3	-5,1
LU	10,0	73,7	56,3	-31,1	16,2	16,7	15,6
NL	7,4	51,4	71,9	-2,1	-19,3	-4,3	5,1
AT	13,2	-7,5	84,5	-10,1	-43,3	-32,3	-6,4
PT	11,5	80,3	88,5	-0,9	-3,9	-20,1	16,6
FI	10,4	32,0	72,9	-7,7	-25,2	-6,1	-1,8
SE	10,4	8,5	45,6	-6,2	-2,0	-26,7	-2,1
UK	6,7	28,3	64,2	-1,8			
CY	7,0	183,5	94,4	-16,2	12,4	19,8	73,1
CZ	8,5	65,9	109,3	-3,6	-36,8	-9,0	6,1
EE	7,1	-41,4	60,3	-7,7	-26,8	-73,2	5,9
HU	10,7	60,1	79,4	-10,3	-33,4	16,3	8,1
LT	6,7	28,5	72,1	-16,0	-27,3	0,0	-0,2
LV	6,4	-13,4	62,7	-11,1	-20,6	-40,9	-3,5
MT	7,5	-6,4	80,8	-13,6	-10,5	-53,5	-9,5
PL	13,7	-41,7	108,3	-26,7	-43,7	-79,1	-0,5
SK	7,4	20,3	122,0	-19,0	-34,0	-40,6	-8,2
SI	11,0	66,2	99,7	-8,5	-26,8	-7,5	9,2
EU15 [1]	10,5	22,1	72,1	-9,3	-14,9	-24,1	-1,6
EU10	10,9	2,6	100,0	-16,9	-38,2	-34,8	-7,5
EU12 [1]	11,5	23,2	74,8	-11,0	-14,6	-24,3	-1,5
EU25 [1]	10,6	20,9	76,1	-10,8	-18,7	-23,5	-2,1

1) excluding countries which have not provided information

2) The base year of the decomposition calculations is 2005 (insted of 2004 in other tables) because the changes have been measured as the sum of changes over 5-year periods.

Table 3-14 Decomposition of the increase (in %) in public old-age and early pension expenditure between 2005 and 2050

	Old-age and early pensions, gross as % of GDP		Due to growth in:				Interaction effect (residual)
			Dependency ratio Pop(65+) / Pop(15-64)	Employment rate Employed / Pop(15-64)	Take up ratio Pensioners / Pop65+	Benefit ratio Average pension / GDP per worker	
	start level 2005 [2]	% change 2005-50					
BE	9,6	55,4	61,6	-8,2	1,8	-8,7	8,8
DK	7,5	43,7	65,1	-3,7	-15,8	-5,5	3,6
DE	11,1	17,4	65,8	-10,3	-5,6	-29,6	-2,8
GR	:		85,4	-16,1			
ES	5,7	116,9	105,0	-19,7	5,3	-6,3	32,7
FR	12,8	15,4	63,6	-7,0	-12,9	-25,7	-2,6
IE	3,5	182,9	107,0	-9,9	3,1	11,1	71,7
IT	14,0	3,9	78,5	-13,8	-20,2	-35,5	-5,1
LU	6,1	128,6	56,3	-31,1	43,3	17,9	42,2
NL	4,8	94,8	71,9	-2,1	-0,1	1,3	23,6
AT	11,0	2,3	84,5	-10,1	-38,4	-27,5	-6,2
PT	9,0	89,8	88,5	-0,9	6,0	-24,7	20,7
FI	8,0	50,1	72,9	-7,7	-11,0	-8,0	3,9
SE	7,6	30,9	45,6	-6,2	10,7	-20,8	1,6
UK	6,7	28,3	64,2	-1,8	-9,9	-23,7	-0,6
CY	7,0	183,5	94,4	-16,2			
CZ	7,6	73,8	109,3	-3,6	-30,2	-11,1	9,4
EE	6,3	-40,2	60,3	-7,7	-21,3	-76,3	4,8
HU	8,6	82,9	79,4	-10,3	-13,7	9,3	18,2
LT	5,7	30,0	72,1	-16,0	-23,9	-2,3	0,2
LV	5,7	-13,5	62,7	-11,1	-17,2	-43,9	-3,9
MT	3,9	65,1	80,8	-13,6	46,1	-51,7	3,7
PL	11,1	-40,9	108,3	-26,7	-41,2	-79,7	-1,5
SK	5,6	12,1	122,0	-19,0	-31,3	-50,2	-9,5
SI	11,0	66,2	99,7	-8,5	-3,6	-30,5	9,1
EU15 [1]	9,8	24,6	72,1	-9,2	-11,0	-26,2	-1,2
EU10	9,1	9,5	100,0	-16,9	-32,8	-34,0	-6,8
EU12 [1]	10,7	25,2	74,8	-10,8	-11,6	-26,0	-1,1
EU25 [1]	9,8	23,6	76,1	-10,7	-14,2	-26,0	-1,6

1) excluding countries which have not provided information

2) The base year of the decomposition calculations is 2005 (insted of 2004 in other tables) because the changes have been measured as the sum of changes over 5-year periods.

Table 3-15 analysis the time path of the projected increases in old-age pension spending and how the different components influence these projected increases over selected time periods:

- as the dependency ratio is the strongest driving force for increases in pension spending, the time path of the increases is also dominated by this fact. Dependency ratios have the largest impact in the period 2015-2030, in particular in the EU15 Member States, while in the EU10 Member States the impact is more evenly spread over the whole projection period;

- the employment rate and the eligibility rate are projected to have their largest offsetting impact at the beginning of the projection period (2005-2015). This is a credible result when bearing in mind that the labour force projections are based on an assumption of unchanged policies and only the impact of the already legislated policy changes is included;

- the decrease in the benefit ratio is projected to be more evenly spread over the projection period than the decreases in the employment and eligibility ratios, with some tendency to strengthen over time. In particular, in the EU10 Member States, this would reflect the maturation of the switch from public schemes to private ones.

Table 3-15 Annual growth rates of public old-age and early pensions over selected time periods and decomposed by driving factors

		2005 - 2015	2015 - 2030	2030 - 2050	2005 - 2030	2005 - 2050
	Old-age and early pensions, gross as % of GDP	0,69	2,07	0,31	1,51	0,98
	Dependency ratio	1,03	2,33	0,69	1,81	1,31
BE	*Employment*	-0,58	-0,12	-0,02	-0,31	-0,18
	Take up ratio	0,23	0,01	-0,04	0,10	0,04
	Benefit ratio	0,00	-0,18	-0,30	-0,11	-0,19
	Interaction effect	-0,01	-0,02	0,01	-0,02	0,00
	Old-age and early pensions, gross as % of GDP	1,77	1,29	-0,03	1,48	0,81
	Dependency ratio	2,46	1,80	0,53	2,06	1,38
DK	*Employment*	-0,28	0,01	-0,05	-0,11	-0,08
	Take up ratio	-0,13	-0,40	-0,44	-0,29	-0,36
	Benefit ratio	-0,27	-0,11	-0,06	-0,18	-0,12
	Interaction effect	0,01	0,01	0,00	0,01	0,01
	Old-age and early pensions, gross as % of GDP	-0,56	1,02	0,33	0,38	0,36
	Dependency ratio	1,28	2,26	0,81	1,86	1,40
DE	*Employment*	-0,90	-0,07	-0,01	-0,40	-0,22
	Take up ratio	-0,14	-0,39	0,07	-0,29	-0,13
	Benefit ratio	-0,79	-0,76	-0,55	-0,77	-0,67
	Interaction effect	0,01	0,02	0,00	0,02	0,01
	Old-age and early pensions, gross as % of GDP					
	Dependency ratio	1,25	1,77	2,15	1,56	1,82
GR	*Employment*	-1,54	0,07	-0,05	-0,57	-0,34
	Take up ratio					
	Benefit ratio					
	Interaction effect					
	Old-age and early pensions, gross as % of GDP	0,10	2,62	1,90	1,61	1,74
	Dependency ratio	1,18	2,20	2,74	1,79	2,21
ES	*Employment*	-1,64	-0,07	-0,08	-0,70	-0,42
	Take up ratio	0,20	0,56	-0,26	0,41	0,11
	Benefit ratio	0,36	-0,07	-0,49	0,10	-0,16
	Interaction effect	-0,01	-0,01	0,02	0,00	0,01
	Old-age and early pensions, gross as % of GDP	0,27	0,56	0,16	0,44	0,32
	Dependency ratio	1,51	2,12	0,71	1,87	1,36
FR	*Employment*	-0,42	-0,13	-0,04	-0,25	-0,15
	Take up ratio	-0,18	-0,54	-0,16	-0,40	-0,29
	Benefit ratio	-0,63	-0,86	-0,34	-0,77	-0,58
	Interaction effect	0,01	0,03	0,00	0,02	0,01
	Old-age and early pensions, gross as % of GDP	2,98	2,33	2,02	2,59	2,34
	Dependency ratio	1,94	2,36	2,37	2,19	2,27
IE	*Employment*	-0,70	-0,14	-0,03	-0,36	-0,22
	Take up ratio	-0,21	0,11	0,17	-0,02	0,07
	Benefit ratio	1,94	0,01	-0,48	0,78	0,22
	Interaction effect	-0,01	0,00	0,01	-0,01	0,00
	Old-age and early pensions, gross as % of GDP	-0,28	0,60	-0,12	0,25	0,08
	Dependency ratio	1,50	1,75	1,70	1,65	1,67
IT	*Employment*	-0,95	-0,12	-0,12	-0,45	-0,30
	Take up ratio	-1,01	-0,05	-0,48	-0,44	-0,46
	Benefit ratio	0,18	-0,95	-1,20	-0,50	-0,81
	Interaction effect	0,01	0,02	0,02	0,01	0,02
	Old-age and early pensions, gross as % of GDP	1,40	3,24	1,05	2,50	1,85
	Dependency ratio	0,75	2,19	0,68	1,61	1,20
LU	*Employment*	-0,60	-0,60	-0,78	-0,60	-0,68
	Take up ratio	0,57	1,18	0,95	0,94	0,94
	Benefit ratio	0,67	0,45	0,20	0,54	0,39
	Interaction effect	0,00	-0,02	0,00	-0,01	-0,01
	Old-age and early pensions, gross as % of GDP	2,24	2,42	0,43	2,35	1,49
	Dependency ratio	2,32	2,41	0,44	2,38	1,51
NL	*Employment*	-0,01	-0,03	-0,07	-0,02	-0,05
	Take up ratio	-0,01	0,00	0,00	0,00	0,00
	Benefit ratio	-0,06	0,03	0,07	0,00	0,03
	Interaction effect	0,00	0,00	0,00	0,00	0,00
	Old-age and early pensions, gross as % of GDP	-0,03	0,93	-0,56	0,54	0,05
	Dependency ratio	1,75	2,49	1,28	2,19	1,79
AT	*Employment*	-0,78	-0,08	-0,05	-0,36	-0,22
	Take up ratio	-1,10	-0,72	-0,87	-0,87	-0,87
	Benefit ratio	0,11	-0,73	-0,91	-0,39	-0,63
	Interaction effect	0,02	0,03	0,01	0,03	0,02
	Old-age and early pensions, gross as % of GDP	1,17	1,74	1,34	1,51	1,43
	Dependency ratio	1,35	2,06	2,03	1,78	1,89
PT	*Employment*	-0,02	0,00	-0,04	-0,01	-0,02
	Take up ratio	0,28	0,50	-0,22	0,41	0,13
	Benefit ratio	-0,45	-0,81	-0,42	-0,66	-0,56
	Interaction effect	0,00	0,01	0,01	0,01	0,01

		2005 - 2015	2015 - 2030	2030 - 2050	2005 - 2030	2005 - 2050
	Old-age and early pensions, gross as % of GDP	1,94	1,41	0,01	1,63	0,91
	Dependency ratio	2,90	2,38	0,19	2,59	1,52
FI	*Employment*	-0,47	-0,17	-0,02	-0,29	-0,17
	Take up ratio	-0,49	-0,36	-0,05	-0,41	-0,25
	Benefit ratio	0,01	-0,42	-0,10	-0,24	-0,18
	Interaction effect	0,02	0,02	0,00	0,02	0,01
	Old-age and early pensions, gross as % of GDP	0,80	0,87	0,29	0,85	0,60
	Dependency ratio	1,92	1,24	0,31	1,51	0,98
SE	*Employment*	-0,51	-0,03	-0,03	-0,22	-0,14
	Take up ratio	0,37	0,42	0,03	0,40	0,24
	Benefit ratio	-0,96	-0,74	-0,02	-0,83	-0,47
	Interaction effect	0,02	0,01	0,00	0,01	0,00
	Old-age and early pensions, gross as % of GDP	0,01	1,09	0,43	0,66	0,56
	Dependency ratio	1,44	1,91	0,94	1,72	1,37
UK	*Employment*	-0,10	-0,01	-0,03	-0,05	-0,04
	Take up ratio	-0,50	-0,29	-0,05	-0,38	-0,23
	Benefit ratio	-0,81	-0,50	-0,43	-0,62	-0,54
	Interaction effect	0,01	0,01	0,00	0,02	0,01
	Old-age and early pensions, gross as % of GDP	2,36	2,16	2,47	2,24	2,34
	Dependency ratio	2,21	2,69	1,38	2,50	2,00
CY	*Employment*	-1,42	-0,17	0,05	-0,67	-0,35
	Take up ratio					
	Benefit ratio					
	Interaction effect					
	Old-age and early pensions, gross as % of GDP	-0,31	1,10	2,12	0,54	1,24
	Dependency ratio	3,09	2,19	1,97	2,55	2,29
CZ	*Employment*	-0,43	-0,09	0,11	-0,22	-0,08
	Take up ratio	-1,43	-0,71	-0,32	-1,00	-0,70
	Benefit ratio	-1,46	-0,27	0,35	-0,75	-0,26
	Interaction effect	0,07	0,02	0,00	0,04	0,02
	Old-age and early pensions, gross as % of GDP	-1,88	-1,50	-0,49	-1,65	-1,14
	Dependency ratio	0,87	1,60	1,29	1,31	1,30
EE	*Employment*	-0,88	0,02	0,05	-0,34	-0,17
	Take up ratio	-0,82	-0,71	-0,14	-0,75	-0,48
	Benefit ratio	-1,06	-2,38	-1,67	-1,85	-1,77
	Interaction effect	-0,01	0,03	0,02	0,01	0,02
	Old-age and early pensions, gross as % of GDP	1,41	1,34	1,33	1,37	1,35
	Dependency ratio	1,60	1,85	1,61	1,75	1,69
HU	*Employment*	-0,87	-0,24	0,11	-0,49	-0,22
	Take up ratio	0,14	-0,43	-0,45	-0,20	-0,31
	Benefit ratio	0,54	0,17	0,06	0,31	0,20
	Interaction effect	0,00	0,01	0,01	0,01	0,01
	Old-age and early pensions, gross as % of GDP	-0,11	1,32	0,38	0,74	0,58
	Dependency ratio	0,72	2,17	1,48	1,59	1,54
LT	*Employment*	-1,50	-0,17	0,10	-0,70	-0,34
	Take up ratio	-0,05	-0,91	-0,51	-0,57	-0,54
	Benefit ratio	0,71	0,24	-0,67	0,43	-0,06
	Interaction effect	-0,01	0,02	0,01	0,01	0,01
	Old-age and early pensions, gross as % of GDP	-3,36	1,33	-0,01	-0,57	-0,32
	Dependency ratio	0,89	1,60	1,40	1,32	1,35
LV	*Employment*	-1,38	0,09	0,09	-0,49	-0,24
	Take up ratio	-1,22	-0,25	-0,11	-0,64	-0,40
	Benefit ratio	-1,70	-0,11	-1,36	-0,75	-1,02
	Interaction effect	-0,04	0,00	0,02	0,01	0,01
	Old-age and early pensions, gross as % of GDP	4,85	0,65	-0,35	2,31	1,12
	Dependency ratio	2,98	2,26	0,61	2,55	1,68
MT	*Employment*	-1,13	-0,34	0,15	-0,65	-0,29
	Take up ratio	1,71	0,61	0,90	1,05	0,98
	Benefit ratio	1,23	-1,83	-1,99	-0,62	-1,23
	Interaction effect	-0,05	0,04	0,03	0,01	0,02
	Old-age and early pensions, gross as % of GDP	-3,02	-0,26	-0,89	-1,38	-1,16
	Dependency ratio	1,48	3,38	1,80	2,62	2,25
PL	*Employment*	-1,76	-0,80	0,19	-1,18	-0,57
	Take up ratio	-1,62	-1,48	-0,21	-1,54	-0,95
	Benefit ratio	-1,15	-1,29	-2,63	-1,24	-1,86
	Interaction effect	-0,03	0,07	0,05	0,04	0,04
	Old-age and early pensions, gross as % of GDP	-2,31	0,74	1,20	-0,49	0,25
	Dependency ratio	1,60	3,43	2,37	2,69	2,55
SK	*Employment*	-1,52	-0,57	0,27	-0,95	-0,40
	Take up ratio	-1,01	-1,04	-0,31	-1,03	-0,71
	Benefit ratio	-1,39	-1,03	-1,11	-1,17	-1,14
	Interaction effect	-0,01	0,06	0,03	0,04	0,04
	Old-age and early pensions, gross as % of GDP	0,50	1,48	1,20	1,08	1,14
	Dependency ratio	1,76	3,02	1,61	2,51	2,11
SI	*Employment*	-0,72	-0,09	0,01	-0,34	-0,18
	Take up ratio	0,38	-0,52	0,02	-0,16	-0,08
	Benefit ratio	-0,91	-0,89	-0,43	-0,89	-0,69
	Interaction effect	0,02	0,04	0,01	0,03	0,02

		2005 - 2015	2015 - 2030	2030 - 2050	2005 - 2030	2005 - 2050
EU15	Old-age and early pensions, gross as % of GDP	-0,04	1,02	0,36	0,59	0,49
	Dependency ratio	1,45	2,05	1,22	1,81	1,54
	Employment	-0,69	-0,07	-0,06	-0,32	-0,20
	Take up ratio	-0,34	-0,23	-0,22	-0,27	-0,25
	Benefit ratio	-0,45	-0,71	-0,57	-0,61	-0,59
	Interaction effect	0,01	0,02	0,02	0,02	0,02
EU10	Old-age and early pensions, gross as % of GDP	-1,35	0,57	0,71	-0,20	0,20
	Dependency ratio	1,68	2,83	1,78	2,37	2,11
	Employment	-1,21	-0,50	0,16	-0,78	-0,36
	Take up ratio	-1,12	-1,11	-0,28	-1,11	-0,75
	Benefit ratio	-0,69	-0,60	-0,93	-0,64	-0,77
	Interaction effect	0,01	0,04	0,02	0,03	0,03
EU12	Old-age and early pensions, gross as % of GDP	-0,07	1,04	0,38	0,59	0,50
	Dependency ratio	1,42	2,10	1,31	1,83	1,60
	Employment	-0,83	-0,08	-0,06	-0,38	-0,24
	Take up ratio	-0,33	-0,23	-0,25	-0,27	-0,26
	Benefit ratio	-0,33	-0,74	-0,60	-0,57	-0,58
	Interaction effect	0,00	0,02	0,02	0,01	0,02
EU25	Old-age and early pensions, gross as % of GDP	-0,12	0,98	0,38	0,54	0,47
	Dependency ratio	1,49	2,16	1,30	1,89	1,63
	Employment	-0,79	-0,14	-0,03	-0,40	-0,23
	Take up ratio	-0,46	-0,35	-0,23	-0,39	-0,32
	Benefit ratio	-0,34	-0,67	-0,64	-0,54	-0,59
	Interaction effect	0,01	0,02	0,02	0,02	0,02

Legenda: *Dependency ratio = Pop 65+ / Pop (15-64)* *Employment = Employed / Pop (15-64)*
Take up ratio = Pensioners / Pop 65+ *Benefit ratio = Average pension / GDP per worker*

3.3.3. Total pension expenditure

Public pensions are of great importance in all EU Member States and are even dominant in the total pension provision of most countries. However, in a number of Member States, a significant share of the pension provision comes from occupational and private statutory schemes. And more importantly, their share of the total pension provision will increase in the future.

Occupational pensions provide an equivalent to earnings-related social security schemes in Denmark, the Netherlands, Ireland and the United Kingdom. In other countries, they complement the earnings-related social security provision, thereby increasing the total level of retirement income for pensioners. Furthermore, a part of the statutory social security pension scheme has been switched into private schemes in a great number of countries. These countries are: Estonia, Latvia, Lithuania, Hungary, Poland, Slovakia and Sweden.

Table 3-16 presents the projections of the Member States for occupational and private statutory pensions. The projections of occupational pensions have been provided by the Netherlands, Slovenia and Sweden. In the case of Sweden, the figures represent complementary occupational pensions, while private statutory pensions are included in public pensions. No projections of occupational pensions are presented for Denmark, Ireland and the United Kingdom. The figures for the remaining countries in the Table 3-16 (EE, LV, LT, HU, PL and SK) represent private statutory pensions.

Table 3-16 Occupational and private statutory pensions as a share of GDP between 2004 and 2050

Occupational and private mandatory pensions, gross as % of GDP									Change	Change	Change
Country	2004	2010	2015	2020	2025	2030	2040	2050	2004-2030	2030-2050	2004-2050
BE											
CZ											
DK											
DE											
EE		0,0	0,1	0,2	0,3	0,6	1,3	2,4	0,6	1,8	2,4
GR											
ES											
FR											
IE											
IT											
CY											
LV			0,0	0,1	0,2	0,4	1,1	2,7	0,4	2,3	2,7
LT		0,0	0,0	0,1	0,2	0,4	1,0	1,8	0,4	1,4	1,8
LU											
HU			0,0	0,1	0,2	0,5	1,6	3,1	0,5	2,7	3,1
MT											
NL	4,6	4,7	5,2	5,8	6,7	7,7	9,0	8,7	3,1	1,0	4,1
AT											
PL		0,0	0,0	0,1	0,2	0,3	0,7	1,3	0,3	1,1	1,3
PT											
SI			0,0	0,1	0,2	0,3	0,7	1,0	0,3	0,7	1,0
SK		0,0	0,1	0,2	0,4	0,7	1,4	2,3	0,7	1,6	2,3
FI											
SE	2,3	2,3	2,5	2,5	2,6	2,8	2,9	2,6	0,5	-0,2	0,3
UK											
SE: private mandatory pensions (included in public pensions (Table 3- 3))											
			0,1	0,2	0,3	0,5	0,9	1,1	0,5	0,6	1,1

Occupational and private statutory pension provision will play an increasingly important role over time in all countries where such provisions are in place. In particular, in the Netherlands, occupational pensions are projected to amount to 8.7% of GDP in 2050, accounting for over 40% of the total pension provision. Private statutory pension schemes in the new Member States are projected to increase the level of total pension expenditure by 1.3-3.1% of GDP at the end of the projection period.

Table 3-17 Total pension expenditure as a share of GDP between 2004 and 2050

Total pension expenditure, gross as % of GDP									Change	Change	Change
Country	2004	2010	2015	2020	2025	2030	2040	2050	2004-2030	2030-2050	2004-2050
BE	10,4	10,4	11,0	12,1	13,4	14,7	15,7	15,5	4,3	0,8	5,1
CZ	8,5	8,2	8,2	8,4	8,9	9,6	12,2	14,0	1,1	4,5	5,6
DK											
DE	11,4	10,5	10,5	11,0	11,6	12,3	12,8	13,1	0,9	0,8	1,7
EE	6,7	6,8	6,0	5,6	5,4	5,3	5,6	6,6	-1,4	1,3	-0,1
GR											
ES	8,6	8,9	8,8	9,3	10,4	11,8	15,2	15,7	3,3	3,9	7,1
FR	12,8	12,9	13,2	13,7	14,0	14,3	15,0	14,8	1,5	0,5	2,0
IE											
IT	14,2	14,0	13,8	14,0	14,4	15,0	15,9	14,7	0,8	-0,4	0,4
CY	6,9	8,0	8,8	9,9	10,8	12,2	15,0	19,8	5,3	7,6	12,9
LV	6,8	4,9	4,6	5,0	5,6	6,0	7,0	8,3	-0,8	2,3	1,5
LT	6,7	6,6	6,6	7,1	7,8	8,3	9,2	10,4	1,6	2,1	3,7
LU	10,0	9,8	10,9	11,9	13,7	15,0	17,0	17,4	5,0	2,4	7,4
HU	10,4	11,1	11,6	12,6	13,3	13,9	17,6	20,3	3,6	6,3	9,9
MT	7,4	8,8	9,8	10,2	10,0	9,1	7,9	7,0	1,7	-2,1	-0,4
NL	12,4	12,3	13,6	14,8	16,4	18,4	20,6	20,0	6,0	1,5	7,6
AT	13,4	12,8	12,7	12,8	13,5	14,0	13,4	12,2	0,6	-1,7	-1,2
PL	13,9	11,3	9,8	9,8	9,7	9,4	9,3	9,3	-4,5	-0,1	-4,6
PT	11,1	11,9	12,6	14,1	15,0	16,0	18,8	20,8	4,9	4,8	9,7
SI	11,0	11,1	11,6	12,4	13,5	14,7	17,5	19,3	3,7	4,6	8,3
SK	7,2	6,7	6,7	7,2	7,8	8,3	9,7	11,2	1,2	2,9	4,1
FI	10,7	11,2	12,0	12,9	13,5	14,0	13,8	13,7	3,3	-0,3	3,1
SE	12,9	12,4	12,8	12,9	13,3	13,9	14,5	13,9	0,9	0,0	0,9
UK											
EU15 [1)]	12,0	11,7	11,9	12,4	13,1	13,8	14,9	14,8	1,8	0,9	2,8
EU10	10,9	9,8	9,3	9,6	9,9	10,1	11,4	12,6	-0,7	2,5	1,7
EU12 [1)]	12,0	11,7	11,9	12,3	13,0	13,8	15,0	14,8	1,9	1,0	2,8
EU25 [1)]	11,9	11,6	11,7	12,2	12,8	13,5	14,6	14,6	1,6	1,1	2,7

1) excluding countries which have not provided data

The projections for total pension expenditure have been summed up from the data provided for public, occupational and private statutory pensions. The sums are presented also for countries which have not provided data on complementary occupational schemes if they are not of major importance for total pension provision. Currently, such provision in many countries is less than one percent of GDP and in some others around one percent of GDP. In contrast, in Denmark and the United Kingdom, and to some extent also in Ireland, occupational pension provision is clearly of greater importance and, consequently, the data provided for public pensions only should not be considered as representing total pension expenditure.

The projected total pension expenditure as a share of GDP in 2004 was the same as public pension expenditure for all countries except those with occupational pensions (NL and SE) because the private mandatory pensions were still at an early stage and virtually no pensions have yet been paid out from those schemes. By 2050, the dispersion in pension provision across countries will somewhat lessen, since many of those countries which have projected very low public spending on pensions will have major private provisions.

Concerning the change in total pension expenditure as a share of GDP between 2004 and 2050, the negative change observed for public pensions in the case of Latvia and virtually also in Estonia will disappear while the changes remain negative for Poland. Another major change when compared with public pension spending is that the total pension expenditure in the Netherlands, Hungary and Slovenia will become to the same level, about 20% of GDP, with Portugal (20.8% of GDP) and Cyprus (19.8% of GDP).

Table 3-18 takes into account the impact of occupational and private mandatory pensions showing the total benefit ratio, i.e. to the level of average total pensions relative to output per worker. In particular, in the EU10 Member States, the decrease in the relative benefit level is much smaller than for the relative level of public pensions alone (see Table 3-11). In fact, total benefit levels are projected, by and large, to maintain their current levels relative to earnings, except in Poland where a significant decrease is still projected. However, it should be noted that the benefit ratio of public pensions to wages in Poland was the highest in the whole EU in 2004.

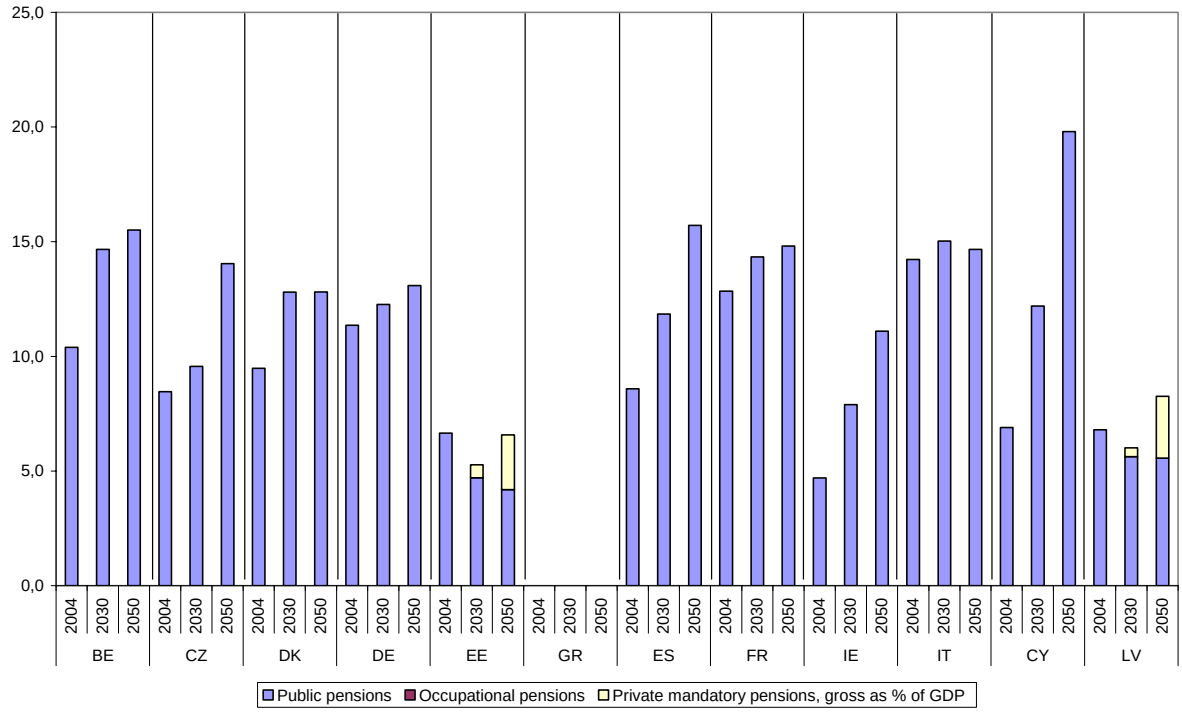
Table 3-18 Benefit ratio: average total pension relative to output per worker

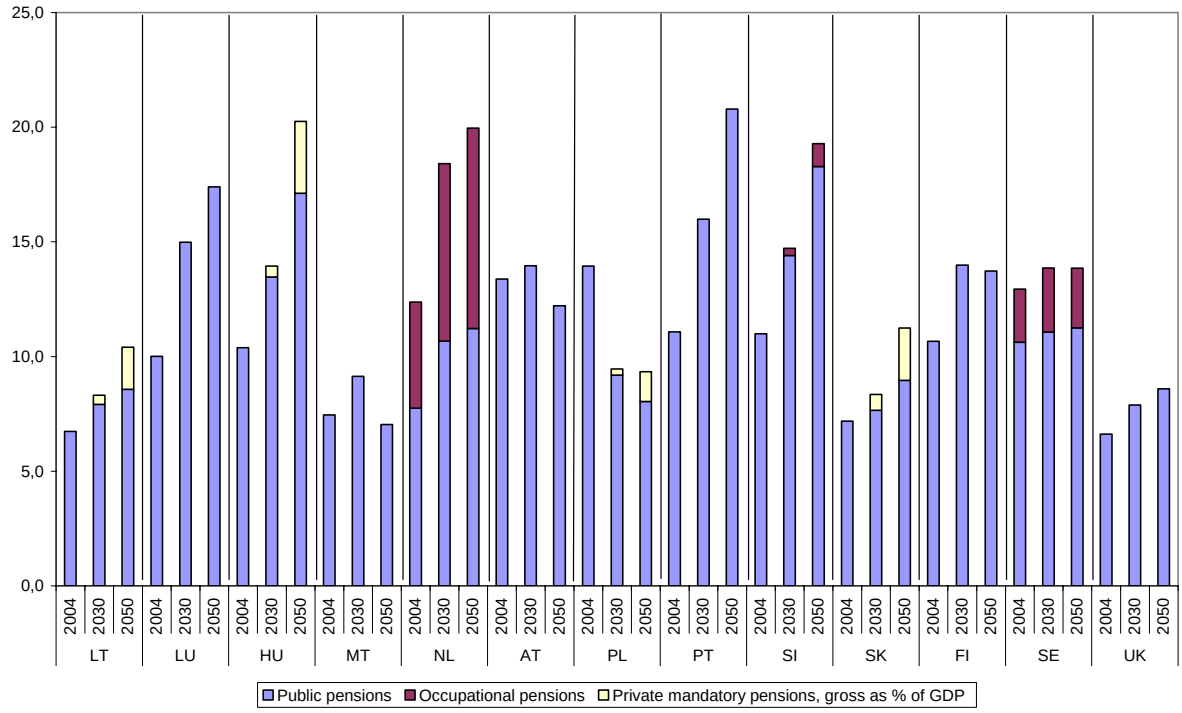
Benefit ratio: Average total pension relative to output per worker									p.p. change	p.p. change	p.p. change
Country	2004	2010	2015	2020	2025	2030	2040	2050	2004-2030	2030-2050	2004-2050
BE	17.7	17.8	17.8	17.8	17.7	17.4	16.9	16.4	-0.3	-1.0	-1.3
CZ	15.7	14.1	13.5	13.2	13.0	13.0	13.7	14.1	-2.7	1.0	-1.7
DK											
DE	18.5	16.6	16.6	16.2	15.6	14.8	13.9	13.3	-3.6	-1.5	-5.2
EE	10.5	11.4	10.3	9.3	8.5	8.1	8.1	8.3	-2.5	0.2	-2.2
GR											
ES	17.2	19.6	19.1	18.9	19.0	19.1	18.8	17.1	2.0	-2.0	-0.1
FR	24.4	24.1	23.1	22.0	21.1	20.3	19.3	18.9	-4.2	-1.3	-5.5
IE											
IT	20.0	20.8	20.4	19.8	18.8	17.7	15.7	14.0	-2.2	-3.7	-6.0
CY	25.6	28.6	27.9	26.9	25.5	25.7	28.9	30.8	0.1	5.1	5.2
LV	11.4	9.9	9.4	9.4	9.5	9.8	10.6	10.7	-1.6	0.9	-0.7
LT											
LU	23.5	23.4	24.7	25.0	26.4	26.6	27.5	28.0	3.1	1.4	4.5
HU	13.4	14.4	14.7	15.4	15.8	16.2	17.7	19.1	2.8	2.9	5.8
MT	18.4	19.9	20.1	19.0	17.2	15.2	12.4	10.3	-3.2	-4.9	-8.1
NL	29.2	27.6	27.9	28.2	28.5	29.2	30.3	30.4	0.0	1.3	1.2
AT	21.8	21.4	21.0	20.6	19.9	19.0	16.7	15.2	-2.8	-3.8	-6.6
PL	19.2	19.2	17.6	17.1	16.4	15.3	13.1	11.1	-3.9	-4.3	-8.2
PT	18.6	18.4	18.1	17.9	17.2	16.5	15.9	15.4	-2.1	-1.0	-3.2
SI	18.9	18.5	18.1	17.8	17.6	17.6	17.9	18.2	-1.2	0.6	-0.6
SK	13.0	12.7	12.7	12.7	12.7	12.4	11.6	11.0	-0.6	-1.4	-2.0
FI	19.8	19.7	19.4	19.1	18.8	18.5	18.3	18.0	-1.3	-0.5	-1.9
SE	25.9	24.6	23.2	21.7	21.0	20.7	20.2	19.6	-5.2	-1.1	-6.3
UK											
EU15 [1)]	20.3	19.6	19.1	18.5	17.9	17.2	16.3	15.4	-3.0	-1.9	-4.9
EU10 [1)]	17.2	17.2	16.5	16.4	16.1	15.7	15.2	14.7	-1.4	-1.1	-2.5
EU12 [1)]	20.6	20.3	19.9	19.4	18.8	18.1	17.0	16.0	-2.6	-2.0	-4.6
EU25 [1)]	19.3	19.0	18.6	18.1	17.6	17.0	16.1	15.1	-2.3	-2.0	-4.3

1) excluding countries which have not provided data

Graph 3-2 below summarises the levels of expenditure on public, occupational and private statutory pensions in 2004 and 2050.

Graph 3-2 Public, occupational and private mandatory pensions as a per cent of GDP in 2004, 2030 and 2050





3.3.4. Pensioners and contributors

The 2005 projections include information on the number of pensioners and contributors for most countries. It should be noted, however, that in some countries (DE, ES, LT, LU, AT) the number of pensioners represents the number of pensions rather than the number of pensioners. This is due to the data sources used in the projections which often deal with (semi-)aggregated data on pensions without attaching them to individuals, and the fact that in some cases (notably in the case of old-age pensions and survivor's pensions) it is possible that the same person receives more than one pension. This bias should not, however, be large and should not affect the evolution over time. In some countries, the number of contributors is also an approximation based on the number of persons employed, due to the fact that, in principle, every employed individual is under an obligation to pay a pension contribution to social security schemes.

The following tables summarise the information received and allow for verifying the credibility of the projections, for instance, the relationship between the projected numbers of pensioners and the population over the age of 65. Also, the pension system dependency ratio between the numbers of pensioners and contributors and the inverse ratio, the support ratio, between the numbers of contributors and pensioners, are important indicators as regards the sustainability of the pension systems.

Table 3-19 Number of pensioners in public pension schemes

Public pensions, number of pensioners									Change	Change	Change
Country	2004	2010	2015	2020	2025	2030	2040	2050	2004-2030	2030-2050	2004-2050
BE	2501	2635	2870	3144	3456	3748	4052	4050	1247	302	1549
CZ	2629	2795	2893	2984	3099	3215	3483	3496	586	281	867
DK	1255	1395	1511	1598	1675	1749	1787	1702	494	-47	446
DE	23840	25684	26829	28256	30066	32082	33792	34441	8242	2360	10601
EE	378	369	357	352	356	359	365	377	-19	18	-1
GR											
ES	8519	9088	9676	10392	11389	12623	14715	15059	4104	2436	6540
FR	12925	13815	15023	16288	17417	18484	19948	19931	5559	1447	7006
IE [2]	606	721	814	916	1033	1162	1416	1674	556	512	1068
IT	15595	15665	16088	16783	17777	19131	20774	20206	3535	1076	4611
CY	89	113	138	166	194	218	243	293	129	76	205
LV	599	533	529	544	567	575	588	611	-24	36	12
LT	1248	1292	1295	1314	1335	1357	1388	1402	108	46	154
LU	128	142	158	178	204	235	293	335	107	100	207
HU	3069	3210	3262	3343	3353	3353	3529	3467	284	114	398
MT	60	74	86	97	107	113	122	130	53	16	69
NL	3317	3437	3818	4156	4514	4879	5291	5120	1562	241	1803
AT	2337	2449	2525	2611	2777	2912	3023	2892	575	-20	555
PL	7652	7254	7445	7975	8392	8635	9139	9574	983	940	1922
PT	3048	3304	3585	4005	4351	4698	5244	5454	1649	757	2406
SI	524	571	609	647	686	722	778	781	198	59	257
SK	1212	1282	1347	1458	1570	1664	1833	1919	452	255	707
FI	1282	1413	1530	1640	1721	1771	1748	1714	488	-57	432
SE	2126	2275	2507	2715	2902	3079	3297	3327	953	248	1201
UK											
EU15 [1]	77481	79093	79892	80731	81347	82023	83703	85882	4542	3859	8401
EU10	17460	17572	17560	17545	17521	17491	17578	17816	31	325	356
EU12 [1]	74100	75630	76388	77177	77737	78354	79889	81928	4254	3574	7828
EU25 [1]	94941	96665	97453	98276	98869	99515	101281	103698	4574	4184	8757

1) excluding countries which have not provided data

2) IE: only the number of pensioners in the social security scheme

Table 3-20 Number of pensioners receiving public pensions relative to the population aged 65 and over

Public pensions, number of pensioners / 100 persons aged 65+									Change 2004	Change 2030	Change 2004
Country	2004	2010	2015	2020	2025	2030	2040	2050	2030	2050	2050
BE	140	143	142	142	141	139	136	137	-2	-2	-4
CZ	185	178	159	145	141	141	140	127	-44	-14	-58
DK	156	156	148	144	140	136	127	124	-20	-12	-32
DE	160	152	155	153	151	146	141	148	-14	2	-12
EE	173	166	159	151	146	140	136	130	-33	-10	-43
GR	:	:	:	:	:	:	:	:			
ES	119	118	116	116	115	114	108	100	-5	-14	-19
FR	132	134	129	125	122	119	115	115	-13	-4	-17
IE [2]	135	142	135	131	127	125	120	117	-10	-8	-18
IT	140	130	125	124	124	123	115	111	-18	-12	-29
CY	102	107	109	112	113	113	111	115	10	2	13
LV	160	137	138	140	139	134	129	125	-26	-9	-34
LT	241	239	238	235	222	205	190	182	-36	-23	-59
LU	201	205	206	208	209	209	215	235	8	26	34
HU	196	192	184	170	159	158	154	138	-38	-20	-57
MT	116	123	113	110	108	106	109	103	-10	-3	-12
NL	147	138	131	128	125	122	118	119	-26	-2	-28
AT	185	167	161	155	148	137	123	117	-48	-20	-68
PL	155	142	130	118	108	105	104	97	-50	-8	-58
PT	173	175	176	182	183	180	175	169	7	-11	-4
SI	175	172	170	157	149	144	139	132	-31	-12	-43
SK	195	195	185	169	159	154	152	138	-41	-16	-57
FI	158	158	142	134	129	125	122	122	-33	-3	-36
SE	138	136	133	134	135	135	134	135	-3	0	-3
UK	:	:	:	:	:	:	:	:			
EU15 [1]	144	140	137	135	133	130	125	124	-14	-7	-21
EU10	173	164	153	140	131	127	126	116	-45	-12	-57
EU12 [1]	144	140	137	135	133	130	124	123	-14	-7	-21
EU25 [1]	149	144	140	136	133	130	125	122	-19	-8	-27

1) excluding countries which have not provided data

2) IE: only the number of pensioners in the social security scheme

As expected, the number of pensioners is greater than the number of persons aged 65 or more because the number of pensioners also includes persons who receive early, disability and survivors' pensions. Also, in many countries, the statutory old-age retirement age is below 65. Furthermore, in principle, the number of pensioners also includes those pensioners who receive their pensions abroad but are not included in the resident population. In this respect, the quality of data may differ across countries and this aspect is better reflected in some countries' figures (e.g. Sweden) than for some others. The comparison between these figures shows, however, by how much the numbers of pensioners exceed the old-age population and provides some help in assessing whether the projected trend in the numbers of pensioners is feasible. All countries expect a decreasing trend in the relationship between the number of pensioners and the old-age population. It is also expected to remain well above 1, except in Spain, Malta and Poland where it will be close to 1[49].

Table 3-21 compares the numbers of pensioners and contributors in the public pension scheme for those countries that have provided data for both of these variables, while Table 3-22 presents the numbers of contributors. In principle, the number of contributors includes those who pay a specific pension (or social security) contribution, calculated at the end of the year, in order to avoid double counting due to short-term work contracts. The figures largely reflect the demographic old-age dependency ratios, but provide a more focused insight into

[49] In Luxembourg, the relationship is not very meaningful because the number of pensioners is largely driven by the number of cross-border workers becoming eligible to pensions.

the projected numbers of pension recipients and contributors. In general, the pension system dependency ratio is much higher than that drawn from the population figures alone due to the fact that persons aged 65 and more are virtually all pensioners while the number of contributors constitutes only a part of the working-age population. In many countries, the pension system dependency ratio is double the demographic old-age dependency ratio (BE, DE, LT, SI, SK). In contrast, the pension system dependency ratio is close to the demographic dependency ratio in Ireland (concerning social security pensions only) and the Netherlands.

Table 3-21 Pension system dependency ratio: number of pensioners relative to the number of contributors in public pension schemes

Public pensions, number of pensioners / 100 contributors									Change	Change	Change
Country	2004	2010	2015	2020	2025	2030	2040	2050	2004-2050	2030-2050	2004-2050
BE	59	59	62	68	76	84	93	95	25	11	36
CZ	55	57	59	62	67	71	86	97	16	25	41
DK											
DE	74	75	75	80	88	98	109	117	24	19	43
EE	63	59	57	59	62	64	68	77	1	13	14
GR											
ES											
FR	52	54	57	62	66	71	77	78	18	8	26
IE [2]	23	24	26	28	30	33	40	49	10	16	26
IT	68	65	65	68	73	82	97	99	13	18	31
CY	26	28	32	37	42	47	52	64	22	17	38
LV	55	45	45	49	54	57	61	70	2	13	15
LT	92	90	88	93	100	106	114	126	13	20	34
LU	42	41	44	47	51	56	61	62	14	6	20
HU	76	76	78	81	83	85	97	103	9	19	27
MT	38	43	48	54	58	59	61	63	22	4	25
NL	27	28	30	32	34	36	39	38	8	2	10
AT	66	64	65	67	74	80	86	86	13	6	20
PL	53	45	44	46	49	51	59	71	-2	19	18
PT	71	74	82	92	102	114	140	157	43	43	86
SI	65	65	69	75	82	90	105	113	25	24	49
SK	54	53	53	57	61	67	83	101	13	34	47
FI	55	60	65	70	75	78	78	78	22	0	23
SE											
UK											
EU15 [1]	71	71	73	78	85	93	105	109	22	16	38
EU10	59	54	54	57	60	63	73	84	4	21	25
EU12 [1]	68	68	70	75	81	89	101	104	21	15	36
EU25 [1]	68	67	69	74	79	87	98	104	18	18	36

1) excluding countries which have not provided information

2) IE: only the number of pensioners and contributors in the social security scheme

Table 3-22 Number of contributors to public pension schemes

Public pensions, number of contributors									Change	Change	Change
Country	2004	2010	2015	2020	2025	2030	2040	2050	2004-2030	2030-2050	2004-2050
BE	4249	4491	4623	4620	4545	4457	4355	4281	208	-176	32
CZ	4767	4880	4911	4776	4650	4500	4056	3620	-267	-881	-1147
DK											
DE	32206	34316	35624	35263	34135	32698	30869	29472	492	-3226	-2734
EE	599	626	624	600	578	563	538	492	-37	-70	-107
GR											
ES											
FR	24645	25796	26342	26229	26224	26194	25835	25527	1549	-667	882
IE [2)]	2661	3003	3175	3317	3445	3541	3557	3437	880	-104	776
IT	22777	24247	24755	24775	24323	23378	21440	20340	601	-3038	-2437
CY	344	404	438	454	458	459	469	456	115	-3	112
LV	1089	1183	1167	1111	1053	1013	963	872	-76	-141	-217
LT	1350	1442	1464	1416	1339	1284	1216	1112	-66	-171	-237
LU	307	344	364	378	398	421	477	541	115	119	234
HU	4026	4206	4201	4137	4057	3956	3629	3351	-70	-605	-675
MT	159	171	177	181	185	191	199	205	32	14	45
NL	12064	12484	12844	13156	13454	13612	13660	13615	1548	3	1551
AT	3526	3799	3864	3870	3764	3653	3500	3370	127	-283	-156
PL	14433	16156	16988	17287	17227	16815	15443	13565	2382	-3250	-868
PT	4285	4436	4362	4335	4268	4108	3751	3468	-177	-640	-817
SI	807	873	878	860	833	803	741	688	-4	-115	-119
SK	2244	2419	2550	2579	2568	2483	2213	1901	239	-582	-343
FI	2311	2365	2360	2341	2305	2272	2246	2187	-38	-85	-123
SE											
UK											
EU15 [1)]	109031	115281	118313	118284	116859	114335	109692	106238	5304	-8097	-2793
EU10	29819	32360	33399	33401	32948	32067	29466	26262	2248	-5805	-3557
EU12 [1)]	109031	115281	118313	118284	116859	114335	109692	106238	5304	-8097	-2793
EU25 [1)]	138850	147641	151712	151685	149807	146402	139158	132501	7552	-13902	-6349

1) excluding countries which have not provided data

2) IE: only the number of contributors to the social security scheme

Table 3-23 compares the projected evolution between the numbers of contributors and pensioners, showing how many contributors relative to each pensioner there will be. This is known as the support ratio. As the ageing of the population will increase the numbers of pensioners and the numbers of the persons employed are projected to decrease, the support ratio will decline.

Currently, in most countries there are between 1.5 and 2.0 contributors for each pensioner; with the highest numbers of contributors in Ireland (4.4), Cyprus (3.9), the Netherlands (3.6), Malta (2.6) and Luxembourg (2.4) and the lowest numbers in Lithuania (1.1), Germany and Portugal (1.4). By 2050, the support ratio is projected to come close to 1 in most countries; in some countries (DE, PT, LT and SI) even significantly below 1 while remaining above 1.5 only in the Netherlands (2.7), Ireland (2.0), Luxembourg, Cyprus and Malta (1.6).

Table 3-23 Support ratio: Number of contributors relative to the number of pensioners in public pension schemes

Public pensions, number of contributors / 100 pensioners									Change 2004-2030	Change 2030-2050	Change 2004-2050
Country	2004	2010	2015	2020	2025	2030	2040	2050			
BE	170	170	161	147	132	119	107	106	-51	-13	-64
CZ	181	175	170	160	150	140	116	104	-41	-36	-78
DK											
DE	135	134	133	125	114	102	91	86	-33	-16	-50
EE	159	170	175	171	162	157	147	130	-2	-26	-28
GR											
ES											
FR	191	187	175	161	151	142	130	128	-49	-14	-63
IE [2]	439	416	390	362	333	305	251	205	-134	-99	-234
IT	146	155	154	148	137	122	103	101	-24	-22	-45
CY	387	359	317	273	235	211	193	156	-176	-55	-232
LV	182	222	220	204	186	176	164	143	-6	-33	-39
LT	108	112	113	108	100	95	88	79	-13	-15	-29
LU	240	242	230	212	195	179	163	162	-60	-18	-78
HU	131	131	129	124	121	118	103	97	-13	-21	-35
MT	264	233	206	186	173	168	163	158	-95	-11	-106
NL	364	363	336	317	298	279	258	266	-85	-13	-98
AT	151	155	153	148	136	125	116	117	-25	-9	-34
PL	189	223	228	217	205	195	169	142	6	-53	-47
PT	141	134	122	108	98	87	72	64	-53	-24	-77
SI	154	153	144	133	121	111	95	88	-43	-23	-66
SK	185	189	189	177	164	149	121	99	-36	-50	-86
FI	180	167	154	143	134	128	128	128	-52	-1	-53
SE											
UK											
EU15 [1]	166	166	162	152	140	128	115	111	-38	-17	-55
EU10	171	185	186	177	168	159	137	119	-12	-40	-52
EU12 [1]	166	166	162	152	140	128	115	111	-38	-17	-55
EU25 [1]	167	170	166	157	145	134	119	112	-33	-22	-55

1) excluding countries which have not provided data

2) IE: only the numbers of contributors to and pensioners from the social security scheme

3.3.5. Pension contributions and assets of pension funds

The projections of contributions to pension schemes were made under the assumption of a constant contribution rate unless there are clear decisions on changes in the contribution policy. The contributions to social security or occupational and private pension schemes include only specific contributions to pension schemes paid by the employers and employees as well as the self-employed. In the case of Luxembourg and Malta, it is stipulated that also the state pays a contribution to the social security pension scheme. This contribution is equal to the contributions paid by the employer and the employee, thus amounting to one third of the total contribution revenues. In the Luxembourg projections, the state contribution is also included in the contributions. In general, however, state subsidies are not included in the contributions but the difference between the pension expenditure and pension contributions shows what part of the expenditure needs to be financed from other sources, in general from government tax revenues. Some countries (BE, ES) have only a general contribution rate for all social insurance expenditure and they were not able to provide a separate estimate of the pension contribution while for Portugal and Malta decided to present the total amount of the general social security contribution. Moreover, in Denmark, social security pensions are financed virtually entirely by taxes and no contributions are shown.

Table 3-24 shows the projection for pension contributions to social security pension schemes as a share of GDP. As the contribution revenues are driven by wage growth, their share of GDP would remain relatively constant. However, there are a number of reasons why the share

of contributions changes over time. In Germany, the share of contributions relative to GDP will grow because it is already in the legislation that the contribution rate has to be raised (however, not higher than 22% of wages) in order to cover the constant ratio of expenditure. Also in France, an increase in the contribution rate will materialise already in 2006. In contrast, in Malta, the ceiling of the contribution base is indexed to prices, which results in a decreasing trend in contribution revenues as a share of GDP. Moreover, a decreasing trend in contribution revenues is observed in those new Member States which have switched a part of the social security scheme into a private scheme and where an increasing number of people are joining the private scheme or the switched part is still growing. Consequently, an increasing share of the total contribution will be directed to the private scheme in EE, LV, LT, HU and SK.

Table 3-24 Pension contributions to public pension schemes as a share of GDP

Public pensions, contributions as % of GDP									Change	Change	Change
Country	2004	2010	2015	2020	2025	2030	2040	2050	2004-2030	2030-2050	2004-2050
BE											
CZ	8,9	8,9	8,9	8,9	8,9	8,9	8,9	8,9	0,0	0,0	0,0
DK											
DE	7,7	7,3	6,9	7,3	7,8	8,3	8,7	8,9	0,6	0,6	1,2
EE	6,5	6,6	6,5	6,4	6,3	6,2	6,1	6,1	-0,3	-0,1	-0,4
GR											
ES											
FR	12,8	12,9	12,9	12,9	12,9	12,9	12,9	12,9	0,0	0,0	0,0
IE	3,6	3,4	3,4	3,4	3,4	3,4	3,4	3,4	-0,3	0,0	-0,3
IT	10,2	10,3	10,4	10,4	10,4	10,3	10,5	10,6	0,1	0,3	0,4
CY	5,5	6,4	6,9	7,2	7,2	7,2	7,4	7,1	1,7	-0,1	1,6
LV	7,1	6,1	5,7	5,6	5,5	5,4	5,4	5,4	-1,6	0,0	-1,7
LT	6,8	6,3	6,2	6,1	5,9	6,0	6,1	6,1	-0,8	0,2	-0,6
LU	9,9	10,0	10,1	10,1	10,1	10,0	10,0	10,0	0,1	0,0	0,2
HU	7,7	6,8	6,6	6,6	6,5	6,6	6,7	6,8	-1,1	0,2	-1,0
MT [2]	7,1	6,8	6,4	5,9	5,4	4,8	3,9	3,3	-2,3	-1,4	-3,8
NL	6,8	6,4	6,4	6,4	6,4	6,5	6,7	6,6	-0,3	0,1	-0,2
AT	9,0	9,1	9,0	8,9	8,7	8,6	8,5	8,6	-0,3	-0,1	-0,4
PL	7,7	8,0	8,1	8,1	8,0	7,9	7,9	7,9	0,3	0,0	0,3
PT [2]	10,5	10,5	9,9	9,6	9,5	9,4	9,1	9,2	-1,1	-0,1	-1,2
SI	9,3	10,1	10,4	10,6	10,7	10,7	10,6	10,6	1,4	-0,1	1,3
SK	6,5	5,0	4,9	4,8	4,7	4,7	4,7	4,4	-1,8	-0,3	-2,0
FI	9,1	9,0	9,7	10,3	10,8	11,2	11,2	11,2	2,0	0,1	2,1
SE	7,7	7,5	7,4	7,4	7,4	7,4	7,3	7,3	-0,3	-0,1	-0,4
UK	5,7	5,9	6,1	6,2	6,2	6,3	6,3	6,3	0,6	0,0	0,5
EU15 [1]	8,7	8,6	8,5	8,6	8,8	8,9	9,0	9,0	0,2	0,2	0,3
EU10	7,8	7,6	7,6	7,6	7,5	7,5	7,5	7,5	-0,2	0,0	-0,3
EU12 [1]	9,6	9,4	9,3	9,4	9,6	9,7	9,9	10,0	0,2	0,3	0,5
EU25 [1]	8,7	8,5	8,5	8,5	8,7	8,8	8,9	8,9	0,1	0,2	0,3

1) excluding countries which have not provided data

2) MT and PT: including the total social security contribution

Table 3-25 shows the projections for the extent to which the contributions alone can finance the future public pension expenditure and how the additional financing needs will develop under current policies, concerning both pensions and their contributions. It can be seen that additional financing need will grow markedly in most countries. However, it should be noted that public pensions already include in the starting position pensions which are by their very nature solidarity pensions or aimed at preventing poverty in the old age (such as minimum guarantee pensions in all countries and also disability pensions in countries with defined-contribution pension schemes) and, thus, financed by general tax revenues. Moreover, in some countries, disability pensions (benefits) are under the sickness insurance scheme; in these cases (FR and SE) the contribution paid to sickness insurance schemes is not included in these projections.

The results show that only in a few countries (CZ, EE, FR, LV, LT and LU) are public pensions more or less entirely financed by dedicated contributions[50], while in a number of countries a significant share of pensions is financed from general tax revenues (or other social insurance contributions); almost one third of the expenditure in Germany, Italy, Austria and Sweden; over 40% of the expenditure in Poland. Towards the end of the projection period, the additional financing needs are projected to grow to about one third also in CZ and LT, and even greater in IE, HU, LU, MT, NL, PT, SI and SK while the financing situation in Poland is projected to be balanced. On average in the EU, the contribution financing of public pensions would drop from about 80% to 72% between 2004 and 2050.

Table 3-25 Social security pension contributions relative to public pensions

Public pensions, contributions / gross pensions									Change	Change	Change
Country	2004	2010	2015	2020	2025	2030	2040	2050	2004-2030	2030-2050	2004-2050
BE											
CZ	105	108	109	105	100	93	73	63	-12	-30	-42
DK											
DE	68	69	66	67	68	68	68	68	0	0	0
EE	98	97	109	119	125	132	139	146	33	14	47
GR											
ES											
FR	100	99	98	94	92	90	86	87	-10	-3	-13
IE	76	65	57	52	46	43	36	30	-34	-12	-46
IT	72	74	75	74	72	68	66	72	-3	4	1
CY	80	80	79	73	67	59	49	36	-21	-23	-44
LV	104	124	125	115	104	97	91	97	-7	1	-7
LT	101	96	94	87	78	75	75	72	-25	-4	-29
LU	99	102	93	85	74	67	59	58	-32	-9	-41
HU	74	61	57	52	50	49	42	40	-25	-9	-35
MT [2)]	96	77	66	58	53	52	50	47	-43	-5	-48
NL	88	84	77	71	66	61	57	59	-27	-2	-29
AT	67	71	71	69	65	62	64	70	-5	8	3
PL	55	71	83	83	84	87	92	99	31	13	44
PT [2)]	95	88	78	68	64	59	49	44	-36	-14	-50
SI	85	91	90	86	80	74	63	58	-10	-16	-27
SK	90	75	75	69	64	61	56	49	-29	-12	-41
FI	85	81	81	80	80	80	81	82	-6	2	-4
SE	72	74	72	71	70	67	63	65	-6	-2	-8
UK	87	90	91	90	86	80	76	73	-7	-7	-14
EU15 [1)]	80	82	80	79	77	74	71	72	-6	-2	-8
EU10	72	78	83	80	78	77	71	67	5	-9	-4
EU12 [1)]	80	81	79	77	75	73	71	72	-7	-1	-7
EU25 [1)]	80	81	80	79	77	74	71	72	-6	-2	-8

1) excluding countries which have not provided data

2) MT and PT: including the total social security contribution

One way of meeting the additional financing needs is to accumulate reserve funds for social security pension schemes. A statutory partial funding is required in the social security pension schemes in Finland, Luxembourg and Sweden. Furthermore, many more countries have established reserve funds which may be accumulated by surpluses in the social security funds or in central government budgets or by other commitments taken by the government (notably Ireland). Such reserve funds[51] dedicated to the financing of future increased pension

50 The figures for Malta and Portugal include also contributions for benefits other than pensions.

51 The term 'reserve funds' is used to cover also other reserves dedicated for the financing of future pensions, such as accumulated reserves of state pension special budget in Latvia, which do not constitute a fund in its proper meaning.

expenditure exist currently in BE, CZ, CY, DE, EE, FR, IE, LV, PL and PT. However, the magnitude of these reserve funds is essentially smaller than that of the statutory pension funds in LU, FI and SE.

The projection of the assets is based on the projected flows of contributions coming into the fund and pensions paid out of the fund. An annual real rate of return of 3% over the whole projection period is assumed. The figures shown for Sweden also include the funds of private pension funds for the part which concerns the statutory part of the social security scheme. For Ireland, the figures of assets presented cover both Social Security and Public Services occupational pensions.

The projections show that most of the reserve funds will be exhausted before the end of the projection period (except in EE and IE in particular). In Portugal, the fund will be exhausted already by 2015 and, thereafter, a continuously increasing gap will emerge. It is projected to reach 35% of GDP in 2030 and 173% of GDP in 2050. Also the statutory fund in the Luxembourg pension scheme will be exhausted by 2035 under current contribution and accumulation policies and the debt of the pension system would reach 34% of GDP in 2040 and 100% in 2050. In Cyprus, the financing gap in 2050 is projected to rise 45% of GDP. In contrast, it is projected that the Finnish and Swedish (up to 2040) pension funds will grow in size. It should be noted that the funds may not be used for all of the financing needs of public pensions. In particular, the statutory funds in Luxembourg are only for the earnings-related pension scheme of the private sector, in Finland for the earnings-related pension schemes of all sectors and the Swedish fund is only for the old-age insurance pensions.

Table 3-26 Assets in public pension schemes as a share of GDP

Public pensions, assets as % of GDP									Change	Change	Change
Country	2004	2010	2015	2020	2025	2030	2040	2050	2004-2030	2030-2050	2004-2050
BE	4,4	7,3	13,4	16,4	13,6	1,9			-2,5		
CZ	0,3	3,5	6,8	9,9	11,0	9,4			9,1		
DK											
DE	0,1	0,4	0,8								
EE	1,0			2,6	7,5	13,0	25,6	40,2	12,0	27,2	39,2
GR	:	:	:	:	:	:	:	:	:	:	:
ES											
FR [1)]	1,2	2,0	2,9	4,0	3,5	2,8	1,5	0,0	1,6	-2,8	-1,2
IE	7,3	11,1	14,4	18,1	22,5	26,0	28,3	21,9	18,7	-4,1	14,6
IT											
CY	39,3	39,6	39,7	37,9	33,4	25,1	1,9		-14,2		
LV	-0,3	5,2	7,8	9,3	8,7	6,5	0,2		6,8		
LT											
LU	23,6	31,7	37,4	39,2	32,9	17,8			-5,8		
HU											
MT											
NL											
AT											
PL	0,1	0,4	0,4	0,3	0,3	0,4	0,4	0,5	0,3	0,2	0,4
PT	4,3	4,0									
SI											
SK											
FI	52,4	59,3	63,1	66,0	68,2	69,9	71,3	72,9	17,5	2,9	20,5
SE	32,1	40,0	43,1	45,6	47,7	49,6	47,7	44,4	17,4	-5,2	12,2
UK											

1) France: only the assets of the Fonds de Réserves des Retraites, not those of specific pension schemes

Table 3-27 presents the projections for the assets in all pension funds, including funds in social security schemes and also the occupational and private funds. These funds are covered in the projections corresponding to the coverage of occupational and private statutory pensions presented in Table 3-16.

Table 3-27 Assets in all pension schemes as a share of GDP

All pensions, assets as % of GDP									Change	Change	Change
Country	2004	2010	2015	2020	2025	2030	2040	2050	2004-2030	2030-2050	2004-2050
BE	4,4	7,3	13,4	16,4	13,6	1,9			-2,5		
CZ	0,3	3,5	6,8	9,9	11,0	9,4			9,1		
DK											
DE	0,1	0,4	0,8								
EE	2,8	9,4	15,9	25,3	37,6	50,5	76,9	101,0	47,7	50,5	98,2
GR											
ES											
FR	1,2	2,0	2,9	4,0	3,5	2,8	1,5	0,0	1,6	-2,8	-1,2
IE											
IT											
CY	39,3	39,6	39,7	37,9	33,4	25,1	1,9		-14,2		
LV	0,3	12,9	25,9	38,0	48,2	57,4	68,8	71,5	57,1	14,1	71,1
LT	0,3	4,3	8,6	14,0	20,7	27,9	41,5	52,7	27,6	24,8	52,4
LU	23,6	31,7	37,4	39,2	32,9	17,8			-5,8		
HU	4,0	13,2	21,9	31,5	41,1	50,0	67,7	73,7	46,0	23,7	69,7
MT									:	:	:
NL	135,5	160,6	177,5	195,6	214,5	230,1	241,0	243,7	94,6	13,6	108,1
AT									:	:	:
PL	7,1	15,9	24,0	33,5	42,5	51,1	69,9	85,0	44,0	34,0	78,0
PT	4,3	4,0									
SI	1,4	5,5	9,6	13,9	18,3	22,6	30,1	35,9	21,3	13,3	34,5
SK		7,0	12,8	18,9	25,1	31,5	45,7	58,0	31,5	26,5	58,0
FI	52,4	59,3	63,1	66,0	68,2	69,9	71,3	72,9	17,5	2,9	20,5
SE	38,6	53,5	60,7	66,0	69,7	72,3	68,1	60,9	33,7	-11,4	22,3
UK											

3.4. Sensitivity analyses

A number of sensitivity analyses were carried out in the projections with the aim of providing some insight into the question of how sensitive the projections are to different assumptions and projected population and labour force developments, which inherently bring a major degree of uncertainty to long-run expenditure projections.

The sensitivity scenarios were all run in relation to the baseline scenario, changing only one parameter in each sensitivity scenario from that in the baseline scenario. The following sensitivity tests were run:

- ***Higher life expectancy scenario*** assumes an increase in life expectancy, which corresponds roughly to an increase in life expectancy at birth of 1-1.5 years by 2050. Specifically, it was introduced by decreasing the age-specific mortality rates by 15% linearly over the period 2004-2050.

- ***Higher employment rate scenario*** assumes that the employment rate will increase by 1 p.p. over the period 2005-2015 and thereafter will remain at a 1 p.p. higher level in the period 2015-2050 compared with the baseline projection. The higher employment rate was assumed to be achieved by lowering the rate of structural unemployment (i.e. the NAIRU).

- ***Higher employment rate of older workers scenario*** assumes that the employment rate of older workers will increase by 5 p.p. over 2005-2015 and thereafter will remain at a 5 p.p. higher level over the period 2015-2050, compared with the baseline projection. The higher employment rate is assumed to be achieved through a reduction in the inactive population.

- ***Higher and lower labour productivity scenarios*** assumes an increase/decrease in the labour productivity growth rate by 0.25 p.p. over 2005-2015 and thereafter remaining at the 0.25 p.p. higher/lower level in comparison with the labour productivity growth rate in the baseline projection.

- ***Higher and lower interest rate scenarios*** assume interest rates of 4 and 2% vs. 3% in the baseline scenario.

Table 3-28 and Table 3-29 provide an indication of the sensitivity of the pension expenditure projections to various assumptions while Table 3-30 looks at the sensitivity of the projections of the total assets of pension funds and Table 3-31 at the sensitivity of the projections of the ratio between contributions and pensions in public schemes. Although the assumed magnitude of the changes in different sensitivity scenarios is not easily comparable, it could be interpreted that the public pension expenditure projections are most sensitive to the assumption of life expectancy and the assumption of labour productivity growth rate, while the assumptions of the interest rate and of higher employment rates have only a small impact on the results.

The magnitude of the impact of different assumptions on pension spending depends critically on the pension system design: how responsive the system is to changes in economic and demographic developments.

A higher life expectancy should have a larger impact on pension spending in a defined-benefit scheme where the initial level of the pension does not depend on the time being spent in retirement. In contrast, a defined-contribution scheme fully accommodates with the time being spent in retirement as the accumulated pension capital will be converted into annuities at the time of retirement and this calculation takes into account life expectancy.

Higher and lower labour productivity assumptions affect pension spending through their link to the increase in wages. Usually in the projections, it is assumed that real wages increase in line with labour productivity growth rates. The impact on pension spending depends directly on the extent to which pensions are indexed to wage increases. If pensions are indexed to wages, the share of pension spending relative to GDP should remain unchanged under different assumptions about the labour productivity growth rates, since the labour productivity growth rate determines wage growth. In contrast, if pensions are indexed to prices only (or to a hybrid index of wages and prices) and the real wage growth rate is positive, the share of pension spending relative to GDP will decrease.

Higher and lower interest rates have no impact on pension spending (relative to GDP) as far as fully pay-as-you-go pension systems are concerned. Only in funded schemes does the interest rate assumption matter. A higher interest rate (thus also a higher return on pension assets) helps the financing of the pension scheme and results in a higher accumulation of pension funds if it concerns a defined-contribution scheme. In this case, the contribution rate remains unchanged but asset accumulation increases, also allowing higher pensions to be paid, thereby resulting in higher pension spending. In contrast, in a funded defined-benefit

scheme (such as there are in the Netherlands in particular), the pension expenditure would not be affected but higher interest (return) rates would allow lower contributions, which in turn would result in a lower accumulation of pension assets as well.

The impact of higher employment rates (whether overall employment rates or employment rates of older workers) on pension spending depends critically on what is assumed of how the gain in higher employment rates is achieved and how the pension system design responds to such changes. If a gain in higher employment rates is achieved through decreased unemployment rates, it usually also increases the accrual of pension rights of the person moving from unemployment to employment, thereby increasing the level of his pension and the overall spending on pensions. However, the higher employment rate also results in higher GDP and, consequently, the ratio between pension spending and GDP would not be affected much. Also the effect on the ratio between contributions and pensions remains largely unchanged provided that there is a close link between the contributions and the pension rights. Similarly, when considering the change in the employment rate of older workers, the impact depends essentially on whether it increases the person's pension rights or not. Only in the case of a defined-benefit pension system and if the higher employment rate of older workers was gained through a reduction of non-actuarial early pensions, would the decrease in pension spending relative to GDP be notable. Nevertheless, higher employment rates result in welfare gains both at the individual level, allowing higher earnings when still employed and higher pensions when retired, and for society, resulting in higher GDP and higher income per capita.

Detailed projection results for each sensitivity test are presented in Annex (Tables 3-1 – 3-28). The results of the sensitivity scenarios can be summarised as follows:

- ***Higher life expectancy*** is projected to increase public and total pension expenditure by 0.3 percentage points on the average in the EU. The largest projected impacts on public pension expenditure are in DK, FR, PT and SI (by 0.6 p.p. of GDP) and in BE, MT, NL and SK by 0.5 p.p. As expected, the projected impact is smaller in countries with defined-contribution schemes (IT, LV, PL and SE).

- ***Higher employment rate*** and ***higher employment rate of older workers*** are projected to result in only small and rather similar changes in pension spending. In most countries, the level of public or total pension spending as a share of GDP will remain unchanged; only in Hungary and Slovenia, notable decreases (0.4-1.1 p.p.) are projected and smaller decreases (0.3-0.4 p.p.) in BE, CZ, LT, AT). A higher employment rate of older workers appears to have a somewhat stronger impact in DK, EE and FR than a general increase in employment. In contrast, the German sustainability factor is designed in such a way that pension spending responses to changes in employment and to the change in ratio between the numbers of employed and pensioners. Some countries also project a small increase in pension spending, which is a feasible result in a defined-contribution scheme in particular because the persons in employment will accrue more pension rights. It can also be seen that the ratio between contributions and benefits is robust for changes in employment due to the fact that such changes affect both the contribution and the benefit side as well as the level of GDP.

- ***Higher and lower labour productivity*** result in relatively symmetric decreases/increases in the level of pension spending, on average by 0.3-0.4 percentage points of GDP. The changes are highest (0.7-1.0 p.p.) in ES, CY, MT, AT and PT,

while in DK, DE, IE, LU, NL and SI pensions are projected to rise in line with earnings and (virtually) no change is projected.

- ***Higher and lower interest rates*** have no impact on the level of public pension expenditure in most countries. Only in Sweden, does it have a noticeable impact: higher interest rates are projected to increase pension spending by 0.3 p.p. and lower interest rates to decrease spending by 0.3 p.p. This impact is due to the defined-contribution funded public scheme. However, the interest rate plays a more important role in countries with funded occupational and private statutory schemes. A more noticeable impact is seen for total pension expenditure as well as for total assets in pension funds. Due to the funded schemes, the total pension spending could increase/decrease by 0.5-1.1 percentage points in EE, LV, LT, HU, SK and SE. The impact of higher/lower interest rates on the increase/decrease in total pension assets is projected to be in the range of 10-17 percentage points in countries with private statutory schemes, while in the Netherlands (which has large occupational funds), the impact could be about 30-40 percentage points of GDP.

Table 3-28 Summary of the changes in gross public pension expenditure increases as a share of GDP between 2004 and 2050 [52]

		Difference in public pension expenditure increases as percentage points of GDP relative to the baseline projection						
	Baseline, change 2004-2050	Higher life expectancy	Higher employment	Higher empl of older workers	Higher labour productivity	Lower labour productivity	Higher interest rate	Lower interest rate
BE	5,1	0,5	-0,2	-0,3	-0,4	0,3	0,0	0,0
CZ	5,5	0,4	-0,2	-0,3	-0,3	0,2	0,0	0,0
DK	3,3	0,6	0,0	-0,3	0,0	0,0	0,0	0,0
DE	1,7	0,2	-0,1	0,0	0,0	0,0	0,0	0,0
EE	-2,5	0,1	0,0	-0,4	-0,2	0,2	0,0	0,0
GR								
ES	7,1	0,1	-0,1	-0,1	-0,9	1,0	0,0	0,0
FR	2,0	0,6	-0,1	-0,4	-0,4	0,5	0,0	0,0
IE	6,4	0,3	-0,1	-0,1	0,0	0,0	0,0	0,0
IT	0,4	0,3	0,0	0,2	-0,5	0,6	0,0	0,0
CY	12,9		-0,1		-1,4	1,6		
LV	-1,2	0,2	0,0	0,0	-0,1	0,2	0,0	0,0
LT	1,8	0,4	-0,2	-0,3	-0,3	0,0	0,0	0,0
LU	7,4				-0,1	0,1	0,0	0,0
HU	6,7	-0,3	-0,7	-1,1	-0,4	0,2	0,0	0,0
MT	-0,4	0,5	-0,1	0,0	-0,7	0,7	0,0	0,0
NL	3,5	0,5	-0,1	-0,1	-0,1	0,0	0,0	0,0
AT	-1,2	0,4	-0,2	-0,4	-0,8	1,0	0,0	0,0
PL	-5,9	0,2	-0,2	0,0	-0,4	0,2	0,0	0,0
PT	9,7	0,6	-0,2	-0,2	-1,2	1,3	0,0	0,0
SI	7,3	0,6	-0,4	-0,9	-0,1	-0,2	0,0	0,0
SK	1,8	0,5	0,0	0,1	-0,2	0,2	0,0	0,0
FI	3,1	0,2	0,0	-0,2	-0,4	0,5	0,1	-0,1
SE	0,6	0,3	-0,1		-0,2	0,3	0,3	-0,3
UK	2,0	0,2	-0,1	-0,1	-0,4	0,3	0,0	0,0
EU15 [1)]	2,3	0,3	-0,1	-0,1	-0,3	0,4	0,0	0,0
EU10 [1)]	0,3	-0,2	-0,3	-0,7	-0,4	0,2	0,0	0,0
EU12 [1)]	2,6	0,3	-0,1	-0,2	-0,4	0,4	0,0	0,0
EU25 [1)]	2,2	0,3	-0,1	-0,1	-0,3	0,4	0,0	0,0

1) excluding countries which have not provided data

[52] In the case of Luxembourg, where there is a large number of cross-border workers, it was agreed that the sensitivity scenarios for higher life expectancy and higher employment rates are not easily interpretable and comparable with other countries and that these scenarios were not be run for these reasons.

Table 3-29 Summary of the changes in all pension expenditure increases as a share of GDP between 2004 and 2050

		Difference in total pension expenditure increases as percentage points of GDP relative to the baseline projection						
	Baseline, change 2004-2050	Higher life expectancy	Higher employment	Higher empl of older workers	Higher labour productivity	Lower labour productivity	Higher interest rate	Lower interest rate
BE	5,1	0,5	-0,2	-0,3	-0,4	0,3	0,0	0,0
CZ	5,5	0,4	-0,2	-0,3	-0,3	0,2	0,0	0,0
DK								
DE	1,7	0,2	-0,1	0,0	0,0	0,0	0,0	0,0
EE	-0,1	0,1	0,0	-0,4	-0,4	0,3	0,7	-0,5
GR								
ES	7,1	0,1	-0,1	-0,1	-0,9	1,0	0,0	0,0
FR	2,0	0,6	-0,1	-0,4	-0,4	0,5	0,0	0,0
IE								
IT	0,4	0,3	0,0	0,2	-0,5	0,6	0,0	0,0
CY	12,9		-0,1		-1,4	1,6		
LV	1,5	0,2	0,0	-0,1	-0,3	0,3	0,8	-0,6
LT	3,7	0,4	-0,2	-0,4	-0,3	-0,1	0,5	-0,5
LU	7,4				-0,1	0,1	0,0	0,0
HU	9,9	-0,3	-0,8	-1,3	-0,6	0,4	1,1	-0,8
MT	-0,4	0,5	-0,1	0,0	-0,7	0,7	0,0	0,0
NL	7,6	0,8	-0,1	0,0	-0,3	0,3	0,2	-0,3
AT	-1,2	0,4	-0,2	-0,4	-0,8	1,0	0,0	0,0
PL	-4,6	0,2	-0,2	0,0	-0,5	0,3	0,3	0,0
PT	9,7	0,6	-0,2	-0,2	-1,2	1,3	0,0	0,0
SI	8,3	-0,4	-1,4	-1,9	-1,1	-1,2	0,0	0,0
SK	4,1	0,4	0,0	0,0	-0,3	0,3	0,6	-0,5
FI	3,1	0,2	0,0	-0,2	-0,4	0,5	0,1	-0,1
SE	0,9	0,4	-0,1		-0,4	0,4	0,7	-0,6
UK								
EU15 [1]	2,8	0,3	-0,1	-0,1	-0,4	0,4	0,1	-0,1
EU10 [1]	1,7	-0,2	-0,3	-0,7	-0,5	0,3	0,4	-0,2
EU12 [1]	2,8	0,3	-0,1	-0,2	-0,4	0,4	0,0	0,0
EU25 [1]	2,7	0,3	-0,1	-0,1	-0,4	0,4	0,1	-0,1

1) excluding countries which have not provided data

Table 3-30 Summary of changes in total assets as a % of GDP between 2004 and 2050

			Difference in total pension assets increases as percentage points of GDP relative to the baseline projection, 2004-2050 [1]						
	Baseline, start level in 2004	Baseline, change 2004-2050	Higher life expectancy	Higher employment	Higher empl of older workers	Higher labour productivity	Lower labour productivity	Higher interest rate	Lower interest rate
BE	4,4								
CZ	0,3								
DK									
DE	0,1								
EE	2,8	98,2	-0,2	4,5	1,6	1,3	-0,4	10,9	-8,8
GR									
ES									
FR	1,2	-1,2		0,0	0,0	0,0	0,0	0,0	0,0
IE									
IT									
CY	39,3								
LV	0,3	71,1	-1,3	0,3	-0,8	-0,1	0,9	12,1	-10,1
LT	0,3	52,4	1,5	0,1	-0,2	0,3	0,2	8,4	-7,1
LU	23,6								
HU	4,0	69,7	-1,0	0,1	-0,6	-3,1	2,4	10,8	-9,1
MT									
NL	135,5	108,1	13,7	1,1	0,7	-4,4	4,1	-32,4	40,7
AT									
PL	7,1	78,0	1,5	-0,5	0,0	-4,6	2,5	15,8	-12,6
PT	4,3								
SI	1,4	34,5						0,0	0,0
SK	0,0	58,0	1,1	0,3	0,1	-2,2	2,6	9,3	-7,6
FI	52,4	20,5	-0,2	0,6	-1,2	-4,4	4,3	16,0	-12,8
SE	38,6	22,3	-3,0	0,4		-1,7	2,8	17,2	-11,5
UK									

1) Differences shown only for countries where the assets are projected to be positive in 2050 (excluding countries where public reserves are projected to be exhausted before 2050, cf. tables 3-26 and 3-27)

Table 3-31 Summary of changes in the ratio between contributions and pension expenditure in public schemes between 2004 and 2050

		Change in the ratio between contributions and pension expenditure 2004-2050							
	Baseline 2004, public pensions	Baseline	Higher life expectancy	Higher employment	Higher empl of older workers	Higher labour productivity	Lower labour productivity	Higher interest rate	Lower interest rate
BE									
CZ	105	-42	-44	-41	-41	-41	-43	-42	-42
DK									
DE	68	0	0	0	0	0	0	0	0
EE	98	47	44	44	41	50	37	47	47
GR									
ES									
FR	100	-13	-16	-12	-11	-10	-16	-13	-13
IE	76	-46	-47	-46	-46	-46	-46	-46	-46
IT	72	1	0	1	0	4	-2	1	1
CY	80	-44		-45		-42	-47	-44	-44
LV	104	-7	-9	-6	-7	-4	-9	-7	-7
LT	101	-29	-29	-26	-25	-25	-27	-29	-29
LU	99	-41				-41	-41	-41	-41
HU	74	-35	-34	-33	-32	-34	-35	-34	-36
MT	96	-48	-51	-47	-48	-48	-48	-48	-48
NL	88	-29	-31	-28	-28	-29	-29	-29	-29
AT	67	3	1	5	6	9	-2	3	3
PL	55	44	43	45	45	49	40	45	45
PT	95	-50	-51	-50	-50	-47	-52	-50	-50
SI	85	-27	-24	-25	-23	-27	-27	-27	-27
SK	90	-41	-43	-40	-41	-40	-42	-41	-41
FI	85	-4	-4	-3	-3	-2	-5	-10	2
SE	72	-8		-8		-6	-9	-10	-6
UK	87	-14	-15	-13	-13	-11	-16	-14	-14
EU15 [1)]	80	-8	-9	-8	-7	-6	-10	-8	-8
EU10 [1)]	72	-4	-2	-3	0	-2	-6	-3	-4
EU12 [1)]	80	-7	-8	-7	-6	-6	-9	-8	-7
EU25 [1)]	80	-8	-9	-7	-7	-6	-10	-8	-8

1) excluding countries which have not provided data

4. HEALTH CARE

4.1. Introduction

A wider mandate covering demographic and non-demographic drivers of spending

The mandate from the ECOFIN Council to the EPC included a request to make projections for public spending on health care[53]. This followed the 2001 projection exercise of the EPC which examined the impact of demographic variables on health care spending.

The methodology used in 2001 was a *pure ageing* scenario which only considered the impact of changes in the size and age-structure of the population on health care spending. It consisted of applying profiles of average health expenditure per capita, provided for a base year by Member States, to a population projection of Eurostat. The projections were run under the assumption of constant age and gender-contingent demand and consumption of health care over time. They were also made under two cost assumptions, i.e. expenditures per capita grow exactly at the same rate as GDP per capita (which can be considered as neutral in macroeconomic terms), and expenditures per capita increase at the same rate as GDP per worker (to reflect labour intensity of the health care sector).

The 2001 report of the EPC recognised the limitations of this projection methodology, in particular the strong assumption of holding age-related expenditure profiles constant over time, the failure to link expenditure to years of remaining life (death-related costs), and the absence of non-demographic drivers of spending from the projection exercise.

[53] In April 2004, the ECOFIN Council held a discussion on approaches to achieving a better control of health care spending on the basis of a note by DG ECFIN, see '*Controlling health care expenditures: some recent experiences with reform'*, Note from DG ECFIN for the attention of the Economic Policy Committee, ECFIN/157/04 Rev.1 of 16 March 2004. Discussions subsequently took place on similar topics at a joint-meeting of Finance and Health Ministers organised by the OECD in May 2004, and also at a meeting of G8 Finance Ministers in June 2004. The issue of factors driving health care expenditures was also, under the Dutch Presidency, addressed by Health Ministers, see '*Health care in an ageing society: a challenge for EU countries*', Background Paper of the Netherlands EU Presidency for the Informal Health Council in Noordwijk, 9-10 September 2004.

Box 1. The importance of health care spending

The focus on health care spending in discussions on budgetary management and on the overall sustainability of public finances is hardly surprising given its size and past trends. Total health care spending, both public and private, as a share of GDP has been rising steadily in most EU Member States in recent decades, see Table 1. It increased rapidly during the 1960s and 1970s, continued growing in most countries, although at a slower rate, in the 1980s, and picked up again in the 1990s. Total spending on health as a proportion of GDP grew in the 1990s in all Member States except Finland, Luxembourg, Denmark and Sweden. Currently, total spending in the EU on health care ranges from 5.0% (LV) to 10.9% (DE) of GDP. A clear catch-up process in total health care spending has been visible in European countries over the last decades, as the countries with the lowest initial rates of expenditure have seen them rising considerably up to the levels comparable to those of most other Member States.

Table 1. Total expenditure (public and private) on health care as % of GDP

	as % of GDP					*change*		
	1970	**1980**	**1990**	**2000**	**2002**	***70-80***	***80-90***	***90-00***
BE	4,0	6,4	7,4	8,7	9,1	*2,4*	*1,0*	*1,3*
CZ	:	:	4,7	6,6	7,2	*:*	*:*	*1,9*
DK	:	9,1	8,5	8,4	8,8	*:*	*-0,6*	*-0,1*
DE	6,2	8,7	8,5	10,6	10,9	*2,5*	*-0,2*	*2,1*
EE	:	:	:	5,5	5,1	*:*	*:*	*:*
GR	6,1	6,6	7,4	9,9	9,8	*0,5*	*0,8*	*2,5*
ES	3,6	5,4	6,7	7,4	7,6	*1,8*	*1,3*	*0,7*
FR	5,4	7,1	8,6	9,3	9,7**	*1,7*	*1,5*	*0,7*
IE	5,1	8,4	6,1	6,3	7,3	*3,3*	*-2,3*	*0,2*
IT	:	:	7,9	8,1	8,4	*:*	*:*	*0,2*
CY	2,7	2,8	4,5	6,0	6,4	*0,1*	*1,7*	*1,5*
LV	:	2,1	2,5	4,8	5,0	*:*	*0,4*	*2,3*
LT	:	:	3,3	6,0	5,7	*:*	*:*	*2,7*
LU	3,6	5,9	6,1	5,5	6,1	*2,3*	*0,2*	*-0,6*
HU	:	:	:	7,1	7,8	*:*	*:*	*:*
MT	:	:	:	8,8	9,6	*:*	*:*	*:*
NL	:	7,5	8,0	8,3	9,3	*:*	*0,5*	*0,3*
AT	5,1	7,4	7,0	7,6	7,6	*2,3*	*-0,4*	*0,6*
PL	:	:	4,9	5,7	6,0	*:*	*:*	*0,8*
PT	2,6	5,6	6,2	9,2	9,3	*3,0*	*0,6*	*3,0*
SI	4,2	4,4	5,6	8,0	8,2*	*0,2*	*1,2*	*2,4*
SK	:	:	:	5,5	5,7	*:*	*:*	*:*
FI	5,6	6,4	7,8	6,7	7,2	*0,8*	*1,4*	*-1,1*
SE	6,9	9,1	8,4	8,4	9,2	*2,2*	*-0,7*	*0,0*
UK	4,5	5,6	6,0	7,3	7,7	*1,1*	*0,4*	*1,3*

*2001

**estimate

Source: European health for all database (HFA-DB), World Health Organization Regional Office for Europe (data on EE, CY, LV, LT, MT, SI); OECD HEALTH DATA 2005, (data on all other countries)

Broadly similar trends, including a catch-up process, are evident as regards public spending on health care, see Table 2. As a share of GDP, public spending on health expenditure rose over the period 1970-1980 in all EU countries for which data are available. In the 1980s, the increasing trend slowed down considerably and even reversed in a few countries (IE, DK, SE, DE). In the 1990s, another five countries (FI, LU, PL, IT, NL) saw their public expenditure falling, but in most other Member States average spending continued to grow. Judging by public spending as a share of GDP, efforts to control public spending during the 1980s and especially the 1990s have had some impact. In 2001, public spending as share of GDP was broadly 0.7% higher for the EU compared with 1990, 0.5% higher compared with 1980 and 2.3% higher compared with 1970 (unweighted average of available figures). There has also been a clear trend of narrowing dispersion in spending across countries, mainly through the catch-up process in the countries with the lowest initial levels of expenditure, like PT, where public spending on health grew from 1.5% of GDP in 1970 to 6.6% of GDP in 2002, ES (from 2.4% to 5.4%), or GR (from 2.6% to 5.2%).

Table 2. Public expenditure on health as a share of GDP and of total expenditure on health, 1970 to 2001

	Public health expenditure as % of total health expenditure					Public health expenditure as % of GDP					*Change*		
	1970	**1980**	**1990**	**2000**	**2002**	**1970**	**1980**	**1990**	**2000**	**2002**	***70-80***	***80-90***	***90-00***
BE	:	:	:	71	71	:	:	:	6,1	6,5	*:*	*:*	*:*
CZ	97	97	97	91	91	:	:	4,6	6,0	6,6	*:*	*:*	*1,5*
DK	:	88	83	83	83	:	8,0	7,0	6,9	7,3	*:*	*-1,0*	*-0,1*
DE	73	79	76	79	79	4,5	6,8	6,5	8,4	8,6	*2,3*	*-0,4*	*1,9*
EE	:	:	:	77	76	:	:	:	4,2	3,9	*:*	*:*	*:*
GR	43	56	54	54	53	2,6	3,7	4,0	5,3	5,2	*1,1*	*0,3*	*1,4*
ES	65	80	79	72	71	2,4	4,3	5,3	5,3	5,4	*2,0*	*1,0*	*0,0*
FR	76	80	77	76	76	4,1	5,7	6,6	7,0	7,4	*1,6*	*0,9*	*0,5*
IE	82	82	72	73	75	4,2	6,9	4,4	4,6	5,5	*2,7*	*-2,5*	*0,2*
IT	:	:	79	74	76	:	:	6,3	6,0	6,4	*:*	*:*	*-0,3*
CY	35	52	40	35	37	0,9	1,5	1,8	2,1	2,3	*0,5*	*0,3*	*0,3*
LV	:	:	100	74	68	:	:	2,5	3,5	3,4	*:*	*:*	*1,0*
LT	:	:	90	72	72	:	:	3,0	4,3	4,1	*:*	*:*	*1,4*
LU	89	93	93	90	85	3,2	5,5	5,7	4,9	5,2	*2,3*	*0,2*	*-0,7*
HU	:	:	:	71	70	:	:	:	5,0	5,5	*:*	*:*	*:*
MT	:	:	:	54	69	:	:	:	4,7	6,6	*:*	*:*	*:*
NL	:	69	67	63	63*	:	5,2	5,4	5,3	5,8*	*:*	*0,2*	*-0,1*
AT	63	69	74	70	70	3,2	5,1	5,1	5,3	5,3	*1,9*	*0,1*	*0,1*
PL	:	:	92	70	72	:	:	4,5	4,0	4,3	*:*	*:*	*-0,5*
PT	59	64	66	70	71	1,5	3,6	4,1	6,4	6,6	*2,1*	*0,5*	*2,3*
SI	100	100	100	87	87*	4,2	4,4	5,6	6,9	7,1*	*0,2*	*1,2*	*1,3*
SK	:	:	:	89	89	:	:	:	4,9	5,1	*:*	*:*	*:*
FI	74	79	81	75	76	4,1	5,1	6,3	5,0	5,5	*0,9*	*1,3*	*-1,3*
SE	86	93	90	85	85	5,9	8,4	7,6	7,1	7,8	*2,5*	*-0,9*	*-0,4*
UK	87	89	84	81	83	3,9	5,0	5,0	5,9	6,4	*1,1*	*0,0*	*0,9*

*2001

Source: European health for all database (HFA-DB), World Health Organization Regional Office for Europe (public health expenditure as % of total health expenditure and public health expenditure as % of GDP for EE, CY, LV, LT, MT, SI); OECD HEALTH DATA 2005 (public health expenditure as % of GDP for all other countries)

In most countries spending on health care has accounted for a growing share of total public spending (see Table 3). This occurred not only during the 1970s and 1980s with the widening of access to public health care systems, but especially during the 1990s. It has increased between 1990- 2003 in most countries by between 0 and 4.5 percentage points, again with the largest growth in the catch-up countries (GR, PT, IE). Currently, it ranges from 6.4% in SK to 20.9% in IE.

Table 3. Spending on health as % of total primary government spending, 1990-2002

	as % of total primary government spending				*change*		
	1990	**1995**	**2000**	**2003**	***90-95***	***95-00***	***00-03***
BE	13,0	14,2	15,0	15,4	*1,2*	*0,8*	*0,4*
CZ	:	:	:	12,6	*:*	*:*	*:*
DK	13,6	13,0	13,3	13,5	*-0,6*	*0,4*	*0,2*
DE	13,3*	12,2	14,7	14,3	*-1,1**	*2,5*	*-0,4*
EE	:	:	:	11,4	*:*	*:*	*:*
EL	2,6	9,0	7,5	6,8	*6,4*	*-1,5*	*-0,7*
ES	:	:	14,7	14,5**	*:*	*:*	*-0,2***
FR	:	15,3	15,7	16,5**	*:*	*0,4*	*0,8***
IE	16,1	17,1	19,0	20,9**	*1,0*	*1,9*	*1,9***
IT	14,5	12,8	15,0	14,8	*-1,7*	*2,2*	*-0,2*
CY	:	:	7,1	7,5	*:*	*:*	*0,5*
LV	:	:	:	9,3	*:*	*:*	*:*
LT	:	:	:	13,2	*:*	*:*	*:*
LU	11,0	12,3	11,0	11,8	*1,3*	*-1,3*	*0,8*
HU	:	:	:	12,3	*:*	*:*	*:*
MT	:	:	13,1	13,7	*:*	*:*	*0,6*
NL	:	7,8	9,6	9,8	*:*	*1,9*	*0,2*
AT	:	14,7	16,1	13,8	*:*	*1,4*	*-2,3*
PL	:	:	:	7,3	*:*	*:*	*:*
PT	11,8	15,1	16,2	15,8	*3,3*	*1,1*	*-0,4*
SI	:	:	:	14,7	*:*	*:*	*:*
SK	:	:	:	6,4	*:*	*:*	*:*
FI	:	:	:	13,3	*:*	*:*	*:*
SE	:	10,4	11,9	12,9	*:*	*1,4*	*1,1*
UK	13,2	13,7	15,5	16,3	*0,5*	*1,8*	*0,8*

* 1991 and 91-95
** 2002 and 00-02
Source: Eurostat

Contribution to the work on health care projections

The decision to include non-demographic factors in the projection exercise substantially added to the complexity of the projection exercise. As a first step, DG ECFIN carried out a literature survey on the drivers of health care spending and methodologies that have used to project health care spending[54]. DG ECFIN also organised a conference jointly with the Health Division of the OECD on 21/22 February 2004 entitled *Understanding trends in disability among elderly populations and the implications of demographic and non-demographic factors for future health and long-term care costs*[55]. The Commission has also received valuable input from Ilija Batljan (University of Stockholm) and Adelina Comas-Herrera (PSSRU, London School of Economics and Political Science) who were visiting fellows with DG ECFIN in 2005. Several AWG members also provided written contributions to the work of the group[56].

Outline of this chapter

The remainder of this chapter is structured as follows. The next section provides an overview of the different approaches used to project health care spending and the sensitivity tests. Section 4.3 describes the data needed to run the projections. Section 4.4 presents the projection results: it starts with the projections results for a *pure ageing* scenario that is identical to the projection methodology used in 2001. It then presents the results for different sets of projections that examine additional drivers of health care spending, including scenarios looking at the health status of elderly citizens, death-related costs, the impact of changes in real income and finally at the evolution of unit costs. Section 4.5 contains an overall assessment of the budgetary projection results for all scenarios and contains policy conclusions. Four annexes are also included. Annex 4 describes the projection methodologies in more detail. Annex 5 provides information and analysis on the data inputs. Annex 6 presents a series of additional sensitivity tests the results of which should be seen as a complement to the analysis done in the report. Annex 7 contains tables with the detailed projection results for all discussed scenarios.

4.2. Short overview of the projection methodology

Capturing the various demographic and non-demographic drivers of spending

---

[54] '*Factors driving public expenditures on health/long-term care over the long run and an overview of methodologies used to make expenditure projections*', Note for the attention of the AWG meeting of 18/19 April 2005, ECFIN/REP51821/05-EN of 15 April 2005.

[55] The presentations and papers circulated at the conference can be downloaded from: the DG ECFIN web-site at http://europa.eu.int/comm/economy_finance/events/2005/events_brussels_0205_en.htm

[56] Englert M. (2004), '*Assessing the budgetary cost of ageing and projecting health care (+care for the elderly) expenditure*', Federal Planning Bureau of Belgium, presentation to the joint AWG-OECD meeting of 3 June 2004. Englert M., M.J. Festjens, M.Lopez-Novella (2004), *L'évolution à long terme des dépenses de soins de santé*, Journée d'Etudes: 'Budget 2005', Institut Belge des Finances Publiques. Madsen M. (2004) '*Methodologies to incorporate 'death related costs' in projections of health and long-term care based on Danish data'*, Ministry of Finance, Denmark dated 4 November 2004. Note for the attention of the AWG meeting of 8/9 November 2004. Ragioneria Generale dello Stato (2004b) '*How to take account of death-related costs in projecting health care expenditure – the evidence from Italy and a proposal for the EPC-AWG*', Note for the attention of the AWG meeting of 10 March 2004.

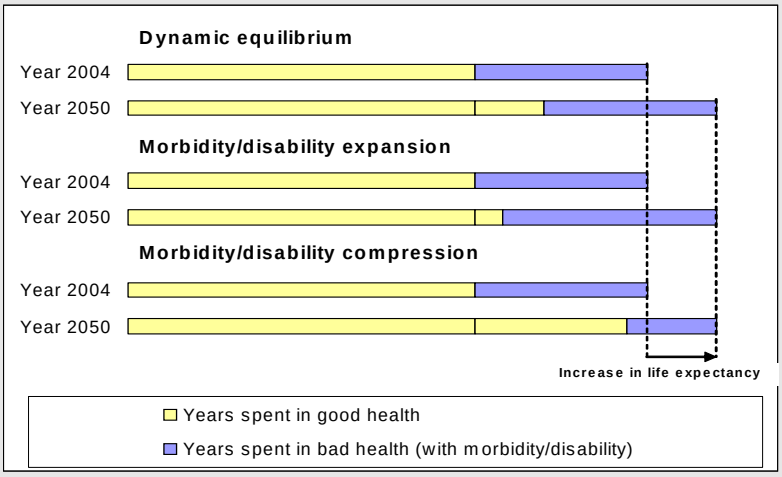
Health care spending is determined by a complex series of demand and supply side factors. These were extensively reviewed in EPC and European Commission (2005b). According to the literature, the demand for health care depends ultimately on the health status and functional ability of (elderly) citizens, and not on age *per se*. While age is a useful indicator of the health status of an elderly population (and shown by the steep upward slope of age-related expenditure profiles)[57], it is not the causal factor. Health care spending is therefore mostly driven by:

- the health status of the population (see box 2 below);
- economic growth and development;
- new technologies and medical progress;
- the organisation and financing of the health care system;
- health care resource inputs, both human and capital.

Box 2. Healthy life expectancy – will the extra years of life be spent in good health and free of disability?

There is debate in literature on the extent to which, as life expectancy increases, the health status (or morbidity) of the population may change. Traditionally, a decrease in mortality rates was considered to reflect the improvement in the health status of the population, i.e. a decrease in morbidity. When reliable empirical evidence (life-tables, precise data on mortality, disability and morbidity) became available, this simple relationship was not supported by the data. Three main hypotheses have emerged in the literature which are illustrated on the graph 1 below (for an overview of existing theories see Nusselder (2003)).

Graph 1. Different hypothesis for the evolution of healthy life expectancy



Source: DG ECFIN

[57] Recent evidence, based on the data from a set of industrialised countries, shows that total health care provided to an average person over 65 years of age costs 2.7 to 4.8 times as much as health care provided to an average person aged 0-64 (Anderson and Hussey 2000). In other words, 35-50% of total health expenditure is spent on elderly people (Jacobzone 2002).

The expansion of morbidity hypothesis was proposed by Gruenberg (1977), Verbrugge (1984) and Olshansky et al (1991) and empirically supported by Guralnik (1991). It posits that as life expectancy increases, older people become more vulnerable to chronic diseases and spend more time in ill-health (represented by the dark shaded area on showing that most of the additional gains in life expectancy are spent in bad health). In other words, a higher proportion of people with health problems survive to an advanced age. This relationship works mainly through three mechanisms:

- thanks to medical interventions, the prolonged survival of chronically ill people increases their lifespan but it does not improve their health state. Consequently, extra years of life expectancy are, at least partially, spent in bad health;

- increased survival means that a larger part of population is elderly and more vulnerable to chronic diseases: moreover, the causes of disability are shifting from fatal to non-fatal diseases which are more prevalent in older age cohorts;

- chronic disease can act as a risk factor for other illnesses. For example, a disease earlier in lifetime can have negative consequences later on: a non-fatal disease may not translate directly into higher mortality but into higher morbidity and disability.

The ***dynamic equilibrium hypothesis*** was proposed by Manton et al. (1995). It posits that the postponement of death to higher ages due to falling mortality is accompanied by a parallel postponement of morbidity and/or disability. Consequently, healthy life expectancy grows at the same rate as total life expectancy and the number of years spent in bad health remains the same. On the graph, this is characterised by the number of years in good health (the lighter shade) increasing by the same amount as life expectancy at birth: hence, the total period spent in bad health during a lifetime is unchanged. The term 'dynamic equilibrium' is meant to capture the overall changes in life expectancy and severe disability, and this hypothesis is a simplified version of a more sophisticated theory proposed earlier by Manton (1982), which argued that an increased survival may lead to an increase in the number of years spent in bad health. However, the time spent with severe morbidity and disability remains approximately constant due to the fact that medical treatments and improvement in lifestyles reduce the rate of progression of chronic diseases. Thus, not everybody will enjoy the benefits of all gains in life expectancy being spent in full health. Instead, part of the gains in life expectancy may be spent in moderate health and the prevalence of chronic illness may increase; however, severe disability which is connected to the most costly part of health care services may be postponed to the final phase of life (meaning that age-related disability rates could decline). These effects may cancel out so that the average number of years spent in morbidity would remain unchanged.

The compression of morbidity hypothesis was proposed by Fries (1980, 1983, 1989, 1993), posits that as life expectancy increases the onset of disability will be postponed to an high ages thanks to improved living conditions, healthier lifestyles and the fact that more and more chronic diseases may be curable. According to the hypothesis, humankind has a genetically determined — albeit individually variable — limit to the lifespan and while life expectancy is increasing, it is approaching that limit (a hypothesis rejected later by several authors including Oeppen and Vaupel 2002, Robine and Vaupel 2002, Robine et al. 2005). Accordingly, morbidity and disability will be gradually compressed at very old ages (into the last years of life) and the number of years spent with diseases or disabilities will decrease over time. The graph above represents this by decreasing the total period spent in bad health during a lifetime. Thus, health life expectancy grows by more than life expectancy at birth.
Recent studies have not provided strong evidence in favour of any of the above hypothesis. Results have differed significantly not only across countries, but also across sexes. Batljan and Lagergren (2000) found that even if existing state of research does not allow for any conclusive statements, most empirical data support the hypothesis of morbidity postponement.

Given these considerations, the need to include non-demographic factors in the projection exercise was recognised[58]. Table 4-1 provides an overview of the different drivers of spending, and how they are captured within this budgetary projection exercise.

[58] EPC and European Commission (2005b).

Table 4-1 The drivers of health care spending: how they are incorporated in the projection exercise

Demand side factors				
	Mechanism/channel through which health care spending is affected	**Evidence in literature on likely impact on spending**	**Addressed in projections**	**Likely effect on projection results**
Size and age structure of the population	Population size and age structure determines the overall number of persons who potentially need some health care services. Morbidity rates tend to increase sharply at older ages, although age itself is not the causal factor.	Population projections show large increase in the number of older persons.	*Pure ageing* scenario (I) plus high life expectancy scenario (A-I).	The 'pure' effect of an ageing population will lead to strong pressure for increased spending.
Health care status of the population, especially of elderly cohorts	Changes in age-specific mortality rates will alter the demand for health care.	No clear cut evidence as to whether the health care status of elderly is static (expansion of morbidity hypothesis) or improving (dynamic equilibrium or compression of morbidity hypotheses).	*Constant health* scenario (II) and *improved health* scenario (A-II).	Future improvements of health care status will lower the projected impact on spending compared with a *pure ageing* scenario.
Death related costs	Large share of total health are spending is concentrated in the final phase of life linked to approaching death.	Large body of evidence confirming the existence of death-related costs, and that the ratio of spending between decedents and survivors declines with age. No clear evidence on whether the importance of death-related costs has changed over time.	*Death-related cost* scenario (III).	Reduces projected increases in spending compared with *pure ageing* scenario.
Income	If health care services are a luxury good, then the income elasticity of demand would be greater than one, and health care spending as % of GDP should increase if real living standards improve.	Studies at micro level show income elasticity of demand greater than 1 but neutral at an aggregate level. Real convergence process may lead to an increase in health care spending as a result of absolute increase in demand and a shift towards high quality medical goods and services demanded in fast growing economies.	Scenario IV considers an income elasticity of demand greater than 1 for all Member States. Scenario A-III considers the convergence in age-related expenditure profiles in EU10 to EU15 levels.	Projected increases in spending compared with *pure ageing* scenario.

Supply side factors				
	Mechanism/channel through which health care spending is affected	**Evidence in literature on likely impact on spending**	**Addressed in projections**	**Likely effect on projection results**
Technology	Technology can lower unit costs of providing more efficient treatment, but can push up total spending by making new treatments available for more persons. Technology can lower the demand for health care if early or less invasive interventions improve health care status and lower future health care needs: alternatively, it can increase future health care needs by increasing the survival probabilities of persons with chronic or multiple health conditions.	Not clear cut. Evidence to date suggests that technology has pushed up overall spending as increased demand appears to have outweighed unit cost savings. However, there is considerable uncertainty on future prospects. Prospective technological developments could radically alter treatment possibilities and the health care sector is starting to catch-up with other sectors on the deployment of IT.	Not modelled. All scenarios implicitly assume a neutral impact of technology on spending. From *fast cost growth* scenario (A-IV), and *extrapolation* scenario (A-V), one could infer a pessimistic the impact of technology (the effects of increased demand outweigh unit cost reductions).	
Relative costs in the health care sector	Total health care spending driven by the evolution of unit costs for key components (wages, capital investment and pharmaceuticals) relative to the economy as a whole.	Unclear due to data limitations and prevalence of non-market pricing in the health care sector. Wages often covered by collective agreements and pharmaceutical prices are regulated. Evidence from US points to high price inflation for pharmaceuticals but this may be driven by incentives embedded in their market structure.	*Unit cost – GDP per worker* scenario (V), *fast cost growth* scenario (A-IV), and *extrapolation* scenario (A-V).	Can push up (fast growth scenario) or reduce (slow growth scenario) projected spending compared with *pure ageing* scenario.
Government policy and institutional settings	Overall spending on health determined by policy choices on access to health care systems and on quality (waiting times, patient choice etc.) The evolution of spending is also determined by the effectiveness of aggregate budgetary control measures (e.g. spending caps) and micro incentives for patients and health care professionals favouring rational resource use. Real convergence process also plays a role in designing appropriate health policy setting.	Improved access has been major driver of spending in past decades. Governments face strong pressure to provide access to new medical treatments and to improve quality of services, and existing projections from national sources show that policy choices have a major impact on health care spending. Aggregate budgetary control measures appear to have stemmed increases in health care spending in the 1990s, but long-term effectiveness will require appropriate micro incentives.	Not modelled	

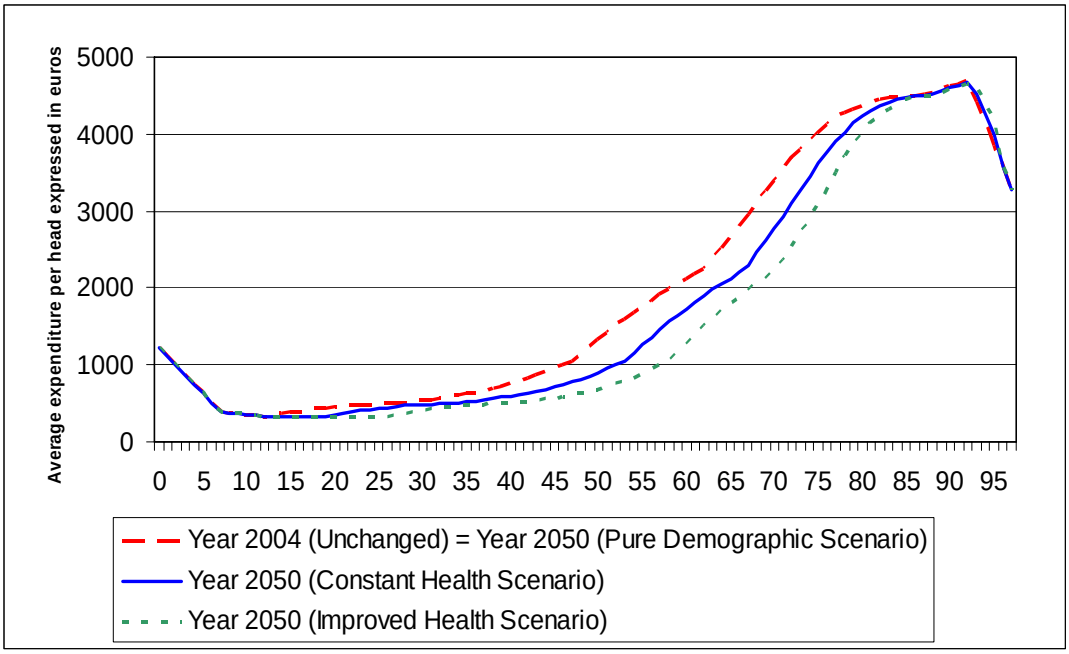
Six different types of scenarios

Rather than trying to construct an all-encompassing projection methodology to capture all demographic and non-demographic factors, it was agreed to run several different projection scenarios in order to tackle the issue from a variety of different angles. An overview of all approaches is presented in Table 4-2 below.

- ***Pure ageing scenario (I)****:* this scenario attempts to isolate the "pure" effects of an ageing population on health care spending. It is a repetition of the methodology used in the 2001 AWG budgetary projection exercise. It assumes that age-related spending per capita on health care in the base year (2004) remains constant over time. This way all gains in life expectancy are assumed to be spent in bad health while the number of years spent in good health remains constant. As such, this scenario is inspired by the 'expansion of morbidity' hypothesis in the literature, as it *de facto* would assume that the gains in life expectancy up to 2050 are assumed to be spent in bad health. The constant age profile is applied to the baseline AWG population scenario (described in chapter 2.1) with an assumption that the costs evolve in line with GDP per capita (see table 5-4 in annex 5). Annex 4 describes the projection methodology in more detail;

- ***A constant health scenario (II) considering the health status of elderly citizens:*** as pointed out above, the *pure ageing* scenario may be pessimistic in that they implicitly assume that a large share of the gains in life expectancy up to 2050 would be spent in bad health. The *constant health* scenario is inspired by the 'dynamic equilibrium' hypothesis and captures the potential impact of possible improvements in the health care status of elderly citizens. It assumes that the number of years spent in bad health during a life time in 2050 is identical to that in 2004, i.e. all future gains in life expectancy are spent in good health. This assumption is modelled by progressively shifting the age-related expenditure profile of the base year outwards in direct proportion to the projected gains in age and gender specific life expectancy, embedded in the baseline population projection (see tables 5-2 and 5-3 in annex 5). This procedure is illustrated on Graph 4-1 by the straight dark line, which illustrates the age-related expenditure profile that would be applied in the year 2050.

Graph 4-1 Illustration of the different scenarios for future morbidity/disability and longevity using age profiles on health care costs



***Source*:** DG ECFIN

- ***A death-related costs scenario (III)*** links health care spending to years of remaining life. There is strong evidence that a large share of total spending on health care during a person's life is concentrated in the final years of life. Based on data available supplied by AWG members, a profile of "death related" costs by age has been constructed, with unit costs differentiated between decedents (those who die within a calendar year) and survivors (for empirical evidence on death-related costs, see section 4.3.).

- ***A scenario looking at income effects (IV)*:** a key question concerns the income elasticity of demand for health care, and whether it is greater than unity. Scenario IV is identical to the *pure ageing* scenario (I) except that the income elasticity of demand is equal to 1.1 in the base year and converges in a linear manner to 1 by the end of projection horizon in 2050. The elasticity coefficient at the beginning of the period has been chosen arbitrarily, although taking account of empirical evidence on developments in this value over the recent decades (see discussion in section 4.3.).

- ***A scenario where costs evolve in line with GDP per worker (V)*** is identical to the *pure ageing* scenario (I) except that costs are assumed to evolve in line with the evolution of GDP per worker (see table 5-5 in annex 4). As wages are projected to grow faster than GDP per capita, this scenario provides an insight into the effects of unit costs in the health care sector increasing by more than in the economy as a whole. This is identical to a scenario run in 2001 budgetary projection exercise;

- ***An AWG reference scenario (VI):*** this scenario combines a number of the elements in the scenarios described above. In particular, it aims at incorporating death-related costs and the impact of income elasticity exceeding unity on health care spending. Both theoretical discussion and empirical results presented in scenario III suggest that incorporating death-related costs is expected to drive total costs of health care down from the level predicted by *pure ageing* scenario by somewhat less than the assumption of changes in health status

embedded in *constant health* scenario does. However, given very scarce and hardly comparable data on death-related costs, it cannot be considered as reliable enough to be used in the reference scenario. Instead, an intermediate scenario between *pure ageing* and *constant health* scenario has been calculated by assuming health status of the populations will improve, but only by half as much as in *constant health* scenario. This assumption has been complemented by adding the effect of income elasticity equal to 1.1 in the base year and converging to 1 by 2050. This scenario was developed so as to provide a prudent central reference scenario for undertaking policy analysis at EU level.

Additional scenarios for public spending on health care are presented in annex 6. They look at the impact of a higher than expected life expectancy, an *improved health* scenario where health life expectancy increases by more than life expectancy (inspired by the compression of morbidity hypothesis), an *EU10 cost convergence* scenario where average unit costs of health care provision in the EU10 Member States evolve over time to reach the EU15 cost structure, a *fast cost growth* scenario, and a projection where unit costs for the different components of health care spending evolve in line with past trends.

Table 4-2 Overview of different approaches used to make the projections on health care spending

	Pure ageing	**Constant health**	**Death related costs**	**Income elactity of demand**	**Unit costs - GDP per worker**	***AWG reference scenario***
	I	***II***	***III***	***IV***	***V***	***VI***
Population projection	AWG scenario - baseline	AWG scenario - baseline	AWG scenario - baseline	AWG scenario - baseline	AWG scenario - baseline	***AWG scenario - baseline***
Age-related expenditure profiles	2004 profiles held constant over projection period	Constant health scenario whereby 2004 age profile shifts in line with changes in age-specific life expectancy	Constant 2004 profiles but split into spending on decedents and survivors	2004 profiles held constant over projection period	2004 profiles held constant over projection period	***Intermediate between pure ageing and constant health scenarios, whereby 2004 age profile shifts by half the change in age-specific life expectancy***
Unit cost development	GDP per capita	GDP per capita	GDP per capita	GDP per capita	GDP per worker	***GDP per capita***
Income elasticity of demand	1	1	1	1,1 in base year converging to 1 by 2050	1	***1,1 in base year converging to 1 by 2050***

4.3. Data used in the projections

A cross country comparison of health care spending per capita.

As discussed above, although age is not the causal factor which drives changes in health care spending, the developments of the two variables over an individual's lifespan may be linked according to the general pattern which is broadly uniform across the countries. This pattern can be graphically presented as the age-related expenditure profile, showing the average spending on health care for each age cohort.

It is important to keep in mind that age-related expenditure profiles are not direct measures of morbidity or the need for health care services. They also encompass measures of other demand and supply factors that affect health care use, such as availability of services and treatments and age-related rationing. In effect, it is assumed that spending on health care is a proxy for morbidity, which changes proportionately to the evolution of the number of years spent in bad health: this assumption is needed as no reliable quantitative indicator of morbidity is available, especially one which is comparable across Member States.

Graph 4-2 presents the age-related expenditure profiles for Member States for which data is available. In brief, profiles were reported for the 2005 exercise by eighteen Member States (BE, CZ, DK, DE, ES, IT, LV, LT, LU, MT, NL, AT, PL, SI, SK, FI, SE, UK). Table 4-3 and Table 4-4 present some key figures on age-related expenditure, both in nominal terms and as % of GDP per capita, for certain male and female older age cohorts. Based on this data (see annex 5.1 for more details), the following remarks are warranted:

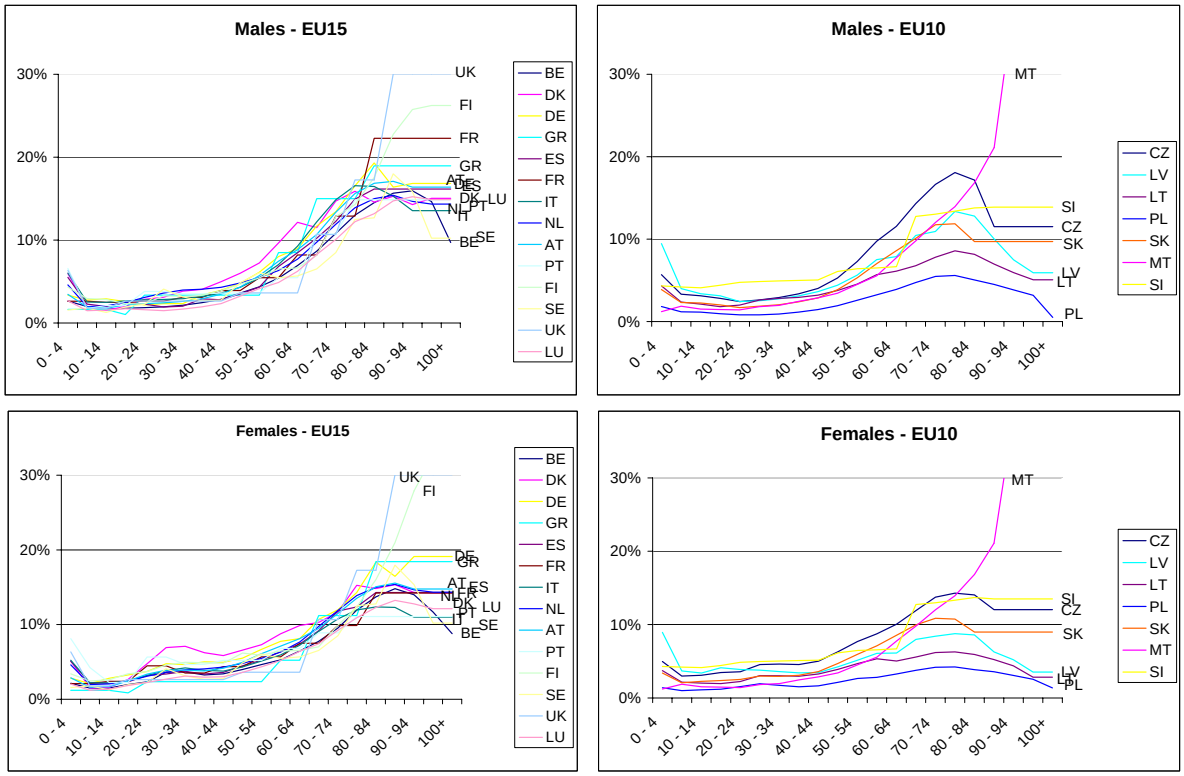
- in nearly all Member States, and for EU15 and EU10 aggregate, age-related expenditures for older cohorts are higher for males than for females;

- nominal spending on health is much higher in EU15 than EU10 countries. For example, in EU15 countries (excluding IE), for males aged 60-65, average spending amounted to €2117 and €1939 for females compared with €544 and €494 respectively in EU10 countries (excluding EE, CY, HU and MT). This gap grows with age. Average nominal spending for the cohort aged 60-64 in the EU15 is 4 times higher than in EU10 countries: this grow to 7 times higher for the cohort aged 90-94.

- expressed as a share of per capita GDP, there is an apparent difference in the age-related spending profiles between EU15 and EU10 countries[59]. First, in most EU15 countries, spending peaks at between 15 and 20% of per capita GDP compared to between 5 and 15% in available EU10 countries. Secondly, peak spending occurs somewhat later in EU15 countries in the cohort aged 85 to 90 compared with the EU10 where it occurs in the 75-80 cohort. Thirdly, there appears to be a much sharper tailing-off in spending for the oldest age-cohorts in EU10 countries, although the EU15 unweighted average figure is influenced by 'outlying' results for the UK and FI and considerable variation of data across the EU10 Member States. Spending for people aged 90-94 is on average 2.4 times higher than for people aged 60-64 in EU15 countries. In contrast, EU10 countries spend on the 90-94 years old only slightly more (120-130%) than on the 60-64 cohort.

[59] A significant exception is Malta where the shape of the age profile resembles much more that of the average EU15 country. This is why Maltese data has not been taken into account when calculating EU10 average profile. Furthermore, in all scenarios where composite age profiles are used both Malta and Cyprus have been assigned the EU15, rather than EU10, average profile.

Graph 4-2 Age related expenditure profiles for EU Member States, males and females



Source: National data

Table 4-3 A comparison of the age-related expenditure profiles – *males*

	Cohort aged 60-64		Cohort aged 70-74		Cohort aged 80-84		Cohort aged 90-94	
	Level in nominal euros	Level as % of per capita GDP	Level in nominal euros	Level as % of per capita GDP	Level in nominal euros	Level as % of per capita GDP	Level in nominal euros	Level as % of per capita GDP
BE	1880	6,9	2933	10,8	3941	14,5	4330	15,9
CZ	975	11,5	1405	16,6	1449	17,1	972	11,5
DK	4384	12,2	5307	14,7	5252	14,6	5154	14,3
DE	2366	9,0	3539	13,4	5091	19,3	4442	16,8
EE	497	7,6	687	10,5	690	10,6	503	7,7
GR	1271	8,5	2245	15,0	2840	19,0	2840	19,0
ES	1676	8,5	2424	12,3	3196	16,2	3196	16,2
FR	2222	8,2	3496	12,9	6039	22,3	6039	22,3
IE	2800	7,7	4514	12,5	6034	16,6	6567	18,1
IT	2166	9,3	3471	14,9	3846	16,5	3163	13,5
CY	1314	7,7	2119	12,5	2833	16,6	3083	18,1
LV	373	7,9	517	10,9	605	12,8	355	7,5
LT	319	6,1	406	7,8	423	8,1	308	5,9
LU	3543	6,2	5725	10,1	7477	13,2	8646	15,2
HU	605	7,6	836	10,5	840	10,6	612	7,7
MT	847	7,8	1312	12,0	1839	16,8	4190	38,4
NL	2201	7,7	3409	11,9	4289	15,0	4193	14,7
AT	2524	8,8	3811	13,3	4811	16,9	4673	16,4
PL	200	3,9	280	5,5	259	5,1	196	3,8
PT	703	5,5	1379	10,7	1915	14,9	1915	14,9
SI	865	6,7	1692	13,0	1790	13,8	1802	13,9
SK	531	8,6	723	11,7	598	9,7	598	9,7
FI	1907	6,6	3681	12,8	5034	17,5	7388	25,8
SE	1759	5,7	2632	8,5	3936	12,7	4916	15,8
UK	1038	3,6	3053	10,7	4940	17,3	8599	30,1
EU15 average*	2117	7,6	3365	12,3	4472	16,4	4964	17,9
standard deviation*	*950*	*2,1*	*1130*	*2,0*	*1386*	*2,6*	*2064*	*4,8*
EU10 average**	544	7,5	837	10,9	854	11,1	705	8,7
standard deviation*	*312*	*2,6*	*577*	*3,9*	*616*	*4,3*	*604*	*3,7*
EU25 average***	1607	7,6	2545	11,9	3313	14,9	3710	16,3
standard deviation**	*1077*	*2,1*	*1528*	*2,6*	*2051*	*3,9*	*2585*	*7,9*

* unweighted average calculated without IE
** unweighted average calculated without EE, CY, HU, MT
*** unweighted average calculated without EE, IE, CY, HU
Note: For the countries with no individual age profile available, composite EU15 (IE, CY) or EU10 (EE, HU) age profiles applied

Table 4-4 A comparison of the age-related expenditure profiles – *females*

	Cohort aged 60-64		Cohort aged 70-74		Cohort aged 80-84		Cohort aged 90-94	
	Level in nominal euros	Level as % of per capita GDP	Level in nominal euros	Level as % of per capita GDP	Level in nominal euros	Level as % of per capita GDP	Level in nominal euros	Level as % of per capita GDP
BE	1759	6,5	2593	9,5	3727	13,7	3804	14,0
CZ	850	10,1	1161	13,7	1187	14,1	1018	12,0
DK	3564	9,9	4216	11,7	5348	14,8	5157	14,3
DE	2141	8,1	3164	12,0	4843	18,4	5042	19,1
EE	431	6,6	566	8,7	541	8,3	440	6,7
GR	781	5,2	1677	11,2	2758	18,4	2758	18,4
ES	1462	7,4	2334	11,8	2827	14,3	2827	14,3
FR	2037	7,5	2677	9,9	3857	14,2	3857	14,2
IE	2518	6,9	3854	10,6	5392	14,9	6110	16,9
IT	1694	7,3	2511	10,8	2889	12,4	2568	11,0
CY	1182	6,9	1810	10,6	2532	14,9	2869	16,9
LV	289	6,1	398	8,4	407	8,6	247	5,2
LT	261	5,0	322	6,2	308	5,9	228	4,4
LU	3646	6,4	5249	9,3	6972	12,3	7244	12,8
HU	524	6,6	689	8,7	658	8,3	535	6,7
MT	847	7,8	1312	12,0	1839	16,8	4190	38,4
NL	2201	7,7	3409	11,9	4289	15,0	4193	14,7
AT	2317	8,1	3284	11,5	4297	15,1	4215	14,8
PL	167	3,3	214	4,2	198	3,9	157	3,1
PT	878	6,8	1145	8,9	1427	11,1	1427	11,1
SI	869	6,7	1686	13,0	1777	13,7	1753	13,5
SK	526	8,5	669	10,9	553	9,0	553	9,0
FI	1875	6,5	2842	9,9	4596	16,0	8001	27,9
SE	1760	5,7	2637	8,5	3960	12,8	4761	15,3
UK	1038	3,6	3053	10,7	4940	17,3	8599	30,1
EU15 average*	1939	6,9	2914	10,5	4052	14,7	4604	16,6
standard deviation*	*853*	*1,5*	*1001*	*1,2*	*1347*	*2,2*	*2100*	*5,7*
EU10 average**	494	6,6	741	9,4	738	9,2	659	7,9
standard deviation*	*307*	*2,4*	*574*	*3,8*	*617*	*4,1*	*624*	*4,3*
EU25 average***	1474	6,9	2217	10,3	3000	13,2	3457	15,1
standard deviation**	*978*	*1,7*	*1329*	*2,2*	*1911*	*3,8*	*2502*	*8,4*

* unweighted average calculated without IE
** unweighted average calculated without EE, CY, HU, MT
*** unweighted average calculated without EE, IE, CY, HU
Note: For the countries with no individual age profile available, composite EU15 (IE, CY) or EU10 (EE, HU) age profiles applied

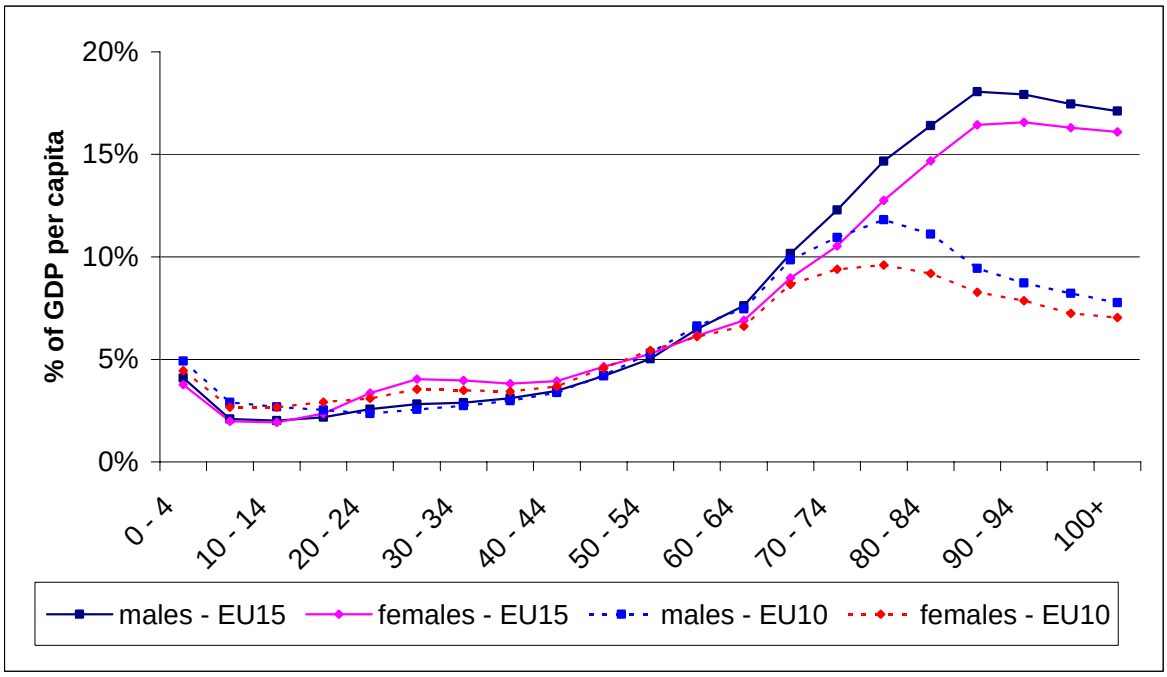
To be able to make projections for health care spending for all EU25 Member States, the following approach has been used for countries which did not provide age-related expenditure profiles to the AWG:

- profiles reported for the 2001 exercise adjusted to 2004 by applying GDP per capita growth rate have been used for three Member States (FR, GR, PT);

- for four countries (EE, IE, CY, HU) where no profiles exist, an 'average profile' was used, calculated as the unweighted average of per capita expenditure expressed as % of GDP per capita. Two separate profiles were established for EU10 and EU15, as there is a clear difference in the shape of the curve between the Old and the New Member States. As shown on Graph 4-3, the share of GDP per capita spent on health care is comparable, but the shape shows an increasing gap in spending on people in their older ages.

- Actual data on total spending on health care have been reported by Member States and used in the base year of the projection.

Graph 4-3 Average age-related expenditure profiles for the EU15 and EU10 (males and females)



Source: National data

Available empirical evidence on death-related costs

An item that deserves a special consideration in the present long-term projections of health care expenditure is incorporation of death-related costs (or costs related to the number of remaining years of life) to the projection methodology, which is a significant step forward in comparison to the previous round of projections.

The rationale behind stems from empirical evidence that the last years of life, irrespective of how long people live, are associated with high health care costs. Consequently, the decline in

the number of people who, in a given age group, have few remaining years of life, results in the fall in average health care cost for all age groups, except for the oldest age cohorts[60].

To quantify the significance of death related costs, data is needed on the difference in health care costs borne by decedents (people who are going to die within a predefined short period of time) and survivors (people who are not in their terminal phase of life). Eight Member States provided the AWG with data on death related costs from a variety of national sources, namely BE, CZ, DK, ES, IT, NL, AT and PL (see annex 5.4 for more details on the data used as well as additional estimates of death-related costs from academic sources). Table 4-5 and Table 4-6 summarise the general characteristics of available data from national sources on death related costs for males and females respectively. In particular, it shows the ratio of spending on a person of a particular age who dies within one year compared with a person who survives that period. For example, spending on an average male child aged 0-4 who dies within a particular year is on average 25.9 times higher compared with an average child of the same age who survives.

There appears to be a clear pattern of decline in the ratio of spending on decedents to survivors with age. Moreover, while the ratios diverge widely across countries at younger age cohorts, there is less dispersion amongst older age cohorts where most deaths occur. However, due to different methodologies of data gathering, calculation (e.g. ratio of decedents to survivors differs when calculated on the basis of per capita and per patient spending) and coverage (e.g. either only hospital patients or also other cases taken into account), the data varies significantly across the Member States. For example, Spain[61] and Austria[62] appear to be outliers for both males and females across all age cohorts, with a respectively much lower and higher ratio compared with other countries.

Given the wide divergences in the report estimates of death-related costs, and taking account of the fact that no data is available for the majority of Member States, the budgetary projections for the death-related costs scenario were run, for all Member States on the basis of "average" death-related costs profile calculated as unweighted average of available datasets (it is shown in the final column of Table 4-5 and Table 4-6).

---

[60] This observation shows that the proposed method is theoretically consistent with the so called 'dynamic equilibrium hypothesis', according to which falling mortality rate (and thus growing life expectancy) for each age cohort is associated with a parallel decline in morbidity/disability rate, which results in a fall in health care spending in each age cohort.

[61] The Spanish case provides an example of how sensitive are the results to changes in the methodology of calculating 'death-related costs'. The ratio used in the projections (ranging from around 7 for the age cohorts 5-35 to 1.3 for the 80+) is calculated by dividing *per patient* cost of decedents (patients) by the *per patient* cost of survivors (patients). Meanwhile, using a different methodology of dividing the *per discharge* cost of decedent (discharges) by the *per capita* cost of survival discharges, gives extremely different results, ranging from 228 for age cohort 10-14 to 7 for the 80+.

[62] Given lack of precise information about costs borne by people dying outside hospitals, Austria has provided two sets of data according to two opposite (extreme) assumptions: in the first case deaths occurring outside hospitals are assumed not to generate any costs at all, while in the second case death cases outside hospitals are assumed to cause the same costs as those in hospitals. The ratio of costs borne by decedents to those of survivors shows similar decreasing pattern with age, but differs significantly in value between the two situations: while in the first dataset it ranges from 74.2 for age cohort 10-14 to 3.1 for the 85+, in the second dataset it amounts to 121.6 for the aged 10-14 and 7.3 for the 85+.

Table 4-5 Ratio between cost borne by a decedent and a survivor, by age cohort - males

Males	BE	CZ	DK	ES	IT	NL	AT	PL	*EU average*
0 - 4	12,1	34,5	4,5	3,4	68,0	31,7	27,0	25,7	*25,9*
5 - 9	33,3	55,3	77,4	6,4	79,5	39,6	104,8	47,0	*55,4*
10 - 14	27,7	74,0	8,7	6,9	73,1	26,9	121,6	40,7	*47,4*
15 - 19	10,7	31,0	1,1	4,1	38,7	21,6	64,7	29,5	*25,2*
20 - 24	8,9	17,1	0,3	3,3	26,0	47,4	41,7	23,0	*21,0*
25 - 29	9,4	19,1	12,0	3,9	29,0	38,0	57,7	27,4	*24,6*
30 - 34	13,6	23,1	11,4	3,2	30,4	25,3	48,1	21,2	*22,0*
35 - 39	14,3	20,2	7,1	2,8	40,5	26,7	42,9	18,3	*21,6*
40 - 44	12,4	19,2	6,3	2,6	35,3	17,0	34,6	13,6	*17,6*
45 - 49	11,0	16,8	8,2	2,3	30,9	15,1	31,4	11,1	*15,9*
50 - 54	10,1	11,0	7,5	2,3	21,1	14,2	21,4	8,9	*12,1*
55 - 59	9,5	8,1	7,5	2,2	17,1	8,8	18,9	7,8	*10,0*
60 - 64	7,4	7,2	6,2	2,0	12,1	8,3	16,3	6,6	*8,3*
65 - 69	5,5	5,4	5,0	1,8	8,5	6,4	13,2	5,6	*6,4*
70 - 74	4,5	4,3	4,4	1,7	6,2	5,1	11,6	4,5	*5,3*
75 - 79	3,3	3,5	2,8	1,6	4,5	4,1	8,9	3,9	*4,1*
80 - 84	2,8	2,8	2,0	1,3	3,3	3,4	8,0	3,3	*3,4*
85 - 89	2,1	2,3	1,7	1,3	2,5	3,0	7,3	3,0	*2,9*
90 - 94	1,7	2,3	1,4	1,3	1,7	2,5	7,3	2,9	*2,6*
95 - 99	1,4	2,3	1,6	1,3	1,7	2,0	7,3	3,0	*2,6*
100+	0,7	2,3	1,6	1,3	1,7	2,0	7,3	3,0	*2,5*

Source: National sources with ECFIN calculations

Table 4-6 Ratio between cost borne by a decedent and a survivor, by age cohort - females

Females	BE	CZ	DK	ES	IT	NL	AT	PL	*EU average*
0 - 4	20,1	43,5	4,0	3,4	79,5	79,1	39,1	39,7	*38,5*
5 - 9	33,0	48,2	58,4	6,9	163,0	60,0	153,0	50,3	*71,6*
10 - 14	9,5	42,5	14,5	6,3	101,4	43,3	120,4	49,3	*48,4*
15 - 19	21,1	26,2	1,3	7,0	46,7	24,7	69,1	37,3	*29,2*
20 - 24	11,7	26,2	0,3	7,1	32,5	33,2	87,3	26,1	*28,0*
25 - 29	13,1	28,7	12,1	5,9	25,5	10,4	41,3	24,5	*20,2*
30 - 34	11,4	32,0	12,7	6,2	28,4	18,9	33,4	25,6	*21,1*
35 - 39	11,7	25,7	6,0	4,6	37,2	23,5	29,6	23,0	*20,2*
40 - 44	13,8	20,4	5,9	3,2	40,7	18,1	33,9	20,5	*19,6*
45 - 49	14,3	17,1	7,2	2,8	31,5	17,2	28,0	15,1	*16,6*
50 - 54	12,1	13,6	7,0	2,6	26,9	15,5	25,7	12,3	*14,5*
55 - 59	10,4	10,7	6,8	2,4	23,7	12,9	22,0	10,9	*12,5*
60 - 64	9,6	10,0	6,0	2,3	16,8	12,4	20,6	9,3	*10,9*
65 - 69	6,8	6,8	5,0	2,1	11,9	8,3	15,0	7,4	*7,9*
70 - 74	5,0	5,1	4,3	1,8	8,2	6,4	11,0	5,6	*5,9*
75 - 79	3,5	3,7	2,9	1,6	5,4	4,6	8,9	4,4	*4,4*
80 - 84	2,5	2,9	2,1	1,3	3,8	3,1	7,1	3,7	*3,3*
85 - 89	1,8	2,2	1,7	1,3	2,6	2,5	6,5	3,3	*2,7*
90 - 94	1,4	2,2	1,4	1,3	1,7	2,0	6,5	2,8	*2,4*
95 - 99	1,1	2,2	1,8	1,3	1,7	1,7	6,5	2,6	*2,4*
100+	0,9	2,2	1,8	1,3	1,7	1,7	6,5	2,6	*2,3*

Source: National sources with ECFIN calculations

Income elasticity of health care spending – historical evidence

In order to analyse the past developments in income elasticity of health care spending and find the value of elasticity which could be used in the projection exercise, a simple analysis of the past trends has been done. For that purpose, the growth in health care spending over the last 10, 20 and 30 years has been compared with GDP growth rate.

The results, based on the OECD Health Data 2005, are presented in the table below. Left panel presents the elasticity of *total* spending on health care and right panel the elasticity of *public* spending on health care for nineteen countries being members of the European Union and the OECD.

Table 4-7 Elasticity of health care spending per capita with respect to GDP per capita

	Total health care spending					Public health care spending				
	2002-1992		2002-1982		2002-1972	2002-1992		2002-1982		2002-1972
Austria	1,88		1,28		1,56	0,55		1,15		1,73
Belgium	3,34		1,45		2,34	:		:		:
Czech Republic	1,70		:		:	1,59		:		:
Denmark	1,40		0,92		1,11	1,37		0,84		1,09
Finland	-0,40		1,14		1,25	-0,62		1,05		1,35
France	3,20		1,76	2002-1980	1,91 2002-1970	2,99		1,62	2002-1980	1,93 2002-1970
Germany	-1,79		1,43		1,70	-0,93		1,44		1,78
Greece	2,13		1,80	2002-1980	1,68 2002-1970	1,79		1,63	2002-1980	2,08 2002-1970
Hungary	1,03		:		:	0,55		:		:
Ireland	1,08		0,93		1,21	1,19		0,85		1,21
Italy	0,38		1,32	2002-1988	:	0,84		1,22	2002-1988	:
Luxembourg	0,97		1,02		1,77 2002-1970	0,70		0,92		1,70 2002-1970
Netherlands	1,65		1,28		1,41	0,65		1,07		1,46
Poland	0,96		:		:	0,85		:		:
Portugal	3,15		1,77		2,93	4,72		2,29		3,49
Slovak Republic	0,78	2002-1997	:		:	0,56	2002-1997	:		:
Spain	2,01		1,47		1,86	0,26		1,28		1,99
Sweden	0,13		0,98		1,34	0,32		0,85		1,32
United Kingdom	1,39		1,49		1,73	1,33		1,40		1,63
Unweighted average	1,32		1,34		1,70	1,04		1,26		1,75
Standard deviation	1,25		0,30		0,48	1,27		0,40		0,61

Source: OECD Health Data 2005

Three different time periods have been analysed where available: last 10, 20 and 30 years by 2002 which is the latest year in which data for most Member States were available. The availability of the data depends on the time period concerned. It is almost complete for the last 10 years and decreases as the time frame gets larger.

As shown in the table, elasticity decreases as the time frame gets longer into the past. This broadly confirms the theoretical finding that health care spending is less and less sensitive to changes in national income. However, a period of 10 years seems not to be a sufficient reference period, given high volatility of results across countries (see standard deviation) and high dependence of total and especially public health care spending on short and medium-term political decisions. In this context, the figures on elasticity over the last 20 and 30 years seem much more reliable, even if the measuring techniques were arguably less sophisticated in the 1970s and 1980s than they are now.

A strong drawback of presented analysis is the lack of data for the New Member States. The OECD database includes only four new Member States (CZ, HU, PL, SK), but even for them the time series available are relatively short (5-15 years). This makes it difficult to estimate the current value of elasticity for all EU10 countries.

Existing caveats and prospects for improvement

Arguably, the agreed methodology has limitations and the following caveats should be borne in mind:

- ideally, projections should take into account changes in the health care status of the population over time, looking at the prevalence of different medical conditions (which may change over time linked to factors such as lifestyle) and the costs of treating each medical condition (which may be affected by technological developments). While a projection methodology looking at specific medical conditions may be feasible at a national level (see Holly 2005), it is not a practical approach for a cross-country projection exercise given the lack of comparable epidemiological data on the health status across EU populations in a base year. The only comparable data that is available is essentially of a macro nature. While lack of comparable data is a constraint for this projection exercise, the situation may

improve in coming years. For example, results have recently become available from the first SHARE survey on the economic, social and health conditions for 13 countries (see Börsch-Supan et al. 2005). SHARE is financed under the 5th Research Framework Programme of the EU.

- health care spending is to a large extent determined by the policy decisions of national governments, e.g. whether specific treatment are provided by public health systems, the coverage of people eligible for public health services, the 'quality' of public health care (policy choices/preferences for waiting lists, size of hospital wards, etc.). The different institutional arrangements of health care systems across Member States imply that these factors cannot be taken into account in projections made at a multilateral level, although they can be included in national projections when clear policy goals/targets exist (see Wanless 2002).

4.4. Results of the budgetary projection exercise

4.4.1. Pure ageing scenario

Table 4-8 presents the projection results for the *pure ageing* scenario under the assumption that costs evolve in line with GDP per capita (scenario I). Public spending on health care is projected to increase by between 1 and 2 percentage points of GDP in most Member States between 2004 and 2050. Despite their less favourable demographic prospects, public spending on health is projected to grow by less in the EU10 than in the EU15 countries, i.e. on average by 0.5% of GDP. This reflects both lower initial level of spending (4.9% compared to 6.4% of GDP in 2004) and their flatter age-related expenditure profiles.

Table 4-8 Projection results for the *pure ageing scenario* (I): public spending on health care as % of GDP

	Projected spending as % of GDP				
	2004	**2010**	**2030**	**2050**	***change 2004-2050***
BE	6,2	6,4	7,3	7,7	*1,5*
DK	6,9	7,0	7,7	8,0	*1,1*
DE	6,0	6,3	7,0	7,3	*1,3*
GR	5,1	5,3	5,9	6,9	*1,8*
ES	6,1	6,3	7,3	8,3	*2,2*
FR	7,7	8,0	9,0	9,5	*1,8*
IE	5,3	5,5	6,4	7,3	*2,0*
IT	5,8	6,0	6,7	7,2	*1,4*
LU	5,1	5,2	5,8	6,2	*1,1*
NL	6,1	6,3	7,1	7,4	*1,3*
AT	5,3	5,5	6,3	6,9	*1,7*
PT	6,7	6,8	6,7	7,3	*0,6*
FI	5,6	5,8	6,7	7,0	*1,5*
SE	6,7	6,8	7,5	7,8	*1,0*
UK	7,0	7,2	8,3	9,3	*2,3*
CY	2,9	3,1	3,6	4,0	*1,1*
CZ	6,4	6,7	7,7	8,3	*1,9*
EE	5,4	5,6	6,0	6,3	*0,9*
HU	5,5	5,7	6,2	6,5	*1,0*
LT	3,7	3,8	4,1	4,4	*0,7*
LV	5,1	5,3	5,6	5,9	*0,7*
MT	4,2	4,5	5,6	6,2	*2,0*
PL	4,1	4,3	5,0	5,4	*1,3*
SK	4,4	4,6	5,5	6,1	*1,8*
SI	6,4	6,6	7,4	7,8	*1,4*
EU25	*6,4*	*6,6*	*7,4*	*8,1*	*1,7*
EU15	*6,4*	*6,7*	*7,5*	*8,2*	*1,7*
EU12	*6,3*	*6,5*	*7,3*	*7,9*	*1,6*
EU10	*4,9*	*5,1*	*5,7*	*6,1*	*1,2*

Note: EU25, EU15, EU12 and EU10 – average weighted by GDP

4.4.2. Scenario on the health status

Table 4-9 presents the projection results for the *constant health* scenario under the assumption that costs evolve in line with GDP per capita. It also compares the difference in projection results with the results for the *pure ageing* scenario outlined on Table 4-8 above. As expected, improved health care status will attenuate future pressure on health care spending. If one assumes that healthy life expectancy increases at the same pace as the projected gains in total age-specific life expectancy (*constant health* scenario), then the projected increase in health care spending due to ageing (represented by *pure ageing* scenario) would be halved. For the EU15 countries, public spending on health in the *constant health* scenario is projected to increase by only 0.9% of GDP (0.6% in the EU10 countries) compared with 1.7% (1.2%) in the *pure ageing* scenario. Most of the projected expenditure savings compared with the *pure ageing* scenario appear to materialise before 2030.

Table 4-9 Projection results for *constant health* scenario (II)

	Projected spending as % of GDP					Difference as % of GDP compared to pure ageing scenario		
	2004	2010	2030	2050	*change 2004-2050*	2010	2030	2050
BE	6,2	6,2	6,6	6,9	*0,7*	-0,2	-0,6	-0,8
DK	6,9	6,8	7,2	7,1	*0,3*	-0,2	-0,6	-0,8
DE	6,0	6,1	6,4	6,7	*0,6*	-0,1	-0,5	-0,7
GR	5,1	5,3	5,5	6,3	*1,2*	-0,1	-0,4	-0,6
ES	6,1	6,1	6,8	7,7	*1,6*	-0,1	-0,5	-0,6
FR	7,7	7,8	8,4	8,8	*1,1*	-0,2	-0,6	-0,7
IE	5,3	5,3	5,8	6,4	*1,1*	-0,1	-0,6	-0,8
IT	5,8	5,8	6,3	6,6	*0,8*	-0,1	-0,4	-0,5
LU	5,1	5,1	5,4	5,6	*0,5*	-0,1	-0,4	-0,6
NL	6,1	6,2	6,8	6,9	*0,8*	-0,1	-0,3	-0,5
AT	5,3	5,3	5,8	6,3	*1,0*	-0,1	-0,5	-0,7
PT	6,7	6,7	6,2	6,6	*-0,1*	-0,1	-0,5	-0,7
FI	5,6	5,6	6,2	6,4	*0,9*	-0,1	-0,5	-0,6
SE	6,7	6,7	6,9	7,0	*0,3*	-0,1	-0,5	-0,8
UK	7,0	7,0	7,4	7,9	*0,9*	-0,2	-0,9	-1,4
CY	2,9	3,0	3,3	3,6	*0,7*	-0,1	-0,2	-0,4
CZ	6,4	6,6	7,1	7,5	*1,0*	-0,1	-0,7	-0,9
EE	5,4	5,5	5,5	5,7	*0,2*	-0,1	-0,4	-0,7
HU	5,5	5,5	5,6	5,8	*0,3*	-0,1	-0,5	-0,7
LT	3,7	3,8	3,9	4,0	*0,3*	0,0	-0,2	-0,4
LV	5,1	5,3	5,2	5,3	*0,2*	-0,1	-0,4	-0,5
MT	4,2	4,4	5,1	5,5	*1,2*	-0,1	-0,5	-0,7
PL	4,1	4,2	4,5	4,8	*0,7*	-0,1	-0,4	-0,6
SK	4,4	4,5	5,0	5,5	*1,1*	-0,1	-0,5	-0,7
SI	6,4	6,6	7,0	7,3	*0,9*	-0,1	-0,4	-0,5
EU25	*6,4*	*6,4*	*6,8*	*7,3*	*0,9*	*-0,1*	*-0,6*	*-0,8*
EU15	*6,4*	*6,5*	*6,9*	*7,4*	*0,9*	*-0,1*	*-0,6*	*-0,8*
EU12	*6,3*	*6,4*	*6,8*	*7,2*	*0,9*	*-0,1*	*-0,5*	*-0,7*
EU10	*4,9*	*5,0*	*5,2*	*5,5*	*0,6*	*-0,1*	*-0,5*	*-0,6*

Note: EU25, EU15, EU12 and EU10 – average weighted by GDP

4.4.3. Death-related costs

Table 4-10 shows the budgetary projection results for the death-related costs scenario[63]. The projection is made using the baseline population projection and assuming costs evolve in line with GDP per capita. Taking death-related costs into account when projecting future health

[63] To run scenario VI on death related costs, the following additional data inputs were also used (i) life expectancy in each single year of life and gender, by single year of time over the period 2004-2050 based on the AWG population scenario described in chapter 2.1, (ii) projections on the mortality rate for each single year of life and gender, by single year of time over the period 2004-2050 based on the AWG population scenario, (iii) the average expenditure per capita on health care disaggregated by 5-year age groups and by gender (expressed in euros) as used the *pure ageing* scenario, (iv) GDP per capita growth over the period 2004-2050 based on in agreed underlying assumptions and reported on table 4-6 in Annex 4.

care spending leads to a considerable reduction of expenditure in comparison with the pure ageing scenario over the whole projection period. Public spending on health care is projected to increase by on average 1.3% of GDP, i.e. about 0.4 p.p. of GDP less than in pure ageing scenario. However, the extent of projected changes varies significantly, ranging from 0.2% of GDP in PT to an increase by 1.9% of GDP in ES). Overall, the projected change in public spending on health care is close to projection results for the *constant health* scenario (II) inspired by the dynamic equilibrium hypothesis. As in the other scenarios reflecting changes in health status of the populations, the projected increase in spending is somewhat lower in EU10 than EU15 countries (due to lower initial levels of spending but also to their flatter age-related expenditure profiles described in the previous section).

Table 4-10 Projection results for the death-related costs scenario (III)

	Projected spending as % of GDP					Difference as % of GDP compared to pure ageing scenario		
	2004	2010	2030	2050	*change 2004-2050*	2010	2030	2050
BE	6,2	6,4	6,9	7,3	*1,1*	0,0	-0,3	-0,4
DK	6,9	6,9	7,5	7,6	*0,7*	-0,1	-0,3	-0,4
DE	6,0	6,2	6,8	7,0	*1,0*	-0,1	-0,2	-0,3
GR	5,1	5,3	5,7	6,5	*1,4*	0,0	-0,2	-0,4
ES	6,1	6,2	7,1	8,0	*1,9*	-0,1	-0,2	-0,4
FR	7,7	7,9	8,7	9,1	*1,4*	-0,1	-0,3	-0,4
IE	5,3	5,4	6,1	6,8	*1,5*	-0,1	-0,3	-0,5
IT	5,8	5,9	6,5	6,8	*1,1*	0,0	-0,2	-0,3
LU	5,1	5,2	5,7	6,0	*0,8*	0,0	-0,1	-0,2
NL	6,1	6,2	6,9	7,1	*1,0*	0,0	-0,2	-0,3
AT	5,3	5,4	6,1	6,6	*1,3*	-0,1	-0,2	-0,4
PT	6,7	6,8	6,5	6,9	*0,2*	-0,1	-0,2	-0,4
FI	5,6	5,7	6,4	6,7	*1,1*	-0,1	-0,2	-0,4
SE	6,7	6,8	7,2	7,5	*0,7*	0,0	-0,2	-0,3
UK	7,0	7,1	8,0	8,8	*1,8*	-0,1	-0,3	-0,5
CY	2,9	3,0	3,4	3,8	*0,9*	0,0	-0,1	-0,2
CZ	6,4	6,6	7,4	7,8	*1,4*	-0,1	-0,3	-0,5
EE	5,4	5,6	5,7	5,9	*0,5*	0,0	-0,2	-0,4
HU	5,5	5,6	5,8	6,0	*0,5*	-0,1	-0,3	-0,6
LT	3,7	3,8	4,0	4,1	*0,4*	0,0	-0,1	-0,3
LV	5,1	5,3	5,4	5,5	*0,4*	0,0	-0,2	-0,3
MT	4,2	4,4	5,1	5,4	*1,1*	-0,1	-0,4	-0,8
PL	4,1	4,3	4,8	5,0	*0,9*	0,0	-0,2	-0,4
SK	4,4	4,6	5,3	5,7	*1,3*	0,0	-0,3	-0,4
SI	6,4	6,6	7,1	7,4	*1,0*	-0,1	-0,3	-0,4
EU25	*6,4*	*6,5*	*7,2*	*7,7*	*1,3*	*-0,1*	*-0,2*	*-0,4*
EU15	*6,4*	*6,6*	*7,3*	*7,8*	*1,4*	*-0,1*	*-0,2*	*-0,4*
EU12	*6,3*	*6,5*	*7,1*	*7,6*	*1,3*	*-0,1*	*-0,2*	*-0,3*
EU10	*4,9*	*5,0*	*5,4*	*5,7*	*0,8*	*-0,1*	*-0,3*	*-0,4*

Note: EU25, EU15, EU12 and EU10 – average weighted by GDP

4.4.4. Income elasticity of demand

As discussed in EPC and European Commission (2005b), there is strong empirical evidence as regards the link between per capita national income and public expenditure on health care as a share of GDP. Scenario IV is the same as the *pure ageing* scenario (I) in all respects except the income elasticity of public spending is assumed to be 1.1 in the base year of 2004 and thereafter converge to 1 by the end of the projection period in 2050. As expected, higher responsiveness of health care spending to the national income results in proportionately higher expenditure linked to each percentage point of GDP per capita growth, even though this effect declines as elasticity converges to 1 at the end of projection period. Given the agreed assumptions, total spending on health care is projected to increase on average by 2.0% of GDP, i.e. 0.3% of GDP more than in the *pure ageing* scenario. In nominal terms EU15 can expect higher increase than EU10 (2.1% compared to 1.7% of GDP), but in terms of percentage increase spending in EU10 countries is projected to marginally exceed that in EU15.

Table 4-11 Projection results for scenario IV capturing a positive income elasticity of demand for health care spending

	Projected spending as % of GDP					Difference as % of GDP compared to pure ageing scenario		
	2004	2010	2030	2050	*change 2004-2050*	2010	2030	2050
BE	6,2	6,5	7,5	8,0	*1,8*	0,1	0,2	0,3
DK	6,9	7,1	8,0	8,3	*1,4*	0,1	0,2	0,3
DE	6,0	6,3	7,2	7,6	*1,6*	0,1	0,2	0,3
GR	5,1	5,4	6,1	7,2	*2,1*	0,1	0,2	0,2
ES	6,1	6,3	7,6	8,7	*2,6*	0,1	0,3	0,3
FR	7,7	8,1	9,2	9,9	*2,2*	0,1	0,3	0,3
IE	5,3	5,6	6,8	7,7	*2,4*	0,1	0,4	0,5
IT	5,8	6,0	6,9	7,4	*1,6*	0,1	0,2	0,3
LU	5,1	5,4	6,2	6,7	*1,5*	0,1	0,4	0,5
NL	6,1	6,3	7,3	7,7	*1,6*	0,0	0,2	0,2
AT	5,3	5,5	6,5	7,2	*1,9*	0,1	0,2	0,3
PT	6,7	6,9	6,9	7,5	*0,8*	0,1	0,2	0,3
FI	5,6	5,8	6,9	7,3	*1,8*	0,1	0,2	0,3
SE	6,7	6,9	7,8	8,1	*1,4*	0,1	0,3	0,4
UK	7,0	7,3	8,6	9,7	*2,7*	0,1	0,3	0,4
CY	2,9	3,1	3,8	4,2	*1,3*	0,1	0,2	0,3
CZ	6,4	6,8	8,2	8,9	*2,4*	0,1	0,5	0,5
EE	5,4	5,8	6,5	6,9	*1,5*	0,2	0,5	0,6
HU	5,5	5,8	6,6	6,9	*1,4*	0,1	0,4	0,4
LT	3,7	4,0	4,5	4,8	*1,1*	0,1	0,4	0,4
LV	5,1	5,6	6,1	6,5	*1,4*	0,2	0,6	0,6
MT	4,2	4,6	5,8	6,5	*2,2*	0,0	0,2	0,3
PL	4,1	4,4	5,4	5,8	*1,7*	0,1	0,4	0,4
SK	4,4	4,7	6,0	6,7	*2,3*	0,1	0,4	0,5
SI	6,4	6,8	7,8	8,3	*1,9*	0,1	0,4	0,5
EU25	*6,4*	*6,7*	*7,7*	*8,4*	*2,0*	*0,1*	*0,3*	*0,3*
EU15	*6,4*	*6,7*	*7,8*	*8,5*	*2,1*	*0,1*	*0,3*	*0,3*
EU12	*6,3*	*6,6*	*7,6*	*8,2*	*1,9*	*0,1*	*0,2*	*0,3*
EU10	*4,9*	*5,2*	*6,1*	*6,6*	*1,7*	*0,1*	*0,4*	*0,5*

Note: EU25, EU15, EU12 and EU10 – average weighted by GDP

4.4.5. Unit costs evolve in line with GDP per worker

Table 4-12 presents the results for scenario V where unit costs evolve in line with GDP per worker. Public spending on health care is projected to increase by between 0.7 and 3.6 percentage points of GDP in most Member States between 2004 and 2050, with a noticeable exception of LU, where spending is expected to fall. As expected, dispersion of results appears higher than in *pure ageing* scenario and the projected expenditure increases are in most countries higher when unit costs evolve in line with GDP per worker compared with GDP per capita. For the EU25, average spending on health care is projected to increase by 2.3% of GDP by 2050 if costs evolve in line with GDP per capita compared with a projected increase of 1.7% of GDP if costs evolve in line with GDP per worker.

Table 4-12 Projection results for scenario V where unit costs evolve in line with GDP per worker

	Projected spending as % of GDP					Difference as % of GDP compared to pure ageing scenario		
	2004	2010	2030	2050	*change 2004-2050*	2010	2030	2050
BE	6,2	6,2	7,4	8,1	*1,9*	-0,2	0,1	0,4
DK	6,9	7,0	8,3	8,6	*1,7*	0,0	0,5	0,6
DE	6,0	6,0	7,0	7,8	*1,8*	-0,3	0,1	0,5
GR	5,1	5,2	6,0	7,9	*2,8*	-0,1	0,1	1,0
ES	6,1	5,9	7,0	9,4	*3,3*	-0,3	-0,3	1,1
FR	7,7	7,8	9,2	10,1	*2,4*	-0,2	0,2	0,6
IE	5,3	5,2	6,1	7,7	*2,4*	-0,2	-0,3	0,5
IT	5,8	5,7	6,5	7,8	*2,0*	-0,3	-0,2	0,6
LU	5,1	4,9	5,2	4,9	*-0,2*	-0,3	-0,5	-1,3
NL	6,1	6,2	7,6	7,9	*1,8*	-0,1	0,5	0,4
AT	5,3	5,3	6,6	7,6	*2,4*	-0,2	0,2	0,7
PT	6,7	6,7	6,9	8,5	*1,8*	-0,1	0,2	1,2
FI	5,6	5,7	7,1	7,5	*2,0*	-0,1	0,5	0,5
SE	6,7	6,7	7,8	8,1	*1,4*	-0,1	0,3	0,3
UK	7,0	7,0	8,6	10,0	*3,0*	-0,1	0,3	0,7
CY	2,9	2,9	3,5	4,2	*1,3*	-0,1	0,0	0,2
CZ	6,4	6,6	7,9	9,8	*3,4*	-0,1	0,2	1,5
EE	5,4	5,2	5,7	6,5	*1,1*	-0,4	-0,2	0,2
HU	5,5	5,4	6,0	7,1	*1,6*	-0,2	-0,1	0,6
LT	3,7	3,5	3,8	4,4	*0,7*	-0,3	-0,3	0,0
LV	5,1	4,8	5,2	6,1	*0,9*	-0,5	-0,3	0,2
MT	4,2	4,4	5,5	6,4	*2,2*	-0,1	-0,1	0,2
PL	4,1	4,0	4,4	5,4	*1,3*	-0,3	-0,6	0,0
SK	4,4	4,4	5,0	6,6	*2,2*	-0,2	-0,6	0,5
SI	6,4	6,5	8,0	9,4	*2,9*	-0,1	0,6	1,5
EU25	*6,4*	*6,4*	*7,5*	*8,7*	*2,3*	*-0,2*	*0,1*	*0,6*
EU15	*6,4*	*6,5*	*7,7*	*8,8*	*2,4*	*-0,2*	*0,1*	*0,6*
EU12	*6,3*	*6,3*	*7,4*	*8,5*	*2,2*	*-0,2*	*0,0*	*0,6*
EU10	*4,9*	*4,9*	*5,4*	*6,6*	*1,7*	*-0,2*	*-0,3*	*0,5*

Note: EU25, EU15, EU12 and EU10 – average weighted by GDP

4.4.6. An AWG reference scenario

This scenario combines a number of elements in the scenarios described above. In particular, in order to approximate the effect of death-related costs, it assumes the health status to improve by half as much as in the *constant health* scenario. Moreover, it includes the effect of income elasticity of health care spending converging from 1.1 in the base year to unity by 2050, while the costs are assumed to evolve following GDP per capita developments.

The results show the impact of two separate effects partially offsetting each other. In EU15 countries the reduction in spending due to health effect is expected to be somewhat larger than extra spending due to higher income elasticity, thus average increase in expenditure (1.6% of GDP between 2004 and 2050) is expected to be marginally lower than the level predicted by the *pure ageing* scenario (1.7% of GDP). The opposite applies to the EU10 countries where income effect slightly exceeds health effect and *AWG reference* scenario produces higher results than *pure ageing* scenario.

Table 4-13 Projection results for AWG reference scenario

	Projected spending as % of GDP					Difference as % of GDP compared to pure ageing scenario		
	2004	2010	2030	2050	*change 2004-2050*	2010	2030	2050
BE	6,2	6,4	7,1	7,6	*1,4*	0,0	-0,1	-0,1
DK	6,9	7,0	7,7	7,8	*1,0*	0,0	-0,1	-0,1
DE	6,0	6,3	6,9	7,2	*1,2*	0,0	-0,1	-0,1
GR	5,1	5,4	5,9	6,8	*1,7*	0,0	0,0	-0,1
ES	6,1	6,3	7,3	8,3	*2,2*	0,0	0,0	0,0
FR	7,7	8,0	8,9	9,5	*1,8*	0,0	0,0	-0,1
IE	5,3	5,5	6,4	7,3	*2,0*	0,1	0,1	0,0
IT	5,8	6,0	6,7	7,1	*1,3*	0,0	0,0	0,0
LU	5,1	5,3	5,9	6,3	*1,2*	0,1	0,1	0,1
NL	6,1	6,3	7,1	7,4	*1,3*	0,0	0,0	0,0
AT	5,3	5,5	6,3	6,8	*1,6*	0,0	-0,1	-0,1
PT	6,7	6,8	6,6	7,2	*0,5*	0,0	-0,1	-0,1
FI	5,6	5,8	6,6	7,0	*1,4*	0,0	0,0	0,0
SE	6,7	6,8	7,5	7,7	*1,0*	0,0	0,0	0,0
UK	7,0	7,2	8,1	8,9	*1,9*	0,0	-0,2	-0,4
CY	2,9	3,1	3,6	4,0	*1,1*	0,0	0,1	0,1
CZ	6,4	6,8	7,8	8,4	*2,0*	0,1	0,1	0,1
EE	5,4	5,8	6,2	6,5	*1,1*	0,2	0,3	0,2
HU	5,5	5,7	6,3	6,5	*1,0*	0,1	0,1	0,0
LT	3,7	4,0	4,4	4,6	*0,9*	0,1	0,2	0,2
LV	5,1	5,5	5,9	6,2	*1,1*	0,2	0,4	0,3
MT	4,2	4,5	5,5	6,1	*1,8*	0,0	0,0	-0,1
PL	4,1	4,4	5,1	5,5	*1,4*	0,1	0,1	0,1
SK	4,4	4,7	5,7	6,3	*1,9*	0,1	0,2	0,1
SI	6,4	6,7	7,6	8,0	*1,6*	0,1	0,2	0,2
EU25	*6,4*	*6,6*	*7,4*	*7,9*	*1,6*	*0,0*	*0,0*	*-0,1*
EU15	*6,4*	*6,7*	*7,5*	*8,1*	*1,6*	*0,0*	*-0,1*	*-0,1*
EU12	*6,3*	*6,5*	*7,3*	*7,8*	*1,5*	*0,0*	*0,0*	*-0,1*
EU10	*4,9*	*5,2*	*5,8*	*6,2*	*1,3*	*0,1*	*0,1*	*0,1*

Note: EU25, EU15, EU12 and EU10 – average weighted by GDP

4.5. Overall results of the health care projections

4.5.1. A comparison of projection results for all approaches

Table 4-14 presents a summary of the projected change in health care spending between 2004 and 2005, expressed as a % of GDP, for all scenarios presented. To cast light on the difference in spending projections across approaches, Table 4-15 presents the projection results in terms of difference from scenario I. The following overall conclusions can be drawn:

- the pure demographic effect of an ageing population is projected to push up health care spending by between 1 and 2% of GDP in most Member States. At first sight, this may not appear to be very large when spread over several decades. However, on average it would amount to approximately a 25% increase in spending on health care as a share of GDP;

- changes in the health care status of elderly citizens would have a large effect on health spending. If healthy life expectancy (falling morbidity rates) evolve broadly in line with change in age-specific life expectancy (similar to the dynamic equilibrium hypothesis), then the projected increase in spending on health care due to ageing would be halved;

- if so-called 'death-related costs' are taken into account, expenditure is projected to increase significantly slower than in the *pure ageing* scenario as the share of people in their final phase of life in each age cohort is getting smaller as average life expectancy increases. At the same time, death-related costs are affected by terminal illnesses only

and do not reflect developments in other kinds of morbidity. Therefore, reduction in spending is not as high as in the *constant health* scenario, which assumes overall morbidity to improve in line with changes in life expectancy;

- changes in per capita income could have an important impact on health care spending, especially if it is viewed as a luxury good. Introducing stylised effect of a 1.1 income elasticity converging to 1 over the whole projection period increases total spending by extra 0.3% over 'pure demographic' effect of ageing. This impact will arguably be stronger in the EU10 Member States which will face a particular challenge in balancing the demands of their citizens for wider access to health care services and for services of similar quality to that in the rest of the EU, with their capacity to pay;

- the projection results are sensitive to the assumptions on unit costs. This can be seen by contrasting the results where costs evolve in line with GDP per capita (scenario I) and GDP per worker (scenario V). Contingent on the macroeconomic assumptions, the overall spending on health care calculated with GDP per worker may be twice as much as expenditure calculated using GDP per capita in some countries, and about the same in the others;

- compared with the 2001 projection exercise, the most significant progress relates to the inclusion of scenarios dealing with the health care status of the elderly and death-related costs. This progress is broadly reflected in the choice of AWG reference scenario which includes demographic changes, health status and national income as the factors driving health care spending in the decades to come. Caution should be exercised, however, as there is not conclusive evidence that the 'positive' trends will occur nor of the scale of their likely impact. Overall, more progress has been made in extending the projection methodology for health care on factors that tend to lower health care spending than on driving forces that could potentially increase spending. Less progress, however, has been made in incorporating other non-demographic factors into the projection exercise (some tentative results are presented in the annex 6). In particular, the possible impact of technology on health care spending warrants further analysis.

Table 4-14 Overview of projected changes in health care spending as a % of GDP between 2004 and 2050

	Pure ageing GDP per capita	Constant health	Death-related costs	Income elasticity	Unit costs - GDP per worker	AWG reference scenario
BE	1,5	0,7	1,1	1,8	1,9	1,4
DK	1,1	0,3	0,7	1,4	1,7	1,0
DE	1,3	0,6	1,0	1,6	1,8	1,2
GR	1,8	1,2	1,4	2,1	2,8	1,7
ES	2,2	1,6	1,9	2,6	3,3	2,2
FR	1,8	1,1	1,4	2,2	2,4	1,8
IE	2,0	1,1	1,5	2,4	2,4	2,0
IT	1,4	0,8	1,1	1,6	2,0	1,3
LU	1,1	0,5	0,8	1,5	-0,2	1,2
NL	1,3	0,8	1,0	1,6	1,8	1,3
AT	1,7	1,0	1,3	1,9	2,4	1,6
PT	0,6	-0,1	0,2	0,8	1,8	0,5
FI	1,5	0,9	1,1	1,8	2,0	1,4
SE	1,0	0,3	0,7	1,4	1,4	1,0
UK	2,3	0,9	1,8	2,7	3,0	1,9
CY	1,1	0,7	0,9	1,3	1,3	1,1
CZ	1,9	1,0	1,4	2,4	3,4	2,0
EE	0,9	0,2	0,5	1,5	1,1	1,1
HU	1,0	0,3	0,5	1,4	1,6	1,0
LT	0,7	0,3	0,4	1,1	0,7	0,9
LV	0,7	0,2	0,4	1,4	0,9	1,1
MT	2,0	1,2	1,1	2,2	2,2	1,8
PL	1,3	0,7	0,9	1,7	1,3	1,4
SK	1,8	1,1	1,3	2,3	2,2	1,9
SI	1,4	0,9	1,0	1,9	2,9	1,6
EU25	*1,7*	*0,9*	*1,3*	*2,0*	*2,3*	*1,6*
EU15	*1,7*	*0,9*	*1,4*	*2,1*	*2,4*	*1,6*
EU12	*1,6*	*0,9*	*1,3*	*1,9*	*2,2*	*1,5*
EU10	*1,2*	*0,6*	*0,8*	*1,7*	*1,7*	*1,3*

Note: EU25, EU15, EU12 and EU10 – average weighted by GDP

Table 4-15 Difference in the projected changes in health care spending 2004-2050 between Scenario I (pure ageing, costs evolve in line with GDP per capita, using national age-related expenditure profiles) and the other scenarios

	Pure ageing GDP per capita	Constant health	Death-related costs	Income elasticity	Unit costs - GDP per worker	AWG reference scenario
BE	1,5	-0,8	-0,4	0,3	0,4	-0,1
DK	1,1	-0,8	-0,4	0,3	0,6	-0,1
DE	1,3	-0,7	-0,3	0,3	0,5	-0,1
GR	1,8	-0,6	-0,4	0,2	1,0	-0,1
ES	2,2	-0,6	-0,4	0,3	1,1	0,0
FR	1,8	-0,7	-0,4	0,3	0,6	-0,1
IE	2,0	-0,8	-0,5	0,5	0,5	0,0
IT	1,4	-0,5	-0,3	0,3	0,6	0,0
LU	1,1	-0,6	-0,2	0,5	-1,3	0,1
NL	1,3	-0,5	-0,3	0,2	0,4	0,0
AT	1,7	-0,7	-0,4	0,3	0,7	-0,1
PT	0,6	-0,7	-0,4	0,3	1,2	-0,1
FI	1,5	-0,6	-0,4	0,3	0,5	0,0
SE	1,0	-0,8	-0,3	0,4	0,3	0,0
UK	2,3	-1,4	-0,5	0,4	0,7	-0,4
CY	1,1	-0,4	-0,2	0,3	0,2	0,1
CZ	1,9	-0,9	-0,5	0,5	1,5	0,1
EE	0,9	-0,7	-0,4	0,6	0,2	0,2
HU	1,0	-0,7	-0,6	0,4	0,6	0,0
LT	0,7	-0,4	-0,3	0,4	0,0	0,2
LV	0,7	-0,5	-0,3	0,6	0,2	0,3
MT	2,0	-0,7	-0,8	0,3	0,2	-0,1
PL	1,3	-0,6	-0,4	0,4	0,0	0,1
SK	1,8	-0,7	-0,4	0,5	0,5	0,1
SI	1,4	-0,5	-0,4	0,5	1,5	0,2
EU25	*1,7*	*-0,8*	*-0,4*	*0,3*	*0,6*	*-0,1*
EU15	*1,7*	*-0,8*	*-0,4*	*0,3*	*0,6*	*-0,1*
EU12	*1,6*	*-0,7*	*-0,3*	*0,3*	*0,6*	*-0,1*
EU10	*1,2*	*-0,6*	*-0,4*	*0,5*	*0,5*	*0,1*

Note: EU25, EU15, EU12 and EU10 – average weighted by GDP

4.5.2. Tentative conclusions

First, governments in all EU countries are heavily involved in the financing and/or provision of health care services, and universal access is virtually assured in all countries. There is, nevertheless, a wide variety of institutional arrangements, making it very difficult to draw general conclusions on detailed factors and policies driving expenditures. What is apparent, however, is that

- ***increases in spending on health care as a share of GDP in past decades have not been strongly influenced by demographic developments,*** but rather by policy decisions to enlarge access, by the demand for better quality health care linked to growing income levels, and (albeit less conclusively) by technology (as falls in unit costs to date appear to have been more than offset by increased demand and quality improvements);

- there are very ***big differences across Member States in terms of per capita spending on and inputs to health care systems, which do not appear to be correlated with health care outcomes***. *A priori*, this suggests there is considerable scope for efficiency gains. It is difficult to draw conclusions as to whether and how institutional design affects health care outcomes or efficiency.

Second, the demand for health care (and social care) depends ultimately on the health status and functional ability of (elderly) citizens, and not on age *per se*. ***Even if age is not the causal factor, ageing populations may lead to pressure for higher public spending on health care***. This will result from the very large projected increase (70% for persons aged 65+, and 170% for persons aged 85+ in EU25) in older cohorts with a higher prevalence of medical conditions, sometimes chronic, that require (expensive) health care services.

Third, ageing is only one of several factors driving health care spending, and other ***non-demographic determinants are likely to be of equal significance in determining future spending levels***. On balance, overall public spending looks set to increase in the context of an ageing society. However, there are upside and downside risks (possibly substantial) to the projected increase in public spending on health care based on a *pure ageing* scenario. In particular, the different approaches to projecting health care spending underline the critical role played by

- the ***health status of the population***. The projections illustrate that if most of the future gains in life expectancy are spent in broadly good health and free of disability, this could offset up to one half of the projected increases in spending due to an ageing population (the *pure ageing* scenario). It should, however, be stressed that the current projections are not modelled on the basis of a direct indicator of morbidity, but rather on the basis of stylised assumptions. This is a shortcoming as morbidity patterns change over time (multi- and chronic diseases such as cardiovascular problems now outweigh infectious diseases) and an ageing society may possibly lead to new patterns of morbidity and mortality. For example, the increase in the share of persons surviving to very old ages (80+) may lead to an increase in the prevalence of chronic and degenerative diseases (e.g. neuro-degenerative and musculoskeletal diseases);

- ***relative cost developments in the health care***. The projection results show that spending levels are sensitive to the assumptions on evolution of unit costs in the health care sector. Leaving aside demographic factors, spending on health as a share of GDP could change as a result of several factors, e.g. unit costs (wages, pharmaceutical prices) growing faster

than their equivalents in the economy as a whole, public policies to improve access to health or improve quality (reduce waiting lists, increase choice), rising income levels and the impact of technology on total health care spending. The current set of projections is not capable of disentangling the contribution of each factor, which suggests a possible avenue for future work;

- ***the effective incorporation of technology*** into health care system. Technology could either increase or decrease overall public spending on health depending on whether the savings from more effective medical treatments and lower unit costs outweigh the additional spending resulting from the opening up of new and more affordable services.

Fourth, ageing will not only raise a policy challenge in terms of putting pressure for increased spending on health care. Of equal, if not more relevance, is ***the impact of ageing on the type of health care services that will be needed***. As argued above (and in the literature), morbidity and mortality patterns are changing in the context of an ageing society, and a key challenge for health care systems is to adapt accordingly. There may be a need to rebalance the various types of care (primary and secondary, outpatient and hospital care, classical health care, long-term care and social care).

Fifth, while the current set of projection do not model the institutional arrangements for the provision of health care services within Member States, the projection results may nonetheless provide several useful policy insights as follows:

- as outlined above, changing morbidity patterns and 'healthy life expectancy' will be of critical importance. What is ***striking from the review of existing literature is the lack of comparable data and evidence and analysis within Europe*** on this matter. A heavy reliance is therefore placed on data and analysis from third countries, notably the US, which may only be of partial relevance for the EU, given possible differences in morbidity patterns and also the very different organisational arrangements of the health care sector. The situation as regards data is improving with the recent release of the SHARE survey. However, more investment is required, especially in longitudinal surveys, in order to get a more accurate and comparable picture on the evolution of health care trends of the European population over time;

- past improvements in life expectancy (and healthy life expectancy) are attributable to a variety of factors including better public health systems, improved education, changes in nutrition and lifestyle. Understanding the precise role which public policies play in shaping health care outcomes is of critical importance. ***Effective preventive actions to tackle obesity, smoking and drug abuse could have large effects on the health care status of citizens, and thus on future spending needs.*** However the evidence of the effectiveness of preventive schemes is mixed and warrants further analysis.

Sixth, the prospect of ***increased spending on health care in an ageing society will be a cause for concern for Finance Ministers as it will make the tasks of achieving and sustaining sound budget positions more challenging***. However, the policy challenge needs to be viewed in terms of general welfare and not budgetary considerations alone, bearing in mind the equally important goals of access and adequacy of health care systems. *A priori*, there is no economic reasons why countries should not devote a larger share of resources to health care. Increased government intervention can be justified if the income elasticity of demand is such that demand outpaces income growth, and also if investment in technology is more than

compensated by improved quality and/or productivity. Notwithstanding these caveats, simply spending more money is not an option, and difficult choices on priorities will have to be made. The management and control of health care spending will be a critical part of overall efforts to ensure sustainable overall public finance positions. In this regard,

- ***aggregate cost-containment measures to control volume, prices and wages, as well as budgetary caps, have helped constrain expenditure especially in the hospital sector, and are likely to remain key elements in comprehensive health care strategies of Member States***. However, their effectiveness may diminish over time as suppliers alter their behaviour and they risk introducing distortions that could lead to costly inefficiencies. Shifting some of the costs to the private sector, for example via cost-sharing requirements, can also help to control public expenditures: however, the expected saving may be modest given the need to pursue public policy objectives related to access and equity;

- efforts to improve the cost efficiency will play an increasingly important role in controlling expenditures over the long-run. However, it is difficult to draw general conclusions on the effectiveness of different types of cost efficiency measures, as much depends on the institutional structure of the health care system concerned. Governments face a considerable challenge in designing reforms that ***achieve a better alignment of the economic incentives facing health care providers and users that encourage rational resource use***, in part linked to lack of data and information.

5. LONG-TERM CARE

5.1. Introduction

Some limitations with the 2001 projection exercise

The number of people aged 80 and above in the EU is projected to treble until 2050. As their share in the population increases over the next decades, an increase in the ratio of long-term care expenditure to GDP is expected in the future in all EU Member States. The mandate from the ECOFIN Council to the EPC included a request to make projections for public spending on long-term care. This followed the 2001 projection exercise which examined the impact of demographic variables on long-term care in ten EU15 countries. The methodology used in 2001 was a "pure" demographic scenario which only considered the impact of changes in the size and age-structure of the population on long-term care spending. It consisted of applying profiles of average long-term care expenditure per capita by age and gender (provided for a base year by Member States) to a population projection of Eurostat. The projections were run under the assumption of constant age and gender-contingent consumption of long-term care over time. Projections were run under two cost assumptions, i.e. expenditures per capita grow at the same rate as GDP per capita (which can be considered as neutral in macroeconomic terms), and expenditures per capita increase at the same rate as GDP per worker (to reflect the labour intensity of the long-term care sector).

The 2001 report of the EPC recognised the limitations of this projection methodology, in particular the strong assumption of holding age-related expenditure profiles constant over time. In particular, it was recognised that:

- holding the age-specific spending on long-term care constant over the projection period at the level in a base year (usually 2000) implied that a large share of the projected gains in life expectancy would be spent in poor health with a high degree of disability: in the literature, this is referred to as the "expansion of morbidity/disability" hypothesis. However, the literature points to other potential scenarios, including a "dynamic equilibrium" hypothesis (nearly all gains in life expectancy are spent in good health and without disability) and a "compression of morbidity/disability" hypothesis (gains in healthy/disability-free life expectancy exceed the gains in life expectancy);[64]

- the 2001 projection only included scenarios on the basis of current institutional arrangements for the provision and financing of long-term care by the public sector, i.e. a "no policy change" scenario. This approach is an appropriate starting point for making long-run projections. However, it could usefully be complemented with additional scenarios to assess the impact of possible future policy changes. Pressure for more public provision/financing of long-term care services could grow substantially in coming decades due to changes in family structure and the growing attachment of women to the labour market, trends which may constrain the supply of informal care provision within households;

[64] See chapter 4 on health care for a discussion of changes in the health status of the population as life expectancy increases.

- the 2001 projection methodology implicitly assumed that the balance between care provided in institutional and home-based settings remained unchanged over the projection period. As above, this is a reasonable starting point, but it would be useful to complement this with additional policy scenarios as unit costs may differ substantially between the two settings.

A methodology based on the projected need for long-term care services and allowing the exploration of different policy settings

A substantially different projection methodology has been employed in this projection exercise. DG ECFIN has built a simple macro simulation or cell-based model, based on a proposal by Comas-Herrera et al., (2005) and similar to those used for Germany, Italy and Spain in the *European Study of Long-Term Care Expenditure* (Comas-Herrera and Wittenberg, 2003 and Comas-Herrera et al, 2003). That project in turn built on the experience of constructing the Personal Social Services Research Unit (PSSRU) Long Term Care expenditure model for England (Wittenberg et al., 1998 and 2001).

The approach aims to maximise the number of factors affecting future long-term care expenditure that can be examined, while making sure that the projections can be carried out using mostly macro-level data so as to ensure that a large number of Member States can be included in the projections. Specifically, the methodology aims at analysing the impact of changes in the assumptions made about:

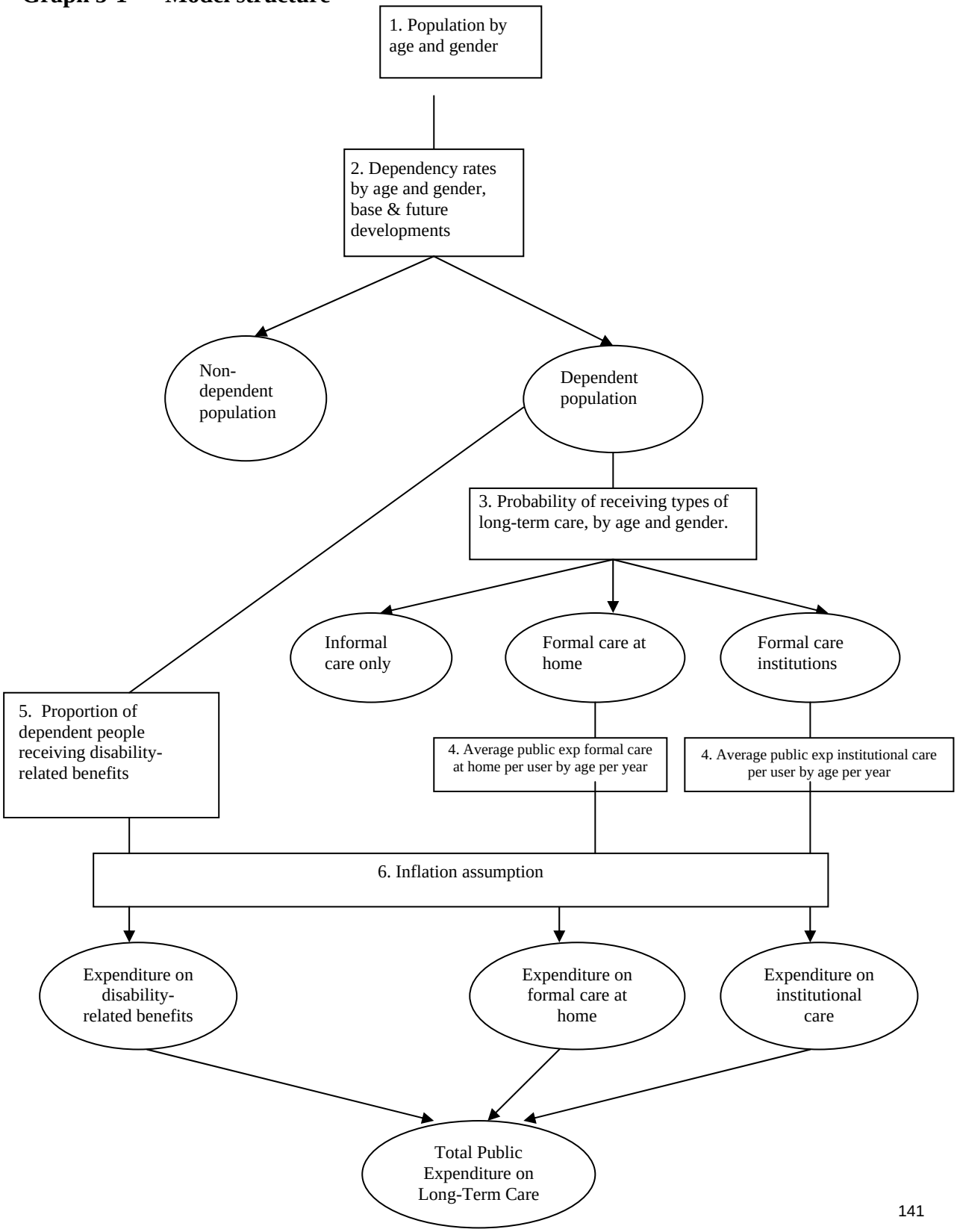
- the future numbers of elderly people (through changes in the population projections used);
- the future numbers of dependent elderly people (by making changes to the prevalence rates of dependency);
- the balance between formal and informal care provision;
- the balance between home (domiciliary) care and institutional care within the formal care system;
- the costs of a unit of care.

5.2. The projection methodology and scenarios

5.2.1. Overview of the projection model

Graph 5-1 provides an overview of the model structure. The square boxes indicate data that need to be entered into the model to make projections for each year, and the round boxes indicate calculations that are produced within the model for each year.

Graph 5-1 Model structure



Step 1: taking the baseline population projection (by age and gender), a projection is made of the dependent population, who are assumed to need some form of long-term care service, and the non-dependent population who are assumed not to be in need of long-term care services. This is made by extrapolating age and gender-specific dependency ratios of a base year (estimated using existing indicators of disability from comparable sources) to the baseline population projection. It is worth stressing at this point the difference between the terms "dependency" and "disability". The term "disability" refers to some functional impairment of an individual. The term "dependent" refers to the share of the population having some disability which requires the provision of a care service. There are many people with some form of disability who can lead completely independent lives without the need for care services. More specifically, this note makes use of the concept of ADL-dependency which refers to difficulties in performing at least one Activity of Daily Living (ADL) (Katz et al., 1963).

Step 2 is to split, by age and gender, the dependent elderly population into three groups depending on the type of care they receive, namely (i) informal care, which has no impact on public spending, (ii) formal care at home and (iii) formal care in institutions (both of which impact on public spending but their unit costs may differ). The model implicitly assumes that all those receiving home care or institutional care have difficulties with one or more ADLs, and that all persons deemed ADL-dependent either receive informal care, home care or institutional care. The split by type of care received is made by calculating the "probability of receiving different types of long-term care by age and gender". This is calculated for a base year using data on the numbers of people with dependency (projected in step 1), and the numbers of people receiving formal care at home and in institutions (provided by Member States). It is assumed that the difference between the total number of dependent people and the total number of people receiving formal care (at home or in institutions) is the number of people who rely exclusively on informal care.

Step 3 involves the calculation of public spending for the two types of long-term care service, by multiplying the number of people receiving long-term care services (at home and in institutions) by the average age-specific public expenditure of formal care (at home and in institutions) per year and per user. Average expenditure is calculated for a base year using data on total public expenditure in home care and institutional care and the numbers of people receiving formal care at home and in long-term care institutions (provided by Member States). Two assumptions are required:

- it is implicitly assumed that current expenditure in services divided by the number of users equals the long-run unit costs of services;
- it is assumed that average expenditure per user increases with the age of the user.[65]

Step 4: by adding up the expenditure on formal care at home and in institutions, total public expenditure on long-term care services is obtained. Public expenditure on cash benefits for people with ADL-dependency is then added to the expenditure on services, in order to obtain

[65] In practice, average expenditure (aged 65 and above), for each type of service, is decomposed into average expenditure by age groups, by assuming the same rate of increase in spending by age as in the age-related expenditure profile. It is important to note that the age-related expenditure profile provides information on spending in formal care by age, without distinction between care provided at home and in institutions. The model uses average public expenditure in formal care and in institutional care to project future expenditure in both types of services.

total public expenditure on long-term care; note that cash benefits are assumed to grow in line with the numbers of people with dependency and also with the age of the user.

Overall, given the availability of a numerical measure of disability, the projection methodology described above is more precise than that used in chapter 4 on health care where there is no direct indicator of health status and the age-related expenditure profile is used as a proxy. However, an important caveat to note is that while dependency rates are an indicator of the need for care, those needs may not necessarily translate into actual public expenditure, as most long-term care is provided by unpaid informal carers. Expenditure profiles contain information about the propensity to receive paid formal care, which depends on a number of factors other than dependency that affect demand for paid care such as household type, availability of informal carers, income or housing situation (Wittenberg et al, 1998). Most of these factors, in turn, are also correlated with age.

5.2.2. Scenarios carried out in the projection exercise

The advantage of the methodology described above is that it allows one to examine different scenarios regarding the evolution of dependency rates, unit costs and policy settings. Table 5-1 below outlines the scenarios carried out as part of the projection exercise.

Table 5-1 Overview of scenarios

	Pure ageing scenario	**Unit costs evolve in line with GDP per capita**	**Constant disability scenario**	**Increase in formal care provision**	**AWG reference scenario**
	I	**II**	**III**	**IV**	**V**
Population projection	AWG scenario - baseline	AWG scenario - baseline	AWG scenario - baseline	AWG scenario - baseline	AWG scenario - baseline
Disability status over time	Disability rates held constant at 2004 level	Disability rates held constant at 2004 level	Age-specific disability rates evolve in line with changes in age-specific mortality rates	Disability rates held constant at 2004 level	Intermediate between pure ageing and constant health scenarios, whereby age-specific disability rates decrease by half of the decrease in age-specific mortality rates
Policy setting	Probability of receiving care held constant at 2004 level	Probability of receiving care held constant at 2004 level	Probability of receiving care held constant at 2004 level	1% p.a. decrease in number of persons receiving informal care up to 2020, half going to institutions, half to home care	Probability of receiving care held constant at 2004 level
Unit costs	GDP per worker	GDP per capita	GDP per worker	GDP per worker	GDP per worker

- A '*pure ageing scenario*' (column I in Table 5-1) involves keeping the proportion of the older disabled population who receive either informal care, formal at home or institutional care constant and applying them to the projected dependent population. It also assumes that prevalence of ADL-dependency is unchanged over the projection horizon, i.e. the rates used in future years are the same as those in the base year. This implies that almost all gains in life expectancy are spent in bad health/with disability. Arguably, it is a pessimistic scenario with respect to disability status, since it assumes that average lifetime consumption of long-term care services will increase over time. It is a "no policy change scenario" as the probability of receiving care (either at home or in an institution) is assumed to remain constant at the 2004 level. This scenario is based on the same approach as that used in the 2001 projection exercise of the EPC.

- A '*unit costs scenario'* (column II) is identical to the pure ageing scenario, except that costs are assumed to evolve in line with GDP per capita.

- A '*constant disability scenario'* (column III in Table 5-1) is run to reflect an alternative assumption about trends in age-specific ADL-dependency rates. There is substantial debate about the extent to which, gains in life expectancy will be spent free of disability (Robine and Michel, 2004). Trends in ADL-dependency rates have decreased in the United States (Crimmins, 2004), but the evidence for European countries and other developed countries, such as Australia, is more mixed. Robine and Michel (2004) conclude that the available evidence does not point to a single forecast of expansion or compression of morbidity, but to a series of transitional stages that could drive the trends encountered in different countries and at different times. In the '*constant disability scenario*', which is inspired by the dynamic equilibrium hypothesis, disability rates evolve exactly in line with age-specific mortality rates. This is equivalent to the approach followed in chapter 4 on health care.

- A policy change scenario is run to examine the impact of '*an increase in the prevalence of receiving formal care'* (column IV). This scenario examines the impact of an increase of 1% a year in the proportion of dependent elderly people receiving formal care, for the period 2004-2020, with the additional people receiving care in institutions and at home in the same ratio as observed in the base year of 2004.

- An *'AWG reference scenario"* (column V in Table 5-1) is a prudent scenario that aims to bring together several different drivers of long-term care spending. It assumes that age-specific disability rates fall by half of the projected decrease in age-specific mortality rates. This implies that some half of projected gains in life expectancy up to 2050 would be spent in good health and free of disability. Note that that the aim is to facilitate the comparison of budgetary projections across expenditure items, and thus it should be symmetrical with the "AWG reference scenario" for health care.

5.3. Data availability and quality

In order to run the projections, a wide variety of data is required. Table 5-2 provides an overview of all the data inputs. It indicates which data has been supplied by Member States (shaded) and which data is only available on the basis of average estimates (blank).

On the basis of available data, it is possible to make projections for 18 countries[66], namely Belgium, Denmark, Germany, Spain, Ireland, Italy, Luxemburg, the Netherlands, Finland, Sweden, the UK, the Czech Republic, Lithuania, Latvia, Malta, Poland, Slovakia and Slovenia. A key difficulty is that while many countries have supplied some data sets, very few have done so for all data sets and in practice, it proved extremely difficult to collect a complete set of the data required for many countries. Therefore, for most of these countries, it was necessary to use estimates based on EU averages for one or two variables. Table 7-1 in the Annex provides a detailed description of the data used.

Table 5-2 Overview of data availability

	Age profile	Disability rate	Total number of people			Age breakdown of population			Total spending		
			in institutions	home care	cash benefits	in institutions	home care	cash benefits	in institutions	home care	cash benefits
BE											
DK						estimated	estimated				
DE							estimated	estimated			
GR											
ES						estimated	estimated				estimated
FR											
IE							estimated				
IT											
LU											
NL						estimated			estimated		
AT											
PT											
FI											
SE						estimated	estimated				
UK											
CY											
CZ						estimated	estimated				
EE											
HU											
LT											
LV											
MT						estimated	estimated				
PL						estimated	estimated				
SK						estimated	estimated				
SI				estimated			estimated				

5.3.1. Age-related expenditure profiles

Fifteen Member States have provided age-related expenditure profiles, namely Belgium, Denmark, Germany, Italy, Luxemburg, the Netherlands, Finland, Sweden, the UK, the Czech Republic, Lithuania, Latvia, Malta, Poland and Slovenia. A summary of key characteristics for specific age cohorts is presented on Table 5-3 for males and Table 5-4 for females.

Graph 5-2 to Graph 5-9 display the age-related expenditure profiles, both as % of GDP per capita and in nominal euros, grouped into EU15 and EU10 countries. The data are not comparable as regards coverage, breakdown by age cohort and the year when the data was collected and thus DG ECFIN has made a number of technical adjustments to arrive at a standardised format. The main features of the age-related expenditure profiles can be summarised as follows:

- in most countries, the age-related expenditure profile is steep, more so than for health care. This is explained by the fact that the prevalence of frailty and disability increases significantly with age, especially amongst the very old age cohorts. Sweden appears to be an exception with relatively high levels of spending at younger age cohorts;

- expressed as % of GDP per capita, spending on long-term care is usually substantially higher than for health care;

[66] Austria provided data on cash-benefits, but as the data on care at home and in institutions is not available, the results of the projection have not been included in the report.

- there is a huge variation in spending across countries, both in nominal terms and as a % of GDP per capita. There is a striking gap between the EU10 and E15. For example, EU10 countries on average spend €103 on long-term care for females aged 90-94 (equivalent to 2.5% of per capita GDP) which contrasts with €12443 for EU15 countries (equivalent to 41.3% of per capita GDP). However, within EU15 countries, there is enormous variation: spending ranges from €4764 (20.4% of per capita GDP) for people aged 90 to 94 years in Italy to €22336 (62% of per capita GDP) in Denmark;

- spending on females is in general higher than for males of the same age-cohort. In some cases, the differences can be large. For example, spending on males aged 90-94 amounts on average to €10526 in the EU15 compared with €12443 for females. In the EU10, the difference is more marked, €20 for males and €103 for females.

Table 5-3 Age-related expenditure profiles for long-term care, in euros and GDP per capita – males

	cohort aged 60-64		cohort aged 70-74		cohort aged 80-84		cohort aged 90-94	
	level in nominal euros	level in % of per capita GDP	level in nominal euros	level in % of per capita GDP	level in nominal euros	level in % of per capita GDP	level in nominal euros	level in % of per capita GDP
BE	120	0.4	288	1.1	1019	3.7	3430	12.6
DK	975	2.7	2265	6.3	8806	24.4	15080	41.8
DE	115	0.4	381	1.4	1690	6.4	5921	22.4
IT	268	1.1	494	2.1	1606	6.9	3045	13.0
LU	66	0.1	778	1.4	3022	5	12575	22.2
NL	464	1.6	1485	5.2	6577	23.0	19658	68.7
FI	240	0.8	961	3.3	3484	12.1	11597	40.4
SE	469	1.5	960	3.0	9593	29.7	19867	62
UK	566	2.0	752	2.6	2604	9.1	5610	19.6
CZ	20	0.2	57	0.7	182	2.2		
LV	35	0.7	55	1.2	63	1.3	120	2.5
LT	36	0.7	51	1.0	87	1.7	179	3.4
MT	5.5	0.1	22.7	0.2	2.0	2.0	2.0	2.0
PL	5	0.1	9	0.2	16	0.3	26	0.5
SI	114	1	312	2	928	7	916	7
EU15 average*	365	1.0	929	2.9	4267	13.4	10754	33.6
standard deviation	*289*	*0.6*	*618*	*1.8*	*3231*	*9.7*	*6595*	*20.7*
EU10 average*	36	0.4	84.3	0.9	213.0	2.4	248.6	3.1
standard deviation	*40*	*0.4*	*113.1*	*0.8*	*356.2*	*2.4*	*380*	*2.5*

* unweighted average of the available figures

Source: National data

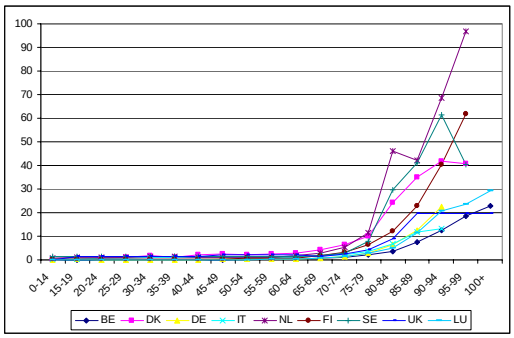
Table 5-4 Age-related expenditure profiles for long-term care in euros and GDP per capita – females

	cohort aged 60-64		cohort aged 70-74		cohort aged 80-84		cohort aged 90-94	
	level in nominal euros	level in % of per capita GDP	level in nominal euros	level in % of per capita GDP	level in nominal euros	level in % of per capita GDP	level in nominal euros	level in % of per capita GDP
BE	119	0.4	391	1.4	1835	6.7	5667	20.8
DK	1149	3.2	3187	8.8	13324	36.9	22336	61.9
DE	115	0.4	381	1.4	1690	6.4	5921	22.4
IT	255	1.1	603	2.6	2676	11.5	4764	20.4
LU	261	0.5	917	1.6	5618	9.9	18125	31.9
NL	464	1.6	1485	5.2	6577	23.0	19658	68.7
FI	245	0.9	1034	3.6	5106	17.8	15719	54.8
SE	469	1.5	960	3.0	9593	29.7	19867	62
UK	566	2.0	752	2.6	2604	9.1	5610	19.6
CZ	15	0.2	74	0.9	305	3.6	:	:
LV	22	0.5	29	0.6	75	1.6	135	2.9
LT	19	0.4	40	0.8	141	2.7	219	4.2
MT	5.5	0.1	22.7	0.2	2.0	2.0	2.0	2.0
PL	3	0.1	9	0.2	28	0.6	57	1.1
SI	91	0.7	313	2.4	1494	11.5	1482	11.4
EU15 average*	405	1.3	1079	3.4	5447	16.8	13074	40.2
standard deviation	*320*	*0.9*	*862*	*2.4*	*3930*	*10.9*	*7404*	*21.0*
EU10 average*	26	0.3	81	0.8	341	3.7	379	4.3
standard deviation	*33*	*0.3*	*115*	*0.8*	*575*	*4.0*	*622*	*4.1*

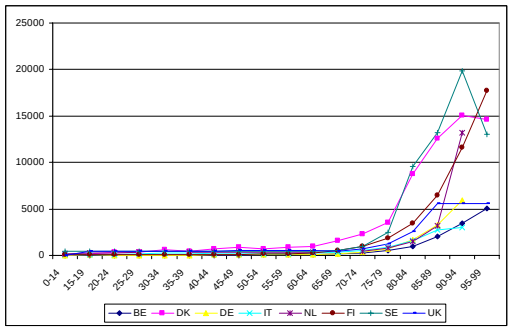
* unweighted average of the available figures

Source: National data

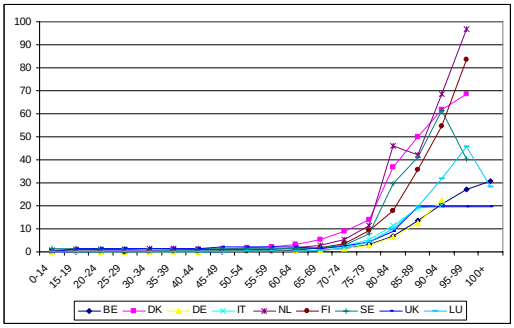
Graph 5-2 Age-related expenditure profiles for long-term care, % of GDP per capita, males, 2004



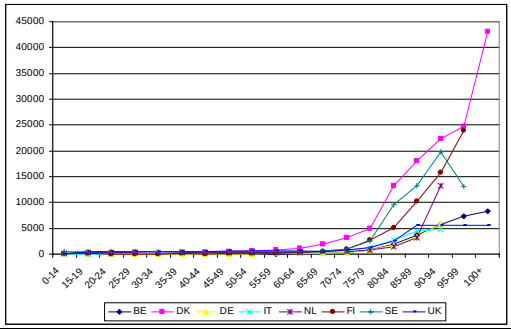
Graph 5-3 Age-related expenditure profiles for long-term care in Euros, males, 2004



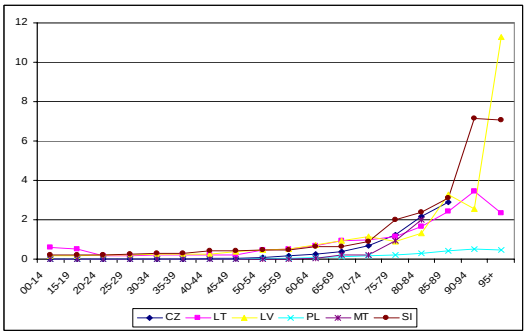
Graph 5-4 Age-related expenditure profiles for long-term care, % of GDP per capita, females, 2004



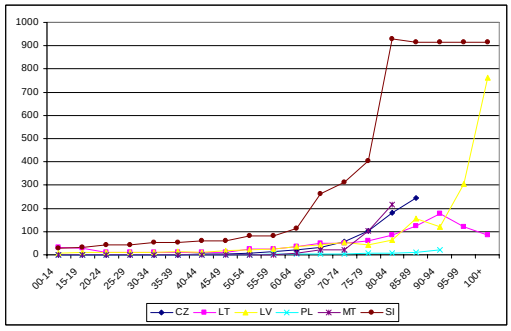
Graph 5-5 Age-related expenditure profiles for long-term care in Euros, females, 2004



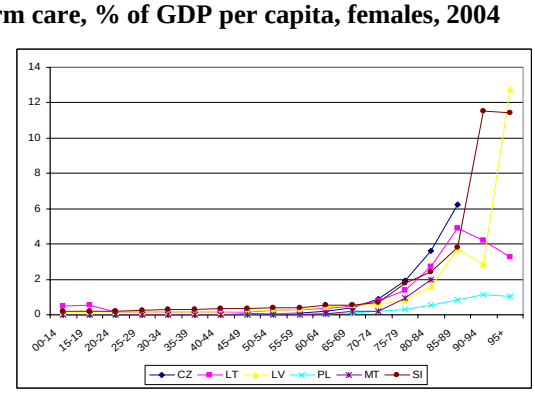
Graph 5-6 Age-related expenditure profiles for long-term care, % of GDP per capita, males, 2004



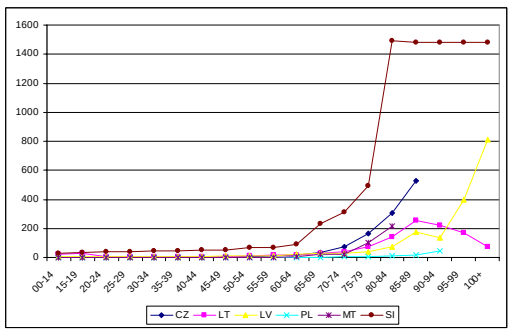
Graph 5-7 Age-related expenditure profiles for long-term care in Euros, males, 2004



Graph 5-8 Age-related expenditure profiles for long-term care, % of GDP per capita, females, 2004



Graph 5-9 Age-related expenditure profiles for long-term care in Euros, females, 2004



Source: National data

To make projections for Spain, Ireland and Slovakia where no age-related expenditure profiles are available, an 'average' profile was used, calculated as the unweighted average of per capita expenditure expressed as % of GDP per capita. The figures are reported on Table 5-3 and Table 5-4. Two separate profiles were established for EU10 and EU15, as the shape of the curve differs clearly between EU10 and EU15 Member States.

5.3.2. ADL-dependent population

The comparability of ADL-dependency rates is an important issue, especially when scenarios that involve shifting dependent elderly people between alternative care options as a result of changing patterns of care are investigated. The European Study of Long-Term Care showed that the impact on expenditure of some of the investigated scenarios about informal care and changes to formal care entitlement was affected by the differences in the definitions of dependency used in each country (see Pickard, 2003a and 2003b). With regard to dependency rates, Eurostat reviews of the data available on ADL-related dependency in European countries (Grammenos, 2003 and Eurostat, 2003) showed that there is a very low level of comparability of the data collected in national surveys. However, comparable data on ADL-dependency rates has recently become available for the 10 EU countries participating in the SHARE survey on the economic, social and health conditions[67], see Table 5-5.

The SHARE data results show that:

- while the levels of ADL-dependency differ across countries, a common pattern can be discerned. Dependency rates rise with age. Based on an average of results, they increase for males from 7.1% when they are aged 65-70 to 27.7% when they are aged 80+;

- they are generally, though not always, higher amongst females than males.

Table 5-5 Dependency rates among elderly population in households, by age group

	65-70		70-74		75-79		80+	
	Men	**Women**	**Men**	**Women**	**Men**	**Women**	**Men**	**Women**
DK	0.095	0.125	0.056	0.095	0.143	0.105	0.333	0.31
DE	0.075	0.065	0.069	0.163	0.141	0.205	0.332	0.314
GR	0.007	0.091	0.006	0.119	0.103	0.238	0.241	0.341
ES	0.065	0.07	0.112	0.126	0.152	0.181	0.296	0.458
FR	0.058	0.089	0.172	0.143	0.335	0.157	0.306	0.367
IT	0.072	0.068	0.098	0.191	0.203	0.228	0.31	0.342
NL	0.061	0.06	0.04	0.088	0.095	0.115	0.189	0.359
AT	0.059	0.105	0.077	0.125	0.19	0.152	0.133	0.324
SE	0.045	0.061	0.088	0.071	0.107	0.171	0.256	0.373
UK	0.176	0.202	0.239	0.253	0.27	0.306	0.37	0.441
average	0.071	0.094	0.096	0.137	0.174	0.186	0.277	0.363
standard deviation	0.04	0.04	0.07	0.05	0.08	0.06	0.07	0.05

Source: SHARE, 1+ ADLs

[67] See Börsch-Supan et al., 2005 and http://www.share-project.org/ The following countries participate: Denmark, Germany, Greece, Spain, France, Italy, the Netherlands, Austria, Sweden and the UK.

The ADL-dependent population is estimated on the basis of data available from SHARE and data on the numbers of people in institutions provided by Member States. The SHARE project covers the population in households only, excluding the population in institutions. To estimate the size of the elderly dependent population in the base year 2004,

- the elderly population in households is estimated, by subtracting the elderly population in institutions as reported by Member States from the total elderly population, see next section for details);

- number of dependent elderly people in households is estimated by applying the disability rates in Table 5-5 to the estimated number of elderly people living in households;

- finally, the estimated number of dependent elderly persons living in households is added to the number of elderly persons living in institutions to obtain the total dependent elderly population.

The estimated number of dependent elderly people is presented on Table 5-6 for countries where both SHARE data on disability rates are available as well as data from national sources on the numbers of people living in institutions. In most countries, around 20% of the population aged 65+ has some form of disability. For males this ranges from 12% in the Netherlands to 27% in the UK, and for females from 19% in Denmark, the Netherlands and Austria to 33% in the UK.

Table 5-6 Estimated elderly dependent population in 2004 for 8 EU Member States, in thousands (based on SHARE data and reported number of people in institutions)

	65-69		70-74		75-79		80+		Total dependent population aged 65+		*as a % of total population aged 65+*	
	Men	**Women**	**Men**	**Women**	**Men**	**Women**	**Men**	**Women**	**Men**	**Women**	***Men***	***Women***
DK	11	16	5	10	11	11	27	49	54	86	*16*	*19*
DE	191	183	117	340	174	414	390	980	873	1,917	*15*	*22*
ES	67	83	109	150	115	189	189	546	480	968	*16*	*23*
IT	113	124	128	310	201	337	299	702	741	1,473	*16*	*23*
NL	23	24	14	34	23	44	51	150	111	251	*12*	*19*
AT	9	19	11	22	20	27	12	77	52	145	*11*	*19*
SE	9	13	16	15	17	36	62	154	104	218	*16*	*25*
UK	230	285	266	329	231	356	361	841	1,088	1,811	*27*	*33*

Source: SHARE, 1+ ADLs, AWG population scenario reported in EPC and European Commission (2005a)
Note: Estimates of the number of people in institutions by age are made for Denmark, Spain, the Netherlands and Sweden.

Using the average disability rates, by age and gender in Table 5-5, a projection for the size of the disabled population has been made for eleven additional EU countries in 2004. This reported on Table 5-7. Approximately, 17% of males and 23% of females aged 65+ are assumed to be disabled (with small differences due to diverge in the age structure of populations in 2004).

Table 5-7 Estimated size of dependent population in 2004 using 'average' dependency rates by age and gender from SHARE data, in thousands

	65-69		70-74		75-79		80+		Total dependent population aged 65+		*as a % of total population aged 65+*	
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
BE	20	28	26	43	33	55	53	159	132	284	18	27
IE	5	7	6	9	8	11	13	32	32	59	16	23
LU	1	1	1	1	1	2	2	5	4	9	16	24
FI	9	13	10	19	15	25	22	70	55	128	17	26
CZ	18	29	20	41	25	46	31	90	93	206	17	24
LT	6	11	7	15	7	17	9	31	29	75	16	22
LV	4	8	4	10	4	11	4	20	16	49	13	19
MT	1	1	1	1	1	2	2	4	5	8	21	28
PL	61	91	68	124	71	136	84	251	284	601	15	20
SK	10	12	10	17	11	19	14	35	44	83	19	21
SI	3	5	4	8	4	9	5	19	16	41	14	22

Note: Estimates of the number of people in institutions by age are made for Ireland, the Czech Republic, Poland and Slovakia.

Table 5-8 presents an overall estimated of the disabled population for EU10, EU15 and EU25 (countries for which it is available), made by combing the projections of the total disabled population using SHARE data with the projections based on an average disability rate (on Table 5-5).

Table 5-8 Total dependent population estimated, EU25, in thousands

	65-69		70-74		75-79		80+		Total dependent population aged 65+		*as a % of total population aged 65+*	
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
EU15	688	795	710	1,284	848	1,505	1,480	3,764	3,727	7,348	16	24
EU10	102	157	113	215	123	240	148	451	487	1,063	17	22
EU25	791	952	824	1,498	971	1,745	1,628	4,216	4,214	8,411	16	23

Source: SHARE, 1+ ADLs, EPC population projection

Note: The following Member States are included: Belgium, Denmark, Germany, Spain, Ireland, Luxembourg, Italy, the Netherlands, Finland, Sweden, the UK, the Czech Republic, Lithuania, Latvia, Malta, Poland, Slovakia and Slovenia.

Table 5-9 Estimated ADL-dependent population aged 65 and above, 2004

	Dependent population		Population receiving formal care in institutions		Population receiving formal care at home	
	000s	as % of 65+	000s	*share of dependent population receiving care*	000s	*share of dependent population receiving care*
BE	416	23	147	*35*	114	*27*
DK	139	17	13	*10*	176	*126*
DE	2790	19	535	*19*	975	*35*
GR						
ES	1449	20	158	*11*	286	*20*
FR						
IE	91	20	20	*22*	29	*32*
IT	2214	20	193	*9*	933	*42*
LU	13	20	3	*23*	4	*33*
NL	362	16	79	*22*		
AT	197	16				
PT						
FI	183	22	57	*31*	52	*28*
SE	322	21	102	*32*	142	*44*
UK	2899	30	278	*10*	440	*15*
CY						
CZ	299	21	77	*26*	56	*19*
EE						
HU						
LT	103	20	24	*23*	5	*5*
LV	65	17	5	*8*	4	*5*
MT	13	25	6	*48*	5	*37*
PL	885	18	105	*12*	44	*5*
SK	127	20	31	*24*	37	*29*
SI	58	19	12	*20*	10	*18*

Source: National data, SHARE and ECFIN calculations

Table 5-9 presents the estimated number of dependent elderly people in 2004. In most Member States, around 20% of the elderly population aged 65+ is dependent. About 20% of the estimated dependent population receives long-term care in an institution and about 30% receives formal care at home: hence some 50% of people considered dependent receive no formal care financed by the State and instead rely on informal or no care. Differences across Member States are wide and reflect the variety of institutional arrangements in the provision of long-term care.

5.3.3. Public spending on different types of formal care and unit costs

Eighteen countries provided data on public spending on long-term care. Of those, fifteen were able to provide data on spending on care in institutions[68], seventeen as regards spending on care at home and thirteen as regards cash transfers. In general terms, spending is greatest on care institutions. In EU15 countries, considerable resources are also spent on formal care at home, which is negligible in the EU 10 countries.

By combining the data on public spending on different types of care with the data on numbers of persons receiving care, it is possible to calculate the unit cost per beneficiary. For EU15 countries, the average cost per person receiving care in an institution is expensive at close to €24000, and in seven Member States exceeds 70% of GDP per capita. The average cost of providing formal care at home is €9373 per beneficiary. Cash transfers amount to €4619 per person receiving aid.

Nominal spending per person on formal care is much lower in EU10 countries amounting to an average of €3745 for care in institutions, €739 for care at home and €430 for countries reporting cash benefits.

Table 5-10 Total public expenditure on long-term care, all ages, 2004, as a % of GDP

	Institutional care			Home-based care			Cash benefits		
	Nominal euros in billions	Unit cost	% GDP per capita	Nominal euros in billions	Unit cost	% GDP per capita	Nominal euros in billions	Unit cost	% GDP per capita
BE	1.43	9067	33	0.85	6520	24	0.14	1106	4
DK	0.36	23129	64	1.86	7947	22			
DE	11.65	18517	70	5.04	3886	15	4.38	3740	14
ES	1.45	8275	42	0.63	2832	14	2.51	5981	30
IE	0.52	24477	68	0.14	3887	11	0.21	8857	24
IT	5.50	19352	83	6.69	3717	16	8.63	6589	28
LU	0.12	37199	66	0.10	16410	29			
NL	2.15	23129	81						
FI	1.62	24343	85	0.61	10097	35	0.36	1439	5
SE	7.57	62972	203	3.12	16579	53			
UK	4.20	12824	45	12.80	21856	76			
CZ	0.18	1270	15	0.06	1792	21	0.03	274	3
LT	0.07	1878	36	0.00	312	6	0.01	71	1
LV	0.04	3945	83	0.01	731	15			
MT	0.02	1732	16	0.01	588	5	0.01	113	1
PL	0.11	1160	23	0.00	91	2	0.10	823	16
SK	0.08	2970	48	0.04	1219	20	0.11	869	14
SI	0.18	13260	102	0.01	440	3	0.06		
EU15		*23935*			*9373*			*4619*	
EU10		*3745*			*739*			*430*	

Source: National data and ECFIN calculations

5.4. Projected size of the dependent population up to 2050 and projected number of persons receiving different types of care

Table 5-11 presents the projected numbers of dependent people and of people receiving long-term care, both formal and informal, under the '*pure ageing scenario*'. The dependent population is projected to increase by about 120%. Note, this is larger than the projected increase in the old-age dependency ratio, and reflects the fact that it is the oldest-old (aged 80 and above) who will have the most dynamic population growth. While the probability of receiving care is assumed to remain constant, the share of the population aged 65 and above increases. The number of people receiving long term-care is projected rise in all Member States. According to the projection, the population receiving formal care in institutions would

[68] In addition, total expenditure in institutional care in the Netherlands was estimated using available information on people in institutions and EU15 average unit cost.

rise by about 140% on average and as regards long-term care at home, by about 130%. The population receiving informal or no care would increase by about 100% on average. On average, about 45% of the dependent population is projected to rely on informal or no care, ranging from less than 60% in Sweden and Latvia to over 120% in Spain, Ireland, Luxemburg, the Netherlands, Poland, Slovakia and Slovenia.

Table 5-12 shows the projection of the dependent population under the '*constant disability scenario*'. The dependent population is projected to increase by about 40%, a smaller increase relative to the '*pure ageing scenario*'. Compared to 2004, higher increases are projected in the population in institutions compared to the population receiving formal care at home in most Member States. In 2050, the dependent population receiving formal care at home is projected to be larger than the population receiving care in institutions, in most EU15 Member States except in Belgium, Lithuania, Latvia, Malta, and Slovakia.

Table 5-11 Projection of dependent population, in thousands – pure ageing scenario

	Dependent population				Population receiving formal care in institutions				Population receiving formal care at home				Population receiving informal or no care			
	2004	**2050**	***2004-50***	***% change 2004-50***	**2004**	**2050**	***2004-50***	***% change 2004-50***	**2004**	**2050**	***2004-50***	***% change 2004-50***	**2004**	**2050**	***2004-50***	***% change 2004-50***
BE	416	841	*425*	*102*	147	331	*184*	*125*	114	247	*133*	*116*	154	263	*108*	*70*
DK	139	275	*136*	*97*	13	29	*16*	*117*	176	368	*192*	*109*				
DE	2790	5689	*2900*	*104*	535	1321	*786*	*147*	975	2100	*1125*	*115*	1280	2269	*989*	*77*
GR																
ES	1449	3494	*2045*	*141*	158	348	*190*	*120*	286	667	*380*	*133*	1004	2480	*1475*	*147*
FR																
IE	91	319	*228*	*250*	20	75	*55*	*274*	29	109	*80*	*274*	42	135	*93*	*222*
IT	2214	4272	*2058*	*93*	193	403	*211*	*109*	933	1798	*865*	*93*	1088	2071	*983*	*90*
LU	13	35	*22*	*173*	3	10	*7*	*221*	4	12	*8*	*178*	6	14	*8*	*143*
NL	362	833	*471*	*130*	79	194	*116*	*147*								
AT	197	419	*221*	*112*												
PT																
FI	183	374	*191*	*104*	57	130	*73*	*128*	52	113	*61*	*117*	74	131	*57*	*78*
SE	322	569	*247*	*77*	102	188	*86*	*85*	142	254	*112*	*79*	79	127	*48*	*61*
UK	2899	5564	*2665*	*92*	278	619	*341*	*123*	440	934	*494*	*112*	2181	4011	*1829*	*84*
CY																
CZ	299	625	*326*	*109*	77	162	*85*	*110*	56	118	*62*	*110*	166	344	*179*	*108*
EE																
HU																
LT	103	184	*80*	*78*	24	44	*20*	*87*	5	10	*5*	*87*	74	129	*55*	*74*
LV	65	99	*34*	*52*	5	8	*3*	*59*	4	6	*2*	*59*	57	85	*29*	*51*
MT	19	49	*31*	*166*	13	34	*21*	*172*	5	13	*8*	*170*	1	2	*1*	*95*
PL	885	2004	*1119*	*126*	105	251	*146*	*140*	44	105	*61*	*140*	737	1648	*911*	*124*
SK	127	309	*182*	*143*	31	78	*47*	*153*	37	94	*57*	*153*	59	137	*78*	*133*
SI	58	135	*77*	*134*	12	30	*18*	*155*	10	24	13	*131*	36	82	*46*	*128*
EU25	12631	26089	*13459*	*107*	1850	4255	*2405*	*130*	3312	6970	3657	*110*	7038	13929	*6891*	*98*
EU15	11075	22685	*11610*	*105*	1585	3649	*2064*	*130*	3151	6601	3449	*109*	5909	11500	*5592*	*95*
EU10	1556	3404	*1848*	*119*	*265*	*606*	*341*	*129*	161	369	208	*129*	1129	2429	*1300*	*115*

Source: DG ECFIN calculation

Table 5-12 Projection of dependent population, in thousands – constant disability scenario

	Dependent population				Population receiving formal care in institutions				Population receiving formal care at home				Population receiving informal or no care			
	2050	***2004-2050***	***% change 2004-50***	***difference in 2050 from pure ageing***	**2050**	***2004-2050***	***% change 2004-50***	***difference in 2050 from pure ageing***	**2050**	***2004-2050***	***% change 2004-50***	***difference in 2050 from pure ageing***	**2050**	***2004-2050***	***% change 2004-50***	***difference in 2050 from pure ageing***
BE	547	131	*32*	*-294*	*229*	*81*	*55*	*-103*	166	*52*	*45*	*-81*	152	*-2*	*-1*	*-110*
DK	179	39	*28*	*-97*	*20*	*6*	*48*	*-9*	245	*69*	*39*	*-123*				*0*
DE	3731	941	*34*	*-1959*	*930*	*396*	*74*	*-390*	1417	*442*	*45*	*-683*	1383	*104*	*8*	*-885*
GR																
ES	2224	775	*53*	*-1270*	*200*	*42*	*26*	*-148*	408	*122*	*43*	*-258*	1616	*611*	*61*	*-864*
FR																
IE	199	108	*118*	*-120*	*51*	*31*	*153*	*-24*	73	*44*	*153*	*-35*	75	*33*	*78*	*-60*
IT	2698	484	*22*	*-1574*	*272*	*79*	*41*	*-131*	1151	*218*	*23*	*-647*	1275	*187*	*17*	*-796*
LU	23	10	*76*	*-13*	*7*	*4*	*125*	*-3*	8	*4*	*81*	*-4*	8	*3*	*45*	*-5*
NL	543	181	*50*	*-290*	*127*	*48*	*61*	*-68*								*0*
AT	263	66	*34*	*-155*												*0*
PT																
FI	242	59	*32*	*-132*	*89*	*33*	*57*	*-40*	76	*24*	*46*	*-37*	77	*3*	*4*	*-55*
SE	378	56	*17*	*-191*	*134*	*32*	*31*	*-55*	172	*30*	*22*	*-82*	73	*-6*	*-8*	*-55*
UK	3408	509	*18*	*-2156*	*428*	*151*	*54*	*-191*	624	*184*	*42*	*-310*	2355	*174*	*8*	*-1655*
CY																
CZ	377	*77*	*26*	*-248*	*99*	*22*	*28*	*-63*	72	*16*	*28*	*-46*	205	*40*	*24*	*-139*
EE																
HU																
LT	114	11	*11*	*-69*	*28*	*5*	*19*	*-16*	6	*1*	*19*	*-4*	80	*6*	*8*	*-50*
LV	61	-4	*-6*	*-38*	*5*	*0*	*0*	*-3*	4	*0*	*0*	*-2*	52	*-4*	*-7*	*-33*
MT	30	11	*61*	*-20*	*21*	*8*	*66*	*-13*	8	*3*	*67*	*-5*	1	*0*	*-19*	*-1*
PL	1226	341	*39*	*-778*	*156*	*51*	*49*	*-95*	65	*21*	*49*	*-40*	1006	*269*	*36*	*-643*
SK	185	58	*46*	*-124*	*47*	*16*	*53*	*-31*	57	*20*	*53*	*-37*	82	*22*	*38*	*-56*
SI	85	27	*47*	*-50*	*20*	*8*	*70*	*-10*	15	5	46	-9	50	*15*	*41*	*-31*
EU25	16513	3882	*31*	*-9577*	*2861*	*1011*	*55*	*-1394*	4567	1255	38	-2402	8491	*1453*	*21*	*8229*
EU15	14434	3359	*30*	*-8251*	*2486*	*901*	*57*	*-1163*	4341	1189	38	-2260	1476	*-4432*	*-75*	*1476*
EU10	2078	523	*34*	*-1326*	*375*	*110*	*41*	*-231*	227	66	41	-142	1476	*347*	*31*	*-792*

Source: DG ECFIN calculation

5.5. Projected spending on long-term care

5.5.1. Pure ageing scenario

Table 5-13 presents the projection results for the '*pure ageing scenario'* under the assumption that costs evolve in line with GDP per worker (scenario I). Public spending on long-term care is projected to increase by between 0.7 and 1.4 p.p. of GDP in most countries between 2004 and 2050. Given their well developed system of formal care provision, public spending is projected to rise by over 2 p.p. in Finland, Sweden and Slovenia. Public spending is projected to rise by less than 1 p.p. in EU10 Member States, except Slovakia and Malta. The striking differences across countries (for example, a projected increase of only 0.1pp of GDP by 2050 in Poland) reflect differences in the level of spending in the base year.

Table 5-13 Projection results for the pure ageing scenario (I)

	Projected spending as % of GDP						
	2004	**2010**	**2020**	**2030**	**2040**	**2050**	***2004-2050***
BE	0.9	1.0	1.1	1.4	1.8	2.1	*1.2*
DK	1.1	1.2	1.3	1.9	2.3	2.6	*1.4*
DE	1.0	1.0	1.3	1.5	1.8	2.3	*1.3*
GR							
ES	0.5	0.5	0.5	0.6	0.7	0.8	*0.3*
FR							
IE	0.6	0.6	0.6	0.8	1.0	1.3	*0.7*
IT	1.5	1.5	1.6	1.8	2.0	2.4	*0.8*
LU	0.9	1.0	1.1	1.2	1.5	1.7	*0.8*
NL	0.5	0.5	0.6	0.8	1.0	1.2	*0.7*
AT	0.6	0.7	0.8	1.0	1.2	1.5	*0.9*
PT							
FI	1.7	1.9	2.3	3.2	3.8	4.0	*2.2*
SE	3.8	3.7	3.9	5.3	5.8	6.3	*2.4*
UK	1.0	1.0	1.1	1.4	1.7	2.0	*1.0*
CY							
CZ	0.3	0.3	0.4	0.6	0.7	0.8	*0.5*
EE							
HU							
LT	0.5	0.6	0.6	0.7	0.8	1.0	*0.5*
LV	0.4	0.4	0.5	0.6	0.7	0.8	*0.4*
MT	0.9	0.9	0.9	1.1	1.2	1.2	*0.4*
PL	0.1	0.1	0.1	0.1	0.2	0.2	*0.1*
SK	0.7	0.8	0.8	0.9	1.2	1.4	*0.7*
SI	0.9	1.1	1.3	1.6	2.1	2.4	*1.5*
EU25	*0.9*	*0.9*	*1.0*	*1.2*	*1.4*	*1.7*	*0.8*
EU15	*0.9*	*0.9*	*1.0*	*1.2*	*1.5*	*1.7*	*0.8*
EU10	*0.2*	*0.3*	*0.3*	*0.4*	*0.4*	*0.5*	*0.3*

Source: DG ECFIN calculation
Note: EU25, EU15 and EU10 – average weighted by GDP

Taking account of existing policy settings in the Member States: the German long-term care system

In the EPC projection of public expenditure on long-term care, unit costs are indexed to GDP per worker or GDP per capita. Under existing rules in Germany, all long-term care benefits (that is the benefits paid out by the public insurance for people receiving formal care at home, care in institutions or cash benefits) are fixed by law without any indexation. The difference between the amounts financed by the State and the costs of long term care are either recovered by private insurance or are paid by the beneficiaries themselves.

To better reflect the current setting in German legislation, an alternative projection has been run where unit costs of long-term care services are assumed to remain constant in real terms. This would mean that the amounts financed by the State are adjusted in line with prices. The table below presents the results of the projection assuming an indexation of unit costs to prices and to GDP per worker, respectively.

Assuming constant unit costs in real terms, the long-term care public expenditure is projected to remain around 1% of GDP over the whole projection period, as compared to an increase from close to 1% of GDP today up to 2% of GDP when assuming unit costs evolve in line with GDP per worker. The results of the two scenarios illustrate the difference between what the State is projected to spend under these two assumptions (under current legislation there would not even be an indexation to prices).

Projected spending on long-term care in Germany under existing legislation

	2004	2010	2020	2030	2040	2050	*change 2004-2050*
AWG reference scenario							
Unit costs are constant in real terms	0.97	0.96	0.99	0.94	0.97	1.00	*0.03*
Unit costs evolve in line with GDP per worker	0.97	1.02	1.21	1.36	1.64	2.00	*1.03*
Pure ageing scenario							
Unit costs are constant in real terms	0.97	0.98	1.03	1.01	1.06	1.12	*0.15*
Unit costs evolve in line with GDP per worker	0.97	1.03	1.26	1.46	1.81	2.25	*1.28*

5.5.2. Unit costs evolve in line with GDP per capita

Table 5-14 presents the projection results for the scenario under the assumption that '*unit costs evolve in line with GDP per capita'*. It also compares the results relative to the '*pure ageing scenario'* presented on Table 5-13. The increase in spending projected is somewhat smaller at the end of the projection period. Compared to the pure ageing scenario where unit costs evolve in line with GDP per worker, the differences are very small. Spending would tend to be higher in the first period of the projection and lower in the second period; this reflects the different patterns in the evolution of GDP per capita and GDP per worker.

Table 5-14 Projection results for the *scenario where unit costs evolve in line with GDP per capita* (II)

	Projected spending as % of GDP							Difference as % of GDP compared to pure demographic scenario		
	2004	2010	2020	2030	2040	2050	*2004-2050*	2010	2030	2050
BE	0.9	1.0	1.2	1.3	1.7	2.0	*1.1*	0.0	0.0	-0.1
DK	1.1	1.2	1.3	1.8	2.0	2.4	*1.2*	0.0	-0.1	-0.2
DE	1.0	1.1	1.3	1.5	1.8	2.2	*1.2*	0.0	0.0	-0.1
GR							*:*			
ES	0.5	0.5	0.6	0.6	0.7	0.8	*0.2*	0.0	0.0	-0.1
FR										
IE	0.6	0.6	0.7	0.8	1.0	1.3	*0.7*	0.0	0.0	-0.1
IT	1.5	1.6	1.7	1.8	2.0	2.2	*0.7*	0.1	0.1	-0.1
LU	0.9	1.0	1.2	1.3	1.7	2.1	*1.3*	0.1	0.1	0.4
NL	0.5	0.5	0.6	0.8	1.0	1.1	*0.7*	0.0	-0.1	-0.1
AT	0.6	0.7	0.8	0.9	1.1	1.4	*0.8*	0.0	0.0	-0.1
PT										
FI	1.7	1.9	2.2	3.0	3.6	3.7	*2.0*	0.0	-0.2	-0.3
SE	3.8	3.8	3.8	5.1	5.5	6.0	*2.2*	0.1	-0.2	-0.3
UK	1.0	1.0	1.1	1.4	1.6	1.9	*0.9*	0.0	-0.1	-0.1
CY										
CZ	0.3	0.4	0.4	0.5	0.6	0.7	*0.4*	0.0	0.0	-0.1
EE										
HU										
LT	0.5	0.6	0.7	0.7	0.8	1.0	*0.5*	0.0	0.1	0.0
LV	0.4	0.5	0.6	0.6	0.7	0.8	*0.4*	0.0	0.0	0.0
MT	0.9	0.9	1.0	1.1	1.2	1.2	*0.3*	0.0	0.0	0.0
PL	0.1	0.1	0.1	0.2	0.2	0.2	*0.1*	0.0	0.0	0.0
SK	0.7	0.8	0.9	1.0	1.2	1.3	*0.6*	0.0	0.1	-0.1
SI	0.9	1.1	1.3	1.5	1.9	2.1	*1.1*	0.0	-0.1	-0.4
EU25	0.9	0.9	1.0	1.2	1.3	1.6	*0.7*	0.0	0.0	-0.1
EU15	0.9	0.9	1.0	1.2	1.4	1.6	*0.8*	0.0	0.0	-0.1
EU10	0.2	0.3	0.3	0.4	0.4	0.5	*0.2*	0.0	0.0	-0.1

Source: DG ECFIN calculation
Note: EU25, EU15 and EU10 – average weighted by GDP

5.5.3. Constant disability scenario

Table 5-15 presents the projection results for the '*constant disability scenario'*, under the assumption that costs evolve in line with GDP per worker. As expected, an improved disability status would lead to a considerably lower number of disabled persons in the future who would have some need for care. Under the constant disability scenario, the projected increase in spending due to ageing would be between 40% and 60% lower (up to 100% in Luxemburg) as compared to the pure ageing scenario. According to the projection, spending would increase by about 0.5 p.p. of GDP in most countries, with smaller increases in EU10 Member States.

Table 5-15 Projection results for the *constant disability scenario* (III)

	Projected spending as % of GDP							*Difference as % of GDP compared to pure demographic scenario*		
	2004	**2010**	**2020**	**2030**	**2040**	**2050**	***2004-2050***	**2010**	**2030**	**2050**
BE	0.9	0.9	1.0	1.1	1.4	1.5	*0.7*	0.0	-0.2	-0.5
DK	1.1	1.1	1.2	1.6	1.8	1.9	*0.8*	-0.1	-0.3	-0.7
DE	1.0	1.0	1.1	1.3	1.5	1.8	*0.8*	0.0	-0.2	-0.5
GR										
ES	0.5	0.5	0.5	0.5	0.6	0.7	*0.2*	0.0	0.0	-0.1
FR										
IE	0.6	0.6	0.6	0.7	0.8	1.0	*0.4*	0.0	-0.1	-0.3
IT	1.5	1.5	1.5	1.6	1.8	2.0	*0.5*	0.0	-0.1	-0.3
LU	0.9	0.9	1.0	1.0	1.1	1.3	*0.4*	0.0	-0.2	-0.4
NL	0.5	0.5	0.5	0.7	0.8	0.9	*0.4*	0.0	-0.2	-0.3
AT	0.6	0.7	0.8	1.0	1.2	1.5	*0.9*	0.0	0.0	0.0
PT										
FI	1.7	1.8	2.0	2.7	3.0	3.0	*1.3*	-0.1	-0.5	-0.9
SE	3.8	3.6	3.5	4.5	4.6	4.7	*0.9*	-0.2	-0.9	-1.5
UK	1.0	1.0	1.0	1.2	1.3	1.5	*0.5*	0.0	-0.2	-0.5
CY										
CZ	0.3	0.3	0.3	0.5	0.5	0.6	*0.3*	0.0	-0.1	-0.2
EE										
HU										
LT	0.5	0.5	0.5	0.6	0.7	0.8	*0.3*	0.0	-0.1	-0.2
LV	0.4	0.4	0.5	0.5	0.6	0.6	*0.2*	0.0	-0.1	-0.2
MT	0.9	0.9	0.9	1.0	1.1	1.0	*0.1*	0.0	-0.1	-0.2
PL	0.1	0.1	0.1	0.1	0.2	0.2	*0.1*	0.0	0.0	0.0
SK	0.7	0.8	0.7	0.8	1.0	1.2	*0.5*	0.0	-0.1	-0.2
SI	0.9	1.1	1.2	1.4	1.7	1.9	*1.0*	0.0	-0.2	-0.5
EU25	0.9	0.8	0.9	1.0	1.1	1.3	*0.5*	0.0	-0.2	-0.4
EU15	0.9	0.9	0.9	1.1	1.2	1.4	*0.5*	0.0	-0.2	-0.4
EU10	0.2	0.3	0.3	0.3	0.4	0.4	*0.2*	0.0	0.0	-0.1

Source: DG ECFIN calculation
Note: EU25, EU15 and EU10 – average weighted by GDP

5.5.4. Increase in formal care provision scenario

The entire age-related expenditure projection exercise is founded upon an assumption of "no policy change". However, as shown in the results for the pure ageing scenario, the projected increase in public spending on long-term is much higher in countries with well developed formal care systems and *vice versa.* Extrapolating forward on the basis of existing policies and expenditure patterns may give a misleading picture of possible future pressures on public finances. Countries with low levels of formal care provision today (and thus low levels of public spending) will also witness a very large increase in the projected numbers of persons in need of care, and thus pressure may emerge in the future for policy changes to increase formal

care provision. The gap between the need for care and supply of formal care will grow (i.e. the difference projected number of persons with disability on Table 5-11 and the projected numbers of person receiving formal care on the same table).

In brief, the headline projected change in public spending on long-term care may not fully capture the scale or nature of the policy challenge. Growing numbers of elderly persons in need of care may lobby governments to enact policy changes to increase the availability of formal care. On top of the effects of growing numbers of elderly persons, the supply of informal care within households may diminish, as family sizes decline and more women are in active employment (although the scale of this effect will depend on the starting employment rates of women).

To capture the budgetary effects of possible future policy changes, a scenario has been devised which quantifies the budgetary impact of more formal care being provided/financed by the public sector. In particular, it assumes that until 2020, the number of persons receiving informal (or no) care falls by 1% per annum: half of these persons are assumed to receive formal care in institutions and the other half would receive formal care at home.

Table 5-16 shows the projection of the dependent population under the '*increase in formal care provision scenario*'. According to the projection, the population receiving formal care in an institution would increase by 350% on average and the population receiving formal care at home by 400%. The population relying on informal or no care would fall by about 90% on average, 60% in the EU15 and 130% in the EU10. In 2050, the number of people receiving informal or no care in 2050 would be about 20% of the dependent population on average.

Table 5-16 Projection of dependent population, in thousands – *increase in formal care provision*

	Dependent population			Population receiving formal care in institutions				Population receiving formal care at home				Population receiving informal or no care			
	2050	***2004-2050***	***% change 2004-50***	**2050**	***2004-2050***	***% change 2004-50***	***difference in 2050 from pure ageing***	**2050**	***2004-2050***	***% change 2004-50***	***difference in 2050 from pure ageing***	**2050**	***2004-2050***	***% change 2004-50***	***difference in 2050 from pure ageing***
BE	841	*425*	*102*	*405*	*258*	*175*	*73*	321	207	*181*	*73*	116	*-39*	*-25*	*-147*
DK	275	*136*	*97*					334	158	*90*	*-34*				
DE	5689	*2900*	*104*	*1956*	*1421*	*266*	*635*	2735	1760	*181*	*635*	998	*-281*	*-22*	*-1270*
GR															
ES	3494	*2045*	*141*	*1042*	*884*	*559*	*694*	1361	1074	*375*	*694*	1091	*87*	*9*	*-1388*
FR															
IE	319	*228*	*250*	*113*	*93*	*462*	*38*	146	117	*405*	*38*	60	*17*	*42*	*-76*
IT	4272	*2058*	*93*	*983*	*790*	*411*	*580*	2378	1444	*155*	*580*	912	*-177*	*-16*	*-1160*
LU	35	*22*	*173*	*14*	*11*	*347*	*4*	16	12	*266*	*4*	6	*0*	*7*	*-8*
NL	833	*471*	*130*	*373*	*294*	*374*	*179*								
AT	419	*221*	*112*												
PT															
FI	374	*191*	*104*	*167*	*110*	*193*	*37*	149	97	*188*	*37*	58	*-16*	*-22*	*-74*
SE	569	*247*	*77*	*224*	*122*	*120*	*36*	289	148	*104*	*36*	56	*-23*	*-29*	*-71*
UK	5564	*2665*	*92*	*1742*	*1464*	*527*	*1123*	2057	1617	*368*	*1123*	1765	*-416*	*-19*	*-2245*
CY															
CZ	625	*326*	*109*	*259*	*181*	*235*	*96*	215	158	*281*	*96*	151	*-14*	*-9*	*-193*
EE															
HU															
LT	184	*80*	*78*	*80*	*57*	*240*	*36*	46	41	*759*	*36*	57	*-17*	*-23*	*-72*
LV	99	*34*	*52*	*32*	*27*	*545*	*24*	30	26	*734*	*24*	38	*-19*	*-33*	*-48*
MT	37	*24*	*181*	*21*	*14*	*228*	*1*	14	9	*195*	*1*	2	*0*	*-4*	*-2*
PL	2004	*1119*	*126*	*712*	*608*	*581*	*461*	566	523	*1195*	*461*	725	*-11*	*-2*	*-923*
SK	309	*182*	*143*	*116*	*85*	*277*	*38*	132	95	*256*	*38*	60	*1*	*2*	*-77*
SI	135	*77*	*134*	*53*	*41*	*352*	*23*	47	36	355	23	36	*0*	*1*	*-46*
EU25	26077	*26019*	*6254*	*8290*	*6446*	*350*	*4050*	*10836*	7523	6578	3866	*6131*	*-907*	*-13*	*-7800*
EU15	22685	*22658*	*83066*	*7018*	*5433*	*343*	*3369*	*9786*	6635	*3777*	3185	*5062*	*-847*	*-14*	*-6439*
EU10	3391	*-489*	*-13*	*1272*	*1013*	*391*	*680*	*1049*	888	91	680	*1070*	*-60*	*-5*	*-1361*

Source: DG ECFIN calculation

Table 5-17 presents the projection results under the assumption of a policy change in the provision of formal care, as well as the comparison with the results of the pure ageing

scenario. An increase in the provision of formal care, where the population who were receiving informal care is split in half between home care and institutions, would result in increases in public spending of more than 100% in many countries: Spain, Italy, Luxemburg, the Netherlands, the UK, Lithuania, Latvia and Poland. Relative to the pure ageing scenario where the probability of receiving formal care is kept constant during the projection period, expenditure in 2050 would be higher by between 0.6 and 1 p.p. in most Member States.

Table 5-17 Projection results for the *increase in formal care provision scenario* (IV)

	Projected spending as % of GDP							*Difference as % of GDP compared to pure demographic scenario*		
	2004	**2010**	**2020**	**2030**	**2040**	**2050**	***2004-2050***	**2010**	**2030**	**2050**
BE	0.9	1.0	1.3	1.5	2.0	2.3	*1.5*	0.1	0.2	0.3
DK										
DE	1.0	1.1	1.6	1.8	2.3	2.8	*1.8*	0.1	0.3	0.6
GR										
ES	0.5	0.7	0.9	1.0	1.3	1.7	*1.1*	0.1	0.4	0.9
FR								0.0	0.0	0.0
IE	0.6	0.6	0.7	1.0	1.2	1.6	*1.0*	0.0	0.2	0.3
IT	1.5	1.7	2.1	2.3	2.8	3.3	*1.7*	0.2	0.6	0.9
LU	0.9	1.1	1.4	1.5	1.8	2.1	*1.2*	0.1	0.3	0.4
NL	0.5	0.7	1.1	1.5	1.9	2.3	*1.8*	0.2	0.7	1.0
AT										
PT										
FI	1.7	2.0	2.6	3.7	4.4	4.6	*2.8*	0.1	0.5	0.6
SE	3.8	3.9	4.2	5.8	6.2	6.8	*3.0*	0.1	0.4	0.5
UK	1.0	1.4	2.0	2.5	3.0	3.6	*2.6*	0.3	1.1	1.6
CY										
CZ	0.3	0.4	0.6	0.8	1.0	1.2	*0.9*	0.1	0.3	0.4
EE										
HU										
LT	0.5	0.7	0.9	1.0	1.2	1.5	*1.0*	0.1	0.3	0.6
LV	0.4	0.9	1.8	2.0	2.5	3.0	*2.6*	0.5	1.4	2.2
MT	0.9	0.9	0.9	1.1	1.3	1.3	*0.4*	0.0	0.0	0.0
PL	0.1	0.2	0.2	0.3	0.4	0.4	*0.3*	0.0	0.1	0.2
SK	0.7	0.8	0.9	1.1	1.5	1.8	*1.1*	0.1	0.2	0.4
SI	0.9	1.3	1.9	2.3	3.1	3.6	*2.7*	0.2	0.7	1.2
EU25	*0.9*	*1.0*	*1.3*	*1.6*	*1.9*	*2.3*	*1.5*	*0.1*	*0.4*	*0.7*
EU15	*0.9*	*1.0*	*1.4*	*1.7*	*2.0*	*2.4*	*1.5*	*0.1*	*0.4*	*0.7*
EU10	*0.2*	*0.3*	*0.4*	*0.6*	*0.7*	*0.9*	*0.6*	*0.1*	*0.2*	*0.3*

Source: DG ECFIN calculation
Note: EU25, EU15 and EU10 – average weighted by GDP

5.5.5. AWG reference scenario

An *'AWG reference scenario"* (V) is a prudent scenario that aims to bring together several different drivers of long-term care spending. It assumes that age-specific disability rates fall by half of the projected decrease in age-specific mortality rates. This implies that some half of projected gains in life expectancy up to 2050 would be spent in good health and free of disability. Note that that the aim is to facilitate the comparison of budgetary projections across expenditure items, and thus it should be symmetrical with the "AWG reference scenario" for health care.

Table 5-18 presents the results of the AWG reference scenario. It shows that the projected increase in public spending lies midway between the results of the "pure ageing" and the "constant disability" scenario. The effects of the "AWG reference scenario" are stronger for long-term care than for health care, i.e. in terms of mitigating the projected increase in public

spending. This occurs because unlike the health care projection exercise, there is no assumption regarding the income elasticity of demand being greater than unity. Also, the age-specific disability rates used in the long-term care projection rise at a much steeper pace compared with the (implicit) assumptions on age-specific morbidity rates used in the health care projection (which uses the age-related expenditure profile as a proxy for morbidity).

Table 5-18 Projection results for the *AWG reference scenario*

	Projected spending as % of GDP						
	2004	**2010**	**2020**	**2030**	**2040**	**2050**	***2004-2050***
BE	0.9	0.9	1.1	1.3	1.6	1.8	*1.0*
DK	1.1	1.1	1.2	1.8	2.0	2.2	*1.1*
DE	1.0	1.0	1.2	1.4	1.6	2.0	*1.0*
GR							
ES	0.5	0.5	0.5	0.5	0.6	0.8	*0.2*
FR							*0.0*
IE	0.6	0.6	0.6	0.7	0.9	1.2	*0.6*
IT	1.5	1.5	1.6	1.7	1.9	2.2	*0.7*
LU	0.9	1.0	1.0	1.1	1.3	1.5	*0.6*
NL	0.5	0.5	0.5	0.8	0.9	1.1	*0.6*
AT	0.6	0.7	0.8	1.0	1.2	1.5	*0.9*
PT							
FI	1.7	1.9	2.1	3.0	3.4	3.5	*1.8*
SE	3.8	3.7	3.7	4.9	5.2	5.5	*1.7*
UK	1.0	1.0	1.1	1.3	1.5	1.8	*0.8*
CY							
CZ	0.3	0.3	0.4	0.5	0.6	0.7	*0.4*
EE							
HU							
LT	0.5	0.6	0.6	0.6	0.7	0.9	*0.4*
LV	0.4	0.4	0.5	0.5	0.6	0.7	*0.3*
MT	0.9	0.9	0.9	1.0	1.1	1.1	*0.2*
PL	0.1	0.1	0.1	0.1	0.2	0.2	*0.1*
SK	0.7	0.8	0.7	0.9	1.1	1.3	*0.6*
SI	0.9	1.1	1.3	1.5	1.9	2.2	*1.2*
EU25	*0.9*	*0.9*	*0.9*	*1.1*	*1.3*	*1.5*	*0.6*
EU15	*0.9*	*0.9*	*1.0*	*1.1*	*1.3*	*1.5*	*0.7*
EU10	*0.2*	*0.3*	*0.3*	*0.3*	*0.4*	*0.5*	*0.2*

Source: DG ECFIN calculation
Note: EU25, EU15 and EU10 – average weighted by GDP

5.6. Conclusion

An ageing population will be a strong upward impact on public spending for long term care. This is because frailty and disability rises sharply at older ages, especially amongst the very old (aged 80+) which will be the fastest growing segment of the population in the decades to come. The projection methodology has been upgraded considerably since the 2001 exercise, and has enabled to run scenarios which examine non-demographic drivers of spending.

According to a “pure ageing” scenario based on current policy settings, public spending on long-term care is projected to increase by between 0.5 and 1 p.p. of GDP between 2004 and 2050. The projected changes in public spending are very diverse reflecting very different approaches to the provision/financing of formal care. Countries with very low projected increases in public spending currently have very low levels of formal care. The projections show that with an ageing population, a growing gap may occur between the number of elderly citizens with disability who are in need of care (which will more than double by 2050) and the actual supply of formal care services. On top of an ageing population, this gap could further grow due to less informal care being available within households on account of trends in family size and projected increase in the participation of women in the labour market. In brief, for countries with less developed formal care systems today, the headline projected increase in public spending on long-term care may not fully capture the pressure on public finances, as future policy changes in favour of more formal care provision may be needed.

Public spending is very sensitive to trends in the disability rates of elderly citizens. Compared with a “pure ageing” scenario, projected change in spending would be between 40% and 60% lower if the disability status of elderly citizens improves broadly in line with the projected increase in life expectancy. Policy measures, which can either reduce disability, limit the need for formal care amongst elderly citizens with disabilities, or which favour formal care at home rather than in institutions, can have a very large impact on public spending.

6. EDUCATION

6.1. Introduction

The number of children and young people in the EU is expected to fall over the next decades. This has raised the question of whether savings in education expenditure can be expected. The results presented in this chapter indicate a reduced ratio of students to working-age population which leads to a reduction in the ratio of total education expenditure to GDP in all EU Member States. While this ratio ranged from 3.4 to 7.6 % in 2002 (the base year), it is projected to range from 2.4 to 7.5 % in 2050. The reductions are 1 percentage point or lower in 18 Member States, and 2 percentage point or higher only in two countries. As the reductions in education expenditure are relatively minor, they can not be expected to offset the rise in old-age-related expenditure.

The exercise takes into account expected demographic and labour market developments and the commonly agreed macroeconomic assumptions applied to the whole budgetary exercise. It does not assume a general rise in the education levels, but analyses the effects of expected demographic and labour market developments given the present enrolment and cost situation. As a consequence, a word of caution is in order. The projections of reduced education expenditure depend on a number of variables. As no underlying trend in enrolment rates is included, wealth effects on the demand side, or investment considerations e.g. related to the Lisbon objectives, could lead to savings being even more limited. The same can happen if expenditure per student should rise relative to GDP per worker, e.g. because of smaller classes or an increase in relative wages. In several Member States national expectations are that enrolment and/or cost levels will increase more than what follows from the projections, because of implemented or planned legislation or other policies. This is especially relevant for enrolment in tertiary education. As education is to a large extent an investment in future human capital, many Member States may also wish to direct any savings arising from demographic developments to exactly such increases in quality or intensity.

Historical experience further emphasizes that factors other than demographic developments have clearly been important to the developments of education expenditure over the last years. The projected savings are conditional on these factors not continuing to point in an upward direction. While a detailed analysis of such factors has been beyond the scope of the current exercise, it is important to note that the projections should in no way be taken to imply that large and easy savings can be expected for public finances due to developments in the educational sector.

Compared to the exercise in 2003, several improvements have been implemented in the current exercise. The main improvement lies in the more reliable and comparable data that have been used in this exercise. The present calculation of enrolment rates further ensures consistency between enrolment rates and labour market participation rates. The methodology also allows different assumptions on the developments of each cost element. For details on the methodology, refer to the Economic Policy Committee and European Commission (2005a).

6.2. Data collection and delimitation of the exercise

The data used have been collected from Eurostat, and then sent to the Member States for information and verification. For some countries complete data were not available. In these cases, simplifying assumptions have been made in order to run the projections; cf. Table 6-1.

Table 6-1: Detailed assumptions made in performing the projections

Country	Data situation	Assumptions made
Belgium	Complementary information has been provided by the Belgian authorities for year 2003 (number of personnel). Financial information for level 2 and level 3 are combined.	Number of personnel has been estimated for each level of education applying to year 2002 the same ratio student/personnel as in 2003. Expenditure has been split between level 2 and level 3/4 assuming that the salary level is the same across the three levels. For all other expenditure items the ratio between different categories of expenditure provided by the combined figures is kept constant.
Denmark	Data for personnel are missing for level 2 and 5	Number of staff in level 2 and 5 has been estimated using EU15 average class size.
Germany	The spending (around 0.25 per cent of GDP) at the workplace for combined workplace and school education as well as similar expenditure by "Bundesagentur für Arbeit" is not included. These data were provided by German authorities.	
Estonia	Personnel data for 2002 are missing. Data for Finance 2 (expenditure breakdown by type of expenditure: personnel, other than personnel) are missing Data covers exclusively public spending	The 2001 student/personnel ratio is applied to the 2002 figures. Assumption: Total public spending, as from Finance1, has been broken down in wage and no-wage related expenditure according to EU25 ratio.
Greece	Financial data for level 2 and 3 are combined.	The salary level is assumed to be equal across level 2 and 3. Other expenditures are assumed to have the same ratio between level 2 and 3 as salaries.
Spain	Financial data for levels 2 and 3/4 are combined.	The salary level is assumed to be equal across level 2 and 3/4. Other expenditures are assumed to have the same ratio between level 2 and 3/4 as salaries.
Ireland	Data for personnel for level 2 and 3/4 are combined.	The data have been broken down according to class size information provided by Irish authorities.

Lithuania	Data for private payments are missing. Financial data for level 1, 2 and 3/4 are combined.	Data for private payments (P5) have been provided by the Lithuanian authorities. Financial data for levels 1, 2 and 3/4 have been broken down according to number of teachers on the assumption that the salary is equal across levels.
Luxembourg	Data cover only spending up to ISCED level 3. Moreover figures represent exclusively public spending in public institutions. These data were provided by Luxembourg authorities.	
Netherlands	Number of personnel in ISCED level 2 is missing.	Number of staff in level 2 has been estimated using EU15 average class size.
Portugal	Data for staff are missing for level 5	Number of staff in level 5 has been estimated using EU15 average class size.
Slovenia	Data for Fin1 in level 1 include data for level 2. No data for Fin2 (break down of expenditure by type) exists.	The salary level is assumed to be equal across level 1 and 2. Assumption: Total public spending as from Finance1, has been broken down by wage and no-wage related expenditure according to EU25 ratio
United Kingdom	Data for level 3 include data for level 2.	The salary level is assumed to be equal across level 2 and 3. Other expenditures are assumed to have the same ratio between level 2 and 3 as salaries.

Source: Commission services

Education is classified into seven different levels according to a standard international classification system (ISCED).[69] The projections cover public education expenditure for basic, upper-secondary and tertiary education. In particular:

[69] Pre-primary education. Level 0 of ISCED classifications. It is defined as the initial stage of organised instruction, designed primarily to introduce very young children to a school-type environment. Such programmes are designed in general for children of at least 3 years. Basic (primary plus lower secondary) education. Level 1 and 2 of ISCED classification. Level 1 is the start of compulsory education (the first stage of basic education) with a legal age of entry usually not lower than five years old and higher than seven years old. This level covers in principle six years of full-time schooling. Level 2 is lower secondary school (or a second stage of basic education). The end of this stage is usually after nine years of schooling after the beginning of primary education and often coincides with the end of the compulsory education. It includes general education as well as pre-vocational or pre-technical education and vocational and technical education. Upper-secondary education. Level 3 and 4 of ISCED classification. Level 3 is upper-secondary school and the entry is typically 15 or 16 year old. It also includes vocational and technical educational. Level 4 is post-secondary non-tertiary education and these programmes are typically designed to prepare students to the following level (university). Tertiary education. Level 5 and 6 of ISCED classification. Level 5 covers at least two years of education and the minimal access requirements is the completion of level 3 and 4. However a Master course that implies up to 6 years of tertiary education is included in level 5. Level 6 includes tertiary programmes which lead to the award of an advance research qualification. See Unesco, 1997.

a) Projections are run for primary (ISCED 1), lower secondary (ISCED 2), upper secondary and post secondary non-tertiary (ISCED 3 and 4), and tertiary education (ISCED 5 and 6). This allows distinguishing between compulsory schooling (ISCED 1 and 2), non compulsory schooling (ISCED 3 and 4) and tertiary education (ISCED 5 and 6). ISCED levels 4 and 6 play a marginal role. They are often assimilated to levels 3 and 5 respectively, and are treated as part of these levels also in this exercise.

b) The effective starting and ending age of each education level differ significantly across Member States. In addition the effective upper age-limit can differ considerably form the standard one[70]. However, data has been provided on all students across both age and level. All students are thus included in the projections, and the differences between standard ages and effective limits do not cause problems for the projections.

c) As this exercise focuses on comparability of data across countries, pre-primary education is not included in the projections. The 2003 exercise revealed serious data problems related to pre-primary education which makes it difficult to produce reliable projections. Comparability across countries is also hampered by large differences in the institutional settings of pre-primary systems and large shares of private institutions. Public expenditures on pre-primary education on average represent less than 0.5% of GDP.

The base year for the calculations is 2002. This is because 2002 is the last year for which a complete data set, comprising both the number of students and staff and financial data, is available. However, actual enrolment figures are also available for 2003 for all countries, and these are therefore included. This implies that for 2003 projected enrolment corresponds to actual enrolment, while cost levels are projected data which may differ somewhat from actual developments.

6.3. The number of students in public education

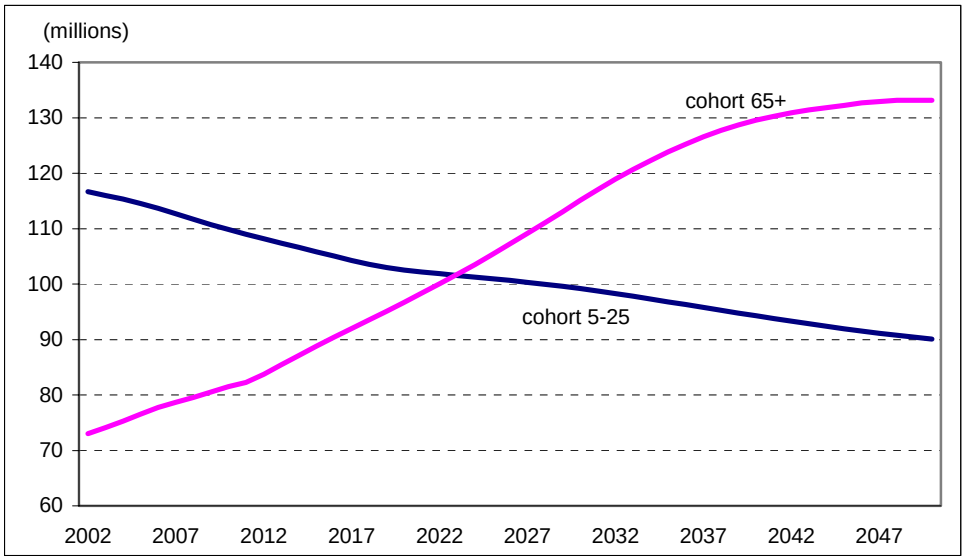
6.3.1. Demographic developments

The main driving force for the future trend in the number of students is demographic developments. While the AWG population scenario[71] indicates a relatively stable total population in the EU, much larger changes are expected in the composition of the population. The starting and ending ages in education varies greatly between countries, and especially in higher education, it is difficult to set an upper limit to the age where people are potentially affected by education policies. However, a broad indication can be given by looking at the number of people aged 5-25 years, as this is the most relevant age-group in most countries. For the EU, this number is projected to decline from 117 million in 2002 to 91 million by 2050 (see Graph 6-1). The number of old people (aged 65 and above) will rise markedly over the same horizon, and the number of old people will as a consequence be higher than that of younger ones in less than 20 years.

[70] A notable; but not the only; example here is Denmark, where according to national estimates approximately 2/3 of tertiary education students are over the standard age of 19-23.

[71] See Section 2.1.

Graph 6-1: Population aged 5-25 and over 65 in the EU25 (2002-2050). Millions



Source: Eurostat.

The number of young people must be seen in relative terms to be a useful indicator of expected changes in education expenditure as a share of GDP. Table 6-2 presents the size of the populations aged 5-25 and their share of the working-age population in all Member States. With the exception of The Netherlands, Luxembourg and Sweden, the size of the age group 5-25 is foreseen to contract between 2002 and 2050. The decline in the number of young people is expected to exceed 40% in six countries (CZ, EE, LT, LV, PL, SK) and to be between 30% and 40% in three countries (EL, HU, SI).

If the number of young people is instead considered in relation to the working-age population, the table shows that the share of young people will fall in all countries except Denmark, Luxembourg and the Netherlands. There were on average around 38 young out of 100 of working-age in the EU in 2002, while in 2050 there will be about 35 out of 100. This overall trend hides differences across countries. The biggest drops in young shares in absolute terms are expected in Cyprus, Lithuania, Poland and Slovakia where the ratio will fall more than 10 percentage points. This decline is, however, very small relative to the expected rise in the old-age dependency ratio[72], from 24 out of 100 in 2002 to 52 out of 100 in 2050.

[72] The old-age dependency ratio is defined as the ratio between people aged 65 or older and the population aged 15-64.

Table 6-2: Change in population aged 5-25 and young share of working-age population between 2002 and 2050.

	Total population (age 5-25) - in thousands			Young share[1]		
	2002	2050	Change 2002- 2050	2002	2050	change 2002-2050
BE	2603	2353	-250	38.5	37.4	-1.1
CZ	2841	1641	-1200	39.6	32.7	-7.0
DK	1338	1279	-59	37.5	39.1	1.6
DE	19049	14458	-4591	34.2	32.1	-2.0
EE	393	233	-161	42.9	34.7	-8.2
EL	2807	1942	-865	37.6	33.0	-4.6
ES	10356	7369	-2987	36.9	32.1	-4.8
FR	15845	14969	-875	41.0	40.0	-1.1
IE	1254	1210	-43	47.5	38.2	-9.3
IT	12618	9381	-3237	33.0	32.0	-1.0
CY	227	195	-32	48.2	33.0	-15.2
LV	674	382	-291	42.3	34.5	-7.8
LT	1043	574	-469	45.1	33.4	-11.6
LU	112	153	41	37.6	38.9	1.2
HU	2792	1818	-974	40.1	35.1	-5.0
MT	119	110	-9	44.1	35.5	-8.6
NL	4094	4109	14	37.5	38.9	1.3
AT	2006	1552	-454	36.7	33.0	-3.6
PL	12197	6452	-5745	46.2	33.3	-13.0
PT	2694	1928	-766	38.6	35.0	-3.6
SI	531	355	-176	38.0	33.4	-4.6
SK	1739	895	-844	46.3	32.7	-13.6
FI	1367	1150	-216	39.3	38.2	-1.2
SE	2307	2366	60	40.1	39.1	-0.9
UK	15648	13759	-1890	40.4	36.4	-3.9
EU	116653	90634	-26019	38.4	34.8	-3.6

[1] Young share is reported as ratio between population age 5-25 over population aged 15-64.
Source: Commission services calculations based on Eurostat data.

6.3.2. Enrolment

Given the size of the population in relevant age groups, enrolment rates for each age group decide the number of students[73]. For basic education (primary and low secondary) enrolment rates tend to be close to 100%, and can be expected to remain broadly constant over time as basic education is compulsory in all Member States. Frictions in the systems and lack of enforcement of the legislation, nevertheless lead to some deviations from 100% enrolment.

[73] The enrolment rate of people aged x is defined as the number of students aged x divided by the number of people aged x in the total population. This is sometimes referred to as a net rate, while the gross rate is the total number of students divided by the number of people in the age-group considered relevant. In 2003 gross rates had to be used as the age of the students was not available, but as the effective limits can exceed the official age, this lead to gross rates above 100% in some cases. The available figures sometimes show also net enrolment rates above 100%. This must be due to imprecise registration of either the age of the students or the size of the population in question.

In the age-groups most frequently enrolled in upper secondary and tertiary education, working constitutes an alternative. The combination of part-time studying and part-time working, is also quite frequent in some countries, especially for tertiary education. Without any specific reason to assume a shift in the number of part-time students, or in the number of young people neither working nor studying, enrolment rates are calculated as a complement to labour market participation rates[74]. This implies that, other things being equal, an increase in the participation rate gives a decrease of the enrolment rate.[75] Table 6-3 presents the projections of participation rates for the age-groups most relevant to secondary and tertiary education.

Table 6-3: Labour market participation rates for young people (2002-2050)

	Age 15-18			Age 19-24		
	2002	2050	Change 2002 - 2050	2002	2050	Change 2002 - 2050
BE	6.6	6.7	0.0	54.2	55.8	1.6
CZ	4.3	6.1	1.8	59.2	56.1	-3.1
DK	54.3	51.1	-3.3	77.0	79.0	2.1
DE	23.0	24.1	1.1	68.4	68.9	0.4
EE	4.5	7.0	2.5	56.7	59.6	2.9
EL	9.2	8.7	-0.5	52.2	51.0	-1.2
ES	15.1	14.5	-0.6	59.0	60.3	1.3
FR	9.6	11.0	1.3	55.3	58.5	3.3
IE	23.1	22.4	-0.7	70.8	73.2	2.4
IT	13.3	12.3	-1.0	54.6	52.9	-1.6
CY	5.0	9.0	4.0	65.1	69.2	4.1
LV	9.5	8.4	-1.1	62.3	64.2	1.9
LT	4.0	4.3	0.3	52.3	50.0	-2.3
LU	9.1	6.2	-2.9	51.3	43.5	-7.8
HU	2.9	4.9	2.0	50.2	48.6	-1.6
MT	32.8	30.2	-2.6	78.4	77.2	-1.2
NL	61.3	59.6	-1.6	81.9	82.7	0.7
AT	35.7	36.4	0.7	68.3	69.9	1.6
PL	6.5	6.7	0.2	58.1	59.2	1.1
PT	20.0	17.6	-2.4	63.3	61.5	-1.7
SI	7.7	5.9	-1.8	51.7	47.3	-4.4
SK	5.8	8.9	3.2	67.1	63.0	-4.1
FI	27.8	26.1	-1.7	67.9	69.5	1.7
SE	24.7	23.3	-1.3	66.1	69.7	3.6
UK	44.7	46.1	1.4	77.7	77.2	-0.6

Source: Commission services calculations based on Eurostat data.

Labour market participation varies strongly across countries in the lower age group: while it is below 10 per cent in half of the countries, it exceeds 50 per cent in Denmark and the Netherlands. As enrolment rates for the same age-group are high also in these countries, this entails that combining studies and work is common. In general, large shifts in labour market participation rates for young people are not expected over the next decades.

As the age limits for the upper secondary and tertiary education levels vary, Table 6-4 and Table 6-5 provide the combined enrolment rates for all levels of education by single year age groups for 2002 and 2003 respectively. Not surprisingly, enrolment falls with age, and there are wide variations between countries.

[74] The participation rate is defined as the ratio of the labour force in a given age group to the total population in that age group. Participation rates and total population in a determined age group are the ones used in other parts of the budgetary projection exercise.

[75] See EPC and COM (2005a) for details on the methodology.

A comparison between the two tables shows some difference in enrolment rates between 2002 and 2003. In most cases, enrolment is higher in 2003, hinting at an underlying upward trend. This is why the projections include actual 2003 enrolment rates.

Table 6-4: Enrolment rate across all level of education by age[1]. 2002

Country/Age	15	16	17	18	19	20	21	22	23	24
BE	100.9	99.7	103.1	91.8	79.3	65.8	53.3	41.0	30.0	22.7
CZ	100.0	100.0	98.3	87.5	63.1	40.3	30.3	26.3	22.1	16.3
DK	95.7	91.2	83.0	78.3	60.0	45.1	44.3	43.3	41.6	38.1
DE	98.5	99.4	94.2	85.7	67.4	50.6	40.9	51.1	26.1	21.3
EE	98.9	98.3	91.1	77.0	65.7	56.6	46.0	34.7	26.6	22.6
EL	92.7	92.7	69.7	75.9	89.5	56.3	45.0	35.9	25.4	21.4
ES	99.3	92.5	80.6	67.2	57.1	51.5	44.3	36.8	30.6	23.4
FR	97.4	96.7	91.0	79.6	65.5	51.1	40.1	32.2	24.5	16.9
IE	106.0	95.1	83.6	82.6	59.1	51.2	41.7	27.0	16.4	11.6
IT	95.3	88.2	80.9	74.8	52.4	41.4	35.8	31.0	27.0	24.0
CY	94.3	88.6	78.4	23.2	28.3	22.5	21.0	13.3	9.5	7.0
LV	97.9	95.8	91.6	76.6	61.7	48.7	41.6	41.6	26.3	20.8
LT	100.4	97.9	95.0	85.2	70.0	57.1	45.7	35.9	28.7	21.6
LU	91.6	84.9	80.1	70.3	50.1	30.4	16.6	8.6	4.3	2.5
HU	97.4	89.7	86.0	73.3	59.7	46.8	37.6	31.1	24.2	19.2
MT	103.8	60.2	59.6	56.6	36.7	27.1	20.0	11.6	5.9	4.3
NL	102.6	100.7	88.4	76.8	63.1	56.0	48.9	37.7	29.4	22.6
AT	94.4	91.4	88.3	69.3	43.9	31.4	27.5	24.7	22.3	19.7
PL	96.8	93.7	90.7	85.0	72.6	66.2	55.4	47.4	41.1	27.7
PT	93.5	83.0	71.2	60.5	52.0	45.9	41.9	36.4	29.4	21.6
SI	102.6	94.8	94.3	83.8	71.0	45.5	44.6	39.9	34.8	24.5
SK	98.8	94.5	87.5	63.8	37.2	27.0	24.4	22.5	16.0	10.1
FI	99.2	96.1	93.9	89.3	48.5	47.3	55.8	57.3	51.9	44.5
SE	99.2	97.0	96.0	93.6	43.3	45.3	47.6	46.1	43.0	38.1
UK	109.6	87.0	74.7	57.1	55.8	52.1	42.0	31.5	26.3	23.7

[1] Students studying abroad are taken into account in the country in which they study. This especially affects the figures for Luxembourg.
Source: Commission services calculation based on New Chronos database.

Table 6-5: Enrolment rate across all level of education by age[1]. 2003

Country/Age	15	16	17	18	19	20	21	22	23	24
BE	102.3	101.1	104.4	88.5	76.5	67.6	53.1	41.5	30.4	23.7
CZ	100.0	100.0	98.6	88.3	64.3	44.9	32.1	25.0	20.4	16.5
DK	100.7	92.8	86.0	80.9	60.9	43.0	45.5	43.3	42.6	38.6
DE	97.5	96.5	93.1	86.8	69.1	51.4	42.4	51.7	27.5	22.4
EE	98.1	98.5	91.5	79.3	64.2	53.9	45.0	34.9	25.7	21.3
EL	91.8	94.0	65.4	68.3	90.3	55.1	44.1	34.9	25.2	21.1
ES	98.5	92.1	81.9	68.8	56.9	50.9	42.1	35.7	28.5	22.1
FR	97.4	96.3	91.9	79.5	66.2	51.9	40.7	32.4	24.3	17.3
IE	105.3	97.5	84.6	85.5	60.4	54.7	43.1	28.7	16.8	12.0
IT	96.9	88.4	82.1	77.6	55.4	44.0	39.6	32.4	27.8	22.4
CY	96.0	93.1	80.9	28.4	17.6	37.6	25.0	18.3	16.2	10.9
LV	96.3	95.9	92.1	78.9	63.4	50.2	42.7	43.5	27.5	21.1
LT	100.7	100.1	95.1	87.4	72.0	58.0	48.9	40.9	33.2	24.3
LU	90.0	86.2	79.6	71.4	49.1	30.0	17.5	8.8	4.9	2.8
HU	99.8	92.9	85.5	75.9	63.5	50.0	41.0	33.4	25.9	20.1
MT	102.2	85.4	63.2	42.8	36.2	27.7	23.7	15.9	9.1	6.4
NL	101.6	94.8	85.4	76.2	65.5	57.3	50.7	39.6	30.1	24.0
AT	94.3	90.8	88.3	69.7	44.4	31.9	28.8	26.0	23.0	20.4
PL	97.6	95.8	92.3	85.4	75.5	67.7	57.8	49.9	43.8	28.5
PT	88.8	84.6	73.1	61.2	51.2	44.3	40.2	34.8	28.1	21.8
SI	99.0	98.5	95.5	85.7	75.4	47.4	45.6	41.2	35.6	27.2
SK	99.7	94.4	90.1	72.2	44.3	28.4	24.7	23.1	17.4	11.8
FI	99.2	96.3	94.1	92.0	51.7	49.7	57.0	57.9	54.4	46.2
SE	99.3	97.0	97.4	94.5	42.5	45.2	47.3	47.2	44.2	39.5
UK	105.9	87.6	75.2	53.8	52.2	50.2	39.9	30.0	24.8	22.5

[1] Students studying abroad are taken into account in the country in which they study. This especially affects the figures for Luxembourg.
Source: Commission services calculation based on New Chronos database.

Table 6-6 shows that enrolment in 2050 is mostly rather close to enrolment in 2002 and 2003. The changes from 2003 that do occur follow from developments in the labour market.

Table 6-6: Enrolment rate across all level of education by age[1]. 2050

Country/Age	15	16	17	18	19	20	21	22	23	24
BE	102.5	101.5	104.0	88.7	75.3	65.9	51.5	39.7	30.1	23.7
CZ	100.0	99.9	96.2	83.1	57.9	41.3	31.1	28.3	23.8	19.1
DK	100.7	92.8	81.2	80.6	59.9	42.1	34.4	34.7	30.4	31.1
DE	97.5	95.2	91.7	83.0	67.1	49.9	42.0	53.2	28.7	19.4
EE	98.1	98.5	91.5	77.9	62.2	50.6	43.6	39.7	27.1	23.1
EL	91.9	94.0	64.2	72.2	86.5	55.7	47.3	35.9	27.2	24.3
ES	98.5	92.6	82.2	67.0	57.3	50.2	40.8	34.7	26.3	21.9
FR	97.3	95.7	91.2	79.4	66.2	51.8	39.9	31.2	22.4	14.6
IE	105.3	96.2	84.4	84.5	60.0	49.3	38.7	25.5	15.1	10.5
IT	96.9	88.4	81.1	77.8	54.7	42.3	39.0	32.1	28.4	22.9
CY	96.0	93.1	80.9	27.4	14.5	35.1	20.1	18.7	17.4	9.0
LV	96.3	94.8	92.1	78.9	61.1	46.9	44.8	38.1	29.4	20.9
LT	100.7	100.1	95.0	84.6	72.0	55.5	47.4	44.8	41.9	32.0
LU	91.0	84.0	80.0	70.0	45.8	25.3	16.3	7.5	4.5	2.8
HU	99.8	92.8	83.7	70.7	58.4	47.2	39.7	33.0	26.7	23.5
MT	102.2	85.3	62.5	41.0	31.3	26.4	21.8	15.9	7.6	4.2
NL	101.6	94.8	85.4	74.5	62.5	53.5	47.4	37.1	30.0	21.8
AT	94.2	87.9	87.6	69.6	42.7	30.8	28.3	25.7	20.0	20.9
PL	97.6	95.0	92.3	85.4	72.1	63.4	54.1	45.9	41.0	27.4
PT	88.8	83.6	71.5	60.5	50.6	42.8	39.0	33.9	26.2	21.7
SI	98.9	98.5	94.7	85.1	72.9	47.3	47.8	45.6	41.5	34.1
SK	99.7	94.1	87.7	61.7	40.0	28.4	26.1	25.2	19.5	13.6
FI	99.2	93.4	94.1	92.0	51.6	48.7	49.5	55.2	50.8	42.3
SE	99.4	97.0	97.4	94.3	41.7	42.2	42.7	38.9	35.2	32.3
UK	105.9	85.9	72.2	51.3	50.9	48.6	37.7	29.7	24.8	20.2

[1] Students studying abroad are taken into account in the country in which they study. This especially affects the figures for Luxembourg.
Source: Commission services calculation based on New Chronos database.

Given the projected trends of the above described variables, the number of students enrolled in education in EU is expected to decline from 91.8 and 91.6 millions in 2002 and 2003 respectively to 71.7 millions in 2050. For all age groups the main explanation for the drop in the number of students is demographics, but for students aged 15 or more, labour market developments also influence the developments in enrolment rates. The number of students is expected to decline from 2002 to 2050 in all countries but Luxembourg (see Table 6-7).

Measured as a share of working-age population, the average EU student ratio is expected to decline by 2.4 percentage points. Declines in this ratio are expected in all countries but Denmark and the Netherlands, and the strongest expected reductions are foreseen for Cyprus and Poland with reductions of about 10 percentage points.

Table 6-7: Total number of students and student share of working-age population

	Total number of students (in thousands)			Student share of working-age population[1] (as a percentage)		
	2002	2050	change 2002-2050	2002	2050	change 2002-2050 (p.p)
BE	2332.6	2086.9	-245.7	34.5	33.2	-1.3
CZ	1935.3	1164.3	-770.9	27.0	23.2	-3.8
DK	1046.0	964.6	-81.5	29.3	29.5	0.2
DE	14442.9	10592.5	-3850.3	25.9	24.3	-1.6
EE	304.0	174.8	-129.2	33.2	26.1	-7.1
EL	1975.3	1443.8	-531.5	26.5	24.6	-1.9
ES	7461.2	5569.5	-1891.7	26.6	24.3	-2.3
FR	11712.4	11003.7	-708.8	30.3	29.4	-1.0
IE	992.2	992.1	-0.1	37.6	31.3	-6.3
IT	9198.7	7004.5	-2194.2	24.1	23.9	-0.2
CY	141.5	116.8	-24.7	30.0	19.8	-10.2
LV	510.1	279.5	-230.6	32.1	25.2	-6.8
LT	796.6	440.0	-356.7	34.4	25.6	-8.8
LU	69.0	90.6	21.6	23.1	23.0	-0.1
HU	1945.5	1324.3	-621.1	27.9	25.6	-2.4
MT	77.1	71.3	-5.9	28.7	23.1	-5.6
NL	3208.1	3125.8	-82.2	29.4	29.6	0.1
AT	1422.1	1056.7	-365.4	26.0	22.5	-3.5
PL	9098.3	4748.9	-4349.4	34.5	24.5	-10.0
PT	1963.6	1461.5	-502.1	28.1	26.5	-1.6
SI	392.0	281.7	-110.4	28.0	26.5	-1.6
SK	1108.5	589.5	-519.0	29.5	21.5	-8.0
FI	1178.8	967.2	-211.6	33.9	32.1	-1.8
SE	2114.8	2004.5	-110.3	36.7	33.2	-3.6
UK	16406.7	14154.5	-2252.1	42.3	37.5	-4.9
EU25	91833.3	71709.6	-20123.8	30.2	27.8	-2.4

[1] Working-age population is defined as population aged 15-64.
Source: Commission services

6.4. Projections of expenditure on education up to 2050

While education is primarily publicly founded in all Member States, private contributions also play some role. The share of public education expenditure varies across countries depending on the specific institutional setting for education and across ISCED levels of education. In most Member States the share of publicly funded education is close to 100 for basic and upper-secondary education.[76] For tertiary education the shares of publicly funded education vary somewhat and are generally lower than at lower levels (see Table 6-8). This is taken account of in the projections, where the share of public funding is kept constant for each education level.[77]

[76] Public education expenditure is defined as current and capital expenditures on education by local, regional and national governments, including municipalities. Household contributions are normally excluded.

[77] The share of public funding is defined as direct public expenditure as a share of direct public expenditure plus direct private expenditure, i.e. transfers are not included in the calculation of this share.

Table 6-8: Percentage share of education publicly funded (2002).

Country	Primary	Low Secondary	Upper Secondary	Tertiary
BE	96.6	95.9	95.9	86.0
CZ	96.3	96.4	99.1	87.5
DK	98.7	95.6	99.0	97.9
DE	98.2	98.0	97.5	91.6
EE[1]	100.0	100.0	100.0	100.0
EL	92.1	94.6	93.4	99.6
ES	92.9	93.8	93.8	76.3
FR	95.8	93.3	90.4	85.7
IE	96.5	97.1	96.0	85.8
IT	96.4	97.4	96.9	78.6
CY	94.4	91.8	92.0	42.0
LV	97.9	98.2	91.9	55.4
LT	99.8	100.0	100.0	93.5
LU[1]	100.0	100.0	100.0	n.a.
HU	93.5	93.1	94.6	78.7
MT	84.5	85.9	84.9	93.9
NL	97.0	94.8	87.7	78.1
AT	97.6	96.9	93.6	91.6
PL	98.1	97.9	94.9	69.7
PT	100.0	100.0	99.8	91.3
SI	90.0	90.0	90.7	76.4
SK	98.1	98.8	97.1	85.2
FI	99.8	99.8	98.2	96.3
SE	100.0	99.9	99.9	90.0
UK	89.7	85.0	85.0	72.0

[1] Data for Estonia and Luxembourg cover only public expenditure.

Source: Commission services based on Eurostat database. The share of publicly funded education has been estimated as the ratio between total (excluding transfers) public spending and total direct public and private spending.

Public education expenditure generally consists of direct current and capital expenses of educational institutions (direct expenditure for educational institutions), support to students and their families with scholarships and public loans, and/or public subsidies for educational activities to private institutions or non-profit organisations (transfers to private households and private institutions). It can thus take the form both of direct public expenditure and of transfers.

Education expenditure is the product of the number of students and the expenditure per student. As explained in detail in the methodological report (EPC and COM (2005a)) expenditure per student depends on three main components: (a) gross wages of teaching and non-teaching staff; (b) pupil/staff ratio; and (c) other cost than wages, both current and capital. The EPC has agreed that expenditure per student should increase in line with GDP per worker. This assumption implies that wages follow labour productivity and that the pupil/staff ratios remain constant, i.e. that any reduction in the number of students due to demographic factors is accompanied by a similar reduction in the education staff. Transfers are also assumed to evolve in line with GDP per worker[78].

[78] Assumptions on labour productivity growth and real GDP growth have been agreed by the AWG and are used for the whole budgetary exercise. The country appendix presents these assumptions.

Table 6-9 presents the main results for the development of expenditure on education to GDP ratios. It includes direct expenditure and transfers to households and institutions. Projections show a decrease of public expenditure on education to GDP in all countries. Significant savings (more than 1 per cent of GDP) are foreseen in Estonia, Ireland, Cyprus, Latvia, Lithuania, Poland and Slovakia. The overall change in public education expenditure hide some differences between the four different levels of education, but savings are in general projected at all levels.

Table 6-9: Total public expenditure on education as a share of GDP (2002-2050)

	Level, percentage points				Percentage points change 2002-2050 due to				
Country	2002	2010	2030	2050	Primary	Lower Secondary	Upper Secondary	Tertiary	Total[1]
BE	5.6	5.2	5.0	5.0	-0.2	-0.1	-0.2	-0.1	-0.6
CZ	3.9	3.3	3.0	3.1	-0.1	-0.2	-0.2	-0.2	-0.7
DK	7.6	7.5	7.3	7.5	-0.2	0.1	0.2	-0.2	-0.1
DE[2]	4.0	3.6	3.3	3.3	-0.1	-0.3	-0.1	-0.2	-0.7
EE	5.3	3.8	3.8	3.6	-0.3	-0.5	-0.5	-0.3	-1.6
EL	3.8	3.1	3.0	3.1	-0.1	-0.1	-0.2	-0.3	-0.7
ES	4.0	3.2	3.0	3.1	-0.1	-0.1	-0.3	-0.4	-0.9
FR[3]	5.0	4.7	4.5	4.5	-0.1	-0.1	-0.1	-0.1	-0.5
IE	4.3	3.5	3.2	3.1	-0.3	-0.2	-0.3	-0.5	-1.2
IT	4.3	3.9	3.5	3.7	-0.2	-0.1	-0.2	-0.2	-0.7
CY	6.1	5.1	4.3	4.0	-0.7	-0.6	-0.6	-0.2	-2.1
LV	5.2	3.5	3.7	3.5	-0.2	-0.7	-0.6	-0.3	-1.7
LT	5.0	4.2	3.3	3.3	-0.4	-0.8	-0.2	-0.2	-1.7
LU[4]	3.4	3.1	2.7	2.4	-0.5	-0.2	-0.2	0.0	-1.0
HU	4.6	3.9	3.5	3.8	-0.1	-0.2	-0.3	-0.2	-0.8
MT	4.3	3.7	3.3	3.3	-0.3	-0.4	-0.2	-0.2	-1.0
NL	4.7	4.7	4.6	4.6	-0.1	0.0	0.0	0.0	-0.1
AT	5.1	4.6	4.2	4.1	-0.3	-0.3	-0.2	-0.2	-1.0
PL	5.2	3.9	3.0	3.1	-0.7	-0.4	-0.6	-0.4	-2.0
PT	5.3	4.7	4.5	4.8	0.0	-0.1	-0.2	-0.2	-0.5
SI	5.4	4.6	4.7	4.9	0.1	-0.2	-0.3	-0.1	-0.5
SK	3.8	3.0	2.2	2.4	-0.2	-0.4	-0.5	-0.3	-1.4
FI	6.0	5.6	5.4	5.3	-0.2	-0.1	-0.2	-0.3	-0.8
SE	7.2	6.7	6.6	6.4	-0.3	-0.1	-0.2	-0.1	-0.8
UK[5]	4.6	4.2	4.1	4.0	-0.2	-0.2	-0.2	-0.1	-0.7

[1] Discrepancies are due to rounding.
[2] Data do not include spending (around 0.25 of GDP) at the workplace for combined workplace and school education as well as similar expenditure by "Bundesagentur für Arbeit".
[3] GDP includes over-sea Departments.
[4] Data cover only spending up to ISCED level 3 and only public spending in public institutions.
[5] The expenditure ratio is calculated using the calendar definition of GDP.
Source: European Commission services based on Eurostat data and National Statistic Offices.

6.5. Decomposition of the changes in the expenditure shares

Table 6-10 compares the percentage change in education expenditure as a share of GDP to the percentage changes in the young-age population (defined as aged 5-25), the total number of students and the share of students in the working-age population. The table shows that the correspondence between the change in the young-age population and the change in the number of students are generally high. However, there are some clear exceptions. Two

possible explanations are changes in enrolment from 2002 to 2003 and developments in the labour market leading to slight changes in enrolment for single year age-groups, cf. Table 6-6. In addition, changes in the composition within the age-group 5-25 and the fact that the age-group 5-25 does not completely correspond to the age-groups enrolled in education influence the figures.

Two examples can illustrate the effect of changes within the age-group 5-25. The demographic projections show an increase in the population aged 5-25 in Sweden, but a significant decrease in the age-groups 10-15. As enrolment is very high in these age-groups, the result is a decrease in the total number of Swedish students, despite the increase in the 5-25 age-group. Something similar happens in Cyprus, even if practically all the relevant age-groups will decline. This is because the percentage fall in the population aged 18 and more is much smaller than for younger children, while enrolment for people aged 18 and more is very low compared to younger age-groups or to the same age-group in other countries. Low enrolment among people aged 18 and more implies that developments in the age-group 5-17 are more important for the future number of students than developments in the age-group 18 and over. This explains why the larger fall in the number of children 17 and under heavily influences the expected total number of students.

Denmark can illustrate the latter mechanism: A significant number of Danish students are 26 years or older. Combined with large expected reductions in the size of these age groups, this leads to people aged 26 or more making up 40 per cent of the expected fall in students. This explains how the fall in the number of students (7.8) can be so much larger than the fall in the number of people aged 5-25 (4.4). The age-group chosen to illustrate the demographic developments is in other words less relevant in Denmark than in most other countries.

As education expenditure is measured as a share of GDP, an increasing or decreasing size of the working-age population will, for given labour market participation shares, greatly influence the figures. This can be seen in the table as a large difference between the developments in the total number of students and the students to working-age population-ratio. For a number of countries, developments in the latter variable correspond more closely with developments in the total expenditure ratio, but for other countries the opposite is the case.

Table 6-10: Education expenditure as a share of GDP compared to the young-age population (defined as aged 5-25), the total number of students and the share of students over population aged 15-64. Percentage changes 2002-2050

	Young age population	Total number of students	Students to working-age-population-ratio	Total expenditure in education
BE	-9.6	-10.5	-3.8	-11.2
CZ	-42.2	-39.8	-14.1	-19.3
DK	-4.4	-7.8	0.6	-1.2
DE	-27.1	-26.7	-9.1	-18.0
EE	-40.8	-42.5	-21.4	-31.0
EL	-30.8	-26.9	-7.3	-18.4
ES	-28.8	-25.4	-8.7	-22.5
FR	-5.5	-6.1	-3.1	-9.6
IE	-3.5	0.0	-16.7	-27.7
IT	-25.7	-23.9	-0.8	-15.1
CY	-14.2	-17.4	-34.1	-34.1
LV	-43.3	-45.2	-21.3	-32.8
LT	-45.0	-44.8	-25.5	-33.3
LU	36.4	31.3	-0.6	-28.5
HU	-34.9	-31.9	-8.5	-16.6
MT	-7.6	-7.6	-19.5	-23.9
NL	0.4	-2.6	0.5	-1.7
AT	-22.6	-25.7	-13.5	-19.5
PL	-47.1	-47.8	-29.0	-39.6
PT	-28.4	-25.6	-5.8	-9.8
SI	-33.1	-28.1	-5.6	-10.0
SK	-48.5	-46.8	-27.1	-36.5
FI	-15.8	-17.9	-5.4	-12.5
SE	2.6	-5.2	-9.8	-11.0
UK	-12.1	-13.7	-11.5	-14.5

Source: Commission services

A more detailed decomposition is therefore necessary to explain the developments in education expenditure. Table 6-11 sheds light on the different explanatory factors. The table indicates how much education expenditure would change from 2002 to 2050 if only one of the decisive factors change. The decomposition used is the following:

$$(1) \qquad \frac{EDU}{GDP} = \frac{S}{POP_{5-25}} * \frac{POP_{5-25}}{POP_{15-64}} * \frac{POP_{15-64}}{N} * \frac{ES}{\pi} \qquad \text{where}$$

EDU/GDP is total public expenditure in education as a share of GDP, *S* is the number of students, $POP_{5\text{-}25}$ is the population aged 5-25, POP_{15-64} is the working-age population, *N* is employment, *ES* is expenditure per student and π is GDP per worker. Each fraction is represented by a column in Table 6-11. For example, the first column is calculated by assuming that the share of students to the population aged 5-25 changes as in the projections, while all other factors ($\frac{POP_{5-25}}{POP_{15-64}} * \frac{POP_{15-64}}{N} * \frac{ES}{\pi}$) remain at the 2002 level.

The table shows that in this case education expenditure in the Czech Republic would increase by 0.2 percentage points.

The first column shows the effect of the changes in the ratio between total number of students and the total population aged 5-25. As mentioned above, changes in this ratio can be due to changes in actual enrolment from 2002 to 2003, different demographic developments in single year age-groups within 5-25 years or above, or to labour market influence on enrolment rates. The effect of this factor varies between countries, but it is never very large.

The effect of a smaller share of young people relative to the working-age population is shown in the second column. Not surprisingly, this effect pulls expenditure downwards in most countries, and stands out as the most significant contribution to lower education expenditure overall.

The third column illustrates the importance of the change in the share of employed people to the working-age population. The higher employment rates for individual age groups that result from the applied cohort approach, point to higher GDP and therefore reduced education expenditure as a share of GDP. At the same time, an older workforce points in the opposite directions, but the latter effect is not large enough to outweigh the former. Overall, developments in employment point in the direction of reduced education expenditure measured as a share of GDP.[79]

Expenditure per student is assumed to develop in line with GDP per worker. This means that for each education level, column four shall by definition be zero. However, as the cost level differs between different education level and their relative importance change within the projection period, this is not necessarily the case for the average cost level. The table shows that the development in the average cost level have small effects in all countries.

The last column shows the total change in education expenditure over the period 2002 to 2050. This is not always equal to the sum of the first four columns due to multiplicative effects. However, in most cases the difference is small.

[79] The figures for Luxembourg are related to a continuous increase in labour input over the projection period. This must be seen in relationship with the assumptions on cross-border workers.

Table 6-11: **Decomposition of the change in the education expenditure to GDP-ratio. Percentage point contribution from different factors. 2002-2050**

	Enrolment[1]	Young share[2]	Inverse of employment[3]	Cost level[4]	Difference 2002-2050
BE	-0.1	-0.2	-0.5	0.1	-0.6
CZ	0.2	-0.7	-0.2	0.0	-0.7
DK	-0.3	0.3	-0.2	0.0	-0.1
DE	-0.1	-0.2	-0.4	0.1	-0.7
EE	-0.1	-1.0	-0.5	-0.1	-1.6
EL	0.2	-0.5	-0.3	-0.2	-0.7
ES	0.2	-0.5	-0.6	0.0	-0.9
FR	0.0	-0.1	-0.4	0.1	-0.5
IE	0.2	-0.8	-0.5	-0.1	-1.2
IT	0.1	-0.1	-0.6	0.0	-0.7
CY	-0.2	-1.9	-0.2	0.2	-2.1
LV	-0.2	-1.0	-0.7	-0.1	-1.7
LT	0.0	-1.3	-0.6	0.1	-1.7
LU	-0.1	0.1	-1.0	0.1	-1.0
HU	0.2	-0.6	-0.4	0.0	-0.8
MT	0.0	-0.8	-0.3	0.1	-1.0
NL	-0.1	0.2	-0.3	0.2	-0.1
AT	-0.2	-0.5	-0.4	0.0	-1.0
PL	-0.1	-1.4	-0.7	-0.1	-2.0
PT	0.2	-0.5	-0.3	0.1	-0.5
SI	0.4	-0.7	-0.3	0.0	-0.5
SK	0.1	-1.1	-0.5	0.0	-1.4
FI	-0.2	-0.2	-0.5	0.1	-0.8
SE	-0.5	-0.2	-0.2	0.2	-0.8
UK	-0.1	-0.5	-0.2	0.0	-0.7

[1] Enrolment is defined as total number of students over the population aged 5-25 years.
[2] The young share is defined as the population aged 5-25 years over population aged 15-64.
[3] The inverse of employment is defined as the population aged 15-64 over employment.
[4] The cost level is defined as the expenditure per student over GDP per worker
Source: Commission services

6.6. A word of caution

The projections of reduced education expenditure depend on a number of variables. Most importantly, no underlying trend neither in enrolment rates nor in expenditure per student relative to GDP per worker is included. Unlike some of the other elements of the age-related expenditure exercise, the projections thus illustrate only the effect of demographic developments on education expenditure, and do not comprise any estimation of non-demographic drivers other than labour market developments. Regarding enrolment, this in some cases do not reflect national expectations of increasing enrolment rates as a result of implemented or planned legislation or other policies.

As shown in Graph 6-2, most Member states have already seen a decline in the number of people aged 5-25[80]. In particular, significant reductions have been recorded in some south European countries and in some recently acceded Member States, with a decline of around 15 percentage points or more in the Czech Republic, Spain, Italy, Latvia, Portugal and Slovenia

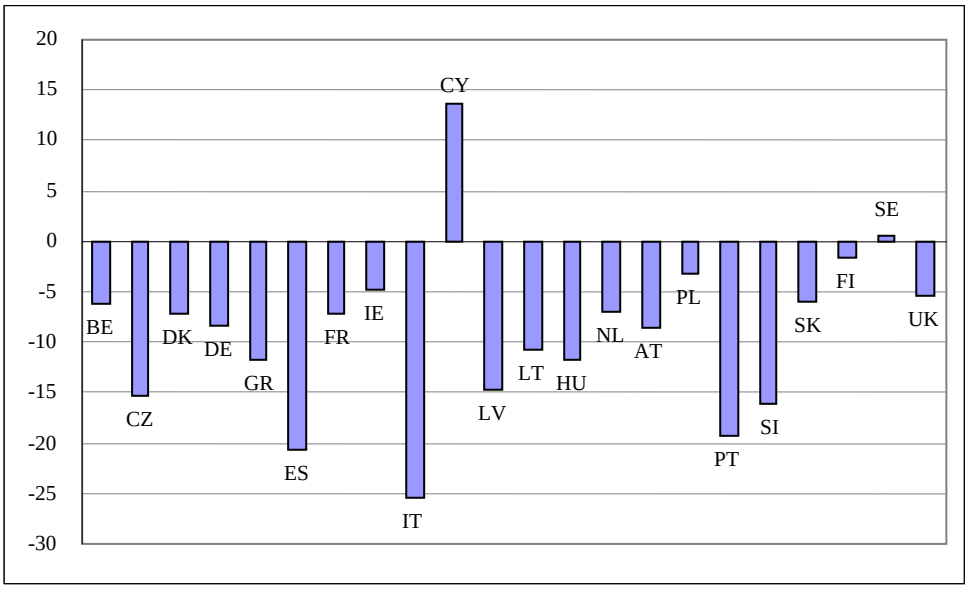
[80] The only significant increase was registered in Cyprus.

over the period 1990-2003. Still, there was no marked downward trend in education expenditure ratios (see Table 6-12).

This illustrates that factors other than demographic developments have been important to the historical developments of education expenditure. The projected savings are conditional on these factors not continuing to point in an upward direction. This is far from certain neither for costs per student nor for enrolment rates. First, emphasis on the quality of education and difficulties in adjusting downwards the number of teachers as the number of students fall, could point in the direction of increased costs per student. Second, some Member States have either planned or implemented policies to move students through the education system more rapidly. However, stated policy priorities, e.g. related to the Lisbon agenda, mostly emphasize the importance of increasing enrolment rates. Increased income levels may also lead to more people being able and willing to spend a larger part of their life on education. Together with some information available on actual enrolment in 2004, this indicates that average actual enrolment rates in the future may be more likely to be higher than this exercise projects than lower. Finally, education is largely an investment in human capital, though also partly a consumption good. Enrolment increases would therefore in addition often be beneficial also from a public finance point of view, once effects on productivity and labour market participation is taken into account.

A detailed analysis of these factors has been beyond the scope of this exercise. The important point is to note that the projections should in no way be taken to imply that large and easy savings can be expected for public finances due to developments in the educational sector.

Graph 6-2: Rate of change of population aged 5-25 between 1990 and 2003. Percentage points



Source: Commission services based on New Chronos Eurostat database.
Note: Due to lack of data in New Chronos Eurostat database, Estonia and Malta are not represented in the graph. For Cyprus the graph reports the rate of change between 1993 and 2003.

Table 6-12: Expenditure on education as share of GDP. EU15. 1990-2003

Education expenditure/GDP

	Early '90s (90-94)	Late '90 (95-99)	Early '00 (00-03)
BE	6.4	6.3	6.2
DK	7.5	7.9	8.3
DE	4.3	4.4	4.1
EL	3.4	3.3	3.3
ES	n.a.	n.a.	4.2
FR	n.a.	6.2	6.0
IE	n.a.	4.7	4.3
IT	5.5	5.0	5.1
NL	n.a.	4.9	4.9
AT	n.a.	6.0	5.8
PT	5.8	6.6	7.0
FI	7.4	6.8	6.5
SE	n.a.	7.3	7.3
UK	4.5	4.6	5.0

Source: European Commission Economic Database, AMECO (COFOG classification)

7. UNEMPLOYMENT BENEFITS

7.1. Description of the projection methodology

In order to get a comprehensive assessment of the total impact of ageing on public finances, and to guarantee consistency with the macroeconomic scenario, it was agreed to run projections for spending on unemployment benefit spending as part of the overall age-related expenditure projection exercise. In order to assess whether and by how much unemployment benefit (henceforth UB) expenditure would be affected by projected changes in the unemployment situation in Member States, a simplified methodology has been used as it was the case in 2003 exercise.[81]

Projections have been carried out using the average per-capita unemployment insurance spending in a base year. In order to avoid that the choice of the base year was overly conditioned by the cyclicality of labour market conditions and/or possible statistical errors, the figures for the base year are equivalent to the average of spending over the period 1998-2002 (last year for which figures are available in Eurostat database). This per capita spending has been combined with the agreed baseline assumptions on unemployed persons (which are referred to the projected NAIRU) reported on Table 7-4. This straightforward calculation implies assuming, under a no-policy change hypothesis, constant replacement rates, duration of benefit, entitlement conditions, eligibility criteria, take-up rates, and tax structure. Finally, as it is the case for the pension projections, it also assumes a constant share of wages in the income distribution over time (that is, the wage per worker grows at the same rate as labour productivity, i.e. GDP per worker).

This set of "invariance" assumptions can be illustrated by decomposing the total unemployment benefit spending UB, as follows:

$$UB = GRR \times pcw \times \frac{UBr}{U} \times U \qquad (1)$$

where GRR is the gross replacement rate, *pcw* is per capita wage, UBr is the number of recipients (unemployed persons receiving unemployment benefits), and thus the ratio $\frac{UBr}{U}$ is the take-up ratio. Given that per capita wages can also be written as: $pcw = \frac{W}{Y} \times \frac{Y}{L}$, (where L is employment, Y is GDP and W is total wages)

then UB can be re-written as :

$$UB = GRR \times \frac{W}{Y} \times \frac{Y}{L} \times \frac{UBr}{U} \times U \qquad (2)$$

where W/Y is the share of wages in the income distribution and Y/L is labour productivity.

[81] EPC (2003).

Per capita UB is : $UBpc = \frac{UB}{U} = GRR \times \frac{W}{Y} \times \frac{Y}{L} \times \frac{UBr}{U}$ and this can be expressed in terms of GDP per worker (or Ypc=Y/L) as follows:

$$\frac{UBpc}{Ypc} = \frac{UB/U}{Y/L} = GRR \times \frac{W}{Y} \times \frac{Y}{L} \times \frac{UBr}{U} \times \frac{L}{Y} \quad (3)$$

Thus, the total expenditure as percentage of GDP can be expressed as:

$$\frac{UB}{Y} = GRR \times \frac{W}{Y} \times \frac{UBr}{U} \times \frac{U}{L} \quad (4)$$

Given that L = LF (1-*u*), where LF = labour force and *u* = unemployment rate, the ratio (U_t/L_t) can also be re-written as $u_t/(1-u_t)$ and:

$$\frac{UB}{Y} = GRR \times \frac{W}{Y} \times \frac{UBr}{U} \times \frac{u}{(1-u)}. \quad (5)$$

In this formulation, if one assumes no change in both the GRR and the take-up ratio (UBr/U), and a constant share of wages in income distribution (W/Y), as a result of the assumption that wages grow at the same rate as labour productivity, only changes in the unemployment rate (or the ratio of unemployed to employed persons, U/L) will drive the change over time of unemployment benefit spending.

This methodology generates projections of UB expenditure, expressed as a share of GDP, where average expenditure per head grows at the same rate as GDP per worker in each projection year. Thus, the basic approach applied to run projections for UB expenditure (as percentage of GDP) is the following (a formal illustration of the methodology is presented in Annex 8):

- estimate the average amount of UB received by each unemployed person (and as percentage of GDP per worker) in the base year ($Ubpc^b/Ypc^b$). This was done by dividing the average amount of UB expenditures (as % of GDP) over the period 1998-2002[82] by the average of the ratio unemployed/employed persons over the same period (see Table 7-3)[83]. In the absence of any alternative and reasonable assumption on the future number of UB beneficiaries (which is the result of entitlement and eligibility rules that affect coverage, take up rates, and so on) and the average duration of unemployment spells, the calculation assumes that all these elements remain unchanged. This approximation is neutral and does not lead to a systematic bias in the projections of benefit spending. In order to guarantee the comparability of projections across countries, standardised figures provided by EUROSTAT –Social protection Expenditure (instead of country-specific figures coming from national databases) are used. Specifically, we used the two main components (i.e. "*kind of benefits*") of the Eurostat definition of social protection spending related to unemployment, that is benefit spending for "Partial unemployment" and "Full unemployment". A breakdown

[82] Latest available figures provided by EUROSTAT-Social Protection Expenditure, see table 2.

[83] In the case of Germany, Belgium and Luxembourg, figures used are not the original labour force projections calculated by the Commission, but are figures converted by Member States, in agreement with the AWG, in national-account equivalent (or in line with administrative concepts). This is consistent with what has been done for projecting pension expenditure and other age-related spending. See EPC-EC-DG ECFIN(2005), Carone (2005).

by kind of benefit of the total social protection expenditure related to unemployment[84] in 2002 is provided in Table 7-2

- for each projection year, the ratio unemployment benefit /GDP per head in the base year (from the step above - see results in Table 7-3) has been multiplied by the corresponding expected ratio between the future number of unemployed persons and employed persons (U/L) for each country and each of the year of projections (basic figures are reported in Table 7-5). The projections of employed and unemployed persons are those referred to the "current policy" macroeconomic scenario (see Table 7-4 and Table 7-5). This generates projections of UB spending, expressed as a share of GDP[85].

[84] In the Eurostat-ESSPROS database, the category "unemployment" also includes spending on placement services and job search assistance, early-retirement benefit for labour market reasons, vocational training, lump sum benefit redundancy compensation, mobility and resettlement benefits. As a general rule, early retirement and pre-retirement benefits to older workers are included in the projections on pension expenditures.

[85] The projection does not take into account that unemployment benefits are subject to income tax, so that after tax UB spending as % of GDP is lower. This should be taken into account when assessing fiscal sustainability. Still, given the assumption of invariant tax structure, results in terms of changes in the after-tax UB spending (as % of GDP) over the projection period would be broadly the same as those obtained by using before- tax spending as in this projection exercise.

Table 7-1 - Social protection expenditure as % of GDP: Unemployment

(2002)

Kind of benefit	EU15	EU12	B	CZ	DK	DE	EE*	EL	ES	F	IE	I	LV*	LT*	L	HU	MT	NL	AT	PL*	PT	SI	SK	FI	SE	UK
Social protection benefits:unemployment (a+b)	**1.8**	**1.9**	**3.2**	**0.7**	**2.7**	**2.5**	**0.2**	**1.6**	**2.7**	**2.2**	**1.3**	**0.4**	**0.5**	**0.1**	**0.8**	**0.6**	**1.2**	**1.4**	**1.5**	**0.9**	**0.9**	**0.8**	**0.8**	**2.5**	**1.7**	**0.9**
Cash benefits (a)	***1.6***	***1.8***	***3.2***	***0.6***	***2.6***	***2.2***	***:***	***0.5***	***2.4***	***2.2***	***1.1***	***0.4***	***:***	***:***	***0.8***	***0.5***	***1.1***	***1.4***	***1.1***	***:***	***0.9***	***0.7***	***0.6***	***2.3***	***1.4***	***0.8***
Full unemployment benefits	1	1.1	1.9	0.2	1.3	1.2	0.1	0.4	1.5	1.5	0.8	0.3	0.4	0.1	0.3	0.3	1	1.4	0.8	0.4	0.8	0.3	0.3	1.6	1	0.5
Partial unemployment	0	0	0.4	:	:	0	0..1	0.1	0	0	:	0	:	:	0	:	:	0	:	:	0	0	:	0	0	0
Placement services and job search assistance	0	0	0	:	0.1	0	:	0	0	:	0.1	0	:	:	0	0	0	0	0.1	:	0	0.1	0.1	0.1	0.1	0
Early retirement benefit for labour market reasons	0.2	0.2	0.4	0	:	0.3	:	0.1	0	0.2	:	0.1	:	:	0.2	0.1	:	0	0.1	0.5	0	0.2	0	0.5	0	0
Periodic benefit vocational training	0.2	0.2	0.1	0	1.3	0.5	:	0	0	0.2	0.2	0	:	:	0	:	0	0	0.1	:	0	0	:	0.1	0.3	0.1
Other periodic cash benefits	0	0	0.4	:	:	0	:	0	0.1	:	:	0	:	:	0.2	0.1	0.1	0	0	:	0	0	:	0	:	0
Lump sum cash benefits	0.2	0.2	0	0.4	0	0.1	:	0.1	0.7	0.3	0.1	0	:	:	0.1	0.1	:	0	0.1	:	0	0.1	0.3	0	0.1	0.3
Lump sum benefit vocational training	0	0	0	:	0	:	:	0	:	:	0	0	:	:	0.1	:	:	0	:	:	0	:	:	0	:	0
Lump sum benefit redundancy compensation	0.2	0.1	0	0.2	:	0.1	:	0	0.6	0.3	0.1	0	:	:	0	0.1	:	0	0	:	0	:	0.3	0	0.1	0.3
Other lump sum cash benefits	0	0	0	0.2	0	0	:	0	0	0	:	0	:	:	0	0	:	0	0.1	:	0	0.1	0	0	:	0
Benefits in kind (b)	***0.2***	***0.2***	***0.1***	***0***	***0.1***	***0.3***	***:***	***1.1***	***0.3***	***0***	***0.2***	***0***	***:***	***:***	***0***	***0.1***	***0***	***0***	***0.4***	***:***	***0***	***0.1***	***0.1***	***0.2***	***0.3***	***0.1***
Mobility and resettlement benefits	0	0	0	:	:	0.1	:	0.1	0	:	:	0	:	:	0	:	:	0	0	:	0	:	:	0	0	0
Vocational training	0.1	0.1	0	0	:	0.2	:	0.9	0.3	:	0.1	0	0.1	:	0	0.1	0	0	0.1	:	0	0	0	0.1	0.2	0.1
Other benefits in kind	0	0	:	0	:	0	:	0.1	0	0	0	0	:	:	0	:	0	0	0.3	:	0	0	:	0	0	0

* 2001

Source: Eurostat-Social protection expenditures database (ESPROS)

NB: Early retirement benefits are, as a general rule included in the pension projections.

Table 7-2 – Unemployment benefit spending, as % of GDP

	(Full + partial unemployment benefits)					
Country	**aver. 1998-2002**	**1998**	**1999**	**2000**	**2001**	**2002***
Belgium	2.20	2.3	2.2	2.1	2.1	2.3
Denmark	1.42	1.7	1.4	1.4	1.3	1.3
Germany	1.16	1.2	1.2	1.1	1.1	1.2
Greece	0.42	0.5	0.4	0.4	0.3	0.5
Spain	1.46	1.6	1.4	1.4	1.4	1.5
France	1.30	1.3	1.3	1.2	1.2	1.5
Ireland	0.92	1.3	1	0.8	0.7	0.8
Italy	0.34	0.4	0.4	0.3	0.3	0.3
Luxembourg	0.22	0.2	0.2	0.2	0.2	0.3
Netherlands	1.50	1.9	1.6	1.3	1.3	1.4
Austria	0.76	0.8	0.8	0.7	0.7	0.8
Portugal	0.72	0.7	0.7	0.7	0.7	0.8
Finland	1.82	2.2	2	1.7	1.6	1.6
Sweden	1.38	1.8	1.6	1.4	1.1	1
United Kingdom	0.42	0.4	0.4	0.3	0.5	0.5
Cypros	0.39	0.4	0.4	0.4	0.3	0.4
Czech Republic	0.24	0.2	0.3	0.3	0.2	0.2
Estonia	0.10	0.1	0.1	0.1	0.1	0.1
Hungary	0.30	0.3	0.3	0.3	0.3	0.3
Lithuania	0.16	0.2	0.2	0.2	0.1	0.1
Latvia	0.46	0.5	0.5	0.5	0.4	0.4
Malta	0.94	0.9	1	0.9	0.9	1
Poland	0.40	0.4	0.4	0.4	0.4	0.4
Slovak Republic	0.44	0.5	0.6	0.5	0.3	0.3
Slovenia	0.54	0.8	0.7	0.5	0.4	0.3
EU-25	0.99	1.1	1.0	0.9	0.9	1.0
EU15	1.01	1.1	1.0	0.9	0.9	1.0
EU12	1.10	1.2	1.1	1.0	1.0	1.2
EU10	0.36	0.4	0.4	0.4	0.3	0.3

Source: Eurostat-Social protection expenditures database (ESPROS).

* Estonia, Latvia, Lithuania and Poland: 2001

Table 7-3 Unemployment benefit spending per unemployed, as % of GDP per worker (yub_{pc})

Country	aver. 1998-2002	1998	1999	2000	2001	2002*
Belgium	14.4	14.2	14.1	14.2	14.4	15.0
Denmark	27.5	32.0	23.5	28.8	26.7	26.7
Germany	13.5	12.5	13.7	13.9	13.8	13.5
Greece	3.3	3.9	2.8	3.1	2.4	4.3
Spain	9.3	7.0	7.5	8.6	11.8	11.5
France	11.6	9.4	9.5	10.5	12.7	15.7
Ireland	16.6	15.3	16.7	17.4	16.9	16.8
Italy	3.9	2.9	3.1	2.5	2.8	3.4
Luxembourg	10.2	7.9	8.6	9.9	10.6	13.9
Netherlands	46.3	41.1	42.4	42.7	56.4	49.2
Austria	18.2	13.8	20.4	18.9	18.6	19.3
Portugal	14.4	12.4	14.0	15.7	15.8	14.2
Finland	16.3	16.9	17.5	15.5	15.8	15.9
Sweden	20.2	18.1	19.2	23.8	21.3	18.5
United Kingdom	7.2	6.0	6.2	5.1	9.4	9.2
Cypros	8.2	6.7	8.0	7.4	7.6	11.4
Czech Republic	2.8	2.9	3.1	3.1	2.2	2.5
Estonia	0.8	0.9	0.8	0.6	0.7	0.9
Hungary	4.2	3.1	4.0	4.4	4.9	4.8
Lithuania	0.9	1.3	1.1	1.0	0.5	0.6
Latvia	2.9	3.0	3.0	2.9	2.6	2.9
Malta	13.0	12.9	14.3	12.8	11.9	13.3
Poland	2.3	3.5	2.8	2.0	1.8	1.6
Slovak Republic	1.285**	3.5	3.1	2.2	1.25	1.31
Slovenia	7.1	9.8	8.5	6.8	5.9	4.4
EU-25	9.5	9.5	9.3	8.8	9.6	10.2
EU15	10.7	9.7	9.9	10.0	11.5	12.2
Euro area	10.8	9.6	10.0	10.2	11.5	12.4
EU10	2.5	3.5	3.1	2.4	2.0	1.9

Source: Eurostat-Social protection expenditures database (ESPROS)
* Estonia, Latvia, Lithuania and Poland: 2001
** Average 2001-2002

Table 7-4 –Unemployment rate – (AWG baseline scenario)

Country	1998	2001	2002	2003	2004	2005	2010	2015	2020	2025	2050	2003-2025
Belgium	13.9	12.6	13.3	14.0	13.7	13.4	12.4	11.4	11.2	11.1	10.9	-2.9
Denmark	5.0	4.6	4.6	5.5	5.3	4.9	4.3	4.3	4.3	4.3	4.3	-1.2
Germany	9.9	7.8	8.6	9.5	9.2	9.0	8.1	6.5	6.5	6.5	6.5	-3.0
Greece	11.4	11.0	10.5	9.8	9.3	9.3	8.6	7.0	7.0	7.0	7.0	-2.8
Spain	18.7	10.6	11.5	11.6	10.8	10.4	8.7	7.0	7.0	7.0	7.0	-4.6
France	12.1	8.6	8.7	9.0	9.3	9.1	8.3	7.0	7.0	7.0	7.0	-2.0
Ireland	7.8	4.0	4.5	4.8	4.3	4.0	3.4	3.4	3.4	3.4	3.4	-1.4
Italy	12.0	9.6	9.1	8.9	8.4	8.2	7.3	6.5	6.5	6.5	6.5	-2.4
Luxembourg	2.9	2.1	3.1	3.7	3.8	4.0	4.2	4.2	4.2	4.2	4.2	0.6
Netherlands	4.4	2.3	2.8	3.7	3.7	3.5	3.2	3.2	3.2	3.2	3.2	-0.5
Austria	5.5	3.6	4.0	4.3	4.2	3.9	3.4	3.4	3.4	3.4	3.4	-0.9
Portugal	5.4	4.2	5.3	6.7	6.2	6.0	5.6	5.6	5.6	5.6	5.6	-1.1
Finland	11.5	9.2	9.2	9.2	8.5	8.0	6.8	6.5	6.5	6.5	6.5	-2.7
Sweden	9.0	4.9	5.1	5.7	5.3	5.0	4.3	4.3	4.3	4.3	4.3	-1.4
United Kingdom	6.3	5.0	5.2	5.1	4.9	4.8	4.6	4.6	4.6	4.6	4.6	-0.5
Cypros	5.5	4.1	3.2	4.4	4.2	4.0	4.2	4.2	4.2	4.2	4.2	-0.2
Czech Republic	6.5	8.2	7.4	7.9	7.8	7.8	7.3	6.5	6.5	6.5	6.5	-1.4
Estonia	9.7	12.8	10.5	10.3	9.6	9.1	7.8	7.0	7.0	7.0	7.0	-3.3
Hungary	8.9	5.8	5.8	5.9	5.5	5.3	4.8	4.8	4.8	4.8	4.8	-1.2
Lithuania	13.6	17.7	13.9	12.5	11.9	11.2	8.9	7.0	7.0	7.0	7.0	-5.5
Latvia	14.2	13.2	12.2	10.7	9.8	9.1	7.6	7.0	7.0	7.0	7.0	-3.7
Malta	6.5	7.0	7.0	7.6	8.4	8.5	8.3	7.0	7.0	7.0	7.0	-0.6
Poland	10.2	18.6	20.3	20.1	19.0	18.7	15.8	12.9	9.9	7.0	7.0	-13.1
Slovak Republic	12.6	19.3	18.7	17.6	16.9	16.7	15.2	12.5	9.7	7.0	7.0	-10.6
Slovenia	7.6	6.3	6.4	6.8	6.3	6.0	5.5	5.5	5.5	5.5	5.5	-1.2
EU25	10.3	8.8	9.1	9.3	9.0	8.8	7.8	6.7	6.4	6.2	6.1	-3.2
EU15	10.3	7.6	7.9	8.3	8.0	7.8	7.0	6.1	6.1	6.1	6.0	-2.2
EU10	9.8	14.7	15.1	14.8	14.1	13.8	12.0	10.0	8.3	6.6	6.6	-8.3
*Belgium**				*8.2*	*7.9*	*7.7*	*7.0*	*6.5*	*6.5*	*6.5*	*6.5*	*-1.7*
*Germany**				*9.9*	*9.5*	*9.4*	*8.5*	*7.0*	*7.0*	*7.0*	*7.0*	*-2.9*

Source: Commission services

Note: *For Germany and Belgium figures used in the projections refers to national account and administrative concepts respectively.*

* *Figures based on labour force projections*

Table 7-5 –Unemployment/Employment ratio (U/L)

													% change	
	2002	2005	2006	2007	2008	2009	2010	2015	2020	2025	2030	2050	2005-15	2005-50
Belgium	0.15	0.15	0.15	0.15	0.15	0.15	0.14	0.13	0.13	0.12	0.12	0.12	-17%	-21%
Denmark	0.05	0.05	0.05	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	-14%	-14%
Germany	0.09	0.09	0.09	0.09	0.09	0.09	0.08	0.07	0.07	0.07	0.07	0.07	-29%	-30%
Greece	0.12	0.10	0.10	0.10	0.10	0.10	0.09	0.08	0.08	0.08	0.08	0.08	-27%	-27%
Spain	0.13	0.12	0.11	0.10	0.10	0.10	0.10	0.08	0.08	0.08	0.08	0.08	-35%	-35%
France	0.10	0.10	0.10	0.10	0.10	0.09	0.09	0.08	0.08	0.08	0.08	0.08	-25%	-25%
Ireland	0.05	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	-15%	-15%
Italy	0.10	0.09	0.09	0.08	0.08	0.08	0.08	0.07	0.07	0.07	0.07	0.07	-22%	-22%
Luxembourg	0.02	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.02	0.02	4%	-18%
Netherlands	0.03	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	-8%	-8%
Austria	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	-13%	-13%
Portugal	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	-8%	-8%
Finland	0.10	0.09	0.08	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	-20%	-20%
Sweden	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	-14%	-14%
United Kingdom	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	-4%	-4%
Cypros	0.03	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	5%	5%
Czech Republic	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.07	0.07	0.07	0.07	0.07	-18%	-18%
Estonia	0.12	0.10	0.09	0.09	0.09	0.09	0.09	0.08	0.08	0.08	0.08	0.08	-25%	-25%
Hungary	0.06	0.06	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	-10%	-10%
Lithuania	0.16	0.13	0.12	0.11	0.11	0.10	0.10	0.08	0.08	0.08	0.08	0.08	-40%	-40%
Latvia	0.14	0.10	0.09	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	-25%	-25%
Malta	0.08	0.09	0.10	0.10	0.10	0.09	0.09	0.08	0.08	0.08	0.08	0.08	-19%	-19%
Poland	0.25	0.23	0.22	0.21	0.20	0.20	0.19	0.15	0.11	0.08	0.08	0.08	-36%	-67%
Slovak Republic	0.23	0.20	0.20	0.20	0.20	0.19	0.18	0.14	0.11	0.08	0.08	0.08	-29%	-63%
Slovenia	0.07	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	-8%	-8%
EU25	0.10	0.10	0.09	0.09	0.09	0.09	0.08	0.07	0.07	0.06	0.06	0.06	-25%	-32%
EU15	0.09	0.08	0.08	0.08	0.08	0.08	0.07	0.06	0.06	0.06	0.06	0.06	-23%	-24%
Eurozone	0.09	0.09	0.09	0.09	0.09	0.08	0.08	0.07	0.07	0.07	0.07	0.07	-26%	-27%
EU10	0.18	0.16	0.16	0.15	0.15	0.14	0.14	0.11	0.09	0.07	0.07	0.07	-31%	-56%

Source: Commission services

Note: *For Germany and Belgium figures used in the projections refers to national account and administrative concepts respectively.*

7.2. Results of projections for public expenditure on unemployment benefit expenditure

The results of calculation, which depend critically upon previous assumptions on working-age population, labour market participation and unemployment rates, are reported in Table 7-6. Unemployment benefit spending in the EU25 and EU15 is projected to fall from about 1% of GDP in 2002-2003 to 0.6% in 2025-2050. This primarily reflects the assumed lower proportions of unemployed people over the projection period.

Table 7-6- Projections of unemployment benefit spending, as % of GDP

															Change in expenditure (percentage points)	
	2002	2005	2006	2007	2008	2009	2010	2015	2020	2025	2030	2035	2040	2050	2002-2015	2002-2050
	(actual figures)															
BE	2.30	2.23	2.20	2.16	2.13	2.09	2.03	1.85	1.81	1.80	1.77	1.75	1.75	1.76	-0.45	-0.54
DK	1.30	1.43	1.33	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	-0.08	-0.08
DE	1.20	1.27	1.24	1.22	1.22	1.17	1.13	0.90	0.89	0.89	0.88	0.89	0.89	0.89	-0.30	-0.31
GR	0.50	0.34	0.34	0.34	0.34	0.32	0.31	0.25	0.25	0.25	0.25	0.25	0.25	0.25	-0.25	-0.25
ES	1.50	1.07	1.02	0.96	0.96	0.92	0.89	0.70	0.70	0.70	0.70	0.70	0.70	0.70	-0.80	-0.80
FR	1.50	1.16	1.14	1.13	1.13	1.09	1.05	0.87	0.87	0.87	0.87	0.87	0.87	0.87	-0.63	-0.63
IE	0.80	0.69	0.64	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	-0.21	-0.21
IT	0.34	0.40	0.39	0.38	0.38	0.37	0.36	0.32	0.32	0.32	0.32	0.32	0.32	0.32	-0.02	-0.02
LU	0.30	0.26	0.27	0.28	0.28	0.28	0.28	0.27	0.27	0.26	0.25	0.24	0.23	0.22	-0.03	-0.08
NL	1.40	1.69	1.62	1.54	1.54	1.54	1.54	1.54	1.54	1.54	1.54	1.54	1.54	1.54	0.14	0.14
AT	0.80	0.74	0.69	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	-0.15	-0.15
PT	0.80	0.92	0.88	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.05	0.05
FI	1.60	1.42	1.32	1.22	1.22	1.20	1.19	1.14	1.14	1.14	1.14	1.14	1.14	1.14	-0.46	-0.46
SE	1.00	1.05	0.98	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	-0.09	-0.09
UK	0.50	0.36	0.35	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	-0.16	-0.16
CY	0.37	0.34	0.33	0.31	0.31	0.31	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	-0.01	-0.01
CZ	0.20	0.23	0.23	0.23	0.23	0.23	0.22	0.19	0.19	0.19	0.19	0.19	0.19	0.19	-0.01	-0.01
EE	0.10	0.08	0.07	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.06	0.06	0.06	-0.04	-0.04
HU	0.30	0.24	0.22	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	-0.09	-0.09
LT	0.10	0.11	0.10	0.10	0.10	0.09	0.09	0.07	0.07	0.07	0.07	0.07	0.07	0.07	-0.03	-0.03
LV	0.40	0.29	0.27	0.24	0.24	0.24	0.24	0.22	0.22	0.22	0.22	0.22	0.22	0.22	-0.18	-0.18
MT	1.00	1.22	1.24	1.27	1.27	1.23	1.18	0.98	0.98	0.98	0.98	0.98	0.98	0.98	-0.02	-0.02
PL	0.40	0.54	0.52	0.50	0.48	0.46	0.44	0.34	0.26	0.18	0.18	0.18	0.18	0.18	-0.06	-0.22
SK	0.30	0.26	0.25	0.25	0.25	0.24	0.23	0.18	0.14	0.10	0.10	0.10	0.10	0.10	-0.12	-0.20
SI	0.30	0.45	0.43	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.11	0.11
EU25	1.01	0.90	0.88	0.85	0.85	0.82	0.79	0.68	0.64	0.61	0.61	0.61	0.61	0.61	-0.33	-0.40
EU15	1.04	0.89	0.87	0.85	0.84	0.82	0.80	0.69	0.68	0.68	0.68	0.68	0.68	0.68	-0.36	-0.37
Euro area	1.16	0.99	0.97	0.94	0.94	0.91	0.88	0.74	0.73	0.73	0.73	0.73	0.73	0.73	-0.42	-0.43
EU10	0.33	0.41	0.40	0.38	0.37	0.36	0.35	0.28	0.23	0.18	0.18	0.18	0.18	0.18	-0.04	-0.15

Source: Commission services

In 2050, as a straightforward outcome of previously projected demographic and labour market changes (see Table 7-4 and Table 7-5), overall levels of UB spending would range from about 1.8% of GDP in Belgium to 0.2 (in Greece, Luxembourg Czech Republic, Hungary, Latvia, and Poland) and a minimum of 0.07% in Lithuania. Compared to the starting year of calculation, the percentage change in the UB spending is somewhat high in some countries (higher than 60% in Poland and Slovakia, about 40% in Spain and Lithuania, 30% in Germany, Estonia, Latvia), reflecting the projected strong fall in the unemployment rates.

On the other hand, it is also worth noting that the impact of the assumed demographic/labour market changes on expenditure on unemployment benefits is relatively small when compared to projected effects on pension and health care spending. When compared to 2002, the maximum projected reduction in the unemployed benefit spending is about 0.8 percentage points of GDP in Spain, followed by France, Belgium and Finland (0.5-0.6 p.p.).

Among the new Member States, Poland is projected to record the biggest reduction in unemployment benefit spending (-0.22 percentage points), because of the assumed strong drop in the unemployment rate, from 19.9% in 2003 to 7% in 2025. Yet, the absolute impact

on the expenditure appears to be relatively limited, reflecting a lower initial per capita spending for unemployed allowances.

To conclude, figures provided by this projection exercise are useful in indicating some broad orders of magnitude of future public spending for unemployment benefits associated with assumed trends in population and labour market functioning. These figures should be used with caution. This is not only because of the high degree of uncertainty which always surround projections over a half-century, but also because the projection exercise does not incorporate the complex institutional details of the functioning of the unemployment benefit schemes in each Member State.

REFERENCES

Ahn N., J.R.García, J.A.Herce (2005), *Demographic Uncertainty and Health Care Expenditure in Spain*, FEDEA, Documento de Trabajo 2005-07.

Anderson G. and P.Hussey (2000), *Population Aging: A comparison Among Industrialized Countries*, Health Affairs, No.19(3), pp.191-203.

Arpaia A, D. Costello, G. Mourre and F. Pierini (2005), "*Tracking labour market reforms in the EU Member States: an overview of reforms in 2004 based on the LABREF database*", European Commission Economic paper N° 239, December 2005, available at: http://europa.eu.int/comm/economy_finance/publications/economicpapers_en.htm

Arpaia A, and G. Mourre (2005), "*Labour market institutions and labour market performance: A survey of the literature*", European Commission Economic paper N° 238, December 2005, available at: http://europa.eu.int/comm/economy_finance/publications/economicpapers_en.htm

Australian Government, Productivity Commission (2004), *Economic Implications of an Ageing Australia. Draft Research Report*, available at: http://www.pc.gov.au/study/ageing/draftreport/index.html

Bac C. (2004), *Les déterminants macro-économiques des dépenses de santé : comparaison entre quelques pays développés*. Annex to : Alain Vasselle, Projet de loi relatif à l'assurance maladie. Rapport n° 424 (2003-2004), fait au nom de la commission des affaires sociales, déposé le 21 juillet 2004, available at: http://www.senat.fr/rap/l03-424-1/l03-424-112.html

Bac C. and D.Balsan (2001), *Modélisation des dépenses d'assurance maladie*, Document de travail, No.19, Direction de la recherche, des études, de l'évaluation et des statistiques DREES.

Barros P.P. (1998), *The black box of health care expenditure growth determinants*, Health Economics, Vol.7(6), pp.533-544.

Batljan I. and M.Lagergren (2000), *Will There be a Helping Hand? Macroeconomic scenarios of future needs and costs of health and social care for the elderly in Sweden, 2000-30*. Annex to The Long-Term Survey 1999/2000, Stockholm.

Batljan I. and M.Lagergren (2004), *Inpatient/outpatient health care costs and remaining years of life. Effect of decreasing mortality on future acute health care demand*, Social Science and Medicine, Vol.59, pp.2459-2466.

Batljan I. (2005), *Demographics and demand for care. How to incorporate death-related costs in long-term budgetary projections of health care and long-term care?*, Presentation in the framework of the Visiting Fellows Programme, European Commission, 12 April 2005.

Berthelot J.-M. (2004), *Health-adjusted Life Expectancy (HALE)*, in: J.-M.Robine, C.Jagger, C.D.Mathers, E.M.Crimmins, R.M.Suzman (eds.), *Determining Health Expectancies*, John Wiley and Sons, Chichester, pp.235-246.

Bjornerud S. and J.Oliveira Martins (2005), *Disentangling demographic and non-demographic drivers of health spending: a possible methodology and data requirements*, presentation at the Joint EC/OECD Workshop, 21-22 February 2005, Brussels.

The Boards of Trustees, Federal Hospital Insurance and Federal Supplementary Medical Insurance Trust Funds (2004), *2004 Annual Report of the Boards of Trustees of the Federal Hospital Insurance and Federal Supplementary Medical Insurance Trust Funds*, Washington.

Bokhari F.A.S. (2001), *Managed Care and the Adoption of Hospital Technology: the Case of Cardiac Catherization*, HEW 0110001, Economics Working Paper Archive at WUSTL.

Börsch-Supan A., A Brugiavini, H. Jürges, J. Mackenbach, J. Siegrist and Weber G. Editors (2005), '*Health, ageing and retirement in Europe: first results from the Survey of health, Ageing and Retirement In Europe'*, SHARE project through the 5th Research Framework programme of the European Union, Mannheim Research Institute for the Economics of Aging (MEA).

Brody J.A., S.Frells, T.P.Miles (1992), *Epidemiological issues in the developed world*, in J.G.Evans, T.F. Williams (eds.), *Oxford Textbook of Geriatric Medicine*, Oxford Medical Publications, pp.14-20, Oxford.

Burniaux J., M., R. Duval and F. Jaumotte (2003), '*Coping with ageing: a dynamic approach to quantify the impact of alternative policy options on future labour supply in OECD countries'*, OECD Economic Department WP. N. 371; and OECD (2003), '*Labour force participation of groups at the margin of the labour market: past and future trends and policy challenges*', Working Party N° 1 on Macroeconomic and Structural Policy Analysis, ECO/CPE/WP1(2003)8.

Busse R., C.Krauth and F.W.Schwartz (2002), *Use of acute hospital beds does not increase as the population ages: results from a seven year cohort study in Germany*, Journal of Epidemiology and Community Health 2002, vol.56, pp.289-293.

Busse R., G.Wurzburg, M.Zappacosta (2003), *Shaping the Societal Bill: past and future trends in education, pensions and healthcare expenditure*, Futures, Vol.35, pp.7-24.

Caisse Nationale de l'Assurance Maladie des Travailleurs Salariés (2003), *Le viellissement de la population et son incidence sur l'évolution des dépenses de santé*, Des tendances de fond aux mouvements de court terme. Point de conjoncture, no.15, Juillet 2003.

Carone G., D.Costello, N. Diez Guardia, G. Mourre, B. Przywara, A. Salomäki (2005), *"The economic impact of ageing populations in the EU25 Member States"*, European Commission Economic paper N° 236, December 2005, available at: http://europa.eu.int/comm/economy_finance/publications/economicpapers_en.htm

Carone G., C.Denis, K. Mc Morrow, G. Mourre, W. Röger (2006), *"Long-term labour productivity and GDP projections for the EU25 Member States: a production function approach", in* European Commission Economic paper, *forthcoming.*

Carone G. (2005), "*Long-term labour force projections for the 25 EU Member States. A set of data for assessing the economic impact of ageing*", European Commission Economic paper N° 235, November 2005, available at: http://europa.eu.int/comm/economy_finance/publications/economicpapers_en.htm

Cislaghi C., F.Tediosi, S.Bartolacci, R.Berni, S.Forni (2002), *Hospital expenditure as function of the distance from birth and death*, Presentation at the 4th European Conference on Health Economics, Université Paris V - 7-10 July 2002.

Comas-Herrera A., R.Wittenberg, L.Pickard (2005), *Making projections of public expenditure on long-term care for the European member states: Methodological proposal for discussion*, paper presented at the Commission-AWG-OECD workshop of 21/22 February 2005.

Cutler D. (1995), Technology, Health Costs and the NIH, Cambridge MA: Harvard University and NBER, September.

Cutler D.M. and R.S.Huckman (2002), *Technological Development and medical productivity: Diffusion of Angioplasty in New York State*, NBER Working paper, No.9311.

Cutler D. and M.McClellan (1996), *The determinants of technological change in heart attack treatment*, NBER Working Paper, No. 5751.

Cutler D. and E.Meara (1997), *The medical care costs of the young and the old: a forty year perspective*, NBER Working paper, No.6114.

Cutler D. and E.Meara (1999), *The concentration of medical spending: An update*, NBER Working Paper, No.7279.

Cutler D.M., J.M.Poterba, L.M.Sheiner, L.H.Summers (1990), *An Aging Society: opportunity or Challenge?*, Brookings Papers on Economic Activity, Vol.1, pp.1-73.

Cutler D.M., and L.Sheiner (1997), *Managed Care and the Growth of Medical Expenditures*, NBER Working Paper, No.6140

Directorate General for Economic and Financial Affairs (2005), '*The economic impact of ageing populations: some insights from the ongoing work of DG ECFIN to the AWG'*, Note for the attention of the EPC, ECFIN(2005) REP 54200.

Docteur E. and H.Oxley (2003), *Health care systems: lessons from the reform experience*, OECD Directorate for Employment, Labour and Social Affairs, DELSA/ELSA/WD/HEA(2003)9 of 5 December 2003.

Economic Policy Committee (2001), 'The budgetary challenge posed by ageing populations', *European Economy Reports and Studies* N°4, European Commission, Directorate General for Economic and Financial Affairs, available at: http://europa.eu.int/comm/economy_finance/publications/european_economy/2001/eers0401_en.pdf

Economic Policy Committee (2003), '*The impact of ageing populations on public finances: overview of analysis carried out at EU level and proposals for a work programme*'. http://europa.eu.int/comm/economy_finance/epc/documents/2003/pensionmaster_en.pdf

Economic Policy Committee and European Commission (2005a), "The 2005 EPC projections of age-related expenditure (2004-2050) for the EU25 Member States: underlying assumptions and projection methodologies" in *European Economy Reports and Studies*, No.4, availale at: Brussels.http://europa.eu.int/comm/economy_finance/publications/european_economy/reportsandstudies0405_en.htm.

Economic Policy Committee and European Commission (2005b) "The 2005 EPC projections of age-related expenditure: agreed underlying assumptions and projection methodologies" in *European Economy Occasional Papers N°19*, availale at: http://europa.eu.int/comm/economy_finance/publications/occasional_papers/occasionalpapers19_en.htm.

Englert M., M.J.Festjens and M.Lopez-Novella (2004), *L'évolution à long terme des dépenses de soins de santé*, Journée d'Etudes: 'Budget 2005', Institut Belge des Finances Publiques.

European Commission (2004) "The EU Economy 2004 review", European Economy N°6, availale at: http://europa.eu.int/comm/economy_finance/publications/european_economy/the_eu_economy_review2004_en.htm

European Commission (2004a) *Controlling health care expenditures: some recent experiences with reform. Note for the attention of the Economic Policy Committee*, ECFIN/157/04-EN of 16 March 2004.

European Commission (2004b), *Incorporating 'death-related' costs in long-term budgetary projections of health care and long-term care: a review of existing methodologies and results. Note for the attention of the Ageing Working Group attached to the EPC*, ECFIN/C5/DC/BP D(2004).

Eurostat (2004 a), '*EUROPOP2004: methodology for drafting fertility assumptions in the EU15 Member States'*, ESTAT/F/1/POP/06(2004)/FS REV.1, 2 December 2004.

Eurostat (2005), *'EU25 population rises until 2025, then falls'*, Eurostat press release 448/2005 of 8 April 2005. For simplicity, the baseline variant of the trend scenario of EUROPOP2004 is referred to as EUROPOP2004 baseline in the text.

Fogel R.W. (1994), *Economic Growth, Population theory and Physiology: the Bearing of Long-Term Processes on the making of Economic Policy*, NBER Working Paper, No.4638.

Fogel R.W. (2002), *Biotechnology and the Burden of Age-Related Diseases*, in: OECD, *Healthy Ageing and Biotechnology. Policy Implications of New Research.*

Fries J.F. (1980), *Ageing, natural death, and the compression of morbidity*, The New England Journal of Medicine, Vol.303, pp.130-135.

Fries J.F. (1983*), The compression of morbidity*, Milbank Memorial Fund Quarterly, Vol.61, pp.397-419.

Fries J.F. (1989), *The compression of morbidity: near or far?*, Milbank Memorial Fund Quarterly, Vol.67, pp.208-232.

Fries J.F. (1993), *Compression of morbidity: life span, disability, and health care costs*, Facts and Research in Gerontology, Vol.7, pp.183-190.

Fries J.F. (2003), *Measuring and Monitoring Success in Compressing Morbidity*, Annals of Internal Medicine, Vol.139, pp.455-459.

Fuchs V.R. (1998a), *Provide, provide: the economics of aging*, NBER Working Paper, No.6642.

Fuchs V.R. (1998b), *Health care for the elderly: How much? Who will pay for it?*, NBER Working Paper, No.6755

Gabriele S., C.Cislaghi, F.Costantini, F.Innocenti, V.Lepore, F.Tediosi, M.Valerio, C.Zocchetti (2005), *Demographic factors and health expenditure profiles by age: the case of Italy*, deliverable for the ENEPRI AHEAD (Ageing, Health Status and Determinants of Health Expenditure) project.

Garber A.M., T.E.MaCurdy, M.L.McClellan (1998), *Medical care at the end of life: diseases, treatment patterns, and costs*, NBER Working Paper, No. 6748.

Gerdtham U.G. (1992), *Pooling international health care expenditure data*, Health Economics, Vol.1, pp.217-231.

Gerdtham U.G., J.Sogaard, B.Jonsson, F.Andersson (1992a), *A pooled cross-section analysis of the health care expenditures of the OECD countries*, Developments in Health Economics And Public Policy, Vol.1, pp.287-310.

Gerdtham U.G., J.Sogaard, F.Andersson, B.Jonsson (1992b), *An econometric analysis of health care expenditure: a cross-section study of the OECD countries*, Journal of Health Economics, May, Vol.11(1), pp.63-84.

Gerdtham U.G., B.Jönsson, M.MacFarlan, H.Oxley (1994), *Factors Affecting Health Spending: a Cross-country Econometric Analysis*, in: H.Oxley and M.MacFarland, *Health Care Reform. Controlling Spending and Increasing Efficiency*, OECD Economics Department Working Papers No.149, OCDE/GD(94)101.

Getzen, T.E. (1990), *Macro Forecasting of National Health Expenditures*, Advances in Health Economics and Health Services Research, Vol.11, pp.27-48.

Getzen T.E. (2000), *Health care is an individual necessity and a national luxury: Applying multilevel decision models to the analysis of health care expenditures*, Journal of Health Economics, Vol.19(2), pp.259-270.

Grignon M. (2003), *Les conséquences du vieillissement de la population sur les dépenses de santé*, in: Centre de Recherche, d'Etude et de Documentation en Economie de la Santé, Questions d'économie de la santé, No.66.

Gruenberg E.M. (1977), *The failure of success*, Millbank Memorial Fund Quarterly, Vol.55, pp.3-24.

Guralnik J.M. (1991), *Prospects for the compression of morbidity: Evidence from the Alameda County study*, Journal of Aging and Health, Vol.3, pp.138-153.

Health Canada (2001), *Health expenditures in Canada by Age and Sex : 1980-81 to 2000-2001*

Henke K.D. and J.Schreyögg (2004), *Towards sustainable health care systems. Strategies in health insurance schemes in France, Germany, Japan and the Netherlands. A comparative study*, International Social Security Association.

Hitiris T. and J.Posnett (1992), *The determinants and effects of health expenditure in developed countries*, Journal of Health Economics, Vol.11(2), pp.173-181.

Holly A. (2005), 'Health-based predictive models: How to extrapolate existing medical information into the projections of future health care expenditure?', Presentation to the joint EC-AWG-OECD workshop of 21-22 February 2005.

Howe Neil and Richard Jackson (2005) '*Projecting immigration: a survey of the current state of practice and theory*', Center for Strategic International Studies, a report of the CSIS Global Aging Initiative.

Husson M. (2004), *La santé, un bien supérieur ?*, Chronique Internationale de l'IRES , No. 91

Jacobzone S. (2002), *Healthy Ageing and the Challenges of New Technologies. Can OECD Social and Health-Care Systems Provide for the Future?*, in: OECD, *Healthy Ageing and Biotechnology. Policy Implications of New Research.*

Kanavos P. and E.Mossialos (1996), *The Methodology of International Comparisons of health Care Expenditures: Any lessons for Health Policy?*, Health and Social Care Discussion Paper Series, No.3, London School of Economics and Political Science.

Kanavos P. and E.Mossialos (1999), *International comparisons of health care expenditures: what we know and what we do not know*, Journal of Health Services Research & Policy, Vol. 4(2), pp.122-126.

Laditka S.B. and M.D.Hayward (2004), *The Evolution of Demographic Methods to Calculate Health Expectancies*, in: J.-M.Robine, C.Jagger, C.D.Mathers, E.M.Crimmins, R.M.Suzman (eds.), *Determining Health Expectancies*, John Wiley and Sons, Chichester, pp.221-234.

Leu R.E. (1986), *The public-private mix and international health care costs*, in A.J. Culyer and B.Jönsson (eds.), *Public and Private Health Services*, Basil Blackwell, Oxford, pp.41-63

L'Horty Y., A.Quinet, F.Rupprecht (1997), *Expliquer la croissance des dépenses de santé: le rôle de niveau de vie et du progrès technique*, Economie et Prévision, No.129-130, pp.255-266.

Lubitz J., J.Beebe, C.Baker (1995), *Longevity and Medicare Expenditures*, The New England Journal of Medicine, Vol.332, pp.999-1003.

Lubitz J.D. and G.F.Riley (1993), *Trends in Medicare Payments in the Last Year of Life*, The New England Journal of Medicine, Vol.328, pp.1092-1096.

Madsen M. (2004), *Methodologies to incorporate 'death-related' costs in projections of health and long-term care based on Danish data*, Ministry of Finance, Denmark.

Mahal A. and P.Berman (2001), *Health Expenditures and the Elderly: A Survey of Issues in Forecasting, Methods Used, and Relevance for Developing Countries*, Harvard Burden of

Disease Unit, The Global Burden of Disease 2000 in Aging Populations, Research Paper No. 01.23.

Manton K.G. (1982), Changing concepts of morbidity and mortality in the elderly population, Milbank Memorial Fund Quarterly, Vol.60, pp.183-244.

Manton K.G., E.Stallard, L.Corder (1995); *Changes in morbidity and chronic disability in the U.S. elderly population: Evidence from the 1982, 1984 and 1989 National Long Term Care Surveys*, Journal of Gerontology: Social Sciences, No.50(4), pp.S194-S204.

Maslow A.H. (1970), *Motivation and Personality*, Longman, New York.

McDonald P. (2000), *The 'Toolbox' of Public Policies to Impact on Fertility – a Global View*, Paper presented at the seminar 'Low fertility, families and public policies' organised by the European Observatory on Family Matters in Sevilla, September 15-16, 2000.

McDonald P. (2002), *Low fertility: unifying the theory and the demography*, Paper prepared for Session 73, Future of fertility in Low Fertility Countries, 2002 Meeting of the Population Association of America, Atlanta, 9-11 May 2002.

Meerding W.J., L.Bonneux, J.J.Polder, M.A.Koopmanschap, P.J.van der Maas (1998), *Demographic and epidemiological determinates of health care costs in the Netherlands.* British Medical Journal, No.317, pp.111-115.

Miller T. (2001), *Increasing Longevity and Medicare Expenditures*, Demography, Vol.38(2), pp.215-226.

Ministry of Health, Welfare and Sport, The Netherlands (2004), *Health Care in an Ageing Society. A Challenge for all European Countries*, Background Paper of the Netherlands EU Presidency, Informal Health Council, Noordwijk, 9 – 10 September 2004.

Murillo C., C.Piatecki, M.Saez (1993*), Health care expenditure and income in Europe*, Health Economics. Vol.2(2), pp.127-28.

Murthy N.R.V. and V. Ukpolo (1994), *Aggregate health care expenditure in the United States*, Applied Economics, Vol.26, pp.797-802.

Newhouse J.P. (1977), *Medical care expenditure: a cross national survey*, Journal of Human Resources, Vol.12, pp.115-125.

Newhouse J.P. (1992), *Medical Care Costs: How Much Welfare Loss?*, Journal of Economic Perspectives, Summer, Vol.6(3), pp.3-21.

Nichols L.M. (2002), *Can Defined Contribution Health Insurance Reduce Cost Growth?*, EBRI Issue Brief No.246.

Nusselder W. (2003), *Compression of Morbidity*, in: J.-M.Robine, C.Jagger, C.D.Mathers, E.M.Crimmins, R.M.Suzman (eds.), *Determining Health Expectancies*, John Wiley and Sons, Chichester, pp.35-58.

Nusselder W., J.Mackenbach (1997), *Rectangularisation of the survival curve in the Netherlands*, Journal of Gerontology: Social Sciences 52b, pp.S145-S154.

OECD (1998), *Health Policy Brief. Ageing and Technology*, Working Party on Biotechnology, DSTI/STP/BIO(97)13 of 17 June 1998.

OECD (2003), '*Towards high performing health systems – Draft report to Ministers on the OECD Health Project*", Ad hoc Group on the OECD Health Project, SG/ADHOC/HEA(2003)20 of 18 November 2003.

OECD Health Data 2004.

OECD Health Data 2005

Oeppen J. and J.W.Vaupel (2002), *Broken Limits to Life Expectancy*, Science, Vol.296, pp.1029-1031.

Okunade A.A and V.N.R.Murthy (2002), *Technology as a 'major driver' of health care costs: a cointegration analysis of the Newhouse conjecture*, Journal of Health Economics, Vol.21(1), pp.147-159.

Olshansky S.J., M.A.Rudberg, B.A.Carnes, C.K.Cassel, J.A.Brody (1991), *Trading off longer life for worsening health*, Journal of Aging and health, Vol.3, pp.194-216.

Pellikaan F. and E.Westerhout (2004), *Alternative scenarios for health, life expectancy and social expenditure. The influence of living longer in better health on health expenditures, pension expenditures and government finances in the EU*, in: The AGIR Project. Ageing, Health and Retirement in Europe, The Hague.

Productivity Commission (2004), *Economic Implications of an Ageing Australia*, Draft Research Report, Productivity Commission, Canberra.

Ragioneria Generale dello Stato (2004), *How to take account of death related costs in projecting health care expenditure – the evidence for Italy and a proposal for the EPC-WGA.*

Reinhardt U.E. (2000), *Health Care for the Ageing Baby Boom: Lessons from Abroad*, The Journal of Economic perspectives, Vol.14(2), pp.71-83.

Riedel M., M.M.Hofmarcher, R.Buchegger, J.Brunner (2002), *Nachfragemodell Gesundheitswesen, Teil II,* Institut für Höhere Studien (IHS), Wien.

Robine J.M. and C.D.Mathers (1993), *Measuring the compression or expansion of morbidity through changes in health expectancy*, in: J.M.Robine, C.D.Mathers, M.Bone, I.Romieu (eds.), *Calculation of Health Expectancies: Harmonization, Consensus Achieved and Future Perspectives*, John Libbey Eurotext, Montrouge, pp.269-286.

Robine J.M. and J.W.Vaupel (2002), *Emergence of supercentenarians in low mortality countries,* available at: http://user.demogr.mpg.de/jwv/pdf/AmActJournal2002.pdf.

Robine J.M. and J.P.Michel (2004), *Looking Forward to a General Theory on Population Aging*, Journal of Gerontology: Medical Sciences, Vol.59A, No.6, pp.590-597.

Robine J.M., C.Jagger, H.van Oyen (2005), *Interpreting national evidence on the evolution of morbidity and disability prevalence over time and perspectives for extended healthy life expectancy*, presentation at the Joint EU-OECD workshop, February 21-22, 2005.

Rochaix L. and S.Jacobzone (1997), *L'hypothèse de demande induite : un bilan économique*, Economie et Prévision, No.129-130, pp. 25-35.

Suzman R., F.Kinsella, G.Myers (1992), Demography of older populations in developed countries, in J.G.Evans, T.F. Williams (eds.), *Oxford Textbook of Geriatric Medicine*, Oxford Medical Publications, pp.3-14, Oxford

Verbrugge L.M. (1984), *Longer life but worsening health? Trends in health and mortality of middle-aged and older persons*, Milbank Memorial Fund Quarterly, Vol. 62, pp.475-519.

Wanless D. (2002), *Securing our Future Health: Taking a Long-Term View*. Final report, HM Treasury.

Weisbrod B. (1991), *The Health Care Quadrilemma: An Essay on Technological Change, Insurance, Quality of Care and Cost Containment*, Journal of Economic Literature, June Vol.24, pp.523-552.

World Health Organisation (2003), *International Statistical Classification of Diseases and Related Health Problems.10th Revision. Version for 2003*; available at: http://www3.who.int/icd/vol1htm2003/fr-icd.htm.

World Health Organization Regional Office for Europe, European health for all database (HFA-DB), available at: http://data.euro.who.int/hfadb/

Zweifel P., S.Felder, M.Meiers (1999), *Ageing of population and health care expenditure: a red herring?*, Health Economics, Vol.8(6), pp.485-496.

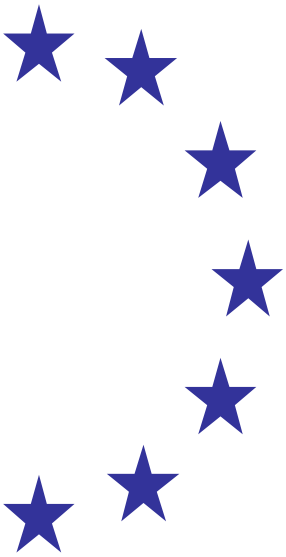
LIST OF TABLES

LIST OF GRAPHS

Special Report n° 1/2006-Annex

EUROPEAN ECONOMY

EUROPEAN COMMISSION
DIRECTORATE-GENERAL FOR
ECONOMIC AND FINANCIAL AFFAIRS



ANNEX

The impact of ageing on public expenditure: projections for the EU25 Member States on pensions, health care, long-term care, education and unemployment transfers (2004-2050)

Report prepared by the
Economic Policy Committee and the European Commission (DG ECFIN)

ANNEXES

LIST OF TABLES

1. SUMMARY OF THE BASELINE PROJECTIONS RESULTS FOR ALL AGE-RELATED PUBLIC SPENDING ITEMS

Table 1-1 Total age-related public spending: pension, health care, long-term care, education and unemployment transfers (% of GDP) – baseline scenario

	2004	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050	Change 2004-
BE	25.4	25.3	25.1	25.5	26.6	28.2	29.9	31.1	31.6	31.8	31.7	6.3
DK	26.8	26.8	27.0	27.9	28.6	29.5	30.8	31.7	32.1	31.9	31.6	4.8
DE	23.7	23.4	22.5	22.2	22.9	23.8	24.7	25.4	25.7	26.1	26.4	2.7
GR *	8.9	8.9	8.7	8.7	8.7	8.9	9.1	9.4	9.7	9.9	10.2	1.2
ES	20.1	20.0	19.7	19.6	20.4	21.7	23.4	25.2	27.3	28.7	28.6	8.5
FR	26.7	26.6	26.7	26.9	27.6	28.1	28.6	29.4	29.6	29.7	29.6	2.9
IE	15.5	15.2	15.4	16.3	17.1	18.0	18.8	19.7	20.7	22.1	23.3	7.8
IT	26.2	26.2	25.7	25.6	25.9	26.4	27.3	28.1	28.7	28.6	28.0	1.7
LU	19.5	19.5	19.4	20.5	21.6	23.5	25.0	26.6	27.4	28.1	27.8	8.2
NL	20.9	20.5	20.6	21.5	22.4	23.4	24.7	25.7	26.2	26.1	25.8	5.0
AT	25.2	24.9	24.2	24.0	24.2	25.2	26.0	26.5	26.1	25.7	25.3	0.2
PT	23.8	24.2	24.2	24.9	26.3	27.1	28.0	29.5	31.1	32.6	33.6	9.7
FI	25.4	25.2	25.6	26.5	27.7	28.8	30.1	30.8	30.7	30.6	30.6	5.2
SE	29.6	29.2	28.2	28.3	28.6	29.5	30.9	31.7	31.9	31.7	31.8	2.2
UK	19.6	19.6	19.4	19.5	19.9	20.7	21.8	22.5	22.9	23.2	23.6	4.0
CY	16.4	16.4	16.5	16.7	17.6	18.8	20.5	21.9	23.4	25.0	28.2	11.8
CZ	19.3	19.3	18.8	18.6	19.2	20.0	21.0	22.4	24.1	25.5	26.4	7.2
EE	17.1	17.5	16.5	15.4	15.1	15.0	14.8	14.6	14.3	14.3	14.4	-2.7
HU	20.7	20.9	21.0	21.3	22.3	22.9	23.5	24.7	26.4	27.4	27.7	7.0
LT	16.0	16.0	15.3	14.8	15.1	15.7	16.3	16.6	16.8	17.0	17.4	1.4
LV	17.5	16.9	14.6	14.1	14.6	15.5	16.0	16.2	16.2	16.1	16.2	-1.3
MT	18.2	18.2	19.1	19.7	20.4	20.5	20.0	19.5	19.2	18.9	18.5	0.3
PL	23.7	23.4	20.2	18.1	17.9	17.7	17.6	17.5	17.3	17.1	17.0	-6.7
SK	16.2	16.5	15.4	14.9	15.3	15.8	16.5	17.1	17.7	18.3	19.1	2.9
SI	24.2	24.2	24.0	24.5	25.5	27.0	28.6	30.2	31.7	33.0	33.8	9.7
EU25	23.4	23.3	22.7	22.7	23.2	24.0	24.9	25.8	26.4	26.7	26.8	3.4
EU15	23.5	23.3	22.9	23.0	23.5	24.4	25.4	26.3	26.8	27.1	27.2	3.7
EU12	24.0	23.9	23.4	23.5	24.1	24.9	25.9	26.9	27.5	27.8	27.8	3.7
EU10	21.1	21.0	19.4	18.4	18.7	19.0	19.4	19.9	20.5	21.0	21.4	0.2
EU9 (EU10-Pl)	19.3	19.3	18.8	18.7	19.3	20.0	20.8	21.8	23.0	23.9	24.7	5.4

1) Total expenditure for GR does not include pension expenditure. The Greek authorities have agreed to provide the pension projections in 2006. In the context of the most recent assessment of the sustainability of public finances based on the Greek stability programme, public spending on pensions was projected to increase by 10.3% of GDP between 2004 and 2050.
2) Total expenditure for: GR, FR, PT, CY, EE, HU does not include long-term care
3) The projection results for public spending on long-term care for Germany does not reflect current legislation where benefit levels are fixed. A scenario which comes closer to the current setting of legislation projects that public spending would remain constant as a share of GDP over the projection period.
Note: these figures refer to the baseline projections for social security spending on pensions, education and unemployment transfers. For health care and long-term care, the projections refer to "AWG reference scenarios"

Table 1-2 Gross public pension expenditure (% of GDP) – baseline scenario

Country	2004	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050	Change 2004-2050
BE	10.4	10.4	10.4	11.0	12.1	13.4	14.7	15.5	15.7	15.7	15.5	5.1
CZ	8.5	8.5	8.2	8.2	8.4	8.9	9.6	10.6	12.2	13.3	14.0	5.6
DK	9.5	9.6	10.1	10.8	11.3	12.0	12.8	13.3	13.5	13.1	12.8	3.3
DE	11.4	11.1	10.5	10.5	11.0	11.6	12.3	12.7	12.8	12.9	13.1	1.7
EE	6.7	7.1	6.8	6.0	5.4	5.1	4.7	4.5	4.4	4.3	4.2	-2.5
GR	:	:	:	:	:	:	:	:	:	:	:	:
ES	8.6	8.7	8.9	8.8	9.3	10.4	11.8	13.4	15.2	16.2	15.7	7.1
FR	12.8	12.8	12.9	13.2	13.7	14.0	14.3	14.8	15.0	14.9	14.8	2.0
IE	4.7	4.6	5.2	5.9	6.5	7.2	7.9	8.5	9.3	10.3	11.1	4.8
IT	14.2	14.3	14.0	13.8	14.0	14.4	15.0	15.6	15.9	15.4	14.7	0.4
CY	6.9	7.0	8.0	8.8	9.9	10.8	12.2	13.5	15.0	16.7	19.8	10.5
LV	6.8	6.4	4.9	4.6	4.9	5.3	5.6	5.9	5.9	5.7	5.6	-1.2
LT	6.7	6.7	6.6	6.6	7.0	7.6	7.9	8.1	8.2	8.3	8.6	1.8
LU	10.0	10.0	9.8	10.9	11.9	13.7	15.0	16.4	17.0	17.7	17.4	7.4
HU	10.4	10.7	11.1	11.6	12.5	13.0	13.5	14.6	16.0	16.9	17.1	6.7
MT	7.4	7.5	8.8	9.8	10.2	10.0	9.1	8.4	7.9	7.5	7.0	-0.4
NL	7.7	7.4	7.6	8.3	9.0	9.7	10.7	11.4	11.7	11.4	11.2	3.5
AT	13.4	13.2	12.8	12.7	12.8	13.5	14.0	14.0	13.4	12.7	12.2	-1.2
PL	13.9	13.7	11.3	9.8	9.7	9.5	9.2	8.9	8.6	8.3	8.0	-5.9
PT	11.1	11.5	11.9	12.6	14.1	15.0	16.0	17.4	18.8	20.0	20.8	9.7
SI	11.0	11.0	11.1	11.6	12.3	13.3	14.4	15.6	16.8	17.8	18.3	7.3
SK	7.2	7.4	6.7	6.6	7.0	7.3	7.7	7.9	8.2	8.5	9.0	1.8
FI	10.7	10.4	11.2	12.0	12.9	13.5	14.0	14.1	13.8	13.7	13.7	3.1
SE	10.6	10.4	10.1	10.3	10.4	10.7	11.1	11.4	11.6	11.4	11.2	0.6
UK	6.6	6.7	6.6	6.7	6.9	7.3	7.9	8.3	8.4	8.4	8.6	2.0
EU15	10.6	10.5	10.4	10.5	10.8	11.4	12.1	12.6	12.9	13.0	12.9	2.3
EU10	10.9	10.9	9.8	9.2	9.5	9.7	9.8	10.1	10.6	10.9	11.1	0.3
EU12	11.5	11.5	11.3	11.4	11.8	12.5	13.2	13.8	14.2	14.3	14.1	2.6
EU25	10.6	10.6	10.3	10.4	10.7	11.3	11.9	12.5	12.8	12.8	12.8	2.2
EU9 (EU10-PL)	8.8	8.9	8.8	8.8	9.3	9.8	10.4	11.1	12.2	13.0	13.6	4.8

Table 1-3 Projections for public spending on health care –AWG reference scenario (% of GDP)

Country	2004	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050	Change (2004-50)
BE	6.2	6.2	6.4	6.6	6.8	6.9	7.1	7.3	7.5	7.6	7.6	1.4
DK	6.9	6.9	7.0	7.2	7.4	7.6	7.7	7.7	7.8	7.8	7.8	1.0
DE	6.0	6.1	6.3	6.5	6.7	6.8	6.9	7.0	7.1	7.2	7.2	1.2
GR	5.1	5.1	5.4	5.5	5.6	5.7	5.9	6.2	6.5	6.7	6.8	1.7
ES	6.1	6.1	6.3	6.5	6.7	7.0	7.3	7.6	7.9	8.1	8.3	2.2
FR	7.7	7.7	8.0	8.2	8.4	8.6	8.9	9.2	9.3	9.4	9.5	1.8
IE	5.3	5.3	5.5	5.7	5.9	6.2	6.4	6.7	6.9	7.1	7.3	2.0
IT	5.8	5.8	6.0	6.1	6.3	6.5	6.7	6.9	7.0	7.1	7.1	1.3
LU	5.1	5.1	5.3	5.4	5.6	5.7	5.9	6.1	6.2	6.3	6.3	1.2
NL	6.1	6.1	6.3	6.5	6.7	6.9	7.1	7.3	7.4	7.4	7.4	1.3
AT	5.3	5.3	5.5	5.7	5.9	6.1	6.3	6.5	6.7	6.8	6.8	1.6
PT	6.7	6.7	6.8	6.8	6.7	6.6	6.6	6.8	6.9	7.1	7.2	0.5
FI	5.6	5.6	5.8	6.0	6.2	6.4	6.6	6.9	7.0	7.0	7.0	1.4
SE	6.7	6.7	6.8	7.0	7.2	7.4	7.5	7.6	7.7	7.7	7.7	1.0
UK	7.0	7.0	7.2	7.4	7.6	7.9	8.1	8.4	8.7	8.8	8.9	1.9
CY	2.9	2.9	3.1	3.3	3.4	3.5	3.6	3.8	3.9	4.0	4.0	1.1
CZ	6.4	6.5	6.8	7.1	7.4	7.6	7.8	8.0	8.1	8.3	8.4	2.0
EE	5.4	5.5	5.8	6.0	6.1	6.1	6.2	6.3	6.4	6.5	6.5	1.1
HU	5.5	5.5	5.7	5.9	6.0	6.2	6.3	6.3	6.4	6.5	6.5	1.0
LT	3.7	3.7	4.0	4.2	4.3	4.3	4.4	4.4	4.5	4.6	4.6	0.9
LV	5.1	5.2	5.5	5.8	5.8	5.9	5.9	6.0	6.1	6.2	6.2	1.1
MT	4.2	4.3	4.5	4.8	5.0	5.3	5.5	5.7	5.9	6.0	6.1	1.8
PL	4.1	4.1	4.4	4.6	4.8	5.0	5.1	5.2	5.3	5.4	5.5	1.4
SK	4.4	4.4	4.7	5.0	5.2	5.5	5.7	5.9	6.0	6.2	6.3	1.9
SI	6.4	6.5	6.7	6.9	7.2	7.4	7.6	7.8	7.9	8.0	8.0	1.6
EU25	6.4	6.4	6.6	6.8	7.0	7.2	7.4	7.6	7.8	7.9	7.9	1.6
EU15	6.4	6.5	6.7	6.9	7.1	7.3	7.5	7.7	7.9	8.0	8.1	1.6
EU12	6.3	6.3	6.5	6.7	6.9	7.1	7.3	7.5	7.7	7.8	7.8	1.5
EU10	4.9	5.0	5.2	5.4	5.5	5.7	5.8	6.0	6.1	6.2	6.2	1.3
EU9 (EU10-PL)	5.5	5.5	5.7	5.9	6.1	6.3	6.4	6.5	6.6	6.7	6.8	1.3

Table 1-4 Projections for public spending on long-term care –AWG reference scenario (% of GDP) *

Country	2004	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050	Change (2004-50)
BE	0.9	0.9	0.9	1.0	1.1	1.1	1.3	1.4	1.6	1.8	1.8	1.0
DK	1.1	1.1	1.1	1.1	1.2	1.5	1.7	1.9	2.0	2.1	2.2	1.1
DE	1.0	1.0	1.0	1.0	1.2	1.3	1.4	1.5	1.6	1.9	2.0	1.0
EL												
ES	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.7	0.8	0.2
FR												
IE	0.6	0.6	0.6	0.6	0.6	0.6	0.7	0.8	0.9	1.1	1.2	0.6
IT	1.5	1.5	1.5	1.5	1.6	1.6	1.7	1.8	1.9	2.1	2.2	0.7
LU	0.9	0.9	1.0	1.0	1.0	1.0	1.1	1.2	1.3	1.4	1.5	0.6
NL	0.5	0.5	0.5	0.5	0.5	0.6	0.8	0.9	0.9	1.0	1.1	0.6
AT	0.6	0.6	0.7	0.7	0.8	0.9	1.0	1.1	1.2	1.4	1.5	0.9
PT												
FI	1.7	1.7	1.9	2.0	2.1	2.4	3.0	3.3	3.4	3.5	3.5	1.8
SE	3.8	3.8	3.7	3.5	3.7	4.2	4.9	5.1	5.2	5.3	5.5	1.7
UK	1.0	1.0	1.0	1.0	1.1	1.1	1.3	1.4	1.5	1.6	1.8	0.8
CY												
CZ	0.3	0.3	0.3	0.3	0.4	0.4	0.5	0.6	0.6	0.6	0.7	0.4
EE												
HU												
LT	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.8	0.9	0.4
LV	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.6	0.6	0.7	0.7	0.3
MT	0.9	0.9	0.9	0.9	0.9	0.9	1.0	1.1	1.1	1.2	1.1	0.2
PL	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.1
SK	0.7	0.8	0.8	0.7	0.7	0.8	0.9	1.0	1.1	1.2	1.3	0.6
SI	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.7	1.9	2.1	2.2	1.2
EU25	0.9	0.9	0.9	0.9	0.9	1.0	1.1	1.2	1.3	1.4	1.5	0.6
EU15	0.9	0.9	0.9	0.9	1.0	1.0	1.1	1.2	1.3	1.4	1.5	0.7
EU12	0.7	0.7	0.7	0.8	0.8	0.9	0.9	1.0	1.1	1.2	1.3	0.5
EU10	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.5	0.2
EU9 (EU10-PL)	0.3	0.3	0.4	0.4	0.4	0.4	0.5	0.5	0.6	0.6	0.7	0.3

* The projection results for public spending on long-term care for Germany does not reflect current legislation where benefit levels are fixed. A scenario which comes closer to the current setting of legislation projects that public spending would remain constant as a share of GDP over the projection period.

Table 1-5 Projections for public spending on education (% of GDP) – baseline scenario

Country	2004	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050	Change 2004-2050
BE	5.6	5.6	5.2	5.0	4.9	4.9	5.0	5.1	5.0	5.0	5.0	-0.7
DK	7.8	7.7	7.5	7.6	7.5	7.3	7.3	7.5	7.6	7.6	7.5	-0.3
DE	4.0	4.0	3.6	3.3	3.2	3.2	3.3	3.3	3.3	3.2	3.2	-0.9
EL	3.5	3.4	3.1	2.9	2.9	3.0	3.0	3.0	3.0	3.0	3.1	-0.4
ES	3.7	3.6	3.2	3.1	3.2	3.1	3.0	2.9	2.9	3.0	3.1	-0.6
FR	5.0	4.9	4.7	4.6	4.6	4.6	4.5	4.5	4.5	4.5	4.5	-0.5
IE	4.1	4.0	3.5	3.5	3.4	3.4	3.2	3.0	3.0	3.0	3.1	-1.0
IT	4.3	4.2	3.9	3.8	3.7	3.6	3.5	3.5	3.6	3.7	3.7	-0.6
LU	3.3	3.2	3.1	2.9	2.8	2.8	2.7	2.7	2.6	2.5	2.4	-0.9
NL	4.8	4.8	4.7	4.7	4.6	4.5	4.6	4.7	4.7	4.7	4.6	-0.2
AT	5.1	5.0	4.6	4.3	4.1	4.1	4.2	4.2	4.2	4.1	4.1	-1.0
PT	5.1	5.0	4.7	4.6	4.7	4.6	4.5	4.4	4.5	4.6	4.8	-0.4
FI	6.0	6.0	5.6	5.4	5.3	5.3	5.4	5.4	5.3	5.3	5.3	-0.7
SE	7.3	7.3	6.7	6.5	6.4	6.4	6.6	6.6	6.6	6.5	6.4	-0.9
UK	4.6	4.5	4.2	4.0	4.0	4.0	4.1	4.1	4.0	3.9	4.0	-0.6
CY	6.3	6.2	5.1	4.3	4.0	4.1	4.3	4.4	4.2	4.0	4.0	-2.2
CZ	3.8	3.8	3.3	2.9	2.8	2.9	3.0	3.0	3.0	3.1	3.1	-0.7
EE	5.0	4.8	3.8	3.4	3.5	3.8	3.8	3.7	3.5	3.5	3.6	-1.3
HU	4.5	4.4	3.9	3.7	3.5	3.5	3.5	3.6	3.7	3.8	3.8	-0.7
LT	5.0	4.9	4.2	3.5	3.2	3.2	3.3	3.4	3.3	3.3	3.3	-1.6
LV	4.9	4.6	3.5	3.0	3.2	3.5	3.7	3.6	3.3	3.3	3.5	-1.4
MT	4.4	4.4	3.7	3.3	3.2	3.3	3.3	3.3	3.3	3.3	3.3	-1.2
PL	5.0	4.9	3.9	3.3	3.0	2.9	3.0	3.0	3.0	3.0	3.1	-1.9
SK	3.7	3.6	3.0	2.4	2.2	2.1	2.2	2.2	2.3	2.3	2.4	-1.3
SI	5.3	5.2	4.6	4.3	4.3	4.5	4.7	4.7	4.7	4.8	4.9	-0.4
EU25	4.6	4.5	4.2	4.0	3.9	3.9	3.9	3.9	3.9	3.9	4.0	-0.6
EU15	4.6	4.5	4.2	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	-0.6
EU12	4.4	4.4	4.0	3.9	3.8	3.8	3.8	3.8	3.8	3.8	3.8	-0.6
EU10	4.7	4.6	3.8	3.3	3.1	3.1	3.2	3.2	3.2	3.2	3.3	-1.3
EU9 (EU10-PL)	4.4	4.3	3.7	3.3	3.2	3.2	3.3	3.4	3.4	3.4	3.5	-0.9

Table 1-6 Projections for public spending on unemployment transfers (% of GDP) – baseline scenario

Country	2004	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050	Change 2004-2050
BE	2.3	2.2	2.0	1.8	1.8	1.8	1.8	1.8	1.7	1.8	1.8	-0.5
DK	1.5	1.4	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	-0.3
DE	1.3	1.3	1.1	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	-0.4
GR	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	-0.1
ES	1.1	1.1	0.9	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	-0.4
FR	1.2	1.2	1.1	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	-0.3
IE	0.7	0.7	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	-0.2
IT	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	-0.1
LU	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	-0.1
NL	1.8	1.7	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	-0.2
AT	0.8	0.7	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	-0.1
PT	1.0	0.9	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	-0.1
FI	1.5	1.4	1.2	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	-0.4
SE	1.1	1.1	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	-0.2
UK	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.0
CY	0.4	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.0
CZ	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.0
EE	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0
HU	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.0
LT	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-0.1
LV	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	-0.1
MT	1.2	1.2	1.2	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	-0.2
PL	0.5	0.5	0.4	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	-0.4
SK	0.3	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-0.2
SI	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	-0.1
EU25	0.9	0.9	0.8	0.7	0.6	0.6	0.6	0.6	0.6	0.6	0.6	-0.3
EU15	0.9	0.9	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	-0.2
EU12	1.0	1.0	0.9	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	-0.3
EU10	0.4	0.4	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	-0.2
EU9 (EU10-PL)	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	-0.1

2. CHARACTERISTICS OF PENSION SYSTEMS IN THE EU MEMBER STATES

Table 2-1 Pension benefit formulation in the social security (public) pension schemes in Member States

(PR= private sector (main private sector scheme if different rules for sectoral schemes, PU=public sector where the schemes differ)

MS	Type of the scheme DB=defined -benefit DC=defined contribution	Pension base (reference wage) (thresholds, ceilings)	Indexation of past earnings (50:50=w:p)	Accrual of pensions	Max. accrual rate (gross replacement rate)	Number of years needed for a full pension	Stat. retire-ment age (M=men, W=women)	Other factors taken into account (early/deferred retirement; additional separate schemes; family conditions
BE	PR: DB	PR: Average of lifetime wages (up to ceiling), max 45 (women 44; 45 in 2009)	PR: to prices+ partial adjustment to welfare	PR: Service years/45 (women 44; 45 in 2009)	PR: 60%	45 (women 44; 45 in 2009)	65 M 64 W	75% for a married couple with one income; early retirement under condition between 60 and 65 or through "prepension" (unemployment benefit + supplement from the firm)
	PU: DB	PU: average wages of the last five years	PU: To prices + real wage increases in the corresponding civil servants scales	PU: Service years up to 45/60	PU: 100% of (service years)/60 (=75% of (service years)/45)	45	65	Early retirement between 60 and 65; age bonuses if retiring after the age of 60
CZ	DB	Earnings of 30 years (after 1986)	To average earnings	Flat-rate component + earnings-related component: 1.5%/year	No max	25	63M 61W, with 2 children	Age bonuses for later retirement and reductions for early retirement
DK	Flat-rate plus means-tested supplements			Based on years lived in DK	Flat-rate	40 lived in DK	65	A separate voluntary early retirement scheme (with a small own contribution). Supplemented by fully funded occupational pensions.
DE	DB	Pension points accrued during the whole work career	Implicitly to wages	Based on pension points (depends on the wage level relative to average wage and career length)	No ceiling defined,(in general, max 2 pension points		65	3.6% reduction per year for early retirement, 6.0% bonus per year for deferred retirement. Additional pension points granted for child

MS	Type of the scheme	Pension base	Indexation of past earnings	Accrual of pensions	Max. accrual rate	Number of years	Stat. retire-ment age	Other factors taken into account
					per year.)			raising and care of dependant persons
EE	DB	Length of career up to 1999, then contribution (earnings) points	(implicitly to wages)	Flat-rate component +contribution(earnings)-related component			63 M 59,5 W	Supplemented by a funded tier
GR	DB	PR: Average of best 5 years' wages out of last 10 years PU: Earnings of the last month; contributions paid up to a ceiling of wages	To civil servants' wages	Pre-1993: Non-linear formula, number of dependants taken into acc. (appr. 2% /year) Post 1993: 1.714% of wage	80 / 60% + 20%	37	IKA: insured bef. 1.1.1993: 65 M 60 W. after 1.1.1993: 65 M, W	80% for those being in the LM pre-1993 60% for those entering the LM after 1993; in addition, 20% auxiliary pension
ES	PR: DB PU: Flat-rate	PR: Average of last 15 years' wages PU: length of service	To prices (up to a ceiling)	15 years of contributions: 50% of pension rights; 3p.p. for each additional year until 25 years; thereafter, 2 p.p. for each additional year up to 35 years	PR: PU: flat-rate (5 cat.)	35	65	Bonuses for later retirement and reductions for early retirement
FR	DB	PR: Average of the best 25 years (to those born after 1948) PU: Last 6 months' wages	To prices	PR: 1.33%/year PU: 2%/year -> 1.875%/year	PR: 50 PU: 75	PR: 40 PU: 37.5 -> 40	60	Increases for children brought up; Supplemented by a mandatory partially funded scheme (second tier), private sector No supplement in public sector
IE	Social welfare: Flat-rate PU: DB	Contributions for years	No formal agreements. Government decisions each year in the Budget.		Social welfare: Flat-rate	PU: 40	65/66 depending on the scheme	Social insurance pensions may include additional payments in respect of adult and child dependants. PR: Supplemented by voluntary occupational pensions. PU: Public servants recruited after April 1995 will receive an integrated Social Security and public occupational pension.
IT	Old: DB New: NDC	Average of last 5/10 years' wages, progressively increasing Lifetime contributions	To prices To GDP	2% of reference wage per each year of contributions DG principle	80% NDC: none	40 NDC: none	65 M 60 W	 NDC: Higher transformation coefficient for women with children

MS	Type of the scheme	Pension base	Indexation of past earnings	Accrual of pensions	Max. accrual rate	Number of years	Stat. retire-ment age	Other factors taken into account
CY	PR: DB PU:	 Final salary	1.5% for e-r component	Flat-rate component + earnings-related component Tax-financed	60% of the average wage + supp. 67%	 33.3 years	61 M 60 W	Higher flat-rates for beneficiaries with dependants
LV	Old: DB New: NDC	Lifetime contributions	Prices + 50% of the real wage sum increase	DC principle	No max	No max	62 M 60 W (62 as of 1.7.2008)	Supplemented by a funded tier (2001); Early retirement actuarially reduced.
LT	DB	Contributions for 30 years		Flat-rate component +contribution(earnings)-related component			62,5 M 60 W	Age bonuses for later retirement and reductions for early retirement Supplemented by a funded tier (2004)
LU	DB	Average lifetime wages + career length	To prices plus the real wage growth	1.85% / year		40	After 40 years of working lifetime	Bonuses after 38 years of contributions and having turned 55 years' age; Early retirement possible after 57 years of age and 40 years of contributions, or after 60 years of age and 40 years of service.
HU	DB	Lifetime earnings since 1988	Net wages	Accrual of pension points weighted by earnings brackets (appr; 2%/year)			62 M 60 W	Bonuses for later retirement and reductions for early retirement Supplemented by a funded tier
MT	DB	Average of the best consecutive 3 years out of last 10 years		Contributions for 30 years, subject to a ceiling	67		61 M 60 W	
NL	Flat-rate			Based on years lived in NL	Flat-rate, 70% of net min. wage	40 lived in NL	65	100% net min; wage for couples A separate early retirement scheme Supplemented by occupational pensions
AT	DB	Average of best 15 years' wages, extended to 40 years' wages by 2028	Net wages	2%, to be lowered to 1.78 by 2009	80	45	65 (W: phased in by 2033)	Early/deferred retirement with reductions/increases of 4.5% / year
PL	Old: DB New: NDC	 Lifetime contributions + Calculation of initial capital,	 Wage sum	Old: Flat-rate component + contribution-rel. component New: DC principle			65 M 60 W	Old: To those born before 1.1.1949 Separate scheme for farmers Supplemented by a funded tier

MS	Type of the scheme	Pension base	Indexation of past earnings	Accrual of pensions	Max. accrual rate	Number of years	Stat. retire-ment age	Other factors taken into account
		based on career length						
PT	PR: DB PU: DB	PR: Average of best 10 years' wages out of last 15 years (old) Average of lifetime wages phased in 2002- PU: empl.pre-1993: Last wage	Wages	2%/year 2.5% -> 2.25 in 2013	80	40 36 -> 40	60,5	Reductions for early retirement Merged to general scheme as of 2006
SI	DB FDC for occupational pensions	Average of best 15 consecutive years' wages in 2005; thereafter, number of years to be raised to 18 by 2008	Net wages	2% /year until 1999; 1.5%/year as of 2000;	No max; 1.5%/year after 63m/ 61w	40 years at 63 for men; 38.5 years at 61 for women	58	Age bonuses for deferred retirement and reductions for early retirement (men 63/ women 61 years)
SK	DB	After 1994: average of lifetime earnings;	Implicitly assumed to wages	Accrual of pension points (depending on career length and earnings brackets; higher for the lowest earnings), subject to a ceiling	No max; in general, 50% after 40 years.	No max; a min. of 10 years for the eligibil.	62	Age bonuses for later retirement and reductions for early retirement Supplemented by a fully funded tier (2005)
FI	DB	Average of lifetime wages	80:20	1.5% / year up the age 52 1.9%/year between 53-62, 4.5%/year between 63-68	No max	No max	Flexible between 63-68	Early retirement possible at the age of 62 with a reduction of 7.2 % of the pension; Separate unemployment pension scheme to be phased out by 2014
SE	NDC	Lifetime contributions	Average wage growth	DC principle	No max	No max	Flexible, from 61 onwards	Supplemented by a funded tier
UK	Flat-rate	Men: 44 years' contributions Women: 39 years' contrib.;		Contributions scaled by wage brackets	Flat-rate		65 M 60 W	Supplemented by earnings-related State Second Pension, from which people can opt out to private schemes

Table 2-2 Some statistical indicators related to pensions

	Employment rate of older workers [1]		Average exit age from the labour market [1]		Gross replacement rate, public pensions [2]		Gross replacement rate, all pensions [2]		Net replacement rate, all pensions [2]	
	2001	2004	2001	2004	2005	2050	2005	2050	2005	2050
BE	25,1	30,0	56,8	59,4	39	37	43	47	67	74
CZ	37,1	42,7	58,9	60,0	61	53	61	53	79	70
DK	58,0	60,3	61,6	62,1	45	39	49	64	71	76
DE	37,9	41,8	60,6	61,3	43	34	43	48	63	67
EE	48,5	52,4	61,1	62,3	33	15	33	36	41	43
GR	38,2	39,4	59,3	59,5	105	94	105	94	115	106
ES	39,2	41,3	60,3	62,2	91	85	91	85	97	92
FR	31,9	37,3	58,1	58,9	66	49	66	49	80	63
IE	46,8	49,5	63,2	62,8	31	34	67	67	78	78
IT	28,0	30,5	59,8	61,0*	79	64	79	80	88	92
CY	49,1	49,9	62,3	62,7	46	57	46	57	52	70
LV	36,9	47,9	62,4	62,9	61	36	61	55	78	72
LT	38,9	47,1	58,9	60,8			31	42	41	50
LU	25,6	30,8	56,8	57,7	91	91	91	91	98	99
HU	23,5	31,1	57,6	60,5	66	58	66	77	102	98
MT	29,4	31,5	57,6	57,7	72	53	72	53	88	61
NL	39,6	45,2	60,9	61,1	30	30	71	69	92	90
AT	28,9	28,8	59,2	58,8*	64	69	64	69	80	94
PL	27,4	26,2	56,6	57,7	63	36	63	36	78	44
PT	50,2	50,3	61,9	62,2	75	70	75	70	91	92
SI	25,5	29,0	..	56,2*						
SK	22,4	26,8	57,5	58,5	49	50	49	50	63	64
FI	45,7	50,9	61,4	60,5	57	52	57	52	63	64
SE	66,7	69,1	61,8	62,8	53	40	68	56	71	57
UK	52,2	56,2	62,0	62,1	17	19	66	69	82	85
EU15	38,8	42,5	60,3	61,0						
EU12	35,2	38,6	59,9	60,7						
EU25	37,5	41,0	59,9	60,7						

* indicator for 2003

Sources: 1) Eurostat: Structural indicators database. Figures are calculated from Labour Force Surveys, based on yearly changes in the participation rates of the single-year age groups between 50 and 70 years.

2) European Commission (2006), Synthesis report on adequate and sustainable pensions (*forthcoming*), indicators calculated by the Indicators Sub-Group of the Social Protection Committee. The figures are calculated for a single (male) person with a career of 40 years full-time work at average earnings, contributing to the social security (first pillar, including statutory private pension scheme) and occupational (second pillar) pension schemes and retiring at the age of 65.

Table 2-3 Indexation and taxation regimes of the pension schemes

MS	Indexation of pension benefits	Taxation regimes
BE	Earnings-relate pensions are indexed to prices in the private sector scheme and to wages in civil servants' pensions Minimum guaranteed pensions are indexed to prices + discretionary targeted increases to welfare	
CZ	Decision is made by the government, but the minimum amount is guaranteed by the law. The minimum is set by the law and usually has represented an inflation growth (measured by the aggregate consumer price index) plus at least a third of the growth in real average wage.	Social benefits are not subject to personal income taxation except for pensions from the pension insurance scheme provided that the amount of pensions exceeds CZK 162,000 per year. Currently, out of 3.2 million pensions paid out, approximately only 3.2 thousand pensions exceed this limit.
DK	The public pensions (old-age, voluntary early retirement, disability and survivors' pensions) are indexed to average wage growth of the private sector.	Pension payments from all pillars are subject to personal income tax.
DE	The indexation of the pension point value depends on the increase of gross wages, the change of the contribution rate and the sustainability factor, which is based on the change of the employment/pensioner ratio.	Old pensions are not taxed; the 2002 reform changed the taxation regime from the TTE principle to the EET principle, indicating that the contributions and return on assets became tax-free while pension benefits will be taxed.. The taxable share of pensions is 50% in 2005 and increases by two percentage points per year for new pensioners until 2020, and after that by one percentage point per year, so that the whole pension will be taxable from retirement in 2040.
EE	State pension insurance, 50:50: Indexation depends with equal weights (50%-50%) on the increase of social tax revenues (wage sum) and the increase of consumer price index.	In principle, pensions are subject to income taxation but the threshold is set at such a level that, virtually, pensions are not taxed.
GR	Minimum pensions are indexed to wages, earnings-related pensions discretionary.	
ES	All pension benefits are indexed to expected inflation. If actual inflation is above the expected one, the difference is paid to all pensioners.	All pension benefits are taxed as labour income in general. Only certain disability pension benefits are tax-exempted. The average effective tax rate for pension income was about 5% in 2003.
FR	Private sector pensions are indexed to price inflation since 1993; the indexation of public sector pensions was aligned with that of private sector in 2003.	Subject to income tax but with favourable rules. Average tax rate applicable to pensioners was 3.8%.
IE	There is no formal indexing arrangement for the social welfare pensions system. Instead, pensions are increased each year by Government decisions, taking account of budgetary considerations.	Those aged 65 and over are treated more favourably under the Irish income tax code than the taxpayers in general. Tax is due on private and public sector occupational pensions as they become payable, with the exception of lump sum payments.
IT	Pensions are indexed to prices.	All pensions are taxed as labour-income, allowing for deductions that are phased out along increasing income level. Pension income below 7,500 Euro per year are tax-exempt (no tax-area).
CY	The basic (flat-rate) part of the pension is indexed to wages and the supplementary earnings-related part to prices.	Not taxed
LV	Annual adjustments are differentiated according to the amount of pension. Small pensions are indexed fully to CPI plus to 50% of the real growth of contribution wage sum. The medium pensions are indexed with CPI. The same rules for indexation are applied for all state pensions.	Pensions granted before 1996 are not subject to personal income taxation. Pensions granted from 1996 onwards are subject to taxation for the part exceeding 110 lats/month (165€).

MS	Indexation of pension benefits	Taxation regimes
LT	Currently, no automatic indexation but legal acts are adopted for each increase of pensions	Not taxed
LU	Pensions are automatically adjusted to price evolution each time prices increase by more than 2.5%. In addition, pensions are adjusted every two years to the real wage evolution. Whereas price indexation is automatic, the decision on indexing pensions to wage evolution is the responsibility of government and has to be approved by the parliament.	Taxation of pensions is identical with that of wages.
HU	Pensions (both the PAYG and funded part of the social security pensions) granted before 1 January are indexed by an index with weights of 50:50 to net wages and inflation.	Currently, pensions are not taxed. Taxation of pensions will be introduced in 2013.
MT	Pension benefits are linked to the Retail Price Index.	
NL	Public flat-rate pensions are linked to the minimum wage (70% of the legal minimum wage). Most occupational pension funds aim at wage or price indexation. It is, however, not guaranteed but conditional on the financial position of the fund (coverage ratio). Private pensions are indexed to productivity	Pension savings in the second pillar are taxed as personal income.
AT	Pension benefits are adjusted yearly by consumer price inflation as of 2006, (earlier to net wages).	Pension benefits are subject to personal income taxation
PL	Pensions (minimum pensions, the general old-age and farmers' pension schemes) are indexed to prices. .	Subject to personal income taxation.
PT	Pensions are indexed to prices plus to a real increase of 0.1 p.p. annually; minimum pensions are indexed to wages.	Subject to personal income taxation.
SI	The pensions are indexed with the rate of (net)wage growth of all employed persons as of 2006 (earlier less than 100%). The indexation takes place twice a year, in February and November.	Not taxed (except for a small part of higher pensions).
SK	Pensions are indexed 50:50 to wages and prices.	Not taxed
FI	*Earnings-related pensions* are indexed to an index with weights of 20:80 to wages and prices. Minimum guaranteed pensions are indexed to prices; discretionary increases by Budget laws	Minimum and earnings-related pensions are subject to income tax but a specific pension income deduction applies which makes all pensions up to the level of minimum pensions tax-free Private voluntary pensions are subject to capital income taxation with the flat-rate of 28% (in 2005)
SE	Minimum social security pensions are indexed to prices ; earnings-related pensions (both PAYG and funded part) are indexed to average wage growth. (However, the indexation is front-loaded so that 1.6 percentage point increase is given at the time of retirement, while later index adjustments are equal to the average wage growth minus 1.6 percentage points).	All pensions are subject to personal income tax.
UK	State pensions are indexed to prices. Occupational and private pensions in defined-benefit schemes are normally indexed by inflation or 2.5%, whichever is the lower. In a defined contribution scheme the accumulated fund continues to be managed with investment returns accumulating until the 'end' of the scheme.	Basic state pensions are not taxed. Also State Second Pensions mostly are below the threshold for the taxation.

Table 2-4 Contribution rates of public pension schemes

	Contribution rate, % of wages[1]	Observations[2]
BE	37.94% (social security) Employer: 24.87% Employee: 13.07% "Wage moderation" contribution: 7,48% Small additional social security contributions depend notably on the firm size; different measures lead to a marked reduction in the effective rates compared to the abovementioned rates.	The contribution rate covers all branches of social security, including health care, unemployment, disability, family allowances, and the general pension scheme for wage-earners and self employed. The contributions account for approximately two-third of the total social security revenues; specific social security taxes and transfers from the state budget account for the rest. Means-tested minimum pensions are financed by taxes. In order to finance the future increase in pension expenditure, the Belgian authorities plan to accumulate budgetary resources in a public "ageing fund" using the decrease in interest payments.
CZ	28.00% Employer: 21.50% Employee: 6.50%	The contribution rate covers both earning-related and flat-rate social security pensions. In 2004, the social security pension system was in balance for the first time since 1996.
DK		Public pensions are financed by taxes, with the exception of the voluntary early retirement scheme, to which there is a small own contribution. (Also the statutory supplementary schemes (ATP) are subsidised from tax revenues.)
DE	19.5% in 2004- 2006 Employer: *9.75%* Employee: *9.75%*	Subsidies from the Federal budget account for 27.5% of pension expenditure in 2004 (33% in 2003). In addition, social assistance pensions are financed by taxes. A target has been set that the contribution rate should not exceed 20% until 2020 and 22% until 2030.
EE	22% Employer: 16% to the I pillar scheme 4% to the III pillar scheme (or 20% to I pillar if the person has not joined the III pillar scheme) Employee: 2% to the III pillar scheme, only to those who have joined	Pension insurance contributions covered 94% of social security pensions in 2004. Special pensions to some groups of government officials (policemen, parliamentarians, judges) are financed from the government budget.
GR	20% (if insured before 31.12.92) Employer: 13.33% Employee: 6.67% 30% (if insured *betw. 1.1.93-31.12.2002*) Employer: 13.33% Employee: 6.67% State: 10.00% After 1.1.2003 Employer: 13.33% Employee: 6.67% State: 1% of GDP in 2003-2008 on aver. 1% of GDP in 2009-2032	Tax subsidies to the financing of contribution-based pensions would have to rise from the current 4.8% of GDP to 15.5% in 2050. In addition, pensions of uninsured persons over 65 and civil servants are financed by taxes. The current contribution rate is applied equally to all employees and covers only pension benefits.
ES	28.3% (social security, except health care and unemployment benefits) Employer: 23.6% Employee: 4.7%	The contribution rate covers contributory benefits for old-age, disability and survivors' pensions and maternity benefits. The social security sector is expected to produce a surplus until 2020, thereafter a deficit. Means-tested minimum pensions are financed by taxes.
FR	Basic scheme: Employer: 9.8% (below ceiling) **Employer: 1.6% (above the ceiling)** **Employee: 6.55% (below the ceiling)** Mandatory supplementary scheme: Rate varies between 7.5% - 20% (incl. employer and employee contributions), Depending on wage level and employee status	The contribution rate covers old-age and survivors' pensions; disability pensions are covered by health insurance contributions. The contribution rate will be raised by 0.2 percentage points in 2006. Further, employment measures are expected to reduce unemployment, which would allow to transfer unemployment contributions to pension financing.
IE	12.5 – 14.75%, excluding the health levy Employer: 8.5 – 10.75% Employee: 4%; self-employed: 3%	Social insurance (flat-rate) pensions are financed by contributions. In recent years, the Social Insurance Fund has been in surplus. Means-tested social assistance pensions are financed by taxes. In the future, due to the extension of the contributory scheme, there will be a shift from tax funding to contributions.
IT	32.7% Employer: 23.81% Employee: 8.89% The self-employed: Farmers: 20% Shopkeepers: 19% as of 2013 Artisans: 19% as of 2014	Contribution rate covers old age, survivors' and disability pensions of the social security scheme. Social assistance pensions and additional amounts due to social assistance purposes are financed by taxes (2.3% of GDP in 2003).

	Contribution rate, % of wages[1]	Observations[2]
CY	12.6% of wages	In addition, social (minimum flat-rate) pensions (8.5% of total pension expenditure) and civil servants' earnings-related pensions (27% of total pension expenditure) are financed from the state budget. The total contribution to social security for employees, covering sickness, maternity, unemployment, work injury and pensions, is 16.6%, of which employers pay 6.3%, employees 6.3% and the state budget 4.0%. The financing of pensions requires 12.6% of wages in total.
LV	25.51 % of the wage within the total social insurance contribution rate of 33.09% (of which the rate for employers is 24.09% and employees 9%) is needed to finance the old-age, survivors' and service pensions in 2004. However, the contribution for the calculation of the NDC pension is fixed at 20% (not separated between employer and employee) of which 2% goes to the funded scheme up to 2006, increased gradually to 10% by 2010, to persons participating in the funded scheme.	The total social insurance contribution covers old-age, survivors', service (during the transition period) and disability pensions, work injury, maternity, sickness and unemployment benefits and funeral benefits. The NDC pension contribution covers old-age pensions (including minimum pension and actuarial early retirement) and it is the basis for the calculation of survivors' pensions.
LT	26% Employer: 23.5% Employee: 2.5%	The pension contribution rate is further broken down by type of pension: (basic) old-age pension (10.5%), supplementary old-age pension (10.6%), disability and survivors' pensions (4.9%); In 2004, a private (2nd tier of the I pillar) scheme was introduced with a switch of a contribution rate at 2.5% (employee's part) to a private fund. This rate will be increased to 5.5% (2.5% by the employee + 3.0% from the employer's total contribution) by 2007. In 2004, the State Social Insurance Fund turned to be in surplus. State pensions to servicemen, policemen, meritorious persons, scientists, judges, casualties as well as social assistance pensions are financed from the state budget.
LU	24% Employer: 8% Employee: 8% State: 8%	One third of the contribution rate is financed by taxes. The guaranteed minimum income for old people and public sector employees' pensions are financed by taxes. Currently, the contribution rate allows accumulating the pension fund over its statutory requirement. The future development of the contribution rate depends heavily on the growth rate. Further, public sector pensions are financed form the State budget, 2.5% of GDP in 2004.
HU	26.5% Employer: 18% Employee: 8.5% (fully to the PAYG scheme, if not joined the 2nd tier of the I pillar; 0.5% to the PAYG scheme and 8.0% to the funded scheme when joined	Disability pensions and survivors' benefits (13% of all pension expenditure) are financed by health insurance contributions and transfers from the government budget. Social insurance fund required a subsidy of 23.6 of its total expenditure from the State budget (1.8% of GDP) in 2004. Also, supplementary means-tested allowances guaranteeing the minimum old-age income are financed by taxes (0.6% of GDP).
MT	30% Employer: 10% Employee: 10% State (tax revenues): 10% (with a substantial variation acc. to age and wage level of the employee) (Self-employed: 15% + state: 7.5%)	Covers all social insurance, including all pensions, short-term benefits, hospital, community and elderly care.
NL	17.9% (old-age pension) 1.25% (survivors' scheme) Employee: 19.15%	A target has been set to ensure that the old-age pension contribution rate will not be raised above 18.25%. The contribution rate of 17.9% is expected to produce a surplus until 2010. Thereafter, the deficit is covered from the reserve fund and taxes. In addition, a contribution rate of 1.25% is paid for the survivors' scheme and a rate of between 7.09-13.93% for disability benefit schemes.
AT	22.8% Employer: 12.55% Employee: 10.25% ; different rates in the civil service schemes without any ceilings	The contribution rate was harmonised for all groups in 2004; however, the rates paid by the self-employed (17.5%) and farmers (15%) are lower but subsidised up to 22.8% from general tax revenues. Furthermore, contributions are paid from tax revenues for periods of child care, military/civilian service, sickness benefits, maternity allowances and long-term care. There is a deficit guarantee for the statutory pension insurance to be covered from the Federal budget. In 2004, the government financing of the pension system accounted for 2.6% of GDP.

	Contribution rate, % of wages[1]	Observations[2]
PL	Total pension contribution: 32.52% of gross wage, of which: 19.52% (old-age pension) 13.00% (disability & survivors pensions) Paid by: employer: 16.26%, of which 9.56% (old-age) 6.50% (disability and survivors) employee: 16.26%, of which 9.56% (old-age) 6.50% (disability and survivors) (In addition: 0.97-3.86% (work injury; paid by employer) and 2.45% (sickness and maternity; paid by employee))	The earnings-related old-age pension contribution constitutes of a notional defined-contribution scheme (12.22%) and a pre-funded defined-contribution scheme (7.3%); these rates are to be kept constant in the future. The outflow of the funded contributions creates a financing gap in the PAYG Social Insurance scheme – in 2004 it was 1.2% of GDP, while the total subsidy for the financing of pensions amounted to 3.8% of GDP. Disability and survivors' pensions are financed from separate contribution (13.0%). Farmers' old-age and disability pensions are financed up to 90% of the pension payments from state budget subsidies (1.7% of GDP in 2004). Furthermore, minimum pension guarantee (topping-up a small pension from earnings related pension system) as well as contributions during selected career breaks (maternity and parental leave, periods out of work due to the care of a disabled child, unemployment benefit period) are financed by taxes (or other public sources).
PT	34.75% (contributory cash benefits) Employer: 23.75% Employee: 11%	The contribution rate covers all contributory benefits (pensions, sickness, unemployment, maternity, professional deceases, family benefits). Means-tested universal non-contributory social pension and other benefits are financed by taxes (3.3% of GDP in 2000). The social security sector currently produces a surplus of 1.7% of GDP, projected to turn into a deficit of 1.5% of GDP by 2050.
SI	24.35% Employer: 8.85% Employee: 15.50%	The contribution rate covers old-age, survivors' pensions, disability pensions and health insurance contributions for retired persons. The public pension scheme is subsidised by state budget for the difference between contributions collected and the actual payment of the pensions concerned. It is currently in surplus (0.1% of GDP in 2005) but, without reforms, would fall into a deficit about2010, increasing to 10% of GDP in 2050 under current policies and activity rates.
SK	24% in 2005; Employer: 17%, of which 14% to old-age scheme 3% to disability scheme Employee: 7%; of which 4.0% to old-age scheme 3.0% to disability scheme	In addition, employers pay a contribution of 4.75% of wages into the Reserve Solidarity Fund. A mandatory funded pension scheme was introduced in 2005. For those, who join the scheme, half of the old-age pension contribution (9%) is passed on to personal accounts of private funds. This introduction of the mandatory funded pension scheme is estimated to result in a deficit in the financing of the social security pensions by 1.3% of GDP as of 2006.
FI	Earnings-related pensions in 2005: Employer: 16.8% (private sector) 18.9% (state sector) 23.4% (municipalities) Employee: 4.8% National basic pensions: Employer: 2.3% (private sector)	The earnings-related pension contribution for the private sector (21.6%) is estimated to rise by about 7 percentage points (taking account of the 2005 reforms). Means-tested (against pension income) national basic pensions and the pensions of sea-farers, self-employed persons and farmers are partially financed by taxes; the subsidy totalling to 1.7% of GDP in 2004.
SE	18.5% (old-age pension) Employer: 10.21% Employee: 7% Note that the contributions add up to 17.21% only because the contribution paid by the employee (7%) is deducted from the income of which contributions are defined. 1.7% (survivors' scheme)	The earnings-related pension system is a notional defined-contribution system (16%) and a pre-funded defined-contribution system (2.5%); these rates are to be kept constant in the future. Income guarantee pensions (means-tested against public pensions), disability and survivors' pensions and contributions during career breaks are financed by taxes.
UK	19.85% (social security except health); in 2005 Employer: 10.9% in 2005 Employee: 8.95% in 2005 (Class 1 contribution rates; for those not contracted out, earnings between the primary threshold and the upper earnings limit for employees)	The contribution rate covers the basic state pension and the additional earnings-related pension (SERPS/State Second Pension) as well as disability and widow's benefits, contributory jobseeker's allowance, maternity and guardian allowances, redundancy payments. Means-tested Minimum Income Guarantee/Pension Credit benefits and civil servants' pensions are financed by taxes. The contribution rates to private pension schemes vary considerably: in 2004, in open funds 9-17% and in closed funds 7-21% of wages.

1 Source: National Strategy Reports 2005; European Commission, MISSOC and Ageing Working Group update in 2005. The rates apply to the general, first-pillar social protection schemes. In many Member States, there are floors or ceilings for earnings which are subject to contributions. Rates may also be different for the self-employed.

2 The observations are based on the information given in the 2005 national strategy reports and by the Ageing Working Group.

Table 2-5 Pension expenditure projection models in the Member States

Country	Name and owner organisation of the model	Type of the model	Base data on pensions	Modelling issues and other observations
BE	The Maltese System (Model for analysis of long term evolution of social expenditure) Federal Planning Bureau	Deterministic macrosimulation model. Detailed sub-models for each social security scheme as for demographic and socio-demographic projections	Administrative and national account data	Occupational pensions – no Modelling the whole social security system
CZ	Pension model Ministry of Finance	Semi-aggregated simulation model; GAMS	Pension data of 2003 by age cohorts and sexes; data on inflows and outflows of pensioners	All pension benefits under social security system modelled.
DK	All public pensions covered Ministry of Finance		Public pension expenditure with the breakdown to public old-age (flat-rate), means-tested supplements and civil servants' pensions according to 2004 National account statistics.	Assumes a constant share of population by gender, age and origin on public pensions with corrections for reforms (e.g. a lower statutory retirement age) and changes in the labour force participation rates.
DE	Pension projection model Ministry of Health and Social Security	Two sub-models: (1) the demographic pension model (cohort model) and (2) the financial pension model (a partial equilibrium model)	Pension data of 2004 by age cohort and sex; data on inflows and outflows of pensioners.	Occupational pensions: no
EE	Pension model Ministry of Finance	Macrosimulation model	Administrative data of National Pension Insurance Fund	Additional assumptions**:** -wage structure by age and gender (to calculate the earnings-related pension expenditure) -structure of different pensioners (according to changes in legislation) -structure of wages of switchers to the II pillar
GR	Projection Models for different funds National Actuarial Authority		In most part, the data used were submitted by the pension funds (IKA etc.) directly to the National Actuarial Authority	Separate models for different funds require also that the total population is divided into sub-populations of the funds IKA is the largest social insurance organization in the country, covering approximately half of the labour force and pensioners The technical approach is focussed on modelling employees' and employers' contributions and the provision of pensions. The outcome of the projection produces a cash-flow pattern.

Country	Name and owner organisation of the model	Type of the model	Base data on pensions	Modelling issues and other observations
ES	Four projection models for a) social security old-age and early pensions; b) social security disability pensions; c) social security survivors' pensions; d) public sector (CPE) pensions	Deterministic, partial equilibrium model	Social security administration data and Ministry of Economy and Finance data	The whole social security pension system is covered by the model; Occupational and private pensions not modelled.
FR	Ministry of Health and Solidarity associated by Ministry of Finance and the French pension policy council (COR)	Partial equilibrium model, supported by the results of a microsimulation model for the private sector pensions, run by CNAVTS (national pension fund for salaries workers)		Occupational pensions: no
IE	Model for social insurance and assistance pensions Ministry of Social and Family affairs A separate model for public sector employees' pensions Ministry of Finance	Partial equilibrium model		Private sector occupational pensions: no
IT	RGS pension model, Ministry of Economy and Finance, Department of General Accounts	macrosimulation model based on a dynamic, multi-state approach involving a large number of 'state' variables	Social security system database	Numbers enrolled in the pension system are projected according to the level of disaggregation provided by the 'state' variables 'monetary' variables (pension amount, wages) are projected in terms of their mean value associated to each possible "positions" within the system Takes migration flows into account
CY	PROST (the World Bank model)			
LV	Social Insurance Budget Model Ministry of Welfare Social security schemes (public and private tiers) Complementary calculations on special service pensions (artists,	Microsimulation model	Pension data from the State Social Insurance Agency	

Country	Name and owner organisation of the model	Type of the model	Base data on pensions	Modelling issues and other observations
	workers in international affairs etc.)			
LT	The State Social Insurance pension system together with the I and II tier of the I pillar: PRISM Ministry of Social Security and Labour Social security schemes (public and private tiers)	Pension Reform Illustration and Simulation Model, semi aggregated	Pension data from state social insurance institutions	The program methodology based on the 'average person' parameter modelling. The number of the recipients of the State pensions and the projections of the pension size were estimated by using the model which was created specially for this purpose and based on Excel program
LU	General Inspection Authority of Social security (IGSS)	Sequential approach, transition probabilities	Pension data from the National Social Insurance Institution	Basic dimensions of the model are age, sex, and country of origin. Additional dimensions allow differentiate between employment statuses (blue collar, white collar, civil servants) and the pension type (old-age, early old-age, disability, survivor).
HU	Ministry of Finance Social security pensions (public and private tiers)	Deterministic semi-aggregated microsimulation model		Age-specific exit probabilities and average benefit levels are calculated from developments observed in the past and corrected in line with movements in labour supply and effects of legislative changes. Basic unit of calculation: group of pensioners of the same age, sex and with the same type of benefit
MT	PROST (the World Bank model); used by the Economic Policy Division of the Ministry of finance	The World Bank's reform option simulation model	Base year 2002	
NL	Separate models for social security schemes (MOSI), occupational pensions (EXPLOT) and occupational early retirement pensions (PVK) Central Planning Bureau	First pillar - An OLG-General Equilibrium model Second Pillar - model of a single average pension fund		The three pillars that form the pension system are treated separately. GDP slightly higher than assumed by the AWG
AT	Two independent models: Private sector and public sector Bundesministerium fur Financen	Static microsimulation model		

Country	Name and owner organisation of the model	Type of the model	Base data on pensions	Modelling issues and other observations
PL	FUS04 model Social Insurance Institution (ZUS)	Multiple decrement cohort-component actuarial model		Separate models for 1) (ZUS) the general scheme (old-age and disability pensions) 2) Pre-retirement pensions 3) (KRUS) farmers pensions 4) Security provision pensions (armed forces, police, etc.)
PT	ModpensPor Model Private sector social security schemes Ministry of Labour and Social Solidarity Civil serants pension schemes Ministry of Finance	Partial equilibrium model	Base year 2004	Runs aggregate projections on variables such as contributions, unemployment benefits, sick leave benefits and maternity benefits, as well as micro-level projections (based on individual profiles) on pensions and family benefits.
SI	Institute for Economic Research, Ministry of Finance	Generational accounting model Dynamic overlapping-generations general equilibrium model .	Administrative data of the Pension Insurance Institute	Overlapping Generations: 5 year intervals, 1, 2, 5 or 10 different household groups. Sectoral disaggregation: 2 – 30 sectors. Social security module, Government, taxes.
SK	PROST Ministry of Finance	The World Bank's reform option toolkit, a semi-aggregated simulation model	Age and sex-specific data from Social Insurance Agency and the Ministry of Finance	Inputs: All AWG assumptions (age specific for each year); - Earnings profiles from National Statistical Office - Number of contributors, beneficiaries, coverage rate (age specific) - Number of pensions as a percent of population - linked with participation rates and unemployment rates - New pension defined by average replacement rate - Number of switchers from pure PAYG to mixed system
FI	Model for national (minimum) pensions; Social Insurance Institution Model for earning-related social security pensions; Finnish Centre for Pensions	Deterministic state model	Administrative data of the institutions, covering also longitudional data on careers, wages, pension accruals etc.	
SE	SESIM Ministry of Finance	Dynamic microsimulation model	The start year is 1999 and the initial sample is approximately 100 000 individuals.	The base population used in SESIM is formed by a random draw of 104 000 individuals from LINDA (longitudional database of administrative data). To this sample 8 000 individuals have been added from the National Social Insurance Board register for pensions rights (oversees residents with Swedish pension rights).

Country	Name and owner organisation of the model	Type of the model	Base data on pensions	Modelling issues and other observations
UK	Government Actuary's Department (GAD) responsible for the part of the pension projections relating to the National Insurance Fund. In 2004 HM Treasury commissioned GAD to produce public service pension projections. Department for Work and Pensions (DWP) produces the Pension Credits and *other types of benefits ?*	Basic retirement pension ? Pensions Credit - static microsimulation model Public service pensions ?		Occupational schemes: no Separate models for different pension schemes (Basic state pensions, state second pension, public sector employees, disability benefits)

Table 2-6 Main features of recent pension reforms

Country	Main features of the reforms implemented
BE 2003	The standard retirement age for women will increase gradually from age 63 in 2003 to 64 in 2006 and will be 65 in 2009 in the general schemes for wage-earners and self-employed. Early-retirement (seniority pension) is still possible, but the required contribution period has been increased from 32 years in 2003 to 35 years in 2005. Also, the "older workers' unemployment scheme" has been recently reformed and is under discussion for further reforms.
CZ 2003	Before the pension reform in 2003, men retired at the age of 60 and women at 53-57, depending on the number of children (one year less per child). Since January 2004, the age of retirement is increased constantly over time (2 months per year for men and 4 months per year for women) to reach 63 years for men and 59-63 for women (still depending on the number of children) in 2013. The so-called "temporarily reduced pension", an early retirement scheme, has been abolished, while the so-called "permanently reduced pension" scheme (allowing early retirement up to three years before the normal retirement age) is still in place but with a stronger reduction of the pension benefit (0.9% for each 90 calendar days from the statutory retirement age).
DK 2003 2004	In 2003, eligibility to disability pensions was redefined so that, instead of defining the disability degree, the work ability degree is defined. Persons with some work ability are directed to subsidised jobs (and if unemployed, to special unemployment benefit) instead of granting a disability pension. As of 1 July 2004, the statutory retirement age is 65 instead of 67. At the same time, the voluntary early retirement pension was made less attractive with the aim of increasing the effective retirement age.
DE 1992-2001 2002, 2004	An increase of the statutory retirement age to 65 was legislated in 1992. The transition period of the increase of the statutory retirement age was fastened several times (1996, 1999, 2001 and 2004) will be completed by 2012 for those born in 1952 or later. The statutory retirement age for women and the unemployed will rise from 60 to 65 by 2011. For those born in 1952 or later, early retirement will be possible at the age of 62 with the condition of at least 35 years of contribution. In addition, pensions are reduced by 3.6% per year in the case of early retirement, while a bonus of 6% per year is granted for deferred retirement. The reduction for disability pensions before the age of 62 is up to a maximum of 10.8%. The 2001 reform aimed at promoting the development of supplementary pension schemes whilst reducing slightly the target replacement ratio in the social security scheme. The 2004 old-age pension insurance Sustainability Act introduced a sustainability factor in the pension indexation formula. This requires maintaining the set quantitative ratio between the numbers of beneficiaries and contributors (dependency ratio). This sustainability factor led to no index adjustments in pensions in 2004 and 2005. Time spent in school and university will no longer be counted as years worked. The possibility of leaving the labour market at the age of 58 while receiving unemployment benefits until pension retirement (so-called 58er regulation) will be abolished in 2008.
EE 2001	Changes in the PAYG system include rising the retirement age for female to 63 by 2016 and revising the benefit formula. Legislation passed in mid-September 2001 set up mandatory individual accounts for the funded tier, allowing to switch a part of the statutory social security pension into private pension funds. Since 2002, over half the labour force has joined funded schemes.
ES 2002-2005	The mandatory retirement age (65) was abolished, while the accrual of pension rights after 65 was increased by 2%/year and the contributions abolished. Early retirement is discouraged by the reduction of contributions rates (50% at the age of 60, increasing by 10 p.p. by each additional year) and made possible only from the age 61 provided that contributions have been paid at least during 30 years and the person has been unemployed at least 6 months. Moreover, the pension is reduced by 6.0-8.0%/year, depending on the number of contribution years. Pensions have also been made compatible with part-time work; the pension benefit is reduced according to the length of the working day.
FR 2004	The main measures of the reform implemented as of 2004 include a prolongation of the contribution period for a full pension from 37.5 to 40 years for public sector employees and a

Country	Main features of the reforms implemented
	further increase to 41 years for all employees between 2009 and 2012 and to 41.75 in 2020. Thereafter, further gains in life expectancy (at 60) will prolong the contribution period by 2/3 of the increase in life expectancy. Moreover, retirement was made more flexible but bonus/malus adjustments will be applied to deferred/earlier retirement. In the case of postponement, the bonus is 3% per year. As of 2006, the amount of the penalty ("la décote"; applied if retired before 40 years of contributions) will decrease gradually from 10% to 5% of pension per year of anticipation in 2015 for the private sector and will increase from 0.5% to 5% for civil servants). Furthermore, pensions were indexed to prices only and the contribution rate will be increased by 0.2 of a percentage point as of 2006.
IE 1999 2000 2003	The National Pension Reserve fund was established in 1999 with the aim of pre-funding in part the future Exchequer cost of social welfare and public service pensions. A statutory obligation has been placed on the Government to pay a sum equivalent to 1% of GNP from the Exchequer into the fund each year until at least 2055. A series of significant tax incentives have been introduced for the purpose of promoting pension provision amongst the self-employed, employers in non-pensionable employment and proprietary directors. These incentives aim at encouraging individuals to plan for the pension provision early on in their careers. Personal Retirement Savings Accounts which seek to promote supplementary pension coverage were introduced. Reforms of the public pension system implemented to date have allowed for the raising of the minimum pension age and the removal of a compulsory retirement age for most public servants. A cost-neutral early retirement scheme with actuarially reduced benefits has been introduced.
IT 2004	As of 2008, regardless the regime (earnings-related, mixed, contribution-defined), the take-up of early pensions will be tightened. To take-up a pension at an age lower than 65 for men (60 for women) is allowed only to those with 40 or more years of contributions or to those with 35 years of contributions and the age of 60 for the employed (61 for the self-employed), instead of the flexible age range 57-65 before the reform. Further, the age limits will be raised by one year in 2010 and 2014, thus reaching 62 for the employed and 63 for the self-employed. A further postponement of pension is envisaged with respect to the moment at which the requirements are met through the so-called 'exit windows' (finestre). During the period 2008-2015, the take-up of seniority pensions for those having met the requirements of the legislation before 2004 (at least 35 years of contributions and the age of 57 for the employed / 58 for the self-employed) is limited to women who accept the pension calculation according to a less favourable contribution method. During the period 2004-2007, those employed in the private sector and having satisfied the requirements for a seniority pension may opt for a different regime providing: i) an additional pay corresponding to the whole pension contribution (32.7% of gross wages), ii) the total tax exemption of this additional income and iii) pension amount calculated according to the contribution years matured at the date of the option and indexed to inflation for the period until old-age retirement.
HU 1997	The standard retirement age for women will increase to 60 by 2005, 61 by 2007 and 62 by 2009 (before the reform it was 57). A funded tier was introduced in 1997, allowing to transfer a 8% contribution (26.5% of the total social security pension contribution) into private pension funds. This funded tier is mandatory to all new entrants to the labour market. In 2005, already 62% of the labou rforce have joined funded schemes.
LV 1996	The Latvian social security pension system was reformed into a notional defined-contribution scheme in 1996 and complemented with the introduction of a funded tier in 2001, allowing to transfer a part of the contribution into private pension fund; the contribution is currently 2% but to be raised to 10% (50% of the total contribution) by 2010. Furthermore, the standard age requirement for women (60.5 years until July 2006) will increase by 6 months each year to reach 62 by 2008. Those for men reached 62 in 2003. Early retirement up to two years before the standard retirement age remains possible until July 2008.
LT 1995 2004	The standard minimum retirement age for women (55 years in 1995, 58.5 years in 2003) will increase by 6 months each year to reach 60 years in 2006. The retirement age for men was gradually increased (2 months per year) from 60 years in 1995 up to 62.5 in 2003. A funded tier was introduced in 2004, allowing transfer a part of the statutory social security

Country	Main features of the reforms implemented
	pension contribution (to raise to 5.5% in 2007) into private pension funds. The switch is voluntary to all.
NL 2006	Decisions have been taken to reduce the incentives for the take-up of early retirement pensions (VUT), mainly via the reduction of the favourable tax treatment of such pensions.
AT 2003, 2004	The minimum retirement age for men will increase from 61.5 years to 65 years; for women the age will rise from 56.5 to 60 years. The increase will be phased in gradually beginning in July 2004 and by 2017 early retirement will be eliminated. The statutory retirement age for women will be increased gradually between 2019 and 2034 to reach the retirement age for men at 65. The 2003 reform abolished early retirement schemes and linked benefits more closely to contributions. The 2004 reform introduced significant improvements for the financial sustainability of the pension system via a better transparency between contributions and benefits; bonus/malus adjustments (4.2%/year) are applied for deferred/earlier retirement and a longer contribution period (45 years) is required for a full pension (80%) at the age of 65. Also, a switch to the price indexation of pensions as of 2006 has already been decided. Furthermore, an alignment between different sectoral schemes has been undertaken. From January 2005, harmonised guaranteed pension accounts will be established (Act on the harmonisation of pension system, approved in November 2004). In the new system, individual, transparent pension accounts will be kept to report of benefits accrued from contributions paid in and other credits acquired, such as from active child and elderly care.
PL 1999	The Polish general social security pension system was reformed into a notional defined-contribution scheme in 1999, with the introduction of a funded tier at the same time, allowing to transfer a part of the contribution (7.3%) into private pension funds. The switch is mandatory to persons born after 1969. Those born before 1948 remain in the old defined-benefit scheme. Persons born 1949-1968 could choose whether they joint the NDC scheme or split the contributions between NDC and fully funded scheme. Farmers are not included in the reformed NDC scheme. The standard retirement age remains 65 for male and 60 for female. There will be no early pension for those born after 1948 and retiring after 2006.
PT 2002 2005	The general social security pension scheme was reformed in 2002, changing the calculation rules of pensions to be based on lifetime earnings (max. 40 years) instead of the best 10 years over the last 15 years' wages, however, being phased in over a long transition period. The 2005 reform aligned the public sector employees' pensions with the general pension scheme (previously aligned only to those who had entered the labour market after 1993), raising the statutory retirement age from 60 in 2005 to 65 by 2015, raising the length of the contribution period required for a full pension from 36 to 40 by 2013 and applying bonus/malus adjustments for deferred/earlier retirements.
SK 2004	The standard retirement age will increase from 60 to 62 for men (9 month per year) by 2007 and from the former 57 (reduced by 1 year per child , to reach age 53) to 62 for women by 2016. A worker can still retire earlier if the combined benefit from the first and the newly introduced second pillar equal at least 60% of the minimum living standard determined by the government. In this case, the pension is reduced by 6% per year while a bonus of 6% is introduced for those postponing retirement. It is also possible to get pension benefit while working. A funded tier was introduced in 2005, which is mandatory to the new entrants to the labour market, allowing transfer half the statutory social security pension contribution (9) into private pension funds.
SI 2000	The standard retirement age has been increased. It is now possible to retire between 58 and 63 for men and 61 for women (the minimum retirement age was 53 for women and 58 for men before the reform). Women that worked before the age of 18 can retire earlier (but not before the age of 55). Special regulations reduce the age of retirement to 55 in certain cases (before the reform it was possible even below 50). The minimum retirement age is raised from 53 to 58 for women (the same as for men). The accrual rate was reduced from 2% to 1.5% since 2000. Later retirement has been encouraged: a person who fulfils the requirement for pension but continues to work beyond the age 63/61 will receive an additional pension increase (3.6% the first additional year, 2.4% the second year and 1.2% in the third, plus the normal rate of accrual, 1.5% per year).

Country	Main features of the reforms implemented
	The indexation of pensions has varied from year to year. During the period of 2000-2004, it was 50% to wages and in 2005 80% to wages. Prices were taken in to account only when the result of the indexation was below the price increase in 2001-2005. As of 2006, it will be fully to wages. A new supplementary pre-funded pension insurance was introduced. It is mandatory for early pension in heavy and unhealthy work and voluntary for collectively agreed pension insurance.
FI 2003-2005	The 2003-2005 revisions of the pension scheme aim to raise the effective retirement age (by 2 years by 2025) by removing the unemployment pension scheme (between 2009-2014) and removing the individual disability (early retirement) scheme whilst allowing flexible retirement between 63-68 years and an early retirement at the age of 62. The accrual rate is increased to 4.5% for those continuing to work beyond the age of 63 (previously 2.5% for those working beyond 60) and an actuarial reduction of 0.6% per month is applied to those retiring prior to 63. The ceiling on the maximum pension is abolished. Pension benefits are calculated on the basis of life-time earnings. Also, a life expectancy coefficient will be implemented in the system as of 2009, adjusting future old-age and survivors' benefits to the increase in life expectancy.
SE 1998	Under the new notional defined contribution system is possible to retire from age 61 onwards, with an actuarially fair compensation for those who stay on in the labour force. Every year of contributions is important for the pension benefit. A person with an average wage will increase his yearly pension benefit by nearly 60 per cent if he postpones his retirement decision till age 67 compared to leaving at age 61. Yearly "statement of account" informs the individual of costs and benefits of retirement. The new system is phased in gradually for generations born between 1938 and 1953, and will affect generations born after 1953 fully.
UK 2002-2003	Between 2010 and 2020, women's pensionable age will gradually rise from 60 to 65, as for men. In 2002, the State Second Pension was introduced (replacing the earlier State Earnings-related Pension), resulting in time in higher benefits. In 2003, the Pension Credit was introduced, increasing income-related benefits to people over 60. Also, the basic State pension has been increased more than what the statutory indexation rule (with prices) requires.

3. DETAILED RESULTS OF THE PENSION PROJECTIONS – SENSITIVITY TESTS

Table 3-1 High life expectancy scenario: gross public pension expenditure as a share of GDP between 2004 and 2050

Public pensions, gross as % of GDP									Change	Change	Change
Country	2004	2010	2015	2020	2025	2030	2040	2050	2004-2030	2030-2050	2004-2050
BE	10,4	10,5	11,1	12,2	13,6	14,8	16,1	16,1	4,4	1,2	5,7
CZ	8,5	8,2	8,2	8,5	8,9	9,6	12,4	14,4	1,2	4,8	5,9
DK	9,5	10,1	10,8	11,4	12,1	13,0	13,9	13,4	3,6	0,4	4,0
DE	11,4	10,5	10,5	11,0	11,7	12,4	12,9	13,3	1,0	1,0	2,0
EE	6,7	6,8	6,0	5,4	5,1	4,8	4,4	4,3	-1,9	-0,5	-2,4
GR											
ES	8,6	8,9	8,8	9,3	10,4	11,9	15,2	15,8	3,3	3,9	7,2
FR	12,8	13,0	13,2	13,8	14,2	14,6	15,4	15,4	1,7	0,8	2,6
IE	4,7	5,2	5,9	6,5	7,3	8,0	9,5	11,5	3,2	3,5	6,7
IT	14,2	14,0	13,9	14,1	14,5	15,2	16,1	14,9	0,9	-0,2	0,7
CY											
LV	6,8	4,9	4,7	4,9	5,4	5,7	6,0	5,7	-1,1	0,1	-1,1
LT	7,2	6,8	6,9	7,4	8,0	8,5	8,9	9,5	1,3	1,0	2,3
LU											
HU	10,4	11,0	11,4	12,4	12,8	13,2	15,7	16,8	2,8	3,6	6,4
MT	7,5	9,0	10,1	10,6	10,5	9,6	8,4	7,6	2,1	-2,1	0,1
NL	7,7	7,6	8,4	9,0	9,9	10,8	12,0	11,7	3,1	0,9	4,0
AT	13,4	12,9	12,7	12,9	13,7	14,2	13,8	12,6	0,8	-1,5	-0,8
PL	13,9	11,3	9,8	9,7	9,5	9,2	8,8	8,2	-4,6	-1,1	-5,7
PT	11,1	11,9	12,7	14,2	15,1	16,2	19,2	21,4	5,1	5,3	10,3
SI	10,9	10,9	11,4	12,2	13,2	14,4	17,0	18,8	3,5	4,4	7,9
SK	7,2	6,7	6,6	7,0	7,4	7,8	8,5	9,4	0,6	1,6	2,2
FI	10,7	11,2	12,1	12,9	13,6	14,1	14,0	13,9	3,4	-0,2	3,3
SE	10,6	10,1	10,3	10,5	10,8	11,2	11,8	11,6	0,6	0,4	1,0
UK	6,6	6,7	6,8	6,9	7,4	8,0	8,5	8,8	1,4	0,8	2,2
EU15 [1)]	10,6	10,4	10,5	10,9	11,5	12,2	13,1	13,2	1,6	1,0	2,6
EU10 [1)]	11,0	9,9	9,2	9,5	9,7	9,8	10,6	11,1	-1,2	1,2	0,1
EU12 [1)]	11,5	11,3	11,4	11,9	12,6	13,3	14,4	14,4	1,8	1,1	2,9
EU25 [1)]	10,6	10,3	10,4	10,8	11,4	12,0	13,0	13,0	1,4	1,0	2,4

1) excluding countries which have not provided data

Table 3-2 High life expectancy scenario: gross total pension expenditure as a share of GDP between 2004 and 2050

Total pension expenditure, gross as % of GDP									Change	Change	Change
Country	2004	2010	2015	2020	2025	2030	2040	2050	2004-2030	2030-2050	2004-2050
BE	10,4	10,5	11,1	12,2	13,6	14,8	16,1	16,1	4,4	1,2	5,7
CZ	8,5	8,2	8,2	8,5	8,9	9,6	12,4	14,4	1,2	4,8	5,9
DK											
DE	11,4	10,5	10,5	11,0	11,7	12,4	12,9	13,3	1,0	1,0	2,0
EE	6,7	6,8	6,0	5,6	5,4	5,3	5,7	6,7	-1,3	1,4	0,0
GR											
ES	8,6	8,9	8,8	9,3	10,4	11,9	15,2	15,8	3,3	3,9	7,2
FR	12,8	13,0	13,2	13,8	14,2	14,6	15,4	15,4	1,7	0,8	2,6
IE											
IT	14,2	14,0	13,9	14,1	14,5	15,2	16,1	14,9	0,9	-0,2	0,7
CY											
LV	6,8	4,9	4,7	5,0	5,6	6,1	7,2	8,4	-0,7	2,4	1,6
LT	7,2	6,8	6,9	7,5	8,2	8,8	9,8	11,3	1,7	2,4	4,1
LU											
HU	10,4	11,0	11,5	12,5	13,1	13,7	17,4	20,0	3,3	6,2	9,6
MT	7,5	9,0	10,1	10,6	10,5	9,6	8,4	7,6	2,1	-2,1	0,1
NL	12,4	12,3	13,5	14,8	16,5	18,5	21,1	20,7	6,1	2,2	8,3
AT	13,4	12,9	12,7	12,9	13,7	14,2	13,8	12,6	0,8	-1,5	-0,8
PL	13,9	11,3	9,8	9,8	9,7	9,5	9,4	9,5	-4,4	0,0	-4,4
PT	11,1	11,9	12,7	14,2	15,1	16,2	19,2	21,4	5,1	5,3	10,3
SI	10,9	10,9	11,4	12,2	13,2	14,4	17,0	18,8	3,5	4,4	7,9
SK	7,2	6,7	6,7	7,3	7,9	8,5	9,9	11,7	1,3	3,2	4,5
FI	10,7	11,2	12,1	12,9	13,6	14,1	14,0	13,9	3,4	-0,2	3,3
SE	12,9	12,5	12,8	13,0	13,4	14,1	14,8	14,2	1,1	0,1	1,3
UK											
EU15 [1)]	12,0	11,7	11,9	12,4	13,1	14,0	15,2	15,1	2,0	1,1	3,1
EU10 [1)]	11,0	9,9	9,3	9,6	9,8	10,1	11,4	12,5	-0,9	2,4	1,5
EU12 [1)]	12,0	11,7	11,9	12,4	13,1	14,0	15,2	15,2	2,0	1,2	3,2
EU25 [1)]	12,0	11,6	11,7	12,2	12,9	13,7	14,9	14,9	1,7	1,3	3,0

1) excluding countries which have not provided data

Table 3-3 High life expectancy scenario: total assets in pension schemes as a share of GDP between 2004 and 2050

All pensions, assets as % of GDP									Change	Change	Change
Country	2004	2010	2015	2020	2025	2030	2040	2050	2004-2030	2030-2050	2004-2050
BE	4,4	7,4	13,5	16,2	12,9	0,5			-4,0		
CZ	0,3	3,4	6,5	9,1	9,7	7,2			6,9		
DK											
DE	0,1	0,4	0,8								
EE	2,8	9,4	15,9	26,0	38,4	51,3	77,4	100,8	48,5	49,5	98,0
GR											
ES											
FR	1,2	2,0	2,9	4,0	3,5	2,8	1,5		1,6		
IE											
IT											
CY											
LV	0,3	12,9	25,9	38,0	48,2	57,3	68,0	70,2	57,0	12,8	69,8
LT	0,3	4,3	8,7	14,2	21,1	28,5	42,5	54,2	28,2	25,8	53,9
LU											
HU	4,0	13,2	21,9	31,4	40,9	49,7	67,2	72,7	45,7	23,0	68,7
MT											
NL	135,5	161,0	178,3	197,0	217,5	235,9	251,4	257,4	100,4	21,4	121,8
AT											
PL	7,1	15,9	24,1	33,5	42,7	51,3	70,5	86,5	44,2	35,2	79,5
PT	4,3	4,0									
SI											
SK		7,0	12,8	19,0	25,2	31,7	46,2	59,1	31,7	27,4	59,1
FI	52,4	59,3	63,1	66,1	68,3	70,1	71,3	72,6	17,7	2,6	20,2
SE	38,6	53,2	60,2	65,3	68,7	71,1	66,1	57,9	32,4	-13,1	19,3
UK											

Table 3-4 High life expectancy scenario: contributions to public pension schemes as a share of public pensions

Public pensions, contributions / gross pensions									Change	Change	Change
Country	**2004**	**2010**	**2015**	**2020**	**2025**	**2030**	**2040**	**2050**	**2004-2030**	**2030-2050**	**2004-2050**
BE											
CZ	105	108	108	104	98	91	71	61	-14	-30	-44
DK											
DE	68	69	66	68	67	68	69	68	0	1	0
EE	98	97	109	118	124	130	137	143	32	12	44
GR											
ES											
FR	100	99	97	93	91	88	84	84	-12	-5	-16
IE	76	65	57	51	46	42	35	29	-34	-13	-47
IT	72	74	75	74	72	68	65	71	-4	3	0
CY											
LV	104	124	124	115	103	96	90	95	-8	-2	-9
LT	94	94	91	83	75	71	69	65	-23	-6	-29
LU											
HU	74	61	58	53	51	50	43	40	-25	-10	-34
MT	95	76	64	56	51	50	47	44	-45	-6	-51
NL	88	84	77	71	66	60	56	57	-28	-3	-31
AT	67	71	71	69	64	61	62	68	-6	7	1
PL	55	70	82	83	84	87	92	98	32	12	43
PT	95	88	78	68	63	58	48	43	-37	-15	-51
SI	85	92	91	88	83	77	67	61	-8	-16	-24
SK	90	75	74	68	63	60	54	47	-30	-13	-43
FI	85	81	81	80	80	80	81	82	-6	2	-4
SE											
UK	87	89	90	89	84	79	74	71	-8	-7	-15
EU15 [1)]	81	82	80	79	76	73	71	71	-7	-2	-9
EU10 [1)]	71	77	83	80	78	77	72	69	6	-8	-2
EU12 [1)]	80	81	79	77	75	73	70	71	-7	-1	-8
EU25 [1)]	80	81	80	79	76	74	71	71	-6	-3	-9

1) excluding countries which have not provided information

Table 3-5 Higher employment rate scenario: gross public pension expenditure as a share of GDP between 2004 and 2050

Public pensions, gross as % of GDP									Change	Change	Change
Country	2004	2010	2015	2020	2025	2030	2040	2050	2004-2030	2030-2050	2004-2050
BE	10,4	10,4	11,0	12,0	13,3	14,5	15,6	15,4	4,1	0,9	4,9
CZ	8,5	8,2	8,1	8,3	8,8	9,4	12,0	13,8	0,9	4,4	5,3
DK	9,5	10,1	10,8	11,3	12,0	12,8	13,5	12,8	3,3	0,0	3,3
DE	11,4	10,4	10,4	10,9	11,5	12,2	12,7	13,0	0,8	0,8	1,7
EE	6,6	6,8	5,9	5,4	5,1	4,7	4,4	4,2	-1,9	-0,5	-2,4
GR											
ES	8,6	8,9	8,8	9,3	10,3	11,8	15,1	15,6	3,2	3,8	7,1
FR	12,8	12,9	13,1	13,6	13,9	14,2	14,9	14,7	1,4	0,5	1,9
IE	4,7	5,2	5,9	6,5	7,2	7,8	9,3	11,1	3,1	3,2	6,3
IT	14,2	13,9	13,7	13,9	14,3	14,9	15,8	14,7	0,7	-0,3	0,4
CY	6,9	7,9	8,8	9,8	10,8	12,1	14,9	19,7	5,2	7,6	12,8
LV	6,8	4,9	4,6	4,9	5,3	5,6	5,9	5,6	-1,2	-0,1	-1,3
LT	7,0	6,6	6,6	7,0	7,6	7,9	8,2	8,6	1,0	0,6	1,6
LU											
HU	10,4	11,0	11,3	12,2	12,7	13,0	15,4	16,4	2,6	3,4	6,0
MT	7,4	8,7	9,7	10,1	9,9	9,1	7,8	7,0	1,6	-2,1	-0,5
NL	7,7	7,6	8,3	8,9	9,7	10,6	11,6	11,1	2,9	0,5	3,4
AT	13,4	12,8	12,6	12,7	13,4	13,8	13,2	12,0	0,4	-1,8	-1,4
PL	13,9	11,3	9,7	9,6	9,4	9,1	8,5	7,9	-4,9	-1,2	-6,1
PT	11,1	11,8	12,5	14,0	14,9	15,8	18,7	20,6	4,8	4,8	9,5
SI	11,0	11,0	11,4	12,1	13,0	14,1	16,4	17,8	3,1	3,8	6,9
SK	7,2	6,7	6,5	6,9	7,3	7,6	8,2	8,9	0,4	1,3	1,7
FI	10,7	11,2	11,9	12,8	13,5	13,9	13,8	13,8	3,3	-0,2	3,1
SE	10,6	10,1	10,2	10,3	10,6	11,0	11,5	11,2	0,4	0,2	0,6
UK	6,6	6,6	6,7	6,8	7,2	7,8	8,3	8,5	1,2	0,7	1,9
EU15 [1)]	10,6	10,3	10,4	10,7	11,3	12,0	12,8	12,8	1,4	0,8	2,2
EU10 [1)]	10,9	9,8	9,1	9,4	9,5	9,7	10,4	10,9	-1,2	1,2	0,0
EU12 [1)]	11,5	11,2	11,3	11,7	12,4	13,1	14,1	14,0	1,5	0,9	2,5
EU25 [1)]	10,6	10,3	10,3	10,7	11,2	11,8	12,7	12,7	1,2	0,8	2,0

1) excluding countries which have not provided data

Table 3-6 Higher employment rate scenario: gross total pension expenditure as a share of GDP between 2004 and 2050

Total pension expenditure, gross as % of GDP									Change	Change	Change
Country	2004	2010	2015	2020	2025	2030	2040	2050	2004-2030	2030-2050	2004-2050
BE	10,4	10,4	11,0	12,0	13,3	14,5	15,6	15,4	4,1	0,9	4,9
CZ	8,5	8,2	8,1	8,3	8,8	9,4	12,0	13,8	0,9	4,4	5,3
DK											
DE	11,4	10,4	10,4	10,9	11,5	12,2	12,7	13,0	0,8	0,8	1,7
EE	6,6	6,8	6,0	5,6	5,4	5,3	5,6	6,6	-1,4	1,3	-0,1
GR											
ES	8,6	8,9	8,8	9,3	10,3	11,8	15,1	15,6	3,2	3,8	7,1
FR	12,8	12,9	13,1	13,6	13,9	14,2	14,9	14,7	1,4	0,5	1,9
IE											
IT	14,2	13,9	13,7	13,9	14,3	14,9	15,8	14,7	0,7	-0,3	0,4
CY	6,9	7,9	8,8	9,8	10,8	12,1	14,9	19,7	5,2	7,6	12,8
LV	6,8	4,9	4,6	5,0	5,5	6,0	7,0	8,2	-0,8	2,2	1,4
LT	7,0	6,6	6,6	7,1	7,8	8,3	9,2	10,4	1,4	2,1	3,4
LU											
HU	10,4	11,0	11,3	12,3	12,9	13,5	17,0	19,5	3,1	6,0	9,1
MT	7,4	8,7	9,7	10,1	9,9	9,1	7,8	7,0	1,6	-2,1	-0,5
NL	12,4	12,3	13,5	14,7	16,3	18,3	20,5	19,9	5,9	1,6	7,5
AT	13,4	12,8	12,6	12,7	13,4	13,8	13,2	12,0	0,4	-1,8	-1,4
PL	13,9	11,3	9,7	9,7	9,6	9,3	9,2	9,2	-4,6	-0,2	-4,8
PT	11,1	11,8	12,5	14,0	14,9	15,8	18,7	20,6	4,8	4,8	9,5
SI	11,0	11,0	11,4	12,1	13,0	14,1	16,4	17,8	3,1	3,8	6,9
SK	7,2	6,7	6,6	7,2	7,7	8,3	9,6	11,2	1,1	2,9	4,0
FI	10,7	11,2	11,9	12,8	13,5	13,9	13,8	13,8	3,3	-0,2	3,1
SE	12,9	12,4	12,7	12,9	13,3	13,8	14,4	13,8	0,9	-0,1	0,8
UK											
EU15 [1)]	12,0	11,7	11,8	12,3	13,0	13,7	14,8	14,7	1,7	0,9	2,7
EU10 [1)]	10,9	9,8	9,1	9,5	9,7	10,0	11,2	12,3	-1,0	2,4	1,4
EU12 [1)]	12,0	11,7	11,8	12,3	12,9	13,7	14,9	14,7	1,8	1,0	2,7
EU25 [1)]	11,9	11,6	11,6	12,1	12,7	13,4	14,5	14,5	1,5	1,1	2,5

1) excluding countries which have not provided data

Table 3-7 Higher employment rate scenario: total assets in pension schemes as a share of GDP between 2004 and 2050

All pensions, assets as % of GDP									Change	Change	Change
Country	2004	2010	2015	2020	2025	2030	2040	2050	2004-2030	2030-2050	2004-2050
BE	4,4	7,3	13,5	16,5	13,9	2,5			-1,9		
CZ	0,3	3,5	7,0	10,3	11,7	10,5			10,2		
DK											
DE	0,1	0,4	0,8								
EE	2,8	9,3	15,9	26,6	39,4	52,7	80,2	105,5	49,9	52,8	102,7
GR											
ES											
FR	1,2	2,0	2,9	4,0	3,4	2,8	1,5	0,0	1,6	-2,8	-1,2
IE											
IT											
CY	39,3	40,0	40,5	39,0	34,4	26,2	2,7		-13,1		
LV	0,3	13,0	26,0	38,1	48,4	57,6	69,0	71,8	57,3	14,2	71,4
LT	0,3	4,3	8,6	14,0	20,8	28,1	41,6	52,9	27,7	24,8	52,6
LU											
HU	4,0	13,2	21,9	31,5	41,0	49,9	67,6	73,7	45,9	23,8	69,7
MT											
NL	135,5	160,1	176,3	194,4	213,6	229,7	241,5	244,7	94,1	15,0	109,2
AT											
PL	7,1	15,9	24,1	33,5	42,5	51,0	69,6	84,5	44,0	33,5	77,5
PT	4,3	4,4	0,3								
SI											
SK		7,0	12,8	19,0	25,2	31,6	45,9	58,3	31,6	26,6	58,3
FI	52,4	59,3	62,9	66,0	68,4	70,3	71,8	73,5	17,9	3,2	21,1
SE	38,6	53,1	60,3	65,8	69,4	72,1	68,1	61,4	33,5	-10,8	22,8
UK											

Table 3-8 Higher employment rate scenario: contributions to public pension schemes as a share of public pensions

Public pensions, contributions / gross pensions									Change	Change	Change
Country	**2004**	**2010**	**2015**	**2020**	**2025**	**2030**	**2040**	**2050**	**2004-2030**	**2030-2050**	**2004-2050**
BE											
CZ	105	108	109	106	100	93	73	64	-11	-30	-41
DK											
DE	68	69	66	67	68	68	68	68	0	0	0
EE	98	97	110	119	126	133	140	143	34	10	44
GR											
ES											
FR	100	100	98	95	92	90	87	88	-9	-3	-12
IE	76	65	57	52	47	43	36	30	-34	-12	-46
IT	72	74	75	75	73	69	66	73	-3	4	1
CY	80	82	80	73	67	60	49	36	-21	-24	-45
LV	104	124	125	116	104	97	92	98	-7	1	-6
LT	97	96	94	87	78	75	75	72	-22	-4	-26
LU											
HU	74	62	59	54	52	50	44	41	-24	-9	-33
MT	96	77	66	58	54	53	51	48	-43	-5	-47
NL	88	84	78	72	67	62	58	60	-26	-2	-28
AT	67	71	72	70	65	63	65	71	-4	9	5
PL	55	70	82	83	84	87	93	100	32	13	45
PT	95	88	79	69	64	59	49	45	-35	-14	-50
SI	85	92	92	87	82	76	65	59	-9	-17	-25
SK	90	76	76	69	65	62	57	50	-28	-12	-40
FI	85	81	82	81	80	80	82	82	-5	2	-3
SE	72	74	72	71	69	67	63	65	-6	-2	-8
UK	87	90	92	91	86	81	77	74	-6	-7	-13
EU15 [1)]	80	82	81	79	77	74	72	73	-6	-2	-8
EU10 [1)]	71	78	83	81	79	77	72	68	6	-9	-3
EU12 [1)]	80	81	79	78	76	74	71	73	-6	-1	-7
EU25 [1)]	80	82	81	79	77	75	72	72	-5	-2	-7

1) excluding countries which have not provided data

Table 3-9 Higher employment rate of older workers scenario: gross public pension expenditure as a share of GDP between 2004 and 2050

Public pensions, gross as % of GDP									Change	Change	Change
Country	2004	2010	2015	2020	2025	2030	2040	2050	2004-2030	2030-2050	2004-2050
BE	10,4	10,4	11,0	11,9	13,2	14,4	15,5	15,3	4,0	0,9	4,9
CZ	8,5	8,2	8,1	8,3	8,8	9,4	11,9	13,7	0,9	4,3	5,2
DK	9,5	10,0	10,6	11,1	11,6	12,4	13,1	12,5	3,0	0,0	3,0
DE	11,4	10,4	10,5	10,9	11,5	12,2	12,7	13,0	0,8	0,9	1,7
EE	7,4	7,6	6,7	6,0	5,6	5,2	4,8	4,6	-2,2	-0,6	-2,8
GR											
ES	8,6	8,8	8,8	9,2	10,3	11,7	15,0	15,6	3,1	3,8	7,0
FR	12,8	12,8	12,9	13,3	13,6	13,9	14,6	14,4	1,1	0,5	1,6
IE	4,7	5,2	5,9	6,5	7,2	7,8	9,3	11,0	3,1	3,2	6,3
IT	14,2	13,9	13,7	13,8	14,2	14,9	16,0	14,8	0,7	-0,1	0,6
CY											
LV	6,8	4,9	4,6	4,9	5,3	5,6	5,9	5,5	-1,2	-0,1	-1,3
LT	7,0	6,6	6,5	7,0	7,5	7,9	8,1	8,5	0,9	0,6	1,5
LU											
HU	10,4	10,9	11,2	11,9	12,3	12,7	15,0	16,0	2,3	3,3	5,6
MT	7,4	8,8	9,7	10,2	10,0	9,1	7,9	7,1	1,7	-2,1	-0,4
NL	7,7	7,6	8,3	8,9	9,6	10,6	11,6	11,1	2,8	0,6	3,4
AT	13,4	12,8	12,6	12,6	13,2	13,6	13,1	11,8	0,2	-1,8	-1,6
PL	13,9	11,3	9,7	9,7	9,5	9,2	8,6	8,0	-4,7	-1,2	-5,9
PT	11,1	11,9	12,6	14,0	14,8	15,8	18,6	20,5	4,7	4,7	9,5
SI	11,0	11,0	11,2	11,8	12,6	13,6	15,9	17,4	2,6	3,8	6,4
SK	7,2	6,7	6,5	6,9	7,3	7,6	8,2	9,0	0,4	1,4	1,8
FI	10,7	11,1	11,8	12,6	13,2	13,7	13,6	13,5	3,0	-0,2	2,8
SE											
UK	6,6	6,6	6,7	6,8	7,2	7,8	8,3	8,5	1,2	0,7	1,9
EU15 [1)]	10,6	10,3	10,4	10,7	11,2	11,9	12,8	12,8	1,3	0,8	2,2
EU10 [1)]	11,0	9,8	9,1	9,4	9,5	9,6	10,2	10,6	-1,4	1,0	-0,4
EU12 [1)]	11,5	11,2	11,3	11,7	12,3	13,0	14,0	14,0	1,4	1,0	2,4
EU25 [1)]	10,6	10,3	10,3	10,6	11,1	11,8	12,7	12,6	1,2	0,9	2,0

1) excluding countries which have not provided data

Table 3-10 Higher employment rate of older workers scenario: gross total pension expenditure as a share of GDP between 2004 and 2050

Total pension expenditure, gross as % of GDP									Change	Change	Change
Country	2004	2010	2015	2020	2025	2030	2040	2050	2004-2030	2030-2050	2004-2050
BE	10,4	10,4	11,0	11,9	13,2	14,4	15,5	15,3	4,0	0,9	4,9
CZ	8,5	8,2	8,1	8,3	8,8	9,4	11,9	13,7	0,9	4,3	5,2
DK											
DE	11,4	10,4	10,5	10,9	11,5	12,2	12,7	13,0	0,8	0,9	1,7
EE	7,4	7,6	6,7	6,2	6,0	5,8	6,1	6,9	-1,6	1,2	-0,5
GR											
ES	8,6	8,8	8,8	9,2	10,3	11,7	15,0	15,6	3,1	3,8	7,0
FR	12,8	12,8	12,9	13,3	13,6	13,9	14,6	14,4	1,1	0,5	1,6
IE											
IT	14,2	13,9	13,7	13,8	14,2	14,9	16,0	14,8	0,7	-0,1	0,6
CY											
LV	6,8	4,9	4,6	5,0	5,5	6,0	7,0	8,2	-0,8	2,2	1,4
LT	7,0	6,6	6,6	7,1	7,8	8,3	9,2	10,2	1,4	1,9	3,3
LU											
HU	10,4	10,9	11,2	12,0	12,6	13,2	16,6	19,0	2,8	5,8	8,6
MT	7,4	8,8	9,7	10,2	10,0	9,1	7,9	7,1	1,7	-2,1	-0,4
NL	12,4	12,3	13,5	14,7	16,3	18,3	20,6	19,9	5,9	1,6	7,6
AT	13,4	12,8	12,6	12,6	13,2	13,6	13,1	11,8	0,2	-1,8	-1,6
PL	13,9	11,3	9,8	9,8	9,7	9,4	9,3	9,3	-4,4	-0,1	-4,6
PT	11,1	11,9	12,6	14,0	14,8	15,8	18,6	20,5	4,7	4,7	9,5
SI	11,0	11,0	11,2	11,8	12,6	13,6	15,9	17,4	2,6	3,8	6,4
SK	7,2	6,7	6,6	7,1	7,7	8,3	9,6	11,3	1,1	3,0	4,1
FI	10,7	11,1	11,8	12,6	13,2	13,7	13,6	13,5	3,0	-0,2	2,8
SE											
UK											
EU15 [1)]	12,0	11,6	11,8	12,2	12,8	13,6	14,8	14,7	1,7	1,0	2,7
EU10 [1)]	11,0	9,8	9,2	9,4	9,7	9,9	11,0	12,0	-1,1	2,2	1,0
EU12 [1)]	12,0	11,6	11,8	12,2	12,8	13,6	14,8	14,7	1,7	1,0	2,7
EU25 [1)]	11,9	11,5	11,6	12,0	12,6	13,3	14,5	14,4	1,4	1,1	2,5

1) excluding countries which have not provided data

Table 3-11 Higher employment rate of older workers scenario: total assets in pension schemes as a share of GDP between 2004 and 2050

All pensions, assets as % of GDP									Change	Change	Change
Country	2004	2010	2015	2020	2025	2030	2040	2050	2004-2030	2030-2050	2004-2050
BE	4,4	7,3	13,5	16,5	14,1	3,1			-1,4		
CZ	0,3	3,5	6,9	10,0	11,4	10,2			9,9		
DK											
DE	0,1	0,4	0,8								
EE	2,8	9,3	15,8	25,8	38,1	51,2	78,0	102,6	48,4	51,4	99,8
GR											
ES											
FR	1,2	2,0	2,9	4,0	3,4	2,8	1,5	0,0	1,6	-2,8	-1,2
IE											
IT											
CY	39,3	42,1	44,0	42,6	35,0	17,3			-22,0		
LV	0,3	12,9	25,9	37,8	47,9	57,0	68,2	70,7	56,7	13,7	70,3
LT	0,3	4,3	8,6	14,0	20,7	27,9	41,4	52,5	27,6	24,6	52,2
LU											
HU	4,0	13,2	21,8	31,2	40,6	49,2	66,6	73,0	45,3	23,8	69,0
MT											
NL	135,5	160,3	176,9	194,6	213,4	229,7	241,7	244,3	94,2	14,6	108,8
AT											
PL	7,1	16,1	24,4	33,9	43,1	51,8	70,4	85,1	44,7	33,4	78,0
PT	4,3	4,0									
SI											
SK		7,0	12,7	18,9	25,1	31,5	45,7	58,1	31,5	26,6	58,1
FI	52,4	59,0	62,5	65,1	67,1	68,9	70,2	71,6	16,5	2,7	19,2
SE											
UK											

Table 3-12 Higher employment rate of older workers scenario: contributions to public pension schemes as a share of public pensions

Public pensions, contributions / gross pensions									Change	Change	Change
Country	**2004**	**2010**	**2015**	**2020**	**2025**	**2030**	**2040**	**2050**	**2004-2030**	**2030-2050**	**2004-2050**
BE											
CZ	105	108	109	106	100	94	74	64	-11	-30	-41
DK											
DE	68	70	66	67	67	68	68	68	0	0	0
EE	88	86	97	106	112	118	125	129	30	11	41
GR											
ES											
FR	100	100	99	96	95	93	88	89	-7	-3	-11
IE	76	65	57	52	47	43	36	30	-34	-12	-46
IT	72	74	76	75	74	69	66	72	-2	2	0
CY											
LV	104	124	125	115	104	97	91	97	-7	1	-7
LT	97	96	95	87	78	76	75	72	-22	-3	-25
LU											
HU	74	62	60	55	53	52	45	42	-22	-10	-32
MT	96	77	66	58	54	53	51	48	-43	-5	-48
NL	88	84	78	72	67	62	58	60	-26	-2	-28
AT	67	71	72	70	66	63	65	73	-3	9	6
PL	55	71	83	84	85	87	93	100	32	13	45
PT	95	88	78	69	64	59	49	45	-35	-14	-50
SI	85	92	93	90	85	79	67	61	-6	-18	-23
SK	90	76	76	70	65	62	57	49	-28	-13	-41
FI	85	81	81	81	80	80	82	82	-5	2	-3
SE											
UK	87	90	92	91	86	81	76	74	-6	-7	-13
EU15 [1)]	81	82	81	80	78	75	72	73	-5	-2	-7
EU10 [1)]	71	78	84	82	80	79	74	71	8	-8	0
EU12 [1)]	80	81	79	78	76	74	72	73	-5	-1	-6
EU25 [1)]	80	82	81	80	78	75	73	73	-5	-2	-7

1) excluding countries which have not provided data

Table 3-13 Higher labour productivity scenario: gross public pension expenditure as a share of GDP between 2004 and 2050

Public pensions, gross as % of GDP									Change	Change	Change
Country	2004	2010	2015	2020	2025	2030	2040	2050	2004-2030	2030-2050	2004-2050
BE	10,4	10,4	11,1	12,1	13,3	14,5	15,4	15,2	4,1	0,7	4,7
CZ	8,5	8,2	8,1	8,3	8,7	9,3	11,9	13,7	0,9	4,3	5,2
DK	9,5	10,1	10,8	11,3	12,0	12,8	13,5	12,8	3,3	0,0	3,3
DE	11,4	10,5	10,5	11,0	11,6	12,3	12,8	13,1	0,9	0,8	1,7
EE	6,7	6,8	5,9	5,3	5,0	4,6	4,2	4,0	-2,1	-0,6	-2,7
GR											
ES	8,6	8,9	8,7	9,1	10,1	11,5	14,5	14,8	2,9	3,4	6,3
FR	12,8	13,0	13,1	13,5	13,8	14,0	14,6	14,4	1,2	0,4	1,6
IE	4,7	5,2	5,9	6,5	7,3	7,9	9,4	11,2	3,2	3,3	6,4
IT	14,2	14,0	13,7	13,7	14,0	14,6	15,4	14,1	0,4	-0,5	-0,1
CY	6,9	8,0	8,8	9,7	10,6	11,7	14,1	18,4	4,9	6,6	11,5
LV	6,8	4,9	4,6	4,8	5,3	5,5	5,8	5,4	-1,3	-0,1	-1,4
LT	7,0	6,6	6,6	7,0	7,6	7,9	8,1	8,5	1,0	0,6	1,5
LU	10,0	9,8	10,8	11,8	13,6	14,9	16,9	17,3	4,9	2,4	7,3
HU	10,4	11,1	11,5	12,4	12,8	13,2	15,7	16,7	2,8	3,5	6,3
MT	7,5	8,8	9,7	10,1	9,7	8,8	7,4	6,4	1,3	-2,4	-1,1
NL	7,7	7,7	8,3	9,0	9,7	10,7	11,6	11,2	2,9	0,5	3,4
AT	13,4	12,8	12,6	12,6	13,2	13,5	12,8	11,4	0,2	-2,1	-1,9
PL	13,9	11,3	9,7	9,5	9,2	8,9	8,2	7,6	-5,0	-1,3	-6,3
PT	11,1	11,9	12,5	13,9	14,6	15,4	17,9	19,6	4,3	4,1	8,5
SI	11,0	11,1	11,5	12,3	13,2	14,3	16,7	18,1	3,3	3,8	7,2
SK	7,2	6,7	6,5	6,9	7,3	7,6	8,1	8,8	0,4	1,2	1,6
FI	10,7	11,2	12,0	12,7	13,3	13,6	13,4	13,3	3,0	-0,3	2,6
SE	10,6	10,1	10,3	10,3	10,6	10,9	11,4	11,0	0,3	0,1	0,4
UK	6,6	6,6	6,7	6,7	7,1	7,7	8,0	8,2	1,0	0,6	1,6
EU15 [1)]	10,6	10,4	10,4	10,7	11,2	11,9	12,6	12,5	1,3	0,7	1,9
EU10 [1)]	10,9	9,8	9,2	9,4	9,5	9,6	10,3	10,8	-1,3	1,2	-0,1
EU12 [1)]	11,5	11,3	11,3	11,7	12,3	13,0	13,9	13,8	1,4	0,8	2,2
EU25 [1)]	10,6	10,3	10,3	10,6	11,1	11,7	12,5	12,4	1,1	0,7	1,8

1) excluding Greece

Table 3-14 Higher labour productivity scenario: gross total pension expenditure as a share of GDP between 2004 and 2050

Total pension expenditure, gross as % of GDP									Change	Change	Change
Country	2004	2010	2015	2020	2025	2030	2040	2050	2004-2030	2030-2050	2004-2050
BE	10,4	10,4	11,1	12,1	13,3	14,5	15,4	15,2	4,1	0,7	4,7
CZ	8,5	8,2	8,1	8,3	8,7	9,3	11,9	13,6	0,9	4,3	5,2
DK											
DE	11,4	10,5	10,5	11,0	11,6	12,3	12,8	13,1	0,9	0,8	1,7
EE	6,7	6,8	5,9	5,5	5,3	5,1	5,4	6,2	-1,5	1,1	-0,5
GR											
ES	8,6	8,9	8,7	9,1	10,1	11,5	14,5	14,8	2,9	3,4	6,3
FR	12,8	13,0	13,1	13,5	13,8	14,0	14,6	14,4	1,2	0,4	1,6
IE											
IT	14,2	14,0	13,7	13,7	14,0	14,6	15,4	14,1	0,4	-0,5	-0,1
CY	6,9	8,0	8,8	9,7	10,6	11,7	14,1	18,4	4,9	6,6	11,5
LV	6,8	4,9	4,6	4,9	5,5	5,9	6,9	8,0	-0,9	2,1	1,2
LT	7,0	6,6	6,6	7,1	7,8	8,3	9,1	10,3	1,4	2,0	3,3
LU	10,0	9,8	10,8	11,8	13,6	14,9	16,9	17,3	4,9	2,4	7,3
HU	10,4	11,1	11,5	12,5	13,1	13,7	17,2	19,6	3,3	6,0	9,2
MT	7,5	8,8	9,7	10,1	9,7	8,8	7,4	6,4	1,3	-2,4	-1,1
NL	12,4	12,3	13,6	14,7	16,3	18,2	20,4	19,6	5,9	1,4	7,3
AT	13,4	12,8	12,6	12,6	13,2	13,5	12,8	11,4	0,2	-2,1	-1,9
PL	13,9	11,3	9,7	9,6	9,4	9,1	8,9	8,8	-4,8	-0,3	-5,1
PT	11,1	11,9	12,5	13,9	14,6	15,4	17,9	19,6	4,3	4,1	8,5
SI	11,0	11,1	11,5	12,3	13,2	14,3	16,7	18,1	3,3	3,8	7,2
SK	7,2	6,7	6,7	7,2	7,7	8,3	9,5	10,9	1,1	2,7	3,7
FI	10,7	11,2	12,0	12,7	13,3	13,6	13,4	13,3	3,0	-0,3	2,6
SE	12,9	12,4	12,7	12,8	13,1	13,7	14,1	13,5	0,7	-0,2	0,5
UK											
EU15 [1)]	12,0	11,7	11,8	12,3	12,9	13,6	14,6	14,4	1,6	0,8	2,4
EU10 [1)]	10,9	9,8	9,2	9,4	9,7	9,9	11,0	12,1	-1,0	2,2	1,2
EU12 [1)]	12,0	11,7	11,8	12,2	12,9	13,6	14,6	14,4	1,6	0,8	2,5
EU25 [1)]	11,9	11,6	11,6	12,0	12,6	13,3	14,3	14,2	1,3	0,9	2,3

1) excluding countries which have not provided data

Table 3-15 Higher labour productivity scenario: total assets in pension schemes as a share of GDP between 2004 and 2050

All pensions, assets as % of GDP									Change	Change	Change
Country	2004	2010	2015	2020	2025	2030	2040	2050	2004-2030	2030-2050	2004-2050
BE	4,4	7,3	13,4	16,2	13,5	2,4			-2,1		
CZ	0,3	3,4	6,7	9,8	11,2	10,1			9,8		
DK											
DE	0,1	0,4	0,8								
EE	2,9	9,3	15,7	25,8	38,3	51,3	77,9	102,3	48,4	51,0	99,4
GR	:	:	:	:	:	:	:	:			
ES											
FR	1,2	2,0	2,9	4,0	3,4	2,8	1,5	0,0	1,6	-2,8	-1,2
IE											
IT											
CY	39,3	39,5	39,1	36,8	32,1	24,2	3,4		-15,1		
LV	0,3	12,9	25,8	37,8	47,9	56,9	68,1	71,4	56,5	14,5	71,0
LT	0,3	4,3	8,6	14,0	20,8	28,1	41,6	53,0	27,8	24,9	52,7
LU	23,6	31,6	37,2	38,9	32,4	17,4			-6,3		
HU	4,0	13,2	21,8	31,0	40,2	48,6	65,2	70,5	44,6	22,0	66,6
MT											
NL	135,5	160,5	176,1	192,2	210,1	225,4	236,3	239,3	89,9	13,9	103,7
AT											
PL	7,1	15,8	23,8	32,7	41,3	49,2	66,5	80,4	42,1	31,2	73,4
PT	4,3	4,0									
SI											
SK		7,0	12,7	18,7	24,6	30,8	44,2	55,8	30,8	25,0	55,8
FI	52,4	59,3	62,5	64,6	66,1	67,2	67,6	68,4	14,8	1,2	16,0
SE	38,6	53,4	60,2	65,0	68,1	70,3	65,9	59,3	31,7	-11,1	20,7
UK											

Table 3-16 Higher labour productivity scenario: contributions to public pension schemes as a share of public pensions

Public pensions, contributions / gross pensions									Change	Change	Change
Country	2004	2010	2015	2020	2025	2030	2040	2050	2004-2030	2030-2050	2004-2050
BE											
CZ	105	108	109	106	101	94	74	64	-11	-30	-41
DK											
DE	68	69	66	67	67	68	68	68	0	0	0
EE	98	97	109	120	127	135	144	149	36	14	50
GR											
ES											
FR	100	99	98	95	93	92	88	90	-8	-2	-10
IE	76	65	57	52	46	42	36	30	-34	-12	-46
IT	72	74	76	76	74	70	68	75	-1	5	4
CY	80	80	78	73	67	61	51	38	-20	-22	-42
LV	104	124	125	117	105	98	93	100	-5	1	-4
LT	97	96	94	87	78	76	75	73	-22	-3	-25
LU	99	102	93	86	74	67	59	58	-31	-9	-41
HU	74	61	58	53	51	50	43	40	-25	-10	-34
MT	96	77	66	58	53	52	50	47	-44	-5	-48
NL	88	84	77	71	66	61	57	59	-27	-2	-29
AT	67	71	73	72	68	65	68	76	-2	11	9
PL	55	70	82	84	86	89	96	104	34	15	49
PT	95	88	78	69	65	60	51	47	-34	-13	-47
SI	85	91	90	86	80	74	63	58	-10	-16	-27
SK	90	75	75	69	65	62	57	50	-28	-12	-40
FI	85	81	81	81	80	80	82	83	-5	3	-2
SE	72	74	72	72	70	67	64	66	-5	-1	-6
UK	87	90	92	92	88	82	78	75	-5	-7	-11
EU15 [1)]	80	82	81	80	78	75	73	74	-5	-1	-6
EU10 [1)]	71	77	83	81	79	78	73	69	7	-9	-2
EU12 [1)]	80	81	79	78	76	74	72	74	-5	0	-6
EU25 [1)]	80	81	81	80	78	75	73	74	-4	-2	-6

1) excluding countries which have not provided data

Table 3-17 Lower labour productivity scenario: gross public pension expenditure as a share of GDP between 2004 and 2050

Public pensions, gross as % of GDP									Change	Change	Change
Country	2004	2010	2015	2020	2025	2030	2040	2050	2004-2030	2030-2050	2004-2050
BE	10,4	10,4	11,1	12,2	13,5	14,8	16,0	15,9	4,4	1,1	5,5
CZ	8,5	8,2	8,2	8,5	9,0	9,6	12,3	14,2	1,2	4,5	5,7
DK	9,5	10,1	10,8	11,3	12,0	12,8	13,5	12,8	3,3	0,0	3,3
DE	11,4	10,4	10,5	11,0	11,6	12,3	12,8	13,1	0,9	0,8	1,7
EE	6,7	6,8	6,0	5,4	5,1	4,8	4,5	4,4	-1,9	-0,4	-2,3
GR											
ES	8,6	8,9	8,9	9,5	10,6	12,3	15,9	16,7	3,7	4,4	8,1
FR	12,8	13,0	13,3	13,9	14,3	14,7	15,4	15,3	1,9	0,6	2,5
IE	4,7	5,2	5,9	6,5	7,2	7,9	9,3	11,1	3,1	3,3	6,4
IT	14,2	14,0	13,9	14,2	14,7	15,5	16,5	15,2	1,2	-0,2	1,0
CY	6,9	8,0	8,9	10,0	11,1	12,6	15,8	21,4	5,7	8,8	14,5
LV	6,8	4,9	4,6	4,9	5,4	5,7	6,0	5,7	-1,1	0,0	-1,1
LT	7,0	6,6	6,6	7,0	7,6	8,0	8,3	8,7	1,0	0,8	1,8
LU	10,0	9,8	10,9	12,0	13,8	15,1	17,1	17,5	5,1	2,4	7,5
HU	10,4	11,1	11,6	12,6	13,2	13,6	16,2	17,3	3,2	3,7	6,9
MT	7,4	8,8	9,8	10,4	10,3	9,6	8,5	7,7	2,1	-1,8	0,3
NL	7,7	7,6	8,3	8,9	9,7	10,7	11,7	11,3	2,9	0,6	3,5
AT	13,4	12,8	12,8	13,1	13,9	14,5	14,2	13,2	1,1	-1,3	-0,2
PL	13,9	11,3	9,8	9,8	9,7	9,4	8,9	8,3	-4,6	-1,1	-5,7
PT	11,1	11,9	12,7	14,4	15,4	16,6	19,8	22,1	5,5	5,6	11,1
SI	11,0	11,1	11,5	12,3	13,2	14,3	16,7	18,1	3,3	3,8	7,1
SK	7,2	6,7	6,6	7,0	7,4	7,7	8,4	9,2	0,6	1,4	2,0
FI	10,7	11,2	12,1	13,1	13,8	14,4	14,3	14,2	3,7	-0,2	3,5
SE	10,6	10,1	10,4	10,5	10,8	11,3	11,8	11,5	0,6	0,3	0,9
UK	6,6	6,6	6,7	7,0	7,5	8,1	8,7	8,9	1,5	0,8	2,3
EU15 [1)]	10,6	10,4	10,5	10,9	11,6	12,3	13,3	13,2	1,7	0,9	2,6
EU10 [1)]	10,9	9,8	9,3	9,6	9,8	10,0	10,8	11,4	-0,9	1,4	0,5
EU12 [1)]	11,5	11,3	11,4	12,0	12,6	13,4	14,6	14,5	1,9	1,1	3,0
EU25 [1)]	10,6	10,3	10,4	10,9	11,5	12,2	13,1	13,1	1,5	1,0	2,5

1) excluding Greece

Table 3-18 Lower labour productivity scenario: gross total pension expenditure as a share of GDP between 2004 and 2050

Total pension expenditure, gross as % of GDP									Change	Change	Change
Country	2004	2010	2015	2020	2025	2030	2040	2050	2004-2030	2030-2050	2004-2050
BE	10,4	10,4	11,1	12,2	13,5	14,8	16,0	15,9	4,4	1,1	5,5
CZ	8,5	8,2	8,2	8,5	9,0	9,6	12,3	14,2	1,2	4,5	5,7
DK											
DE	11,4	10,4	10,5	11,0	11,6	12,3	12,8	13,1	0,9	0,8	1,7
EE	6,7	6,8	6,0	5,6	5,5	5,4	5,8	6,9	-1,3	1,5	0,2
GR											
ES	8,6	8,9	8,9	9,5	10,6	12,3	15,9	16,7	3,7	4,4	8,1
FR	12,8	13,0	13,3	13,9	14,3	14,7	15,4	15,3	1,9	0,6	2,5
IE											
IT	14,2	14,0	13,9	14,2	14,7	15,5	16,5	15,2	1,2	-0,2	1,0
CY	6,9	8,0	8,9	10,0	11,1	12,6	15,8	21,4	5,7	8,8	14,5
LV	6,8	4,9	4,6	5,0	5,6	6,1	7,2	8,6	-0,7	2,5	1,8
LT	7,0	6,6	6,6	7,1	7,8	8,4	9,3	10,6	1,4	2,2	3,6
LU	10,0	9,8	10,9	12,0	13,8	15,1	17,1	17,5	5,1	2,4	7,5
HU	10,4	11,1	11,6	12,7	13,4	14,1	17,9	20,7	3,7	6,5	10,3
MT	7,4	8,8	9,8	10,4	10,3	9,6	8,5	7,7	2,1	-1,8	0,3
NL	12,4	12,3	13,6	14,8	16,5	18,6	20,9	20,3	6,2	1,7	7,9
AT	13,4	12,8	12,8	13,1	13,9	14,5	14,2	13,2	1,1	-1,3	-0,2
PL	13,9	11,3	9,8	9,9	9,8	9,6	9,6	9,7	-4,3	0,0	-4,3
PT	11,1	11,9	12,7	14,4	15,4	16,6	19,8	22,1	5,5	5,6	11,1
SI	11,0	11,1	11,5	12,3	13,2	14,3	16,7	18,1	3,3	3,8	7,1
SK	7,2	6,7	6,7	7,3	7,9	8,5	9,9	11,6	1,3	3,1	4,4
FI	10,7	11,2	12,1	13,1	13,8	14,4	14,3	14,2	3,7	-0,2	3,5
SE	12,9	12,4	12,9	13,1	13,5	14,2	14,9	14,3	1,3	0,1	1,3
UK											
EU15 [1)]	12,0	11,7	11,9	12,5	13,3	14,1	15,3	15,2	2,1	1,1	3,2
EU10 [1)]	10,9	9,8	9,3	9,7	10,0	10,3	11,6	12,9	-0,6	2,6	2,0
EU12 [1)]	12,0	11,7	11,9	12,5	13,2	14,1	15,3	15,3	2,1	1,1	3,3
EU25 [1)]	11,9	11,6	11,8	12,3	13,0	13,8	15,0	15,0	1,8	1,2	3,1

1) excluding countries which have not provided data

Table 3-19 Lower labour productivity scenario: total assets in pension schemes as a share of GDP between 2004 and 2050

All pensions, assets as % of GDP									Change	Change	Change
Country	2004	2010	2015	2020	2025	2030	2040	2050	2004-2030	2030-2050	2004-2050
BE	4,4	7,4	13,6	16,5	13,6	1,4			-3,0		
CZ	0,3	3,4	6,6	9,2	9,9	7,5			7,2		
DK											
DE	0,1	0,4	0,8								
EE	2,8	9,3	15,9	25,4	37,7	50,6	76,9	100,6	47,8	50,1	97,8
GR											
ES											
FR	1,2	2,0	2,9	4,1	3,5	2,9	1,6	0,0	1,7	-2,9	-1,2
IE											
IT											
CY	39,3	39,5	39,6	37,4	32,1	22,6			-16,7		
LV	0,3	12,9	26,0	38,3	48,7	58,1	69,7	72,4	57,8	14,3	72,1
LT	0,3	4,3	8,6	14,0	20,8	28,0	41,5	53,0	27,7	24,9	52,6
LU	23,6	31,7	37,6	39,6	33,4	18,3			-5,3		
HU	4,0	13,2	22,1	31,9	41,8	51,1	69,7	76,0	47,1	24,9	72,0
MT											
NL	135,5	160,7	178,9	198,6	218,0	234,1	245,3	247,8	98,5	13,7	112,3
AT											
PL	7,1	15,8	24,1	33,7	43,0	51,9	71,5	87,6	44,8	35,7	80,5
PT	4,3	4,1									
SI											
SK		7,0	12,8	19,2	25,6	32,4	47,4	60,6	32,4	28,3	60,6
FI	52,4	59,4	63,6	67,3	70,3	72,6	74,9	77,2	20,2	4,6	24,8
SE	38,6	53,5	61,1	67,2	71,6	74,9	71,3	63,7	36,3	-11,2	25,1
UK											

Table 3-20 Lower labour productivity scenario: contributions to public pension schemes as a share of public pensions

Public pensions, contributions / gross pensions									Change	Change	Change
Country	**2004**	**2010**	**2015**	**2020**	**2025**	**2030**	**2040**	**2050**	**2004-2030**	**2030-2050**	**2004-2050**
BE											
CZ	105	108	108	104	98	91	72	62	-14	-29	-43
DK											
DE	68	70	66	68	67	68	69	68	0	1	0
EE	98	96	108	116	122	128	133	135	29	7	37
GR											
ES											
FR	100	99	97	93	90	88	83	84	-12	-3	-16
IE	76	65	57	52	46	43	36	30	-34	-12	-46
IT	72	74	74	73	71	66	64	70	-5	3	-2
CY	80	80	77	71	64	56	46	33	-24	-24	-47
LV	104	124	124	114	102	95	89	95	-9	0	-9
LT	97	96	94	87	78	75	74	70	-23	-4	-27
LU	99	102	92	84	73	66	58	57	-32	-9	-41
HU	74	61	57	52	50	48	42	39	-26	-9	-35
MT	96	77	66	58	53	52	50	47	-43	-5	-48
NL	88	84	77	71	66	61	57	59	-27	-2	-29
AT	67	71	71	68	63	60	60	65	-7	5	-2
PL	55	70	81	81	82	84	89	95	29	11	40
PT	95	88	78	68	63	58	47	42	-37	-15	-52
SI	85	91	90	86	80	74	63	58	-10	-16	-27
SK	90	75	74	68	64	61	56	48	-29	-12	-42
FI	85	81	81	80	79	79	80	81	-6	2	-5
SE	72	74	72	71	69	66	62	64	-7	-2	-9
UK	87	89	90	89	84	78	74	71	-9	-7	-16
EU15 [1)]	80	82	80	78	75	73	70	71	-8	-2	-10
EU10 [1)]	71	77	82	79	76	75	69	65	4	-10	-6
EU12 [1)]	80	81	79	77	74	72	70	71	-8	-1	-9
EU25 [1)]	80	81	80	78	76	73	70	70	-7	-2	-10

1) excluding countries which have not provided data

Table 3-21 Higher interest rate scenario: gross public pension expenditure as a share of GDP between 2004 and 2050

Public pensions, gross as % of GDP								Change	Change	Change
Country	2004	2010	2015	2020	2025	2030	2040	2050	2004-2030	2030-2050	2004-2050
BE	10,4	10,4	11,0	12,1	13,4	14,7	15,7	15,5	4,3	0,8	5,1
CZ	8,5	8,2	8,2	8,4	8,9	9,6	12,2	14,0	1,1	4,5	5,6
DK	9,5	10,1	10,8	11,3	12,0	12,8	13,5	12,8	3,3	0,0	3,3
DE	11,4	10,5	10,5	11,0	11,6	12,3	12,8	13,1	0,9	0,8	1,7
EE	6,7	6,8	6,0	5,4	5,1	4,7	4,4	4,2	-1,9	-0,5	-2,5
GR											
ES	8,6	8,9	8,8	9,3	10,4	11,8	15,2	15,7	3,3	3,9	7,1
FR	12,8	12,9	13,2	13,7	14,0	14,3	15,0	14,8	1,5	0,5	2,0
IE	4,7	5,2	5,9	6,5	7,2	7,9	9,3	11,1	3,1	3,2	6,4
IT	14,2	14,0	13,8	14,0	14,4	15,0	15,9	14,7	0,8	-0,4	0,4
CY	6,9	8,0	8,8	9,9	10,8	12,2	15,0	19,8	5,3	7,6	12,9
LV	6,8	4,9	4,6	4,9	5,3	5,6	5,9	5,6	-1,2	-0,1	-1,2
LT	6,7	6,6	6,6	7,0	7,6	7,9	8,2	8,6	1,2	0,7	1,8
LU	10,0	9,8	10,9	11,9	13,7	15,0	17,0	17,4	5,0	2,4	7,4
HU	10,4	11,1	11,6	12,5	13,0	13,5	16,0	17,1	3,1	3,7	6,7
MT	7,4	8,8	9,8	10,2	10,0	9,1	7,9	7,0	1,7	-2,1	-0,4
NL	7,7	7,6	8,3	9,0	9,7	10,7	11,7	11,2	2,9	0,6	3,5
AT	13,4	12,8	12,7	12,8	13,5	14,0	13,4	12,2	0,6	-1,7	-1,2
PL	13,9	11,3	9,8	9,7	9,5	9,2	8,7	8,0	-4,7	-1,2	-5,9
PT	11,1	11,9	12,6	14,1	15,0	16,0	18,8	20,8	4,9	4,8	9,7
SI	11,0	11,1	11,6	12,3	13,3	14,4	16,8	18,3	3,4	3,9	7,3
SK	7,2	6,7	6,6	7,0	7,3	7,7	8,2	9,0	0,5	1,3	1,8
FI	10,7	11,2	12,0	12,9	13,6	14,0	13,9	13,8	3,4	-0,2	3,2
SE	10,6	10,1	10,3	10,5	10,7	11,2	11,8	11,6	0,5	0,4	1,0
UK	6,6	6,6	6,7	6,9	7,3	7,9	8,4	8,6	1,3	0,7	2,0
EU15 [1)]	10,6	10,4	10,5	10,8	11,4	12,1	12,9	12,9	1,5	0,8	2,3
EU10 [1)]	10,9	9,8	9,2	9,5	9,7	9,8	10,6	11,2	-1,1	1,3	0,3
EU12 [1)]	11,5	11,3	11,4	11,8	12,5	13,2	14,2	14,1	1,6	0,9	2,6
EU25 [1)]	10,6	10,3	10,4	10,7	11,3	11,9	12,8	12,8	1,3	0,8	2,2

1) excluding Greece

Table 3-22 Higher interest rate scenario: gross total pension expenditure as a share of GDP between 2004 and 2050

Total pension expenditure, gross as % of GDP								Change	Change	Change
Country	2004	2010	2015	2020	2025	2030	2040	2050	2004-2030	2030-2050	2004-2050
BE	10,4	10,4	11,0	12,1	13,4	14,7	15,7	15,5	4,3	0,8	5,1
CZ	8,5	8,2	8,2	8,4	8,9	9,6	12,2	14,0	1,1	4,5	5,6
DK											
DE	11,4	10,5	10,5	11,0	11,6	12,3	12,8	13,1	0,9	0,8	1,7
EE	6,7	6,8	6,0	5,6	5,4	5,4	5,9	7,3	-1,3	1,9	0,6
GR											
ES	8,6	8,9	8,8	9,3	10,4	11,8	15,2	15,7	3,3	3,9	7,1
FR	12,8	12,9	13,2	13,7	14,0	14,3	15,0	14,8	1,5	0,5	2,0
IE											
IT	14,2	14,0	13,8	14,0	14,4	15,0	15,9	14,7	0,8	-0,4	0,4
CY	6,9	8,0	8,8	9,9	10,8	12,2	15,0	19,8	5,3	7,6	12,9
LV	6,8	4,9	4,6	5,0	5,6	6,1	7,3	9,0	-0,7	3,0	2,2
LT	6,7	6,6	6,6	7,1	7,8	8,4	9,4	10,9	1,7	2,5	4,2
LU	10,0	9,8	10,9	11,9	13,7	15,0	17,0	17,4	5,0	2,4	7,4
HU	10,4	11,1	11,6	12,7	13,3	14,1	18,1	21,3	3,7	7,3	11,0
MT	7,4	8,8	9,8	10,2	10,0	9,1	7,9	7,0	1,7	-2,1	-0,4
NL	12,4	12,5	13,9	15,2	16,9	18,9	21,1	20,2	6,6	1,3	7,8
AT	13,4	12,8	12,7	12,8	13,5	14,0	13,4	12,2	0,6	-1,7	-1,2
PL	13,9	11,3	9,8	9,8	9,7	9,5	9,4	9,6	-4,4	0,1	-4,3
PT	11,1	11,9	12,6	14,1	15,0	16,0	18,8	20,8	4,9	4,8	9,7
SI	11,0	11,1	11,6	12,4	13,5	14,7	17,5	19,3	3,7	4,6	8,3
SK	7,2	6,7	6,7	7,3	7,8	8,5	10,0	11,9	1,3	3,4	4,7
FI	10,7	11,2	12,0	12,9	13,6	14,0	13,9	13,8	3,4	-0,2	3,2
SE	12,9	12,5	12,9	13,1	13,5	14,2	15,1	14,6	1,3	0,4	1,7
UK											
EU15 [1)]	12,0	11,7	11,9	12,4	13,1	13,9	15,0	14,8	1,9	0,9	2,8
EU10 [1)]	10,9	9,8	9,3	9,6	9,9	10,2	11,6	13,0	-0,7	2,8	2,1
EU12 [1)]	12,0	11,7	11,9	12,4	13,1	13,9	15,0	14,8	1,9	1,0	2,9
EU25 [1)]	11,9	11,6	11,7	12,2	12,8	13,6	14,7	14,7	1,6	1,1	2,7

1) excluding countries which have not provided information

Table 3-23 Higher interest rate scenario: total assets in pension schemes as a share of GDP between 2004 and 2050

All pensions, assets as % of GDP									Change	Change	Change
Country	2004	2010	2015	2020	2025	2030	2040	2050	2004-2030	2030-2050	2004-2050
BE	4,4	7,5	14,2	17,9	16,2	5,4			1,0		
CZ	0,3	3,6	7,2	10,6	12,4	11,4			11,1		
DK											
DE	0,1	0,4	0,9								
EE	2,8	9,4	16,5	26,8	40,3	54,7	84,6	111,9	51,9	57,2	109,1
GR											
ES											
FR	1,2	2,1	3,1	4,5	3,9	3,3	1,8	0,0	2,1	-3,3	-1,2
IE											
IT											
CY											
LV	0,3	13,1	26,6	39,8	51,6	62,8	78,7	83,5	62,4	20,7	83,2
LT	0,3	4,4	9,0	14,9	22,4	30,8	47,1	61,1	30,5	30,4	60,8
LU	23,6	33,2	40,7	44,6	40,5	27,2			3,5		
HU	4,0	13,7	23,3	34,1	45,3	55,9	77,6	84,4	52,0	28,5	80,4
MT											
NL	135,5	152,1	165,6	180,8	196,1	208,1	212,9	211,2	72,5	3,1	75,7
AT											
PL	7,2	16,6	25,8	36,6	47,3	57,8	81,4	101,0	50,6	43,2	93,8
PT	4,3	4,2									
SI	1,4	5,5	9,6	13,9	18,3	22,6	30,1	35,9	21,3	13,3	34,5
SK		7,2	13,3	20,2	27,2	34,8	52,0	67,3	34,8	32,5	67,3
FI	52,4	62,1	67,8	72,8	77,0	80,5	84,9	88,8	28,1	8,3	36,4
SE	38,7	55,5	65,1	73,0	79,2	84,5	84,1	78,2	45,8	-6,3	39,5
UK											

Table 3-24 Higher interest rate scenario: contributions to public pension schemes as a share of public pensions

Public pensions, contributions / gross pensions									Change	Change	Change
Country	**2004**	**2010**	**2015**	**2020**	**2025**	**2030**	**2040**	**2050**	**2004-2030**	**2030-2050**	**2004-2050**
BE											
CZ	105	108	109	105	100	93	73	63	-12	-30	-42
DK											
DE	68	69	66	67	68	68	68	68	0	0	0
EE	98	97	109	119	125	132	139	146	33	14	47
GR											
ES											
FR	100	99	98	94	92	90	86	87	-10	-3	-13
IE	76	65	57	52	46	43	36	30	-34	-12	-46
IT	72	74	75	74	72	68	66	72	-3	4	1
CY	80	80	79	73	67	59	49	36	-21	-23	-44
LV	104	124	125	115	104	97	91	97	-7	1	-7
LT	101	96	94	87	78	75	75	72	-25	-3	-29
LU	99	102	93	85	74	67	59	58	-32	-9	-41
HU	74	61	58	52	51	50	43	40	-25	-9	-34
MT	96	77	66	58	53	52	50	47	-43	-5	-48
NL	88	84	77	71	66	61	57	59	-27	-2	-29
AT	67	71	71	69	65	62	64	70	-5	8	3
PL	55	70	82	83	84	87	93	100	32	13	45
PT	95	88	78	68	64	59	49	44	-36	-14	-50
SI	85	91	90	86	80	74	63	58	-10	-16	-27
SK	90	75	75	69	64	61	56	49	-29	-12	-41
FI	85	79	78	77	76	75	76	75	-10	0	-10
SE	72	74	72	71	69	66	61	63	-6	-3	-10
UK	87	90	91	90	86	80	76	73	-7	-7	-14
EU15 [1)]	80	82	80	79	76	74	71	72	-7	-2	-8
EU10 [1)]	71	78	83	80	78	77	71	68	6	-9	-3
EU12 [1)]	80	81	79	77	75	73	71	72	-7	-1	-8
EU25 [1)]	80	81	80	79	77	74	71	72	-6	-2	-8

1) excluding countries which have not provided data

Table 3-25 Lower interest rate scenario: gross public pension expenditure as a share of GDP between 2004 and 2050

Public pensions, gross as % of GDP									Change	Change	Change
Country	2004	2010	2015	2020	2025	2030	2040	2050	2004-2030	2030-2050	2004-2050
BE	10,4	10,4	11,0	12,1	13,4	14,7	15,7	15,5	4,3	0,8	5,1
CZ	8,5	8,2	8,2	8,4	8,9	9,6	12,2	14,0	1,1	4,5	5,6
DK	9,5	10,1	10,8	11,3	12,0	12,8	13,5	12,8	3,3	0,0	3,3
DE	11,4	10,5	10,5	11,0	11,6	12,3	12,8	13,1	0,9	0,8	1,7
EE	6,7	6,8	6,0	5,4	5,1	4,7	4,4	4,2	-1,9	-0,5	-2,5
GR	:	:	:	:	:	:	:	:	:	:	:
ES	8,6	8,9	8,8	9,3	10,4	11,8	15,2	15,7	3,3	3,9	7,1
FR	12,8	12,9	13,2	13,7	14,0	14,3	15,0	14,8	1,5	0,5	2,0
IE	4,7	5,2	5,9	6,5	7,2	7,9	9,3	11,1	3,1	3,2	6,4
IT	14,2	14,0	13,8	14,0	14,4	15,0	15,9	14,7	0,8	-0,4	0,4
CY	6,9	8,0	8,8	9,9	10,8	12,2	15,0	19,8	5,3	7,6	12,9
LV	6,8	4,9	4,6	4,9	5,3	5,6	5,9	5,6	-1,2	-0,1	-1,2
LT	6,7	6,6	6,6	7,0	7,6	7,9	8,2	8,6	1,2	0,7	1,8
LU	10,0	9,8	10,9	11,9	13,7	15,0	17,0	17,4	5,0	2,4	7,4
HU	10,4	11,1	11,6	12,5	13,0	13,5	16,0	17,1	3,1	3,7	6,7
MT	7,4	8,8	9,8	10,2	10,0	9,1	7,9	7,0	1,7	-2,1	-0,4
NL	7,7	7,6	8,3	9,0	9,7	10,7	11,7	11,2	2,9	0,6	3,5
AT	13,4	12,8	12,7	12,8	13,5	14,0	13,4	12,2	0,6	-1,7	-1,2
PL	13,9	11,3	9,8	9,7	9,5	9,2	8,7	8,0	-4,7	-1,2	-5,9
PT	11,1	11,9	12,6	14,1	15,0	16,0	18,8	20,8	4,9	4,8	9,7
SI	11,0	11,1	11,6	12,3	13,3	14,4	16,8	18,3	3,4	3,9	7,3
SK	7,2	6,7	6,6	7,0	7,3	7,7	8,2	9,0	0,5	1,3	1,8
FI	10,7	11,2	12,0	12,9	13,5	13,9	13,8	13,6	3,3	-0,3	3,0
SE	10,6	10,1	10,3	10,4	10,6	11,0	11,4	11,0	0,3	0,0	0,3
UK	6,6	6,6	6,7	6,9	7,3	7,9	8,4	8,6	1,3	0,7	2,0
EU15 [1)]	10,6	10,4	10,5	10,8	11,4	12,1	12,9	12,9	1,5	0,8	2,3
EU10 [1)]	10,9	9,8	9,2	9,5	9,7	9,8	10,6	11,2	-1,1	1,3	0,3
EU12 [1)]	11,5	11,3	11,4	11,8	12,5	13,2	14,2	14,1	1,6	0,9	2,6
EU25 [1)]	10,6	10,3	10,4	10,7	11,3	11,9	12,8	12,7	1,3	0,8	2,1

1) excluding Greece

Table 3-26 Lower interest rate scenario: gross total pension expenditure as a share of GDP between 2004 and 2050

Total pension expenditure, gross as % of GDP									Change	Change	Change
Country	2004	2010	2015	2020	2025	2030	2040	2050	2004-2030	2030-2050	2004-2050
BE	10,4	10,4	11,0	12,1	13,4	14,7	15,7	15,5	4,3	0,8	5,1
CZ	8,5	8,2	8,2	8,4	8,9	9,6	12,2	14,0	1,1	4,5	5,6
DK											
DE	11,4	10,5	10,5	11,0	11,6	12,3	12,8	13,1	0,9	0,8	1,7
EE	6,7	6,8	6,0	5,6	5,4	5,2	5,4	6,0	-1,5	0,9	-0,6
GR											
ES	8,6	8,9	8,8	9,3	10,4	11,8	15,2	15,7	3,3	3,9	7,1
FR	12,8	12,9	13,2	13,7	14,0	14,3	15,0	14,8	1,5	0,5	2,0
IE											
IT	14,2	14,0	13,8	14,0	14,4	15,0	15,9	14,7	0,8	-0,4	0,4
CY	6,9	8,0	8,8	9,9	10,8	12,2	15,0	19,8	5,3	7,6	12,9
LV	6,8	4,9	4,6	5,0	5,5	6,0	6,8	7,7	-0,9	1,7	0,9
LT	6,7	6,6	6,6	7,1	7,7	8,2	9,0	10,0	1,5	1,7	3,2
LU	10,0	9,8	10,9	11,9	13,7	15,0	17,0	17,4	5,0	2,4	7,4
HU	10,4	11,1	11,6	12,6	13,2	13,8	17,2	19,4	3,5	5,6	9,1
MT	7,4	8,8	9,8	10,2	10,0	9,1	7,9	7,0	1,7	-2,1	-0,4
NL	12,4	12,2	13,2	14,3	15,8	17,8	20,1	19,7	5,4	1,9	7,3
AT	13,4	12,8	12,7	12,8	13,5	14,0	13,4	12,2	0,6	-1,7	-1,2
PL	13,9	11,3	9,8	9,8	9,7	9,5	9,3	9,3	-4,5	-0,1	-4,6
PT	11,1	11,9	12,6	14,1	15,0	16,0	18,8	20,8	4,9	4,8	9,7
SI	11,0	11,1	11,6	12,4	13,5	14,7	17,5	19,3	3,7	4,6	8,3
SK	7,2	6,7	6,7	7,2	7,7	8,3	9,4	10,8	1,1	2,5	3,6
FI	10,7	11,2	12,0	12,9	13,5	13,9	13,8	13,6	3,3	-0,3	3,0
SE	12,9	12,4	12,7	12,9	13,1	13,6	14,0	13,2	0,6	-0,3	0,3
UK											
EU15 [1)]	12,0	11,7	11,9	12,3	13,0	13,8	14,9	14,7	1,8	0,9	2,7
EU10 [1)]	10,9	9,8	9,3	9,6	9,9	10,1	11,3	12,4	-0,8	2,3	1,5
EU12 [1)]	12,0	11,7	11,8	12,3	13,0	13,8	14,9	14,8	1,8	1,0	2,8
EU25 [1)]	11,9	11,6	11,7	12,1	12,8	13,5	14,6	14,5	1,5	1,1	2,6

1) excluding countries which have not provided data

Table 3-27 Lower interest rate scenario: total assets in pension schemes as a share of GDP between 2004 and 2050

All pensions, assets as % of GDP									Change	Change	Change
Country	2004	2010	2015	2020	2025	2030	2040	2050	2004-2030	2030-2050	2004-2050
BE	4,4	7,1	12,8	14,9	11,3						
CZ	0,3	3,4	6,5	9,2	9,8	7,7			7,4		
DK											
DE	0,1	0,4	0,8								
EE	2,8	9,3	15,2	23,9	35,1	46,8	70,3	92,2	44,0	45,4	89,4
GR											
ES											
FR	1,2	1,9	2,7	3,7	3,1	2,5	1,3	0,0	1,3	-2,5	-1,2
IE											
IT											
CY											
LV	0,3	12,7	25,2	36,3	45,3	52,7	60,4	61,4	52,3	8,7	61,1
LT	0,3	4,2	8,3	13,2	19,2	25,4	36,6	45,6	25,1	20,3	45,3
LU	23,6	30,2	34,4	34,5	26,6	10,5					
HU	4,0	12,7	20,7	29,2	37,4	44,8	59,5	64,6	40,9	19,8	60,6
MT											
NL	135,5	166,9	189,2	211,4	235,2	256,1	275,9	284,3	120,6	28,2	148,8
AT											
PL	6,9	15,1	22,5	30,7	38,4	45,4	60,4	72,3	38,4	27,0	65,4
PT	4,3	3,8									
SI	1,4	5,5	9,6	13,9	18,3	22,6	30,1	35,9	21,3	13,3	34,5
SK		6,8	12,2	17,8	23,2	28,7	40,4	50,4	28,7	21,7	50,4
FI	52,4	56,6	58,2	59,3	60,1	60,4	59,9	60,0	8,0	-0,4	7,6
SE	38,6	51,5	56,6	59,8	61,4	62,3	56,2	49,4	23,7	-12,8	10,9
UK											

Table 3-28 Lower interest rate scenario: contributions to public pension schemes as a share of public pensions

Public pensions, contributions / gross pensions									Change	Change	Change
Country	**2004**	**2010**	**2015**	**2020**	**2025**	**2030**	**2040**	**2050**	**2004-2030**	**2030-2050**	**2004-2050**
BE											
CZ	105	108	109	105	100	93	73	63	-12	-30	-42
DK											
DE	68	69	66	67	68	68	68	68	0	0	0
EE	98	97	109	119	125	132	139	146	33	14	47
GR											
ES											
FR	100	99	98	94	92	90	86	87	-10	-3	-13
IE	76	65	57	52	46	43	36	30	-34	-12	-46
IT	72	74	75	74	72	68	66	72	-3	4	1
CY	80	80	79	73	67	59	49	36	-21	-23	-44
LV	104	124	125	115	104	97	91	97	-7	1	-7
LT	101	96	94	87	78	75	74	71	-26	-4	-29
LU	99	102	93	85	74	67	59	58	-32	-9	-41
HU	74	61	57	52	50	48	41	39	-26	-10	-36
MT	96	77	66	58	53	52	50	47	-43	-5	-48
NL	88	84	77	71	66	61	57	59	-27	-2	-29
AT	67	71	71	69	65	62	64	70	-5	8	3
PL	55	70	82	83	84	87	93	100	32	13	45
PT	95	88	78	68	64	59	49	44	-36	-14	-50
SI	85	91	90	86	80	74	63	58	-10	-16	-27
SK	90	75	75	69	64	61	56	49	-29	-12	-41
FI	85	81	83	83	83	83	86	87	-2	4	2
SE	72	74	72	71	70	67	64	67	-5	-1	-6
UK	87	90	91	90	86	80	76	73	-7	-7	-14
EU15 [1)]	80	82	80	79	77	74	71	72	-6	-2	-8
EU10 [1)]	72	78	83	80	78	77	71	67	5	-9	-4
EU12 [1)]	80	81	79	77	75	73	71	72	-7	-1	-7
EU25 [1)]	80	81	80	79	77	74	71	72	-6	-2	-8

1) excluding countries which have not provided information

4. METHODOLOGIES USED TO PROJECT HEALTH CARE SPENDING

4.1. Projection methodology for *pure ageing* scenario

The pure ageing scenario based on the expansion of morbidity hypothesis

In the *pure ageing* scenario, all gains in life expectancy are assumed to be spent in bad health while the number of years spent in good health remains constant. The extension of lifespan will not affect an average individual's health status at any given age, and consequently his or her age-related expenditure on health care will not change over time. One can approximate this situation by assuming that health care cost per capita remains constant in GDP per capita-adjusted terms over the whole projection period. Based on this assumption, the projection is then made in the following manner.

First, for the time horizon of the projection exercise (2004-50), the age-related expenditure profiles (showing the average health care spending per capita for each year of age (from 0 to 100 or less, according to data availability) are assumed to grow in line with the same two cost assumptions as used in the 2001 exercise, i.e. GDP per capita and GDP per worker (based on the assumptions agreed by the AWG for the 2005 budgetary projection exercise). Therefore:

$$c'_{g,a,n} = c_{g,a}\Delta Ypc_n \qquad [1]$$

where:

$c'_{g,a,n}$ is cost per capita of a person of a given gender g and age a in a given year n of the projection period adjusted to the GDP per capita growth;

$c_{g,a}$ is constant cost per capita of a person of a given gender g and age a;

ΔYpc_n is GDP per capita rate growth in year n,

$$\Delta Ypc_n = \left(\frac{Y_n}{\sum p_{g,a,n}} - \frac{Y_{n-1}}{\sum p_{g,a,n-1}}\right) \Big/ \left(\frac{Y_{n-1}}{\sum p_{g,a,n-1}}\right) \qquad [2]$$

Y_n is GDP in year n;

$p_{g,a,n}$ is the projected population of a given gender g and age a in a given year n.

Second, this unit cost for each year is multiplied by the projected population of each year of age (using the baseline population projection outlined in chapter 1)

$$S_{g,a,n} = c'_{g,a,n}\, p_{g,a,n} \qquad [3]$$

where:

$S_{g,\,a,\,n}$ is spending on health care realised by people of a given gender *g* and age *a* in a given year *n*.

Next, the resulting total health care spending is divided by the GDP projected using the rates of change agreed by the Ageing Working Group in order to obtain share of health care expenditure in GDP:

$$T_n = \frac{\sum S_{g,a,n}}{Y_n} \qquad [4]$$

where:

T_n is the share of total health care spending in GDP in a given year *n*.

4.2. Projection methodology for scenarios on health status

To capture possible changes in the health care status (morbidity) of populations over time, an additional assumption is required to run the *constant health* scenario and the *improved health* scenario. This is achieved by 'linking' changes in life expectancy to changes in morbidity (proxied by the age-related expenditure profile). In other words, for each year and for each age/gender, the age-related expenditure profile is shifted outwards – i.e. providing modified values of cost per capita, which then applied in the same manner as the *pure ageing* scenario described above. As regards the scale of the outward shift in the age-related expenditure profile:

- for the *constant health scenario*, it is directly proportional to the increase in life expectancy for each cohort;

- for the *improved health scenario*, the same outward shift is assumed multiplied by a factor of 2.

First, the change in life expectancy in relation to the base year is found for each year of the projections (for example, total life expectancy for a 50-year-old man in Austria is expected to increase from 29.15 years in 2004 to 33.07 years in 2030, thus by 3.92 years)[1]:

$$\Delta e_{g,a,n} = e_{g,a,n} - e_{g,a,2004} \qquad [5]$$

where:

[1] In the *constant health* scenario the total number of years spent in bad health during a person's life time is assumed to remain the same while life expectancy increases, so the morbidity rate must evolve in line with mortality rate for each age cohort. Thus, if between time *t* and *t+1,* total life expectancy increases by *n* years for a cohort of age *x*, healthy life expectancy for that very same age cohort must also increase by *n* years in order for the dynamic equilibrium hypothesis to be valid. If healthy life expectancy increases by *n* years, then the health status (and consequently health care spending) of this cohort of age *x* at time *t+1* will be the same as the health status (and health care spending) of cohort of age *x-n* at time *t*.

$e_{g,\,a,\,n}$ is life expectancy of an average person of a given gender *g* and age *a* in year *n*.

Second, for each year of projection, the respective reference age on the original age profile curve is obtained by subtracting that change from the concerned age cohort[2]. This is done only for those sections of the age-profile where the cost per capita is growing[3] (for example for the age cohort of 50 years-old, the value of cost per capita for that age in 2030 will be the same as the value of cost per capita for the age cohort of 50-3.92 = 46.08 ≈ 46.1 years in 2004).

Thirdly, the precise value of cost per capita assigned to that reference age is picked up:

$$c_{g,a,n} = c_{g,a-\Delta e_{g,a,n},2004} \qquad [6]$$

where:

$c_{g,\,a,\,n}$ is cost per capita assigned to a person of a given gender *g* and age *a* in a given year *n* of the projection period;

$c_{g,\,a\text{-}\Delta eg,a,n,\,2004}$ is cost per capita assigned to a person of a given gender and age $a\text{-}\Delta e_{g,a,n}$ (specified with a precision to a decimal part of a year) in the base year (2004).

Fourthly, the resulting value of cost per capita serves then as an input value to the basic calculations presented earlier in equations [1] – [4].

The procedure described above is also used to run the projections according to *dynamic equilibrium* scenario. In the *morbidity compression* scenario, the shift of the age profile is twice as large as in dynamic equilibrium scenario. Thus, equation [6] may be rewritten in the following way:

$$c_{g,a,n} = c_{g,a-2\Delta e_{g,a,n},2004} \qquad [7]$$

---

[2] The changes in life expectancy and thus shifts in of the age profile from one year to another are sometimes very small (in a range of a tenth part of a year). However, the data gathered by the Member States does not provide detailed information on costs per capita by single year of age (the most detailed item available is a 5-year average), so an additional calculation needs to be performed. To solve this problem, the intermediate values can be obtained by simple extrapolation/trend-smoothening method from the existing average figures. This way it is possible to assign a concrete value of cost per capita to each tenth part of a year of age.

[3] For the young and the oldest old the reference age remains the same over the whole projection period

4.3. The projection methodology for the *death-related costs* scenario

The methodology to calculate spending on health care taking into account the number of remaining years if life is a further improvement of the methodology used in the pure demographic scenario. The difference lies in the way the unit cost of health care is calculated.

In the death-related costs scenario, the population of each gender and year of age is divided into subgroups according to the number of remaining years of life using mortality rate as a weighting factor (e.g. number of people aged *n* expected to die within two years from year *t* is calculated as population aged *n* in year *t* multiplied by the probability of dying within two years which is expressed as: probability of surviving year *t* by persons aged *n* times probability of surviving year *t+1* by persons aged *n+1* times probability of dying in year *t+2* by persons aged *n+2*).

Each subgroup is assigned a different unit cost, being an adjustment of the 'normal' unit cost[4] with the ratio of health care expenditure borne by a person of a given age and gender who is in her terminal phase of life to health care expenditure borne by a survivor. The number of people in each subgroup is thus multiplied by its respective cost per capita which gives total spending of each subgroup and the sum of total spending borne by the subgroups is total spending on health care in a given year.

In a formalised way, the methodology can be presented as follows.

First, ***the total population of each gender and age is divided into subgroups, according to the number of remaining years of life***. Consequently, there are *z* subgroups of decedents (those who are going to die within 0, or 1, or 2, …, or *z* years) and one group of survivors (those who are going to survive the z^{th} year). In order to obtain the size of each subgroup, the probability of dying in each gender, age and year of projection period are calculated.

The probability that a person of gender *g* and age *a* will die in the x^{th} year after a given year *n* can be expressed by an equation:

$$d_{g,a,n,x} = \prod_{i=0}^{x-1}(1 - M_{g,a+i,n+i}) \cdot M_{g,a+x,n+x} \qquad [8]$$

where:

$M_{g,a+i,n+i}$ is mortality rate of people of gender *g* aged *a+i* in the i^{th} year after given year *n*

and:

$x \in (0,1,2...z)$

where *z* is the highest number of years considered as time 'close to death' and for which data on costs is available.

---

[4] As in the age-related expenditure profile used in approach I

Analogically, the probability that a person of gender *g* and age *a* in a given year *n* will survive z^{th} year can be expressed in a following way:

$$s_{g,a,n} = \prod_{i=0}^{z} (1 - M_{g,a+i,n+i}) \qquad [9]$$

So, number of persons of a given gender *g* and age *a* who are going to die in x^{th} year from a given year *n* can be expressed in the following way:

$$Nd_{g,a,n,x} = d_{g,a,n,x} \cdot p_{g,a,n} \qquad [10]$$

where:

$p_{g,a,n}$ is projected population of a given gender *g* and age *a* in a given year *n*

Analogically, the number of those who are going to survive x^{th} year:

$$Ns_{g,a,n} = s_{g,a,n} \cdot p_{g,a,n} \qquad [11]$$

Second, ***the unit health care cost of each person in a population is calculated***. Contrary to approach I, per capita cost is not the same for all the individuals, but varies depending on whether a person is in her terminal phase of life. One must find the cost per capita of a person of a given gender *g* and age *a*, who is going to die within *x* years' time from a given year *n*, as well as the cost per capita of a person of the same gender *g* and age *a* surviving the x^{th} year.

The ratio between the two costs is taken as the input data from the background studies (see tables in annex 1) and may be expressed as:

$$f_{g,a,x} = \frac{cd_{g,a,x}}{cs_{g,a}} \qquad [12]$$

where:

$cd_{g,a,x}$ is health care cost per capita of a person of a given gender *g* and age *a* dying in the x^{th} year from the current year;

$cs_{g,a}$ is health care cost per capita of a person of the same gender *g* and age *a* surviving the period considered as time 'close to death' from the current year.

To obtain the two costs, one must use the average cost per capita of a person of a given gender *g* and age *a* as given in the 'age-related expenditure profiles' provided to the AWG by

the Member States. It may be defined as an average of the per capita costs borne by all the subgroups of decedents and survivors, weighted by the size of each subgroup:

$$c_{g,a} = \frac{\sum_{x=0}^{z} cd_{g,a,x} \cdot Nd_{g,a,x,2004} + cs_{g,a} \cdot Ns_{g,a,2004}}{p_{g,a,2004}} \qquad [13]$$

It must be borne in mind that the unit costs of decedents and survivors are calculated as for the base year 2004 (thus index *2004* used in the equations) and are kept constant over the whole projection period.

Substituting for $cd_{g,a,x}$ using [12], one gets:

$$c_{g,a} = \frac{\sum_{x=0}^{z} f_{g,a,x} \cdot cs_{g,a} \cdot Nd_{g,a,x,2004} + cs_{g,a} \cdot Ns_{g,a,2004}}{p_{g,a,2004}} \qquad [14]$$

or:

$$c_{g,a} = \frac{cs_{g,a}\left(\sum_{x=0}^{z} f_{g,a,x} \cdot Nd_{g,a,x,2004} + Ns_{g,a,2004}\right)}{p_{g,a,2004}} \qquad [14a]$$

This way, both $cs_{g,a}$ and – coming back to equation [12] - $cd_{g,a,x}$ can be calculated:

$$cs_{g,a} = \frac{c_{g,a} \cdot p_{g,a,2004}}{\sum_{x=0}^{z} f_{g,a,x} \cdot Nd_{g,a,x,2004} + Ns_{g,a,2004}} \qquad [15]$$

$$cd_{g,a,x} = f_{g,a,x} \cdot \frac{c_{g,a} \cdot p_{g,a,2004}}{\sum_{x=0}^{z} f_{g,a,x} \cdot Nd_{g,a,x,2004} + Ns_{g,a,2004}} \qquad [16]$$

As in *pure ageing* scenario and scenarios on health status, for the time horizon of the projection exercise (2004-50) the age-related expenditure profiles (showing the average health care spending per capita for each year of age (from 0 to 100 or less, according to data availability) are assumed to grow in line with the same two cost assumptions as used in the

2001 exercise, i.e. GDP per capita and GDP per worker (based on the assumptions agreed by the AWG for the 2005 budgetary projection exercise). Therefore:

$$cd'_{g,a,x,n} = cd_{g,a,x,n} \cdot rYpc_n \qquad [17]$$

where:

$cd'_{g,\,a,\,x,\,n}$ is cost per capita of a person of a given gender *g* and age *a* who is going to die within *x* years, in a given year *n* of the projection period adjusted to the GDP per capita growth;

$rYpc_n$ is GDP per capita rate growth in year *n*,

$$rYpc_n = \left(\frac{Y_n}{\sum p_{g,a,n}} - \frac{Y_{n-1}}{\sum p_{g,a,n-1}} \right) / \left(\frac{Y_{n-1}}{\sum p_{g,a,n-1}} \right) \qquad [18]$$

Y_n is GDP in year n;

$p_{g,\,a,\,n}$ is the projected population of a given gender *g* and age *a* in a given year *n*.

The same procedure applies to construct $cs'_{g,\,a,\,n}$ on the basis of $cs_{g,\,a\,,n}$, i.e. to adjust to the growth of GDP per capita the per capita cost of the subgroup of survivors.

Third, ***by multiplying the size of each subgroup by its respective cost per capita, the total cost can be calculated***. Total expenditure on health care borne by those of a given gender *g* and age *a*, who are going to die within *x* years' time from a given year *n* can be expressed in the following way:

$$ed_{g,a,x,n} = Nd_{g,a,x,n} \cdot cd_{g,a,x,n} \qquad [19]$$

and, analogically, total expenditure of those of gender *g* and age *a* who are going to survive z^{th} year:

$$es_{g,a,n} = Ns_{g,a,n} \cdot cs_{g,a,n} \qquad [20]$$

Adding total expenditures of all the subgroups (those dying within *0,1,2,..., z* years time plus those surviving z^{th} year) gives total expenditure on health care borne by entire population of gender *g* and age *a* in a given year *n*:

$$E_{g,a,n} = \sum_{x=1}^{z} ed_{g,a,n,x} + es_{g,a,n} \qquad [21]$$

Finally, ***total expenditure on health care borne by entire population in a given year n expressed as a share of the country's GDP is calculated*** as follows:

$$T_n = \frac{\sum_g \sum_a E_{g,a,n}}{Y_n} \qquad [22]$$

4.4. The projection methodology for income elasticity scenario

The projections of health care spending follow similar methodology as the pure ageing scenario with a change in the way cost per capita is evolving over the projection period. Income elasticity is taken into account by replacing equation [1] by the following one:

$$c'_{g,a,n} = c_{g,a} \Delta Ypc_n \varepsilon_n \qquad [23]$$

where:

$c'_{g,a,n}$ is cost per capita of a person of a given gender g and age a in a given year n of the projection period adjusted to the GDP per capita growth;

$c_{g,a}$ is constant cost per capita of a person of a given gender g and age a;

ΔYpc_n is GDP per capita rate growth in year n;

ε_n is income elasticity of demand, converging from ε_{2004} in the base year to ε_{2050} in 2050. Therefore:

$$\varepsilon_n = \varepsilon_{2004} - (n - 2004) \cdot \frac{\varepsilon_{2004} - \varepsilon_{2050}}{2050 - 2004} \qquad [24]$$

In the specific case where income elasticity of demand converges from 1.2 in 2004 to 1 in 2050, the value will be the following

$$\varepsilon_n = 1.2 - (n - 2004) \cdot \frac{1.2 - 1}{2050 - 2004} = 1.2 - \frac{n - 2004}{230} \qquad [24a]$$

After unit cost has been calculated the following equations [3]-[4] do not change.

4.5. The projection methodology for unit costs scenario using GDP per worker instead of GDP per capita.

The only difference between this scenario and pure ageing scenario is the change in the development pattern of unit costs. GDP per capita is replaced by GDP per worker, thus equation [1] takes the following form:

$$c'_{g,a,n} = c_{g,a} \Delta Ypw_n \qquad [25]$$

where:

ΔYpw_n is GDP per worker rate growth in year n,

$$\Delta Ypw_n = \left(\frac{Y_n}{\sum w_{g,a,n}} - \frac{Y_{n-1}}{\sum w_{g,a,n-1}} \right) / \left(\frac{Y_{n-1}}{\sum w_{g,a,n-1}} \right) \quad [26]$$

$w_{g,\,a,\,n}$ is the projected number of people employed of a given gender g and age a in a given year n.

The following equations [3]-[4] do not change.

4.6. The projection methodology for high life expectancy

The methodology to project health care expenditure is the same as in the pure ageing scenario, but the input data on population and macroeconomic variables change accordingly with the assumptions on high life expectancy.

4.7. The projection methodology for EU10 cost convergence scenario

The projections of health care spending follow similar methodology as the pure ageing scenario with a change in the way cost per capita is evolving over the projection period. Real convergence between EU15 and EU10 countries is assumed by replacing equation [1] by the following one:

$$c'_{g,a,n} = c_{g,a} \Delta Ypc_n f_n \quad [27]$$

where:

$c'_{g,\,a,\,n}$ is cost per capita of a person of a given gender g and age a in a given year n of the projection period adjusted to the GDP per capita growth;

$c_{g,\,a}$ is constant cost per capita of a person of a given gender g and age a;

ΔYpc_n is GDP per capita rate growth in year n;

f_n is a hypothetical rate of growth of unweighted average EU10 unit cost (calculated in the base year) in a given year n with respect to the base year if it was to converge to unweighted average EU15 level by 2050 (calculated in the base year). Therefore:

$$f_n = (n - 2004) \cdot \frac{\overline{c_{g,a,EU15}} - \overline{c_{g,a,EU10}}}{2050 - 2004} \quad [28]$$

where:

$\overline{c_{g,a,EU15}}$ is unweighted EU15 average cost per capita of a given gender g and age a calculated in the base year;

$\overline{c_{g,a,EU10}}$ is unweighted EU10 average cost per capita of a given gender *g* and age *a* calculated in the base year.

After unit cost has been calculated the following equations [3]-[4] do not change.

4.8. The projection methodology for unit cost scenarios (*fast growth* and *extrapolation of past trends*)

4.8.1. Decomposition of unit costs

First, cost per capita for each gender, year of age and year of projection period is divided into four parts attributable to four items of expenditure, according to the share of each respective item in total public health care spending: wages and salaries of the health care staff, investment in health care technology and infrastructure, spending on pharmaceuticals, and the other factors.

$$c_{g,a,j} = c_{g,a} \cdot q_j \qquad [29]$$

where:

$c_{g,a,j}$ is part of cost per capita of a person of a given gender *g* and age *a*, attributable to the item *j* of health care expenditure;

j stands for *w* (wages and salaries), *i* (capital investment), *ph* (pharmaceuticals) or *o* (others), or, formally: $j \in (w, i, ph, o)$;

$c_{g,a}$ is constant over time cost per capita of a person of a given gender *g* and age *a*;

q_j is the share of each respective item *j* in total public health care expenditure.

According to the initial assumptions:

$$q_w + q_i + q_{ph} + q_o = 1$$

After the decomposition, each part of the unit cost develops according to a different pattern. The patterns differ across scenarios (a separate scenario for each driver of costs) and according to the chosen variant of unit cost evolution (the note presents three possible variants, although other ones are possible, depending on initial assumptions). The general rule is that in the broad framework of each variant of unit cost evolution, separate impact of a given evolution in wages, investment and pharmaceutical spending is calculated.

Calculations are run according to two different variants of the development of unit costs: *fast growth variant* and *extrapolation variant*.

4.8.2. Fast cost growth variant

The projections in the framework of the *fast growth variant* can be expressed as follows. The part attributable to the item whose impact on the health care spending is analysed (wages and

salaries, capital investment and pharmaceutical spending - each component separately or all together) evolves according to the following rule:

$$c_{g,a,j,n} = c_{g,a,j,n-1} \cdot r_{j,n} \qquad [30]$$

where:

$c_{g,a,j,n}$ is part of cost per capita of a person of a given gender g and age a in a given year n of the projection period, attributable to the concrete item j of health care expenditure;

$r_{j,n}$ is the rate of change in the part of cost per capita attributable to the concrete item j of health care expenditure in a given year n. It is calculated according to the following method:

$$r_{j,n} = \begin{cases} rYpc_n + 0.01 & for \quad 2005 \le n < 2015 \\ rYpc_n & for \quad n \ge 2015 \end{cases} \qquad [31]$$

where:

$rYpc_n$ is GDP per capita rate of growth in year n

At the same time, the parts attributable to the three remaining items (others than the one whose impact is analysed) follow simple GDP per capita development path:

$$c_{g,a,j,n} = c_{g,a,j,n-1} \cdot rYpc_n \qquad [32]$$

where:

$c_{g,a,j,n}$ is part of cost per capita of a person of a given gender g and age a in a given year n of the projection period, attributable to the *other* items of health care expenditure, $j \in (w, i, ph, o)$;

$rYpc_n$ is GDP per capita rate of growth in year n.

4.8.3. The extrapolation of past trends variant

In the *extrapolation variant*, the three components of unit cost develop according to the same rule, but the rate of change in the base year differs according to the components.

The development pattern is the following:

$$c_{g,a,j,n} = c_{g,a,j,n-1} \cdot r_{j,n} \qquad [33]$$

where:

$c_{g,a,j,n}$ is part of cost per capita of a person of a given gender g and age a in a given year n of the projection period, attributable to the concrete item j of health care expenditure;

$r_{j\,,\,n}$ is the rate of change in the part of cost per capita attributable to the concrete item j of health care expenditure in a given year n. It is calculated according to the following method:

$$r_{j,n} = \begin{cases} r_{j,2004} & for \quad n = 2005 \\ r_{j,n-1} + \left(rYpc_{2015} - r_{j,2004}\right)/10 & for \quad 2005 < n < 2015 \\ rYpc_n & for \quad n \geq 2015 \end{cases} \qquad [34]$$

$rYpc_n$ is GDP per capita rate of growth in year n;

$r_{j,2004}$ is rate of growth of a specific component in the base year. It differs according to the item and equals:

$$r_{j,2004} = \begin{cases} \dfrac{\sum_{n=g-b}^{g} r_{w,n}}{b} & for \quad j = w \\ R_{2004} & for \quad j = i \\ \dfrac{\sum_{n=h-c}^{h} r_{ph,n}}{c} & for \quad j = ph \end{cases} \qquad [35]$$

where:

g is the year of the most recent past observation of rate of change in wages of health care sector staff;

b is the number of available past observations of rate of change in wages of health care sector staff;

R_{2004} is the long term nominal interest rate in year 2004;

h is the year of the most recent past observation of rate of change of pharmaceuticals' prices;

c is the number of available past observations of rate of change of pharmaceuticals' prices.

While the item in question evolves according to the presented methodology, the part of per capita cost attributable to three remaining items of spending (others than the one whose impact is analysed) evolves in line with GDP per capita rate of growth:

$$c_{g,a,j,n} = c_{g,a,j,n-1} \cdot rYpc_n \qquad [36]$$

where:

$c_{g,\,a,\,j,\,n}$ is part of cost per capita of a person of a given gender *g* and age *a* in a given year *n* of the projection period, attributable to the *other* factors, $j \in (w,\ i,\ ph,\ o)$;

$rYpc_n$ is GDP per capita rate of growth in year *n*.

4.8.4. Re-aggregation of the unit cost and calculation of the total cost

After having calculated the value of each component for each year of the projection period, the four respective components are added to obtain re-aggregated total unit cost, different for each of the three scenarios:

$$c'_{g,a,n} = \sum_{j \in (w,i,ph,o)} c_{g,a,j,n} \qquad [37]$$

$c'_{g,\,a,\,n}$ is cost per capita of a person of a given gender *g* and age *a* in a given year *n* of the projection period, adjusted for a combination of different patterns of development in spending on three components of total cost.

This total unit cost is then multiplied by the population of each gender and year of age in each year of the projection period:

$$S_{g,a,n} = c'_{g,a,n} \cdot p_{g,a,n} \qquad [38]$$

where:

$S_{g,\,a,\,n}$ is spending on health care realised by people of a given gender *g* and age *a* in a given year *n*;

$p_{g,\,a,\,n}$ is the projected population of a given gender *g* and age *a* in a given year *n*.

By adding spending for all genders and years of age total spending on health care in each year of the projection period is calculated which, may be further expressed as a share of GDP:

$$T_n = \frac{\sum_{g,a} S_{g,a,n}}{Y_n} \qquad [39]$$

where:

T_n is the share of total health care spending in GDP in a given year *n*;

Y_n is GDP in a given year *n*.

5. DATA INPUTS TO THE HEALTH CARE PROJECTIONS

5.1. Age-related expenditure profiles

Data comes from a variety of non-comparable national sources

Table 5-1 summarises the age-related expenditure profiles which have been collected through the AWG on the basis of a questionnaire circulated by DG ECFIN. The main features of the data can be summarised as follows:

- 18 Member States have provided profiles as part of the 2005 budgetary projection exercise. Most of the data reported for the 2005 budgetary projection exercise was collected since 2000;

- profiles are available for an additional 3 countries from the 2001 budgetary projection exercise but who did not report data for this projection exercise. However, this data is quite old: EL 1995, FR 1997, PT 1999;

- profiles are not available for 4 countries;

For the most part, the age-related expenditure profiles do not cover all areas of public spending on health care, but rather acute health care. More detailed information on the coverage of data is generally not available.

A breakdown of data by gender is available for all countries but MT and the UK;

The data for most countries is grouped into 5-year cohorts. Some countries have provided the data on spending disaggregated into 1-year cohorts.

When making budgetary projections based on age-related expenditure profiles, the following data has been used:

- profiles reported for the 2005 exercise have been used for 18 Member States (BE, CZ, DE, DK, ES, IT, LV, LT, LU, MT, NL, AT, PL, SI, SK, FI, SE, UK);

- profiles reported for the 2001 exercise have been used for 3 Member States (FR, EL, PT);

- for 4 countries where no profiles exist, an average EU10 or EU15 profile was used (EE, IE, CY, HU)

Table 5-1 Overview of available age-related expenditure profiles on health care

Country	Availability of data		Year when most recent data was collected	Description of data	Gender and cohort classification	Source	Data used in projection exercise
	2001	2005					
BE	yes	yes	2001	Estimates of per capita public spending on acute health care based on a sample covering most public acute care expenditures and approximately 50% of the insured population	Gender, single year of age, 5-year cohorts, decedent/survivor status	Alliance Nationale des Mutualités Chrétiennes (ANMC) and Federal Planning Bureau (FPB).	2005 national data
CZ	no	yes	2003	Average health care costs	Gender, 5-year cohorts, decedent/survivor status	General Health Insurance Company of the Czech Republic	2005 national data
DK	yes	yes	2003	Individual register-based data	Gender, single year of age, decedent/survivor status	Ministry of Finance, Denmark	2001 national data
DE	yes	no	2000	Empirical data on the breakdown of acute health care expenditure by age and sex are gathered (since 1998) for all those covered by statutory health insurance	Gender, 5-year cohorts	?	2001 national data
EE	no	no	-	-	-	-	EU10 average
EL	yes	no	1995	Annual amount of the hospital days for the people that are insured under IKA scheme used as a proxy variable for the estimation of the age-related profiles	Gender, age cohorts: 0-14, 15-19, 20-54, 55-64, 65-79, 80+	?	2001 national data

ES	yes	yes	2003	Per capita health expenditure on acute care	Gender, 5-year age cohorts	Instituto de Estudios Fiscales	2005 national data
FR	yes	no	1997	Per capita health expenditure on acute care	Gender, 10-years age cohorts	Household survey on health and health care consumption and administrative files from the three main sickness funds	2001 national data
IE	no	no	-	-	-	-	EU15 average
IT	yes	yes	2004	Public spending on acute health care divided by resident population.	Gender, 5-year age cohorts	Istat - Popolazione residente al 2004; Ministero della Salute - Rapporto annuale sulle attività di ricovero ospedaliero – 2003; et al.	2005 national data
CY	no	no	-	-	-	-	EU15 average
LV	no	yes	2003	Per capita public spending on acute health care	Gender, single year of age, 5-year cohorts	Central Statistical Bureau, Health Compulsory Insurance State Agency, Directorate of Social Services of the Ministry of Welfare, estimations of the Ministry of Finances	2005 National data
LT	no	yes	2004	Estimates of per capita public spending on acute health care	Gender, single year of age	State Patient Fund, State Social Insurance Fund Board	2005 National data
LU	no	yes	2003	Public expenditure per capita by social security and government: health insurance and accident insurance	Gender, 5-year cohorts	Inspection Générale de la Securité Sociale	2005 National data
HU	no	no	-	-	-	-	EU10 average
MT	no	yes	2003	Per capita public spending on acute health	5-year cohorts	Ministry of Health, the Elderly	2005 National data

				care		and Community Care (MHEC)	
NL	yes	yes	1999	Per capita expenditure on acute health care	Gender, single year of age	RIVM (Johan Polder)	2005 National data
AT	yes	yes	2003	Total public expenditure on acute care including: acute care in public hospitals and private hospitals; and social health insurance expenditure on physician services, dental treatment, pharmaceuticals medical appliances and other items	Gender, single year of age, 5-year age groups, decedent/survivor status	?	2005 National data
PL	no	yes	2004	Public expenditure on health care in Euro per insured person, including ambulatory specialist care, hospital care, and other items	Gender, single year of age, decedent/survivor status	National Health Fund	2005 National data
PT	yes	no	1999	Per capita health expenditure on acute care	Gender, age cohorts: 0, 1-4, 5-11, 12-19, 20-29, 30-39, 40-54, 55-64, 65-74, 75+	Gouveia, M. (2001), "Financiamento e Regras para Acordos do Ministério da Saúde com Subsistemas", Relatório Final, Centro de Estudos Aplicados, Universidade Católica Portuguesa	2001 National data
SI	no	yes	2004	Total public expenditure per capita including: primary care, specialist ambulatory care, hospital care, drugs and medical instruments, aministrative costs, sickness benefits, other expenditures, capital expenditures, other programs and spending at municipalities level	Gender, 5-year age cohorts	?	2005 National data
SK	no	yes	2004	Average annual expenditure per insured person	Gender, 5-year age cohorts	Statistical Office of the Slovak Republic	2005 National data

FI	yes	yes	2003	Per capita public spending on acute health care	Gender, 5-year age cohorts	Hujanen, Mikkola, Pekurinen, Häkkinen, Teitto (2004), "Terveydenhuollonmenot ikä- ja sukupuoliryhmittäin vuonna 2002", National research and development centre for welfare and health	2005 National data
SE	yes	yes	2003	Per capita public spending on acute health care	Gender, single year of age	?	2005 National data
UK	yes	yes	2002/03	Estimated per capita expenditure on acute health care	Age cohorts: 0-4, 5-15, 16-44, 45-64, 65-69, 70-74, 75-79, 80-84, 85+	National Health Service	2005 National data

5.2. Projected changes in life expectancy

Scenario II assesses the impact of potential changes in the health care status of elderly citizens. Changes in the health care status of the elderly over the projection time horizon will be linked to the projected changes in life expectancy by age and gender. In the *constant health* scenario (II) the age-related expenditure profile will be shifted outwards in a one-to-one proportion with the projected age and gender specific change in life expectancy.

Table 5-2 and Table 5-3 below present the projected increase in life expectancy persons at 65, 70, 75 and 80 between 2004 and 2025 and 2050 based on the baseline AWG population scenario for males and females respectively. There are significant gains in life expectancy at older ages. Not surprisingly, they are slightly higher for males than females, and also for EU10 compared with EU15 countries.

Table 5-2 Projected changes in life expectancy for elderly cohorts - *males*

Age	65				75				85			
	Life expectancy in 2004	**Change by 2025**	**Change by 2050**	***% change 2004-2050***	**Life expectancy in 2004**	**Change by 2025**	**Change by 2050**	***% change 2004-2050***	**Life expectancy in 2004**	**Change by 2025**	**Change by 2050**	***% change 2004-2050***
BE	15,8	2,8	4,5	*28,2*	9,2	1,8	2,8	*30,3*	4,7	0,6	0,9	*19,1*
CZ	13,8	2,7	4,6	*33,2*	8,2	1,7	3,0	*37,3*	4,3	0,5	1,2	*28,1*
DK	15,2	2,2	4,1	*26,8*	9,0	1,5	2,9	*32,5*	4,8	0,9	1,8	*37,9*
DE	16,1	2,3	4,0	*24,6*	9,8	1,7	2,8	*29,0*	5,4	0,7	1,2	*21,2*
EE	12,4	2,3	4,9	*39,2*	8,0	1,7	3,4	*43,0*	4,7	0,8	1,6	*33,6*
EL	16,4	1,7	3,3	*20,0*	9,6	1,1	2,2	*23,5*	4,6	0,6	1,4	*30,6*
ES	16,7	2,1	3,3	*20,0*	10,0	1,4	2,2	*21,8*	5,3	0,5	0,7	*13,7*
FR	17,0	2,2	3,6	*21,0*	10,4	1,5	2,3	*22,2*	5,4	0,4	0,6	*10,6*
IE	15,4	2,8	4,8	*31,4*	9,0	2,0	3,4	*38,5*	5,0	1,3	2,4	*47,6*
IT	16,7	2,1	3,7	*22,2*	10,0	1,3	2,4	*24,1*	5,3	0,5	1,1	*20,6*
CY	16,2	2,2	3,7	*23,1*	9,7	1,6	2,8	*28,7*	5,3	0,7	1,3	*24,3*
LV	12,3	2,6	5,1	*41,8*	7,9	2,0	3,7	*47,3*	4,5	0,9	1,6	*35,9*
LT	13,3	2,1	4,6	*34,9*	8,4	1,5	3,2	*38,5*	4,9	0,6	1,4	*27,7*
LU	15,7	2,5	4,2	*26,6*	9,4	1,6	2,8	*29,9*	4,7	0,7	1,3	*26,8*
HU	13,1	3,1	5,5	*42,4*	8,2	2,1	3,9	*47,4*	4,7	1,0	1,7	*36,6*
MT	15,2	2,4	4,0	*26,5*	9,3	1,7	2,9	*31,5*	5,1	0,7	1,4	*26,6*
NL	15,4	1,8	3,5	*22,7*	8,9	1,2	2,6	*28,7*	4,6	0,7	1,8	*38,3*
AT	16,2	2,4	4,2	*26,1*	9,6	1,7	3,1	*32,0*	4,9	0,8	1,3	*27,6*
PL	13,7	2,9	5,1	*36,8*	8,6	1,9	3,5	*40,4*	4,8	0,8	1,5	*30,4*
PT	15,6	2,5	4,3	*27,4*	9,1	1,6	2,8	*30,2*	:	:	:	*:*
SI	14,3	2,7	4,4	*31,0*	8,7	1,8	3,0	*34,6*	4,7	0,6	1,3	*27,7*
SK	12,9	2,5	4,6	*35,9*	7,9	1,5	3,0	*38,0*	4,5	0,5	1,3	*28,3*
FI	15,7	2,7	4,3	*27,2*	9,2	1,6	2,6	*28,6*	4,8	0,6	1,2	*24,3*
SE	16,7	1,9	3,3	*19,7*	9,8	1,3	2,4	*24,9*	4,8	0,6	1,4	*29,5*
UK	16,1	2,6	4,3	*26,7*	9,6	1,7	2,9	*30,3*	:	:	:	*:*
EU15*	16,0	2,3	3,9	*24,6*	9,5	1,5	2,7	*28,3*	4,9	0,7	1,3	*26,4*
EU10*	13,7	2,5	4,7	*34,0*	8,5	1,7	3,2	*38,3*	4,8	0,7	1,4	*29,8*
EU25*	15,1	2,4	4,2	*28,0*	9,1	1,6	2,9	*32,0*	4,9	0,7	1,4	*27,9*

*** unweighted average**

Table 5-3 Projected changes in life expectancy for elderly cohorts - *females*

Age	65				75				85			
	Life expectancy in 2004	Change by 2025	Change by 2050	*% change 2004-2050*	Life expectancy in 2004	Change by 2025	Change by 2050	*% change 2004-2050*	Life expectancy in 2004	Change by 2025	Change by 2050	*% change 2004-2050*
BE	19,7	2,9	4,4	*22,2*	11,8	2,2	3,3	*28,0*	5,9	1,1	1,6	*27,9*
CZ	17,0	2,3	3,9	*22,6*	9,8	1,6	2,9	*29,1*	4,9	0,8	1,5	*29,7*
DK	18,0	2,0	3,9	*21,7*	11,1	1,7	3,4	*30,7*	5,8	1,3	2,7	*45,7*
DE	19,5	2,4	3,9	*19,9*	11,8	1,8	3,0	*25,5*	6,0	0,9	1,5	*25,4*
EE	16,9	2,2	4,1	*24,1*	9,9	1,5	3,0	*30,2*	5,1	0,8	1,6	*31,6*
EL	18,5	2,0	3,8	*20,3*	10,4	1,6	3,1	*29,4*	4,7	1,1	2,0	*42,9*
ES	20,7	2,1	3,0	*14,8*	12,4	1,6	2,3	*18,6*	6,2	0,7	1,0	*16,1*
FR	21,3	2,2	3,2	*15,3*	13,1	1,7	2,5	*18,8*	6,7	0,8	1,1	*16,2*
IE	18,6	2,8	4,8	*25,9*	11,2	2,2	3,8	*33,9*	6,1	1,6	2,9	*47,3*
IT	20,6	2,0	3,5	*17,2*	12,5	1,4	2,6	*20,6*	6,4	0,6	1,2	*19,0*
CY	18,3	1,9	3,3	*18,0*	10,8	1,5	2,6	*24,5*	5,8	0,8	1,5	*25,1*
LV	16,6	2,2	4,1	*24,9*	9,7	1,7	3,2	*32,7*	5,0	0,9	1,7	*33,6*
LT	17,4	2,1	4,0	*23,0*	10,3	1,7	3,1	*30,4*	5,2	0,9	1,7	*31,9*
LU	19,6	2,3	3,8	*19,4*	11,9	1,8	3,0	*25,1*	6,3	0,9	1,6	*24,8*
HU	16,7	2,5	4,4	*26,5*	9,8	1,8	3,3	*33,8*	5,0	1,0	1,8	*34,8*
MT	18,3	2,0	3,3	*17,9*	10,9	1,5	2,5	*23,2*	5,4	0,8	1,4	*24,9*
NL	19,0	1,5	3,1	*16,3*	11,4	1,2	2,5	*21,5*	5,7	0,6	1,4	*25,3*
AT	19,7	2,5	4,0	*20,2*	11,7	1,9	3,1	*26,0*	5,8	0,9	1,4	*25,1*
PL	17,4	2,4	4,1	*23,5*	10,3	1,8	3,1	*30,4*	5,2	0,9	1,6	*31,6*
PT	19,0	2,5	4,1	*21,6*	11,1	1,8	3,1	*27,4*	:	:	:	*:*
SI	18,4	2,3	3,6	*19,6*	10,9	1,7	2,7	*25,0*	5,3	0,8	1,4	*27,2*
SK	16,5	2,2	3,9	*23,6*	9,6	1,5	2,9	*29,9*	4,9	0,7	1,4	*29,2*
FI	19,5	2,4	3,8	*19,5*	11,5	1,7	2,8	*24,1*	5,5	0,9	1,4	*25,4*
SE	19,8	1,9	3,2	*16,3*	12,0	1,4	2,6	*21,3*	5,9	0,8	1,5	*25,5*
UK	19,0	2,7	4,3	*22,6*	11,6	1,9	3,1	*26,8*	:	:	:	*:*
EU15*	19,5	2,3	3,8	*19,4*	11,7	1,7	2,9	*25,0*	5,9	0,9	1,6	*27,8*
EU10*	17,4	2,2	3,9	*22,3*	10,2	1,6	2,9	*28,8*	5,2	0,8	1,5	*29,8*
EU25*	18,6	2,2	3,8	*20,5*	11,1	1,7	2,9	*26,4*	5,6	0,9	1,6	*28,6*

*** unweighted average**

5.3. Assumptions on the evolution of unit costs

Scenario I (and most other scenarios) assumes that unit costs evolve in line with GDP per capita. Scenario V, however, assumes that unit costs evolve in line with GDP per worker. Table 5-4 and Table 5-5 below present the evolution of GDP per capita and GDP per worker that emerges from the baseline underlying assumptions endorsed by the AWG.

Table 5-4 Assumptions on the evolution of unit costs – average yearly rate of growth of GDP per capita

	2004-09	2010-19	2020-29	2030-39	2040-50
BE	2,1	1,9	1,2	1,4	1,7
CZ	3,7	3,2	2,5	1,4	1,1
DK	1,8	1,9	1,3	1,4	2,0
DE	1,6	1,8	1,0	1,2	1,6
EE	6,7	4,4	2,8	2,0	1,2
EL	2,6	1,5	1,1	1,0	1,2
ES	2,1	2,4	1,5	0,7	1,0
FR	1,7	1,6	1,5	1,4	1,6
IE	4,3	3,3	2,0	1,3	1,1
IT	1,6	1,8	1,4	0,9	1,4
CY	3,2	3,2	2,3	2,0	1,3
LV	8,6	5,2	2,9	2,0	1,0
LT	7,2	5,0	2,6	1,8	1,2
LU	3,1	2,2	2,0	2,3	2,5
HU	4,0	3,2	2,6	1,5	1,3
MT	1,3	2,1	2,4	1,9	1,4
NL	1,3	1,6	1,2	1,5	1,9
AT	2,0	1,9	1,1	1,3	1,5
PL	5,0	4,2	2,9	1,6	1,0
PT	1,5	1,8	1,4	1,1	1,2
SI	3,6	2,9	2,2	1,5	1,3
SK	4,9	4,6	2,8	1,3	0,8
FI	2,5	1,8	1,5	1,7	1,7
SE	2,5	2,3	1,8	1,6	1,8
UK	2,5	2,3	1,5	1,4	1,6

Table 5-5 Assumptions on the evolution of unit costs – average yearly rate of growth of GDP per worker

	2004-09	2010-19	2020-29	2030-39	2040-50
BE	1,5	1,9	1,8	1,7	1,7
CZ	3,4	3,3	2,9	2,1	1,8
DK	1,9	2,0	1,8	1,7	1,7
DE	0,9	1,6	1,8	1,7	1,7
EE	5,4	4,3	3,1	2,1	1,8
EL	2,1	1,4	1,6	1,7	1,7
ES	1,1	2,1	1,9	1,7	1,7
FR	1,4	1,8	1,7	1,7	1,7
IE	3,4	3,2	1,9	1,7	1,7
IT	0,8	1,7	1,8	1,7	1,7
CY	2,4	3,0	2,8	2,1	1,8
LV	6,7	5,1	3,3	2,1	1,8
LT	5,9	4,2	3,2	2,1	1,8
LU	1,9	2,1	1,8	1,7	1,7
HU	3,2	3,1	2,8	2,1	1,8
MT	1,0	1,9	2,5	2,1	1,8
NL	1,1	1,7	1,8	1,7	1,7
AT	1,5	1,8	1,8	1,7	1,7
PL	4,0	3,5	3,0	2,1	1,8
PT	1,1	2,0	1,8	1,7	1,7
SI	3,3	3,2	2,8	2,1	1,8
SK	4,0	3,7	3,0	2,1	1,8
FI	2,1	2,2	1,9	1,7	1,7
SE	2,1	2,6	2,1	1,7	1,7
UK	2,2	2,4	1,9	1,7	1,7

5.4. Additional on death related costs from academic studies

Table 5-6 summarise the general characteristics of available data, from national sources, on death related costs, and Table 5-7 provides information on ratio between cost borne by a person with *n* remaining years of life and a survivor (decomposed - where available - by gender and age cohort). The data used in the preliminary projections were taken from separate scientific papers.

Given the lack of common methodology, there are considerable differences as regards technique of measurement, the degree of precision, sample size, time and space coverage, definition of decedent and survivor status, and other characteristics. Moreover, no study provided an estimate of death-related costs covering total health care spending (inpatient care + outpatient care + day care + home care). Instead, most studies provide data only on inpatient hospital care expenditure per capita which is then taken as a proxy for total health care expenditure per capita. Differences in input data arise across countries and the following issues are worth noting:

- the data available lacks one or more dimensions. This is the case for most countries: Danish, German, Spanish, French data are not decomposed by gender, and the Swedish data is not decomposed by age cohort. Moreover, the notion a decedent differs across studies. In Spanish, Italian and Austrian data, it covers persons dying within the same year, while in the Swedish study up to six years prior to death are taken into account.

- given the purpose of the research (analysis of the ageing process and its economic consequences) the studies tend to concentrate on the elderly cohorts. In some cases (DK, FR), data is reported only for the elderly cohorts. In such cases, either younger cohorts must be omitted in the calculations, or the data concerning them must be approximated or substituted by a proxy.

- there is a clear correlation between the age and the ratio between decedents' and survivors' costs. A general trend can be observed whereby the ratio grows sharply from birth to the age of 10-20, and slowly declines thereafter. However, it is not reflected in all the studies, e.g. in the case of Sweden where one aggregate ratio is calculated for all the age cohorts. Moreover, the ratio differs considerably across the countries. Taking as an example the ratio of spending between people aged 60-65 who die within one year and the survivors of the same age, one can find as different results as: 8.0 in Denmark, 17.7 in Germany (55-64), 15.8 in Spain, 3.3 in France (55-64), 12.2 (males) and 16.9 (females) in Italy, and 20.8 (males) and 26.2 (females) in Austria. The differences are even higher when younger cohorts are compared. Such differences obviously have a large impact on the results of the projections and must be taken into account when comparing them.

Table 5-6 Overview of studies with data on death-related costs for particular EU Member States

	Reference	Measured value	Data source	Status distinguished	Age groups	Gender
DK	Madsen M. (2004), *Methodologies to incorporate 'death-related' costs in projections of health and long-term care based on Danish data*, Ministry of Finance, Denmark	Average expenditures on hospitals distributed by age and years of remaining life	Danish individual register-based data	Persons with 0-1 years of remaining life; persons with 1-2 years of remaining life; persons with 2-3 years of remaining life; persons with 3+ years of remaining life	50-59; 60-69; 70-79; 80-89; 90+; all age groups	No
DE	Busse R., Krauth C., Schwartz F. (2002), *Use of acute Hospital Beds does not increase as the Population Ages: Results for a Seven Year Cohort Study in Germany*, Journal of Epidemiology and Community Health, vol. 56, pp. 289-293.	Average number of hospital days/ year according to survival status	Cohort study using a sample of persons insured by a sickness fund, Germany, 1989–1995	Survivors; persons in their 3rd last year of life; persons in their 2nd last year of life; persons in their last year of life	0–24; 25–34; 35–44; 45–54; 55–64; 65–74; 75–84; 85+	No
ES	Ahn N., García J.R., Hercé J.A. (2005), *Demographic Uncertainty and Health Care Expenditure in Spain*, FEDEA, Documento de trabajo 2005-07	Public Hospital Care Costs by Survival Status	Individual register-based data, Spain, 1999	Decedents, survivors	5-year cohorts from 1-85, 86+	No
FR	Caisse Nationale de l'Assurance Maladie des Travailleurs Salariés (2003), *Le vieillissement de la population et son incidence sur l'évolution des dépenses de santé*, Point de conjoncture n°15 - juillet 2003	Average medical consumption of persons in their last years of life by age at death (approximate values, precise data not quoted in the article)	Sample of individuals insured by a social insurance fund, 1996-2002	Persons in their last year of life; persons 1 year before death; persons 2 years before death; persons 3 years before death; persons 4 years before death	35-44; 45-54; 55-64; 65-74; 75-84; 85+	No
IT	Gabriele S., Cislaghi C., Costantini F., Innocenti F., Lepore V., Tediosi F., Valerio M., Zocchetti C. (2005), *Demographic factors and health expenditure profiles by*	Per capita hospital expenditure ratio deceased/survivors by age and gender	Individual register-based data from four Italian regions: Lombardy,	Decedents (within one calendar year); survivors	5-year cohorts from1-89, 90+	Yes

	age: the case of Italy. A deliverable for the ENEPRI AHEAD (Ageing, Health Status and Determinants of Health Expenditure) project		Tuscany, Apulia and Abruzzi, 2000			
AT	Riedel M., Hofmarcher M.M., Buchegger R., Brunner J. (2002), *Nachfragemodell Gesundheitswesen. Endbericht, Teil II*. Studie im Auftrag des Bundesministeriums für Soziale Sicherheit und Generationen, Institut für Höhere Studien (IHS), Wien	Average expenditure on hospital care under assumption that expenditure on all fatal cases is the same as in hospital care	Sample of individuals insured by a social insurance fund, 2000	Decedents, survivors	5 year cohorts from 1-84; 85+	Yes
SE	Batljan I., Lagergren M. (2004), *Inpatient/outpatient health care costs and remaining years of life – effect of decreasing mortality on future acute health care demand*, Social Science & Medicine, 59, pp.2459-2466	Average per capita cost of inpatient health care per capita in the population depending on remaining years of life (approximate values, precise data not quoted in the article)	Individual register-based data from the Skåne region, 1997	0, 1, 2, 3, 4, 5, 6, 6+ remaining years of life, whole population	None	Yes

Table 5-7 The ratio between cost borne by a person with *N* remaining years of life and a survivor, by age cohort

Denmark

Age cohort \ *N*	0-1	1-2	2-3	3+
0-49[1]	42,6	26,6	22,0	1
50-59	10,6	6,7	5,5	1
60-69	8,0	4,3	3,4	1
70-79	4,8	2,7	2,0	1
80-89	2,4	1,9	1,6	1
90+	1,8	1,7	1,0	1

Germany

Age cohort \ *N*	0	1	2	2+
0-24	30,3	14,0	11,6	1
25-34	31,8	13,3	14,9	1
35-44	31,6	20,5	12,5	1
45-54	20,6	8,2	5,8	1
55-64	17,7	5,4	3,0	1
65-74	12,1	4,1	3,0	1
75-84	6,6	2,4	1,8	1
85+	4,3	1,2	0,9	1

Spain

Age cohort \ *N*	0	0+
0	7,6	1
1-5	71,1	1
6-10	82,1	1
11-15	92,7	1
16-20	96,5	1
21-25	75,6	1
26-30	48,9	1
31-35	40,7	1
36-40	43,7	1
41-45	43,5	1
46-50	35,0	1
51-55	26,9	1
56-60	21,7	1
61-65	15,8	1
66-70	11,9	1
71-75	9,4	1
76-80	7,4	1
81-85	6,3	1
86+	5,0	1

France

Age cohort	*N*	0	1	2	3	3+
0-34[2]		6,5	5,5	3,0	2,0	1
35-44		6,5	5,5	3,0	2,0	1
45-54		8,8	6,8	2,5	1,5	1
55-64		3,3	2,3	1,5	1,0	1
65-74		2,6	2,3	1,3	1,0	1
75-84		2,8	2,4	1,5	1,2	1
85+		1,8	1,7	1,2	1,0	1

Italy

		males		females	
Age cohort	*N*	0	0+	0	0+
0[3]		67,0	1	84,9	1
1-4		67,0	1	84,9	1
5-9		78,6	1	159,1	1
10-14		70,9	1	108,4	1
15-19		40,5	1	46,3	1
20-24		26,4	1	33,8	1
25-29		29,9	1	26,5	1
30-34		30,9	1	27,6	1
35-39		40,8	1	37,9	1
40-44		35,6	1	41,9	1
45-49		31,7	1	32,3	1
50-54		21,4	1	27,5	1
55-59		17,2	1	24,0	1
60-64		12,2	1	16,9	1
65-69		8,5	1	12,1	1
70-74		6,2	1	8,3	1
75-79		4,5	1	5,4	1
80-84		3,3	1	3,7	1
85-89		2,4	1	2,6	1
90+		1,7	1	1,6	1

Austria

		males		females	
Age cohort	*N*	0	0+	0	0+
0-4		50,9	1	67,0	1
5-9		156,6	1	240,0	1
10-14		173,9	1	205,1	1
15-19		135,2	1	113,1	1
20-24		136,6	1	77,2	1
25-29		131,9	1	63,1	1
30-34		128,1	1	70,5	1

35-39	103,2	1	84,4	1
40-44	77,7	1	59,7	1
45-49	48,1	1	52,1	1
50-54	32,4	1	35,0	1
55-59	25,6	1	30,0	1
60-64	20,8	1	26,2	1
65-69	13,6	1	17,1	1
70-74	10,5	1	11,8	1
75-79	7,8	1	8,6	1
80-84	6,7	1	7,2	1
85+	6,2	1	5,4	1

Sweden

N	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**6+**
All age cohorts - males	15,86	10,14	6,00	4,57	4,14	3,29	2,71	1
All age cohorts - females	13,71	9,57	6,00	4,71	4,00	3,14	2,57	1

Note: DK Cost per capita of decedents (0-1, 1-2, 2-3 remaining years of life) and survivors (more than 3 remaining years of life) aged 0-49 is missing in the database. It is therefore assumed to be twice the cost of a decedent aged 50-59 and half the cost of a survivor aged 50-59. FR Cost per capita of people aged 0-34 is missing in the database. It is therefore assumed to be the same as the cost per capita of people aged 35-44. IT Cost per capita of people aged 0 is missing in the database. It is therefore assumed to be the same as the cost per capita of people aged 1-4.

6. ADDITIONAL SCENARIOS FOR PUBLIC SPENDING ON HEALTH CARE

Table 6-1 presents the overview of additional scenarios (sensitivity tests) that complement the analysis of factors affecting public health care spending presented in section 4.4 of the report.

Table 6-1 Overview of additional scenarios for public spending on health care

	High life expectancy	**Improved health**	**EU10 cost convergence**	**Fast cost growth**	**Extrapolation of costs for each component on health spending**
	A-I	***A-II***	***A-III***	***A-IV***	***A-V***
Population projection	*AWG scenario - high life expectancy*	AWG scenario - baseline	AWG scenario - baseline	AWG scenario - baseline	AWG scenario - baseline
Age-related expenditure profiles	2004 profiles held constant over projection period	*Improved health scenario whereby 2004 age profile shifts by double the change in age-specific life expectancy*	*For EU10, the 2004 profiles converge to average age-profile for EU15 countries by 2050*	2004 profiles held constant over projection period	2004 profiles held constant over projection period
Unit cost development	GDP per capita	GDP per capita	GDP per capita	*GDP per capita + 1 p.p. during the period 2004 to 2015*	*Different assumptions for each component of spending (wages, pharmaceuticals, capital investment)*
Income elasticity of demand	1	1	1	1	1

6.1. High life expectancy scenario

Scenario A-I examines the impact of ***higher life expectancy*** on health care spending. It is based on the same assumptions as the pure ageing scenario (I) presented in chapter 4 of the report, except that it uses the high life expectancy population projection rather than AWG population scenario: for more details, see chapter 2 in EPC and European Commission (2005a).

On average, public expenditure on health care is projected to increase by 2% of GDP over the period 2004-2050. This increase is somewhat (0.3% of GDP) stronger than in *pure ageing* scenario in all but one (LU) country. Such results show clearly that the demographic effect of higher life expectancy, whereby people live longer and therefore require more health care services outweighs the economic effect, whereby GDP increases faster and the share of health care spending in GDP automatically falls.

Table 6-2 Projection results for *high life expectancy* scenario (A-I)

	Projected spending as % of GDP					Difference as % of GDP compared to pure ageing scenario		
	2004	2010	2030	2050	*change 2004-2050*	2010	2030	2050
BE	6,2	6,4	7,3	8,0	*1,8*	0,0	0,1	0,3
DK	6,9	7,0	7,8	8,2	*1,4*	0,0	0,1	0,2
DE	6,0	6,3	7,1	7,7	*1,7*	0,0	0,2	0,4
GR	5,1	5,3	6,0	7,2	*2,1*	0,0	0,1	0,3
ES	6,1	6,3	7,4	8,6	*2,5*	0,0	0,1	0,3
FR	7,7	8,0	9,1	9,8	*2,1*	0,0	0,1	0,3
IE	5,3	5,5	6,5	7,5	*2,2*	0,0	0,1	0,2
IT	5,8	6,0	6,8	7,4	*1,6*	0,0	0,1	0,2
LU	5,1	5,3	5,9	5,5	*0,4*	0,1	0,1	-0,7
NL	6,1	6,3	7,2	7,7	*1,6*	0,0	0,1	0,2
AT	5,3	5,5	6,4	7,2	*1,9*	0,0	0,1	0,2
PT	6,7	6,8	6,7	7,5	*0,8*	0,0	0,1	0,2
FI	5,6	5,8	6,8	7,3	*1,8*	0,0	0,1	0,3
SE	6,7	6,8	7,6	8,0	*1,3*	0,0	0,1	0,2
UK	7,0	7,2	8,4	9,7	*2,6*	0,0	0,1	0,4
CY	2,9	3,1	3,6	4,1	*1,2*	0,0	0,0	0,1
CZ	6,4	6,7	7,8	8,6	*2,1*	0,0	0,1	0,3
EE	5,4	5,6	6,1	6,5	*1,1*	0,0	0,1	0,2
HU	5,5	5,7	6,3	6,7	*1,2*	0,0	0,1	0,2
LT	3,7	3,8	4,2	4,5	*0,8*	0,0	0,0	0,1
LV	5,1	5,3	5,7	6,1	*0,9*	0,0	0,1	0,2
MT	4,2	4,5	5,7	6,5	*2,3*	0,0	0,1	0,3
PL	4,1	4,3	5,0	5,5	*1,4*	0,0	0,1	0,2
SK	4,4	4,6	5,6	6,3	*2,0*	0,0	0,1	0,2
SI	6,4	6,6	7,5	8,1	*1,6*	0,0	0,1	0,2
EU25	*6,4*	*6,6*	*7,5*	*8,4*	*2,0*	*0,0*	*0,1*	*0,3*
EU15	*6,4*	*6,7*	*7,6*	*8,5*	*2,0*	*0,0*	*0,1*	*0,3*
EU12	*6,3*	*6,5*	*7,4*	*8,2*	*1,9*	*0,0*	*0,1*	*0,3*
EU10	*4,9*	*5,1*	*5,8*	*6,3*	*1,4*	*0,0*	*0,1*	*0,2*

Note: EU25, EU15, EU12 and EU10 – average weighted by GDP

6.2. Improved health scenario

Scenario A-II is labelled the *improved health* scenario and is inspired by the compression of morbidity hypothesis. It assumes that the number of years spent in bad health during a life time in 2050 actually falls compared to that in 2004, i.e. it involves a shortening of the share of one's lifespan spent in bad health, so that the morbidity rate falls faster than the mortality rate. The future gains in healthy life expectancy exceed the projected gains total life expectancy. The stylised picture of such process is achieved by progressively shifting the age-related expenditure profile of the base year along the age axis by more (by a stylised factor) than the projected gains in age and gender specific life expectancy. It is illustrated by dotted line on graph 4-1 in section 4.2 of the report.

Table 6-3 presents the projection results. If healthy life expectancy is assumed to increase twice as fast as total life expectancy, practically all the effects of an ageing population on public spending will be offset by positive developments in health status. Public health care spending is projected to increase by mere 0.3% of GDP in EU15 countries and remain broadly constant in the EU10 countries.

Table 6-3 Projection results for *improved health* scenario (A-II)

	Projected spending as % of GDP					Difference as % of GDP compared to pure ageing scenario		
	2004	2010	2030	2050	change 2004-2050	2010	2030	2050
BE	6,2	6,1	6,1	6,3	*0,1*	-0,3	-1,2	-1,4
DK	6,9	6,7	6,6	6,4	*-0,4*	-0,3	-1,1	-1,5
DE	6,0	6,0	6,0	6,1	*0,1*	-0,3	-1,0	-1,2
GR	5,1	5,2	5,2	5,8	*0,7*	-0,2	-0,8	-1,2
ES	6,1	6,0	6,3	7,1	*1,0*	-0,3	-1,0	-1,2
FR	7,7	7,7	7,9	8,2	*0,5*	-0,3	-1,1	-1,4
IE	5,3	5,2	5,3	5,7	*0,4*	-0,3	-1,1	-1,5
IT	5,8	5,7	5,9	6,1	*0,4*	-0,2	-0,8	-1,0
LU	5,1	5,0	5,0	5,1	*0,0*	-0,2	-0,8	-1,0
NL	6,1	6,1	6,4	6,4	*0,3*	-0,1	-0,7	-1,0
AT	5,3	5,2	5,4	5,7	*0,4*	-0,3	-1,0	-1,3
PT	6,7	6,5	5,7	6,0	*-0,7*	-0,3	-0,9	-1,3
FI	5,6	5,5	5,8	5,9	*0,4*	-0,2	-0,9	-1,1
SE	6,7	6,5	6,5	6,4	*-0,3*	-0,3	-1,0	-1,4
UK	7,0	6,8	6,8	7,2	*0,2*	-0,4	-1,5	-2,1
CY	2,9	2,9	3,1	3,3	*0,4*	-0,1	-0,4	-0,7
CZ	6,4	6,4	6,5	6,7	*0,3*	-0,3	-1,2	-1,6
EE	5,4	5,5	5,1	5,1	*-0,3*	-0,1	-0,8	-1,2
HU	5,5	5,4	5,2	5,2	*-0,3*	-0,2	-1,0	-1,3
LT	3,7	3,8	3,7	3,7	*0,0*	-0,1	-0,5	-0,7
LV	5,1	5,2	4,9	4,9	*-0,3*	-0,1	-0,7	-1,0
MT	4,2	4,3	4,7	4,8	*0,6*	-0,3	-0,9	-1,4
PL	4,1	4,1	4,2	4,3	*0,2*	-0,2	-0,8	-1,1
SK	4,4	4,4	4,6	4,9	*0,5*	-0,2	-0,9	-1,2
SI	6,4	6,5	6,7	6,9	*0,5*	-0,2	-0,7	-0,9
EU25	*6,4*	*6,3*	*6,4*	*6,7*	*0,3*	*-0,3*	*-1,1*	*-1,4*
EU15	*6,4*	*6,4*	*6,5*	*6,8*	*0,3*	*-0,3*	*-1,1*	*-1,4*
EU12	*6,3*	*6,3*	*6,4*	*6,7*	*0,4*	*-0,3*	*-1,0*	*-1,2*
EU10	*4,9*	*4,9*	*4,8*	*5,0*	*0,0*	*-0,2*	*-0,9*	*-1,2*

Note: EU25, EU15, EU12 and EU10 – average weighted by GDP

6.3. EU10 cost convergence

Scenario A-III only covers the EU10 countries (excluding CY and MT)[5] and is meant to capture the possible effect of a ***convergence in real living standards*** (which emerges from the macroeconomic assumptions described in section 2.2 and 2.3) on health care spending. Spending on health care in EU10 (both in nominal terms and as a % of GDP per capita) is well below the levels observed in EU15 countries. By taking the flatter 2004 age-related expenditure profiles as the basis of the health care projections, the projected budgetary impact of ageing will be less evident in the EU10 countries compared to EU15. Scenario A-III assumes that the average age-related expenditure of EU10 countries in the base year 2004 progressively shifts to the average age-related expenditure profile of EU15 countries by 2050.

Table 6-4 presents the projection results. As expected, this scenario would result in a strong convergence in spending on health care as a share of GDP towards the levels observed in the EU15 countries. Average health care spending of the eight EU10 countries would reach 6.7% of GDP in 2050, which is closer to the EU15 average of 8.2% of GDP compared with the projected level of 6.1% of GDP which emerges on the basis of their flatter national age-related expenditure profiles (see graph 4-3 in section 4.2 of the report). On average, spending on health care is projected to increase by 1.7 p.p. of GDP above what is projected using

[5] As shown on graph 4-2 in section 4.2 of the report, the shape of Maltese age-related expenditure profile is more similar to EU15 than EU10 countries. Consequently, Malta and Cyprus (whose age profile has not been provided) are not included in this simulation.

national age-related expenditure profiles, with most of the increase occurring at the end of the projection period. This result suggests that effective managing of expectations regarding health care services in EU10 could play a significant role in controlling health care spending in these countries.

Table 6-4 Projection results for the *EU10 cost convergence* scenario (A-III)

	Projected spending as % of GDP					Difference as % of GDP compared to pure ageing scenario		
	2004	2010	2030	2050	*change 2004-2050*	2010	2030	2050
CZ	6,4	6,7	7,8	8,8	*2,4*	0,0	0,0	0,5
EE	5,4	5,6	6,1	6,8	*1,4*	0,0	0,2	0,5
HU	5,5	5,7	6,4	7,1	*1,6*	0,0	0,2	0,6
LT	3,7	3,9	4,3	4,9	*1,2*	0,0	0,2	0,6
LV	5,1	5,3	5,8	6,5	*1,4*	0,0	0,2	0,6
PL	4,1	4,3	5,1	5,8	*1,7*	0,0	0,1	0,4
SK	4,4	4,6	5,4	6,3	*1,9*	-0,1	-0,1	0,1
SI	6,4	6,8	8,1	9,3	*2,8*	0,1	0,7	1,4
Weighted average	*5,0*	*5,1*	*5,9*	*6,7*	*1,7*	*0,0*	*0,1*	*0,5*

Note: Average weighted by GDP

6.4. Fast cost growth scenarios

Scenario A-IV focuses on ***unit costs***. Public spending on health care depends not only on demographic and health factors driving demand, but also on the supply side factors. Public spending on health care includes inputs such as salaries/wages (from highly educated to unskilled people), investment in capital which is subject of various depreciation schedules (from slowly depreciating buildings and transport infrastructure to fast developing modern IT and medical technologies) and pharmaceuticals. The evolution of total health care spending is in part driven by the evolution of prices for these inputs relative to the evolution of prices for the economy as a whole. In considering the evolution of prices and unit costs for these items, it is important to bear in mind that the health care sector is highly regulated and only to a limited extent subject to the free market competition. For example, pharmaceutical prices are often subject to administrative regulation, and wage developments of health care staff in the public sector may be subject to specific wage bargaining arrangements.

Scenario A-IV is run for all 25 Member States based on an assumption of the ***fast evolution of unit costs in the entire health care sector***. The methodology is identical to the *pure ageing* scenario (I). The only difference concerns evolution of unit costs, which are no longer assumed to evolve in line with GDP per capita. Instead, they are assumed to grow by 1 percentage point above GDP per capita for the first ten years of the projection exercise (2005-14) and thereafter, between 2015 and 2050, again according to the 'normal' GDP per capita growth rate.

Table 6-5 presents the results for the fast cost growth scenario. Health care spending does appear to be sensitive as regards the assumptions on unit costs. Assuming costs grow by 1 p.p. above GDP per capita, public sending on health care is projected to increase by an additional average of 0.8% of GDP in the EU15 and 0.6% in the EU10.

Table 6-5 Projection results for *fast growth* scenario (A-IV) – unit costs evolve 1% faster than GDP per capita between 2005 and 2014

	Projected spending as % of GDP					Difference as % of GDP compared to pure ageing scenario		
	2004	2010	2030	2050	*change 2004-2050*	2010	2030	2050
BE	6,2	6,8	8,0	8,5	*2,3*	0,4	0,7	0,8
DK	6,9	7,4	8,5	8,8	*1,9*	0,4	0,8	0,8
DE	6,0	6,7	7,7	8,1	*2,1*	0,4	0,7	0,8
GR	5,1	5,7	6,5	7,6	*2,5*	0,3	0,6	0,7
ES	6,1	6,7	8,0	9,2	*3,1*	0,4	0,7	0,9
FR	7,7	8,5	9,9	10,5	*2,8*	0,5	0,9	1,0
IE	5,3	5,8	7,0	8,0	*2,7*	0,3	0,6	0,7
IT	5,8	6,3	7,4	7,9	*2,1*	0,4	0,7	0,7
LU	5,1	5,6	6,4	6,8	*1,7*	0,3	0,6	0,6
NL	6,1	6,6	7,8	8,2	*2,1*	0,4	0,7	0,8
AT	5,3	5,8	7,0	7,7	*2,4*	0,3	0,6	0,7
PT	6,7	7,2	7,4	8,0	*1,3*	0,4	0,7	0,7
FI	5,6	6,1	7,3	7,8	*2,2*	0,3	0,7	0,7
SE	6,7	7,2	8,2	8,6	*1,8*	0,4	0,8	0,8
UK	7,0	7,6	9,2	10,2	*3,2*	0,4	0,8	0,9
CY	2,9	3,2	3,9	4,4	*1,5*	0,2	0,4	0,4
CZ	6,4	7,1	8,5	9,2	*2,7*	0,4	0,8	0,8
EE	5,4	5,9	6,6	6,9	*1,5*	0,3	0,6	0,6
HU	5,5	6,0	6,8	7,2	*1,7*	0,3	0,6	0,7
LT	3,7	4,1	4,5	4,8	*1,1*	0,2	0,4	0,4
LV	5,1	5,6	6,1	6,5	*1,3*	0,3	0,5	0,6
MT	4,2	4,8	6,2	6,8	*2,6*	0,3	0,6	0,6
PL	4,1	4,6	5,5	5,9	*1,8*	0,3	0,5	0,5
SK	4,4	4,9	6,1	6,8	*2,4*	0,3	0,5	0,6
SI	6,4	7,0	8,2	8,6	*2,2*	0,4	0,7	0,8
EU25	*6,4*	*7,0*	*8,2*	*8,9*	*2,5*	*0,4*	*0,8*	*0,8*
EU15	*6,4*	*7,1*	*8,3*	*9,0*	*2,6*	*0,4*	*0,8*	*0,8*
EU12	*6,3*	*6,9*	*8,1*	*8,7*	*2,4*	*0,4*	*0,8*	*0,8*
EU10	*4,9*	*5,4*	*6,3*	*6,7*	*1,8*	*0,3*	*0,6*	*0,6*

Note: EU25, EU15, EU12 and EU10 – average weighted by GDP

6.5. Extrapolation of costs scenarios

Scenario A-V is run for twelve Member States for which sufficient information is available on the share in total health expenditure of different components (i.e. wages/salaries, capital investment, pharmaceuticals and other items) and on the ***evolution of unit costs for each of these components***. Budgetary projection are run for each component of health care spending under two settings:

- a *fast growth* variant where unit costs grow by 1 percentage point above GDP per capita for the first ten years of the projection exercise (2005-14) and thereafter in line with GDP per capita until 2050;

- an *extrapolation of past trends* variant where in the base year unit costs grow in line with the annual average growth rate observed in recent years, then during first ten years of the projection exercise (2005-14) converges to GDP per capita rate of growth, and continues evolving at this rate until 2050.

Table 6-6 provides a summary of the available data on the composition of health care spending, and on the recent evolution of unit costs. Twelve Member States (BE, ES, IE, IT, PT, SE, CZ, CY, LV, LT, MT, PL) provided data to the AWG which allows to split total spending on health care into at least three different components. For six other countries (DK,

GR, NL, EE, HU, SI), similar data is available in the international WHO database[6]. A word of caution is warranted, and the data used differs considerably among the Member States.

Table 6-6 also reports the assumptions which have been used in the *extrapolation* variant of scenario A-V as regards the recent evolution of unit costs for each component of health care spending. In brief, the growth of spending on wages and salaries in the health care sector in the base year 2004 is based on recent developments of gap between growth rate of wages in the health care sector and in the whole economy reported in the OECD STAN database. The rate of growth of investment spending in 2004 is assumed to equal long term nominal interest rates in the economy in the base year, whose values have been taken from internal DG ECFIN databases. Initial rate of growth of pharmaceutical spending is assumed to equal price index of pharmaceuticals based on the average price index of pharmaceuticals in the recent years provided by twelve Member States (GR, ES, FR, IE, IT, PT, SE, UK, CY, LV, LT, PL): for the other countries the data has been taken from the WHO European health for all database.

Fast growth variant of scenario A-V has not been run for DE, FR, LU, AT, FI, UK, SK due to insufficient information on the composition of health care spending. *Extrapolation* variant has not been run for the same countries as above plus EE, CY, LV, LT, MT, SI for which no data on the recent development in wages and salaries in the health care sector is available. For CZ and HU price index of pharmaceuticals in the first ten years of projection period has been substituted with GDP per capita rate of growth.

[6] European health for all database (HFA-DB), World Health Organization Regional Office for Europe.

Table 6-6 Available data on the composition of health care spending and on the recent evolution of unit costs

	share of respective components in total public health care spending in %				initial rate of change in %		
	spending on wages and salaries	investment spending	pharmaceutical spending	others**	spending on wages and salaries	investment spending	pharmaceutical spending
BE	41	0	20	40	2,0	4,2	3,1
DK	68	3	5	24	3,1	4,3	-1,2
GR	30	2	22	46	6,5	4,3	0,3
ES	62	3	22	13	3,1	4,1	0,8
IE	66	5	11	18	6,6	4,1	3,9
IT	36	3	15	46	3,8	4,3	-0,1
NL	59	0	11	30	0,7	4,1	-0,3
PT	35	3	9	53	3,4	4,1	0,4
SE	56	3	7	34	2,7	4,4	1,9
CY	44	11	15	30	:	5,8	5,2
CZ	18	5	20	57	3,8	4,8	3,0*
EE	37	3	14	45	:	4,4	:
HU	32	9	23	37	6,9	8,2	4,1*
LT	43	0	17	40	:	4,5	6,9
LV	39	2	9	50	:	4,9	8,3
MT	41	32	24	3	:	4,7	:
PL	29	0	17	55	1,9	6,9	7,5
SI	44	1	14	41	:	4,7	:

*due to lack of data on recent pharmaceutical price developments, GDP per capita rate of growth has been applied
** item 'others' calculated as complement to 100% of three other items
Source: national sources (columns 1-3 and 7), European health for all database (HFA-DB), World Health Organisation Regional Office for Europe (columns 1-3 and 7, where national data not available), OECD STAN database (column 5), ECFIN database (column 6), own calculations (column 4)

Table 6-7 and Table 6-8 present the results for the scenarios which are based on the decomposition of total health care spending into four different components, using the data presented in Table 6-6. They show how much total health care spending will change as a result of different assumptions on the initial growth rate of unit cost of respective components of health care spending. Table 6-7 presents the effect of applying to each respective component rate of growth 1 p.p. above GDP per capita during first ten years of projection period. Table 6-8 presents the results of the scenario which is an attempt to capture current trends in the health care costs, by applying current growth rates in unitary costs of each component of health care.

Unsurprisingly, total spending on health care is the most sensitive to changes in the assumptions concerning the growth rate of wages and salaries. As shown in the left panel of Table 6-7, 1% faster growth during first ten years of the projection period is expected to add by 2050 an extra 0.2-0.5% of GDP to total expenditure projected under *pure ageing* scenario. The same change in the rate of growth of pharmaceutical spending is expected to add only 0.1-0.2% of GDP (see central panel of Table 6-7), whereas practically no effect is expected of the similar change in the rate of change of investment spending (see right panel of Table 6-7).

The effect of changes in the growth rate of wages and salaries on total spending is also the strongest in case of *extrapolation* variant (see Table 6-8). However, given different current developments in the unit costs results vary considerably across countries. Applying current growth rates of wages adds an extra 0.2-0.5% of GDP to the increase projected under *pure ageing* scenario in seven countries for which projections can be run (EL, IE, DK, ES, IT, HU, PT). It is the consequence of fast growth in wages and salaries in health care sector as compared to the general economic developments. At the same time, other five countries (PL, NL, BE, SE, CZ) may expect slower or similar growth in health care expenditure as compared

to pure demographic scenario, as their current growth rates of wages are lower than GDP per capita.

Using current price index of pharmaceuticals as a driver of pharmaceutical spending over the first ten years of projection period results in a slight decrease in total spending as compared to the *pure ageing* scenario. In six countries expenditure is projected to grow by less than when spending develops in line with GDP per capita, four should not expect a significant difference, and in two (BE, PL) price developments are projected to contribute to higher grow in health care spending.

As in case of the *fast growth* variant, changes in the rate of change of investment spending have practically no impact on total health care spending – due to the very small share of public expenditure devoted to this item.

Table 6-7 Projection results for scenario A-V, *fast cost growth* variant (respective components increasing 1 p.p. above GDP per capita between 2005 and 2014)

	Wages*						Investment spending*					Pharmaceutical spending*				
	Projected spending as % of GDP				Difference as % of GDP compared to pure ageing scenario		Projected spending as % of GDP			Difference as % of GDP compared to pure ageing scenario		Projected spending as % of GDP			Difference as % of GDP compared to pure ageing scenario	
				change					change					change		
	2004	2030	2050	2004-2050	2030	2050	2030	2050	2004-2050	2030	2050	2030	2050	2004-2050	2030	2050
BE	6,2	7,6	8,1	***1,9***	*0,3*	*0,3*	7,3	7,7	***1,5***	*0,0*	*0,0*	7,4	7,9	***1,7***	*0,1*	*0,2*
DK	6,9	8,3	8,5	***1,7***	*0,5*	*0,6*	7,8	8,0	***1,1***	*0,0*	*0,0*	7,8	8,0	***1,2***	*0,0*	*0,0*
GR	5,1	6,1	7,1	***2,0***	*0,2*	*0,2*	5,9	6,9	***1,8***	*0,0*	*0,0*	6,1	7,1	***2,0***	*0,1*	*0,2*
ES	6,1	7,7	8,9	***2,7***	*0,5*	*0,5*	7,3	8,4	***2,3***	*0,0*	*0,0*	7,4	8,5	***2,4***	*0,2*	*0,2*
IE	5,3	6,8	7,7	***2,4***	*0,4*	*0,5*	6,4	7,3	***2,0***	*0,0*	*0,0*	6,5	7,3	***2,0***	*0,1*	*0,1*
IT	5,8	6,9	7,4	***1,6***	*0,3*	*0,3*	6,7	7,2	***1,4***	*0,0*	*0,0*	6,8	7,3	***1,5***	*0,1*	*0,1*
NL	6,1	7,5	7,9	***1,8***	*0,4*	*0,5*	7,1	7,4	***1,3***	*0,0*	*0,0*	7,2	7,5	***1,4***	*0,1*	*0,1*
PT	6,7	6,9	7,5	***0,8***	*0,2*	*0,3*	6,7	7,3	***0,6***	*0,0*	*0,0*	6,7	7,3	***0,6***	*0,1*	*0,1*
SE	6,7	7,9	8,2	***1,5***	*0,4*	*0,4*	7,5	7,8	***1,1***	*0,0*	*0,0*	7,5	7,8	***1,1***	*0,1*	*0,1*
CY	2,9	3,7	4,2	***1,3***	*0,2*	*0,2*	3,6	4,0	***1,1***	*0,0*	*0,0*	3,6	4,0	***1,1***	*0,1*	*0,1*
CZ	6,4	7,9	8,5	***2,0***	*0,1*	*0,2*	7,8	8,4	***1,9***	*0,0*	*0,0*	7,9	8,5	***2,1***	*0,2*	*0,2*
EE	5,4	6,2	6,6	***1,1***	*0,2*	*0,2*	6,0	6,3	***0,9***	*0,0*	*0,0*	6,0	6,4	***1,0***	*0,1*	*0,1*
HU	5,5	6,4	6,7	***1,2***	*0,2*	*0,2*	6,2	6,6	***1,1***	*0,1*	*0,1*	6,3	6,7	***1,2***	*0,1*	*0,1*
LT	3,7	4,3	4,5	***0,8***	*0,2*	*0,2*	4,1	4,4	***0,7***	*0,0*	*0,0*	4,2	4,4	***0,7***	*0,1*	*0,1*
LV	5,1	5,8	6,1	***1,0***	*0,2*	*0,2*	5,6	5,9	***0,8***	*0,0*	*0,0*	5,6	5,9	***0,8***	*0,0*	*0,1*
MT	4,2	5,8	6,4	***2,2***	*0,2*	*0,3*	5,8	6,4	***2,2***	*0,2*	*0,2*	5,7	6,3	***2,1***	*0,1*	*0,2*
PL	4,1	5,1	5,5	***1,4***	*0,1*	*0,2*	5,0	5,4	***1,3***	*0,0*	*0,0*	5,1	5,5	***1,4***	*0,1*	*0,1*
SI	6,4	7,7	8,2	***1,7***	*0,3*	*0,3*	7,4	7,9	***1,4***	*0,0*	*0,0*	7,5	8,0	***1,5***	*0,1*	*0,1*

***** component increasing 1 p.p. faster than GDP per capita between 2005 and 2014 and in line with GDP per capita thereafter. Other components evolve in line with GDP per capita over the entire projection period

Table 6-8 Projection results for scenario A-V, *extrapolation of past trends* variant (respective components following past trends between 2005 and 2014)

	Wages*						Investment spending*					Pharmaceutical spending*				
	Projected spending as % of GDP				Difference as % of GDP compared to pure ageing scenario		Projected spending as % of GDP			Difference as % of GDP compared to pure ageing scenario		Projected spending as % of GDP			Difference as % of GDP compared to pure ageing scenario	
				change					change					change		
	2004	2030	2050	2004-2050	2030	2050	2030	2050	2004-2050	2030	2050	2030	2050	2004-2050	2030	2050
BE	6,2	7,2	7,7	***1,5***	*-0,1*	*-0,1*	7,3	7,7	***1,5***	*0,0*	*0,0*	7,3	7,8	***1,6***	*0,0*	*0,1*
DK	6,9	8,1	8,3	***1,5***	*0,4*	*0,4*	7,8	8,0	***1,1***	*0,0*	*0,0*	7,7	7,9	***1,0***	*-0,1*	*-0,1*
GR	5,1	6,3	7,4	***2,3***	*0,4*	*0,5*	5,9	6,9	***1,8***	*0,0*	*0,0*	5,8	6,7	***1,6***	*-0,1*	*-0,2*
ES	6,1	7,5	8,6	***2,5***	*0,2*	*0,3*	7,3	8,4	***2,3***	*0,0*	*0,0*	7,2	8,2	***2,1***	*-0,1*	*-0,1*
IE	5,3	6,8	7,8	***2,5***	*0,5*	*0,5*	6,4	7,2	***2,0***	*0,0*	*0,0*	6,4	7,2	***1,9***	*0,0*	*0,0*
IT	5,8	7,0	7,5	***1,7***	*0,3*	*0,3*	6,7	7,2	***1,4***	*0,0*	*0,0*	6,6	7,1	***1,3***	*-0,1*	*-0,1*
NL	6,1	6,9	7,3	***1,2***	*-0,2*	*-0,2*	7,1	7,4	***1,3***	*0,0*	*0,0*	7,0	7,4	***1,3***	*-0,1*	*-0,1*
PT	6,7	6,9	7,5	***0,8***	*0,2*	*0,2*	6,7	7,3	***0,6***	*0,0*	*0,0*	6,6	7,2	***0,5***	*0,0*	*0,0*
SE	6,7	7,5	7,8	***1,1***	*0,0*	*0,0*	7,5	7,8	***1,1***	*0,0*	*0,0*	7,4	7,8	***1,0***	*0,0*	*0,0*
CZ	6,4	7,7	8,3	***1,9***	*0,0*	*0,0*	7,7	8,3	***1,9***	*0,0*	*0,0*	7,6	8,2	***1,8***	*-0,1*	*-0,1*
HU	5,5	6,5	6,8	***1,3***	*0,3*	*0,3*	6,3	6,7	***1,2***	*0,1*	*0,1*	6,2	6,5	***1,0***	*0,0*	*0,0*
PL	4,1	4,7	5,1	***1,0***	*-0,3*	*-0,3*	5,0	5,4	***1,3***	*0,0*	*0,0*	5,1	5,5	***1,4***	*0,1*	*0,1*

***** component following the past trend between 2005 and 2014 and evolving in line with GDP per capita thereafter. Other components evolve in line with GDP per capita over the entire projection period

7. DETAILED RESULTS OF THE PROJECTIONS ON HEALTH CARE

Table 7-1 *Pure ageing* scenario (I) : projected spending on health care as % of GDP

	Projected spending as % of GDP										
	2004	2010	2015	2020	2025	2030	2035	2040	2045	2050	*change 2004-2050*
BE	6,2	6,4	6,6	6,8	7,0	7,3	7,5	7,6	7,7	7,7	*1,5*
DK	6,9	7,0	7,2	7,4	7,6	7,7	7,8	7,9	7,9	8,0	*1,1*
DE	6,0	6,3	6,5	6,7	6,8	7,0	7,1	7,2	7,3	7,3	*1,3*
GR	5,1	5,3	5,5	5,5	5,7	5,9	6,2	6,5	6,7	6,9	*1,8*
ES	6,1	6,3	6,5	6,7	7,0	7,3	7,6	7,9	8,1	8,3	*2,2*
FR	7,7	8,0	8,2	8,4	8,7	9,0	9,2	9,4	9,5	9,5	*1,8*
IE	5,3	5,5	5,7	5,9	6,1	6,4	6,6	6,9	7,1	7,3	*2,0*
IT	5,8	6,0	6,1	6,3	6,5	6,7	6,9	7,0	7,1	7,2	*1,4*
LU	5,1	5,2	5,4	5,5	5,7	5,8	5,9	6,1	6,1	6,2	*1,1*
NL	6,1	6,3	6,5	6,7	6,9	7,1	7,3	7,4	7,4	7,4	*1,3*
AT	5,3	5,5	5,7	5,9	6,1	6,3	6,5	6,7	6,9	6,9	*1,7*
PT	6,7	6,8	6,8	6,7	6,6	6,7	6,9	7,0	7,2	7,3	*0,6*
FI	5,6	5,8	6,0	6,2	6,4	6,7	6,9	7,0	7,0	7,0	*1,5*
SE	6,7	6,8	7,0	7,2	7,3	7,5	7,6	7,7	7,7	7,8	*1,0*
UK	7,0	7,2	7,4	7,7	8,0	8,3	8,6	8,9	9,1	9,3	*2,3*
CY	2,9	3,1	3,2	3,3	3,5	3,6	3,7	3,8	3,9	4,0	*1,1*
CZ	6,4	6,7	7,0	7,3	7,5	7,7	7,9	8,1	8,2	8,3	*1,9*
EE	5,4	5,6	5,7	5,8	5,9	6,0	6,1	6,2	6,3	6,3	*0,9*
HU	5,5	5,7	5,8	5,9	6,1	6,2	6,3	6,4	6,5	6,5	*1,0*
LT	3,7	3,8	4,0	4,0	4,1	4,1	4,2	4,3	4,3	4,4	*0,7*
LV	5,1	5,3	5,4	5,5	5,5	5,6	5,7	5,8	5,9	5,9	*0,7*
MT	4,2	4,5	4,8	5,1	5,4	5,6	5,8	6,0	6,1	6,2	*2,0*
PL	4,1	4,3	4,5	4,7	4,8	5,0	5,1	5,2	5,3	5,4	*1,3*
SK	4,4	4,6	4,8	5,1	5,3	5,5	5,7	5,9	6,0	6,1	*1,8*
SI	6,4	6,6	6,8	7,0	7,2	7,4	7,6	7,7	7,8	7,8	*1,4*
EU25	*6,4*	*6,6*	*6,8*	*7,0*	*7,2*	*7,4*	*7,7*	*7,8*	*8,0*	*8,1*	*1,7*
EU15	*6,4*	*6,7*	*6,9*	*7,1*	*7,3*	*7,5*	*7,8*	*8,0*	*8,1*	*8,2*	*1,7*
EU12	*6,3*	*6,5*	*6,7*	*6,9*	*7,1*	*7,3*	*7,6*	*7,7*	*7,9*	*7,9*	*1,6*
EU10	*4,9*	*5,1*	*5,2*	*5,4*	*5,6*	*5,7*	*5,8*	*5,9*	*6,0*	*6,1*	*1,2*

Note: EU25, EU15, EU12 and EU10 – averages weighted by GDP

Table 7-2 *Constant health* scenario (II) : projected spending on health care as % of GDP

	Projected spending as % of GDP										
	2004	2010	2015	2020	2025	2030	2035	2040	2045	2050	*change 2004-2050*
BE	6,2	6,2	6,3	6,4	6,5	6,6	6,8	6,9	6,9	6,9	*0,7*
DK	6,9	6,8	6,9	7,0	7,1	7,2	7,2	7,2	7,1	7,1	*0,3*
DE	6,0	6,1	6,2	6,3	6,4	6,4	6,5	6,6	6,7	6,7	*0,6*
GR	5,1	5,3	5,3	5,3	5,3	5,5	5,7	6,0	6,2	6,3	*1,2*
ES	6,1	6,1	6,2	6,3	6,5	6,8	7,0	7,3	7,5	7,7	*1,6*
FR	7,7	7,8	7,9	8,0	8,2	8,4	8,6	8,7	8,8	8,8	*1,1*
IE	5,3	5,3	5,4	5,5	5,6	5,8	6,0	6,1	6,3	6,4	*1,1*
IT	5,8	5,8	5,9	6,0	6,1	6,3	6,4	6,5	6,6	6,6	*0,8*
LU	5,1	5,1	5,2	5,2	5,3	5,4	5,5	5,6	5,6	5,6	*0,5*
NL	6,1	6,2	6,3	6,5	6,6	6,8	6,9	6,9	6,9	6,9	*0,8*
AT	5,3	5,3	5,5	5,6	5,7	5,8	6,0	6,1	6,2	6,3	*1,0*
PT	6,7	6,7	6,5	6,4	6,2	6,2	6,3	6,4	6,5	6,6	*-0,1*
FI	5,6	5,6	5,7	5,9	6,0	6,2	6,3	6,4	6,4	6,4	*0,9*
SE	6,7	6,7	6,7	6,8	6,9	6,9	7,0	7,0	7,0	7,0	*0,3*
UK	7,0	7,0	7,1	7,1	7,2	7,4	7,6	7,7	7,9	7,9	*0,9*
CY	2,9	3,0	3,1	3,2	3,3	3,3	3,4	3,5	3,6	3,6	*0,7*
CZ	6,4	6,6	6,7	6,8	7,0	7,1	7,2	7,3	7,4	7,5	*1,0*
EE	5,4	5,5	5,6	5,5	5,5	5,5	5,6	5,6	5,6	5,7	*0,2*
HU	5,5	5,5	5,6	5,6	5,6	5,6	5,7	5,7	5,7	5,8	*0,3*
LT	3,7	3,8	3,9	3,9	3,9	3,9	3,9	4,0	4,0	4,0	*0,3*
LV	5,1	5,3	5,3	5,3	5,2	5,2	5,2	5,3	5,3	5,3	*0,2*
MT	4,2	4,4	4,6	4,8	4,9	5,1	5,3	5,4	5,4	5,5	*1,2*
PL	4,1	4,2	4,3	4,4	4,5	4,5	4,6	4,7	4,7	4,8	*0,7*
SK	4,4	4,5	4,7	4,8	4,9	5,0	5,2	5,3	5,4	5,5	*1,1*
SI	6,4	6,6	6,6	6,8	6,9	7,0	7,2	7,2	7,3	7,3	*0,9*
EU25	*6,4*	*6,4*	*6,5*	*6,6*	*6,7*	*6,8*	*7,0*	*7,1*	*7,2*	*7,3*	*0,9*
EU15	*6,4*	*6,5*	*6,6*	*6,7*	*6,8*	*6,9*	*7,1*	*7,2*	*7,3*	*7,4*	*0,9*
EU12	*6,3*	*6,4*	*6,5*	*6,6*	*6,7*	*6,8*	*7,0*	*7,1*	*7,2*	*7,2*	*0,9*
EU10	*4,9*	*5,0*	*5,0*	*5,1*	*5,2*	*5,2*	*5,3*	*5,4*	*5,4*	*5,5*	*0,6*

Note: EU25, EU15, EU12 and EU10 – averages weighted by GDP

Table 7-3 *Death-related costs* scenario (III) : projected spending on health care as % of GDP

	Projected spending as % of GDP										
	2004	**2010**	**2015**	**2020**	**2025**	**2030**	**2035**	**2040**	**2045**	**2050**	***change 2004-2050***
BE	6,2	6,4	6,5	6,6	6,8	6,9	7,1	7,2	7,3	7,3	*1,1*
DK	6,9	6,9	7,1	7,2	7,4	7,5	7,5	7,5	7,6	7,6	*0,7*
DE	6,0	6,2	6,4	6,6	6,7	6,8	6,9	6,9	7,0	7,0	*1,0*
GR	5,1	5,3	5,4	5,4	5,5	5,7	6,0	6,2	6,4	6,5	*1,4*
ES	6,1	6,2	6,4	6,6	6,8	7,1	7,4	7,6	7,8	8,0	*1,9*
FR	7,7	7,9	8,1	8,3	8,5	8,7	8,9	9,0	9,1	9,1	*1,4*
IE	5,3	5,4	5,5	5,7	5,9	6,1	6,3	6,5	6,6	6,8	*1,5*
IT	5,8	5,9	6,0	6,2	6,3	6,5	6,7	6,8	6,8	6,8	*1,1*
LU	5,1	5,2	5,3	5,4	5,5	5,7	5,8	5,9	5,9	6,0	*0,8*
NL	6,1	6,2	6,4	6,6	6,8	6,9	7,0	7,1	7,1	7,1	*1,0*
AT	5,3	5,4	5,6	5,8	6,0	6,1	6,3	6,4	6,5	6,6	*1,3*
PT	6,7	6,8	6,7	6,6	6,4	6,5	6,6	6,7	6,9	6,9	*0,2*
FI	5,6	5,7	5,9	6,0	6,2	6,4	6,6	6,7	6,7	6,7	*1,1*
SE	6,7	6,8	6,9	7,0	7,1	7,2	7,3	7,4	7,5	7,5	*0,7*
UK	7,0	7,1	7,3	7,5	7,7	8,0	8,3	8,5	8,7	8,8	*1,8*
CY	2,9	3,0	3,2	3,3	3,3	3,4	3,5	3,6	3,7	3,8	*0,9*
CZ	6,4	6,6	6,8	7,0	7,2	7,4	7,5	7,6	7,7	7,8	*1,4*
EE	5,4	5,6	5,6	5,7	5,7	5,7	5,8	5,9	5,9	5,9	*0,5*
HU	5,5	5,6	5,6	5,7	5,8	5,8	5,9	5,9	5,9	6,0	*0,5*
LT	3,7	3,8	3,9	4,0	4,0	4,0	4,0	4,1	4,1	4,1	*0,4*
LV	5,1	5,3	5,4	5,4	5,4	5,4	5,4	5,5	5,5	5,5	*0,4*
MT	4,2	4,4	4,6	4,8	5,0	5,1	5,3	5,3	5,3	5,4	*1,1*
PL	4,1	4,3	4,4	4,5	4,6	4,8	4,8	4,9	5,0	5,0	*0,9*
SK	4,4	4,6	4,7	4,9	5,1	5,3	5,4	5,5	5,6	5,7	*1,3*
SI	6,4	6,6	6,7	6,8	7,0	7,1	7,2	7,3	7,4	7,4	*1,0*
EU25	*6,4*	*6,5*	*6,7*	*6,8*	*7,0*	*7,2*	*7,4*	*7,5*	*7,6*	*7,7*	*1,3*
EU15	*6,4*	*6,6*	*6,8*	*6,9*	*7,1*	*7,3*	*7,5*	*7,6*	*7,8*	*7,8*	*1,4*
EU12	*6,3*	*6,5*	*6,6*	*6,8*	*6,9*	*7,1*	*7,3*	*7,4*	*7,5*	*7,6*	*1,3*
EU10	*4,9*	*5,0*	*5,1*	*5,2*	*5,4*	*5,4*	*5,5*	*5,6*	*5,7*	*5,7*	*0,8*

Note: EU25, EU15, EU12 and EU10 – averages weighted by GDP

Table 7-4 Scenario capturing income elasticity of demand exceeding unity (IV) : projected spending on health care as % of GDP

	Projected spending as % of GDP										
	2004	**2010**	**2015**	**2020**	**2025**	**2030**	**2035**	**2040**	**2045**	**2050**	***change 2004-2050***
BE	6,2	6,5	6,8	7,0	7,2	7,5	7,7	7,9	8,0	8,0	*1,8*
DK	6,9	7,1	7,3	7,6	7,8	8,0	8,1	8,1	8,2	8,3	*1,4*
DE	6,0	6,3	6,6	6,9	7,0	7,2	7,3	7,5	7,6	7,6	*1,6*
GR	5,1	5,4	5,6	5,7	5,8	6,1	6,4	6,7	7,0	7,2	*2,1*
ES	6,1	6,3	6,6	6,9	7,2	7,6	7,9	8,2	8,5	8,7	*2,6*
FR	7,7	8,1	8,4	8,6	8,9	9,2	9,5	9,7	9,8	9,9	*2,2*
IE	5,3	5,6	5,9	6,1	6,4	6,8	7,1	7,3	7,5	7,7	*2,4*
IT	5,8	6,0	6,2	6,4	6,7	6,9	7,1	7,3	7,4	7,4	*1,6*
LU	5,1	5,4	5,6	5,8	6,0	6,2	6,4	6,5	6,6	6,7	*1,5*
NL	6,1	6,3	6,6	6,8	7,1	7,3	7,5	7,6	7,7	7,7	*1,6*
AT	5,3	5,5	5,8	6,1	6,3	6,5	6,8	7,0	7,1	7,2	*1,9*
PT	6,7	6,9	6,9	6,9	6,8	6,9	7,1	7,3	7,4	7,5	*0,8*
FI	5,6	5,8	6,1	6,4	6,6	6,9	7,1	7,3	7,3	7,3	*1,8*
SE	6,7	6,9	7,1	7,4	7,6	7,8	7,9	8,0	8,1	8,1	*1,4*
UK	7,0	7,3	7,6	7,9	8,3	8,6	9,0	9,3	9,6	9,7	*2,7*
CY	2,9	3,1	3,3	3,5	3,6	3,8	3,9	4,0	4,1	4,2	*1,3*
CZ	6,4	6,8	7,2	7,6	7,9	8,2	8,4	8,6	8,7	8,9	*2,4*
EE	5,4	5,8	6,0	6,2	6,3	6,5	6,6	6,8	6,9	6,9	*1,5*
HU	5,5	5,8	6,0	6,2	6,4	6,6	6,7	6,8	6,9	6,9	*1,4*
LT	3,7	4,0	4,2	4,3	4,4	4,5	4,6	4,7	4,8	4,8	*1,1*
LV	5,1	5,6	5,8	6,0	6,0	6,1	6,3	6,4	6,5	6,5	*1,4*
MT	4,2	4,6	4,9	5,2	5,5	5,8	6,0	6,2	6,4	6,5	*2,2*
PL	4,1	4,4	4,7	4,9	5,2	5,4	5,5	5,6	5,7	5,8	*1,7*
SK	4,4	4,7	5,1	5,4	5,7	6,0	6,2	6,4	6,5	6,7	*2,3*
SI	6,4	6,8	7,0	7,3	7,6	7,8	8,0	8,1	8,3	8,3	*1,9*
EU25	*6,4*	*6,7*	*6,9*	*7,2*	*7,4*	*7,7*	*7,9*	*8,2*	*8,3*	*8,4*	*2,0*
EU15	*6,4*	*6,7*	*7,0*	*7,3*	*7,5*	*7,8*	*8,1*	*8,3*	*8,4*	*8,5*	*2,1*
EU12	*6,3*	*6,6*	*6,8*	*7,1*	*7,3*	*7,6*	*7,8*	*8,0*	*8,1*	*8,2*	*1,9*
EU10	*4,9*	*5,2*	*5,5*	*5,7*	*5,9*	*6,1*	*6,3*	*6,4*	*6,5*	*6,6*	*1,7*

Note: EU25, EU15, EU12 and EU10 – averages weighted by GDP

Table 7-5 Scenario where unit costs evolve in line with GDP per worker (V) : projected spending on health care as % of GDP

	Projected spending as % of GDP										
	2004	**2010**	**2015**	**2020**	**2025**	**2030**	**2035**	**2040**	**2045**	**2050**	***change 2004-2050***
BE	6,2	6,2	6,3	6,6	7,0	7,4	7,8	8,0	8,1	8,1	*1,9*
DK	6,9	7,0	7,2	7,5	7,9	8,3	8,5	8,7	8,6	8,6	*1,7*
DE	6,0	6,0	6,0	6,3	6,6	7,0	7,4	7,6	7,8	7,8	*1,8*
GR	5,1	5,2	5,2	5,3	5,6	6,0	6,5	7,1	7,6	7,9	*2,8*
ES	6,1	5,9	6,0	6,2	6,5	7,0	7,6	8,3	9,0	9,4	*3,3*
FR	7,7	7,8	8,0	8,4	8,8	9,2	9,6	9,9	10,0	10,1	*2,4*
IE	5,3	5,2	5,4	5,6	5,8	6,1	6,4	6,8	7,3	7,7	*2,4*
IT	5,8	5,7	5,8	5,9	6,2	6,5	7,0	7,4	7,7	7,8	*2,0*
LU	5,1	4,9	5,0	5,1	5,2	5,2	5,2	5,2	5,1	4,9	*-0,2*
NL	6,1	6,2	6,4	6,7	7,1	7,6	7,9	8,0	7,9	7,9	*1,8*
AT	5,3	5,3	5,5	5,7	6,1	6,6	7,0	7,3	7,5	7,6	*2,4*
PT	6,7	6,7	6,7	6,7	6,7	6,9	7,3	7,8	8,2	8,5	*1,8*
FI	5,6	5,7	6,0	6,3	6,7	7,1	7,4	7,5	7,5	7,5	*2,0*
SE	6,7	6,7	6,9	7,2	7,5	7,8	8,0	8,1	8,1	8,1	*1,4*
UK	7,0	7,0	7,3	7,6	8,1	8,6	9,2	9,5	9,8	10,0	*3,0*
CY	2,9	2,9	3,0	3,1	3,4	3,5	3,7	3,8	4,0	4,2	*1,3*
CZ	6,4	6,6	6,8	7,2	7,6	7,9	8,4	8,9	9,5	9,8	*3,4*
EE	5,4	5,2	5,2	5,4	5,6	5,7	5,8	6,0	6,2	6,5	*1,1*
HU	5,5	5,4	5,5	5,7	5,8	6,0	6,3	6,6	6,9	7,1	*1,6*
LT	3,7	3,5	3,4	3,5	3,6	3,8	3,9	4,1	4,2	4,4	*0,7*
LV	5,1	4,8	4,8	4,9	5,1	5,2	5,4	5,5	5,8	6,1	*0,9*
MT	4,2	4,4	4,6	4,9	5,2	5,5	5,7	6,0	6,2	6,4	*2,2*
PL	4,1	4,0	4,0	4,1	4,2	4,4	4,6	4,8	5,1	5,4	*1,3*
SK	4,4	4,4	4,3	4,5	4,7	5,0	5,3	5,7	6,2	6,6	*2,2*
SI	6,4	6,5	6,7	7,1	7,5	8,0	8,4	8,8	9,1	9,4	*2,9*
EU25	*6,4*	*6,4*	*6,5*	*6,8*	*7,1*	*7,5*	*7,9*	*8,3*	*8,5*	*8,7*	*2,3*
EU15	*6,4*	*6,5*	*6,6*	*6,9*	*7,2*	*7,7*	*8,1*	*8,4*	*8,7*	*8,8*	*2,4*
EU12	*6,3*	*6,3*	*6,4*	*6,6*	*7,0*	*7,4*	*7,8*	*8,2*	*8,4*	*8,5*	*2,2*
EU10	*4,9*	*4,9*	*4,9*	*5,0*	*5,2*	*5,4*	*5,7*	*6,0*	*6,3*	*6,6*	*1,7*

Note: EU25, EU15, EU12 and EU10 – averages weighted by GDP

Table 7-6 *AWG reference* scenario (VI) : projected spending on health care as % of GDP

	Projected spending as % of GDP										
	2004	**2010**	**2015**	**2020**	**2025**	**2030**	**2035**	**2040**	**2045**	**2050**	***change 2004-2050***
BE	6,2	6,4	6,6	6,8	6,9	7,1	7,3	7,5	7,6	7,6	*1,4*
DK	6,9	7,0	7,2	7,4	7,6	7,7	7,7	7,8	7,8	7,8	*1,0*
DE	6,0	6,3	6,5	6,7	6,8	6,9	7,0	7,1	7,2	7,2	*1,2*
GR	5,1	5,4	5,5	5,6	5,7	5,9	6,2	6,5	6,7	6,8	*1,7*
ES	6,1	6,3	6,5	6,7	7,0	7,3	7,6	7,9	8,1	8,3	*2,2*
FR	7,7	8,0	8,2	8,4	8,6	8,9	9,2	9,3	9,4	9,5	*1,8*
IE	5,3	5,5	5,7	5,9	6,2	6,4	6,7	6,9	7,1	7,3	*2,0*
IT	5,8	6,0	6,1	6,3	6,5	6,7	6,9	7,0	7,1	7,1	*1,3*
LU	5,1	5,3	5,4	5,6	5,7	5,9	6,1	6,2	6,3	6,3	*1,2*
NL	6,1	6,3	6,5	6,7	6,9	7,1	7,3	7,4	7,4	7,4	*1,3*
AT	5,3	5,5	5,7	5,9	6,1	6,3	6,5	6,7	6,8	6,8	*1,6*
PT	6,7	6,8	6,8	6,7	6,6	6,6	6,8	6,9	7,1	7,2	*0,5*
FI	5,6	5,8	6,0	6,2	6,4	6,6	6,9	7,0	7,0	7,0	*1,4*
SE	6,7	6,8	7,0	7,2	7,4	7,5	7,6	7,7	7,7	7,7	*1,0*
UK	7,0	7,2	7,4	7,6	7,9	8,1	8,4	8,7	8,8	8,9	*1,9*
CY	2,9	3,1	3,3	3,4	3,5	3,6	3,8	3,9	4,0	4,0	*1,1*
CZ	6,4	6,8	7,1	7,4	7,6	7,8	8,0	8,1	8,3	8,4	*2,0*
EE	5,4	5,8	6,0	6,1	6,1	6,2	6,3	6,4	6,5	6,5	*1,1*
HU	5,5	5,7	5,9	6,0	6,2	6,3	6,3	6,4	6,5	6,5	*1,0*
LT	3,7	4,0	4,2	4,3	4,3	4,4	4,4	4,5	4,6	4,6	*0,9*
LV	5,1	5,5	5,8	5,8	5,9	5,9	6,0	6,1	6,2	6,2	*1,1*
MT	4,2	4,5	4,8	5,0	5,3	5,5	5,7	5,9	6,0	6,1	*1,8*
PL	4,1	4,4	4,6	4,8	5,0	5,1	5,2	5,3	5,4	5,5	*1,4*
SK	4,4	4,7	5,0	5,2	5,5	5,7	5,9	6,0	6,2	6,3	*1,9*
SI	6,4	6,7	6,9	7,2	7,4	7,6	7,8	7,9	8,0	8,0	*1,6*
EU25	*6,4*	*6,6*	*6,8*	*7,0*	*7,2*	*7,4*	*7,6*	*7,8*	*7,9*	*7,9*	*1,6*
EU15	*6,4*	*6,7*	*6,9*	*7,1*	*7,3*	*7,5*	*7,7*	*7,9*	*8,0*	*8,1*	*1,6*
EU12	*6,3*	*6,5*	*6,7*	*6,9*	*7,1*	*7,3*	*7,5*	*7,7*	*7,8*	*7,8*	*1,5*
EU10	*4,9*	*5,2*	*5,4*	*5,5*	*5,7*	*5,8*	*6,0*	*6,1*	*6,2*	*6,2*	*1,3*

Note: EU25, EU15, EU12 and EU10 – averages weighted by GDP

Table 7-7 *High life expectancy* scenario (A-I) : projected spending on health care as % of GDP

	Projected spending as % of GDP										
	2004	**2010**	**2015**	**2020**	**2025**	**2030**	**2035**	**2040**	**2045**	**2050**	***change 2004-2050***
BE	6,2	6,4	6,7	6,9	7,1	7,3	7,6	7,8	7,9	8,0	*1,8*
DK	6,9	7,0	7,2	7,5	7,7	7,8	7,9	8,0	8,1	8,2	*1,4*
DE	6,0	6,3	6,5	6,8	7,0	7,1	7,3	7,5	7,7	7,7	*1,7*
GR	5,1	5,3	5,5	5,6	5,7	6,0	6,4	6,7	7,0	7,2	*2,1*
ES	6,1	6,3	6,5	6,7	7,0	7,4	7,7	8,1	8,3	8,6	*2,5*
FR	7,7	8,0	8,2	8,5	8,7	9,1	9,4	9,6	9,7	9,8	*2,1*
IE	5,3	5,5	5,7	5,9	6,2	6,5	6,7	7,0	7,3	7,5	*2,2*
IT	5,8	6,0	6,1	6,3	6,5	6,8	7,0	7,2	7,3	7,4	*1,6*
LU	5,1	5,3	5,7	5,9	6,0	5,9	5,8	5,7	5,6	5,5	*0,4*
NL	6,1	6,3	6,5	6,7	7,0	7,2	7,4	7,5	7,6	7,7	*1,6*
AT	5,3	5,5	5,7	6,0	6,2	6,4	6,7	6,9	7,1	7,2	*1,9*
PT	6,7	6,8	6,8	6,7	6,7	6,7	7,0	7,2	7,3	7,5	*0,8*
FI	5,6	5,8	6,0	6,2	6,5	6,8	7,0	7,2	7,3	7,3	*1,8*
SE	6,7	6,8	7,0	7,2	7,4	7,6	7,7	7,9	8,0	8,0	*1,3*
UK	7,0	7,2	7,5	7,7	8,1	8,4	8,8	9,2	9,4	9,7	*2,6*
CY	2,9	3,1	3,2	3,4	3,5	3,6	3,8	3,9	4,0	4,1	*1,2*
CZ	6,4	6,7	7,0	7,3	7,6	7,8	8,0	8,2	8,4	8,6	*2,1*
EE	5,4	5,6	5,7	5,8	5,9	6,1	6,2	6,3	6,4	6,5	*1,1*
HU	5,5	5,7	5,8	6,0	6,1	6,3	6,4	6,5	6,6	6,7	*1,2*
LT	3,7	3,8	4,0	4,1	4,1	4,2	4,3	4,4	4,5	4,5	*0,8*
LV	5,1	5,3	5,5	5,5	5,6	5,7	5,8	5,9	6,0	6,1	*0,9*
MT	4,2	4,5	4,8	5,1	5,4	5,7	6,0	6,2	6,4	6,5	*2,3*
PL	4,1	4,3	4,5	4,7	4,9	5,0	5,2	5,3	5,4	5,5	*1,4*
SK	4,4	4,6	4,9	5,1	5,4	5,6	5,8	6,0	6,2	6,3	*2,0*
SI	6,4	6,6	6,8	7,0	7,3	7,5	7,7	7,8	8,0	8,1	*1,6*
EU25	*6,4*	*6,6*	*6,8*	*7,0*	*7,3*	*7,5*	*7,8*	*8,0*	*8,2*	*8,4*	*2,0*
EU15	*6,4*	*6,7*	*6,9*	*7,1*	*7,4*	*7,6*	*7,9*	*8,2*	*8,4*	*8,5*	*2,0*
EU12	*6,3*	*6,5*	*6,7*	*7,0*	*7,2*	*7,4*	*7,7*	*7,9*	*8,1*	*8,2*	*1,9*
EU10	*4,9*	*5,1*	*5,3*	*5,4*	*5,6*	*5,8*	*5,9*	*6,1*	*6,2*	*6,3*	*1,4*

Note: EU25, EU15, EU12 and EU10 – averages weighted by GDP

Table 7-8 *Improved health* scenario (A-II) : projected spending on health care as % of GDP

	Projected spending as % of GDP										
	2004	**2010**	**2015**	**2020**	**2025**	**2030**	**2035**	**2040**	**2045**	**2050**	***change 2004-2050***
BE	6,2	6,1	6,0	6,0	6,0	6,1	6,2	6,3	6,3	6,3	*0,1*
DK	6,9	6,7	6,6	6,6	6,7	6,6	6,6	6,5	6,5	6,4	*-0,4*
DE	6,0	6,0	6,0	6,0	6,0	6,0	6,0	6,1	6,1	6,1	*0,1*
GR	5,1	5,2	5,2	5,1	5,1	5,2	5,3	5,5	5,7	5,8	*0,7*
ES	6,1	6,0	6,0	6,0	6,1	6,3	6,5	6,8	7,0	7,1	*1,0*
FR	7,7	7,7	7,7	7,7	7,7	7,9	8,0	8,1	8,1	8,2	*0,5*
IE	5,3	5,2	5,2	5,2	5,2	5,3	5,4	5,5	5,6	5,7	*0,4*
IT	5,8	5,7	5,7	5,8	5,8	5,9	6,0	6,1	6,1	6,1	*0,4*
LU	5,1	5,0	5,0	5,0	5,0	5,0	5,1	5,1	5,1	5,1	*0,0*
NL	6,1	6,1	6,2	6,3	6,4	6,4	6,5	6,5	6,5	6,4	*0,3*
AT	5,3	5,2	5,2	5,2	5,3	5,4	5,5	5,6	5,7	5,7	*0,4*
PT	6,7	6,5	6,3	6,1	5,8	5,7	5,8	5,9	5,9	6,0	*-0,7*
FI	5,6	5,5	5,5	5,6	5,7	5,8	5,9	6,0	6,0	5,9	*0,4*
SE	6,7	6,5	6,4	6,4	6,5	6,5	6,5	6,4	6,4	6,4	*-0,3*
UK	7,0	6,8	6,7	6,7	6,7	6,8	6,9	7,1	7,2	7,2	*0,2*
CY	2,9	2,9	3,0	3,1	3,1	3,1	3,2	3,2	3,3	3,3	*0,4*
CZ	6,4	6,4	6,4	6,5	6,5	6,5	6,5	6,6	6,6	6,7	*0,3*
EE	5,4	5,5	5,4	5,3	5,2	5,1	5,1	5,1	5,1	5,1	*-0,3*
HU	5,5	5,4	5,3	5,3	5,2	5,2	5,2	5,2	5,2	5,2	*-0,3*
LT	3,7	3,8	3,8	3,8	3,7	3,7	3,7	3,7	3,7	3,7	*0,0*
LV	5,1	5,2	5,2	5,1	5,0	4,9	4,9	4,9	4,9	4,9	*-0,3*
MT	4,2	4,3	4,4	4,5	4,6	4,7	4,8	4,8	4,8	4,8	*0,6*
PL	4,1	4,1	4,1	4,1	4,1	4,2	4,2	4,2	4,2	4,3	*0,2*
SK	4,4	4,4	4,5	4,6	4,6	4,6	4,7	4,8	4,8	4,9	*0,5*
SI	6,4	6,5	6,5	6,5	6,6	6,7	6,8	6,9	6,9	6,9	*0,5*
EU25	*6,4*	*6,3*	*6,3*	*6,3*	*6,3*	*6,4*	*6,5*	*6,6*	*6,6*	*6,7*	*0,3*
EU15	*6,4*	*6,4*	*6,3*	*6,3*	*6,4*	*6,5*	*6,6*	*6,7*	*6,8*	*6,8*	*0,3*
EU12	*6,3*	*6,3*	*6,3*	*6,3*	*6,3*	*6,4*	*6,5*	*6,6*	*6,7*	*6,7*	*0,4*
EU10	*4,9*	*4,9*	*4,9*	*4,8*	*4,8*	*4,8*	*4,9*	*4,9*	*4,9*	*5,0*	*0,0*

Note: EU25, EU15, EU12 and EU10 – averages weighted by GDP

Table 7-9 *EU10 cost convergence* scenario (A-III) : projected spending on health care as % of GDP

	Projected spending as % of GDP										
	2004	2010	2015	2020	2025	2030	2035	2040	2045	2050	*change 2004-2050*
CZ	6,4	6,7	6,9	7,2	7,5	7,8	8,0	8,3	8,5	8,8	*2,4*
EE	5,4	5,6	5,7	5,9	6,0	6,1	6,3	6,5	6,7	6,8	*1,4*
HU	5,5	5,7	5,8	6,0	6,2	6,4	6,6	6,8	6,9	7,1	*1,6*
LT	3,7	3,9	4,0	4,1	4,2	4,3	4,5	4,7	4,8	4,9	*1,2*
LV	5,1	5,3	5,5	5,6	5,7	5,8	6,0	6,2	6,4	6,5	*1,4*
PL	4,1	4,3	4,5	4,7	4,9	5,1	5,3	5,5	5,6	5,8	*1,7*
SK	4,4	4,6	4,7	5,0	5,2	5,4	5,6	5,9	6,1	6,3	*1,9*
SI	6,4	6,8	7,1	7,4	7,7	8,1	8,4	8,8	9,0	9,3	*2,8*
Weighted average	*5,0*	*5,1*	*5,3*	*5,5*	*5,7*	*5,9*	*6,1*	*6,3*	*6,5*	*6,7*	*1,7*

Note: average weighted by GDP

Table 7-10 *Fast cost growth* scenario (unit costs growing 1 p.p. above GDP per capita between 2005 and 2014) (A-IV) : projected spending on health care as % of GDP

	Projected spending as % of GDP										
	2004	2010	2015	2020	2025	2030	2035	2040	2045	2050	*change 2004-2050*
BE	6,2	6,8	7,3	7,5	7,7	8,0	8,2	8,4	8,5	8,5	*2,3*
DK	6,9	7,4	7,9	8,2	8,4	8,5	8,6	8,7	8,7	8,8	*1,9*
DE	6,0	6,7	7,2	7,4	7,5	7,7	7,8	8,0	8,1	8,1	*2,1*
GR	5,1	5,7	6,0	6,1	6,3	6,5	6,9	7,2	7,4	7,6	*2,5*
ES	6,1	6,7	7,1	7,4	7,7	8,0	8,4	8,7	9,0	9,2	*3,1*
FR	7,7	8,5	9,1	9,3	9,6	9,9	10,2	10,3	10,4	10,5	*2,8*
IE	5,3	5,8	6,2	6,4	6,7	7,0	7,3	7,6	7,8	8,0	*2,7*
IT	5,8	6,3	6,7	6,9	7,2	7,4	7,6	7,8	7,9	7,9	*2,1*
LU	5,1	5,6	5,9	6,1	6,2	6,4	6,5	6,7	6,8	6,8	*1,7*
NL	6,1	6,6	7,1	7,4	7,6	7,8	8,0	8,1	8,2	8,2	*2,1*
AT	5,3	5,8	6,3	6,5	6,8	7,0	7,2	7,4	7,6	7,7	*2,4*
PT	6,7	7,2	7,5	7,4	7,3	7,4	7,6	7,8	7,9	8,0	*1,3*
FI	5,6	6,1	6,6	6,8	7,1	7,3	7,6	7,7	7,8	7,8	*2,2*
SE	6,7	7,2	7,7	7,9	8,1	8,2	8,4	8,5	8,5	8,6	*1,8*
UK	7,0	7,6	8,2	8,5	8,8	9,2	9,5	9,8	10,1	10,2	*3,2*
CY	2,9	3,2	3,5	3,7	3,8	3,9	4,1	4,2	4,3	4,4	*1,5*
CZ	6,4	7,1	7,7	8,0	8,3	8,5	8,7	8,9	9,0	9,2	*2,7*
EE	5,4	5,9	6,3	6,4	6,4	6,6	6,7	6,8	6,9	6,9	*1,5*
HU	5,5	6,0	6,4	6,5	6,7	6,8	6,9	7,0	7,1	7,2	*1,7*
LT	3,7	4,1	4,3	4,4	4,5	4,5	4,6	4,7	4,8	4,8	*1,1*
LV	5,1	5,6	6,0	6,0	6,0	6,1	6,2	6,4	6,4	6,5	*1,3*
MT	4,2	4,8	5,3	5,6	5,9	6,2	6,4	6,6	6,7	6,8	*2,6*
PL	4,1	4,6	4,9	5,1	5,3	5,5	5,6	5,7	5,8	5,9	*1,8*
SK	4,4	4,9	5,3	5,6	5,8	6,1	6,3	6,5	6,6	6,8	*2,4*
SI	6,4	7,0	7,5	7,7	7,9	8,2	8,3	8,5	8,6	8,6	*2,2*
EU25	*6,4*	*7,0*	*7,5*	*7,7*	*7,9*	*8,2*	*8,4*	*8,6*	*8,8*	*8,9*	*2,5*
EU15	*6,4*	*7,1*	*7,6*	*7,8*	*8,0*	*8,3*	*8,6*	*8,8*	*8,9*	*9,0*	*2,6*
EU12	*6,3*	*6,9*	*7,4*	*7,6*	*7,8*	*8,1*	*8,3*	*8,5*	*8,7*	*8,7*	*2,4*
EU10	*4,9*	*5,4*	*5,8*	*5,9*	*6,1*	*6,3*	*6,4*	*6,5*	*6,7*	*6,7*	*1,8*

Note: EU25, EU15, EU12 and EU10 – averages weighted by GDP

Table 7-11 *Extrapolation of past trends* scenario (all components following past trends between 2005 and 2014) (A-V) : projected spending on health care as % of GDP

	Projected spending as % of GDP										
	2004	**2010**	**2015**	**2020**	**2025**	**2030**	**2035**	**2040**	**2045**	**2050**	***change 2004-2050***
BE	6,2	6,4	6,6	6,8	7,0	7,2	7,4	7,6	7,7	7,7	*1,5*
DK	6,9	7,2	7,5	7,7	7,9	8,1	8,1	8,2	8,2	8,3	*1,4*
DE	6,0	6,4	6,6	6,8	6,9	7,1	7,2	7,3	7,4	7,4	*1,4*
GR	5,1	5,5	5,7	5,8	5,9	6,2	6,5	6,8	7,1	7,2	*2,1*
ES	6,1	6,4	6,6	6,8	7,1	7,4	7,8	8,1	8,3	8,5	*2,4*
FR	7,7	7,9	8,1	8,3	8,5	8,8	9,1	9,2	9,3	9,4	*1,7*
IE	5,3	5,8	6,0	6,2	6,5	6,8	7,1	7,3	7,5	7,7	*2,4*
IT	5,8	6,1	6,3	6,5	6,7	7,0	7,2	7,3	7,4	7,4	*1,6*
LU	5,1	5,2	5,4	5,5	5,6	5,8	5,9	6,1	6,1	6,2	*1,1*
NL	6,1	6,1	6,2	6,5	6,7	6,9	7,0	7,1	7,2	7,2	*1,1*
AT	5,3	5,5	5,8	6,0	6,2	6,4	6,6	6,8	7,0	7,0	*1,8*
PT	6,7	7,0	7,0	6,9	6,8	6,9	7,1	7,2	7,4	7,5	*0,8*
FI	5,6	6,0	6,3	6,6	6,8	7,1	7,3	7,4	7,5	7,5	*1,9*
SE	6,7	6,8	7,0	7,2	7,3	7,5	7,6	7,7	7,8	7,8	*1,1*
UK	7,0	7,1	7,3	7,5	7,8	8,2	8,5	8,8	9,0	9,1	*2,1*
CY	2,9	2,9	3,0	3,1	3,2	3,4	3,5	3,6	3,7	3,7	*0,8*
CZ	6,4	6,7	6,9	7,2	7,4	7,6	7,8	8,0	8,1	8,2	*1,8*
EE	5,4	5,5	5,6	5,6	5,7	5,8	5,9	6,0	6,1	6,1	*0,7*
HU	5,5	6,0	6,2	6,3	6,5	6,6	6,7	6,8	6,9	7,0	*1,5*
LT	3,7	3,7	3,8	3,9	3,9	4,0	4,0	4,1	4,2	4,2	*0,5*
LV	5,1	5,1	5,2	5,2	5,2	5,3	5,4	5,5	5,6	5,6	*0,5*
MT	4,2	4,8	5,2	5,5	5,8	6,0	6,3	6,5	6,6	6,7	*2,5*
PL	4,1	4,2	4,3	4,5	4,7	4,8	4,9	5,0	5,1	5,2	*1,1*
SK	4,4	4,5	4,7	4,9	5,2	5,4	5,5	5,7	5,9	6,0	*1,6*
SI	6,4	6,6	6,7	6,9	7,1	7,3	7,5	7,6	7,7	7,7	*1,3*
EU25	*6,4*	*6,6*	*6,8*	*7,0*	*7,2*	*7,4*	*7,7*	*7,9*	*8,0*	*8,1*	*1,7*
EU15	*6,4*	*6,7*	*6,9*	*7,1*	*7,3*	*7,6*	*7,8*	*8,0*	*8,1*	*8,2*	*1,8*
EU12	*6,3*	*6,6*	*6,8*	*7,0*	*7,2*	*7,4*	*7,6*	*7,8*	*7,9*	*8,0*	*1,7*
EU10	*4,9*	*5,1*	*5,2*	*5,3*	*5,5*	*5,6*	*5,8*	*5,9*	*6,0*	*6,1*	*1,1*

Note: EU25, EU15, EU12 and EU10 – averages weighted by GDP

8. DATA USED TO MAKE THE PROJECTIONS ON LONG-TERM CARE

In order to run the projections on long-term care, the following data inputs are needed for each year of the projection exercise:

- *Population by age group and gender*: the AWG scenario population projection is used;

- *Prevalence rates of dependency by age and gender:* for the countries for which it is available, the model currently uses age and gender-specific rates from the SHARE project. The prevalence rates can be either kept constant or assumed to change over time to reflect expected changes;

- *Probability of receiving different types of long-term care by age and gender*: this is calculated in the base year, using estimates on the numbers of people with dependency and data on the numbers of people receiving formal care at home and the numbers of dependent people in long-term care institutions. It is proposed to assume that the difference between the total number of dependent people and the total number of people receiving formal care (at home or in institutions) is the number of people who rely exclusively on informal care, or no care. This assumption was also used in the *European Study of Long-Term Care Expenditure* (see Pickard 2003, page 187, for a discussion);

- *Average public expenditure per individual (for formal care at home and institutional care):* these figures are obtained by dividing total public expenditure on formal care at home/institutional care by the total number of users of formal care at home and the total number of dependent residents in institutions, respectively;

- *Public expenditure in disability-related benefits*: this is obtained from estimates from each country.

In order to calculate these variables, AWG members were asked to provide data on national sources on:

- age-specific public long-term care expenditure profiles;
- total public long-term care expenditure;
- total public expenditure on institutional care;
- total public expenditure on home care;
- total public expenditure on long-term care cash benefits;
- number of dependent users of institutional care, by five-year age group and gender;
- number of dependent users of home care, by five-year age group and gender.
- number of recipients of cash benefits, by five-year age group and gender.

Table 8-1 provides a detailed description of data received from Member States.

Table 8-1 Detailed description of data received on long-term care

Indicator	Possible split	Availability											
		BE	DK	DE	GR	ES	FR	IE	IT	LU	NL	AT	PT
Total public spending on long-term care	in euros	2003	2003	2004	X	2003	2004	2004	2004	2004	X	2003	X
Per capita public spending on long-term care	Male, Female	2001 m/f	2003 m/f	2004 total	X	X	X	X	2004	2003 m/f	total	X	X
	Single year	0, ... , 100+	0, ... , 100								0, ... , 99	X	X
	5-year cohorts	0-4, ... , 95+	50-54, ... , 100+	0-14, 15-19, ... , 90+					0-4, ... , 95+				
Total number of dependent people receiving long-term care in institutions	Male, Female	2003 m/f	2005 total	2004 total	X	2003 m/f	X	2004	2004	2004	2001 m/f	X	X
	Single year				X		X	<64, 65+		X	55, ... , 99+	X	X
	5-year cohorts	<60, 60-64; ... , 95+		0-14, 15-19, ... , 90+	X	<65, >80	X	<40, 40-64, 65-69, ... 95+	0-4, ... , 90+	0-18, 19-39, 39-59, 60-69, 70-79, 80-89, 90+		X	X
Total number of dependent people receiving long-term care at home	Male, Female	2003 m/f	2005	2004 total	X	2003 m/f	X	X	2004	2004	X	X	X
	Single year				X		X	X		X	X	X	X
	5-year cohorts	<60, 60-64; ... , 95+	<65, 65-66, 67-79, 80+	0-14, 15-19, ... , 90+	X	<80, >80	X	X	0-4, ... , 90+	X	X	X	X
Total public expenditure on long-term institutional care	in euros	2003	X	2003	X	2003	X	2004	2004	2004	X	X	X
Total public expenditure on long-term care at home	in euros	2003	X	2003	X	2003	X	2004	2004	2004	X	X	X
Total number of recipients of long-term care-related cash benefits	Male, Female	2003 total	X	2003 total	X	2003 m/f	X	2004	2004	X	2003 total	2004 m/f	X
	Single year									X		0,1, ... , 99+	X
	5-year cohorts							0-4, 60-64, ... , 65+	0-4, ... , 90+	X			X
Total public expenditure on long-term care-related cash benefits	in euros	2003 total		2003	X	X	X	2004	2004	X	2003 total	2004	X

Indicator	Possible split	Availability												
		FI	SE	UK	CY	CZ	EE	HU	LT	LV	MT	PL	SK	SI
Total public spending on long-term care	in euros	2003	2004	2002/03	2004	2003	2003	X	2004	2003	2003		2003	X
Per capita public spending on long-term care	Male, Female	2003	2004	2002/03	X	2003 m/f	X	X	2004 m/f	2003 m/f	2003 m/f	m/f	X	2004
	Single year								0, …, 100+	0, …, 100+		0, …, 100+	X	X
	5-year cohorts	0-4, …, 95+	1,…, 100	0-4, …, 100+		0-4, …, 85+					<60, 60-64, …, 80+		X	X
Total number of dependent people receiving long-term care in institutions	Male, Female	2003 total	2003 total	2002 estimate m/f	X	2003 total	X	X	2004 m/f	2004 total 2003 m/f	2003 m/f	2004 total	m/f 2004	2004
	Single year								0, …, 100	0-4, …100+			X	X
	5-year cohorts	0-64, …, 85+	65, .., 100	65-69, …, 85+		X							X	X
Total number of dependent people receiving long-term care at home	Male, Female	2003 total	2003 total	2002	X	2003 total	X	X	2004 m/f total	2004 total	X	2004 total	2003 total	X
	Single year					X				X			X	X
	5-year cohorts	0-64; 65-74; 75-84; 85+	65, .., 100			X				X			X	X
Total public expenditure on long-term institutional care	in euros	2003	2004	2002/ 2003	X	2003	X	X	2004	2003	2003	2003	2003	2004
Total public expenditure on long-term care at home	in euros	2003	2004	2002/ 2003	X	2003	X	X	2004	2004	2003	2004	2003	2004
Total number of recipients of long-term care-related cash benefits	Male, Female	2003 total	X	X	X	X	X	X	2004 total	X	2003	2004 total	2004 total	X
	Single year													
	5-year cohorts	0-4; 95+									2003			
Total public expenditure on long-term care-related cash benefits	in euros	2003 total	X	X	2004	2003 total	X	X	2004 total	X	X	2004 total	2004 total	2004

9. ADDITIONAL SCENARIOS FOR PUBLIC SPENDING ON LONG-TERM CARE

Table 9-1 presents the overview of additional scenarios (sensitivity tests) that complement the analysis of factors affecting public long term care spending presented in chapter 5 of the report.

Table 9-1 Overview of additional scenarios for public spending on long-term care

	High life expectancy	**Improved disability scenario**	**Increase in formal care - all in the home**	**Increase in formal care - all in institutions**
	A-I	**A-II**	**A-III**	***A-IV***
Population projection	*AWG scenario - high life expectancy*	AWG scenario - baseline	AWG scenario - baseline	AWG scenario - baseline
Disability status over time	Disability rates held constant at 2004 level	Age-specific disability rates fall twice as fast as age-specific mortality rates (compression of morbidity)	Disability rates held constant at 2004 level	Disability rates held constant at 2004 level
Policy setting	Probability of receiving care held constant at 2004 level	Probability of receiving care held constant at 2004 level	1% p.a. decrease in number of persons receiving informal care up to 2020 all going to home care	1% p.a. decrease in number of persons receiving informal care up to 2020 all going to institutions
Unit costs	GDP per worker	GDP per worker	GDP per worker	GDP per worker

9.1. High life expectancy scenario

Scenario A-I examines the impact of *higher life expectancy* on long-term care spending. It is based on the same assumptions as the pure ageing scenario (I) presented in chapter 4, except that it uses the high life expectancy population projection rather than the AWG population scenario: for more details, see chapter 2 in EPC and European Commission (2005a).

On average, public expenditure on long-term care is projected to increase by close to 1 p.p. of GDP over the period 2004-2050. A mildly stronger increase is projected compared to the pure ageing scenario over the whole projection period. Public expenditure on long-term care starts increasing faster than under the pure ageing scenario after 2040. Such results illustrate the demographic effect of higher life expectancy, whereby people live longer and require long-

term care services for a longer period of time. This effect has not fully materialised before the end of the projection period.

Table 9-2 Projection results for the "*high life expectancy*" scenario (A-I)

	Projected spending as % of GDP							*Difference as % of GDP compared to pure demographic scenario*		
	2004	**2010**	**2020**	**2030**	**2040**	**2050**	***2004-2050***	**2010**	**2030**	**2050**
BE	0.9	1.0	1.1	1.4	1.9	2.2	*1.4*	0.0	0.1	0.2
DK	1.1	1.2	1.4	2.0	2.4	2.9	*1.7*	0.0	0.1	0.3
DE	1.0	1.0	1.3	1.5	1.9	2.4	*1.5*	0.0	0.1	0.2
GR										
ES	0.5	0.5	0.5	0.6	0.7	0.9	*0.3*	0.0	0.0	0.0
FR										
IE	0.6	0.6	0.6	0.8	1.1	1.5	*0.9*	0.0	0.0	0.1
IT	1.5	1.5	1.6	1.8	2.1	2.5	*0.9*	0.0	0.0	0.1
LU	0.9	1.0	1.1	1.3	1.7	2.1	*1.2*	0.0	0.1	0.3
NL	0.5	0.5	0.6	0.9	1.1	1.3	*0.9*	0.0	0.0	0.1
AT	0.6	0.6	0.6	0.6	0.7	0.7	*0.1*	0.0	0.0	0.0
PT										
FI	1.7	1.9	2.3	3.3	4.1	4.3	*2.6*	0.0	0.1	0.3
SE	3.8	3.8	4.0	5.6	6.2	6.9	*3.0*	0.0	0.2	0.6
UK	1.0	1.0	1.1	1.5	1.8	2.2	*1.2*	0.0	0.0	0.2
CY										
CZ	0.3	0.3	0.4	0.6	0.7	0.9	*0.5*	0.0	0.0	0.1
EE										
HU										
LT	0.5	0.6	0.6	0.7	0.8	1.0	*0.6*	0.0	0.0	0.1
LV	0.4	0.4	0.5	0.6	0.8	0.9	*0.5*	0.0	0.0	0.1
MT	0.9	0.9	0.9	1.1	1.3	1.3	*0.4*	0.0	0.0	0.1
PL	0.1	0.1	0.1	0.1	0.2	0.2	*0.1*	0.0	0.0	0.0
SK	0.7	0.8	0.8	0.9	1.2	1.5	*0.8*	0.0	0.0	0.1
SI	0.9	1.1	1.4	1.6	2.2	2.6	*1.7*	0.0	0.1	0.2
EU25	*0.9*	*0.9*	*1.0*	*1.2*	*1.5*	*1.8*	*0.9*	*0.0*	*0.0*	*0.1*
EU15	*0.9*	*0.9*	*1.0*	*1.3*	*1.5*	*1.8*	*1.0*	*0.0*	*0.0*	*0.1*
EU10	*0.2*	*0.3*	*0.3*	*0.4*	*0.5*	*0.6*	*0.3*	*0.0*	*0.0*	*0.0*

Note: EU25, EU15 and EU10 – average weighted by GDP

9.2. Improved disability scenario

The *improved disability* scenario *(scenario A-II*) is inspired by the compression of morbidity hypothesis. It assumes that the number of years spent in bad health and with disability during a life time is lower in 2050 compared to that in 2004, i.e. it involves a shortening of the share of one's lifespan spent with disability, so that the age-specific disability rate falls twice as fast as the mortality rate.

Table 9-3 presents the projection results. If disability rates are assumed to fall twice as fast as mortality rates, practically all the effects of an ageing population on public spending will be offset by positive developments in the disability status. Public long-term care spending is projected to remain broadly constant.

Table 9-3 Projection results for the "*improved disability*" scenario (A-II)

	Projected spending as % of GDP							*Difference as % of GDP compared to pure demographic scenario*		
	2004	**2010**	**2020**	**2030**	**2040**	**2050**	***2004-2050***	**2010**	**2030**	**2050**
BE	0.9	0.9	0.9	0.9	1.0	1.0	*0.2*	-0.1	-0.5	-1.0
DK	1.1	1.1	1.0	1.2	1.2	1.2	*0.1*	-0.1	-0.7	-1.3
DE	1.0	1.0	1.0	1.0	1.1	1.3	*0.3*	-0.1	-0.4	-1.0
GR										
ES	0.5	0.5	0.5	0.5	0.5	0.6	*0.1*	0.0	-0.1	-0.2
FR										
IE	0.6	0.5	0.5	0.6	0.6	0.7	*0.1*	0.0	-0.2	-0.6
IT	1.5	1.5	1.4	1.5	1.6	1.7	*0.2*	-0.1	-0.3	-0.7
LU	0.9	0.9	0.8	0.8	0.8	0.8	*-0.1*	-0.1	-0.4	-0.9
NL	0.5	0.4	0.4	0.5	0.6	0.6	*0.1*	0.0	-0.3	-0.6
AT										
PT										
FI	1.7	1.8	1.8	2.2	2.2	2.1	*0.4*	-0.1	-1.0	-1.9
SE	3.8	3.4	3.0	3.6	3.3	3.2	*-0.6*	-0.3	-1.8	-3.1
UK	1.0	0.9	0.9	1.0	1.0	1.0	*0.0*	-0.1	-0.5	-1.0
CY										
CZ	0.3	0.3	0.3	0.4	0.4	0.4	*0.1*	0.0	-0.2	-0.4
EE										
HU										
LT	0.5	0.5	0.5	0.5	0.5	0.6	*0.1*	0.0	-0.2	-0.4
LV	0.4	0.4	0.4	0.4	0.4	0.4	*0.0*	0.0	-0.2	-0.4
MT	0.9	0.9	0.8	0.9	0.9	0.8	*-0.1*	0.0	-0.2	-0.4
PL	0.1	0.1	0.1	0.1	0.1	0.1	*0.0*	0.0	0.0	-0.1
SK	0.7	0.7	0.7	0.7	0.9	0.9	*0.2*	0.0	-0.2	-0.5
SI	0.9	1.0	1.1	1.2	1.4	1.4	*0.5*	-0.1	-0.4	-1.0
EU25	*0.8*	*0.8*	*0.8*	*0.8*	*0.9*	*0.9*	*0.1*	*-0.1*	*-0.3*	*-0.7*
EU15	*0.9*	*0.8*	*0.8*	*0.9*	*0.9*	*1.0*	*0.1*	*-0.1*	*-0.4*	*-0.8*
EU10	*0.2*	*0.3*	*0.2*	*0.3*	*0.3*	*0.3*	*0.1*	*0.0*	*-0.1*	*-0.2*

Note: EU25, EU15 and EU10 – average weighted by GDP

9.3. Increase in formal care – all people receive formal care at home

Scenario A-III examines the impact of a change in policy setting in which the supply of informal or no care is assumed to decrease by 1% p.a. until 2020 with the people who no longer receive informal or no care receiving formal care at home.

Table 9-4 shows the projection results. The increase in supply of formal care leads to higher public expenditure on long-term care as compared to the *"pure ageing scenario"*. If the people who used to receive informal or no care are assumed to receive formal care at home, public spending over the projection period would increase by 1.3 p.p. (1.4 p.p. in the EU15 and a mere 0.4 p.p. in the EU10). The projected increase is lower than in the scenario IV in chapter 5 which assumes the same increase in the population receiving formal care, but where the population is split in two, with half of the people receiving formal care at home and the other half receiving care in institutions. This is explained by the difference in unit cost of the two types of care services, with formal care at home being less costly than formal care in institutions.

Table 9-4 Projection results for the scenario *"increase in formal care" (A-III)*

	Projected spending as % of GDP							*Difference as % of GDP compared to pure demographic scenario*		
	2004	**2010**	**2020**	**2030**	**2040**	**2050**	***2004-2050***	**2010**	**2030**	**2050**
BE	0.9	1.0	1.2	1.5	2.0	2.3	*1.4*	0.0	0.1	0.2
DK										
DE	1.0	1.1	1.4	1.6	2.0	2.4	*1.5*	0.0	0.1	0.2
GR										
ES	0.5	0.6	0.7	0.8	1.0	1.3	*0.7*	0.1	0.2	0.4
FR										
IE	0.6	0.6	0.7	0.8	1.1	1.4	*0.8*	0.0	0.0	0.1
IT	1.5	1.6	1.8	2.0	2.3	2.7	*1.1*	0.1	0.2	0.3
LU	0.9	1.0	1.3	1.4	1.7	2.0	*1.1*	0.1	0.2	0.2
NL	0.5	0.5	0.6	0.8	1.0	1.2	*0.7*	0.0	0.0	0.0
AT										
PT										
FI	1.7	2.0	2.4	3.5	4.2	4.3	*2.6*	0.1	0.3	0.4
SE	3.8	3.8	4.0	5.5	6.0	6.5	*2.7*	0.1	0.2	0.2
UK	1.0	1.5	2.2	2.8	3.4	4.0	*3.1*	0.4	1.4	2.0
CY										
CZ	0.3	0.4	0.6	0.9	1.1	1.3	*1.0*	0.1	0.3	0.5
EE										
HU										
LT	0.5	0.6	0.7	0.8	0.9	1.1	*0.6*	0.0	0.1	0.2
LV	0.4	0.6	0.9	1.0	1.3	1.5	*1.1*	0.1	0.4	0.7
MT	0.9	0.9	0.9	1.1	1.2	1.2	*0.4*	0.0	0.0	0.0
PL	0.1	0.1	0.1	0.2	0.2	0.2	*0.1*	0.0	0.0	0.0
SK	0.7	0.8	0.9	1.0	1.4	1.7	*1.0*	0.0	0.1	0.2
SI	0.9	1.1	1.4	1.6	2.2	2.5	*1.6*	0.0	0.0	0.1
EU25	*0.8*	*1.0*	*1.2*	*1.5*	*1.8*	*2.1*	*1.3*	*0.1*	*0.3*	*0.5*
EU15	*0.9*	*1.0*	*1.2*	*1.6*	*1.9*	*2.2*	*1.4*	*0.1*	*0.3*	*0.5*
EU10	*0.2*	*0.3*	*0.4*	*0.4*	*0.6*	*0.7*	*0.4*	*0.0*	*0.1*	*0.1*

Note: EU25, EU15 and EU10 – average weighted by GDP

9.4. Increase in formal care – all people receive formal care in institutions

Scenario A-IV examines the impact of a similar change in policy setting, where the people who no longer receive informal or no care is assumed to receive formal care in institutions. This scenario explores the policy option of providing formal care in institutions, which is relatively more costly than formal care at home. Table 9-5 shows the projection results. The increase in supply of formal care leads to higher public expenditure on long-term care; public spending over the projection period would increase by 1.6 p.p. (1.7 p.p. in the EU15 and 0.8 p.p. in the EU10).

Table 9-5 Projection results for the scenario *"increase in formal care" (A-IV)*

	Projected spending as % of GDP							*Difference as % of GDP compared to pure demographic scenario*		
	2004	**2010**	**2020**	**2030**	**2040**	**2050**	***2004-2050***	**2010**	**2030**	**2050**
BE	0.9	1.0	1.3	1.6	2.1	2.4	*1.5*	0.1	0.2	0.3
DK										
DE	1.0	1.2	1.7	2.0	2.6	3.2	*2.2*	0.2	0.6	0.9
GR										
ES	0.5	0.7	1.0	1.2	1.6	2.1	*1.6*	0.2	0.6	1.3
FR										
IE	0.6	0.7	0.8	1.1	1.4	1.8	*1.2*	0.1	0.3	0.5
IT	1.5	1.8	2.4	2.7	3.2	3.9	*2.3*	0.3	0.9	1.5
LU	0.9	1.1	1.5	1.6	2.0	2.3	*1.4*	0.2	0.4	0.6
NL	0.5	0.9	1.5	2.3	2.9	3.3	*2.8*	0.4	1.4	2.1
AT										
PT										
FI	1.7	2.1	2.7	3.9	4.7	4.8	*3.1*	0.2	0.7	0.9
SE	3.8	4.0	4.4	6.0	6.5	7.1	*3.3*	0.2	0.7	0.8
UK	1.0	1.3	1.7	2.3	2.7	3.2	*2.2*	0.3	0.8	1.2
CY										
CZ	0.3	0.4	0.5	0.8	1.0	1.1	*0.8*	0.1	0.2	0.4
EE										
HU										
LT	0.5	0.8	1.1	1.2	1.6	1.9	*1.4*	0.2	0.6	1.0
LV	0.4	1.2	2.6	3.0	3.7	4.6	*4.2*	0.8	2.4	3.7
MT	0.9	0.9	0.9	1.1	1.3	1.3	*0.4*	0.0	0.0	0.0
PL	0.1	0.2	0.3	0.4	0.5	0.6	*0.5*	0.1	0.2	0.4
SK	0.7	0.9	1.0	1.2	1.6	2.0	*1.3*	0.1	0.3	0.6
SI	0.9	1.5	2.3	2.9	4.0	4.7	*3.8*	0.4	1.3	2.3
EU25	*0.8*	*1.0*	*1.4*	*1.7*	*2.0*	*2.4*	*1.6*	*0.2*	*0.5*	*0.8*
EU15	*0.9*	*1.1*	*1.4*	*1.8*	*2.1*	*2.5*	*1.7*	*0.2*	*0.5*	*0.8*
EU10	*0.2*	*0.4*	*0.5*	*0.7*	*0.9*	*1.0*	*0.8*	*0.1*	*0.3*	*0.5*

Note: EU25, EU15 and EU10 – average weighted by GDP

10. METHODOLOGY FOR CORE PROJECTIONS OF UNEMPLOYMENT BENEFIT EXPENDITURE

In order to assess whether and by how much the projected changes in labour market performance will affect UB expenditure (as % of GDP), a simple methodology has been used.

The basic approach applied to the projections of UB expenditure generates projections of UB expenditure, expressed as a share of GDP, where average expenditure per head grows at the same rate as GDP per worker in each projection year.

Step 1 - Estimation of current per capita expenditure

In order to obtain current per capita spending, total UB expenditure (UB) in the base year can be decomposed according to the following identity:

$$ub_{pc}^{b} = \frac{UB^{b}}{UP^{b}}$$

Where UB^{b} = total expenditure on UB in base year in national currency;

UP^{b} = numbers of unemployed persons in base year;

ub_{pc}^{b} = average UB expenditures for each unemployed persons in base year expressed in national currency;

b = base year.

Step 2 Expressing per capita expenditure in terms of productivity level (GDP per employed person)

Base year UB expenditure for unemployed person (ub_{pc}^{b}) can be deflated by base-year GDP per worker, such that:

$$yub_{pc}^{b} = \frac{ub_{pc}^{b}}{\left(GDP^{b} / E^{b}\right)}$$

where: yub_{pc}^{b} = average UB expenditure for each unemployed person in the base year b, expressed as a share of base year GDP per worker;

E^{b} = total employment in base year; and

GDP^{b} = national GDP in base year.

Step 3 Matching the base-year profiles to the future labour market structure

The "deflated" per capita expenditure for the base year yub_{pc}^{b} is then matched to the unemployment vector UP^{t} for each of the projection years t from 2000-2050 as follows:

$$yub_{pc}^{b} * UP^{t} = \frac{ub_{pc}^{b}}{\left(GDP^{b}/E^{b}\right)} \times UP^{t} = \frac{\overline{UB^{t}}}{\left(GDP^{t}/E^{t}\right)}$$

where $\overline{UB^{t}}$ = projected total UB expenditure in projection year t (the bar above the variable denotes that it is projection); and

This step generates the projected total UB expenditure expressed as a share of GDP per worker, under the implicit assumption that UB expenditure per head grows at the same rate as GDP per worker. This, in turn, implies (see equation 3 in the main test) unchanged unemployment benefit schemes (mainly gross replacement rates, coverage, take-up ratio) and a constant wage share in income distribution, that is, average wage per capita grows at the same rate as labour productivity (GDP per worker).

Step 4 - Expressing the results as a share of projected national GDP for each projection year

The results can then be expressed in terms of projected national GDP for each of the projection years by dividing by projected employment levels as follows:

$$\frac{\overline{UB^{t}}}{GDP^{t}} = \frac{yub_{pc}^{\ b} * UP^{t}}{E^{t}}$$

Thus, projections of UB expenditure as a share of GDP can be generated using only UB expenditure and GDP levels in the base year, and existing projections for the unemployed and employed persons.

11. THE APPROACH USED AT EU LEVEL TO ASSESS THE SUSTAINABILITY OF PUBLIC FINANCES

11.1. Background and approach

11.1.1. The mandate from the European Council

The projected demographic change, with the old-age dependency ratio doubling over the coming decades in the EU, has led to growing concerns regarding the long-term sustainability of public finances. Since the launch of the euro, in 1999, the EU has sought to integrate an examination of the sustainability of public finances into the existing EU framework for the surveillance of Member States' economic and budgetary policies, in line with the conclusions of the Stockholm European Council (March 2001). The Stockholm European Council agreed that the Council should regularly review the long-term sustainability of public finances, including the expected strains caused by the demographic changes ahead in the context of the stability and convergence programmes and outlined a three-pronged strategy to address the economic and budgetary consequences of ageing populations, i.e. reducing public debt at a fast pace, raising employment rates especially amongst women and older workers, and reforms of pensions and health-care systems including appropriate recourse to the funding of public pensions.

The importance attached to ensure sustainability of public finances was confirmed by the Barcelona European Council in March 2002 and the March 2003 ECOFIN Council. In addition, the 20 March 2005 ECOFIN Council emphasised long-term sustainability issues in the context of the agreement of the 2005 reform of the Stability and Growth Pact[7]. Specifically, the Council stressed that sufficient attention should be given in the surveillance of budgetary positions to debt and sustainability so as to safeguard the sustainability of public finances in the long run.

The Commission and the Council is therefore regularly producing the assessment of long-term sustainability of public finances in the context of the Stability and Growth Pact. These assessments are an integral part of budgetary surveillance of the Stability and Convergence Programmes[8]. An overview of the assessments of public finance sustainability is available in the Commission's Public Finances in EMU reports[9].

---

[7] The new Stability and Growth Pact entered into force with the adoption of: (i) Council Regulation (EC) No 1055/2005 amending Regulation (EC) No 1466/97 on the strengthening of the surveillance of budgetary positions and the surveillance and coordination of economic policies; and, (ii) Council Regulation (EC) No 1056/2005 amending Regulation (EC) No 1467/97 on speeding up and clarifying the implementation of the excessive deficit procedure.

[8] See the Commission's web-site for all information relating to the implementation of budgetary surveillance and the Stability and Growth Pact, available at: http://europa.eu.int/comm/economy_finance/about/activities/sgp/main_en.htm.

[9] See European Commission (2005), Public Finances in EMU – 2005 and earlier editions of this report, available at: http://europa.eu.int/comm/economy_finance/publications/publicfinance_en.htm

11.1.2. An assessment based on quantitative indicators and qualitative information

In the absence of an agreed definition in the literature as to what constitutes a sustainable public finance position, a pragmatic approach was adopted. Sustainability of public finances is assessed against the government's intertemporal budget constraint and the budgetary requirements of EMU; in particular, the Treaty requirement to keep debt levels below the 60% of GDP. At the same time, it was recognised that sustainability of public finances is a multifaceted policy challenge. Aside from avoiding deficits and debt accumulation, sustainability in addition requires that tax burdens remain at reasonable levels and that other non-age-related expenditures (infrastructure, R&D) are not squeezed out.

In recognition of this, the Commission's and the Council's assessments examines both quantitative and qualitative information, aiming at capturing the degree of budgetary risks associated with current policies and ageing populations. The approach to assess public finance sustainability in the EU has been broadly similar since 2001 when the first exercise was carried out, though it is important to note that a number of improvements have been undertaken in order to enhance the quality of the assessment.

In view of ensuring comparable analysis and assessments of the sustainability of public finances in the EU, the EPC considers that long-term projections made within the context of the common projections exercise should be used. The importance of the common budgetary projections is underlined by the 2005 reform of the Stability and Growth Pact and the Code of Conduct, according to which the common projections should be included in the annual stability and convergence programmes. These projections will form the basis of the assessment of public finance sustainability. This will contribute to increase the comparability of the projections across countries, with positive effects on the assessment of public finance sustainability made by the Commission and the Council[10].

11.1.3. Projecting debt on the basis of long-term budgetary projections

The main quantitative tool used in the EU surveillance of sustainability of public finances is extrapolation of debt, with budgetary developments incorporating long-term projections of government expenditure that evolve in line with demographic projections, thus indicating the budgetary impact of ageing populations. Based on the long-term budgetary projections, sustainability gap indicators provide a gauge of the scale of budgetary adjustment required for a Member State to reach a sustainable public finance position over the long term as measured by the different definitions used.

The extrapolation of the debt to GDP ratio relies on several assumptions:

- Tax revenues remain constant as a share of GDP over the projection period[11];

---

[10] The new Code of Conduct, the 'Specifications on the implementation of the Stability and Growth Pact and Guidelines on the format and content of Stability and Convergence Programmes' is available at: http://europa.eu.int/comm/economy_finance/about/activities/sgp/codeofconduct_en.pdf

[11] The EPC (2001) considered that if national projections of changes in the revenue-to-GDP ratio due to ageing populations are available, they should be considered by the Commission and the Council in their assessments of public finance sustainability. In the 2004 assessment round of the Stability and Convergence Programmes made by the Commission and the Council, changes in the tax ratio were included in the

- Projected age-related related expenditures evolve in line with the available demographic projections;
- Non-age related primary expenditures remain constant as a share of GDP at the last year covered by the programme over the projection period[12];
- The GDP deflator is fixed at 2% for the whole projection period;
- The GDP real growth rate is country specific and is projected using the commonly agreed assumptions in the current exercise[13];
- an assumption of a real interest rate of 3% for all countries is made in the current exercise[14].

The treatment of temporary budgetary effects due to the cycle or to one-off measures has developed significantly over time. In the first two waves of assessment (2001 and 2002), the budgetary position of the last year of the programme was measured in nominal terms (not adjusted for the cycle). This implied that temporary budgetary effects were assumed constant over time. Since the 2003 assessment, the budgetary figures have been corrected for the cycle and in the 2004 assessment they were also corrected for one-off measures.

The debt concept used by the Commission is Maastricht gross debt. However, governments may hold assets which contribute positively to the sustainability of public finances. Since reducing debt or accumulating liquid assets in public pension schemes, has a similar effect on fiscal sustainability – with the latter strategy however not reflected in the gross debt measure – these are taken into account in the analysis of public finances sustainability, i.e. an *adjusted gross debt* measure is calculated (see Annex 11). For several countries, this adjustment has a profound impact on the evolution of debt.

These debt projections are made assuming that stock-flow adjustments (SFA) are zero over the projection period. Existing plans (e.g. privatisations that affect debt but not the deficit) are included during the period covered by the programme according to information provided in the SCPs).

It is important to recall that the purpose of debt extrapolation is to signal possible imbalances on the basis of current policies and projected age-related expenditure trends. However, being a mechanical, partial equilibrium analysis[15], projections are in some cases bound to show

---

Stability and Convergence Programmes for seven Member States (Denmark, Germany, the Netherlands, Sweden, Latvia, Lithuania and Estonia), which were incorporated in the sustainability analysis.

12 These include mainly public investment, other social expenditure apart from education, health and pensions, purchases of goods and services not due to age-related expenditures, compensation of employees (excluding the staff in education and health care sectors). The Commission took into account the decline in the non-age related expenditures in the case of the UK only. The dynamics reflects the current set of legislation in place, according to which most non-pension social benefits will rise in line with prices after 2009-10, thus reducing their share of GDP.

13 In the 2004 assessment round of the Stability and Convergence Programmes made by the Commission and the Council, real GDP growth rates used in the sustainability analysis was taken from the programmes for almost all countries.

14 In the assessments made during 2001-2004, the assumed nominal interest rate was assumed to be around 5.5% (1.75% real growth rate in the EU15 plus 2% inflation in line with the ECBs target plus an interest-growth rate differential of 2%). In the current exercise, a real interest rate of 3% is assumed for all 25 Member States plus 2% inflation, i.e. a 5% nominal interest rate.

15 For example, the interest rate does not depend on the level of debt.

highly accentuated profiles. As a consequence, the projected evolution of debt levels is not a forecast of likely or even possible outcomes and should not be taken at face value. Instead, the indicators are a tool to facilitate policy debate and at best provide an indication of the timing and scale of emerging budgetary challenges that could occur on the basis of 'no policy change'. In practice, it is likely that governments would respond to either explosive debt trajectories or the implosion of debt leading to the accumulation of large net assets.

11.1.4. Quantitative indicators

Based on the long-term budgetary projections and the assumptions given in section 8.1.3, sustainability gap indicators provide an indication of budgetary adjustment required for a Member State to reach a sustainable public finance position over the long term as measured by the different definitions used. On the basis of the work of the Economic Policy Committee (2001 and 2003), two indicators are used to quantify the sustainability of public finances based on the debt projections. The indicators are described in detail in Annex 9.

S1 shows the difference, the sustainability gap, between the constant revenue ratio as a share of GDP required to reach a debt ratio in 2050 of 60% of GDP and the current revenue ratio[16]. Formally, the S1 indicator is a sum of three terms.

$$S_1 = \underbrace{rD_{t_0} - PB_{t_0}}_{A} + \underbrace{\frac{r(D_{t_0} - 60)}{(1+r)^{2050-t_0} - 1}}_{B} \underbrace{- \frac{\sum_{t=t_0+1}^{2050} \frac{\Delta PB_t}{(1+r)^{t-t_0}}}{\sum_{t=t_0+1}^{2050} \frac{1}{(1+r)^{t-t_0}}}}_{C} \qquad (1)$$

where:

D_t gross government debt (including pension funds assets) at date t relative to GDP

PB_t structural primary balance, i.e. cyclically-adjusted primary balance net of one-off and temporary measures at date t relative to GDP

ΔPB_t change in structural primary balance $PB_t = PB_0 + \Delta PB_t$ relative to GDP

r difference between nominal interest rate and nominal GDP growth rate[17].

The first term (A) is a condition concerning the initial budgetary position. The debt/GDP ratio increases by the difference between the nominal interest rate and the nominal growth rate. Should the initial structural primary balance exactly compensate for this increase, the debt/GDP ratio would remain stable and no adjustment would be necessary. However, if the

---

[16] The sustainability gap indicators (S1, S2) do not necessarily suggest that taxes should be increased; strengthening the fiscal position by permanently reducing the level of non-age related primary spending could be preferable and has the same impact.

[17] The GDP growth assumptions set up in the AWG varies over time in line with development of labour supply while the real interest rate is set at 3% for the entire projection period, implying a non-constant discount rate. Formulas with a non-constant interest-growth differential are given in Annex 1. For presentational purposes, the formulae here (S1 and S2) are given under the assumption that the differential between nominal interest rate and nominal GDP growth rate is constant.

initial structural primary balance is not sufficient, the debt/GDP ratio would be on an explosive path and the sustainability gap would be positive.

The S1 indicator is set so that (adjusted) government debt will converge towards 60% of GDP at the end of the projections period: this is ensured by the second term (B).

Finally, because of the impact of ageing on primary expenditure, the structural primary balance with unchanged polices, is generally bound to decrease. The third term (C) calculates the discounted average of future (up to 2050) changes in the structural primary balance compared with the base year.

However, S1 only takes into account changes in the structural primary balance up to 2050, which in most cases underestimates the cost of ageing. This is because the impact of ageing is generally larger in 2050 (and therefore, until infinity, given the impact of ageing is assumed to remain constant afterwards) than the average impact of ageing between today and 2050. The government's inter-temporal budget constraint may then not be respected.

S2 shows the difference, the sustainability gap, between the constant revenue ratio as a share of GDP that guarantees the respect of the inter-temporal budget constraint of the government, i.e. that equates the actualized flow of revenues and expenses over an infinite horizon, and the current revenue ratio. In this case, the budgetary adjustment is such that no other reform would be needed to ensure long-term sustainability. Formally, the S2 indicator is a sum of two terms[18].

$$S_2 = \underbrace{rD_{t_0} - PB_{t0}}_{D} \underbrace{- r \sum_{t=t_0+1}^{\infty} \frac{\Delta PB_t}{(1+r)^{t-t_0}}}_{E} \qquad (2)$$

The first term (D) is the same as (A) in S1: it ensures that the debt/GDP ratio remains constant, whatever its initial level: there is therefore no constraint on the level of debt. The second term (E) is very similar to the term (C) for S1 except that it takes into account changes in the structural primary balance compared with the base year over an infinite horizon rather than up to 2050.

It is the main indicator ensuring sustainability over infinity. To calculate this indicator, assumptions on developments after the end of the projection period are needed. Specifically, the structural primary balance as a share of GDP, the interest rate and the growth rate are assumed to remain constant after 2050, implying that no further budgetary impact of ageing is assumed after that date.

The S2 indicator can be expressed in terms of a *required primary balance (RPB)* in order to give a clear indication of the medium-term budgetary policy implications of achieving sustainable public finances over an infinite horizon. The RPB measures the average level of the structural primary balance over the first five years of the projection after the programme period that would satisfy the government's inter-temporal budget constraint. The level of the structural primary balance would decline in the future, in line with projected increases in expenditure, but the RPB would be a sufficient starting position to cover the entire cost of ageing over an infinite horizon. Thus, the RPB can be used to compare the actual or planned budgetary strategy with the structural primary balance required for fulfilling the inter-

[18] See also footnote 22.

temporal budget constraint. Formally, the RPB is expressed as follows (in the case when 2009 is the first year of the projection after the programme period).

$$RPB = \frac{PB_{2009} + PB_{2010} + ... + PB_{2013}}{5} + S_2 \qquad (3)$$

For these indicators, two scenarios are calculated: (i) the stability/convergence programme scenario which assumes that the medium-term budgetary plans as set out in the stability and convergence programmes are achieved. This means that the starting point for the projections is the last year of the programme period; (ii) the 2005 scenario which assumes that no changes in the structural primary balance takes place after the current year. Also in this case, the starting point for the projections is the last year of the programme period but the structural primary balance is kept unchanged at its level in 2005 until the last year of the programme period. The purpose of having also the 2005 scenario is to demonstrate the long-term impact on debt developments of departing from the programme scenario as set down in Member States' stability and convergence programmes.

A further improvement in the next sustainability assessment, endorsed by the EPC, is to perform a sensitivity test that highlights the cost of delay in achieving budgetary consolidation. For countries with a positive S2, it implies that the size of the required adjustment will increase in the future. A detailed description is given in Annex 2.

A limitation of the indicators is that they provide limited guidance on what is the appropriate budget target which Member States should aim at in light of the expected costs of ageing populations. In particular, a positive "sustainability gap" does not necessarily imply that taxes should be increased. Instead an appropriate combination is needed of changes on the revenue side, reforms to reduce the level of non-age related primary spending and reforms of pension and health care systems to curtail the impact of ageing on expenditure growth needs. This requires a case-by-case assessment examining the underlying causes of potential budgetary imbalances.

Qualitative considerations are therefore central in order to interpret the information provided by the sustainability indicators.

Taking on board qualitative information

In addition to the quantitative information used in the analysis described above, incorporating qualitative features when making an overall assessment is a key aspect in the interpretation of the results obtained. These factors allow identifying and qualifying the nature and size of risks countries are facing.

The main qualitative features shaped into the assessment are dealing with: the budgetary position and the level of the debt ratio, the impact of structural reforms, the reliability of the projections and the current level of the tax burden. These qualitative features considered in the assessment are described further in Table 11-1 below, which draws on the agreement with the EPC[19].

[19] See the EPC report "The impact of ageing populations on public finances: overview of analysis carried out at EU level and proposals for a future work programme", EPC/ECFIN/435/03 final, 22.10.03.

Table 11-1 Qualitative factors taken on board in reaching policy recommendations on the sustainability of public finances

Area	Issue	Concern about sustainability	Explanation
Public debt	High level of outstanding public debt well above 60% of GDP reference value	Increases	▪ Vulnerability to negative interest rate or economic growth rate shocks. ▪ A higher than average primary surplus required for several decades which in practice may be hard to achieve given competing budgetary pressures; in absence of a sufficiently high primary surplus, debt could be on an unsustainable path even without considering the projected future budgetary pressures stemming from ageing populations.
	Low debt levels	Decreases	▪ Reverse of the arguments above.
	Debt increasing financial operations and large or increasing contingent liabilities	Increases	▪ Large positive stock-flow adjustments linked to debt-increasing financial operations. ▪ Particularly relevant in MS where debt reduction is central to meet the budgetary costs of ageing.
Budget balance	Contributions to funded pension schemes	Decreases	▪ Contributions to funded pension schemes recorded outside general government may imply lower social security contributions recorded in general government, and thus result in higher recorded public deficit levels.
	Sensitivity of projections to key parameters	Increases	▪ High sensitivity of results to demographic factors, indexation rules and numbers of cross-border workers. An appreciation of risk factors complements the analysis of projected changes in public expenditures.
Robustness of age-related expenditure projections	Underlying assumptions and coverage of budgetary projections	Increases	▪ Earlier cut-off dates than 2050 may underestimate budgetary impact as effects of baby-boom generation on population size and age- structure may not have peaked. ▪ Incomplete coverage of or within expenditure items underestimates risks to sustainability. ▪ Projections are in some cases based on assumptions of large increase in labour force participation rates. This may require additional policy measures to be taken.
	Methodological differences	Reduces comparability	▪ If non-demographic drivers of expenditure are assumed in the projections for a particular country (e.g. a trend rise in health-care expenditure) but not in others, risks to sustainability would be overestimated vis-à-vis other countries, making it difficult to compare sustainability risks across countries.

Tax ratio	High tax ratio	Increases	▪ The viability and desirability of high tax ratios (e.g. above 50% of GDP) over long term may be affected by increased factor mobility affecting tax bases. Also, some governments have the stated objective of lowering the tax burden. The challenge is to do so while preserving sustainable public finance positions and adequate provision of public services. ▪ In the case long-term projections of revenue items made at national level are available, such projections need to be explained so that its impact can be identified and assessed; a rising tax burden may have an adverse impact on economic growth.
	Low tax ratio	Decreases	▪ Low tax ratio provides greater margin to raise taxes (if necessary) to meet increased age-related expenditures.
The impact of structural reforms	Pension / health-care system reforms	Decreases	▪ Efficient and effective pension and health care systems contribute to reduction of the budgetary risks.
	Risk of implicit contingent liabilities related to performance of private occupational schemes	Increases Limited	▪ In some MS, the performance of overall pension system will be increasingly reliant on private occupational schemes and individual pension savings. Pressure for higher public spending could emerge (implicit contingent liability) if such schemes have insufficient coverage or fail to generate returns that secure an adequate level of retirement income. ▪ In some countries success of reforms partially depends on an effective regulatory and taxation framework for private occupational and individual pension schemes, and thus allows citizens to supplement their retirement income.

An overall assessment of risks to public finance sustainability

On the basis of the considerations above, the results of the quantitative indicators as well as the qualitative considerations, an overall assessment of public finance sustainability is reached. All Member States will face the budgetary challenge that ageing population represents over the coming decades. The aim of the sustainability assessment is to arrive at a view on how important the risks to public finance sustainability are in a country and where they mainly stem from.

An overall assessment of risks to public finance sustainability should be characterized by whether the country concerned appears to face low, medium or high risks. This approach has several advantages, as it: (i) recognises that ageing population represents a budgetary challenge for all countries to varying degrees; and, (ii) provides a clear distinction between the different degrees of risks to public finance sustainability countries are facing and where do they come from. Since this analysis is an integral part of fiscal surveillance conducted by the Commission and the Council, it is important to identify where major risks are related to current, or medium-term, budgetary developments.

11.2. Increased focus on the sustainability of public finances: improvements and future work

11.2.1. Agreed improvements to the analysis framework and notably the indicators for the 2005 updates of stability and convergence programmes and beyond

There is consensus agreement that efforts to assess the sustainability of public finances as part of the evaluation of stability and convergence programmes have proved useful, and they have helped shape the policy debate at both EU and national level. The 2005 reform of the Stability and Growth Pact confirms the importance that policy makers assign to ensuring sustainability of public finances in the EU. This section outlines the changes to be made to the analysis framework and the existing indicators that were agreed by the EPC following a debate in the AWG.

First, move towards a more comprehensive assessment of sustainability. The EPC considers that, in the context of fiscal surveillance, a comprehensive assessment of the sustainability of public finances with a multi-annual cycle (three or five years), and an annual update of the assessment of sustainability in the context of the Stability and Convergence Programmes should be made. This approach has several important merits: (i) risks to fiscal sustainability in a country are a long-term issue; (ii) a more comprehensive assessment is required in order to better identify the main risks to sustainability, including sensitivity tests, and; (iii) basing the sustainability analysis on the common EPC projections would ensure greater comparability across countries. The timing and length of the cycle should be synchronized with the updates of demographic projections by Eurostat and the budgetary projection exercise (due every three to five years).The annual update of the assessment would allow taking into account major reforms with direct budgetary impact, e.g. of the pension system, compared with the latest common projections, as well as important budgetary and economic developments in the short- to medium-term.

Second, continue to use the set of two indicators (S1 and S2) in the assessments (the indicators are explained in detail in Annex 1); and the additional information derived from the S2, the 'Required Primary Balance' (RPB). The EPC also considers that the cost of delay in achieving budgetary consolidation should be further highlighted in the analysis. This can be achieved through the introduction of a sensitivity test (described in detail in Annex 2). Moreover, the transparency of the analysis should be increased so that the impact of possible national estimates of budgetary items not covered by the common projection exercise (e.g. changes in the revenue/GDP ratio) in different Member States can be easily identified and quantified. The AWG and EPC considers that further work can be envisaged with respect to establishing principles for if and how account could be taken of changes in the budgetary items not covered by the common projections exercise in the calculation of the sustainability indicators. This would contribute to improved comparability of the analysis across countries, which is a key issue in the context of multilateral budgetary surveillance.

Third, the last round of SPC assessment took into account the assets of public pension funds, to better reflect the challenges for sustainability. In this context, to ensure a full consistency between all Member States, the EPC, based on a proposal by the Commission, has prepared a set of guidelines on reporting on public pension fund assets. Those guidelines will be taken into account in the forthcoming round of SCP assessments (the guidelines are given in Annex

11). They could be further developed after another ex-post examination of their application, if considered necessary in the light of the experience gained.

Fourth, for the 2005 assessment round, the commonly agreed underlying assumptions will serve as a reference when considering national projections included in the Stability and Convergence Programmes.

11.2.2. Implications of the reform of the Stability and Growth Pact

In the reformed Stability and Growth Pact, there is increased focus on sustainability. Structural reforms will be taken into consideration in the implementation of both the preventive and the corrective part of the Pact. Specifically, the medium-term objective for the government's budgetary position may be adjusted, or the adjustment path towards it, in the event a major structural reform is implemented. Only major reforms which have direct long-term cost-saving effects, including by raising potential growth, and therefore a verifiable positive impact on the long-term sustainability of public finances, will be taken into account. Member States should include a detailed cost-benefit analysis in their stability and convergence programmes of the short-term costs – if any – and of the long-term benefits of the reforms from the budgetary point of view. The EPC considers that an assessment of the long-term direct budgetary impact of reforms – especially those affecting expenditure items covered by the common projections exercise - could benefit from a peer review within the AWG.

In addition, implicit liabilities (related to increasing expenditures in the light of ageing populations) should be taken into account in the definition of the medium-term objective for the government's budgetary position, as soon as criteria and modalities for doing so are appropriately established and agreed by the Council. By the end of 2006, the Commission should report on progress achieved towards the methodology for completing the analysis by incorporating such implicit liabilities[20]. The EPC has expressed an interest in collaborating with the Commission on this issue.

[20] In accordance with the ECOFIN Council report of 20 March 2005 "Improving the implementation of the Stability and Growth Pact".

12. DEFINITIONS AND PROPERTIES OF DEBT PROJECTIONS AND THE SUSTAINABILITY INDICATORS

Case 1: the difference between the nominal interest rate and nominal GDP growth is constant[21]

1. The inter-temporal budget constraint and the S2 indicator

There is no agreed definition on what constitutes a sustainable position for the public finances. One can however impose that the debt (relative to GDP) remains bounded at any time in the future. This implies (see proof in appendix) that the actualised value of future structural primary balances should cover the current level of debt, i.e.:

$$\boxed{D_{t_0} - \sum_{t=t_0+1}^{\infty} \frac{PB_t}{(1+r)^{t-t_0}} = 0} \quad (1)$$

This condition is referred to as the inter-temporal budget constraint.

The S2 indicator is closely linked to this constraint. Indeed, given an initial debt, an interest-growth differential assumption and a future path of the structural primary balance, condition (1) has no reason to be checked. The S2 indicator is thus the change in the structural primary balance for every future year that ensures that condition (1) is true.

$$\boxed{S_2 = \underbrace{rD_{t_0} - PB_{t0}}_{D} \underbrace{- r \sum_{t=t_0+1}^{\infty} \frac{\Delta PB_t}{(1+r)^{t-t_0}}}_{E}} \quad (2).\ \text{(See proof in appendix)}$$

The first term (D) is a condition concerning the initial budgetary position: if the structural primary balance (relative to GDP) remains unchanged in the future, the sustainability condition simply says that the structural primary balance should be equal to apparent real interest paid on the current level of debt. In that case, the level of debt would remain stable. Indeed, debt relative to GDP increases by the difference between nominal interest rate and the nominal growth rate. If the structural primary balance compensates for this increase, the debt relative to GDP will remain stable.

The second term (E) is a condition concerning future developments in the structural primary balance: the bigger the decrease of the structural primary balance, the higher the immediate rise in the structural primary balance should be to fully compensate those changes. (E) is simply a average of discounted changes in the structural primary balance.

[21] It is also supposed to be strictly positive.

2. The S1 indicator

S1 indicates the additional constant tax ratio required to reach a debt ratio in 2050 of 60% of GDP. The calculations are made for any date T in the future and for any level of debt D_T.

$$S_1 = \underbrace{rD_{t_0} - PB_{t_0}}_{A} + \underbrace{\frac{r(D_{t_0} - D_T)}{(1+r)^{T-t_0} - 1}}_{B} - \underbrace{\frac{\sum_{i=t_0+1}^{T} \frac{\Delta PB_i}{(1+r)^{i-t_0}}}{\sum_{i=t_0+1}^{T} \frac{1}{(1+r)^{i-t_0}}}}_{C} \quad (3)$$

As for S2, the S1 indicator is a sum of several terms:

The first term (A) is the same as in S2. If the initial conditions are satisfied and no change in the structural primary balance is forecasted, debt will remain constant. Contrary to S2, S1 also assumes that debt reaches a certain level of debt. This is ensured by the second term (B): it tends to be large if:

- the desired level of debt is small;
- the period of time given to reach this debt level is small;
- the initial debt is large.

The last term (C) is a condition concerning future developments of the structural primary balance. It is slightly different compared with the S2 indicator because S1 only takes into account changes in the structural primary balance up to 2050, which in most cases, underestimates the cost of ageing.

3. Comparison of S1 and S2

Given that $A = rD_{t_0} - PB_{t_0} = D$; $B \xrightarrow{T \to \infty} 0$; $C \xrightarrow{T \to \infty} r \sum_{t=t_0+1}^{\infty} \frac{\Delta PB_t}{(1+r)^{t-t_0}} = E$

$$S_1(T, D_T) \xrightarrow{T \to \infty} S_2 \quad (4)$$

If the debt requirement is set at a very distant date in the future, the two indicators S1 and S2 will be very close but, but in practice, given the non so distant requirement (2050), S1 and S2 can be somewhat different.

Table A1.1 sums up the definition of S1 and S2: it proposes a decomposition of the two indicators that can be useful in the analysis to fully separate the impact of the current budgetary position, the debt requirement and the long-term development of primary expenditure.

Table A1.1: comparison of S1 and S2

	Current budgetary position		Debt requirement in 2050		Long-term changes in the primary balance
S1=	A= $rD_{t_0} - PB_{t_0}$	+	B= $\frac{r(D_{t_0} - D_T)}{(1+r)^T - 1}$	+	C= $-\frac{\sum_{i=t_0+1}^{T} \frac{\Delta PB_i}{(1+r)^{i-t_0}}}{\sum_{i=t_0+1}^{T} \frac{1}{(1+r)^{i-t_0}}}$
S2=	D= $rD_{t_0} - PB_{t_0}$	+	0	+	E= $-r \sum_{t=t_0+1}^{\infty} \frac{\Delta PB_t}{(1+r)^{t-t_0}}$

(E) can be written as a weighted average of (C) and the change in the structural primary balance in 2050. So (E) is greater than (C) when the change in the structural primary balance in 2050 is greater than what it is on average between 2010 and 2050. Given that usually, the impact of ageing on expenditure reaches its maximum towards the end of the period, (E) is usually greater than (C).

Proof:

$$E = -r \sum_{t=t_0+1}^{\infty} \frac{\Delta PB_t}{(1+r)^{t-t_0}} = -\frac{\sum_{t=t_0+1}^{\infty} \frac{\Delta PB_t}{(1+r)^{t-t_0}}}{\sum_{t=t_0+1}^{\infty} \frac{1}{(1+r)^{t-t_0}}} = -\frac{\sum_{t=t_0+1}^{T} \frac{\Delta PB_t}{(1+r)^{t-t_0}} + \sum_{t=T+1}^{\infty} \frac{\Delta PB_t}{(1+r)^{t-t_0}}}{\sum_{t=t_0+1}^{\infty} \frac{1}{(1+r)^{t-t_0}}}$$

$$E = \frac{C \sum_{i=t_0+1}^{T} \frac{1}{(1+r)^{i-t_0}} - \Delta PB_T \sum_{t=T+1}^{\infty} \frac{1}{(1+r)^{t-t_0}}}{\sum_{t=t_0+1}^{\infty} \frac{1}{(1+r)^{t-t_0}}} = \alpha C + (1-\alpha)(-\Delta PB_T)$$

Case 2: the difference between the nominal interest rate and nominal GDP growth is not constant

The interest-growth rate differential is often assumed to be constant. This is not the case for example in the EU's analysis of public finance sustainability, given that the real interest rate is constant for all EU25 countries while GDP growth projections are country-specific. Therefore, formulas with non-constant interest-growth rate differential are needed.

Lets introduce $\alpha_{i;j} = (1+r_i)(1+r_{i+1})...(1+r_j)$ if $i \le j$ and 1 otherwise.

The dynamics of debt is: $D_t = D_{t_0} \alpha_{t_0+1;t} - \sum_{i=t_0+1}^{t} PB_i \alpha_{i+1;t}$;

The inter-temporal budgetary condition is: $D_{t_0} = \sum_{i=t_0+1}^{\infty} \frac{PB_i}{\alpha_{t_0+1,i}}$

The S2 indicator is: $$\boxed{S_2 = \frac{D_{t_0}}{\sum_{i=t_0+1}^{\infty} \frac{1}{\alpha_{t_0+1,i}}} - PB_{t_0} - \frac{\sum_{i=t_0+1}^{\infty} \frac{\Delta PB_i}{\alpha_{t_0+1,i}}}{\sum_{i=t_0+1}^{\infty} \frac{1}{\alpha_{t_0+1,i}}}}$$ (2bis)

In the case where the interest rate/growth rate differential and the structural primary balance are constant after a certain date (here 2050):

$$\boxed{S_2 = \underbrace{\frac{D_{t_0}}{\sum_{i=t_0+1}^{2050} \frac{1}{\alpha_{t_0+1,i}} + \frac{1}{r_{2050}\alpha_{t_0+1,2050}}}}_{C} - PB_{t_0} - \underbrace{\frac{\sum_{i=t_0+1}^{2050} \frac{\Delta PB_i}{\alpha_{t_0+1,i}} + \frac{\Delta PB_\infty}{r_\infty \alpha_{t_0+1,2050}}}{\sum_{i=t_0+1}^{2050} \frac{1}{\alpha_{t_0+1,i}} + \frac{1}{r_\infty \alpha_{t_0+1,2050}}}}_{D}}$$ (2ter)

S1 is such that $D_T = D_{t_0}\alpha_{t_0+1;T} - \sum_{i=t_0+1}^{T}(PB_i + \Sigma_1)\alpha_{i+1;T}$

$$\boxed{S_1 = \frac{D_{t_0}\alpha_{t_0+1;T} - D_T}{\sum_{i=t_0+1}^{T} \alpha_{i+1;T}} - PB_{t_0} - \frac{\sum_{i=t_0+1}^{T} \Delta PB_i \alpha_{i+1;T}}{\sum_{i=t_0+1}^{T} \alpha_{i+1;T}}}$$ (3bis)

Appendix: proofs

Equation 1

Let's suppose the debt (relative to GDP) remains bounded at any time in the future.

It means that $\exists M$ such as $\left|D_t\right| = \left|D_{t_0}(1+r)^{t-t_0} - \sum_{i=t_0+1}^{t} PB_i(1+r)^{t-i}\right| < M$

So $\left|D_{t_0} + \sum_{i=t_0+1}^{t} PB_i(1+r)^{-i}\right| = \left|\frac{D_t}{(1+r)^{t-t_0}}\right| < \frac{M}{(1+r)^{t-t_0}} \xrightarrow{t \to \infty} 0$ because r is strictly positive.

$$\boxed{D_{t_0} - \sum_{i=t_0+1}^{\infty} PB_i(1+r)^{-(i-t_0)} = 0}$$ (1)

Equation 2

The S2 indicator is the change in the structural primary balance compared with the base year for every future year that ensures that condition (1) is verified.

Mathematically, it can be written: $D_{t_0} = \sum_{t=t_0+1}^{\infty} \frac{PB_t + S_2}{(1+r)^{t-t_0}}$ (1).

Since the discount rate is strictly positive, $\sum_{t=t_0+1}^{\infty} \frac{1}{(1+r)^{t-t_0}} = \frac{1}{r}$.

$$D_{t_0} = \frac{\Sigma_2}{r} + \sum_{t=t_0+1}^{\infty} \frac{PB_t}{(1+r)^{t-t_0}} = \frac{S_2}{r} + \frac{PB_{t0}}{r} + \sum_{t=t_0+1}^{\infty} \frac{\Delta PB_t}{(1+r)^{t-t_0}}$$

$$\boxed{S_2 = rD_{t_0} - PB_{t0} - r\sum_{t=t_0+1}^{\infty} \frac{\Delta PB_t}{(1+r)^{t-t_0}}} \quad (2).$$

Equation 3

The calculations are made for any date T in the future and for any level of debt in the future. The dynamics of the debt can be written:

$$D_t = D_{t_0}(1+r)^{t-t_0} - \sum_{i=t_0+1}^{t} PB_{t_0}(1+r)^{t-i} - \sum_{i=t_0+1}^{t} \Delta PB_i(1+r)^{t-i}$$

S_1 is such that $D_t = D_T$

$$S_1 = \frac{D_{t_0}(1+r)^{T-t_0} - D_T}{\sum_{i=t_0+1}^{T}(1+r)^{T-i}} - PB_{t_0} - \frac{\sum_{i=t_0+1}^{T} \Delta PB_i(1+r)^{T-i}}{\sum_{i=t_0+1}^{T}(1+r)^{T-i}}$$

Given $\sum_{i=t_0+1}^{T}(1+r)^{T-i} = \sum_{i=t_0}^{T-1}(1+r)^{i} = \frac{(1+r)^{T-t_0} - 1}{r}$

$$S_1 = \frac{rD_{t_0}(1+r)^{T-t_0} - rD_{t_0} + rD_{t_0} - rD_T}{(1+r)^{T-t_0} - 1} - PB_{t_0} - \frac{\sum_{i=t_0+1}^{T} \Delta PB_i(1+r)^{T-i}}{\sum_{i=t_0+1}^{T}(1+r)^{T-i}}$$

$$S_1 = rD_{t_0} - PB_{t_0} + \frac{r(D_{t_0} - D_T)}{(1+r)^{T-t_0} - 1} - \frac{\sum_{i=t_0+1}^{T} \Delta PB_i(1+r)^{T-i}}{\sum_{i=t_0+1}^{T}(1+r)^{T-i}}$$

$$\boxed{S_1 = rD_{t_0} - PB_{t_0} + \frac{r(D_{t_0} - D_T)}{(1+r)^{T-t_0} - 1} - \frac{\sum_{i=t_0+1}^{T} \frac{\Delta PB_i}{(1+r)^{i-t_0}}}{\sum_{i=t_0+1}^{T} \frac{1}{(1+r)^{i-t_0}}}} \quad (3)$$

13. A SENSITIVITY TEST FOR ASSESSING THE SUSTAINABILITY OF PUBLIC FINANCES: THE COST OF DELAY IN ACHIEVING BUDGETARY CONSOLIDATION

The AWG and EPC agreed with the introduction of a new sensitivity test showing the cost of delay in achieving budgetary consolidation. This test was proposed by Harry ter Rele, Dutch delegate in the AWG. It provides an estimate of the cost of delay in making a complete adjustment according to the old S1 and the S2 indicators. It further assumed a constant interest rate-growth rate differential. This Annex calculates the cost of a delay with non-constant interest rate for the currently used indicators, S1 and S2.

S2 indicator:

If the adjustment is made today, $D_{t_0} = \sum_{t=t_0+1}^{\infty} \frac{PB_t + S_2}{\alpha_{t_0+1;t}}$

If the adjustment is postponed in 5 years then, $D_{t_0} = \sum_{t=t_0+1}^{\infty} \frac{PB_t}{\alpha_{t_0+1;t}} + \sum_{t=t_0+1+delay}^{\infty} \frac{S_2^{'}}{\alpha_{t_0+1;t}}$

Relationships between the two indicators:

$$S_2^{'} = S_2 \frac{\sum_{t=t_0+1}^{\infty} \frac{1}{\alpha_{t_0+1;t}}}{\sum_{t=t_0+1+delay}^{\infty} \frac{1}{\alpha_{t_0+1;t}}} = S_2 \frac{\sum_{t=t_0+1}^{50} \frac{1}{\alpha_{t_0+1;t}} + \frac{1}{r_\infty \alpha_{1,50}}}{\sum_{t=t_0+1+delay}^{50} \frac{1}{\alpha_{t_0+1;t}} + \frac{1}{r_\infty \alpha_{1,50}}}$$

The cost of the delay is proportional to the initial tax gap indicator. If r is constant[22], the former formula is significantly reduced: $S_2^{'} = S_2 (1+r)^{delay}$

S1 indicator:

The expression for the cost of delay using the S1 indicator is:

$$S_1^{'} = S_1 \frac{\sum_{t=t_0+1}^{2050} \frac{1}{\alpha_{t_0+1;t}}}{\sum_{t=t_0+1+delay}^{2050} \frac{1}{\alpha_{t_0+1;t}}} = S_1 \left(1 + \frac{\sum_{t=t_0+1}^{delay} \frac{1}{\alpha_{t_0+1;t}}}{\sum_{t=t_0+1+delay}^{50} \frac{1}{\alpha_{t_0+1;t}}}\right)$$

[22] As in the Dutch proposal.

14. GUIDELINES FOR TAKING INTO ACCOUNT ASSETS OF PUBLIC PENSION FUNDS IN THE ASSESSMENT OF THE SUSTAINABILITY OF PUBLIC FINANCES[23]

The main quantitative tool used in the EU surveillance of the sustainability of public finances is extrapolation of debt, with budgetary developments incorporating long-term projections of government expenditure that evolve in line with demographic projections, thus indicating the budgetary impact of ageing populations. For this purpose, government debt is defined as general government gross debt (the Maastricht definition). Since reducing debt or accumulating assets in public pension funds has a similar effect on fiscal sustainability, which however is not reflected in the gross debt measure, the EPC in September 2004 considered it appropriate to take into account the position of fund assets in the analysis of long-term sustainability of public finances. It was agreed that the dynamics of consolidated gross debt should continue to be calculated, and that in addition it should, be adjusted for such pension fund assets. However, clarifications are needed to specify exactly which kind of assets would be used in making adjustments, and how to value them in a consistent way within the EU Member States.[24]

In the 2004 assessment of Stability and Convergence Programmes (SCP), the Commission took into account public pension fund assets for six countries (Denmark, Spain, Estonia, Ireland, Cyprus, Finland and Sweden)[25]. The proposed guidelines aim at clarifying the proposed adjustment, and providing reporting requirements for Member States for the preparation of the future assessments of SCP's, considering that also other Member States have such funds.

The EPC considers that public pension fund assets should be taken into account for the purposes of complementing the assessment of the long-term sustainability of the public finances in case they are:

- Consolidated liquid assets and their current value can be determined; and

- Accumulated for the strict purpose of covering pension-related expenditure, in accordance with the principle of "good governance"[26].

Reporting by Member States should include most recent estimates of:

- the consolidated liquid public pension fund asset recorded in general government that are established to cover pension-related expenditure, in most cases recorded in the social security funds sub-sector of general government (an example from the Finnish 2004 stability programme is given in the Annex); and

- the size of property income due to such consolidated liquid public pension fund assets.

---

[23] These guidelines were adopted by the EPC, ECFIN/EPC(2005)REP/53512 final, 11.10.2005. See also the Commission report 'Public finances in EMU – 2005'.

[24] This proposal has been prepared on the basis of a note by the Commission "Guidelines for taking into account assets of public pension funds in the assessment of the sustainability of public finances" (doc. ECFIN/REP/53950/05) which has been discussed and agreed by the AWG on 19-20 September. For the mandate, see letter by the EPC President to the Chairman of the EFC Alternates of 22 September 2004 (doc. ECFIN/EPC(2004)REP/50308 final).

[25] In these cases, the funds concerned sizable and assigned assets for financing future public pension expenditure, and therefore had relevance for the assessment of the sustainability of public finances.

[26] The issues of good governance will be further explored for the 2006 SCP assessments.

Detail

11.1. Identifying liquid public pension fund assets

The EPC considers that three issues need to be addressed in this regard; i) which assets should be considered and how to value them ii) the use of funds to be considered; and iii) how to distinguish between national government bonds and other bonds.

i) Financial assets to be considered

On financial assets to be considered, all assets held by governments ease the budgetary pressures on the public finances arising from ageing populations in the longer term**.** However, for some financial assets, such as shares in non-floated publicly owned enterprises, current market value cannot be easily determined. This introduces a considerable element of uncertainty. In order to circumvent this obstacle, **only liquid assets for which a current value can be determined should be considered**. Such assets are currencies, deposits and tradable securities, for which a current market value can be determined. Information on financial assets is available from the financial accounts. The relevant liquid asset categories are given in Table 11.1. Member States should submit data on public pension fund assets according to this delimitation, specified further in the second point below, and reported according to their **current market value**[27].

Table 11.1 – Liquid financial assets*, financial accounts**

Code	*Description*
AF.21	Currency
AF.22	Transferable deposits
AF.29	Other deposits
AF.331	Securities other than shares; Short-term (bills)
AF.332	Securities other than shares; Long-term (bonds)
AF.34	Securities other than shares; Financial derivatives
AF.511	Shares and other equity; Quoted shares
AF.52	Shares and other equity; Mutual fund shares

** Assets of public pension funds with a strict purpose of covering pension-related expenditure should be included, see the second point below in the text.*
*** Information from the financial accounts should be consolidated, see the third point below in the text.*

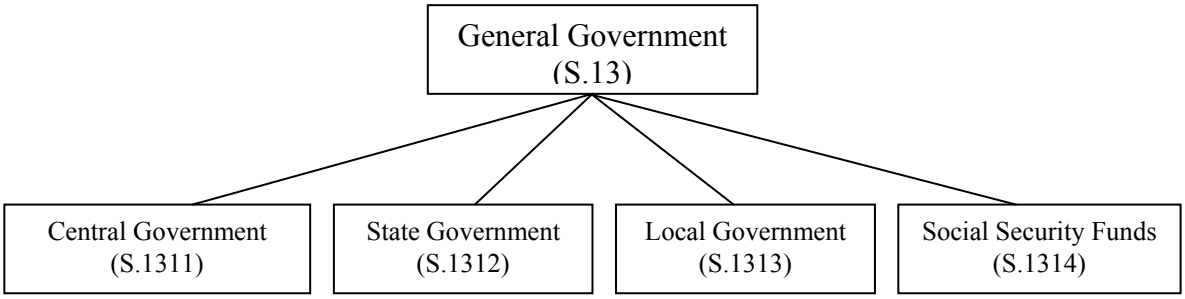
Source: ESA95

[27] According to the "*Manual on Sources and Methods for the compilation of ESA95 Financial Accounts*", first edition, Eurostat, 2002, p. 26, ESA95 states as a general rule for all assets (7.25) that all assets and liabilities are to be valued using current market prices on the date to which the balance sheet relates. This rule applies to financial assets (7.44): "Financial assets and liabilities should in principle be valued at current prices. They should be assigned the same value whether they appear as financial assets and liabilities." This manual provides additional information on the valuation of financial instruments and is available at: http://europa.eu.int/estatref/info/sdds/en/fina/fina_esa95_manual_sources_methods.pdf .

ii) Use of funds to be considered

Public pension fund assets that are established or legislated with a strict purpose of covering pension-related expenditure should be included, and fund assets accumulated for other purposes should not be included. They should be accumulated in accordance with the principle of "good governance"[28]. In most cases, such funds are recorded in the social security funds sub-sector (S.1314) of general government (S.13), see Figure 11.1. However, in some cases they are recorded in the central government sector (S.1311) rather than in the social security funds (S.1314). As the financial assets in the social security funds (S.1314) or elsewhere in general government (S.13) may comprise more than public pension fund assets that have a strict purpose of covering pension-related expenditure, Member States need to make this distinction. In order for the Commission to adjust Maastricht gross debt by taking into account public pension funds with a strict purpose of covering pension-related expenditure in the social security funds (S.1314) or elsewhere in the general government sector (S.13), Member States should provide this data according to the delimitation given in Table 11.1 above.

Figure 11.1 – General government and its sub-sectors in ESA95



Moreover, revenues (property income) from consolidated liquid public pension fund assets should be deducted from gross interest expenditure so that an adjusted primary balance can be calculated. Member States are asked to provide the size of property income that is due to holdings of such public pension fund assets.

Eurostat's decision of 2 March 2004 on the classification of pension schemes implies that funded defined contribution pension schemes should be classified outside government, the argument being that pensions to be paid depend on financial market developments (and on households' investment choices) and not on government decisions. According to Eurostat's press release of deficit and debt data for 2003 of 23 September 2004, Member States are required to implement this by March 2007 at the latest. Some countries have opted for this implementation period and include the flows of contributions and corresponding future pension payments of such schemes in general government whereas others exclude them at present.

[28] The issues of good governance will be further explored for the 2006 SCP assessments.

Public pension fund assets may be accumulated in defined benefit (DB) pay-as-you-go schemes, in funded defined contribution (DC) schemes or in buffer funds[29]. For consistency and for the purposes of assessing sustainability of public finances, data on liquid public pension fund assets, in DB or DC schemes, should be provided to the extent that the corresponding public pension expenditures are included in the long-term budgetary projections. In a funded defined contribution pension scheme, contributions should match liabilities by construction. In a defined benefit pay-as-you-go scheme, contributions may be accumulated in a fund in order e.g. to smoothen the 'required' contributions over time in order to reduce the intergenerational impact.

iii) National government bonds and other bonds

It should be borne in mind that **if the non-consolidated financial balance sheets are used, national government bonds need to be netted out.** By contrast, if the consolidated financial balance sheets are used, national government bonds have already been netted out. In the Maastricht definition of consolidated gross debt, national government bonds are already netted out. Hence:

- for those countries where consolidated balance sheets are available, the relevant financial assets are given net of national government bonds. No adjustments are needed; and

- for those countries where non-consolidated financial balance sheets are available, the relevant financial assets need to be reported net of national government bonds in order to avoid double-counting.

11.2. Adjusted gross debt net of liquid public pension fund assets

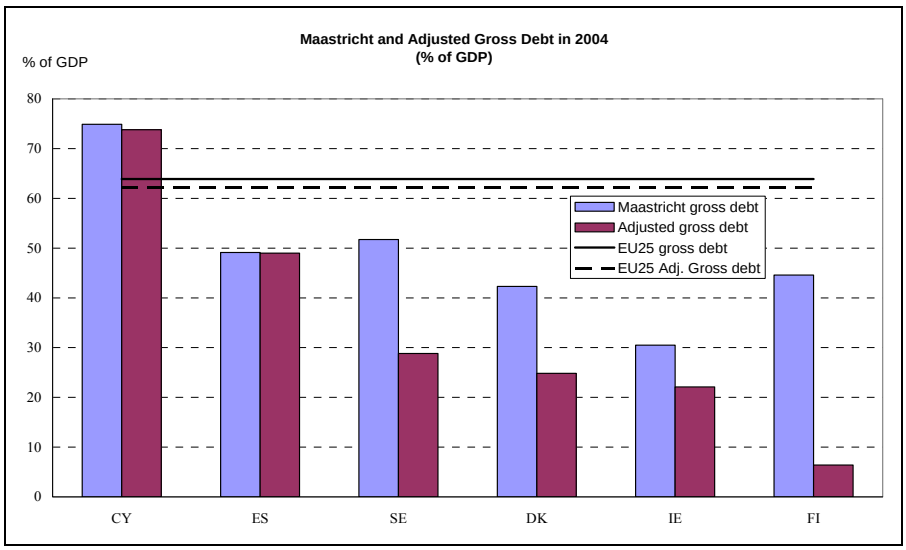
Adjusted gross debt equals Maastricht gross debt net of the consolidated liquid public pension fund assets, according to the delimitations described in section 11.1 above.

The projection of debt developments over the long run on the basis of Maastricht gross debt should be continued. In addition, sustainability indicators (S1, S2, RPB) are calculated on the basis of adjusted gross debt, thus taking into account public pension fund assets, where applicable. In the projections on such funds, the rate of return to be used will correspond to the interest paid on government bonds. Moreover, no further build-up or drawdown of pension fund assets is assumed.

Some countries have chosen to accumulate liquid assets in public pension funds, and for these this adjustment had a considerable impact (see graph below). This is particularly true for Finland, Sweden and Denmark, where the accumulation of funds has taken place for many years. Other countries have started accumulating funds recently. Maastricht gross debt in 2004 in EU-25 was 63.9% of GDP, dropping to 62.2% when looking at adjusted gross debt. The small difference between the debt definitions at the EU aggregate level reflects the fact that accumulation of liquid assets in public pension funds predominantly has taken place in a number of smaller Member States so far.

[29] Such as in France (the so-called Fonds de Réserve des Retraites), in Ireland or in Sweden. These funds should be accumulated strictly for the purpose of covering pension-related expenditure and comply with all the criteria set down in these guidelines.

Graph 11.1. Maastricht gross debt and adjusted gross debt in 2004



Source: European Commission (2005), Public Finances in EMU – 2005, European Economy.

ANNEX: Extract from the Finnish 2004 stability programme

The Finnish 2004 SP (pp. 31-32) contains information on holdings of liquid assets by public pension funds in: (i) the social security funds (Table 7) and; (ii) the central government (Table 8). These assets within the general government sector were reported according to the agreed delimitation, i.e. consolidated liquid assets for which a current market value can be determined.

6.3 Pension fund assets

Finland's employment pension system is a partially pre-funded, defined benefit system in which the benefits are determined according to the length of the employment history and the level of earnings. The pre-funding is collective and it does not affect the level of the pension; rather, it is intended to even out the pension contribution rate over time. Wit-

7. Financial assets of Employment pension institutions (sector 13141), million euros

	2000	2001	2002	2003
A. Non-consolidated liquid financial assets				
AF.21 Currency	0	0	2	0
AF.22 Transerable deposits	134	241	256	257
AF.29 Other deposits	276	228	880	379
AF.331Short term bills	1 279	2 125	1838	2 320
AF.332 Long term bonds	29 559	30 202	32 312	32 821
AF.34 Derivatives	105	20	80	111
AF.511 Quoted shares	15 347	13 016	10 518	13 807
AF.52 Mutual fund shares	323	3 093	2 740	4 693
Total	47 023	48 925	48 626	54 388
% of GDP	36.1	36.0	34.8	38.2
B. Liabilities of general government (sector 13) to pension funds (sector 13141)				
AF.331 Short term bills	20	5	29	26
AF.332 Long term bonds	10 322	6 887	4 830	4 666
Total	10 342	6 892	4 859	4 692
% of GDP	7.9	5.1	3.5	3.3
C. Consolidated liquid assets of pension funds (sector 13141) (= A-B)				
AF.21 Currency	0	0	2	0
AF.22 Transerable deposits	134	241	256	257
AF.29 Other deposits	276	228	880	379
AF.331 Short term bills	1 259	2 120	1 809	2 294
AF.332 Long term bonds	19 237	23 315	27 482	28 155
AF.34 Derivatives	105	20	80	111
AF.511 Quoted shares	15 347	13 016	10 518	13 807
AF.52 Mutual fund shares	323	3 093	2 740	4 693
Total	36 681	42 033	43 767	49 696
% of GDP				
28.2	31.0	31.3	34.9	
D. Total assets (sector 13141)				
Non-consolidated total assets	60 737	62 480	63 570	69 290
% of GDP	46.6	46.0	45.5	48.6
Consolidated total assets	49 179	54 667	57 781	63 737
% of DGDP	37.8	40.3	41.3	44.7

Source: Statistics Finland: Financial statistics

hin the National Accounts framework, the pension funds in the private and municipal sector are counted as social security funds. By contrast, the State pension institute is part of central administration. The tables 7-9 show the non-consolidated and consolidated market value of the pension funds in 2000-2003.

8. Market value of the investments made by the State pension institute

	2000	2001	2002	2003
		million euros		
Non-consolidated assets	3 843	4 427	4 841	5 795
Consolidated assets	1 522	1 686	3 099	4 549
		% of GDP		
Non-consolidated assets	3.0	3.3	3.5	4.1
Consolidated assets	1.2	1.2	2.2	3.2

Source: State pension institute.

9. Market value of the investments made by Employment pension instutions (sector 13141 and the State pension institute)

	2000	2001	2002	2003
		million euros		
Non-consolidated assets	64 580	66 907	68 411	75 085
Consolidated assets	50 701	56 353	60 880	68 286
Consolidated liquid assets	38 203	43 711	46 866	54 245
		% of GDP		
Non-consolidated assets	49.6	49.3	48.9	52.7
Consolidated assets	38.9	41.5	43.6	47.9
Consolidated liquid assets	29.3	32.2	33.5	38.1

Source: Statistics Finland: Financial statistics and State pension institute

15. LIST OF AWG MEMBERS AND CONTRIBUTORS

CHAIRMAN

Mr. Henri **BOGAERT,** Commissaire au Plan, Bureau du Plan

BELGIQUE - BELGIE

Mr. Michel **ENGLERT** Bureau fédéral du Plan - Federaal Planbureau
Mme Micheline **LAMBRECHT** Bureau fédéral du Plan - Federaal Planbureau

CZECH REPUBLIC

Mr. Ales **KREJDL** Ministry of Finance

DANMARK

Mr. Morten Granzau **NIELSEN** Ministry of Finance
Mr. Martin **MADSEN** Ministry of Finance
Mr. Anders Due **MADSEN** Ministry of Finance

BUNDESREPUBLIK DEUTSCHLAND

Ms Britta **VELLEUER** Bundesministerium der Finanzen
Mr. Konrad **HAKER** Ministerium für Arbeit und Soziales

ESTONIA

Mr. Tanel **STEINBERG** Ministry of Finance

ELLAS

Ms. Marianna **PAPAMICHAIL** National Actuarial Authority
Mr. Dimitris **PAPAOIKONOMOU** Ministry of Economy and Finance

ESPAÑA

Mr. Juan **BURDIEL** Ministerio de Economia y Hacienda
Mr. Juan **VARELA** Ministerio de Economia y Hacienda
Mr. Francisco **DE CASTRO** Bank of Spain
Ms Angela **BLANCO** Instituto de Estudios Fiscales
Mr. Jorge **RELANO** Ministerio de Sanidad y Consumo
Ms Mercedes **ALFARO** Ministerio de Sanidad y Consumo
Ms Maria Jesus **SANZ** Ministerio de Economia y Hacienda

FRANCE

Mr. Alexandre **VINCENT**	Ministère de l'économie, des finances et de l'industrie
Mr. Nicolas **FERRARI**	Ministère de l'économie, des finances et de l'industrie
Mr Jean-François **OUVRARD**	Ministère de l'économie, des finances et de l'industrie

IRELAND

Ms Loretta **O'SULLIVAN**	Budget and economic Division Department of Finance
Mr. Ronnie **DOWNES**	Budget and economic Division Department of Finance

ITALIA

Mr. Federico **GIAMMUSSO**	Ministero del Tesoro
Mr. Rocco **APRILE**	I.G.E.S.P.E.S. Ragioneria Generale dello Stato
Mr. Francesco **MASSICCI**	I.G.E.S.P.E.S. Ragioneria Generale dello Stato

CYPRUS

Ms Nayia **POSPORI**	Ministry of Finances

LATVIA

Mr. Ilmārs **ŠŅUCINS**	Ministry of Finance

LITHUANIA

Ms Ruta **BANELIENE**	Ministry of Finance

LUXEMBOURG

Mr. Jean **LANGERS**	STATEC
Mr. Raymond **WAGENER**	Inspection Générale de la Securité Sociale
Mr. Tom **DOMINIQUE**	Inspection Générale de la Securité Sociale
Ms Laurence **WEBER**	Inspection Générale de la Sécurité Sociale

HUNGARY

Mr. Andras **HORVATH**	Ministry of Finance

MALTA

Ms Charmaine **PORTELLI**	Ministry of Finance and Economic Affairs
Mr. Godwin **MIFSUD**	Ministry of Finance and Economic Affairs

NEDERLAND

Mr Harry **TER RELE**	Centraal Planbureau
Mr**.** W. **KOOLMEES**	Ministry of Finance
Mr. Pieter **VAN WINDEN**	Department of Economic Affairs

ÖSTERREICH

Mr. Peter **PART**	Bundesministerium für Finanzen
Dr. Karin **SCHÖNPFLUG**	Bundesministerium für Finanzen
Mr. Hans **STEFANITS**	Ministry of Social Affairs

POLAND

Ms.Agnieszka **CHŁOŃ-DOMIŃCZAK**	Ministry of Labour and Social Policy
Mr. Pawel **STRZELECKI**	National Bank of Poland
Ms Joanna **STACHURA**	Ministry of Labour and Social Policy

PORTUGAL

Mr. Jorge **OLIVEIRA**	Ministry of Finance

SLOVENIA

Mr. Dusan **KIDRIC**,	Institute of Macroeconomic Analysis and Development
Mr. Boris **MAJCEN**	Institute for Economic Research
Mr. Joze **SAMBT**	Economic Faculty

SLOVAKIA

Mr. Viktor **NOVYSEDLAK**	Ministry of Finance

SUOMI FINLAND

Mr. Jorma **TUUKKANEN**	Ministry of Finance
Mr. Jussi **HUOPANIEMI**	Ministry of Finance
Mrs. Marja **TUOVINEN**	Ministry of Finance

SVERIGE

Ms Anna **KLEEN**	Ministry of Finance
Mr. Tomas **NORDSTRÖM**	Ministry of Finance
Mr. Sten **HANSEN**	National Institute of Economic Research
Mr. Martin **KNUDSEN**	National Institute of Economic Research

UNITED KINGDOM

Mr. Frank **EICH**	HM Treasury
Mr. Joshua **FLEMING**	HM Treasury
Mr. Thomas **PYBUS**	HM Treasury
Mr. Robert **WOODS**	HM Treasury

ROMANIA (Observer)

Ms. Ana **RADU**	Ministry of Public Finance
Ms Martha **CHIRVASE**	National Forecasting Commission

BULGARIAN (Observer)

Ms Ana **MIHAYLOVA**	Ministry of Finance

EPC SECRETARIAT

Mr Pekka **MOREN (Secretary)**
Mr. Heinz **SCHERRER**
Mrs. Odile **RENAUD-BASSO**
Mrs. Brigitte **DE CONINCK**
Ms. Dagmar **DIEZLER-HANAGHAN**

EUROPEAN COMMISSION

Mr. Servaas **DEROOSE**
Mr. Declan **COSTELLO**
Ms Elena **FLORES GUAL**
Mr. Werner **RÖGER**
Mr. Giuseppe **CARONE**
Ms Cecile **DENIS**
Ms Nuria **DIEZ GUARDIA**
Mr. Per **ECKEFELT**
Mr. Jouko **KUOSMANEN**
Mr. Jaroslav **KYSELA**
Mr. Fabrizio **MELCARNE**
Mr. Kieran **MCMORROW**
Mr. Gilles **MOURRE**
Mr. Bartosz **PRZYWARA**
Ms Aino **SALOMÄKI**
Ms Ingvild **STROMSHEIM WOLD**
Ms Dominique **CORNESSE**
Ms Patricia **TUITE**

OECD

Mr. Joaquim **OLIVEIRA**	Economics Department
Mr. Pablo **ANTOLIN**	Economics Department
Mr. Peter **SCHERRER**	Health Division
Mr. Gaetan **LAFORTUNE**	Health Division

EUROPEAN CENTRAL BANK

Ms Christiane **NICKEL**	European Central Bank
Mr. Louis **BÊ DUC**	

EUROSTAT

Mr. Michail **SKALIOTIS**
Mr. Konstantinos **GIANNAKOURIS**
Mr. Giampaolo **LANZIERI**
Mr. Fabio **SARTORI**

WORLD BANK
Mr. Hermann von **GERSDORFF**

IMF

Mr Pierre **DHONTE**

STATISTICAL ANNEX: COUNTRY TABLES

Belgium

Main demographic and macroeconomic assumptions

(BASELINE SCENARIO)

Budgetary Projection: AWG variant population scenario

	2004	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
Demographic assumptions											
Fertility rate	1.6	1.6	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
Life expectancy at birth											
males	75.5	75.8	76.9	77.9	78.9	79.7	80.3	80.9	81.4	81.8	82.1
females	81.6	81.9	82.9	83.9	84.8	85.5	86.1	86.6	87.0	87.2	87.5
Life expectancy at 65											
males	15.8	16.0	16.7	17.4	18.1	18.6	19.1	19.4	19.7	20.0	20.3
females	19.7	19.9	20.7	21.4	22.1	22.6	23.1	23.4	23.7	23.9	24.1
Net migration (thousand)	23.7	22.3	19.6	19.3	18.9	18.7	18.5	18.5	18.5	18.5	18.5
Net migration as % of population	0.23	0.21	0.19	0.18	0.18	0.17	0.17	0.17	0.17	0.17	0.17
Population (million)	10.4	10.4	10.6	10.7	10.8	10.9	11.0	11.0	11.0	10.9	10.8
Population aged 0-14 as % of total	17.3	17.1	16.4	16.0	15.7	15.6	15.4	15.1	14.9	14.7	14.7
Prime age population (25-54) as % of total	42.7	42.5	41.5	40.1	38.6	37.2	36.3	35.9	35.5	35.4	35.2
Working age population (15-64) as % of total	65.6	65.6	66.1	65.1	63.8	61.9	59.9	58.6	58.0	58.0	57.9
Elderly population aged 65+ as % of total	17.1	17.2	17.5	18.9	20.5	22.5	24.6	26.2	27.1	27.3	27.3
Very elderly population aged 80 and over as % of total	4.1	4.3	5.0	5.6	5.9	6.0	7.1	8.1	9.3	10.3	10.8
lerly population aged 55+ as % of working age pop.15-64	7.2	7.2	7.4	7.9	8.5	9.1	9.7	10.0	10.2	10.1	10.1
Macroeconomic assumptions											
Real GDP (growth rate)	2.2	2.1	2.7	2.1	1.7	1.4	1.3	1.5	1.5	1.6	1.5
Labour input (growth rate)	1.1	0.8	0.9	0.3	-0.1	-0.4	-0.4	-0.2	-0.2	-0.1	-0.2
Labour productivity (growth rate)	1.1	1.3	1.7	1.8	1.8	1.8	1.7	1.7	1.7	1.7	1.7
TFP (growth rate)	1.0	1.1	1.3	1.2	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Capital deepening (contribution to labour productivity growth)	0.1	0.2	0.4	0.7	0.7	0.7	0.6	0.6	0.6	0.6	0.6
GDP per capita (growth rate)	1.8	1.8	2.4	1.9	1.4	1.2	1.2	1.5	1.6	1.7	1.7
GDP in 2004 prices (in billions of euro)	283	288	326	366	401	431	461	494	533	576	621
GDP per worker	21.8	22.2	24.7	27.5	29.8	31.7	33.6	36.0	38.9	42.2	45.9
Real interest rate	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Labour force assumptions											
Population growth (working age:15-64)		0.3	0.1	-0.1	-0.3	-0.5	-0.6	-0.3	-0.1	-0.2	-0.1
Labour force (thousands)	4458	4495	4664	4766	4753	4667	4570	4507	4471	4442	4401
Participation rate (15-64)	65.4	65.7	66.8	68.6	69.1	69.2	69.5	69.8	70.1	70.0	70.0
young (15-24)	35.6	35.9	36.0	37.3	36.7	36.9	36.4	36.3	36.5	36.7	36.8
prime-age (25-54)	82.8	83.3	85.7	87.4	88.1	88.3	88.6	88.6	88.6	88.6	88.6
older (55-64)	29.9	30.5	33.8	39.6	42.8	43.2	43.3	43.7	44.7	44.7	44.9
oldest (65-71)	2.7	3.0	3.2	3.4	3.5	3.7	3.7	3.6	3.6	3.7	3.7
Employment rate (15-64)	60.2	60.6	62.1	64.1	64.6	64.7	65.0	65.3	65.5	65.5	65.5
Employment rate (15-71)	54.9	55.4	57.1	57.9	57.7	57.3	56.9	57.1	57.7	58.1	58.0
Employment growth (15-64)		1.0	0.9	0.2	-0.2	-0.4	-0.4	-0.2	-0.1	-0.1	-0.2
Unemployment rate (15-64)	7.9	7.7	7.0	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
Dependency ratios:											
Share of older workers	7.5	7.8	9.5	11.7	13.5	13.8	13.4	12.8	12.8	13.0	13.4
Old-age dependency ratio (1)	26.1	26.3	26.4	29.1	32.2	36.3	41.1	44.7	46.7	47.0	47.2
Total dependency ratio (2)	52.5	52.4	51.2	53.6	56.8	61.5	66.9	70.6	72.3	72.4	72.6
Total economic dependency ratio	153.3	151.4	143.4	139.5	142.7	149.6	156.7	161.3	163.0	163.3	163.7
Economic old-age dependency ratio (15-64)	42.9	42.8	42.1	44.7	49.1	55.3	62.4	67.7	70.5	71.1	71.3
Economic old-age dependency ratio (15-71)	42.7	42.6	41.9	44.5	48.7	54.9	61.8	67.1	70.0	70.5	70.7

LEGENDA:

Share of older workers = Population aged 55 to 64 as % of population aged 15-64

Old-age dependency ratio (1) = Population aged 65 and over as a percentage of the population aged 15-64

Total dependency ratio (2) = Population under 15 and over 64 as a percentage of the population aged 15-64

Total economic dependency ratio= Total population less employed as % of employed population (15-64)

Economic old-age dependency ratio (15-64)=Inactive population aged 65+ as % of employed population (15-64)

Economic old-age dependency ratio (15-71)=Inactive population aged 65+ as % of employed population (15-71)

Belgium

EPC-AWG Pension expenditure projections

	2004	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
Baseline scenario; as % of GDP											
Social security pensions, gross	10.4	10.4	10.4	11.0	12.1	13.4	14.7	15.5	15.7	15.7	15.5
Old-age and early pensions, gross	9.6	9.6	9.6	10.3	11.3	12.7	14.0	14.8	15.1	15.0	14.9
Of which: earnings-related pensions, gross	9.5	9.5	9.5	10.2	11.3	12.6	13.9	14.7	15.0	15.0	14.8
Private sector employees, gross	6.3	6.3	6.4	6.9	7.7	8.7	9.6	10.2	10.4	10.3	10.2
Public sector employees, gross	3.2	3.2	3.1	3.3	3.5	3.9	4.2	4.5	4.6	4.7	4.6
Other pensions (disability, survivors), gross	0.8	0.8	0.8	0.8	0.8	0.7	0.7	0.7	0.7	0.7	0.7
Occupational pensions, gross	:	:	:	:	:	:	:	:	:	:	:
Private mandatory pensions, gross	:	:	:	:	:	:	:	:	:	:	:
Total pension expenditure, gross	10.4	10.4	10.4	11.0	12.1	13.4	14.7	15.5	15.7	15.7	15.5
Social security pensions, net	:	:	:	:	:	:	:	:	:	:	:
Total pension expenditure, net	:	:	:	:	:	:	:	:	:	:	:
Social security pensions, contributions	:	:	:	:	:	:	:	:	:	:	:
Total pension contributions	:	:	:	:	:	:	:	:	:	:	:
Social security pensions, assets	4.4	4.7	7.3	13.4	16.4	13.6	1.9	0.0	0.0	0.0	0.0
All pensions, assets	4.4	4.7	7.3	13.4	16.4	13.6	1.9	0.0	0.0	0.0	0.0
Additional indicators											
Social security pensions, net / Social sec. pensions, gross,%	:	:	:	:	:	:	:	:	:	:	:
Total pension expenditure, net / Total pension exp., gross, %	:	:	:	:	:	:	:	:	:	:	:
Social security pensions, number of pensioners , 1000 pers.	2501	2516	2635	2870	3144	3456	3748	3952	4052	4078	4050
All pensions, pensioners , 1000 pers.	2501	2516	2635	2870	3144	3456	3748	3952	4052	4078	4050
Number of pensioners aged 65+ , 1000 pers.	1860	1874	1960	2186	2435	2742	3073	3318	3443	3468	3447
Share of pensioners below age 65 as % of all pensioners	25.6	25.5	25.6	23.8	22.6	20.7	18.0	16.0	15.0	15.0	14.9
Average gross social sec. pension, 1000€ in 2004 prices	11.8	12.0	12.9	14.1	15.4	16.7	18.0	19.3	20.7	22.2	23.8
Average gross total pensions, 1000€ in 2004 prices	11.8	12.0	12.9	14.1	15.4	16.7	18.0	19.3	20.7	22.2	23.8
Output / Worker, 1000€ in 2004 prices	69.9	70.8	72.5	79.2	86.7	94.8	103.4	112.5	122.5	133.3	145.1
Social sec. benefit ratio	16.8	16.9	17.8	17.8	17.8	17.6	17.4	17.2	16.9	16.6	16.4
Total pension benefit ratio	16.8	16.9	17.8	17.8	17.8	17.6	17.4	17.2	16.9	16.6	16.4
Social security pensions, num of contributors, in 1000	4249	4297	4491	4623	4620	4545	4457	4394	4355	4323	4281
Average social sec. pension contribution, 1000€ in 2004 prices	:	:	:	:	:	:	:	:	:	:	:
Average total pension contribution, 1000€ in 2004 prices	:	:	:	:	:	:	:	:	:	:	:
Support ratio (contributors /100 pensioners, social sec. pens.)	170	171	170	161	147	132	119	111	107	106	106
High life expectancy; as % of GDP											
Social security pensions, gross	10.4	10.4	10.5	11.1	12.2	13.6	14.8	15.7	16.1	16.2	16.1
Old-age and early pensions, gross	9.6	9.6	9.6	10.3	11.4	12.8	14.1	15.0	15.4	15.5	15.4
Total pension expenditure, gross	10.4	10.4	10.5	11.1	12.2	13.6	14.8	15.7	16.1	16.2	16.1
All pensions, assets	4.4	4.7	7.4	13.5	16.2	12.9	0.5	0.0	0.0	0.0	0.0
Higher labour productivity; as % of GDP											
Social security pensions, gross	10.4	10.4	10.4	11.1	12.1	13.3	14.5	15.2	15.4	15.4	15.2
Old-age and early pensions, gross	9.6	9.6	9.6	10.3	11.3	12.6	13.8	14.5	14.8	14.7	14.5
Total pension expenditure, gross	10.4	10.4	10.4	11.1	12.1	13.3	14.5	15.2	15.4	15.4	15.2
All pensions, assets	4.4	4.7	7.3	13.4	16.2	13.5	2.4	0.0	0.0	0.0	0.0
Lower labour productivity; as % of GDP											
Social security pensions, gross	10.4	10.4	10.4	11.1	12.2	13.5	14.8	15.7	16.0	16.0	15.9
Old-age and early pensions, gross	9.6	9.6	9.6	10.3	11.4	12.8	14.1	15.0	15.3	15.4	15.2
Total pension expenditure, gross	10.4	10.4	10.4	11.1	12.2	13.5	14.8	15.7	16.0	16.0	15.9
All pensions, assets	4.4	4.7	7.4	13.6	16.5	13.6	1.4	0.0	0.0	0.0	0.0
Higher employment rate (1 p.p.); as % of GDP											
Social security pensions, gross	10.4	10.4	10.4	11.0	12.0	13.3	14.5	15.3	15.6	15.5	15.4
Old-age and early pensions, gross	9.6	9.6	9.6	10.2	11.2	12.6	13.8	14.6	14.9	14.9	14.7
Total pension expenditure, gross	10.4	10.4	10.4	11.0	12.0	13.3	14.5	15.3	15.6	15.5	15.4
All pensions, assets	4.4	4.7	7.3	13.5	16.5	13.9	2.5	0.0	0.0	0.0	0.0
Higher older workers empl. rate (5 p.p.); as % of GDP											
Social security pensions, gross	10.4	10.4	10.4	11.0	11.9	13.2	14.4	15.2	15.5	15.5	15.3
Old-age and early pensions, gross	9.6	9.6	9.6	10.2	11.2	12.5	13.7	14.6	14.8	14.8	14.6
Total pension expenditure, gross	10.4	10.4	10.4	11.0	11.9	13.2	14.4	15.2	15.5	15.5	15.3
All pensions, assets	4.4	4.7	7.3	13.5	16.5	14.1	3.1	0.0	0.0	0.0	0.0
Lower interest rate; as % of GDP											
Social security pensions, gross	10.4	10.4	10.4	11.0	12.1	13.4	14.7	15.5	15.7	15.7	15.5
Old-age and early pensions, gross	9.6	9.6	9.6	10.3	11.3	12.7	14.0	14.8	15.1	15.0	14.9
Total pension expenditure, gross	10.4	10.4	10.4	11.0	12.1	13.4	14.7	15.5	15.7	15.7	15.5
All pensions, assets	4.4	4.7	7.1	12.8	14.9	11.3	0.0	0.0	0.0	0.0	0.0
Higher interest rate; as % of GDP											
Social security pensions, gross	10.4	10.4	10.4	11.0	12.1	13.4	14.7	15.5	15.7	15.7	15.5
Old-age and early pensions, gross	9.6	9.6	9.6	10.3	11.3	12.7	14.0	14.8	15.1	15.0	14.9
Total pension expenditure, gross	10.4	10.4	10.4	11.0	12.1	13.4	14.7	15.5	15.7	15.7	15.5
All pensions, assets	4.4	4.7	7.5	14.2	17.9	16.2	5.4	0.0	0.0	0.0	0.0

: = data not provided

Belgium

OTHER AGE-RELATED EXPENDITURES as % of GDP

	2004	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
Health care spending as % of GDP											
Pure ageing scenario	6.2	6.2	6.4	6.6	6.8	7.0	7.3	7.5	7.6	7.7	7.7
Constant health scenario	6.2	6.2	6.2	6.3	6.4	6.5	6.6	6.8	6.9	6.9	6.9
Death-related costs scenario	6.2	6.2	6.4	6.5	6.6	6.8	6.9	7.1	7.2	7.3	7.3
Income elasticity of demand	6.2	6.3	6.5	6.8	7.0	7.2	7.5	7.7	7.9	8.0	8.0
Unit costs - GDP per worker	6.2	6.2	6.2	6.3	6.6	7.0	7.4	7.8	8.0	8.1	8.1
AWG reference scenario	6.2	6.2	6.4	6.6	6.8	6.9	7.1	7.3	7.5	7.6	7.6
Long-term care spending as % of GDP											
Pure ageing scenario	0.9	0.9	1.0	1.1	1.1	1.2	1.4	1.6	1.8	2.0	2.1
Unit costs - GDP per capita	0.9	0.9	1.0	1.1	1.2	0.8	1.3	1.5	1.7	1.9	2.0
Constant disability scenario	0.9	0.9	0.9	1.0	1.0	1.0	1.1	1.3	1.4	1.5	1.5
Increase in formal care	0.9	0.9	1.0	1.2	1.3	1.3	1.5	1.8	2.0	2.2	2.3
AWG reference scenario	0.9	0.9	0.9	1.0	1.1	1.1	1.3	1.4	1.6	1.8	1.8
Number of dependent people (in thousands)											
Pure ageing scenario	416	424	460	502	540	587	664	737	797	834	841
Unit costs - GDP per capita	416	424	460	502	540	306	664	737	797	834	841
Constant disability scenario	416	418	425	367	438	447	482	515	541	555	547
Increase in formal care	416	424	460	502	540	587	664	737	797	834	841
AWG reference scenario	416	421	443	468	489	517	573	626	669	694	694
of which receiving formal care											
Pure ageing scenario	262	268	299	328	350	376	430	484	534	569	579
Unit costs - GDP per capita	262	268	299	328	350	376	430	484	534	569	579
Constant disability scenario	262	265	279	290	293	296	325	353	379	396	395
Increase in formal care	262	276	342	403	457	494	561	626	681	717	726
AWG reference scenario	262	267	289	309	322	336	377	419	457	482	487
of which receiving informal or no care											
Pure ageing scenario	154	156	161	174	190	212	234	253	264	265	263
Unit costs - GDP per capita	154	156	161	174	190	89	234	253	264	265	263
Constant disability scenario	154	153	146	116	146	150	157	161	162	158	152
Increase in formal care	154	148	119	99	83	93	103	111	116	117	116
AWG reference scenario	154	154	154	159	168	181	196	207	213	212	207
Education spending as % of GDP											
Total	5.6	5.6	5.2	5.0	4.9	4.9	5.0	5.0	5.0	5.0	5.0
of which: Transfers	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Primary	1.4	1.3	1.3	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
of which: Transfers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Low secondary	0.9	0.9	0.8	0.8	0.7	0.7	0.8	0.8	0.8	0.7	0.7
of which: Transfers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Upper secondary	2.0	2.0	1.9	1.8	1.7	1.7	1.8	1.8	1.8	1.8	1.8
of which: Transfers	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Tertiary education	1.4	1.4	1.3	1.3	1.2	1.2	1.2	1.2	1.3	1.3	1.2
of which: Transfers	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Number of students (in thousands)											
Total	2373	2360	2312	2253	2218	2203	2200	2184	2152	2114	2087
Primary	753	744	732	708	704	710	713	702	686	672	667
Low secondary	424	423	398	393	383	382	383	381	373	366	361
Upper secondary	819	821	810	787	774	762	762	760	751	736	724
Tertiary education	376	371	372	365	357	348	342	342	343	340	334
Memo											
Population aged 15-64 (in thousands)	6819	6841	6980	6947	6880	6742	6575	6455	6382	6344	6286
Unemployment benefit spending as % of GDP	2.3	2.2	2.0	1.8	1.8	1.8	1.8	1.8	1.7	1.8	1.8

Czech Republic

Main demographic and macroeconomic assumptions

(BASELINE SCENARIO)

Budgetary Projection: AWG variant population scenario

	2004	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
Demographic assumptions											
Fertility rate	1.2	1.2	1.2	1.4	1.4	1.5	1.5	1.5	1.5	1.5	1.5
Life expectancy at birth											
males	72.4	72.6	73.7	74.8	75.9	76.9	77.8	78.3	78.8	79.3	79.7
females	78.8	79.0	79.8	80.5	81.3	82.1	82.7	83.1	83.5	83.8	84.1
Life expectancy at 65											
males	13.8	13.9	14.5	15.1	15.8	16.5	17.0	17.4	17.7	18.1	18.4
females	17.0	17.1	17.7	18.2	18.8	19.3	19.8	20.1	20.4	20.6	20.9
Net migration (thousand)	4.3	4.3	2.6	-1.0	9.7	20.2	21.6	21.4	21.0	20.5	20.0
Net migration as % of population	0.04	0.04	0.03	-0.01	0.10	0.21	0.22	0.22	0.22	0.22	0.22
Population (million)	10.2	10.2	10.1	10.0	9.9	9.8	9.7	9.5	9.3	9.1	8.9
Population aged 0-14 as % of total	15.2	14.9	13.6	13.7	13.8	13.5	12.9	12.3	12.1	12.3	12.6
Prime age population (25-54) as % of total	44.4	44.5	43.8	43.6	43.4	41.8	39.2	36.2	35.0	34.2	33.5
Working age population (15-64) as % of total	70.8	71.1	70.9	68.0	65.4	64.1	63.5	63.1	61.1	58.0	56.5
Elderly population aged 65+ as % of total	13.9	14.0	15.5	18.2	20.8	22.4	23.6	24.6	26.8	29.7	31.0
Very elderly population aged 80 and over as % of total	2.9	3.0	3.5	3.8	4.0	4.9	6.5	7.8	8.1	8.3	8.7
lerly population aged 55+ as % of working age pop.15-64	6.0	6.0	6.2	6.7	7.2	7.5	7.8	8.1	8.4	8.9	9.1
Macroeconomic assumptions											
Real GDP (growth rate)	3.1	3.2	3.6	2.9	2.5	2.3	1.9	0.9	0.4	0.7	0.8
Labour input (growth rate)	0.0	-0.1	0.3	-0.4	-0.6	-0.5	-0.8	-1.1	-1.4	-1.1	-1.0
Labour productivity (growth rate)	3.1	3.3	3.4	3.3	3.0	2.8	2.7	2.0	1.9	1.8	1.7
TFP (growth rate)	0.9	1.0	1.4	1.7	1.7	1.7	1.8	1.3	1.2	1.2	1.1
Capital deepening (contribution to labour productivity growth)	2.2	2.3	2.0	1.6	1.3	1.1	0.9	0.7	0.7	0.6	0.6
GDP per capita (growth rate)	3.0	3.3	3.8	3.2	2.7	2.5	2.2	1.3	0.9	1.1	1.3
GDP in 2004 prices (in billions of euro)	86	89	106	125	142	159	177	189	195	200	208
GDP per worker	13.0	13.4	16.2	19.2	22.1	25.0	28.1	30.6	32.2	33.9	36.0
Real interest rate	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Labour force assumptions											
Population growth (working age:15-64)		0.2	-0.6	-1.1	-0.9	-0.3	-0.6	-0.6	-1.5	-1.4	-0.9
Labour force (thousands)	5094	5108	5170	5123	4981	4850	4691	4483	4194	3935	3744
Participation rate (15-64)	70.4	70.5	72.0	75.2	76.9	77.2	76.2	74.6	73.6	74.4	74.5
young (15-24)	37.0	36.2	37.1	39.8	35.7	35.9	36.0	36.5	37.4	37.6	36.8
prime-age (25-54)	88.2	88.5	89.4	90.5	90.9	91.4	91.3	91.0	90.7	90.5	90.7
older (55-64)	44.4	44.4	49.7	54.1	59.1	61.3	62.5	62.3	58.7	60.1	60.1
oldest (65-71)	7.9	7.7	8.8	10.7	10.0	10.6	11.5	11.0	12.0	11.1	10.6
Employment rate (15-64)	64.9	65.0	66.8	70.3	71.9	72.1	71.2	69.8	68.8	69.6	69.7
Employment rate (15-71)	60.7	60.8	61.6	63.4	64.2	64.8	64.5	62.6	60.7	59.5	60.4
Employment growth (15-64)		0.3	0.3	-0.4	-0.6	-0.5	-0.8	-1.1	-1.4	-1.1	-1.0
Unemployment rate (15-64)	7.8	7.8	7.3	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
Dependency ratios:											
Share of older workers	11.3	11.7	14.2	14.6	15.0	15.8	18.6	22.3	21.2	20.1	20.0
Old-age dependency ratio (1)	19.7	19.8	21.9	26.8	31.8	35.0	37.1	39.0	43.8	51.2	54.8
Total dependency ratio (2)	41.2	40.7	41.0	47.0	52.8	56.1	57.4	58.5	63.5	72.3	77.1
Total economic dependency ratio	117.4	116.6	111.2	109.0	112.6	116.4	121.0	127.2	137.7	147.6	154.0
Economic old-age dependency ratio (15-64)	29.4	29.5	31.5	36.1	42.3	46.5	50.0	53.7	60.8	70.2	75.8
Economic old-age dependency ratio (15-71)	29.1	29.3	31.2	35.5	41.4	45.7	49.0	52.6	59.1	68.0	73.8

LEGENDA:

Share of older workers = Population aged 55 to 64 as % of population aged 15-64

Old-age dependency ratio (1) = Population aged 65 and over as a percentage of the population aged 15-64

Total dependency ratio (2) = Population under 15 and over 64 as a percentage of the population aged 15-64

Total economic dependency ratio= Total population less employed as % of employed population (15-64)

Economic old-age dependency ratio (15-64)=Inactive population aged 65+ as % of employed population (15-64)

Economic old-age dependency ratio (15-71)=Inactive population aged 65+ as % of employed population (15-71)

Czech Republic

EPC-AWG Pension expenditure projections

	2004	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
Baseline scenario; as % of GDP											
Social security pensions, gross	8.5	8.5	8.2	8.2	8.4	8.9	9.6	10.6	12.2	13.3	14.0
Old-age and early pensions, gross	7.6	7.6	7.4	7.4	7.6	8.1	8.7	9.9	11.4	12.5	13.3
Of which: earnings-related pensions, gross	7.6	7.6	7.4	7.4	7.6	8.1	8.7	9.9	11.4	12.5	13.3
Private sector employees, gross	:	:	:	:	:	:	:	:	:	:	:
Public sector employees, gross	:	:	:	:	:	:	:	:	:	:	:
Other pensions (disability, survivors), gross	0.8	0.8	0.8	0.8	0.8	0.9	0.8	0.8	0.8	0.8	0.8
Occupational pensions, gross	:	:	:	:	:	:	:	:	:	:	:
Private mandatory pensions, gross	:	:	:	:	:	:	:	:	:	:	:
Total pension expenditure, gross	8.5	8.5	8.2	8.2	8.4	8.9	9.6	10.6	12.2	13.3	14.0
Social security pensions, net	8.5	8.5	8.2	8.2	8.4	8.9	9.6	10.6	12.2	13.3	14.0
Total pension expenditure, net	8.5	8.5	8.2	8.2	8.4	8.9	9.6	10.6	12.2	13.3	14.0
Social security pensions, contributions	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9
Total pension contributions	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9	8.9
Social security pensions, assets	0.3	0.7	3.5	6.8	9.9	11.0	9.4	3.6	0.0	0.0	0.0
All pensions, assets	0.3	0.7	3.5	6.8	9.9	11.0	9.4	3.6	0.0	0.0	0.0
Additional indicators											
Social security pensions, net / Social sec. pensions, gross,%	100	100	100	100	100	100	100	100	100	100	100
Total pension expenditure, net / Total pension exp., gross, %	100	100	100	100	100	100	100	100	100	100	100
Social security pensions, number of pensioners , 1000 pers.	2629	2667	2795	2893	2984	3099	3215	3351	3483	3513	3496
All pensions, pensioners , 1000 pers.	2629	2667	2795	2893	2984	3099	3215	3351	3483	3513	3496
Number of pensioners aged 65+ , 1000 pers.	1405	1423	1556	1804	2011	2113	2199	2249	2422	2590	2627
Share of pensioners below age 65 as % of all pensioners	46.6	46.6	44.3	37.7	32.6	31.8	31.6	32.9	30.5	26.3	24.9
Average gross social sec. pension, 1000€ in 2004 prices	2.8	2.8	3.1	3.5	4.0	4.6	5.3	6.0	6.8	7.6	8.4
Average gross total pensions, 1000€ in 2004 prices	2.8	2.8	3.1	3.5	4.0	4.6	5.3	6.0	6.8	7.6	8.4
Output / Worker, 1000€ in 2004 prices	17.6	18.2	22.2	26.1	30.5	35.2	40.3	45.1	49.7	54.5	59.4
Social sec. benefit ratio	15.7	15.5	14.1	13.5	13.2	13.0	13.1	13.3	13.7	14.0	14.1
Total pension benefit ratio	15.7	15.5	14.1	13.5	13.2	13.0	13.1	13.3	13.7	14.0	14.1
Social security pensions, num of contributors, in 1000	4767	4778	4880	4911	4776	4650	4500	4306	4056	3822	3620
Average social sec. pension contribution, 1000€ in 2004 prices	1.6	1.7	1.9	2.3	2.6	3.0	3.5	3.9	4.3	4.7	5.1
Average total pension contribution, 1000€ in 2004 prices	:	:	:	:	:	:	:	:	:	:	:
Support ratio (contributors /100 pensioners, social sec. pens.)	181	179	175	170	160	150	140	128	116	109	104
High life expectancy; as % of GDP											
Social security pensions, gross	8.5	8.5	8.2	8.2	8.5	8.9	9.6	10.8	12.4	13.6	14.4
Old-age and early pensions, gross	7.6	7.6	7.5	7.4	7.7	8.1	8.8	10.0	11.6	12.8	13.6
Total pension expenditure, gross	8.5	8.5	8.2	8.2	8.5	8.9	9.6	10.8	12.4	13.6	14.4
All pensions, assets	0.3	0.7	3.4	6.5	9.1	9.7	7.2	0.2	0.0	0.0	0.0
Higher labour productivity; as % of GDP											
Social security pensions, gross	8.5	8.5	8.2	8.1	8.3	8.7	9.3	10.4	11.9	13.0	13.6
Old-age and early pensions, gross	7.6	7.6	7.4	7.3	7.5	7.9	8.5	9.6	11.1	12.2	12.9
Total pension expenditure, gross	8.5	8.5	8.2	8.1	8.3	8.7	9.3	10.4	11.9	13.0	13.6
All pensions, assets	0.3	0.7	3.4	6.7	9.8	11.2	10.1	5.0	0.0	0.0	0.0
Lower labour productivity; as % of GDP											
Social security pensions, gross	8.5	8.5	8.2	8.2	8.5	9.0	9.6	10.7	12.3	13.4	14.2
Old-age and early pensions, gross	7.6	7.6	7.4	7.4	7.7	8.1	8.8	9.9	11.5	12.6	13.4
Total pension expenditure, gross	8.5	8.5	8.2	8.2	8.5	9.0	9.6	10.7	12.3	13.4	14.2
All pensions, assets	0.3	0.7	3.4	6.6	9.2	9.9	7.5	0.8	0.0	0.0	0.0
Higher employment rate (1 p.p.); as % of GDP											
Social security pensions, gross	8.5	8.5	8.2	8.1	8.3	8.8	9.4	10.4	12.0	13.1	13.8
Old-age and early pensions, gross	7.6	7.6	7.4	7.3	7.5	7.9	8.6	9.7	11.2	12.3	13.0
Total pension expenditure, gross	8.5	8.5	8.2	8.1	8.3	8.8	9.4	10.4	12.0	13.1	13.8
All pensions, assets	0.3	0.7	3.5	7.0	10.3	11.7	10.5	5.3	0.0	0.0	0.0
Higher older workers empl. rate (5 p.p.); as % of GDP											
Social security pensions, gross	8.5	8.5	8.2	8.1	8.3	8.8	9.4	10.4	11.9	13.0	13.7
Old-age and early pensions, gross	7.6	7.6	7.4	7.3	7.5	7.9	8.5	9.6	11.1	12.2	12.9
Total pension expenditure, gross	8.5	8.5	8.2	8.1	8.3	8.8	9.4	10.4	11.9	13.0	13.7
All pensions, assets	0.3	0.7	3.5	6.9	10.0	11.4	10.2	5.2	0.0	0.0	0.0
Lower interest rate; as % of GDP											
Social security pensions, gross	8.5	8.5	8.2	8.2	8.4	8.9	9.6	10.6	12.2	13.3	14.0
Old-age and early pensions, gross	7.6	7.6	7.4	7.4	7.6	8.1	8.7	9.9	11.4	12.5	13.3
Total pension expenditure, gross	8.5	8.5	8.2	8.2	8.4	8.9	9.6	10.6	12.2	13.3	14.0
All pensions, assets	0.3	0.7	3.4	6.5	9.2	9.8	7.7	1.4	0.0	0.0	0.0
Higher interest rate; as % of GDP											
Social security pensions, gross	8.5	8.5	8.2	8.2	8.4	8.9	9.6	10.6	12.2	13.3	14.0
Old-age and early pensions, gross	7.6	7.6	7.4	7.4	7.6	8.1	8.7	9.9	11.4	12.5	13.3
Total pension expenditure, gross	8.5	8.5	8.2	8.2	8.4	8.9	9.6	10.6	12.2	13.3	14.0
All pensions, assets	0.3	0.7	3.6	7.2	10.6	12.4	11.4	6.2	0.0	0.0	0.0

: = data not provided

Czech Republic

OTHER AGE-RELATED EXPENDITURES as % of GDP

	2004	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
Health care spending as % of GDP											
Pure ageing scenario	6.4	6.5	6.7	7.0	7.3	7.5	7.7	7.9	8.1	8.2	8.3
Constant health scenario	6.4	6.5	6.6	6.7	6.8	7.0	7.1	7.2	7.3	7.4	7.5
Death-related costs scenario	6.4	6.5	6.6	6.8	7.0	7.2	7.4	7.5	7.6	7.7	7.8
Income elasticity of demand	6.4	6.5	6.8	7.2	7.6	7.9	8.2	8.4	8.6	8.7	8.9
Unit costs - GDP per worker	6.4	6.5	6.6	6.8	7.2	7.6	7.9	8.4	8.9	9.5	9.8
AWG reference scenario	6.4	6.5	6.8	7.1	7.4	7.6	7.8	8.0	8.1	8.3	8.4
Long-term care spending as % of GDP											
Pure ageing scenario	0.3	0.3	0.3	0.4	0.4	0.5	0.6	0.6	0.7	0.7	0.8
Unit costs - GDP per capita	0.3	0.3	0.4	0.4	0.4	0.3	0.5	0.6	0.6	0.6	0.7
Constant disability scenario	0.3	0.3	0.3	0.3	0.3	0.4	0.5	0.5	0.5	0.6	0.6
Increase in formal care	0.3	0.3	0.4	0.5	0.6	0.7	0.8	1.0	1.0	1.1	1.2
AWG reference scenario	0.3	0.3	0.3	0.3	0.4	0.4	0.5	0.6	0.6	0.6	0.7
Number of dependent people (in thousands)											
Pure ageing scenario	299	304	333	371	415	468	520	551	572	600	625
Unit costs - GDP per capita	299	304	333	371	415	220	520	551	572	600	625
Constant disability scenario	299	299	304	256	323	344	369	378	375	375	377
Increase in formal care	299	304	333	371	415	468	520	551	572	600	625
AWG reference scenario	299	302	318	342	369	406	444	465	474	487	501
of which receiving formal care											
Pure ageing scenario	134	136	150	168	186	209	234	250	260	272	281
Unit costs - GDP per capita	134	136	150	168	186	209	234	250	260	272	281
Constant disability scenario	134	134	138	143	146	154	167	173	172	172	171
Increase in formal care	134	144	199	256	314	354	394	419	435	456	473
AWG reference scenario	134	135	144	156	166	182	200	211	216	222	226
of which receiving informal or no care											
Pure ageing scenario	166	168	182	203	229	259	286	301	312	328	344
Unit costs - GDP per capita	166	168	182	203	229	120	286	301	312	328	344
Constant disability scenario	166	165	166	139	178	189	202	205	203	203	205
Increase in formal care	166	160	134	115	101	114	126	133	137	144	151
AWG reference scenario	166	167	174	187	203	224	244	253	257	265	275
Education spending as % of GDP											
Total	3.8	3.8	3.3	2.9	2.8	2.9	3.0	3.0	3.0	3.1	3.1
of which: Transfers	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Primary	0.6	0.6	0.5	0.5	0.6	0.6	0.6	0.5	0.5	0.6	0.6
of which: Transfers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Low secondary	1.1	1.0	0.8	0.7	0.8	0.8	0.8	0.8	0.8	0.8	0.8
of which: Transfers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Upper secondary	1.3	1.2	1.1	0.9	0.9	0.9	1.0	1.0	1.0	1.0	1.0
of which: Transfers	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Tertiary education	0.9	0.9	0.8	0.7	0.6	0.6	0.6	0.7	0.7	0.7	0.7
of which: Transfers	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Number of students (in thousands)											
Total	1875	1823	1595	1439	1398	1395	1375	1314	1237	1184	1164
Primary	533	501	463	468	468	465	440	402	381	380	385
Low secondary	505	498	373	359	362	367	365	344	314	299	300
Upper secondary	551	541	500	380	379	380	384	380	356	329	317
Tertiary education	286	283	260	231	188	183	185	188	186	176	163
Memo											
Population aged 15-64 (in thousands)	7234	7247	7177	6812	6479	6287	6157	6008	5699	5286	5023
Unemployment benefit spending as % of GDP	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2

Denmark

Main demographic and macroeconomic assumptions

(BASELINE SCENARIO)

Budgetary Projection: AWG variant population scenario

	2004	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
Demographic assumptions											
Fertility rate	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
Life expectancy at birth											
males	75.2	75.4	76.4	77.3	78.1	78.9	79.5	80.1	80.6	81.0	81.4
females	79.6	79.7	80.5	81.3	82.1	82.7	83.3	83.8	84.3	84.8	85.2
Life expectancy at 65											
males	15.2	15.3	15.9	16.5	17.0	17.5	17.9	18.3	18.6	19.0	19.3
females	18.0	18.1	18.6	19.0	19.5	20.0	20.4	20.8	21.2	21.5	21.9
Net migration (thousand)	7.8	7.6	7.1	7.2	6.9	6.7	6.6	6.6	6.6	6.6	6.6
Net migration as % of population	0.15	0.14	0.13	0.13	0.12	0.12	0.12	0.12	0.12	0.12	0.12
Population (million)	5.4	5.4	5.5	5.5	5.5	5.6	5.6	5.6	5.6	5.5	5.5
Population aged 0-14 as % of total	18.9	18.8	18.0	16.9	16.0	15.9	16.2	16.5	16.3	15.9	15.5
Prime age population (25-54) as % of total	42.4	42.1	40.3	39.1	38.2	37.1	36.3	35.9	36.2	36.3	36.0
Working age population (15-64) as % of total	66.2	66.2	65.7	64.5	63.9	62.7	60.8	59.1	58.4	58.6	59.6
Elderly population aged 65+ as % of total	14.9	15.0	16.3	18.6	20.1	21.4	22.9	24.4	25.3	25.5	25.0
Very elderly population aged 80 and over as % of total	4.0	4.1	4.1	4.2	4.6	5.6	6.9	7.5	8.0	8.7	9.5
lerly population aged 55+ as % of working age pop.15-64	3.8	3.8	4.0	4.1	4.3	4.5	4.9	5.1	5.0	4.9	4.8
Macroeconomic assumptions											
Real GDP (growth rate)	1.8	2.0	2.1	2.0	1.7	1.4	1.1	1.3	1.5	1.9	1.8
Labour input (growth rate)	0.1	0.3	0.0	0.0	-0.1	-0.4	-0.6	-0.4	-0.2	0.2	0.1
Labour productivity (growth rate)	1.7	1.7	2.1	2.0	1.8	1.8	1.7	1.7	1.7	1.7	1.7
TFP (growth rate)	1.1	1.1	1.4	1.3	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Capital deepening (contribution to labour productivity growth)	0.6	0.6	0.7	0.7	0.7	0.7	0.6	0.6	0.6	0.6	0.6
GDP per capita (growth rate)	1.6	1.7	1.9	1.9	1.6	1.3	1.1	1.3	1.7	2.0	1.9
GDP in 2004 prices (in billions of euro)	195	199	220	243	266	286	304	323	346	378	414
GDP per worker	22.3	22.7	24.9	27.3	29.7	31.8	33.5	35.6	38.3	42.2	46.6
Real interest rate	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Labour force assumptions											
Population growth (working age:15-64)		0.2	-0.1	-0.1	-0.1	-0.3	-0.7	-0.3	-0.3	0.0	0.2
Labour force (thousands)	2845	2855	2864	2862	2855	2820	2742	2674	2636	2643	2661
Participation rate (15-64)	79.6	79.7	79.8	80.6	80.7	80.7	80.5	80.8	80.9	81.4	81.3
young (15-24)	65.6	66.0	66.8	68.0	68.2	68.5	68.4	67.8	67.5	67.7	68.1
prime-age (25-54)	87.9	88.1	88.9	89.3	89.3	89.4	89.6	89.7	89.8	89.8	89.7
older (55-64)	64.1	64.4	63.7	66.6	67.9	67.7	66.1	66.2	65.3	67.8	69.0
oldest (65-71)	11.3	10.9	12.2	11.7	11.9	12.0	12.2	11.7	11.9	11.6	11.7
Employment rate (15-64)	75.4	75.8	76.4	77.2	77.3	77.3	77.1	77.3	77.5	78.0	77.9
Employment rate (15-71)	70.2	70.4	70.1	69.5	70.0	69.8	69.1	68.6	69.1	69.9	70.8
Employment growth (15-64)		0.7	0.0	0.0	-0.1	-0.4	-0.6	-0.4	-0.2	0.2	0.1
Unemployment rate (15-64)	5.3	4.9	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
Dependency ratios:											
Share of older workers	15.6	16.0	16.1	16.1	17.3	18.5	18.2	17.3	15.4	15.2	17.0
Old-age dependency ratio (1)	22.5	22.6	24.9	28.8	31.5	34.2	37.7	41.3	43.3	43.6	41.9
Total dependency ratio (2)	51.0	51.1	52.3	55.0	56.5	59.5	64.4	69.3	71.4	70.7	67.9
Total economic dependency ratio	100.3	99.4	99.4	100.8	102.5	106.4	113.3	118.9	121.2	118.9	115.6
Economic old-age dependency ratio (15-64)	28.5	28.6	30.8	35.4	38.8	42.2	46.7	51.1	53.7	53.9	52.0
Economic old-age dependency ratio (15-71)	28.2	28.2	30.3	34.7	38.1	41.4	45.7	49.9	52.5	52.8	51.1

LEGENDA:

Share of older workers = Population aged 55 to 64 as % of population aged 15-64

Old-age dependency ratio (1) = Population aged 65 and over as a percentage of the population aged 15-64

Total dependency ratio (2) = Population under 15 and over 64 as a percentage of the population aged 15-64

Total economic dependency ratio= Total population less employed as % of employed population (15-64)

Economic old-age dependency ratio (15-64)=Inactive population aged 65+ as % of employed population (15-64)

Economic old-age dependency ratio (15-71)=Inactive population aged 65+ as % of employed population (15-71)

Denmark

EPC-AWG Pension expenditure projections

	2004	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
Baseline scenario; as % of GDP											
Social security pensions, gross	9.5	9.6	10.1	10.8	11.3	12.0	12.8	13.3	13.5	13.1	12.8
Old-age and early pensions, gross	7.3	7.5	8.2	8.9	9.4	10.0	10.8	11.3	11.5	11.1	10.7
Of which: earnings-related pensions, gross	:	:	:	:	:	:	:	:	:	:	:
Private sector employees, gross	:	:	:	:	:	:	:	:	:	:	:
Public sector employees, gross	:	:	:	:	:	:	:	:	:	:	:
Other pensions (disability, survivors), gross	2.2	2.2	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.1
Occupational pensions, gross	:	:	:	:	:	:	:	:	:	:	:
Private mandatory pensions, gross	:	:	:	:	:	:	:	:	:	:	:
Total pension expenditure, gross	:	:	:	:	:	:	:	:	:	:	:
Social security pensions, net	6.9	7.0	7.4	7.9	8.3	8.9	9.5	9.9	10.1	9.9	9.6
Total pension expenditure, net	:	:	:	:	:	:	:	:	:	:	:
Social security pensions, contributions	:	:	:	:	:	:	:	:	:	:	:
Total pension contributions	:	:	:	:	:	:	:	:	:	:	:
Social security pensions, assets	:	:	:	:	:	:	:	:	:	:	:
All pensions, assets	:	:	:	:	:	:	:	:	:	:	:
Additional indicators											
Social security pensions, net / Social sec. pensions, gross,%	73	73	73	74	74	74	74	75	75	75	75
Total pension expenditure, net / Total pension exp., gross, %	:	:	:	:	:	:	:	:	:	:	:
Social security pensions, number of pensioners , 1000 pers.	1255	1286	1395	1511	1598	1675	1749	1788	1787	1748	1702
All pensions, pensioners , 1000 pers.	1255	1286	1395	1511	1598	1675	1749	1788	1787	1748	1702
Number of pensioners aged 65+ , 1000 pers.	860	877	980	1120	1204	1273	1348	1416	1441	1428	1371
Share of pensioners below age 65 as % of all pensioners	31.5	31.8	29.7	25.9	24.6	24.0	22.9	20.8	19.4	18.3	19.4
Average gross social sec. pension, 1000€ in 2004 prices	14.7	14.9	16.0	17.3	18.8	20.5	22.2	24.0	26.1	28.3	31.2
Average gross total pensions, 1000€ in 2004 prices	:	:	:	:	:	:	:	:	:	:	:
Output / Worker, 1000€ in 2004 prices	72.6	73.9	80.2	88.7	97.2	106.1	115.7	126.0	137.2	149.3	162.5
Social sec. benefit ratio	20.2	20.1	19.9	19.5	19.4	19.3	19.2	19.1	19.0	19.0	19.2
Total pension benefit ratio	:	:	:	:	:	:	:	:	:	:	:
Social security pensions, num of contributors, in 1000	:	:	:	:	:	:	:	:	:	:	:
Average social sec. pension contribution, 1000€ in 2004 prices	:	:	:	:	:	:	:	:	:	:	:
Average total pension contribution, 1000€ in 2004 prices	:	:	:	:	:	:	:	:	:	:	:
Support ratio (contributors /100 pensioners, social sec. pens.)	:	:	:	:	:	:	:	:	:	:	:
High life expectancy; as % of GDP											
Social security pensions, gross	9.5	9.6	10.1	10.8	11.4	12.1	13.0	13.7	13.9	13.6	13.4
Old-age and early pensions, gross	7.3	7.5	8.3	8.9	9.5	10.1	11.0	11.6	11.9	11.6	11.3
Total pension expenditure, gross	:	:	:	:	:	:	:	:	:	:	:
All pensions, assets	:	:	:	:	:	:	:	:	:	:	:
Higher labour productivity; as % of GDP											
Social security pensions, gross	9.5	9.6	10.1	10.8	11.3	12.0	12.8	13.3	13.5	13.1	12.8
Old-age and early pensions, gross	7.3	7.5	8.2	8.9	9.4	10.0	10.8	11.3	11.5	11.1	10.7
Total pension expenditure, gross	:	:	:	:	:	:	:	:	:	:	:
All pensions, assets	:	:	:	:	:	:	:	:	:	:	:
Lower labour productivity; as % of GDP											
Social security pensions, gross	9.5	9.6	10.1	10.8	11.3	12.0	12.8	13.3	13.5	13.1	12.8
Old-age and early pensions, gross	7.3	7.5	8.2	8.9	9.4	10.0	10.8	11.3	11.5	11.1	10.7
Total pension expenditure, gross	:	:	:	:	:	:	:	:	:	:	:
All pensions, assets	:	:	:	:	:	:	:	:	:	:	:
Higher employment rate (1 p.p.); as % of GDP											
Social security pensions, gross	9.5	9.6	10.1	10.8	11.3	12.0	12.8	13.3	13.5	13.1	12.8
Old-age and early pensions, gross	7.3	7.5	8.2	8.9	9.4	10.0	10.8	11.3	11.5	11.1	10.7
Total pension expenditure, gross	:	:	:	:	:	:	:	:	:	:	:
All pensions, assets	:	:	:	:	:	:	:	:	:	:	:
Higher older workers empl. rate (5 p.p.); as % of GDP											
Social security pensions, gross	9.5	9.6	10.0	10.6	11.1	11.6	12.4	13.0	13.1	12.8	12.5
Old-age and early pensions, gross	7.3	7.5	8.2	8.8	9.3	9.8	10.6	11.2	11.3	11.0	10.6
Total pension expenditure, gross	:	:	:	:	:	:	:	:	:	:	:
All pensions, assets	:	:	:	:	:	:	:	:	:	:	:
Lower interest rate; as % of GDP											
Social security pensions, gross	9.5	9.6	10.1	10.8	11.3	12.0	12.8	13.3	13.5	13.1	12.8
Old-age and early pensions, gross	7.3	7.5	8.2	8.9	9.4	10.0	10.8	11.3	11.5	11.1	10.7
Total pension expenditure, gross	:	:	:	:	:	:	:	:	:	:	:
All pensions, assets	:	:	:	:	:	:	:	:	:	:	:
Higher interest rate; as % of GDP											
Social security pensions, gross	9.5	9.6	10.1	10.8	11.3	12.0	12.8	13.3	13.5	13.1	12.8
Old-age and early pensions, gross	7.3	7.5	8.2	8.9	9.4	10.0	10.8	11.3	11.5	11.1	10.7
Total pension expenditure, gross	:	:	:	:	:	:	:	:	:	:	:
All pensions, assets	:	:	:	:	:	:	:	:	:	:	:

: = data not provided

Denmark

OTHER AGE-RELATED EXPENDITURES as % of GDP

	2004	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
Health care spending as % of GDP											
Pure ageing scenario	6.9	6.9	7.0	7.2	7.4	7.6	7.7	7.8	7.9	7.9	8.0
Constant health scenario	6.9	6.9	6.8	6.9	7.0	7.1	7.2	7.2	7.2	7.1	7.1
Death-related costs scenario	6.9	6.9	6.9	7.1	7.2	7.4	7.5	7.5	7.5	7.6	7.6
Income elasticity of demand	6.9	6.9	7.1	7.3	7.6	7.8	8.0	8.1	8.1	8.2	8.3
Unit costs - GDP per worker	6.9	6.9	7.0	7.2	7.5	7.9	8.3	8.5	8.7	8.6	8.6
AWG reference scenario	6.9	6.9	7.0	7.2	7.4	7.6	7.7	7.7	7.8	7.8	7.8
Long-term care spending as % of GDP											
Pure ageing scenario	1.1	1.1	1.2	1.2	1.3	1.6	1.9	2.1	2.3	2.4	2.6
Unit costs - GDP per capita	1.1	1.1	1.2	1.2	1.3	1.1	1.8	1.9	2.0	2.2	2.4
Constant disability scenario	1.1	1.1	1.1	1.1	1.2	1.3	1.6	1.7	1.8	1.8	1.9
Increase in formal care	1.1	1.1	1.0	0.9	0.9	1.1	1.3	1.5	1.6	1.7	1.8
AWG reference scenario	1.1	1.1	1.1	1.1	1.2	1.5	1.7	1.9	2.0	2.1	2.2
Number of dependent people (in thousands)											
Pure ageing scenario	139	140	150	165	180	205	232	248	260	270	275
Unit costs - GDP per capita	139	140	150	165	180	105	232	248	260	270	275
Constant disability scenario	139	138	138	116	144	155	168	173	175	178	179
Increase in formal care	139	140	150	165	180	205	232	248	260	270	275
AWG reference scenario	139	139	144	153	162	180	200	211	217	224	227
of which receiving formal care											
Pure ageing scenario	189	190	198	215	242	280	318	343	363	383	397
Unit costs - GDP per capita	189	190	198	215	242	280	318	343	363	383	397
Constant disability scenario	189	188	183	186	197	217	239	247	252	260	265
Increase in formal care	189	187	185	193	207	238	270	290	305	320	329
AWG reference scenario	189	189	190	201	219	249	279	295	308	322	331
of which receiving informal or no care											
Pure ageing scenario	:	:	:	:	:	:	:	:	:	:	:
Unit costs - GDP per capita	:	:	:	:	:	:	:	:	:	:	:
Constant disability scenario	:	:	:	:	:	:	:	:	:	:	:
Increase in formal care	:	:	:	:	:	:	:	:	:	:	:
AWG reference scenario	:	:	:	:	:	:	:	:	:	:	:
Education spending as % of GDP											
Total	7.8	7.7	7.5	7.6	7.5	7.3	7.3	7.5	7.6	7.6	7.5
of which: Transfers	1.6	1.5	1.5	1.5	1.6	1.5	1.5	1.5	1.5	1.5	1.5
Primary	2.0	2.0	1.9	1.8	1.7	1.6	1.7	1.9	1.9	1.8	1.7
of which: Transfers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Low secondary	1.2	1.2	1.3	1.3	1.2	1.1	1.1	1.2	1.3	1.3	1.2
of which: Transfers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Upper secondary	1.8	1.8	2.0	2.1	2.0	2.0	1.9	1.9	2.0	2.0	2.0
of which: Transfers	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Tertiary education	2.8	2.7	2.3	2.5	2.6	2.6	2.6	2.5	2.5	2.5	2.5
of which: Transfers	0.9	0.8	0.7	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
Number of students (in thousands)											
Total	1073	1078	1080	1068	1028	985	972	985	997	990	965
Primary	423	426	410	390	361	348	362	379	379	364	347
Low secondary	233	239	261	250	239	220	212	221	232	231	222
Upper secondary	220	220	241	251	244	233	219	215	222	228	226
Tertiary education	198	192	168	176	184	184	179	170	164	166	169
Memo											
Population aged 15-64 (in thousands)	3575	3582	3590	3550	3536	3494	3406	3310	3257	3245	3272
Unemployment benefit spending as % of GDP	1.5	1.4	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2

Germany

Main demographic and macroeconomic assumptions

(BASELINE SCENARIO)

Budgetary Projection: AWG variant population scenario

	2004	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
Demographic assumptions											
Fertility rate	1.4	1.4	1.4	1.4	1.4	1.5	1.5	1.5	1.5	1.5	1.5
Life expectancy at birth											
males	76.1	76.3	77.2	78.1	78.9	79.6	80.2	80.7	81.2	81.6	82.0
females	81.7	81.9	82.7	83.5	84.2	84.8	85.4	85.8	86.2	86.5	86.8
Life expectancy at 65											
males	16.1	16.2	16.8	17.4	18.0	18.4	18.8	19.2	19.5	19.8	20.1
females	19.5	19.6	20.3	20.9	21.4	21.9	22.3	22.6	22.9	23.1	23.4
Net migration (thousand)	270.0	250.0	230.0	230.0	215.0	215.0	205.0	205.0	200.0	200.0	200.0
Net migration as % of population	0.33	0.30	0.28	0.28	0.26	0.26	0.25	0.25	0.25	0.25	0.26
Population (million)	82.5	82.7	83.1	83.4	83.5	83.3	82.7	81.8	80.7	79.4	77.7
Population aged 0-14 as % of total	14.7	14.5	13.6	13.2	13.2	13.2	13.0	12.6	12.3	12.1	12.2
Prime age population (25-54) as % of total	43.6	43.5	42.9	42.0	39.7	37.4	36.8	36.6	36.1	35.5	35.3
Working age population (15-64) as % of total	67.3	67.0	66.1	66.0	64.7	62.9	60.4	58.4	58.1	58.2	57.9
Elderly population aged 65+ as % of total	18.0	18.6	20.3	20.8	22.1	23.9	26.6	29.0	29.6	29.6	29.9
Very elderly population aged 80 and over as % of total	4.2	4.3	5.0	5.6	6.9	7.7	7.7	8.5	9.7	11.5	12.7
lerly population aged 55+ as % of working age pop.15-64	54.9	55.3	57.5	59.9	65.0	70.3	73.4	75.2	75.3	75.0	74.4
Macroeconomic assumptions											
Real GDP (growth rate)	1.1	1.2	2.3	1.9	1.3	1.0	0.8	1.1	1.4	1.3	1.2
Labour input (growth rate)	0.4	0.5	1.2	0.4	-0.4	-0.8	-0.9	-0.6	-0.3	-0.5	-0.6
Labour productivity (growth rate)	0.7	0.7	1.1	1.5	1.7	1.8	1.7	1.7	1.7	1.7	1.7
TFP (growth rate)	0.5	0.6	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Capital deepening (contribution to labour productivity growth)	0.1	0.1	0.0	0.4	0.6	0.6	0.6	0.6	0.6	0.6	0.6
GDP per capita (growth rate)	1.1	1.0	2.2	1.9	1.3	1.1	1.0	1.3	1.7	1.6	1.6
GDP in 2004 prices (in billions of euro)	2177	2203	2419	2684	2887	3050	3184	3342	3566	3806	4037
GDP per worker	20.3	20.5	22.4	24.8	26.6	28.2	29.7	31.5	34.0	36.9	40.0
Real interest rate	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Labour force assumptions											
Population growth (working age:15-64)		-0.3	-0.1	-0.2	-0.5	-0.8	-1.0	-0.8	-0.2	-0.4	-0.5
Labour force (thousands)	40526	40710	42514	43340	42712	41189	39251	37819	37272	36561	35533
Participation rate (15-64)	73.0	73.5	77.4	78.7	79.1	78.7	78.6	79.2	79.5	79.1	79.0
young (15-24)	50.5	50.5	52.6	52.1	52.4	51.8	51.3	51.5	51.8	52.1	52.1
prime-age (25-54)	86.5	86.9	88.3	88.9	89.4	89.6	89.9	90.1	89.9	89.8	89.8
older (55-64)	45.9	47.2	61.7	67.9	69.5	69.0	67.4	68.7	70.7	70.1	69.2
oldest (65-71)	6.2	6.5	6.2	8.3	8.6	8.8	8.8	8.3	7.9	8.7	8.6
Employment rate (15-64)	66.0	66.6	70.9	73.2	73.5	73.2	73.1	73.7	73.9	73.6	73.5
Employment rate (15-71)	59.9	60.1	63.5	67.0	66.3	65.2	63.7	63.6	65.2	65.9	65.0
Employment growth (15-64)		0.6	1.3	0.3	-0.5	-0.9	-1.0	-0.5	-0.2	-0.5	-0.6
Unemployment rate (15-64)	9.5	9.4	8.5	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Dependency ratios:											
Share of older workers	11.2	11.2	14.2	17.5	20.5	22.3	20.0	17.9	18.9	20.1	20.0
Old-age dependency ratio (1)	26.8	27.7	30.7	31.5	34.2	38.1	44.0	49.7	51.0	50.9	51.7
Total dependency ratio (2)	48.7	49.3	51.3	51.5	54.6	59.0	65.5	71.3	72.1	71.8	72.9
Total economic dependency ratio	125.1	124.1	113.6	106.9	110.2	117.3	126.5	132.5	132.8	133.4	135.3
Economic old-age dependency ratio (15-64)	39.5	40.4	42.3	41.8	45.1	50.3	58.2	65.4	67.4	67.6	68.7
Economic old-age dependency ratio (15-71)	39.0	40.0	41.8	41.3	44.4	49.5	57.0	64.1	66.3	66.6	67.5

LEGENDA:

Share of older workers = Population aged 55 to 64 as % of population aged 15-64

Old-age dependency ratio (1) = Population aged 65 and over as a percentage of the population aged 15-64

Total dependency ratio (2) = Population under 15 and over 64 as a percentage of the population aged 15-64

Total economic dependency ratio= Total population less employed as % of employed population (15-64)

Economic old-age dependency ratio (15-64)=Inactive population aged 65+ as % of employed population (15-64)

Economic old-age dependency ratio (15-71)=Inactive population aged 65+ as % of employed population (15-71)

Germany

EPC-AWG Pension expenditure projections

	2004	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
Baseline scenario; as % of GDP											
Social security pensions, gross	11.4	11.1	10.5	10.5	11.0	11.6	12.3	12.7	12.8	12.9	13.1
Old-age and early pensions, gross	11.4	11.1	10.5	10.5	11.0	11.6	12.3	12.7	12.8	12.9	13.1
Of which: earnings-related pensions, gross	11.4	11.1	10.5	10.5	11.0	11.6	12.3	12.7	12.8	12.9	13.1
Private sector employees, gross	9.8	9.6	8.9	8.9	9.1	9.7	10.3	10.6	10.8	10.9	11.1
Public sector employees, gross	1.6	1.6	1.6	1.7	1.8	1.9	2.0	2.0	2.0	2.0	2.0
Other pensions (disability, survivors), gross	:	:	:	:	:	:	:	:	:	:	:
Occupational pensions, gross	:	:	:	:	:	:	:	:	:	:	:
Private mandatory pensions, gross	:	:	:	:	:	:	:	:	:	:	:
Total pension expenditure, gross	11.4	11.1	10.5	10.5	11.0	11.6	12.3	12.7	12.8	12.9	13.1
Social security pensions, net	10.1	9.6	9.0	9.0	9.3	9.8	10.4	10.6	10.7	10.7	10.9
Total pension expenditure, net	10.1	9.6	9.0	9.0	9.3	9.8	10.4	10.6	10.7	10.7	10.9
Social security pensions, contributions	7.7	7.5	7.3	6.9	7.3	7.8	8.3	8.6	8.7	8.8	8.9
Total pension contributions	7.7	7.5	7.3	6.9	7.3	7.8	8.3	8.6	8.7	8.8	8.9
Social security pensions, assets	0.1	0.1	0.4	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0
All pensions, assets	0.1	0.1	0.4	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Additional indicators											
Social security pensions, net / Social sec. pensions, gross,%	88	86	86	85	85	85	84	84	84	83	83
Total pension expenditure, net / Total pension exp., gross, %	88	86	86	85	85	85	84	84	84	83	83
Social security pensions, number of pensioners , 1000 pers.	23840	24104	25684	26829	28256	30066	32082	33374	33792	34175	34441
All pensions, pensioners , 1000 pers.	23840	24104	25684	26829	28256	30066	32082	33374	33792	34175	34441
Number of pensioners aged 65+ , 1000 pers.	19592	20181	21921	22986	24436	26175	28457	30283	30730	30929	31138
Share of pensioners below age 65 as % of all pensioners	17.8	16.3	14.7	14.3	13.5	12.9	11.3	9.3	9.1	9.5	9.6
Average gross social sec. pension, 1000€ in 2004 prices	10.4	10.2	9.9	10.5	11.2	11.8	12.2	12.7	13.5	14.4	15.3
Average gross total pensions, 1000€ in 2004 prices	10.4	10.2	9.9	10.5	11.2	11.8	12.2	12.7	13.5	14.4	15.3
Output / Worker, 1000€ in 2004 prices	56.2	56.6	59.2	63.4	69.0	75.3	82.1	89.4	97.4	106.0	115.5
Social sec. benefit ratio	18.5	18.0	16.6	16.6	16.2	15.6	14.8	14.2	13.9	13.6	13.3
Total pension benefit ratio	18.5	18.0	16.6	16.6	16.2	15.6	14.8	14.2	13.9	13.6	13.3
Social security pensions, num of contributors, in 1000	32206	32486	34316	35624	35263	34135	32698	31514	30869	30255	29472
Average social sec. pension contribution, 1000€ in 2004 prices	5.2	5.1	5.1	5.2	6.0	7.0	8.1	9.2	10.1	11.1	12.2
Average total pension contribution, 1000€ in 2004 prices	:	:	:	:	:	:	:	:	:	:	:
Support ratio (contributors /100 pensioners, social sec. pens.)	135	135	134	133	125	114	102	94	91	89	86
High life expectancy; as % of GDP											
Social security pensions, gross	11.4	11.1	10.5	10.5	11.0	11.7	12.4	12.8	12.9	13.1	13.3
Old-age and early pensions, gross	11.4	11.1	10.5	10.5	11.0	11.7	12.4	12.8	12.9	13.1	13.3
Total pension expenditure, gross	11.4	11.1	10.5	10.5	11.0	11.7	12.4	12.8	12.9	13.1	13.3
All pensions, assets	0.1	0.1	0.4	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Higher labour productivity; as % of GDP											
Social security pensions, gross	11.4	11.1	10.5	10.5	11.0	11.6	12.3	12.7	12.8	12.9	13.1
Old-age and early pensions, gross	11.4	11.1	10.5	10.5	11.0	11.6	12.3	12.7	12.8	12.9	13.1
Total pension expenditure, gross	11.4	11.1	10.5	10.5	11.0	11.6	12.3	12.7	12.8	12.9	13.1
All pensions, assets	0.1	0.1	0.4	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lower labour productivity; as % of GDP											
Social security pensions, gross	11.4	11.1	10.4	10.5	11.0	11.6	12.3	12.7	12.8	12.9	13.1
Old-age and early pensions, gross	11.4	11.1	10.4	10.5	11.0	11.6	12.3	12.7	12.8	12.9	13.1
Total pension expenditure, gross	11.4	11.1	10.4	10.5	11.0	11.6	12.3	12.7	12.8	12.9	13.1
All pensions, assets	0.1	0.1	0.4	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Higher employment rate (1 p.p.); as % of GDP											
Social security pensions, gross	11.4	11.1	10.4	10.4	10.9	11.5	12.2	12.6	12.7	12.9	13.0
Old-age and early pensions, gross	11.4	11.1	10.4	10.4	10.9	11.5	12.2	12.6	12.7	12.9	13.0
Total pension expenditure, gross	11.4	11.1	10.4	10.4	10.9	11.5	12.2	12.6	12.7	12.9	13.0
All pensions, assets	0.1	0.1	0.4	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Higher older workers empl. rate (5 p.p.); as % of GDP											
Social security pensions, gross	11.4	11.1	10.4	10.5	10.9	11.5	12.2	12.6	12.7	12.9	13.0
Old-age and early pensions, gross	11.4	11.1	10.4	10.5	10.9	11.5	12.2	12.6	12.7	12.9	13.0
Total pension expenditure, gross	11.4	11.1	10.4	10.5	10.9	11.5	12.2	12.6	12.7	12.9	13.0
All pensions, assets	0.1	0.1	0.4	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lower interest rate; as % of GDP											
Social security pensions, gross	11.4	11.1	10.5	10.5	11.0	11.6	12.3	12.7	12.8	12.9	13.1
Old-age and early pensions, gross	11.4	11.1	10.5	10.5	11.0	11.6	12.3	12.7	12.8	12.9	13.1
Total pension expenditure, gross	11.4	11.1	10.5	10.5	11.0	11.6	12.3	12.7	12.8	12.9	13.1
All pensions, assets	0.1	0.1	0.4	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Higher interest rate; as % of GDP											
Social security pensions, gross	11.4	11.1	10.5	10.5	11.0	11.6	12.3	12.7	12.8	12.9	13.1
Old-age and early pensions, gross	11.4	11.1	10.5	10.5	11.0	11.6	12.3	12.7	12.8	12.9	13.1
Total pension expenditure, gross	11.4	11.1	10.5	10.5	11.0	11.6	12.3	12.7	12.8	12.9	13.1
All pensions, assets	0.1	0.1	0.4	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0

: = data not provided

Germany

OTHER AGE-RELATED EXPENDITURES as % of GDP

	2004	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
Health care spending as % of GDP											
Pure ageing scenario	6.0	6.1	6.3	6.5	6.7	6.8	7.0	7.1	7.2	7.3	7.3
Constant health scenario	6.0	6.0	6.1	6.2	6.3	6.4	6.4	6.5	6.6	6.7	6.7
Death-related costs scenario	6.0	6.1	6.2	6.4	6.6	6.7	6.8	6.9	6.9	7.0	7.0
Income elasticity of demand	6.0	6.1	6.3	6.6	6.9	7.0	7.2	7.3	7.5	7.6	7.6
Unit costs - GDP per worker	6.0	6.0	6.0	6.0	6.3	6.6	7.0	7.4	7.6	7.8	7.8
AWG reference scenario	6.0	6.1	6.3	6.5	6.7	6.8	6.9	7.0	7.1	7.2	7.2
Long-term care spending as % of GDP											
Pure ageing scenario	1.0	1.0	1.0	1.1	1.3	1.4	1.5	1.6	1.8	2.1	2.3
Unit costs - GDP per capita	1.0	1.0	1.1	1.2	1.3	1.1	1.5	1.6	1.8	2.0	2.2
Constant disability scenario	1.0	1.0	1.0	1.0	1.1	1.2	1.3	1.3	1.5	1.6	1.8
Increase in formal care	1.0	1.0	1.1	1.3	1.6	1.7	1.8	2.0	2.3	2.6	2.8
AWG reference scenario	1.0	1.0	1.0	1.0	1.2	1.3	1.4	1.5	1.6	1.9	2.0
Number of dependent people (in thousands)											
Pure ageing scenario	2790	2867	3245	3547	3944	4244	4494	4905	5299	5608	5689
Unit costs - GDP per capita	2790	2867	3245	3547	3944	2303	4494	4905	5299	5608	5689
Constant disability scenario	2790	2826	2982	2546	3208	3273	3254	3391	3558	3722	3731
Increase in formal care	2790	2867	3245	3547	3944	4244	4494	4905	5299	5608	5689
AWG reference scenario	2790	2847	3114	3296	3576	3759	3874	4148	4429	4665	4710
of which receiving formal care											
Pure ageing scenario	1510	1551	1768	1955	2244	2429	2518	2748	3023	3304	3421
Unit costs - GDP per capita	1510	1551	1768	1955	2244	2429	2518	2748	3023	3304	3421
Constant disability scenario	1510	1531	1644	1713	1875	1939	1903	1992	2131	2296	2347
Increase in formal care	1510	1616	2159	2641	3195	3445	3624	3955	4297	4594	4691
AWG reference scenario	1510	1541	1706	1834	2059	2184	2211	2370	2577	2800	2884
of which receiving informal or no care											
Pure ageing scenario	1280	1317	1477	1592	1700	1815	1975	2158	2276	2304	2269
Unit costs - GDP per capita	1280	1317	1477	1592	1700	855	1975	2158	2276	2304	2269
Constant disability scenario	1280	1295	1339	1075	1333	1335	1351	1399	1427	1426	1383
Increase in formal care	1280	1251	1086	905	748	799	869	950	1002	1014	998
AWG reference scenario	1280	1306	1408	1463	1517	1575	1663	1778	1851	1865	1826
Education spending as % of GDP											
Total	4.0	4.0	3.6	3.3	3.2	3.2	3.3	3.4	3.4	3.3	3.3
of which: Transfers	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Primary	0.7	0.7	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
of which: Transfers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Low secondary	1.4	1.4	1.2	1.1	1.0	1.1	1.1	1.2	1.1	1.1	1.1
of which: Transfers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Upper secondary	0.8	0.8	0.7	0.6	0.6	0.6	0.6	0.7	0.7	0.6	0.6
of which: Transfers	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Tertiary education	1.2	1.2	1.1	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
of which: Transfers	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Number of students (in thousands)											
Total	14287	14180	13348	12562	12136	11969	11907	11690	11313	10902	10593
Primary	3285	3295	3130	2970	3022	3050	2992	2856	2726	2644	2614
Low secondary	5557	5426	4929	4686	4448	4501	4541	4455	4262	4070	3947
Upper secondary	3248	3287	3168	2895	2754	2604	2628	2649	2605	2497	2388
Tertiary education	2198	2171	2120	2012	1911	1813	1745	1730	1720	1691	1642
Memo											
Population aged 15-64 (in thousands)	55510	55357	54920	55052	54021	52359	49961	47735	46901	46199	44975
Unemployment benefit spending as % of GDP	1.3	1.3	1.1	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9

Estonia

Main demographic and macroeconomic assumptions

(BASELINE SCENARIO)

Budgetary Projection: AWG variant population scenario

	2004	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
Demographic assumptions											
Fertility rate	1.4	1.4	1.5	1.5	1.5	1.6	1.6	1.6	1.6	1.6	1.6
Life expectancy at birth											
males	65.5	65.7	66.5	67.6	68.9	70.3	71.6	72.7	73.5	74.2	74.9
females	76.9	77.0	77.8	78.6	79.5	80.4	81.2	81.8	82.3	82.8	83.1
Life expectancy at 65											
males	12.4	12.5	12.8	13.3	13.9	14.7	15.4	16.0	16.5	17.0	17.3
females	16.9	16.9	17.4	17.9	18.4	19.0	19.5	20.0	20.4	20.6	20.9
Net migration (thousand)	0.8	0.8	-2.0	-2.5	-0.4	1.5	1.8	1.8	1.7	1.7	1.7
Net migration as % of population	0.06	0.06	-0.15	-0.19	-0.04	0.12	0.15	0.15	0.15	0.15	0.15
Population (million)	1.4	1.3	1.3	1.3	1.2	1.2	1.2	1.2	1.2	1.1	1.1
Population aged 0-14 as % of total	16.0	15.4	14.7	15.8	16.4	16.2	15.1	14.1	13.8	14.2	14.8
Prime age population (25-54) as % of total	41.5	41.5	42.2	42.9	42.1	40.8	39.6	38.8	37.7	36.0	35.6
Working age population (15-64) as % of total	67.9	68.1	68.4	66.7	64.9	63.9	63.6	63.9	63.1	61.7	59.6
Elderly population aged 65+ as % of total	16.2	16.4	16.9	17.5	18.7	20.0	21.2	22.0	23.1	24.1	25.7
Very elderly population aged 80 and over as % of total	3.0	3.1	3.9	4.4	5.0	5.0	5.5	6.3	7.2	7.8	8.0
lerly population aged 55+ as % of working age pop.15-64	0.9	0.8	0.8	0.9	0.9	0.9	0.9	0.9	0.9	1.0	1.0
Macroeconomic assumptions											
Real GDP (growth rate)	6.3	6.3	5.6	3.7	2.7	2.4	2.3	1.5	1.3	0.9	0.6
Labour input (growth rate)	0.8	0.8	0.5	-0.5	-0.9	-0.7	-0.4	-0.5	-0.6	-0.9	-1.1
Labour productivity (growth rate)	5.5	5.4	5.1	4.1	3.6	3.1	2.7	2.0	1.9	1.8	1.7
TFP (growth rate)	2.6	2.6	2.5	2.0	1.9	1.8	1.8	1.3	1.2	1.2	1.1
Capital deepening (contribution to labour productivity growth)	2.9	2.9	2.6	2.2	1.7	1.3	0.9	0.7	0.7	0.6	0.6
GDP per capita (growth rate)	6.8	6.6	6.2	4.2	3.1	2.7	2.6	1.8	1.6	1.2	0.9
GDP in 2004 prices (in billions of euro)	9	9	13	16	18	20	23	25	27	28	29
GDP per worker	9.3	9.9	13.5	17.3	20.5	23.6	26.9	30.0	32.7	34.9	36.7
Real interest rate	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Labour force assumptions											
Population growth (working age:15-64)		0.1	-0.6	-1.3	-0.9	-0.6	-0.3	-0.4	-0.6	-0.8	-1.1
Labour force (thousands)	647	650	667	658	630	605	589	577	562	540	511
Participation rate (15-64)	70.6	70.9	74.2	77.2	77.8	77.3	77.0	76.5	76.6	76.4	76.1
young (15-24)	37.1	37.4	42.4	42.8	37.6	37.3	37.7	38.9	40.4	40.5	38.9
prime-age (25-54)	86.6	87.4	89.4	90.3	91.1	91.8	91.9	91.7	91.2	90.9	91.3
older (55-64)	57.2	56.5	58.4	62.6	64.8	64.2	65.9	65.7	66.7	66.4	63.7
oldest (65-71)	15.2	17.0	13.2	14.3	14.9	15.7	15.2	15.7	15.8	16.0	16.3
Employment rate (15-64)	63.8	64.4	68.4	71.8	72.3	71.9	71.6	71.1	71.2	71.1	70.8
Employment rate (15-71)	59.2	59.9	63.4	66.6	66.2	65.6	65.1	65.1	64.8	64.4	63.4
Employment growth (15-64)		1.1	0.5	-0.5	-0.9	-0.7	-0.4	-0.5	-0.6	-0.9	-1.1
Unemployment rate (15-64)	9.6	9.1	7.8	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Dependency ratios:											
Share of older workers	13.1	12.9	13.8	15.6	16.6	16.1	16.7	17.6	19.4	21.6	20.0
Old-age dependency ratio (1)	23.8	24.1	24.7	26.3	28.7	31.3	33.4	34.5	36.6	39.1	43.1
Total dependency ratio (2)	47.4	46.8	46.2	49.9	54.0	56.6	57.2	56.5	58.5	62.2	67.9
Total economic dependency ratio	130.9	127.7	113.7	108.9	112.9	117.7	119.6	120.1	122.6	128.2	137.1
Economic old-age dependency ratio (15-64)	34.8	34.7	34.2	34.7	37.3	40.7	43.9	45.8	48.6	51.9	57.3
Economic old-age dependency ratio (15-71)	34.0	33.8	33.5	34.0	36.4	39.6	42.8	44.7	47.2	50.4	55.3

LEGENDA:

Share of older workers = Population aged 55 to 64 as % of population aged 15-64

Old-age dependency ratio (1) = Population aged 65 and over as a percentage of the population aged 15-64

Total dependency ratio (2) = Population under 15 and over 64 as a percentage of the population aged 15-64

Total economic dependency ratio= Total population less employed as % of employed population (15-64)

Economic old-age dependency ratio (15-64)=Inactive population aged 65+ as % of employed population (15-64)

Economic old-age dependency ratio (15-71)=Inactive population aged 65+ as % of employed population (15-71)

Estonia

EPC-AWG Pension expenditure projections

	2004	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
Baseline scenario; as % of GDP											
Social security pensions, gross	6.7	7.1	6.8	6.0	5.4	5.1	4.7	4.5	4.4	4.3	4.2
Old-age and early pensions, gross	5.9	6.3	6.0	5.2	4.8	4.5	4.2	4.0	3.9	3.8	3.8
Of which: earnings-related pensions, gross	:	:	:	:	:	:	:	:	:	:	:
Private sector employees, gross	:	:	:	:	:	:	:	:	:	:	:
Public sector employees, gross	:	:	:	:	:	:	:	:	:	:	:
Other pensions (disability, survivors), gross	0.8	0.8	0.8	0.7	0.6	0.6	0.5	0.5	0.5	0.4	0.4
Occupational pensions, gross	:	:	:	:	:	:	:	:	:	:	:
Private mandatory pensions, gross	0.0	0.0	0.0	0.1	0.2	0.3	0.6	0.9	1.3	1.7	2.4
Total pension expenditure, gross	6.7	7.1	6.8	6.0	5.6	5.4	5.3	5.4	5.6	6.0	6.6
Social security pensions, net	6.7	7.1	6.8	6.0	5.4	5.1	4.7	4.5	4.4	4.3	4.2
Total pension expenditure, net	6.7	7.1	6.8	6.0	5.6	5.4	5.3	5.4	5.6	6.0	6.6
Social security pensions, contributions	6.5	6.6	6.6	6.5	6.4	6.3	6.2	6.1	6.1	6.1	6.1
Total pension contributions	7.2	7.3	7.5	7.5	7.6	7.5	7.5	7.4	7.4	7.5	7.5
Social security pensions, assets	1.0	0.4	0.0	0.0	2.6	7.5	13.0	19.1	25.6	32.5	40.2
All pensions, assets	2.8	3.4	9.4	15.9	25.3	37.6	50.5	63.4	76.9	90.5	101.0
Additional indicators											
Social security pensions, net / Social sec. pensions, gross,%	100	100	100	100	100	100	100	100	100	100	100
Total pension expenditure, net / Total pension exp., gross, %	100	100	100	100	100	100	100	100	100	100	100
Social security pensions, number of pensioners , 1000 pers.	378	379	369	357	352	356	359	362	365	370	377
All pensions, pensioners , 1000 pers.	378	379	369	357	352	356	359	362	365	370	377
Number of pensioners aged 65+ , 1000 pers.	283	283	285	281	282	288	290	295	300	308	321
Share of pensioners below age 65 as % of all pensioners	25.0	25.2	22.7	21.2	19.9	19.2	19.1	18.5	17.8	16.6	14.9
Average gross social sec. pension, 1000€ in 2004 prices	1.6	1.8	2.3	2.6	2.8	2.9	3.0	3.1	3.2	3.2	3.2
Average gross total pensions, 1000€ in 2004 prices	1.6	1.8	2.3	2.6	2.9	3.1	3.4	3.7	4.1	4.6	5.1
Output / Worker, 1000€ in 2004 prices	14.7	15.5	20.4	25.4	30.7	36.2	41.7	46.6	51.3	56.2	61.3
Social sec. benefit ratio	10.5	11.4	11.3	10.2	9.0	8.0	7.2	6.6	6.2	5.8	5.3
Total pension benefit ratio	10.5	11.4	11.4	10.3	9.3	8.5	8.0	8.0	8.0	8.1	8.3
Social security pensions, num of contributors, in 1000	599	607	626	624	600	578	563	551	538	517	492
Average social sec. pension contribution, 1000€ in 2004 prices	1.0	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.0	3.3	3.6
Average total pension contribution, 1000€ in 2004 prices	1.1	1.1	1.5	1.9	2.3	2.7	3.0	3.4	3.7	4.1	4.5
Support ratio (contributors /100 pensioners, social sec. pens.)	159	160	170	175	171	162	157	152	147	140	130
High life expectancy; as % of GDP											
Social security pensions, gross	6.7	7.1	6.8	6.0	5.4	5.1	4.8	4.6	4.4	4.3	4.3
Old-age and early pensions, gross	5.9	6.3	6.0	5.2	4.8	4.5	4.2	4.0	4.0	3.9	3.9
Total pension expenditure, gross	6.7	7.1	6.8	6.0	5.6	5.4	5.3	5.4	5.7	6.1	6.7
All pensions, assets	2.8	3.4	9.4	15.9	26.0	38.4	51.3	64.1	77.4	90.8	100.8
Higher labour productivity; as % of GDP											
Social security pensions, gross	6.7	7.1	6.8	5.9	5.3	5.0	4.6	4.3	4.2	4.1	4.0
Old-age and early pensions, gross	5.9	6.3	6.0	5.2	4.7	4.4	4.1	3.8	3.7	3.6	3.6
Total pension expenditure, gross	6.7	7.1	6.8	5.9	5.5	5.3	5.1	5.2	5.4	5.7	6.2
All pensions, assets	2.9	3.4	9.3	15.7	25.8	38.3	51.3	64.3	77.9	91.6	102.3
Lower labour productivity; as % of GDP											
Social security pensions, gross	6.7	7.1	6.8	6.0	5.4	5.1	4.8	4.6	4.5	4.4	4.4
Old-age and early pensions, gross	5.9	6.3	6.0	5.2	4.8	4.5	4.2	4.1	4.0	3.9	3.9
Total pension expenditure, gross	6.7	7.1	6.8	6.0	5.6	5.5	5.4	5.5	5.8	6.2	6.9
All pensions, assets	2.8	3.3	9.3	15.9	25.4	37.7	50.6	63.5	76.9	90.5	100.6
Higher employment rate (1 p.p.); as % of GDP											
Social security pensions, gross	6.6	7.1	6.8	5.9	5.4	5.1	4.7	4.5	4.4	4.3	4.2
Old-age and early pensions, gross	5.9	6.3	6.0	5.2	4.8	4.5	4.2	4.0	3.9	3.8	3.8
Total pension expenditure, gross	6.6	7.1	6.8	6.0	5.6	5.4	5.3	5.4	5.6	6.0	6.6
All pensions, assets	2.8	3.4	9.3	15.9	26.6	39.4	52.7	66.2	80.2	94.5	105.5
Higher older workers empl. rate (5 p.p.); as % of GDP											
Social security pensions, gross	7.4	8.0	7.6	6.7	6.0	5.6	5.2	5.0	4.8	4.7	4.6
Old-age and early pensions, gross	6.7	7.1	6.8	5.9	5.4	5.0	4.7	4.5	4.4	4.3	4.2
Total pension expenditure, gross	7.4	8.0	7.6	6.7	6.2	6.0	5.8	5.8	6.1	6.4	6.9
All pensions, assets	2.8	3.4	9.3	15.8	25.8	38.1	51.2	64.4	78.0	91.9	102.6
Lower interest rate; as % of GDP											
Social security pensions, gross	6.7	7.1	6.8	6.0	5.4	5.1	4.7	4.5	4.4	4.3	4.2
Old-age and early pensions, gross	5.9	6.3	6.0	5.2	4.8	4.5	4.2	4.0	3.9	3.8	3.8
Total pension expenditure, gross	6.7	7.1	6.8	6.0	5.6	5.4	5.2	5.2	5.4	5.6	6.0
All pensions, assets	2.8	3.3	9.3	15.2	23.9	35.1	46.8	58.4	70.3	82.5	92.2
Higher interest rate; as % of GDP											
Social security pensions, gross	6.7	7.1	6.8	6.0	5.4	5.1	4.7	4.5	4.4	4.3	4.2
Old-age and early pensions, gross	5.9	6.3	6.0	5.2	4.8	4.5	4.2	4.0	3.9	3.8	3.8
Total pension expenditure, gross	6.7	7.1	6.8	6.0	5.6	5.4	5.4	5.5	5.9	6.4	7.3
All pensions, assets	2.8	3.3	9.4	16.5	26.8	40.3	54.7	69.3	84.6	100.2	111.9

: = data not provided

Estonia

OTHER AGE-RELATED EXPENDITURES as % of GDP

	2004	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
Health care spending as % of GDP											
Pure ageing scenario	5.4	5.5	5.6	5.7	5.8	5.9	6.0	6.1	6.2	6.3	6.3
Constant health scenario	5.4	5.5	5.5	5.6	5.5	5.5	5.5	5.6	5.6	5.6	5.7
Death-related costs scenario	5.4	5.5	5.6	5.6	5.7	5.7	5.7	5.8	5.9	5.9	5.9
Income elasticity of demand	5.4	5.5	5.8	6.0	6.2	6.3	6.5	6.6	6.8	6.9	6.9
Unit costs - GDP per worker	5.4	5.4	5.2	5.2	5.4	5.6	5.7	5.8	6.0	6.2	6.5
AWG reference scenario	5.4	5.5	5.8	6.0	6.1	6.1	6.2	6.3	6.4	6.5	6.5
Long-term care spending as % of GDP											
Pure ageing scenario	:	:	:	:	:	:	:	:	:	:	:
Unit costs - GDP per capita	:	:	:	:	:	:	:	:	:	:	:
Constant disability scenario	:	:	:	:	:	:	:	:	:	:	:
Increase in formal care	:	:	:	:	:	:	:	:	:	:	:
AWG reference scenario	:	:	:	:	:	:	:	:	:	:	:
Number of dependent people (in thousands)											
Pure ageing scenario	36	36	39	40	42	43	46	49	51	53	55
Unit costs - GDP per capita	36	36	39	40	42	21	46	49	51	53	55
Constant disability scenario	36	36	35	28	33	32	32	33	34	34	34
Increase in formal care	36	36	39	40	42	43	46	49	51	53	55
AWG reference scenario	36	36	37	37	38	38	39	41	43	43	44
of which receiving formal care											
Pure ageing scenario	0	0	0	0	0	0	0	0	0	0	0
Unit costs - GDP per capita	0	0	0	0	0	0	0	0	0	0	0
Constant disability scenario	0	0	0	0	0	0	0	0	0	0	0
Increase in formal care	0	2	10	17	23	24	26	27	29	30	31
AWG reference scenario	0	0	0	0	0	0	0	0	0	0	0
of which receiving informal or no care											
Pure ageing scenario	36	36	39	40	42	43	46	49	51	53	55
Unit costs - GDP per capita	36	36	39	40	42	21	46	49	51	53	55
Constant disability scenario	36	36	35	28	33	32	32	33	34	34	34
Increase in formal care	36	35	29	23	18	19	20	21	23	23	24
AWG reference scenario	36	36	37	37	38	38	39	41	43	43	44
Education spending as % of GDP											
Total	5.0	4.8	3.8	3.4	3.5	3.8	3.8	3.7	3.5	3.5	3.6
of which: Transfers	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Primary	1.3	1.2	1.1	1.2	1.3	1.3	1.3	1.1	1.1	1.1	1.3
of which: Transfers	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Low secondary	1.2	1.2	0.7	0.7	0.8	0.9	0.9	0.8	0.8	0.7	0.8
of which: Transfers	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Upper secondary	1.2	1.2	0.9	0.7	0.7	0.8	0.9	0.9	0.8	0.8	0.8
of which: Transfers	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Tertiary education	1.2	1.1	1.1	0.9	0.8	0.8	0.8	0.8	0.9	0.8	0.8
of which: Transfers	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Number of students (in thousands)											
Total	290	280	235	211	209	214	211	199	184	175	175
Primary	93	87	78	83	87	88	82	72	67	68	71
Low secondary	65	61	40	38	40	43	43	40	35	33	33
Upper secondary	68	69	54	41	41	43	45	45	41	36	35
Tertiary education	64	63	62	49	41	40	41	42	42	39	35
Memo											
Population aged 15-64 (in thousands)	916	917	899	853	810	782	765	755	734	706	670
Unemployment benefit spending as % of GDP	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

Greece

Main demographic and macroeconomic assumptions

(BASELINE SCENARIO)

Budgetary Projection: AWG variant population scenario

	2004	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
Demographic assumptions											
Fertility rate	1.3	1.3	1.4	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Life expectancy at birth											
males	76.4	76.5	77.1	77.6	78.2	78.8	79.3	79.8	80.2	80.6	81.1
females	81.4	81.5	82.1	82.8	83.3	83.9	84.4	84.8	85.2	85.6	85.9
Life expectancy at 65											
males	16.4	16.4	16.8	17.2	17.6	18.0	18.4	18.7	19.0	19.3	19.6
females	18.5	18.6	19.1	19.6	20.1	20.5	20.9	21.3	21.7	22.0	22.3
Net migration (thousand)	42.9	41.9	39.7	40.4	38.7	36.4	34.8	34.8	34.8	34.8	34.9
Net migration as % of population	0.39	0.38	0.35	0.35	0.34	0.32	0.31	0.31	0.31	0.32	0.33
Population (million)	11.0	11.1	11.3	11.4	11.4	11.4	11.3	11.3	11.1	11.0	10.7
Population aged 0-14 as % of total	14.5	14.4	14.2	14.2	14.0	13.3	12.6	12.1	12.0	12.1	12.2
Prime age population (25-54) as % of total	43.7	43.9	44.3	43.0	41.5	39.3	37.0	35.2	33.8	33.6	33.5
Working age population (15-64) as % of total	67.7	67.5	67.1	65.8	64.8	63.8	62.7	60.6	58.4	56.2	54.7
Elderly population aged 65+ as % of total	17.9	18.1	18.8	20.0	21.2	22.8	24.8	27.2	29.6	31.7	33.1
Very elderly population aged 80 and over as % of total	3.3	3.4	4.4	5.5	6.1	6.1	6.8	7.6	8.7	9.7	11.0
lerly population aged 55+ as % of working age pop.15-64	7.1	7.2	7.6	8.1	8.6	9.1	9.6	10.2	10.8	11.2	11.3
Macroeconomic assumptions											
Real GDP (growth rate)	3.7	3.1	2.2	2.3	1.6	1.2	1.0	0.8	0.7	0.8	1.1
Labour input (growth rate)	1.1	0.5	0.9	0.5	-0.3	-0.6	-0.7	-0.9	-1.0	-0.9	-0.6
Labour productivity (growth rate)	2.5	2.6	1.3	1.8	1.9	1.8	1.7	1.7	1.7	1.7	1.7
TFP (growth rate)	1.4	1.3	0.2	0.9	1.0	1.0	1.1	1.1	1.1	1.1	1.1
Capital deepening (contribution to labour productivity growth)	1.1	1.3	1.1	1.0	0.9	0.8	0.6	0.6	0.6	0.6	0.6
GDP per capita (growth rate)	3.4	2.7	1.9	2.2	1.6	1.3	1.1	1.0	0.9	1.2	1.5
GDP in 2004 prices (in billions of euro)	165	170	195	217	237	254	268	279	289	300	315
GDP per worker	14.5	14.8	16.7	18.4	20.0	21.5	22.8	23.9	25.1	26.5	28.3
Real interest rate	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Labour force assumptions											
Population growth (working age:15-64)		0.1	0.0	-0.1	-0.3	-0.4	-0.6	-0.9	-1.1	-1.0	-0.7
Labour force (thousands)	4934	4990	5186	5244	5206	5087	4920	4710	4483	4270	4111
Participation rate (15-64)	66.0	66.7	68.6	69.9	70.2	69.8	69.2	69.0	69.0	69.4	70.0
young (15-24)	35.9	36.3	35.2	35.1	34.2	33.7	34.4	35.1	35.2	34.8	34.4
prime-age (25-54)	80.5	81.0	83.0	84.3	85.0	85.4	85.3	85.1	85.2	85.3	85.4
older (55-64)	44.0	44.2	45.6	48.6	50.8	52.6	53.3	54.3	53.8	52.8	53.7
oldest (65-71)	14.0	13.7	13.5	14.4	14.5	14.8	15.0	15.3	15.3	15.3	15.1
Employment rate (15-64)	59.9	60.5	62.7	65.0	65.3	64.9	64.4	64.2	64.2	64.5	65.1
Employment rate (15-71)	55.1	55.7	58.1	59.9	59.7	58.9	58.0	57.2	56.6	56.6	57.0
Employment growth (15-64)		1.1	0.9	0.5	-0.3	-0.6	-0.7	-0.9	-1.0	-0.9	-0.6
Unemployment rate (15-64)	9.3	9.3	8.6	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Dependency ratios:											
Share of older workers	11.0	10.9	12.0	13.6	15.2	17.3	19.1	20.3	20.3	18.6	17.4
Old-age dependency ratio (1)	26.4	26.8	28.0	30.3	32.7	35.8	39.5	44.9	50.7	56.3	60.4
Total dependency ratio (2)	47.8	48.1	49.1	51.9	54.3	56.6	59.6	64.9	71.3	77.9	82.7
Total economic dependency ratio	146.7	144.9	137.9	133.6	136.2	141.2	148.0	156.9	166.8	175.8	180.8
Economic old-age dependency ratio (15-64)	41.4	41.7	42.5	44.2	47.4	52.0	57.9	66.0	74.6	82.8	88.5
Economic old-age dependency ratio (15-71)	40.3	40.7	41.6	43.1	46.1	50.4	56.0	63.5	71.5	79.2	84.7

LEGENDA:

Share of older workers = Population aged 55 to 64 as % of population aged 15-64

Old-age dependency ratio (1) = Population aged 65 and over as a percentage of the population aged 15-64

Total dependency ratio (2) = Population under 15 and over 64 as a percentage of the population aged 15-64

Total economic dependency ratio= Total population less employed as % of employed population (15-64)

Economic old-age dependency ratio (15-64)=Inactive population aged 65+ as % of employed population (15-64)

Economic old-age dependency ratio (15-71)=Inactive population aged 65+ as % of employed population (15-71)

Greece

OTHER AGE-RELATED EXPENDITURES as % of GDP

	2004	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
Health care spending as % of GDP											
Pure ageing scenario	5.1	5.1	5.3	5.5	5.5	5.7	5.9	6.2	6.5	6.7	6.9
Constant health scenario	5.1	5.1	5.3	5.3	5.3	5.3	5.5	5.7	6.0	6.2	6.3
Death-related costs scenario	5.1	5.1	5.3	5.4	5.4	5.5	5.7	6.0	6.2	6.4	6.5
Income elasticity of demand	5.1	5.2	5.4	5.6	5.7	5.8	6.1	6.4	6.7	7.0	7.2
Unit costs - GDP per worker	5.1	5.1	5.2	5.2	5.3	5.6	6.0	6.5	7.1	7.6	7.9
AWG reference scenario	5.1	5.1	5.4	5.5	5.6	5.7	5.9	6.2	6.5	6.7	6.8
Long-term care spending as % of GDP											
Pure ageing scenario	:	:	:	:	:	:	:	:	:	:	:
Unit costs - GDP per capita	:	:	:	:	:	:	:	:	:	:	:
Constant disability scenario	:	:	:	:	:	:	:	:	:	:	:
Increase in formal care	:	:	:	:	:	:	:	:	:	:	:
AWG reference scenario	:	:	:	:	:	:	:	:	:	:	:
Number of dependent people (in thousands)											
Pure ageing scenario	254	262	308	346	366	386	419	461	503	543	578
Unit costs - GDP per capita	254	262	308	346	366	196	419	461	503	543	578
Constant disability scenario	254	258	282	248	295	291	300	315	332	348	363
Increase in formal care	254	262	308	346	366	386	419	461	503	543	578
AWG reference scenario	254	260	295	322	330	339	360	388	417	446	471
of which receiving formal care											
Pure ageing scenario	0	0	0	0	0	0	0	0	0	0	0
Unit costs - GDP per capita	0	0	0	0	0	0	0	0	0	0	0
Constant disability scenario	0	0	0	0	0	0	0	0	0	0	0
Increase in formal care	0	13	82	149	205	216	235	258	281	304	324
AWG reference scenario	0	0	0	0	0	0	0	0	0	0	0
of which receiving informal or no care											
Pure ageing scenario	254	262	308	346	366	386	419	461	503	543	578
Unit costs - GDP per capita	254	262	308	346	366	196	419	461	503	543	578
Constant disability scenario	254	258	282	248	295	291	300	315	332	348	363
Increase in formal care	254	249	226	197	161	170	185	203	221	239	254
AWG reference scenario	254	260	295	322	330	339	360	388	417	446	471
Education spending as % of GDP											
Total	3.5	3.4	3.1	2.9	2.9	3.0	3.0	3.0	3.0	3.0	3.1
of which: Transfers	:	:	:	:	:	:	:	:	:	:	:
Primary	1.0	1.0	1.0	1.0	1.0	1.0	0.9	0.9	0.9	1.0	1.0
of which: Transfers	:	:	:	:	:	:	:	:	:	:	:
Low secondary	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
of which: Transfers	:	:	:	:	:	:	:	:	:	:	:
Upper secondary	0.6	0.6	0.6	0.5	0.5	0.6	0.6	0.6	0.5	0.5	0.6
of which: Transfers	:	:	:	:	:	:	:	:	:	:	:
Tertiary education	1.3	1.2	1.0	0.9	0.9	0.9	1.0	1.0	1.0	1.0	1.0
of which: Transfers	:	:	:	:	:	:	:	:	:	:	:
Number of students (in thousands)											
Total	1924	1888	1768	1733	1741	1724	1660	1576	1505	1464	1444
Primary	645	636	622	655	659	625	578	547	536	536	532
Low secondary	337	336	319	313	329	329	310	287	273	268	269
Upper secondary	391	380	357	337	345	358	350	327	305	294	291
Tertiary education	551	536	470	428	408	412	422	414	391	367	352
Memo											
Population aged 15-64 (in thousands)	7472	7481	7557	7500	7414	7286	7110	6823	6494	6156	5877
Unemployment benefit spending as % of GDP	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2

Spain

Main demographic and macroeconomic assumptions

(BASELINE SCENARIO)

Budgetary Projection: AWG variant population scenario

	2004	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
Demographic assumptions											
Fertility rate	1.3	1.3	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
Life expectancy at birth											
males	76.6	76.7	77.6	78.4	79.1	79.7	80.2	80.6	81.0	81.3	81.7
females	83.4	83.6	84.3	85.0	85.6	86.1	86.5	86.7	87.0	87.2	87.3
Life expectancy at 65											
males	16.7	16.8	17.4	17.9	18.4	18.8	19.1	19.4	19.6	19.8	20.0
females	20.7	20.8	21.4	21.9	22.4	22.7	23.0	23.2	23.4	23.6	23.7
Net migration (thousand)	507.5	460.1	112.2	112.5	110.3	107.3	105.3	105.3	104.5	102.8	101.6
Net migration as % of population	1.20	1.07	0.25	0.25	0.24	0.24	0.23	0.23	0.23	0.23	0.24
Population (million)	42.3	42.9	44.6	45.3	45.6	45.6	45.4	45.1	44.7	44.0	43.0
Population aged 0-14 as % of total	14.5	14.6	14.9	15.1	14.4	13.0	11.9	11.3	11.4	11.6	11.6
Prime age population (25-54) as % of total	45.6	45.9	46.5	45.0	42.7	39.9	37.4	35.0	33.8	33.4	33.4
Working age population (15-64) as % of total	68.6	68.6	67.9	66.6	66.0	65.3	63.8	61.3	58.1	54.9	53.4
Elderly population aged 65+ as % of total	16.9	16.8	17.2	18.3	19.6	21.7	24.4	27.4	30.5	33.5	35.0
Very elderly population aged 80 and over as % of total	4.2	4.3	4.9	5.7	6.0	6.3	7.1	7.9	9.2	10.7	12.3
lerly population aged 55+ as % of working age pop.15-64	25.7	26.1	28.3	30.9	32.8	34.6	37.1	40.8	44.3	46.9	47.0
Macroeconomic assumptions											
Real GDP (growth rate)	3.1	3.1	2.8	2.7	2.0	1.5	1.0	0.7	0.4	0.5	1.0
Labour input (growth rate)	2.4	2.3	1.2	0.7	0.1	-0.4	-0.7	-1.0	-1.3	-1.2	-0.7
Labour productivity (growth rate)	0.6	0.8	1.6	2.0	2.0	1.9	1.7	1.7	1.7	1.7	1.7
TFP (growth rate)	0.0	0.1	0.7	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Capital deepening (contribution to labour productivity growth)	0.6	0.7	1.0	0.9	0.9	0.8	0.6	0.6	0.6	0.6	0.6
GDP per capita (growth rate)	1.2	1.7	2.4	2.5	2.0	1.6	1.1	0.8	0.6	0.9	1.6
GDP in 2004 prices (in billions of euro)	838	863	1002	1154	1286	1401	1490	1552	1589	1623	1689
GDP per worker	17.1	17.4	19.4	22.0	24.4	26.6	28.4	29.7	30.7	31.9	34.0
Real interest rate	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Labour force assumptions											
Population growth (working age:15-64)		1.4	0.0	-0.1	0.0	-0.3	-0.7	-1.0	-1.4	-1.4	-0.8
Labour force (thousands)	19933	20462	22033	22555	22727	22507	21906	20938	19672	18432	17613
Participation rate (15-64)	68.6	69.5	72.7	74.8	75.5	75.6	75.6	75.7	75.7	76.3	76.8
young (15-24)	45.3	45.2	43.7	42.7	40.9	41.7	43.1	44.0	43.8	42.9	42.1
prime-age (25-54)	80.6	81.5	85.1	87.6	89.0	89.9	90.0	89.7	89.6	89.7	89.9
older (55-64)	44.4	45.1	47.9	52.4	57.8	60.9	63.3	64.6	63.5	63.1	63.9
oldest (65-71)	3.9	5.0	9.8	10.9	11.2	12.6	12.8	13.0	13.3	13.1	12.5
Employment rate (15-64)	61.2	62.3	66.4	69.6	70.2	70.3	70.3	70.4	70.4	71.0	71.4
Employment rate (15-71)	56.2	57.5	61.7	64.1	64.4	63.8	62.9	62.1	61.3	60.9	61.8
Employment growth (15-64)		3.2	1.2	0.7	0.1	-0.4	-0.7	-1.0	-1.3	-1.2	-0.7
Unemployment rate (15-64)	10.8	10.4	8.7	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Dependency ratios:											
Share of older workers	9.7	9.9	10.7	12.6	15.7	18.3	20.9	23.1	22.6	20.0	18.3
Old-age dependency ratio (1)	24.6	24.5	25.3	27.5	29.8	33.2	38.2	44.6	52.5	61.1	65.6
Total dependency ratio (2)	45.8	45.7	47.2	50.2	51.5	53.1	56.8	63.1	72.2	82.3	87.4
Total economic dependency ratio	138.2	134.0	121.8	115.9	115.8	117.9	123.0	131.8	144.4	156.8	162.4
Economic old-age dependency ratio (15-64)	39.6	38.6	36.9	38.0	40.7	44.9	51.6	60.4	71.0	82.2	88.4
Economic old-age dependency ratio (15-71)	39.4	38.3	36.4	37.4	40.0	44.0	50.3	58.6	68.6	79.1	85.5

LEGENDA:

Share of older workers = Population aged 55 to 64 as % of population aged 15-64

Old-age dependency ratio (1) = Population aged 65 and over as a percentage of the population aged 15-64

Total dependency ratio (2) = Population under 15 and over 64 as a percentage of the population aged 15-64

Total economic dependency ratio= Total population less employed as % of employed population (15-64)

Economic old-age dependency ratio (15-64)=Inactive population aged 65+ as % of employed population (15-64)

Economic old-age dependency ratio (15-71)=Inactive population aged 65+ as % of employed population (15-71)

Spain

EPC-AWG Pension expenditure projections

	2004	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
Baseline scenario; as % of GDP											
Social security pensions, gross	8.6	8.7	8.9	8.8	9.3	10.4	11.8	13.4	15.2	16.2	15.7
Old-age and early pensions, gross	5.6	5.7	5.8	5.7	6.1	7.1	8.4	9.8	11.5	12.6	12.3
Of which: earnings-related pensions, gross	:	:	:	:	:	:	:	:	:	:	:
Private sector employees, gross	5.1	5.2	5.2	5.1	5.5	6.4	7.7	9.1	10.9	12.0	11.8
Public sector employees, gross	0.5	0.5	0.5	0.6	0.6	0.7	0.7	0.7	0.7	0.6	0.5
Other pensions (disability, survivors), gross	3.0	3.0	3.1	3.1	3.2	3.3	3.4	3.6	3.6	3.6	3.5
Occupational pensions, gross	:	:	:	:	:	:	:	:	:	:	:
Private mandatory pensions, gross	:	:	:	:	:	:	:	:	:	:	:
Total pension expenditure, gross	8.6	8.7	8.9	8.8	9.3	10.4	11.8	13.4	15.2	16.2	15.7
Social security pensions, net	8.2	8.2	8.4	8.4	8.8	9.8	11.3	12.7	14.4	15.4	14.9
Total pension expenditure, net	8.2	8.2	8.4	8.4	8.8	9.8	11.3	12.7	14.4	15.4	14.9
Social security pensions, contributions	:	:	:	:	:	:	:	:	:	:	:
Total pension contributions	:	:	:	:	:	:	:	:	:	:	:
Social security pensions, assets	:	:	:	:	:	:	:	:	:	:	:
All pensions, assets	:	:	:	:	:	:	:	:	:	:	:
Additional indicators											
Social security pensions, net / Social sec. pensions, gross,%	95	95	95	95	95	95	95	95	95	95	95
Total pension expenditure, net / Total pension exp., gross, %	95	95	95	95	95	95	95	95	95	95	95
Social security pensions, number of pensioners , 1000 pers.	8519	8624	9088	9676	10392	11389	12623	13801	14715	15273	15059
All pensions, pensioners , 1000 pers.	8519	8624	9088	9676	10392	11389	12623	13801	14715	15273	15059
Number of pensioners aged 65+ , 1000 pers.	:	:	:	:	:	:	:	:	:	:	:
Share of pensioners below age 65 as % of all pensioners	:	:	:	:	:	:	:	:	:	:	:
Average gross social sec. pension, 1000€ in 2004 prices	8.4	8.7	9.8	10.5	11.5	12.7	14.0	15.1	16.4	17.2	17.6
Average gross total pensions, 1000€ in 2004 prices	8.4	8.7	9.8	10.5	11.5	12.7	14.0	15.1	16.4	17.2	17.6
Output / Worker, 1000€ in 2004 prices	49.2	49.6	49.8	55.0	60.9	66.9	73.2	79.7	86.9	94.7	103.1
Social sec. benefit ratio	17.2	17.5	19.6	19.1	18.9	19.0	19.1	18.9	18.8	18.2	17.1
Total pension benefit ratio	17.2	17.5	19.6	19.1	18.9	19.0	19.1	18.9	18.8	18.2	17.1
Social security pensions, num of contributors, in 1000	:	:	:	:	:	:	:	:	:	:	:
Average social sec. pension contribution, 1000€ in 2004 prices	:	:	:	:	:	:	:	:	:	:	:
Average total pension contribution, 1000€ in 2004 prices	:	:	:	:	:	:	:	:	:	:	:
Support ratio (contributors /100 pensioners, social sec. pens.)	:	:	:	:	:	:	:	:	:	:	:
High life expectancy; as % of GDP											
Social security pensions, gross	8.6	8.7	8.9	8.8	9.3	10.4	11.9	13.4	15.2	16.3	15.8
Old-age and early pensions, gross	5.6	5.7	5.8	5.7	6.1	7.1	8.4	9.9	11.6	12.7	12.3
Total pension expenditure, gross	8.6	8.7	8.9	8.8	9.3	10.4	11.9	13.4	15.2	16.3	15.8
All pensions, assets	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Higher labour productivity; as % of GDP											
Social security pensions, gross	8.6	8.7	8.9	8.7	9.1	10.1	11.5	12.9	14.5	15.4	14.8
Old-age and early pensions, gross	5.6	5.7	5.7	5.7	6.0	6.9	8.1	9.4	11.0	11.9	11.5
Total pension expenditure, gross	8.6	8.7	8.9	8.7	9.1	10.1	11.5	12.9	14.5	15.4	14.8
All pensions, assets	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lower labour productivity; as % of GDP											
Social security pensions, gross	8.6	8.7	8.9	8.9	9.5	10.6	12.3	14.0	15.9	17.1	16.7
Old-age and early pensions, gross	5.6	5.7	5.8	5.8	6.3	7.3	8.7	10.3	12.1	13.3	13.0
Total pension expenditure, gross	8.6	8.7	8.9	8.9	9.5	10.6	12.3	14.0	15.9	17.1	16.7
All pensions, assets	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Higher employment rate (1 p.p.); as % of GDP											
Social security pensions, gross	8.6	8.7	8.9	8.8	9.3	10.3	11.8	13.4	15.1	16.1	15.6
Old-age and early pensions, gross	5.6	5.7	5.8	5.7	6.1	7.1	8.4	9.8	11.5	12.5	12.2
Total pension expenditure, gross	8.6	8.7	8.9	8.8	9.3	10.3	11.8	13.4	15.1	16.1	15.6
All pensions, assets	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Higher older workers empl. rate (5 p.p.); as % of GDP											
Social security pensions, gross	8.6	8.7	8.8	8.8	9.2	10.3	11.7	13.3	15.0	16.0	15.6
Old-age and early pensions, gross	5.6	5.7	5.7	5.7	6.1	7.0	8.3	9.7	11.4	12.5	12.2
Total pension expenditure, gross	8.6	8.7	8.8	8.8	9.2	10.3	11.7	13.3	15.0	16.0	15.6
All pensions, assets	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lower interest rate; as % of GDP											
Social security pensions, gross	8.6	8.7	8.9	8.8	9.3	10.4	11.8	13.4	15.2	16.2	15.7
Old-age and early pensions, gross	5.6	5.7	5.8	5.7	6.1	7.1	8.4	9.8	11.5	12.6	12.3
Total pension expenditure, gross	8.6	8.7	8.9	8.8	9.3	10.4	11.8	13.4	15.2	16.2	15.7
All pensions, assets	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Higher interest rate; as % of GDP											
Social security pensions, gross	8.6	8.7	8.9	8.8	9.3	10.4	11.8	13.4	15.2	16.2	15.7
Old-age and early pensions, gross	5.6	5.7	5.8	5.7	6.1	7.1	8.4	9.8	11.5	12.6	12.3
Total pension expenditure, gross	8.6	8.7	8.9	8.8	9.3	10.4	11.8	13.4	15.2	16.2	15.7
All pensions, assets	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

: = data not provided

Spain

OTHER AGE-RELATED EXPENDITURES as % of GDP

	2004	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
Health care spending as % of GDP											
Pure ageing scenario	6.1	6.1	6.3	6.5	6.7	7.0	7.3	7.6	7.9	8.1	8.3
Constant health scenario	6.1	6.1	6.1	6.2	6.3	6.5	6.8	7.0	7.3	7.5	7.7
Death-related costs scenario	6.1	6.1	6.2	6.4	6.6	6.8	7.1	7.4	7.6	7.8	8.0
Income elasticity of demand	6.1	6.1	6.3	6.6	6.9	7.2	7.6	7.9	8.2	8.5	8.7
Unit costs - GDP per worker	6.1	6.1	5.9	6.0	6.2	6.5	7.0	7.6	8.3	9.0	9.4
AWG reference scenario	6.1	6.1	6.3	6.5	6.7	7.0	7.3	7.6	7.9	8.1	8.3
Long-term care spending as % of GDP											
Pure ageing scenario	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.7	0.8	0.8
Unit costs - GDP per capita	0.5	0.5	0.5	0.6	0.6	0.5	0.6	0.6	0.7	0.7	0.8
Constant disability scenario	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.7	0.7
Increase in formal care	0.5	0.6	0.7	0.8	0.9	0.9	1.0	1.1	1.3	1.5	1.7
AWG reference scenario	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.7	0.8
Number of dependent people (in thousands)											
Pure ageing scenario	1449	1483	1652	1813	1937	2097	2337	2618	2938	3259	3494
Unit costs - GDP per capita	1449	1483	1652	1813	1937	1108	2337	2618	2938	3259	3494
Constant disability scenario	1449	1463	1524	1331	1575	1603	1695	1811	1959	2114	2224
Increase in formal care	1449	1483	1652	1813	1937	2097	2337	2618	2938	3259	3494
AWG reference scenario	1449	1473	1588	1692	1756	1850	2016	2214	2449	2687	2859
of which receiving formal care											
Pure ageing scenario	444	453	497	532	570	625	693	779	872	958	1014
Unit costs - GDP per capita	444	453	497	532	570	625	693	779	872	958	1014
Constant disability scenario	444	446	454	452	451	460	482	514	551	587	608
Increase in formal care	444	505	803	1084	1335	1449	1614	1809	2029	2246	2403
AWG reference scenario	444	450	476	492	510	542	588	646	711	772	811
of which receiving informal or no care											
Pure ageing scenario	1004	1030	1154	1281	1367	1473	1644	1839	2066	2301	2480
Unit costs - GDP per capita	1004	1030	1154	1281	1367	811	1644	1839	2066	2301	2480
Constant disability scenario	1004	1017	1070	958	1124	1142	1213	1297	1408	1527	1616
Increase in formal care	1004	978	848	729	602	648	723	809	909	1013	1091
AWG reference scenario	1004	1023	1112	1200	1245	1307	1428	1568	1737	1914	2048
Education spending as % of GDP											
Total	3.7	3.6	3.2	3.1	3.2	3.1	3.0	2.9	2.9	3.0	3.1
of which: Transfers	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Primary	1.1	1.1	1.1	1.1	1.1	1.0	0.9	0.9	0.9	1.0	1.1
of which: Transfers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Low secondary	0.9	0.9	0.8	0.8	0.9	0.9	0.8	0.7	0.7	0.8	0.8
of which: Transfers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Upper secondary	0.7	0.7	0.6	0.5	0.6	0.6	0.6	0.6	0.5	0.5	0.6
of which: Transfers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Tertiary education	0.9	0.9	0.7	0.6	0.6	0.6	0.7	0.7	0.7	0.6	0.6
of which: Transfers	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0
Number of students (in thousands)											
Total	7275	7211	7031	7161	7299	7089	6576	6037	5705	5601	5569
Primary	2494	2506	2740	2963	2885	2589	2287	2131	2128	2180	2164
Low secondary	1961	1948	1853	1965	2132	2090	1885	1668	1551	1543	1579
Upper secondary	1054	1034	953	904	986	1037	991	886	794	753	757
Tertiary education	1766	1723	1485	1330	1296	1373	1413	1351	1232	1125	1070
Memo											
Population aged 15-64 (in thousands)	29050	29458	30301	30152	30100	29788	28979	27673	25972	24150	22937
Unemployment benefit spending as % of GDP	1.1	1.1	0.9	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7

France

Main demographic and macroeconomic assumptions

(BASELINE SCENARIO)

Budgetary Projection: AWG variant population scenario

	2004	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
Demographic assumptions											
Fertility rate	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
Life expectancy at birth											
males	76.2	76.4	77.4	78.4	79.3	80.0	80.6	81.2	81.6	82.0	82.3
females	83.4	83.6	84.4	85.2	85.8	86.4	86.8	87.2	87.5	87.7	87.9
Life expectancy at 65											
males	17.0	17.1	17.7	18.2	18.8	19.2	19.5	19.9	20.1	20.3	20.5
females	21.3	21.4	22.0	22.6	23.1	23.5	23.8	24.1	24.3	24.4	24.5
Net migration (thousand)	63.9	63.2	61.6	62.1	60.3	59.2	58.9	58.9	58.8	58.8	58.7
Net migration as % of population	0.11	0.11	0.10	0.10	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Population (million)	59.9	60.2	61.5	62.6	63.5	64.3	64.9	65.5	65.6	65.5	65.1
Population aged 0-14 as % of total	18.6	18.5	18.2	17.9	17.2	16.7	16.4	16.2	16.1	16.0	15.9
Prime age population (25-54) as % of total	41.6	41.3	40.0	38.8	37.4	36.3	35.6	35.4	35.1	34.8	34.9
Working age population (15-64) as % of total	65.1	65.1	65.0	63.5	62.3	61.0	59.6	58.4	57.5	57.5	57.5
Elderly population aged 65+ as % of total	16.4	16.5	16.8	18.7	20.6	22.3	24.0	25.4	26.4	26.4	26.6
Very elderly population aged 80 and over as % of total	4.4	4.5	5.3	5.8	6.0	6.1	7.5	8.7	9.6	10.2	10.6
lerly population aged 55+ as % of working age pop.15-64	41.8	42.3	45.1	48.6	51.5	54.4	57.6	59.7	61.5	61.6	61.2
Macroeconomic assumptions											
Real GDP (growth rate)	2.1	2.2	2.4	1.9	1.6	1.8	1.6	1.6	1.6	1.6	1.6
Labour input (growth rate)	1.0	1.0	0.7	0.3	-0.1	0.1	-0.1	-0.1	-0.1	-0.1	-0.1
Labour productivity (growth rate)	1.1	1.2	1.6	1.7	1.8	1.7	1.7	1.7	1.7	1.7	1.7
TFP (growth rate)	0.9	0.9	1.3	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Capital deepening (contribution to labour productivity growth)	0.3	0.3	0.4	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
GDP per capita (growth rate)	1.7	1.7	2.0	1.6	1.4	1.6	1.4	1.4	1.6	1.7	1.7
GDP in 2004 prices (in billions of euro)	1625	1661	1852	2056	2234	2433	2645	2857	3091	3348	3619
GDP per worker	21.2	21.6	23.5	25.7	27.5	29.6	31.8	34.1	36.8	39.9	43.4
Real interest rate	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Labour force assumptions											
Population growth (working age:15-64)		0.5	0.2	-0.2	-0.1	-0.2	-0.3	-0.2	-0.2	-0.1	-0.1
Labour force (thousands)	27114	27372	28057	28238	28117	28112	28080	27860	27695	27557	27365
Participation rate (15-64)	69.6	69.9	70.2	71.1	71.1	71.7	72.5	72.8	73.4	73.1	73.1
young (15-24)	39.2	39.6	40.1	39.5	38.8	40.0	39.8	39.7	39.7	39.5	39.4
prime-age (25-54)	86.4	86.7	87.9	88.9	89.3	89.6	89.9	90.0	90.0	90.0	90.1
older (55-64)	40.2	42.3	43.8	46.5	48.5	50.5	53.4	52.9	54.9	54.4	54.1
oldest (65-71)	3.9	4.1	6.2	8.0	7.9	8.2	9.0	9.3	9.4	9.4	9.5
Employment rate (15-64)	63.1	63.5	64.4	66.1	66.2	66.7	67.4	67.7	68.2	68.0	68.0
Employment rate (15-71)	58.1	58.6	59.7	60.1	59.3	59.8	60.3	60.5	60.9	61.2	61.0
Employment growth (15-64)		1.1	0.7	0.3	-0.1	0.1	-0.1	-0.1	-0.1	-0.1	-0.1
Unemployment rate (15-64)	9.3	9.1	8.3	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Dependency ratios:											
Share of older workers	9.3	10.1	12.2	13.1	14.0	14.6	15.4	14.6	14.8	15.1	14.8
Old-age dependency ratio (1)	25.2	25.3	25.8	29.4	33.0	36.5	40.2	43.4	45.9	45.9	46.4
Total dependency ratio (2)	53.7	53.7	53.8	57.5	60.6	63.9	67.7	71.1	73.9	73.8	74.0
Total economic dependency ratio	143.5	142.0	139.0	138.3	142.8	145.8	148.7	152.6	154.9	155.5	156.0
Economic old-age dependency ratio (15-64)	39.3	39.3	39.3	43.1	48.3	53.2	57.8	62.1	65.3	65.7	66.3
Economic old-age dependency ratio (15-71)	39.1	39.0	39.0	42.5	47.6	52.3	56.8	61.0	64.0	64.5	65.1

LEGENDA:

Share of older workers = Population aged 55 to 64 as % of population aged 15-64

Old-age dependency ratio (1) = Population aged 65 and over as a percentage of the population aged 15-64

Total dependency ratio (2) = Population under 15 and over 64 as a percentage of the population aged 15-64

Total economic dependency ratio= Total population less employed as % of employed population (15-64)

Economic old-age dependency ratio (15-64)=Inactive population aged 65+ as % of employed population (15-64)

Economic old-age dependency ratio (15-71)=Inactive population aged 65+ as % of employed population (15-71)

France

EPC-AWG Pension expenditure projections

	2004	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
Baseline scenario; as % of GDP											
Social security pensions, gross	12.8	12.8	12.9	13.2	13.7	14.0	14.3	14.8	15.0	14.9	14.8
Old-age and early pensions, gross	12.8	12.8	12.9	13.2	13.7	14.0	14.3	14.8	15.0	14.9	14.8
Of which: earnings-related pensions, gross	:	:	:	:	:	:	:	:	:	:	:
Private sector employees, gross	:	:	:	:	:	:	:	:	:	:	:
Public sector employees, gross	:	:	:	:	:	:	:	:	:	:	:
Other pensions (disability, survivors), gross	:	:	:	:	:	:	:	:	:	:	:
Occupational pensions, gross	:	:	:	:	:	:	:	:	:	:	:
Private mandatory pensions, gross	:	:	:	:	:	:	:	:	:	:	:
Total pension expenditure, gross	12.8	12.8	12.9	13.2	13.7	14.0	14.3	14.8	15.0	14.9	14.8
Social security pensions, net	12.2	12.1	12.3	12.5	13.0	13.3	13.6	14.1	14.2	14.1	14.0
Total pension expenditure, net	12.2	12.1	12.3	12.5	13.0	13.3	13.6	14.1	14.2	14.1	14.0
Social security pensions, contributions	12.8	12.8	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9
Total pension contributions	12.8	12.8	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9
Social security pensions, assets	1.2	1.5	2.0	2.9	4.0	3.5	2.8	2.2	1.5	0.8	:
All pensions, assets	1.2	1.5	2.0	2.9	4.0	3.5	2.8	2.2	1.5	0.8	:
Additional indicators											
Social security pensions, net / Social sec. pensions, gross,%	95	95	95	95	95	95	95	95	95	95	95
Total pension expenditure, net / Total pension exp., gross, %	95	95	95	95	95	95	95	95	95	95	95
Social security pensions, number of pensioners , 1000 pers.	12925	12975	13815	15023	16288	17417	18484	19511	19948	20036	19931
All pensions, pensioners , 1000 pers.	12925	12975	13815	15023	16288	17417	18484	19511	19948	20036	19931
Number of pensioners aged 65+ , 1000 pers.	:	:	:	:	:	:	:	:	:	:	:
Share of pensioners below age 65 as % of all pensioners	:	:	:	:	:	:	:	:	:	:	:
Average gross social sec. pension, 1000€ in 2004 prices	16.1	16.4	17.4	18.0	18.8	19.6	20.5	21.7	23.2	24.9	26.9
Average gross total pensions, 1000€ in 2004 prices	16.1	16.4	17.4	18.0	18.8	19.6	20.5	21.7	23.2	24.9	26.9
Output / Worker, 1000€ in 2004 prices	66.1	66.9	72.0	78.3	85.4	93.1	101.3	110.3	120.0	130.6	142.2
Social sec. benefit ratio	24.4	24.6	24.1	23.0	22.0	21.1	20.3	19.7	19.3	19.1	18.9
Total pension benefit ratio	24.4	24.6	24.1	23.0	22.0	21.1	20.3	19.7	19.3	19.1	18.9
Social security pensions, num of contributors, in 1000	24645	24904	25796	26342	26229	26224	26194	25989	25835	25706	25527
Average social sec. pension contribution, 1000€ in 2004 prices	8.5	8.6	9.2	10.0	11.0	11.9	13.0	14.1	15.4	16.8	18.2
Average total pension contribution, 1000€ in 2004 prices	8.5	8.6	9.2	10.0	11.0	11.9	13.0	14.1	15.4	16.8	18.2
Support ratio (contributors /100 pensioners, social sec. pens.)	191	192	187	175	161	151	142	133	130	128	128
High life expectancy; as % of GDP											
Social security pensions, gross	12.8	12.8	13.0	13.2	13.8	14.2	14.6	15.2	15.4	15.4	15.4
Old-age and early pensions, gross	12.8	12.8	13.0	13.2	13.8	14.2	14.6	15.2	15.4	15.4	15.4
Total pension expenditure, gross	12.8	12.8	13.0	13.2	13.8	14.2	14.6	15.2	15.4	15.4	15.4
All pensions, assets	1.2	1.5	2.0	2.9	4.0	3.5	2.8	2.2	1.5	0.8	0.0
Higher labour productivity; as % of GDP											
Social security pensions, gross	12.8	12.8	13.0	13.1	13.5	13.8	14.0	14.5	14.6	14.5	14.4
Old-age and early pensions, gross	12.8	12.8	13.0	13.1	13.5	13.8	14.0	14.5	14.6	14.5	14.4
Total pension expenditure, gross	12.8	12.8	13.0	13.1	13.5	13.8	14.0	14.5	14.6	14.5	14.4
All pensions, assets	1.2	1.5	2.0	2.9	4.0	3.4	2.8	2.1	1.5	0.8	0.0
Lower labour productivity; as % of GDP											
Social security pensions, gross	12.8	12.8	13.0	13.3	13.9	14.3	14.7	15.3	15.4	15.4	15.3
Old-age and early pensions, gross	12.8	12.8	13.0	13.3	13.9	14.3	14.7	15.3	15.4	15.4	15.3
Total pension expenditure, gross	12.8	12.8	13.0	13.3	13.9	14.3	14.7	15.3	15.4	15.4	15.3
All pensions, assets	1.2	1.5	2.0	2.9	4.1	3.5	2.9	2.3	1.6	0.8	:
Higher employment rate (1 p.p.); as % of GDP											
Social security pensions, gross	12.8	12.8	12.9	13.1	13.6	13.9	14.2	14.7	14.9	14.8	14.7
Old-age and early pensions, gross	12.8	12.8	12.9	13.1	13.6	13.9	14.2	14.7	14.9	14.8	14.7
Total pension expenditure, gross	12.8	12.8	12.9	13.1	13.6	13.9	14.2	14.7	14.9	14.8	14.7
All pensions, assets	1.2	1.5	2.0	2.9	4.0	3.4	2.8	2.2	1.5	0.8	0.0
Higher older workers empl. rate (5 p.p.); as % of GDP											
Social security pensions, gross	12.8	12.8	12.8	12.9	13.3	13.6	13.9	14.4	14.6	14.5	14.4
Old-age and early pensions, gross	12.8	12.8	12.8	12.9	13.3	13.6	13.9	14.4	14.6	14.5	14.4
Total pension expenditure, gross	12.8	12.8	12.8	12.9	13.3	13.6	13.9	14.4	14.6	14.5	14.4
All pensions, assets	1.2	1.5	2.0	2.9	4.0	3.4	2.8	2.2	1.5	0.8	0.0
Lower interest rate; as % of GDP											
Social security pensions, gross	12.8	12.8	12.9	13.2	13.7	14.0	14.3	14.8	15.0	14.9	14.8
Old-age and early pensions, gross	12.8	12.8	12.9	13.2	13.7	14.0	14.3	14.8	15.0	14.9	14.8
Total pension expenditure, gross	12.8	12.8	12.9	13.2	13.7	14.0	14.3	14.8	15.0	14.9	14.8
All pensions, assets	1.2	1.5	1.9	2.7	3.7	3.1	2.5	1.9	1.3	0.6	0.0
Higher interest rate; as % of GDP											
Social security pensions, gross	12.8	12.8	12.9	13.2	13.7	14.0	14.3	14.8	15.0	14.9	14.8
Old-age and early pensions, gross	12.8	12.8	12.9	13.2	13.7	14.0	14.3	14.8	15.0	14.9	14.8
Total pension expenditure, gross	12.8	12.8	12.9	13.2	13.7	14.0	14.3	14.8	15.0	14.9	14.8
All pensions, assets	1.2	1.5	2.1	3.1	4.5	3.9	3.3	2.6	1.8	1.0	0.0

: = data not provided

France

OTHER AGE-RELATED EXPENDITURES as % of GDP

	2004	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
Health care spending as % of GDP											
Pure ageing scenario	7.7	7.7	8.0	8.2	8.4	8.7	9.0	9.2	9.4	9.5	9.5
Constant health scenario	7.7	7.7	7.8	7.9	8.0	8.2	8.4	8.6	8.7	8.8	8.8
Death-related costs scenario	7.7	7.7	7.9	8.1	8.3	8.5	8.7	8.9	9.0	9.1	9.1
Income elasticity of demand	7.7	7.8	8.1	8.4	8.6	8.9	9.2	9.5	9.7	9.8	9.9
Unit costs - GDP per worker	7.7	7.7	7.8	8.0	8.4	8.8	9.2	9.6	9.9	10.0	10.1
AWG reference scenario	7.7	7.7	8.0	8.2	8.4	8.6	8.9	9.2	9.3	9.4	9.5
Long-term care spending as % of GDP											
Pure ageing scenario	:	:	:	:	:	:	:	:	:	:	:
Unit costs - GDP per capita	:	:	:	:	:	:	:	:	:	:	:
Constant disability scenario	:	:	:	:	:	:	:	:	:	:	:
Increase in formal care	:	:	:	:	:	:	:	:	:	:	:
AWG reference scenario	:	:	:	:	:	:	:	:	:	:	:
Number of dependent people (in thousands)											
Pure ageing scenario	1973	2012	2185	2387	2624	2915	3281	3610	3844	3950	3983
Unit costs - GDP per capita	1973	2012	2185	2387	2624	1474	3281	3610	3844	3950	3983
Constant disability scenario	1973	1984	2015	1734	2115	2194	2363	2509	2585	2583	2536
Increase in formal care	1973	2012	2185	2387	2624	2915	3281	3610	3844	3950	3983
AWG reference scenario	1973	1998	2100	2224	2369	2555	2822	3059	3215	3266	3259
of which receiving formal care											
Pure ageing scenario	0	0	0	0	0	0	0	0	0	0	0
Unit costs - GDP per capita	0	0	0	0	0	0	0	0	0	0	0
Constant disability scenario	0	0	0	0	0	0	0	0	0	0	0
Increase in formal care	0	101	579	1029	1469	1632	1837	2021	2152	2211	2230
AWG reference scenario	0	0	0	0	0	0	0	0	0	0	0
of which receiving informal or no care											
Pure ageing scenario	1973	2012	2185	2387	2624	2915	3281	3610	3844	3950	3983
Unit costs - GDP per capita	1973	2012	2185	2387	2624	1474	3281	3610	3844	3950	3983
Constant disability scenario	1973	1984	2015	1734	2115	2194	2363	2509	2585	2583	2536
Increase in formal care	1973	1912	1606	1358	1155	1283	1444	1589	1692	1738	1753
AWG reference scenario	1973	1998	2100	2224	2369	2555	2822	3059	3215	3266	3259
Education spending as % of GDP											
Total	5.0	4.9	4.7	4.6	4.6	4.6	4.5	4.5	4.5	4.5	4.5
of which: Transfers	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Primary	1.1	1.1	1.2	1.1	1.1	1.1	1.0	1.1	1.1	1.1	1.1
of which: Transfers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Low secondary	1.4	1.4	1.3	1.4	1.3	1.3	1.3	1.3	1.3	1.3	1.3
of which: Transfers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Upper secondary	1.4	1.4	1.3	1.2	1.3	1.3	1.2	1.2	1.2	1.2	1.2
of which: Transfers	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Tertiary education	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
of which: Transfers	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Number of students (in thousands)											
Total	11730	11673	11667	11703	11667	11475	11280	11156	11103	11076	11004
Primary	3779	3800	4033	3940	3843	3781	3731	3715	3734	3713	3652
Low secondary	3250	3203	3141	3337	3240	3163	3113	3073	3062	3078	3059
Upper secondary	2615	2610	2498	2508	2631	2548	2496	2459	2430	2428	2437
Tertiary education	2085	2060	1996	1918	1954	1982	1940	1909	1877	1857	1856
Memo											
Population aged 15-64 (in thousands)	38969	39152	39961	39721	39526	39208	38729	38256	37750	37687	37440
Unemployment benefit spending as % of GDP	1.2	1.2	1.1	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9

Ireland

Main demographic and macroeconomic assumptions

(BASELINE SCENARIO)

Budgetary Projection: AWG variant population scenario

	2004	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
Demographic assumptions											
Fertility rate	2.0	2.0	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
Life expectancy at birth											
males	75.5	75.7	76.8	77.8	78.7	79.5	80.2	80.8	81.3	81.7	82.2
females	80.7	80.9	81.8	82.8	83.6	84.4	85.0	85.6	86.0	86.5	86.8
Life expectancy at 65											
males	15.4	15.5	16.2	17.0	17.6	18.2	18.7	19.1	19.5	19.9	20.2
females	18.6	18.7	19.4	20.2	20.8	21.4	21.9	22.3	22.7	23.1	23.4
Net migration (thousand)	16.4	16.1	15.3	15.0	14.0	13.4	12.9	12.8	12.6	12.5	12.4
Net migration as % of population	0.41	0.40	0.35	0.33	0.30	0.27	0.26	0.25	0.24	0.23	0.23
Population (million)	4.0	4.1	4.3	4.6	4.8	4.9	5.1	5.2	5.3	5.4	5.5
Population aged 0-14 as % of total	20.9	20.8	21.0	20.8	19.8	18.2	16.8	16.2	16.1	16.2	16.0
Prime age population (25-54) as % of total	42.7	43.0	43.9	43.3	41.9	40.7	39.4	38.1	36.9	36.2	36.0
Working age population (15-64) as % of total	68.0	68.0	67.3	66.0	65.4	65.3	64.8	63.7	61.7	59.5	57.8
Elderly population aged 65+ as % of total	11.1	11.2	11.8	13.2	14.8	16.5	18.4	20.2	22.2	24.3	26.2
Very elderly population aged 80 and over as % of total	2.6	2.7	2.8	3.0	3.3	3.8	4.7	5.6	6.4	7.2	8.0
lerly population aged 55+ as % of working age pop.15-64	2.5	2.5	2.8	3.1	3.3	3.5	3.8	4.1	4.5	4.9	5.1
Macroeconomic assumptions											
Real GDP (growth rate)	6.1	5.7	5.2	4.2	3.0	2.6	2.1	1.8	1.4	1.3	1.6
Labour input (growth rate)	2.7	2.4	1.4	1.0	0.8	0.7	0.4	0.1	-0.3	-0.5	-0.2
Labour productivity (growth rate)	3.3	3.3	3.8	3.2	2.2	1.9	1.7	1.7	1.7	1.7	1.7
TFP (growth rate)	2.5	2.4	2.9	2.1	1.3	1.2	1.1	1.1	1.1	1.1	1.1
Capital deepening (contribution to labour productivity growth)	0.8	0.8	0.9	1.1	0.9	0.8	0.6	0.6	0.6	0.6	0.6
GDP per capita (growth rate)	4.4	4.5	4.0	3.2	2.2	2.0	1.6	1.3	1.0	0.9	1.4
GDP in 2004 prices (in billions of euro)	146	154	200	251	298	342	384	423	456	488	523
GDP per worker	26.6	27.8	34.0	40.4	46.0	51.0	55.6	59.7	63.1	66.2	70.1
Real interest rate	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Labour force assumptions											
Population growth (working age:15-64)		1.2	0.8	0.7	0.7	0.6	0.3	0.0	-0.3	-0.5	-0.2
Labour force (thousands)	1909	1955	2135	2258	2358	2449	2517	2549	2529	2481	2444
Participation rate (15-64)	69.7	70.6	73.4	75.1	75.7	76.1	76.7	77.0	77.1	77.0	77.2
young (15-24)	53.6	54.0	54.0	52.0	50.9	51.6	53.0	53.7	53.6	52.8	52.1
prime-age (25-54)	79.9	80.6	83.3	84.8	85.8	86.4	86.7	86.8	86.8	86.7	86.8
older (55-64)	51.0	51.8	56.3	61.6	65.4	67.5	69.3	69.9	69.8	69.1	69.5
oldest (65-71)	16.3	16.6	18.0	19.3	19.7	20.4	20.6	20.8	21.1	21.0	20.5
Employment rate (15-64)	66.7	67.7	70.9	72.5	73.2	73.6	74.0	74.4	74.5	74.4	74.6
Employment rate (15-71)	63.5	64.5	67.2	68.1	68.4	68.5	68.6	68.5	68.0	67.3	67.0
Employment growth (15-64)		2.7	1.4	1.0	0.8	0.7	0.4	0.1	-0.3	-0.5	-0.2
Unemployment rate (15-64)	4.3	4.0	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
Dependency ratios:											
Share of older workers	10.1	10.4	12.0	13.4	15.0	16.2	17.8	19.6	20.6	19.6	18.1
Old-age dependency ratio (1)	16.4	16.5	17.5	20.0	22.5	25.2	28.3	31.7	36.0	40.9	45.2
Total dependency ratio (2)	47.1	47.1	48.7	51.5	52.8	53.1	54.3	57.1	62.1	68.1	72.9
Total economic dependency ratio	120.4	117.2	109.6	108.9	108.9	108.1	108.4	111.2	117.7	125.9	132.0
Economic old-age dependency ratio (15-64)	22.9	22.7	22.8	25.1	28.2	31.4	35.1	39.2	44.4	50.6	56.3
Economic old-age dependency ratio (15-71)	22.5	22.3	22.4	24.5	27.4	30.5	34.0	37.9	42.8	48.5	53.9

LEGENDA:

Share of older workers = Population aged 55 to 64 as % of population aged 15-64

Old-age dependency ratio (1) = Population aged 65 and over as a percentage of the population aged 15-64

Total dependency ratio (2) = Population under 15 and over 64 as a percentage of the population aged 15-64

Total economic dependency ratio= Total population less employed as % of employed population (15-64)

Economic old-age dependency ratio (15-64)=Inactive population aged 65+ as % of employed population (15-64)

Economic old-age dependency ratio (15-71)=Inactive population aged 65+ as % of employed population (15-71)

Ireland

EPC-AWG Pension expenditure projections

	2004	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
Baseline scenario; as % of GDP											
Social security pensions, gross	4.7	4.6	5.2	5.9	6.5	7.2	7.9	8.5	9.3	10.3	11.1
Old-age and early pensions, gross	3.5	3.5	4.0	4.7	5.2	6.0	6.6	7.2	8.0	9.0	9.9
Of which: earnings-related pensions, gross	:	:	:	:	:	:	:	:	:	:	:
Private sector employees, gross	:	:	:	:	:	:	:	:	:	:	:
Public sector employees, gross	:	:	:	:	:	:	:	:	:	:	:
Other pensions (disability, survivors), gross	1.3	1.1	1.2	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
Occupational pensions, gross	:	:	:	:	:	:	:	:	:	:	:
Private mandatory pensions, gross	:	:	:	:	:	:	:	:	:	:	:
Total pension expenditure, gross	:	:	:	:	:	:	:	:	:	:	:
Social security pensions, net	:	:	:	:	:	:	:	:	:	:	:
Total pension expenditure, net	:	:	:	:	:	:	:	:	:	:	:
Social security pensions, contributions	3.6	3.5	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
Total pension contributions	:	:	:	:	:	:	:	:	:	:	:
Social security pensions, assets	7.3	8.0	11.1	14.4	18.1	22.5	26.0	27.9	28.3	26.5	21.9
All pensions, assets	:	:	:	:	:	:	:	:	:	:	:
Additional indicators											
Social security pensions, net / Social sec. pensions, gross,%	:	:	:	:	:	:	:	:	:	:	:
Total pension expenditure, net / Total pension exp., gross, %	:	:	:	:	:	:	:	:	:	:	:
Social security pensions, number of pensioners , 1000 pers.	606	658	721	814	916	1033	1162	1283	1416	1550	1674
All pensions, pensioners , 1000 pers.	:	:	:	:	:	:	:	:	:	:	:
Number of pensioners aged 65+ , 1000 pers.	:	:	:	:	:	:	:	:	:	:	:
Share of pensioners below age 65 as % of all pensioners	:	:	:	:	:	:	:	:	:	:	:
Average gross social sec. pension, 1000€ in 2004 prices	11.4	10.8	14.5	18.2	21.1	23.9	26.0	28.1	30.1	32.4	34.8
Average gross total pensions, 1000€ in 2004 prices	:	:	:	:	:	:	:	:	:	:	:
Output / Worker, 1000€ in 2004 prices	79.8	82.4	97.0	114.9	130.7	144.4	157.8	171.6	186.8	203.4	221.5
Social sec. benefit ratio	14.3	13.1	14.9	15.9	16.2	16.6	16.5	16.4	16.1	15.9	15.7
Total pension benefit ratio	:	:	:	:	:	:	:	:	:	:	:
Social security pensions, num of contributors, in 1000	2661	2733	3003	3175	3317	3445	3541	3585	3557	3489	3437
Average social sec. pension contribution, 1000€ in 2004 prices	2.0	2.0	2.3	2.7	3.0	3.3	3.6	4.0	4.3	4.7	5.1
Average total pension contribution, 1000€ in 2004 prices	:	:	:	:	:	:	:	:	:	:	:
Support ratio (contributors /100 pensioners, social sec. pens.)	439	415	416	390	362	333	305	279	251	225	205
High life expectancy; as % of GDP											
Social security pensions, gross	4.7	4.6	5.2	5.9	6.5	7.3	8.0	8.7	9.5	10.5	11.5
Old-age and early pensions, gross	3.5	3.5	4.0	4.7	5.3	6.0	6.7	7.4	8.2	9.2	10.2
Total pension expenditure, gross	:	:	:	:	:	:	:	:	:	:	:
All pensions, assets	:	:	:	:	:	:	:	:	:	:	:
Higher labour productivity; as % of GDP											
Social security pensions, gross	4.7	4.6	5.2	5.9	6.5	7.3	7.9	8.6	9.4	10.3	11.2
Old-age and early pensions, gross	3.5	3.5	4.0	4.7	5.2	6.0	6.6	7.3	8.1	9.0	9.9
Total pension expenditure, gross	:	:	:	:	:	:	:	:	:	:	:
All pensions, assets	:	:	:	:	:	:	:	:	:	:	:
Lower labour productivity; as % of GDP											
Social security pensions, gross	4.7	4.6	5.2	5.9	6.5	7.2	7.9	8.5	9.3	10.3	11.1
Old-age and early pensions, gross	3.5	3.5	4.0	4.7	5.2	6.0	6.6	7.2	8.0	9.0	9.8
Total pension expenditure, gross	:	:	:	:	:	:	:	:	:	:	:
All pensions, assets	:	:	:	:	:	:	:	:	:	:	:
Higher employment rate (1 p.p.); as % of GDP											
Social security pensions, gross	4.7	4.6	5.2	5.9	6.5	7.2	7.8	8.5	9.3	10.2	11.1
Old-age and early pensions, gross	3.5	3.5	4.0	4.6	5.2	5.9	6.6	7.2	8.0	8.9	9.8
Total pension expenditure, gross	:	:	:	:	:	:	:	:	:	:	:
All pensions, assets	:	:	:	:	:	:	:	:	:	:	:
Higher older workers empl. rate (5 p.p.); as % of GDP											
Social security pensions, gross	4.7	4.6	5.2	5.9	6.5	7.2	7.8	8.5	9.3	10.2	11.0
Old-age and early pensions, gross	3.5	3.5	4.0	4.7	5.2	5.9	6.6	7.2	8.0	8.9	9.8
Total pension expenditure, gross	:	:	:	:	:	:	:	:	:	:	:
All pensions, assets	:	:	:	:	:	:	:	:	:	:	:
Lower interest rate; as % of GDP											
Social security pensions, gross	4.7	4.6	5.2	5.9	6.5	7.2	7.9	8.5	9.3	10.3	11.1
Old-age and early pensions, gross	3.5	3.5	4.0	4.7	5.2	6.0	6.6	7.2	8.0	9.0	9.9
Total pension expenditure, gross	4.7	4.6	5.2	5.9	6.5	7.2	7.9	8.5	9.3	10.3	11.1
All pensions, assets	:	:	:	:	:	:	:	:	:	:	:
Higher interest rate; as % of GDP											
Social security pensions, gross	4.7	4.6	5.2	5.9	6.5	7.2	7.9	8.5	9.3	10.3	11.1
Old-age and early pensions, gross	3.5	3.5	4.0	4.7	5.2	6.0	6.6	7.2	8.0	9.0	9.9
Total pension expenditure, gross	:	:	:	:	:	:	:	:	:	:	:
All pensions, assets	:	:	:	:	:	:	:	:	:	:	:

: = data not provided

Ireland

OTHER AGE-RELATED EXPENDITURES as % of GDP

	2004	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
Health care spending as % of GDP											
Pure ageing scenario	5.3	5.3	5.5	5.7	5.9	6.1	6.4	6.6	6.9	7.1	7.3
Constant health scenario	5.3	5.3	5.3	5.4	5.5	5.6	5.8	6.0	6.1	6.3	6.4
Death-related costs scenario	5.3	5.3	5.4	5.5	5.7	5.9	6.1	6.3	6.5	6.6	6.8
Income elasticity of demand	5.3	5.3	5.6	5.9	6.1	6.4	6.8	7.1	7.3	7.5	7.7
Unit costs - GDP per worker	5.3	5.3	5.2	5.4	5.6	5.8	6.1	6.4	6.8	7.3	7.7
AWG reference scenario	5.3	5.3	5.5	5.7	5.9	6.2	6.4	6.7	6.9	7.1	7.3
Long-term care spending as % of GDP											
Pure ageing scenario	0.6	0.6	0.6	0.6	0.6	0.7	0.8	0.9	1.0	1.2	1.3
Unit costs - GDP per capita	0.6	0.6	0.6	0.6	0.7	0.5	0.8	0.9	1.0	1.1	1.2
Constant disability scenario	0.6	0.6	0.6	0.6	0.6	0.6	0.7	0.8	0.8	0.9	1.0
Increase in formal care	0.6	0.6	0.6	0.7	0.7	0.8	1.0	1.1	1.2	1.4	1.6
AWG reference scenario	0.6	0.6	0.6	0.6	0.6	0.6	0.7	0.8	0.9	1.1	1.2
Number of dependent people (in thousands)											
Pure ageing scenario	91	93	103	118	137	162	193	223	254	287	319
Unit costs - GDP per capita	91	93	103	118	137	81	193	223	254	287	319
Constant disability scenario	91	92	94	83	109	122	138	153	168	184	199
Increase in formal care	91	93	103	118	137	162	193	223	254	287	319
AWG reference scenario	91	92	98	109	123	142	165	188	211	236	259
of which receiving formal care											
Pure ageing scenario	49	50	55	62	72	87	106	125	144	164	184
Unit costs - GDP per capita	49	50	55	62	72	87	106	125	144	164	184
Constant disability scenario	49	50	52	55	60	68	81	92	102	114	124
Increase in formal care	49	52	68	86	109	129	154	180	206	233	259
AWG reference scenario	49	50	54	59	66	78	93	108	123	139	154
of which receiving informal or no care											
Pure ageing scenario	42	43	47	55	65	76	87	98	111	123	135
Unit costs - GDP per capita	42	43	47	55	65	30	87	98	111	123	135
Constant disability scenario	42	42	43	36	49	53	57	61	66	71	75
Increase in formal care	42	41	35	31	29	33	38	43	49	54	60
AWG reference scenario	42	42	45	50	57	64	72	80	88	97	105
Education spending as % of GDP											
Total	4.1	4.0	3.5	3.5	3.4	3.4	3.2	3.0	3.0	3.0	3.1
of which: Transfers	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Primary	1.4	1.3	1.3	1.4	1.3	1.2	1.1	1.0	1.1	1.1	1.2
of which: Transfers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Low secondary	0.7	0.7	0.6	0.6	0.7	0.6	0.6	0.5	0.5	0.6	0.6
of which: Transfers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Upper secondary	0.9	0.8	0.7	0.7	0.7	0.7	0.7	0.6	0.6	0.6	0.6
of which: Transfers	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Tertiary education	1.2	1.1	0.9	0.8	0.8	0.8	0.8	0.8	0.8	0.7	0.8
of which: Transfers	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Number of students (in thousands)											
Total	992	983	983	1029	1065	1061	1021	981	967	977	992
Primary	450	453	494	533	531	502	470	458	469	486	489
Low secondary	174	172	166	179	199	199	189	175	170	174	181
Upper secondary	192	187	170	175	189	200	198	186	175	173	177
Tertiary education	177	171	154	143	146	159	164	161	152	146	145
Memo											
Population aged 15-64 (in thousands)	2738	2771	2908	3008	3113	3216	3284	3311	3281	3220	3166
Unemployment benefit spending as % of GDP	0.7	0.7	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6

Italy

Main demographic and macroeconomic assumptions

(BASELINE SCENARIO)

Budgetary Projection: AWG variant population scenario

	2004	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
Demographic assumptions											
Fertility rate	1.3	1.3	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
Life expectancy at birth											
males	77.3	77.5	78.3	79.1	79.9	80.5	81.1	81.6	82.1	82.4	82.8
females	83.2	83.3	84.0	84.7	85.3	85.9	86.4	86.8	87.2	87.5	87.8
Life expectancy at 65											
males	16.7	16.8	17.3	17.8	18.3	18.8	19.2	19.5	19.8	20.1	20.4
females	20.6	20.7	21.2	21.7	22.2	22.6	23.0	23.3	23.6	23.9	24.1
Net migration (thousand)	150.0	150.0	150.0	150.0	150.0	150.0	150.0	150.0	150.0	150.0	150.0
Net migration as % of population	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.27	0.27	0.28
Population (million)	57.9	58.0	58.5	58.6	58.4	58.0	57.5	56.9	56.1	55.1	53.8
Population aged 0-14 as % of total	14.2	14.2	13.9	13.7	13.0	12.2	11.8	11.6	11.6	11.6	11.5
Prime age population (25-54) as % of total	43.9	43.8	43.1	41.9	39.9	37.5	35.5	34.4	34.0	33.9	33.7
Working age population (15-64) as % of total	66.6	66.3	65.5	64.3	63.8	63.0	61.1	58.5	56.1	54.7	54.6
Elderly population aged 65+ as % of total	19.2	19.5	20.6	22.0	23.2	24.7	27.1	29.9	32.3	33.7	33.9
Very elderly population aged 80 and over as % of total	4.8	5.0	5.8	6.6	7.3	7.7	8.6	9.2	10.1	11.7	13.3
lerly population aged 55+ as % of working age pop.15-64	39.5	40.1	41.9	44.1	46.0	48.4	51.7	55.0	57.3	57.9	56.8
Macroeconomic assumptions											
Real GDP (growth rate)	1.9	1.5	1.9	1.9	1.6	1.2	0.9	0.7	0.8	1.1	1.2
Labour input (growth rate)	1.6	0.8	0.7	0.2	-0.2	-0.5	-0.8	-1.0	-0.9	-0.6	-0.5
Labour productivity (growth rate)	0.3	0.7	1.2	1.7	1.7	1.8	1.7	1.7	1.7	1.7	1.7
TFP (growth rate)	0.2	0.3	0.8	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Capital deepening (contribution to labour productivity growth)	0.1	0.4	0.4	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
GDP per capita (growth rate)	0.9	1.3	1.7	1.9	1.7	1.4	1.1	1.0	1.1	1.5	1.7
GDP in 2004 prices (in billions of euro)	1351	1371	1509	1655	1802	1927	2036	2118	2199	2310	2450
GDP per worker	20.1	20.4	22.2	24.3	26.6	28.6	30.5	32.1	33.8	36.1	39.2
Real interest rate	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Labour force assumptions											
Population growth (working age:15-64)		-0.2	-0.1	-0.3	-0.3	-0.5	-1.0	-1.1	-1.1	-0.7	-0.5
Labour force (thousands)	24148	24180	25209	25395	25393	24871	24116	23026	21935	21157	20609
Participation rate (15-64)	62.6	62.9	65.8	67.4	68.1	68.0	68.6	69.2	69.7	70.2	70.2
young (15-24)	37.2	36.8	37.0	37.3	36.5	37.1	37.8	37.8	37.5	37.2	37.1
prime-age (25-54)	77.4	77.6	80.9	82.2	83.2	83.7	83.9	83.9	84.0	84.1	84.1
older (55-64)	31.2	32.1	36.8	41.7	47.4	50.0	53.2	54.4	54.2	54.8	55.3
oldest (65-71)	5.8	6.1	6.0	7.0	7.2	7.8	8.2	8.1	8.2	7.9	8.0
Employment rate (15-64)	57.4	57.7	61.0	63.0	63.7	63.6	64.2	64.7	65.2	65.6	65.7
Employment rate (15-71)	52.2	52.4	55.3	56.8	57.2	56.8	56.3	55.7	55.8	56.5	57.5
Employment growth (15-64)		0.4	0.7	0.2	-0.2	-0.5	-0.8	-1.0	-0.9	-0.6	-0.5
Unemployment rate (15-64)	8.4	8.2	7.3	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
Dependency ratios:											
Share of older workers	9.0	9.3	10.6	12.2	15.4	18.2	20.4	20.3	18.6	17.6	17.7
Old-age dependency ratio (1)	28.9	29.5	31.4	34.2	36.4	39.2	44.4	51.0	57.6	61.5	62.2
Total dependency ratio (2)	50.2	50.8	52.7	55.5	56.7	58.6	63.6	70.8	78.2	82.7	83.2
Total economic dependency ratio	161.7	161.3	150.1	146.8	145.9	149.4	155.0	164.2	173.5	178.4	179.0
Economic old-age dependency ratio (15-64)	49.2	49.9	50.3	53.0	55.7	60.0	67.1	76.6	85.8	91.5	92.7
Economic old-age dependency ratio (15-71)	48.6	49.3	49.8	52.3	54.9	59.1	65.7	74.8	83.8	89.5	90.9

LEGENDA:

Share of older workers = Population aged 55 to 64 as % of population aged 15-64

Old-age dependency ratio (1) = Population aged 65 and over as a percentage of the population aged 15-64

Total dependency ratio (2) = Population under 15 and over 64 as a percentage of the population aged 15-64

Total economic dependency ratio= Total population less employed as % of employed population (15-64)

Economic old-age dependency ratio (15-64)=Inactive population aged 65+ as % of employed population (15-64)

Economic old-age dependency ratio (15-71)=Inactive population aged 65+ as % of employed population (15-71)

Italy

EPC-AWG Pension expenditure projections

	2004	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
Baseline scenario; as % of GDP											
Social security pensions, gross	14.2	14.3	14.0	13.8	14.0	14.4	15.0	15.6	15.9	15.4	14.7
Old-age and early pensions, gross	13.9	14.0	13.7	13.6	13.7	14.2	14.9	15.5	15.7	15.3	14.5
Of which: earnings-related pensions, gross	13.7	13.7	13.4	13.3	13.4	13.8	14.4	14.9	15.2	14.8	14.0
Private sector employees, gross	10.5	10.5	10.2	10.0	10.0	10.3	10.9	11.4	11.7	11.4	10.8
Public sector employees, gross	3.2	3.3	3.2	3.3	3.4	3.5	3.5	3.5	3.5	3.4	3.2
Other pensions (disability, survivors), gross	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Occupational pensions, gross	:	:	:	:	:	:	:	:	:	:	:
Private mandatory pensions, gross	:	:	:	:	:	:	:	:	:	:	:
Total pension expenditure, gross	14.2	14.3	14.0	13.8	14.0	14.4	15.0	15.6	15.9	15.4	14.7
Social security pensions, net	12.2	12.2	11.9	11.8	11.9	12.3	13.0	13.6	13.8	13.4	12.6
Total pension expenditure, net	12.2	12.2	11.9	11.8	11.9	12.3	13.0	13.6	13.8	13.4	12.6
Social security pensions, contributions	10.2	10.2	10.3	10.4	10.4	10.4	10.3	10.3	10.5	10.6	10.6
Total pension contributions	10.2	10.2	10.3	10.4	10.4	10.4	10.3	10.3	10.5	10.6	10.6
Social security pensions, assets	:	:	:	:	:	:	:	:	:	:	:
All pensions, assets	:	:	:	:	:	:	:	:	:	:	:
Additional indicators											
Social security pensions, net / Social sec. pensions, gross,%	86	86	85	85	85	86	86	87	87	87	86
Total pension expenditure, net / Total pension exp., gross, %	86	86	85	85	85	86	86	87	87	87	86
Social security pensions, number of pensioners , 1000 pers.	15595	15619	15665	16088	16783	17777	19131	20188	20774	20639	20206
All pensions, pensioners , 1000 pers.	15595	15619	15665	16088	16783	17777	19131	20188	20774	20639	20206
Number of pensioners aged 65+ , 1000 pers.	11318	11486	12003	12908	13516	14280	15524	16808	17826	18060	17638
Share of pensioners below age 65 as % of all pensioners	27.4	26.5	23.4	19.8	19.5	19.7	18.9	16.7	14.2	12.5	12.7
Average gross social sec. pension, 1000€ in 2004 prices	12.3	12.5	13.4	14.2	15.0	15.6	16.0	16.4	16.8	17.3	17.8
Average gross total pensions, 1000€ in 2004 prices	12.3	12.5	13.4	14.2	15.0	15.6	16.0	16.4	16.8	17.3	17.8
Output / Worker, 1000€ in 2004 prices	61.8	62.2	64.5	69.7	75.9	82.8	90.3	98.4	107.2	116.8	127.2
Social sec. benefit ratio	20.0	20.1	20.8	20.4	19.8	18.8	17.7	16.7	15.7	14.8	14.0
Total pension benefit ratio	20.0	20.1	20.8	20.4	19.8	18.8	17.7	16.7	15.7	14.8	14.0
Social security pensions, num of contributors, in 1000	22777	22951	24247	24755	24775	24323	23378	22373	21440	20830	20340
Average social sec. pension contribution, 1000€ in 2004 prices	6.0	6.1	6.4	6.9	7.6	8.2	8.9	9.8	10.7	11.7	12.8
Average total pension contribution, 1000€ in 2004 prices	:	:	:	:	:	:	:	:	:	:	:
Support ratio (contributors /100 pensioners, social sec. pens.)	146	147	155	154	148	137	122	111	103	101	101
High life expectancy; as % of GDP											
Social security pensions, gross	14.2	14.3	14.0	13.9	14.1	14.5	15.2	15.8	16.1	15.7	14.9
Old-age and early pensions, gross	13.9	14.0	13.7	13.6	13.8	14.3	15.0	15.6	15.9	15.5	14.8
Total pension expenditure, gross	14.2	14.3	14.0	13.9	14.1	14.5	15.2	15.8	16.1	15.7	14.9
All pensions, assets	:	:	:	:	:	:	:	:	:	:	:
Higher labour productivity; as % of GDP											
Social security pensions, gross	14.2	14.3	14.0	13.7	13.7	14.0	14.6	15.1	15.4	14.9	14.1
Old-age and early pensions, gross	13.9	14.0	13.7	13.5	13.5	13.8	14.4	15.0	15.2	14.7	14.0
Total pension expenditure, gross	14.2	14.3	14.0	13.7	13.7	14.0	14.6	15.1	15.4	14.9	14.1
All pensions, assets	:	:	:	:	:	:	:	:	:	:	:
Lower labour productivity; as % of GDP											
Social security pensions, gross	14.2	14.3	14.0	13.9	14.2	14.7	15.5	16.1	16.5	16.0	15.2
Old-age and early pensions, gross	13.9	14.0	13.7	13.7	14.0	14.5	15.3	16.0	16.3	15.9	15.1
Total pension expenditure, gross	14.2	14.3	14.0	13.9	14.2	14.7	15.5	16.1	16.5	16.0	15.2
All pensions, assets	:	:	:	:	:	:	:	:	:	:	:
Higher employment rate (1 p.p.); as % of GDP											
Social security pensions, gross	14.2	14.3	13.9	13.7	13.9	14.3	14.9	15.5	15.8	15.4	14.7
Old-age and early pensions, gross	13.9	14.0	13.6	13.5	13.6	14.1	14.8	15.4	15.7	15.3	14.5
Total pension expenditure, gross	14.2	14.3	13.9	13.7	13.9	14.3	14.9	15.5	15.8	15.4	14.7
All pensions, assets	:	:	:	:	:	:	:	:	:	:	:
Higher older workers empl. rate (5 p.p.); as % of GDP											
Social security pensions, gross	14.2	14.3	13.9	13.7	13.8	14.2	14.9	15.6	16.0	15.6	14.8
Old-age and early pensions, gross	13.9	14.0	13.6	13.5	13.6	14.0	14.7	15.5	15.8	15.4	14.7
Total pension expenditure, gross	14.2	14.3	13.9	13.7	13.8	14.2	14.9	15.6	16.0	15.6	14.8
All pensions, assets	:	:	:	:	:	:	:	:	:	:	:
Lower interest rate; as % of GDP											
Social security pensions, gross	14.2	14.3	14.0	13.8	14.0	14.4	15.0	15.6	15.9	15.4	14.7
Old-age and early pensions, gross	13.9	14.0	13.7	13.6	13.7	14.2	14.9	15.5	15.7	15.3	14.5
Total pension expenditure, gross	14.2	14.3	14.0	13.8	14.0	14.4	15.0	15.6	15.9	15.4	14.7
All pensions, assets	:	:	:	:	:	:	:	:	:	:	:
Higher interest rate; as % of GDP											
Social security pensions, gross	14.2	14.3	14.0	13.8	14.0	14.4	15.0	15.6	15.9	15.4	14.7
Old-age and early pensions, gross	13.9	14.0	13.7	13.6	13.7	14.2	14.9	15.5	15.7	15.3	14.5
Total pension expenditure, gross	14.2	14.3	14.0	13.8	14.0	14.4	15.0	15.6	15.9	15.4	14.7
All pensions, assets	:	:	:	:	:	:	:	:	:	:	:

: = data not provided

Italy

OTHER AGE-RELATED EXPENDITURES as % of GDP

	2004	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
Health care spending as % of GDP											
Pure ageing scenario	5.8	5.8	6.0	6.1	6.3	6.5	6.7	6.9	7.0	7.1	7.2
Constant health scenario	5.8	5.8	5.8	5.9	6.0	6.1	6.3	6.4	6.5	6.6	6.6
Death-related costs scenario	5.8	5.8	5.9	6.0	6.2	6.3	6.5	6.7	6.8	6.8	6.8
Income elasticity of demand	5.8	5.8	6.0	6.2	6.4	6.7	6.9	7.1	7.3	7.4	7.4
Unit costs - GDP per worker	5.8	5.8	5.7	5.8	5.9	6.2	6.5	7.0	7.4	7.7	7.8
AWG reference scenario	5.8	5.8	6.0	6.1	6.3	6.5	6.7	6.9	7.0	7.1	7.1
Long-term care spending as % of GDP											
Pure ageing scenario	1.5	1.5	1.5	1.6	1.6	1.7	1.8	1.9	2.0	2.2	2.4
Unit costs - GDP per capita	1.5	1.6	1.6	1.7	1.7	1.5	1.8	1.9	2.0	2.1	2.2
Constant disability scenario	1.5	1.5	1.5	1.5	1.5	1.6	1.6	1.7	1.8	1.9	2.0
Increase in formal care	1.5	1.6	1.7	1.9	2.1	2.2	2.3	2.5	2.8	3.0	3.3
AWG reference scenario	1.5	1.5	1.5	1.5	1.6	1.6	1.7	1.8	1.9	2.1	2.2
Number of dependent people (in thousands)											
Pure ageing scenario	2214	2267	2494	2702	2880	3050	3286	3557	3859	4131	4272
Unit costs - GDP per capita	2214	2267	2494	2702	2880	1568	3286	3557	3859	4131	4272
Constant disability scenario	2214	2234	2290	1935	2319	2309	2362	2431	2531	2645	2698
Increase in formal care	2214	2267	2494	2702	2880	3050	3286	3557	3859	4131	4272
AWG reference scenario	2214	2250	2392	2510	2600	2680	2824	2994	3195	3388	3485
of which receiving formal care											
Pure ageing scenario	1126	1155	1274	1392	1485	1570	1703	1835	1976	2114	2201
Unit costs - GDP per capita	1126	1155	1274	1392	1485	1570	1703	1835	1976	2114	2201
Constant disability scenario	1126	1139	1175	1202	1208	1203	1241	1274	1321	1383	1423
Increase in formal care	1126	1211	1597	1957	2266	2399	2589	2799	3030	3243	3360
AWG reference scenario	1126	1147	1225	1297	1346	1386	1472	1554	1648	1749	1812
of which receiving informal or no care											
Pure ageing scenario	1088	1112	1220	1310	1395	1481	1583	1722	1883	2017	2071
Unit costs - GDP per capita	1088	1112	1220	1310	1395	732	1583	1722	1883	2017	2071
Constant disability scenario	1088	1095	1116	922	1112	1106	1121	1157	1210	1262	1275
Increase in formal care	1088	1056	897	745	614	652	697	758	829	888	912
AWG reference scenario	1088	1103	1168	1213	1253	1293	1352	1440	1547	1639	1673
Education spending as % of GDP											
Total	4.3	4.2	3.9	3.8	3.7	3.6	3.5	3.5	3.6	3.7	3.7
of which: Transfers	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Primary	1.2	1.2	1.1	1.1	1.1	1.0	1.0	1.0	1.0	1.1	1.1
of which: Transfers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Low secondary	0.9	0.9	0.8	0.8	0.8	0.8	0.7	0.7	0.8	0.8	0.8
of which: Transfers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Upper secondary	1.3	1.3	1.2	1.1	1.2	1.2	1.1	1.1	1.1	1.1	1.1
of which: Transfers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Tertiary education	0.9	0.9	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
of which: Transfers	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Number of students (in thousands)											
Total	9313	9243	8953	8881	8702	8313	7860	7498	7279	7147	7005
Primary	2766	2753	2836	2836	2652	2449	2325	2273	2254	2227	2155
Low secondary	1857	1834	1747	1807	1784	1658	1536	1469	1442	1433	1412
Upper secondary	2741	2739	2676	2622	2691	2616	2432	2270	2186	2150	2133
Tertiary education	1949	1916	1695	1617	1575	1590	1568	1485	1397	1337	1304
Memo											
Population aged 15-64 (in thousands)	38549	38454	38295	37687	37265	36563	35138	33288	31467	30146	29342
Unemployment benefit spending as % of GDP	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3

Cyprus

Main demographic and macroeconomic assumptions

(BASELINE SCENARIO)

Budgetary Projection: AWG variant population scenario

	2004	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
Demographic assumptions											
Fertility rate	1.5	1.5	1.4	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Life expectancy at birth											
males	76.3	76.5	77.5	78.3	79.0	79.6	80.2	80.7	81.1	81.5	81.9
females	80.8	80.9	81.6	82.3	82.8	83.3	83.7	84.1	84.5	84.8	85.1
Life expectancy at 65											
males	16.2	16.3	16.9	17.4	17.9	18.3	18.7	19.0	19.3	19.6	19.9
females	18.3	18.5	19.0	19.5	19.9	20.3	20.6	20.9	21.2	21.4	21.7
Net migration (thousand)	6.1	6.2	6.3	5.5	4.5	4.5	4.6	4.7	4.8	4.8	4.9
Net migration as % of population	0.83	0.83	0.81	0.67	0.53	0.50	0.50	0.50	0.50	0.50	0.50
Population (million)	0.7	0.7	0.8	0.8	0.9	0.9	0.9	0.9	1.0	1.0	1.0
Population aged 0-14 as % of total	20.0	19.4	16.6	15.2	15.4	15.6	15.3	14.3	13.4	13.1	13.3
Prime age population (25-54) as % of total	42.5	42.6	43.8	43.9	43.5	42.7	41.4	40.1	38.1	36.8	35.9
Working age population (15-64) as % of total	68.1	68.4	70.0	69.5	67.4	65.2	63.8	63.6	63.6	62.9	60.5
Elderly population aged 65+ as % of total	11.9	12.1	13.4	15.3	17.2	19.1	21.0	22.0	22.9	24.0	26.1
Very elderly population aged 80 and over as % of total	2.6	2.7	2.9	3.2	3.8	4.5	5.4	6.3	7.2	8.0	8.2
lerly population aged 55+ as % of working age pop.15-64	0.4	0.5	0.5	0.5	0.6	0.6	0.7	0.7	0.8	0.8	0.9
Macroeconomic assumptions											
Real GDP (growth rate)	3.9	3.3	4.5	4.2	3.4	2.9	2.8	2.2	2.0	1.5	1.2
Labour input (growth rate)	1.9	0.9	1.6	1.2	0.4	0.0	0.1	0.3	0.1	-0.3	-0.5
Labour productivity (growth rate)	1.9	2.4	2.9	3.0	2.9	2.8	2.7	2.0	1.9	1.8	1.7
TFP (growth rate)	1.1	1.2	1.5	1.7	1.7	1.7	1.8	1.3	1.2	1.2	1.1
Capital deepening (contribution to labour productivity growth)	0.8	1.2	1.5	1.3	1.2	1.1	0.9	0.7	0.7	0.6	0.6
GDP per capita (growth rate)	1.7	2.1	3.3	3.1	2.5	2.2	2.3	1.9	1.8	1.3	1.0
GDP in 2004 prices (in billions of euro)	12	13	16	20	24	28	32	36	40	44	47
GDP per worker	16.5	16.8	19.8	23.4	26.8	30.0	33.5	37.2	40.7	43.8	46.2
Real interest rate	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Labour force assumptions											
Population growth (working age:15-64)		1.7	1.5	0.5	0.2	0.0	0.2	0.4	0.2	-0.2	-0.6
Labour force (thousands)	360	371	422	458	474	478	480	485	490	487	476
Participation rate (15-64)	72.3	73.4	76.8	79.6	81.2	81.7	81.6	81.2	80.9	80.4	80.7
young (15-24)	44.1	44.9	45.6	48.1	47.9	45.3	44.2	44.7	45.9	46.9	47.1
prime-age (25-54)	86.9	87.9	91.0	93.0	94.0	94.5	94.6	94.5	94.3	94.2	94.2
older (55-64)	54.6	56.6	62.8	65.5	66.9	67.1	69.0	70.9	72.6	71.0	70.6
oldest (65-71)	15.1	16.2	16.9	17.9	17.4	17.7	17.2	17.0	17.9	18.6	18.8
Employment rate (15-64)	69.2	70.5	73.6	76.2	77.8	78.2	78.2	77.8	77.5	77.0	77.3
Employment rate (15-71)	65.4	66.5	69.1	71.0	71.8	71.7	71.1	71.1	71.0	70.1	69.0
Employment growth (15-64)		3.5	1.6	1.2	0.4	0.0	0.1	0.3	0.1	-0.3	-0.5
Unemployment rate (15-64)	4.2	4.0	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2
Dependency ratios:											
Share of older workers	11.0	11.5	13.3	14.7	15.8	15.7	15.9	17.1	20.1	21.4	21.1
Old-age dependency ratio (1)	17.5	17.7	19.1	22.1	25.5	29.3	32.9	34.7	36.1	38.2	43.2
Total dependency ratio (2)	46.9	46.1	42.8	44.0	48.4	53.3	56.8	57.2	57.2	59.0	65.2
Total economic dependency ratio	112.1	107.4	94.0	88.9	90.7	96.0	100.6	102.0	102.9	106.4	113.6
Economic old-age dependency ratio (15-64)	23.6	23.4	24.1	26.6	30.3	34.8	39.2	41.9	43.8	46.4	51.9
Economic old-age dependency ratio (15-71)	23.2	23.0	23.6	26.0	29.6	33.8	38.1	40.8	42.6	45.0	49.9

LEGENDA:

Share of older workers = Population aged 55 to 64 as % of population aged 15-64

Old-age dependency ratio (1) = Population aged 65 and over as a percentage of the population aged 15-64

Total dependency ratio (2) = Population under 15 and over 64 as a percentage of the population aged 15-64

Total economic dependency ratio= Total population less employed as % of employed population (15-64)

Economic old-age dependency ratio (15-64)=Inactive population aged 65+ as % of employed population (15-64)

Economic old-age dependency ratio (15-71)=Inactive population aged 65+ as % of employed population (15-71)

Cyprus

EPC-AWG Pension expenditure projections

	2004	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
Baseline scenario; as % of GDP											
Social security pensions, gross	6.9	7.0	8.0	8.8	9.9	10.8	12.2	13.5	15.0	16.7	19.8
Old-age and early pensions, gross	6.9	7.0	8.0	8.8	9.9	10.8	12.2	13.5	15.0	16.7	19.8
Of which: earnings-related pensions, gross	:	:	:	:	:	:	:	:	:	:	:
Private sector employees, gross	:	:	:	:	:	:	:	:	:	:	:
Public sector employees, gross	:	:	:	:	:	:	:	:	:	:	:
Other pensions (disability, survivors), gross	:	:	:	:	:	:	:	:	:	:	:
Occupational pensions, gross	:	:	:	:	:	:	:	:	:	:	:
Private mandatory pensions, gross	:	:	:	:	:	:	:	:	:	:	:
Total pension expenditure, gross	6.9	7.0	8.0	8.8	9.9	10.8	12.2	13.5	15.0	16.7	19.8
Social security pensions, net	:	:	:	:	:	:	:	:	:	:	:
Total pension expenditure, net	:	:	:	:	:	:	:	:	:	:	:
Social security pensions, contributions	5.5	5.7	6.4	6.9	7.2	7.2	7.2	7.3	7.4	7.3	7.1
Total pension contributions	5.5	5.7	6.4	6.9	7.2	7.2	7.2	7.3	7.4	7.3	7.1
Social security pensions, assets	39.3	38.7	39.6	39.7	37.9	33.4	25.1	14.7	1.9	:	:
All pensions, assets	39.3	38.7	39.6	39.7	37.9	33.4	25.1	14.7	1.9	:	:
Additional indicators											
Social security pensions, net / Social sec. pensions, gross,%	:	:	:	:	:	:	:	:	:	:	:
Total pension expenditure, net / Total pension exp., gross, %	:	:	:	:	:	:	:	:	:	:	:
Social security pensions, number of pensioners , 1000 pers.	89	91	113	138	166	194	218	232	243	260	293
All pensions, pensioners , 1000 pers.	89	91	113	138	166	194	218	232	243	260	293
Number of pensioners aged 65+ , 1000 pers.	:	:	:	:	:	:	:	:	:	:	:
Share of pensioners below age 65 as % of all pensioners	:	:	:	:	:	:	:	:	:	:	:
Average gross social sec. pension, 1000€ in 2004 prices	9.6	9.8	11.4	12.7	14.2	15.5	17.9	21.0	24.7	28.0	31.4
Average gross total pensions, 1000€ in 2004 prices	9.6	9.8	11.4	12.7	14.2	15.5	17.9	21.0	24.7	28.0	31.4
Output / Worker, 1000€ in 2004 prices	37.5	38.4	39.8	45.7	52.8	60.8	69.6	77.8	85.5	93.5	102.0
Social sec. benefit ratio	25.6	25.6	28.6	27.9	26.9	25.5	25.7	27.0	28.9	29.9	30.8
Total pension benefit ratio	25.6	25.6	28.6	27.9	26.9	25.5	25.7	27.0	28.9	29.9	30.8
Social security pensions, num of contributors, in 1000	344	356	404	438	454	458	459	465	469	467	456
Average social sec. pension contribution, 1000€ in 2004 prices	2.0	2.0	2.5	3.2	3.8	4.4	5.0	5.7	6.3	6.8	7.3
Average total pension contribution, 1000€ in 2004 prices	:	:	:	:	:	:	:	:	:	:	:
Support ratio (contributors /100 pensioners, social sec. pens.)	387	390	359	317	273	235	211	200	193	180	156
High life expectancy; as % of GDP											
Social security pensions, gross	:	:	:	:	:	:	:	:	:	:	:
Old-age and early pensions, gross	:	:	:	:	:	:	:	:	:	:	:
Total pension expenditure, gross	:	:	:	:	:	:	:	:	:	:	:
All pensions, assets	:	:	:	:	:	:	:	:	:	:	:
Higher labour productivity; as % of GDP											
Social security pensions, gross	6.9	7.0	8.0	8.8	9.7	10.6	11.7	12.8	14.1	15.6	18.4
Old-age and early pensions, gross	6.9	7.0	8.0	8.8	9.7	10.6	11.7	12.8	14.1	15.6	18.4
Total pension expenditure, gross	6.9	7.0	8.0	8.8	9.7	10.6	11.7	12.8	14.1	15.6	18.4
All pensions, assets	39.3	38.7	39.5	39.1	36.8	32.1	24.2	14.7	3.4	:	:
Lower labour productivity; as % of GDP											
Social security pensions, gross	6.9	7.0	8.0	8.9	10.0	11.1	12.6	14.1	15.8	17.8	21.4
Old-age and early pensions, gross	6.9	7.0	8.0	8.9	10.0	11.1	12.6	14.1	15.8	17.8	21.4
Total pension expenditure, gross	6.9	7.0	8.0	8.9	10.0	11.1	12.6	14.1	15.8	17.8	21.4
All pensions, assets	39.3	38.7	39.5	39.6	37.4	32.1	22.6	10.4	:	:	:
Higher employment rate (1 p.p.); as % of GDP											
Social security pensions, gross	6.9	7.0	7.9	8.8	9.8	10.8	12.1	13.4	14.9	16.5	19.7
Old-age and early pensions, gross	6.9	7.0	7.9	8.8	9.8	10.8	12.1	13.4	14.9	16.5	19.7
Total pension expenditure, gross	6.9	7.0	7.9	8.8	9.8	10.8	12.1	13.4	14.9	16.5	19.7
All pensions, assets	39.3	38.7	40.0	40.5	39.0	34.4	26.2	15.7	2.7	:	:
Higher older workers empl. rate (5 p.p.); as % of GDP											
Social security pensions, gross	7.3	7.8	10.0	12.2	15.0	18.4	23.2	28.7	35.1	42.5	54.1
Old-age and early pensions, gross	7.3	7.8	10.0	12.2	15.0	18.4	23.2	28.7	35.1	42.5	54.1
Total pension expenditure, gross	7.3	7.8	10.0	12.2	15.0	18.4	23.2	28.7	35.1	42.5	54.1
All pensions, assets	39.3	39.2	42.1	44.0	42.6	35.0	17.3	:	:	:	:
Lower interest rate; as % of GDP											
Social security pensions, gross	6.9	7.0	8.0	8.8	9.9	10.8	12.2	13.5	15.0	16.7	19.8
Old-age and early pensions, gross	6.9	7.0	8.0	8.8	9.9	10.8	12.2	13.5	15.0	16.7	19.8
Total pension expenditure, gross	6.9	7.0	8.0	8.8	9.9	10.8	12.2	13.5	15.0	16.7	19.8
All pensions, assets	:	:	:	:	:	:	:	:	:	:	:
Higher interest rate; as % of GDP											
Social security pensions, gross	6.9	7.0	8.0	8.8	9.9	10.8	12.2	13.5	15.0	16.7	19.8
Old-age and early pensions, gross	6.9	7.0	8.0	8.8	9.9	10.8	12.2	13.5	15.0	16.7	19.8
Total pension expenditure, gross	6.9	7.0	8.0	8.8	9.9	10.8	12.2	13.5	15.0	16.7	19.8
All pensions, assets	:	:	:	:	:	:	:	:	:	:	:

: = data not provided

Cyprus

OTHER AGE-RELATED EXPENDITURES as % of GDP

	2004	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
Health care spending as % of GDP											
Pure ageing scenario	2.9	2.9	3.1	3.2	3.3	3.5	3.6	3.7	3.8	3.9	4.0
Constant health scenario	2.9	2.9	3.0	3.1	3.2	3.3	3.3	3.4	3.5	3.6	3.6
Death-related costs scenario	2.9	2.9	3.0	3.2	3.3	3.3	3.4	3.5	3.6	3.7	3.8
Income elasticity of demand	2.9	2.9	3.1	3.3	3.5	3.6	3.8	3.9	4.0	4.1	4.2
Unit costs - GDP per worker	2.9	2.9	2.9	3.0	3.1	3.4	3.5	3.7	3.8	4.0	4.2
AWG reference scenario	2.9	2.9	3.1	3.3	3.4	3.5	3.6	3.8	3.9	4.0	4.0
Long-term care spending as % of GDP											
Pure ageing scenario	:	:	:	:	:	:	:	:	:	:	:
Unit costs - GDP per capita	:	:	:	:	:	:	:	:	:	:	:
Constant disability scenario	:	:	:	:	:	:	:	:	:	:	:
Increase in formal care	:	:	:	:	:	:	:	:	:	:	:
AWG reference scenario	:	:	:	:	:	:	:	:	:	:	:
Number of dependent people (in thousands)											
Pure ageing scenario	14	15	17	21	25	29	34	38	41	44	47
Unit costs - GDP per capita	14	15	17	21	25	14	34	38	41	44	47
Constant disability scenario	14	15	16	14	19	22	24	26	27	28	29
Increase in formal care	14	15	17	21	25	29	34	38	41	44	47
AWG reference scenario	14	15	16	19	22	25	29	32	34	36	38
of which receiving formal care											
Pure ageing scenario	0	0	0	0	0	0	0	0	0	0	0
Unit costs - GDP per capita	0	0	0	0	0	0	0	0	0	0	0
Constant disability scenario	0	0	0	0	0	0	0	0	0	0	0
Increase in formal care	0	1	5	9	14	16	19	21	23	25	26
AWG reference scenario	0	0	0	0	0	0	0	0	0	0	0
of which receiving informal or no care											
Pure ageing scenario	14	15	17	21	25	29	34	38	41	44	47
Unit costs - GDP per capita	14	15	17	21	25	14	34	38	41	44	47
Constant disability scenario	14	15	16	14	19	22	24	26	27	28	29
Increase in formal care	14	14	13	12	11	13	15	17	18	19	21
AWG reference scenario	14	15	16	19	22	25	29	32	34	36	38
Education spending as % of GDP											
Total	6.3	6.2	5.1	4.3	4.0	4.1	4.3	4.4	4.2	4.0	4.0
of which: Transfers	0.9	0.9	0.8	0.7	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Primary	1.7	1.7	1.3	1.1	1.2	1.2	1.3	1.2	1.1	1.1	1.1
of which: Transfers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Low secondary	1.5	1.5	1.2	0.9	0.9	1.0	1.1	1.1	1.0	0.9	0.9
of which: Transfers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Upper secondary	1.6	1.5	1.4	1.1	0.9	1.0	1.1	1.1	1.1	1.0	1.0
of which: Transfers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Tertiary education	1.5	1.5	1.3	1.1	1.0	0.9	0.9	1.0	1.0	1.0	1.0
of which: Transfers	0.9	0.9	0.8	0.7	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Number of students (in thousands)											
Total	145	143	130	117	116	123	129	130	125	119	117
Primary	62	59	49	48	51	56	57	54	50	48	50
Low secondary	33	34	30	25	25	28	30	30	29	27	26
Upper secondary	32	32	32	27	24	26	28	30	29	27	26
Tertiary education	18	18	18	17	15	14	14	15	16	16	15
Memo											
Population aged 15-64 (in thousands)	497	506	549	575	583	585	588	597	606	606	590
Unemployment benefit spending as % of GDP	0.4	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4

Latvia

Main demographic and macroeconomic assumptions

(BASELINE SCENARIO)

Budgetary Projection: AWG variant population scenario

	2004	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
Demographic assumptions											
Fertility rate	1.3	1.3	1.4	1.5	1.5	1.6	1.6	1.6	1.6	1.6	1.6
Life expectancy at birth											
males	64.9	65.0	65.8	66.8	68.0	69.5	70.9	72.0	72.9	73.6	74.3
females	76.2	76.3	76.9	77.7	78.6	79.5	80.4	81.0	81.6	82.1	82.5
Life expectancy at 65											
males	12.3	12.4	12.8	13.4	14.1	14.9	15.6	16.2	16.7	17.1	17.5
females	16.6	16.7	17.1	17.6	18.2	18.8	19.3	19.8	20.2	20.5	20.7
Net migration (thousand)	-2.1	-2.1	-2.6	-4.1	-0.7	2.5	3.0	3.0	2.9	2.9	2.8
Net migration as % of population	-0.09	-0.09	-0.12	-0.19	-0.03	0.12	0.15	0.15	0.15	0.15	0.15
Population (million)	2.3	2.3	2.2	2.2	2.1	2.1	2.0	2.0	1.9	1.9	1.9
Population aged 0-14 as % of total	15.4	14.8	13.7	15.1	16.2	16.2	15.1	13.8	13.4	14.0	14.8
Prime age population (25-54) as % of total	41.7	41.8	43.0	43.8	43.0	41.1	39.4	38.5	37.3	35.7	35.0
Working age population (15-64) as % of total	68.4	68.6	68.9	67.2	65.5	64.1	63.7	63.9	63.0	61.4	59.1
Elderly population aged 65+ as % of total	16.2	16.5	17.4	17.7	18.4	19.7	21.3	22.3	23.5	24.5	26.1
Very elderly population aged 80 and over as % of total	2.9	3.0	3.9	4.5	5.2	5.4	5.6	6.2	7.2	8.0	8.3
lerly population aged 55+ as % of working age pop.15-64	1.5	1.4	1.4	1.5	1.5	1.6	1.6	1.5	1.6	1.7	1.8
Macroeconomic assumptions											
Real GDP (growth rate)	7.5	8.1	7.4	4.2	2.9	2.4	2.1	1.4	1.2	0.7	0.4
Labour input (growth rate)	1.1	1.5	0.8	-0.6	-1.1	-0.9	-0.6	-0.5	-0.7	-1.1	-1.3
Labour productivity (growth rate)	6.4	6.5	6.5	4.8	4.0	3.3	2.7	2.0	1.9	1.8	1.7
TFP (growth rate)	3.0	3.0	3.3	2.2	2.0	1.9	1.8	1.3	1.2	1.2	1.1
Capital deepening (contribution to labour productivity growth)	3.3	3.5	3.2	2.6	2.0	1.4	0.9	0.7	0.7	0.6	0.6
GDP per capita (growth rate)	8.1	8.7	8.0	4.9	3.4	2.9	2.6	1.9	1.6	1.1	0.8
GDP in 2004 prices (in billions of euro)	11	12	17	22	26	30	33	36	39	41	41
GDP per worker	8.4	9.1	13.6	18.2	22.1	25.6	29.2	32.5	35.4	37.6	39.2
Real interest rate	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Labour force assumptions											
Population growth (working age:15-64)		-0.3	-0.7	-1.3	-1.0	-0.8	-0.4	-0.4	-0.7	-0.9	-1.2
Labour force (thousands)	1112	1121	1168	1157	1097	1043	1005	979	950	907	850
Participation rate (15-64)	70.1	70.8	75.6	79.1	79.2	78.6	78.1	77.4	77.6	77.4	76.8
young (15-24)	39.8	40.4	45.7	48.0	40.9	39.9	40.4	42.0	43.9	44.4	42.5
prime-age (25-54)	87.1	87.8	90.9	92.0	92.8	93.5	93.8	93.6	93.1	92.7	92.9
older (55-64)	48.4	49.8	56.3	61.2	61.6	61.5	63.3	62.9	64.4	63.8	60.5
oldest (65-71)	15.1	16.1	14.6	17.1	17.2	17.6	17.1	17.4	17.6	17.6	18.1
Employment rate (15-64)	63.2	64.4	69.9	73.6	73.7	73.1	72.6	72.0	72.2	71.9	71.4
Employment rate (15-71)	58.5	59.7	64.6	68.6	68.0	66.9	66.0	65.9	65.8	65.3	64.1
Employment growth (15-64)		1.5	0.8	-0.6	-1.1	-0.9	-0.6	-0.5	-0.7	-1.1	-1.3
Unemployment rate (15-64)	9.8	9.1	7.6	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Dependency ratios:											
Share of older workers	11.4	11.5	12.3	14.5	15.9	15.9	16.4	16.9	18.6	20.8	19.6
Old-age dependency ratio (1)	23.6	24.1	25.2	26.3	28.0	30.7	33.4	34.9	37.4	39.9	44.1
Total dependency ratio (2)	46.1	45.7	45.1	48.7	52.7	55.9	57.1	56.5	58.7	62.8	69.1
Total economic dependency ratio	131.3	126.4	107.5	102.1	107.3	113.3	116.4	117.4	119.7	126.2	136.9
Economic old-age dependency ratio (15-64)	35.1	34.9	34.0	33.6	35.6	39.1	42.9	45.5	48.6	52.2	57.8
Economic old-age dependency ratio (15-71)	34.2	34.0	33.3	32.9	34.7	38.0	41.7	44.2	47.1	50.5	55.7

LEGENDA:

Share of older workers = Population aged 55 to 64 as % of population aged 15-64

Old-age dependency ratio (1) = Population aged 65 and over as a percentage of the population aged 15-64

Total dependency ratio (2) = Population under 15 and over 64 as a percentage of the population aged 15-64

Total economic dependency ratio= Total population less employed as % of employed population (15-64)

Economic old-age dependency ratio (15-64)=Inactive population aged 65+ as % of employed population (15-64)

Economic old-age dependency ratio (15-71)=Inactive population aged 65+ as % of employed population (15-71)

Latvia

EPC-AWG Pension expenditure projections

	2004	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
Baseline scenario; as % of GDP											
Social security pensions, gross	6.8	6.4	4.9	4.6	4.9	5.3	5.6	5.9	5.9	5.7	5.6
Old-age and early pensions, gross	5.7	5.7	4.3	4.1	4.3	4.7	4.9	5.2	5.2	5.1	4.9
Of which: earnings-related pensions, gross	5.7	5.7	4.3	4.1	4.3	4.7	4.9	5.2	5.2	5.1	4.9
Private sector employees, gross	:	:	:	:	:	:	:	:	:	:	:
Public sector employees, gross	:	:	:	:	:	:	:	:	:	:	:
Other pensions (disability, survivors), gross	1.1	0.7	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.7	0.6
Occupational pensions, gross	:	:	:	:	:	:	:	:	:	:	:
Private mandatory pensions, gross	0.0	0.0	0.0	0.0	0.1	0.2	0.4	0.7	1.1	1.8	2.7
Total pension expenditure, gross	6.8	6.4	4.9	4.6	5.0	5.6	6.0	6.5	7.0	7.5	8.3
Social security pensions, net	6.7	6.3	4.8	4.6	4.8	5.3	5.6	5.8	5.8	5.7	5.5
Total pension expenditure, net	6.7	6.3	4.8	4.6	4.9	5.5	5.9	6.4	6.9	7.3	8.0
Social security pensions, contributions	7.1	7.9	6.1	5.7	5.6	5.5	5.4	5.4	5.4	5.4	5.4
Total pension contributions	7.3	8.2	8.4	8.3	8.3	8.4	8.4	8.4	8.5	8.5	8.5
Social security pensions, assets	:	0.8	5.2	7.8	9.3	8.7	6.5	3.4	0.2	:	:
All pensions, assets	0.3	1.7	12.9	25.9	38.0	48.2	57.4	64.6	68.8	71.4	71.5
Additional indicators											
Social security pensions, net / Social sec. pensions, gross,%	99	99	99	99	99	99	99	99	99	99	99
Total pension expenditure, net / Total pension exp., gross, %	99	99	99	99	99	99	98	98	98	97	97
Social security pensions, number of pensioners , 1000 pers.	599	592	533	529	544	567	575	583	588	595	611
All pensions, pensioners , 1000 pers.	599	592	533	529	544	567	575	583	588	595	611
Number of pensioners aged 65+ , 1000 pers.	375	386	394	395	400	417	429	434	443	449	467
Share of pensioners below age 65 as % of all pensioners	37.4	34.7	26.1	25.3	26.4	26.5	25.5	25.5	24.6	24.6	23.6
Average gross social sec. pension, 1000€ in 2004 prices	1.2	1.3	1.6	2.0	2.4	2.8	3.3	3.6	3.9	3.9	3.8
Average gross total pensions, 1000€ in 2004 prices	1.2	1.3	1.6	2.0	2.4	2.9	3.5	4.1	4.6	5.1	5.6
Output / Worker, 1000€ in 2004 prices	11.0	11.7	15.9	20.8	25.8	30.8	35.6	39.9	43.9	48.0	52.5
Social sec. benefit ratio	11.4	11.0	9.9	9.4	9.2	9.1	9.1	9.2	8.9	8.1	7.2
Total pension benefit ratio	11.4	11.0	9.9	9.4	9.4	9.5	9.8	10.2	10.6	10.7	10.7
Social security pensions, num of contributors, in 1000	1089	1112	1183	1167	1111	1053	1013	988	963	922	872
Average social sec. pension contribution, 1000€ in 2004 prices	0.7	0.8	0.9	1.1	1.3	1.6	1.8	2.0	2.2	2.4	2.6
Average total pension contribution, 1000€ in 2004 prices	0.7	0.9	1.2	1.6	2.0	2.4	2.8	3.1	3.4	3.7	4.0
Support ratio (contributors /100 pensioners, social sec. pens.)	182	188	222	220	204	186	176	170	164	155	143
High life expectancy; as % of GDP											
Social security pensions, gross	6.8	6.4	4.9	4.7	4.9	5.4	5.7	6.0	6.0	5.9	5.7
Old-age and early pensions, gross	5.7	5.7	4.3	4.1	4.3	4.7	5.0	5.2	5.3	5.2	5.1
Total pension expenditure, gross	6.8	6.4	4.9	4.7	5.0	5.6	6.1	6.6	7.2	7.7	8.4
All pensions, assets	0.3	1.7	12.9	25.9	38.0	48.2	57.3	64.3	68.0	69.9	70.2
Higher labour productivity; as % of GDP											
Social security pensions, gross	6.8	6.4	4.9	4.6	4.8	5.3	5.5	5.8	5.8	5.6	5.4
Old-age and early pensions, gross	5.7	5.7	4.3	4.0	4.2	4.6	4.9	5.1	5.1	4.9	4.8
Total pension expenditure, gross	6.8	6.4	4.9	4.6	4.9	5.5	5.9	6.4	6.9	7.3	8.0
All pensions, assets	0.3	1.7	12.9	25.8	37.8	47.9	56.9	63.9	68.1	70.9	71.4
Lower labour productivity; as % of GDP											
Social security pensions, gross	6.8	6.4	4.9	4.6	4.9	5.4	5.7	6.0	6.0	5.9	5.7
Old-age and early pensions, gross	5.7	5.7	4.3	4.1	4.3	4.8	5.0	5.3	5.3	5.2	5.1
Total pension expenditure, gross	6.8	6.4	4.9	4.6	5.0	5.6	6.1	6.7	7.2	7.8	8.6
All pensions, assets	0.3	1.7	12.9	26.0	38.3	48.7	58.1	65.5	69.7	72.2	72.4
Higher employment rate (1 p.p.); as % of GDP											
Social security pensions, gross	6.8	6.4	4.9	4.6	4.9	5.3	5.6	5.8	5.9	5.7	5.6
Old-age and early pensions, gross	5.7	5.7	4.3	4.0	4.3	4.7	4.9	5.2	5.2	5.1	4.9
Total pension expenditure, gross	6.8	6.4	4.9	4.6	5.0	5.5	6.0	6.5	7.0	7.5	8.2
All pensions, assets	0.3	1.7	13.0	26.0	38.1	48.4	57.6	64.8	69.0	71.7	71.8
Higher older workers empl. rate (5 p.p.); as % of GDP											
Social security pensions, gross	6.8	6.4	4.9	4.6	4.9	5.3	5.6	5.8	5.9	5.7	5.5
Old-age and early pensions, gross	5.7	5.7	4.3	4.0	4.3	4.7	4.9	5.1	5.2	5.0	4.9
Total pension expenditure, gross	6.8	6.4	4.9	4.6	5.0	5.5	6.0	6.5	7.0	7.5	8.2
All pensions, assets	0.3	1.7	12.9	25.9	37.8	47.9	57.0	64.1	68.2	70.6	70.7
Lower interest rate; as % of GDP											
Social security pensions, gross	6.8	6.4	4.9	4.6	4.9	5.3	5.6	5.9	5.9	5.7	5.6
Old-age and early pensions, gross	5.7	5.7	4.3	4.1	4.3	4.7	4.9	5.2	5.2	5.1	4.9
Total pension expenditure, gross	6.8	6.4	4.9	4.6	5.0	5.5	6.0	6.4	6.8	7.2	7.7
All pensions, assets	0.3	1.7	12.7	25.2	36.3	45.3	52.7	57.9	60.4	61.8	61.4
Higher interest rate; as % of GDP											
Social security pensions, gross	6.8	6.4	4.9	4.6	4.9	5.3	5.6	5.9	5.9	5.7	5.6
Old-age and early pensions, gross	5.7	5.7	4.3	4.1	4.3	4.7	4.9	5.2	5.2	5.1	4.9
Total pension expenditure, gross	6.8	6.4	4.9	4.6	5.0	5.6	6.1	6.6	7.3	8.0	9.0
All pensions, assets	0.3	1.7	13.1	26.6	39.8	51.6	62.8	72.3	78.7	82.9	83.5

: = data not provided

Latvia

OTHER AGE-RELATED EXPENDITURES as % of GDP

	2004	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
Health care spending as % of GDP											
Pure ageing scenario	5.1	5.2	5.3	5.4	5.5	5.5	5.6	5.7	5.8	5.9	5.9
Constant health scenario	5.1	5.2	5.3	5.3	5.3	5.2	5.2	5.2	5.3	5.3	5.3
Death-related costs scenario	5.1	5.2	5.3	5.4	5.4	5.4	5.4	5.4	5.5	5.5	5.5
Income elasticity of demand	5.1	5.2	5.6	5.8	6.0	6.0	6.1	6.3	6.4	6.5	6.5
Unit costs - GDP per worker	5.1	5.1	4.8	4.8	4.9	5.1	5.2	5.4	5.5	5.8	6.1
AWG reference scenario	5.1	5.2	5.5	5.8	5.8	5.9	5.9	6.0	6.1	6.2	6.2
Long-term care spending as % of GDP											
Pure ageing scenario	0.4	0.4	0.4	0.5	0.5	0.6	0.6	0.6	0.7	0.8	0.8
Unit costs - GDP per capita	0.4	0.4	0.5	0.5	0.6	0.4	0.6	0.7	0.7	0.8	0.8
Constant disability scenario	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.6	0.6	0.6
Increase in formal care	0.4	0.5	0.9	1.3	1.8	1.9	2.0	2.2	2.5	2.8	3.0
AWG reference scenario	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.6	0.6	0.7	0.7
Number of dependent people (in thousands)											
Pure ageing scenario	65	66	72	74	76	79	82	86	92	96	99
Unit costs - GDP per capita	65	66	72	74	76	39	82	86	92	96	99
Constant disability scenario	65	65	65	52	61	59	58	58	60	61	61
Increase in formal care	65	66	72	74	76	79	82	86	92	96	99
AWG reference scenario	65	66	68	68	69	69	70	72	76	79	80
of which receiving formal care											
Pure ageing scenario	8	9	9	10	10	11	11	12	12	13	13
Unit costs - GDP per capita	8	9	9	10	10	11	11	12	12	13	13
Constant disability scenario	8	9	9	8	8	8	8	8	8	8	8
Increase in formal care	8	12	26	37	47	49	51	53	57	59	61
AWG reference scenario	8	9	9	9	9	9	9	10	10	11	11
of which receiving informal or no care											
Pure ageing scenario	57	58	62	64	66	68	71	75	80	83	85
Unit costs - GDP per capita	57	58	62	64	66	34	71	75	80	83	85
Constant disability scenario	57	57	57	45	53	51	50	50	52	53	52
Increase in formal care	57	55	46	37	29	30	31	33	35	36	38
AWG reference scenario	57	57	59	59	59	59	60	63	66	68	69
Education spending as % of GDP											
Total	4.9	4.6	3.5	3.0	3.2	3.5	3.7	3.6	3.3	3.3	3.5
of which: Transfers	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Primary	0.9	0.8	0.7	0.8	0.9	0.9	0.9	0.8	0.7	0.8	0.9
of which: Transfers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Low secondary	1.7	1.6	1.0	0.9	1.1	1.2	1.3	1.2	1.1	1.0	1.2
of which: Transfers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Upper secondary	1.3	1.3	1.0	0.6	0.7	0.8	0.9	0.9	0.8	0.8	0.8
of which: Transfers	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1
Tertiary education	1.0	0.9	0.8	0.7	0.6	0.6	0.6	0.7	0.7	0.7	0.7
of which: Transfers	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Number of students (in thousands)											
Total	487	468	379	331	329	343	345	325	297	280	280
Primary	93	85	80	87	95	97	88	75	69	72	77
Low secondary	168	157	100	96	105	115	117	106	91	84	88
Upper secondary	107	107	87	57	56	62	68	69	61	53	50
Tertiary education	119	118	112	91	73	69	71	75	76	71	64
Memo											
Population aged 15-64 (in thousands)	1587	1582	1544	1462	1385	1326	1287	1264	1224	1173	1108
Unemployment benefit spending as % of GDP	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2

Lithuania

Main demographic and macroeconomic assumptions

(BASELINE SCENARIO)

Budgetary Projection: AWG variant population scenario

	2004	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
Demographic assumptions											
Fertility rate	1.3	1.3	1.3	1.4	1.4	1.5	1.6	1.6	1.6	1.6	1.6
Life expectancy at birth											
males	66.5	66.7	67.4	68.4	69.6	71.0	72.3	73.4	74.3	74.9	75.5
females	77.6	77.7	78.5	79.3	80.1	81.0	81.8	82.4	82.9	83.4	83.7
Life expectancy at 65											
males	13.3	13.3	13.5	14.0	14.6	15.4	16.1	16.7	17.1	17.5	17.9
females	17.4	17.5	17.9	18.4	19.0	19.6	20.1	20.5	20.9	21.2	21.5
Net migration (thousand)	-5.6	-5.6	-6.0	-6.4	-1.2	3.8	4.6	4.6	4.5	4.4	4.3
Net migration as % of population	-0.16	-0.16	-0.18	-0.20	-0.04	0.12	0.15	0.15	0.15	0.15	0.15
Population (million)	3.4	3.4	3.3	3.3	3.2	3.1	3.1	3.0	3.0	2.9	2.9
Population aged 0-14 as % of total	17.7	17.1	14.9	14.5	15.0	15.1	14.7	13.9	13.4	13.3	13.7
Prime age population (25-54) as % of total	41.8	41.9	43.1	43.8	43.2	42.0	40.4	39.4	37.9	36.0	34.6
Working age population (15-64) as % of total	67.3	67.6	69.0	68.9	67.5	65.7	63.9	63.1	62.2	61.4	59.6
Elderly population aged 65+ as % of total	15.0	15.2	16.1	16.7	17.5	19.2	21.4	23.0	24.4	25.3	26.7
Very elderly population aged 80 and over as % of total	2.8	3.0	3.8	4.5	5.0	5.2	5.5	6.1	7.2	8.6	9.2
lerly population aged 55+ as % of working age pop.15-64	2.2	2.2	2.0	2.0	2.2	2.3	2.4	2.4	2.5	2.6	2.7
Macroeconomic assumptions											
Real GDP (growth rate)	6.3	6.7	6.1	4.2	3.0	2.2	1.9	1.3	1.3	0.9	0.4
Labour input (growth rate)	0.1	0.4	1.1	0.2	-0.6	-0.9	-0.8	-0.7	-0.6	-0.9	-1.3
Labour productivity (growth rate)	6.1	6.3	5.1	4.0	3.6	3.2	2.7	2.0	1.9	1.8	1.7
TFP (growth rate)	3.1	3.1	2.8	2.0	1.9	1.8	1.8	1.3	1.2	1.2	1.1
Capital deepening (contribution to labour productivity growth)	3.0	3.2	2.3	2.0	1.7	1.3	1.0	0.7	0.7	0.6	0.6
GDP per capita (growth rate)	6.8	7.2	6.7	4.8	3.4	2.5	2.2	1.6	1.7	1.3	0.9
GDP in 2004 prices (in billions of euro)	18	19	26	33	40	45	50	53	57	60	62
GDP per worker	8.8	9.4	13.2	17.3	21.0	24.1	27.0	29.6	32.1	34.5	36.3
Real interest rate	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Labour force assumptions											
Population growth (working age:15-64)		0.0	-0.2	-0.8	-0.8	-0.9	-0.7	-0.6	-0.5	-0.7	-1.2
Labour force (thousands)	1638	1652	1705	1721	1695	1626	1554	1499	1454	1401	1324
Participation rate (15-64)	70.6	71.2	73.8	76.7	78.9	79.0	78.6	78.1	78.0	77.6	77.1
young (15-24)	30.3	30.2	33.0	35.0	33.6	31.4	30.9	31.3	32.3	33.0	32.7
prime-age (25-54)	89.8	90.7	92.3	92.8	93.3	93.8	94.1	94.0	93.8	93.5	93.4
older (55-64)	52.3	53.3	57.5	62.7	68.3	67.9	68.9	68.6	70.6	70.3	68.4
oldest (65-71)	7.5	7.7	9.2	9.5	10.3	11.4	10.7	10.7	10.6	10.9	11.4
Employment rate (15-64)	62.2	63.3	67.3	71.3	73.4	73.4	73.1	72.6	72.6	72.2	71.7
Employment rate (15-71)	57.3	58.3	62.3	66.3	67.5	66.8	65.4	65.2	65.1	65.0	63.7
Employment growth (15-64)		1.7	1.1	0.2	-0.6	-0.9	-0.8	-0.7	-0.6	-0.9	-1.3
Unemployment rate (15-64)	11.9	11.2	8.9	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Dependency ratios:											
Share of older workers	11.2	11.4	12.0	14.4	17.6	18.1	18.1	17.9	19.6	22.2	22.7
Old-age dependency ratio (1)	22.3	22.5	23.4	24.2	26.0	29.2	33.4	36.5	39.3	41.2	44.9
Total dependency ratio (2)	48.6	47.8	44.9	45.2	48.2	52.2	56.5	58.6	60.7	62.9	67.8
Total economic dependency ratio	138.9	133.7	115.3	103.6	101.9	107.3	114.0	118.4	121.4	125.7	134.1
Economic old-age dependency ratio (15-64)	34.8	34.5	33.5	32.8	34.0	37.9	43.7	48.3	52.1	55.1	60.2
Economic old-age dependency ratio (15-71)	34.4	34.1	33.1	32.4	33.5	37.2	42.8	47.3	51.1	54.0	58.7

LEGENDA:

Share of older workers = Population aged 55 to 64 as % of population aged 15-64

Old-age dependency ratio (1) = Population aged 65 and over as a percentage of the population aged 15-64

Total dependency ratio (2) = Population under 15 and over 64 as a percentage of the population aged 15-64

Total economic dependency ratio= Total population less employed as % of employed population (15-64)

Economic old-age dependency ratio (15-64)=Inactive population aged 65+ as % of employed population (15-64)

Economic old-age dependency ratio (15-71)=Inactive population aged 65+ as % of employed population (15-71)

Lithuania

EPC-AWG Pension expenditure projections

	2004	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
Baseline scenario; as % of GDP											
Social security pensions, gross	6.7	6.7	6.6	6.6	7.0	7.6	7.9	8.1	8.2	8.3	8.6
Old-age and early pensions, gross	5.7	5.7	5.6	5.6	6.0	6.5	6.8	6.9	7.0	7.1	7.3
Of which: earnings-related pensions, gross	5.4	5.3	5.3	5.4	5.8	6.3	6.7	6.8	6.9	7.0	7.2
Private sector employees, gross	:	:	:	:	:	:	:	:	:	:	:
Public sector employees, gross	:	:	:	:	:	:	:	:	:	:	:
Other pensions (disability, survivors), gross	1.0	1.0	1.0	1.0	1.0	1.1	1.1	1.1	1.2	1.2	1.2
Occupational pensions, gross	:	:	:	:	:	:	:	:	:	:	:
Private mandatory pensions, gross	0.0	0.0	0.0	0.0	0.1	0.2	0.4	0.7	1.0	1.4	1.8
Total pension expenditure, gross	6.7	6.7	6.6	6.6	7.1	7.8	8.3	8.8	9.2	9.7	10.4
Social security pensions, net	6.7	6.7	6.6	6.6	7.0	7.6	7.9	8.1	8.2	8.3	8.6
Total pension expenditure, net	6.7	6.7	6.6	6.6	7.1	7.8	8.3	8.8	9.2	9.7	10.4
Social security pensions, contributions	6.8	6.7	6.3	6.2	6.1	5.9	6.0	6.0	6.1	6.1	6.1
Total pension contributions	7.1	7.1	7.2	7.3	7.3	7.4	7.5	7.6	7.7	7.7	7.7
Social security pensions, assets	:	:	:	:	:	:	:	:	:	:	:
All pensions, assets	0.3	0.7	4.3	8.6	14.0	20.7	27.9	35.0	41.5	47.2	52.7
Additional indicators											
Social security pensions, net / Social sec. pensions, gross,%	100	100	100	100	100	100	100	100	100	100	100
Total pension expenditure, net / Total pension exp., gross, %	100	100	100	100	100	100	100	100	100	100	100
Social security pensions, number of pensioners , 1000 pers.	1248	1260	1292	1295	1314	1335	1357	1376	1388	1398	1402
All pensions, pensioners , 1000 pers.	:	:	:	:	:	:	:	:	:	:	:
Number of pensioners aged 65+ , 1000 pers.	:	:	:	:	:	:	:	:	:	:	:
Share of pensioners below age 65 as % of all pensioners	:	:	:	:	:	:	:	:	:	:	:
Average gross social sec. pension, 1000€ in 2004 prices	1.0	1.0	1.3	1.7	2.1	2.5	2.9	3.1	3.4	3.6	3.8
Average gross total pensions, 1000€ in 2004 prices	:	:	:	:	:	:	:	:	:	:	:
Output / Worker, 1000€ in 2004 prices	12.6	13.4	16.8	20.9	25.2	29.7	34.3	38.3	42.2	46.2	50.4
Social sec. benefit ratio	7.7	7.6	7.9	8.1	8.4	8.6	8.4	8.2	8.0	7.7	7.5
Total pension benefit ratio	:	:	:	:	:	:	:	:	:	:	:
Social security pensions, num of contributors, in 1000	1350	1371	1442	1464	1416	1339	1284	1246	1216	1171	1112
Average social sec. pension contribution, 1000€ in 2004 prices	0.9	0.9	1.1	1.4	1.7	2.0	2.3	2.6	2.9	3.1	3.4
Average total pension contribution, 1000€ in 2004 prices	:	:	:	:	:	:	:	:	:	:	:
Support ratio (contributors /100 pensioners, social sec. pens.)	108	109	112	113	108	100	95	91	88	84	79
High life expectancy; as % of GDP											
Social security pensions, gross	7.2	6.8	6.8	6.9	7.4	8.0	8.5	8.7	8.9	9.1	9.5
Old-age and early pensions, gross	6.0	5.7	5.6	5.7	6.1	6.7	7.0	7.2	7.3	7.5	7.7
Total pension expenditure, gross	7.2	6.8	6.8	6.9	7.5	8.2	8.8	9.3	9.8	10.5	11.3
All pensions, assets	0.3	0.7	4.3	8.7	14.2	21.1	28.5	35.7	42.5	48.5	54.2
Higher labour productivity; as % of GDP											
Social security pensions, gross	7.0	6.7	6.6	6.6	7.0	7.6	7.9	8.0	8.1	8.3	8.5
Old-age and early pensions, gross	5.7	5.7	5.6	5.6	6.0	6.5	6.8	6.9	7.0	7.1	7.3
Total pension expenditure, gross	7.0	6.7	6.6	6.6	7.1	7.8	8.3	8.7	9.1	9.6	10.3
All pensions, assets	0.3	0.7	4.3	8.6	14.0	20.8	28.1	35.1	41.6	47.5	53.0
Lower labour productivity; as % of GDP											
Social security pensions, gross	7.0	6.7	6.6	6.6	7.0	7.6	8.0	8.1	8.3	8.4	8.7
Old-age and early pensions, gross	5.7	5.7	5.6	5.6	6.0	6.5	6.9	7.0	7.1	7.2	7.5
Total pension expenditure, gross	7.0	6.7	6.6	6.6	7.1	7.8	8.4	8.8	9.3	9.8	10.6
All pensions, assets	0.3	0.7	4.3	8.6	14.0	20.8	28.0	35.0	41.5	47.4	53.0
Higher employment rate (1 p.p.); as % of GDP											
Social security pensions, gross	7.0	6.7	6.6	6.6	7.0	7.6	7.9	8.1	8.2	8.3	8.6
Old-age and early pensions, gross	5.7	5.7	5.6	5.6	6.0	6.5	6.8	6.9	7.0	7.1	7.4
Total pension expenditure, gross	7.0	6.7	6.6	6.6	7.1	7.8	8.3	8.8	9.2	9.7	10.4
All pensions, assets	0.3	0.7	4.3	8.6	14.0	20.8	28.1	35.1	41.6	47.4	52.9
Higher older workers empl. rate (5 p.p.); as % of GDP											
Social security pensions, gross	7.0	6.7	6.6	6.5	7.0	7.5	7.9	8.0	8.1	8.2	8.5
Old-age and early pensions, gross	5.7	5.7	5.6	5.6	6.0	6.5	6.8	6.9	7.0	7.1	7.3
Total pension expenditure, gross	7.0	6.7	6.6	6.6	7.1	7.8	8.3	8.8	9.2	9.7	10.2
All pensions, assets	0.3	0.7	4.3	8.6	14.0	20.7	27.9	34.9	41.4	47.1	52.5
Lower interest rate; as % of GDP											
Social security pensions, gross	6.7	6.7	6.6	6.6	7.0	7.6	7.9	8.1	8.2	8.3	8.6
Old-age and early pensions, gross	5.7	5.7	5.6	5.6	6.0	6.5	6.8	6.9	7.0	7.1	7.3
Total pension expenditure, gross	6.7	6.7	6.6	6.6	7.1	7.7	8.2	8.6	9.0	9.4	10.0
All pensions, assets	0.3	0.7	4.2	8.3	13.2	19.2	25.4	31.3	36.6	41.3	45.6
Higher interest rate; as % of GDP											
Social security pensions, gross	6.7	6.7	6.6	6.6	7.0	7.6	7.9	8.1	8.2	8.3	8.6
Old-age and early pensions, gross	5.7	5.7	5.6	5.6	6.0	6.5	6.8	6.9	7.0	7.1	7.3
Total pension expenditure, gross	6.7	6.7	6.6	6.6	7.1	7.8	8.4	8.9	9.4	10.1	10.9
All pensions, assets	0.3	0.7	4.4	9.0	14.9	22.4	30.8	39.2	47.1	54.3	61.1

: = data not provided

Lithuania

OTHER AGE-RELATED EXPENDITURES as % of GDP

	2004	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
Health care spending as % of GDP											
Pure ageing scenario	3.7	3.7	3.8	4.0	4.0	4.1	4.1	4.2	4.3	4.3	4.4
Constant health scenario	3.7	3.7	3.8	3.9	3.9	3.9	3.9	3.9	4.0	4.0	4.0
Death-related costs scenario	3.7	3.7	3.8	3.9	4.0	4.0	4.0	4.0	4.1	4.1	4.1
Income elasticity of demand	3.7	3.7	4.0	4.2	4.3	4.4	4.5	4.6	4.7	4.8	4.8
Unit costs - GDP per worker	3.7	3.7	3.5	3.4	3.5	3.6	3.8	3.9	4.1	4.2	4.4
AWG reference scenario	3.7	3.7	4.0	4.2	4.3	4.3	4.4	4.4	4.5	4.6	4.6
Long-term care spending as % of GDP											
Pure ageing scenario	0.5	0.5	0.6	0.6	0.6	0.6	0.7	0.7	0.8	0.9	1.0
Unit costs - GDP per capita	0.5	0.6	0.6	0.7	0.7	0.5	0.7	0.8	0.8	0.9	1.0
Constant disability scenario	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.6	0.7	0.7	0.8
Increase in formal care	0.5	0.6	0.7	0.8	0.9	0.9	1.0	1.1	1.2	1.4	1.5
AWG reference scenario	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.8	0.9
Number of dependent people (in thousands)											
Pure ageing scenario	103	105	115	121	125	131	141	154	167	178	184
Unit costs - GDP per capita	103	105	115	121	125	65	141	154	167	178	184
Constant disability scenario	103	103	105	85	100	98	100	103	109	114	114
Increase in formal care	103	105	115	121	125	131	141	154	167	178	184
AWG reference scenario	103	104	110	112	112	115	120	128	138	146	149
of which receiving formal care											
Pure ageing scenario	29	30	33	35	36	38	41	44	49	52	54
Unit costs - GDP per capita	29	30	33	35	36	38	41	44	49	52	54
Constant disability scenario	29	29	30	30	29	29	29	30	33	34	35
Increase in formal care	29	33	55	72	86	90	97	106	115	122	127
AWG reference scenario	29	29	32	32	33	33	35	37	41	43	44
of which receiving informal or no care											
Pure ageing scenario	74	76	82	86	89	93	101	109	119	125	129
Unit costs - GDP per capita	74	76	82	86	89	45	101	109	119	125	129
Constant disability scenario	74	74	75	60	71	69	70	73	77	80	80
Increase in formal care	74	72	60	49	39	41	44	48	52	55	57
AWG reference scenario	74	75	79	79	80	81	86	91	98	102	105
Education spending as % of GDP											
Total	5.0	4.9	4.2	3.5	3.2	3.2	3.3	3.4	3.3	3.3	3.3
of which: Transfers	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Primary	0.9	0.9	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
of which: Transfers	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Low secondary	1.8	1.8	1.3	1.1	1.0	1.1	1.2	1.2	1.1	1.1	1.1
of which: Transfers	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Upper secondary	0.7	0.7	0.6	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
of which: Transfers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Tertiary education	1.5	1.5	1.5	1.3	1.1	1.0	1.0	1.1	1.1	1.1	1.1
of which: Transfers	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Number of students (in thousands)											
Total	792	777	678	581	528	518	519	508	482	455	440
Primary	170	161	134	127	131	134	130	119	109	107	108
Low secondary	330	320	249	205	192	198	203	198	183	169	164
Upper secondary	121	121	114	86	70	69	71	73	71	65	61
Tertiary education	172	176	182	163	136	117	115	117	119	115	107
Memo											
Population aged 15-64 (in thousands)	2319	2320	2308	2243	2148	2059	1976	1920	1863	1805	1717
Unemployment benefit spending as % of GDP	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

Luxembourg

Main demographic and macroeconomic assumptions

(BASELINE SCENARIO)

Budgetary Projection: AWG variant population scenario

	2004	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
Demographic assumptions											
Fertility rate	1.7	1.7	1.7	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
Life expectancy at birth											
males	75.0	75.2	76.4	77.5	78.4	79.3	79.9	80.5	81.0	81.4	81.8
females	81.4	81.5	82.4	83.2	83.9	84.6	85.1	85.6	86.0	86.4	86.7
Life expectancy at 65											
males	15.7	15.9	16.5	17.1	17.7	18.2	18.7	19.0	19.4	19.7	19.9
females	19.6	19.8	20.3	20.9	21.4	21.9	22.3	22.6	22.9	23.2	23.4
Net migration (thousand)	2.9	2.9	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
Net migration as % of population	0.63	0.64	0.59	0.57	0.54	0.51	0.49	0.47	0.46	0.44	0.43
Population (million)	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.6
Population aged 0-14 as % of total	18.8	18.7	17.9	17.2	17.0	17.1	17.3	17.3	17.0	16.7	16.6
Prime age population (25-54) as % of total	45.5	45.3	44.2	42.8	41.3	39.8	38.9	38.6	38.5	38.4	38.2
Working age population (15-64) as % of total	67.1	67.1	67.5	67.4	66.6	64.9	62.8	61.2	60.7	61.0	61.3
Elderly population aged 65+ as % of total	14.1	14.2	14.6	15.4	16.5	18.0	19.8	21.5	22.3	22.3	22.1
Very elderly population aged 80 and over as % of total	3.1	3.2	3.9	4.2	4.4	4.6	5.1	5.8	6.7	7.6	8.3
lerly population aged 55+ as % of working age pop.15-64	0.3	0.3	0.3	0.3	0.4	0.4	0.5	0.5	0.5	0.5	0.5
Macroeconomic assumptions											
Real GDP (growth rate)	4.0	4.0	3.9	3.1	2.7	2.9	3.0	3.0	3.0	3.0	3.0
Labour input (growth rate)	2.9	2.6	1.6	1.0	0.8	1.1	1.3	1.3	1.3	1.3	1.3
Labour productivity (growth rate)	1.1	1.4	2.3	2.1	1.9	1.8	1.7	1.7	1.7	1.7	1.7
TFP (growth rate)	0.5	0.6	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Capital deepening (contribution to labour productivity growth)	0.6	0.8	1.2	1.0	0.8	0.7	0.6	0.6	0.6	0.6	0.6
GDP per capita (growth rate)	3.2	3.0	2.9	2.2	1.8	2.0	2.1	2.3	2.4	2.4	2.5
GDP in 2004 prices (in billions of euro)	26	27	32	38	44	51	58	68	78	91	105
GDP per worker	39.3	40.4	47.0	53.0	58.2	64.2	71.1	79.4	89.1	100.3	113.2
Real interest rate	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Labour force assumptions											
Population growth (working age:15-64)		1.0	1.1	0.8	0.5	0.3	0.1	0.3	0.6	0.7	0.6
Labour force (thousands)	199	202	217	228	236	239	242	247	254	262	269
Participation rate (15-64)	65.5	66.0	67.2	67.8	67.9	67.8	67.9	68.4	68.6	68.5	68.3
young (15-24)	28.2	27.6	28.0	28.9	29.6	29.5	28.9	28.5	28.5	28.8	29.1
prime-age (25-54)	82.4	83.2	86.0	87.2	87.7	88.1	88.3	88.2	88.2	88.2	88.1
older (55-64)	31.7	32.9	35.7	39.5	41.1	40.5	39.7	40.4	41.6	42.1	42.2
oldest (65-71)	3.2	2.9	2.8	3.1	3.2	3.3	3.3	3.3	3.3	3.3	3.3
Employment rate (15-64)	63.0	63.3	64.4	64.9	65.1	64.9	65.0	65.5	65.7	65.6	65.4
Employment rate (15-71)	58.4	58.7	59.6	59.8	59.3	58.6	58.0	58.0	58.7	59.4	59.3
Employment growth (15-64)		1.5	1.3	0.9	0.5	0.2	0.2	0.5	0.6	0.6	0.5
Unemployment rate (15-64)	3.8	4.0	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2
Dependency ratios:											
Share of older workers	7.3	7.6	8.8	10.5	11.9	12.5	11.9	11.0	10.8	11.1	11.6
Old-age dependency ratio (1)	21.0	21.2	21.6	22.8	24.7	27.7	31.6	35.1	36.7	36.6	36.1
Total dependency ratio (2)	49.0	49.0	48.1	48.3	50.2	54.1	59.1	63.3	64.7	64.0	63.3
Total economic dependency ratio	136.5	135.2	130.0	128.4	130.9	137.3	144.8	149.4	150.5	149.8	149.5
Economic old-age dependency ratio (15-64)	32.9	33.0	33.1	34.7	37.5	42.1	47.9	53.0	55.3	55.2	54.7
Economic old-age dependency ratio (15-71)	32.8	32.9	33.0	34.5	37.3	41.8	47.6	52.6	54.9	54.9	54.4

LEGENDA:

Share of older workers = Population aged 55 to 64 as % of population aged 15-64

Old-age dependency ratio (1) = Population aged 65 and over as a percentage of the population aged 15-64

Total dependency ratio (2) = Population under 15 and over 64 as a percentage of the population aged 15-64

Total economic dependency ratio= Total population less employed as % of employed population (15-64)

Economic old-age dependency ratio (15-64)=Inactive population aged 65+ as % of employed population (15-64)

Economic old-age dependency ratio (15-71)=Inactive population aged 65+ as % of employed population (15-71)

Luxembourg

EPC-AWG Pension expenditure projections

	2004	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
Baseline scenario; as % of GDP											
Social security pensions, gross	10.0	10.0	9.8	10.9	11.9	13.7	15.0	16.4	17.0	17.7	17.4
Old-age and early pensions, gross	6.1	6.1	6.1	7.0	8.1	9.8	11.3	12.7	13.4	14.0	13.9
Of which: earnings-related pensions, gross	:	:	:	:	:	:	:	:	:	:	:
Private sector employees, gross	4.5	4.5	4.6	5.4	6.4	8.1	9.7	11.1	11.8	12.6	12.5
Public sector employees, gross	1.6	1.6	1.5	1.6	1.7	1.7	1.6	1.6	1.5	1.5	1.4
Other pensions (disability, survivors), gross	3.9	3.9	3.7	3.9	3.9	3.9	3.7	3.7	3.6	3.6	3.5
Occupational pensions, gross	:	:	:	:	:	:	:	:	:	:	:
Private mandatory pensions, gross	:	:	:	:	:	:	:	:	:	:	:
Total pension expenditure, gross	10.0	10.0	9.8	10.9	11.9	13.7	15.0	16.4	17.0	17.7	17.4
Social security pensions, net	9.0	9.0	8.9	9.8	10.8	12.4	13.6	14.9	15.5	16.1	15.9
Total pension expenditure, net	9.0	9.0	8.9	9.8	10.8	12.4	13.6	14.9	15.5	16.1	15.9
Social security pensions, contributions	9.9	9.9	10.0	10.1	10.1	10.1	10.0	10.0	10.0	10.0	10.0
Total pension contributions	9.9	9.9	10.0	10.1	10.1	10.1	10.0	10.0	10.0	10.0	10.0
Social security pensions, assets	23.6	24.8	31.7	37.4	39.2	32.9	17.8	:	:	:	:
All pensions, assets	23.6	24.8	31.7	37.4	39.2	32.9	17.8	:	:	:	:
Additional indicators											
Social security pensions, net / Social sec. pensions, gross,%	90	90	90	90	91	91	91	91	91	91	92
Total pension expenditure, net / Total pension exp., gross, %	90	90	90	90	91	91	91	91	91	91	92
Social security pensions, number of pensioners , 1000 pers.	128	130	142	158	178	204	235	265	293	315	335
All pensions, pensioners , 1000 pers.	128	130	142	158	178	204	235	265	293	315	335
Number of pensioners aged 65+ , 1000 pers.	88	90	96	104	116	132	156	187	216	237	253
Share of pensioners below age 65 as % of all pensioners	31.1	30.9	32.7	34.1	34.8	35.2	33.5	29.6	26.2	24.8	24.4
Average gross social sec. pension, 1000€ in 2004 prices	20.1	20.6	22.4	26.2	29.4	33.9	37.2	41.8	45.5	50.9	54.8
Average gross total pensions, 1000€ in 2004 prices	20.1	20.6	22.4	26.2	29.4	33.9	37.2	41.8	45.5	50.9	54.8
Output / Worker, 1000€ in 2004 prices	85.3	86.5	95.6	106.4	117.5	128.6	140.0	152.2	165.5	179.9	195.6
Social sec. benefit ratio	23.5	23.8	23.4	24.7	25.0	26.4	26.6	27.5	27.5	28.3	28.0
Total pension benefit ratio	23.5	23.8	23.4	24.7	25.0	26.4	26.6	27.5	27.5	28.3	28.0
Social security pensions, num of contributors, in 1000	307	314	344	364	378	398	421	448	477	508	541
Average social sec. pension contribution, 1000€ in 2004 prices	8.3	8.4	9.4	10.6	11.8	12.8	13.9	15.0	16.4	17.9	19.5
Average total pension contribution, 1000€ in 2004 prices	:	:	:	:	:	:	:	:	:	:	:
Support ratio (contributors /100 pensioners, social sec. pens.)	240	242	242	230	212	195	179	169	163	161	162
High life expectancy; as % of GDP											
Social security pensions, gross	:	:	:	:	:	:	:	:	:	:	:
Old-age and early pensions, gross	:	:	:	:	:	:	:	:	:	:	:
Total pension expenditure, gross	:	:	:	:	:	:	:	:	:	:	:
All pensions, assets	:	:	:	:	:	:	:	:	:	:	:
Higher labour productivity; as % of GDP											
Social security pensions, gross	10.0	10.0	9.8	10.8	11.8	13.6	14.9	16.3	16.9	17.6	17.3
Old-age and early pensions, gross	6.1	6.1	6.1	7.0	8.0	9.8	11.2	12.7	13.3	14.0	13.8
Total pension expenditure, gross	10.0	10.0	9.8	10.8	11.8	13.6	14.9	16.3	16.9	17.6	17.3
All pensions, assets	23.6	24.8	31.6	37.2	38.9	32.4	17.4	:	:	:	:
Lower labour productivity; as % of GDP											
Social security pensions, gross	10.0	10.0	9.8	10.9	12.0	13.8	15.1	16.5	17.1	17.7	17.5
Old-age and early pensions, gross	6.1	6.1	6.1	7.0	8.1	9.9	11.4	12.8	13.4	14.1	14.0
Total pension expenditure, gross	10.0	10.0	9.8	10.9	12.0	13.8	15.1	16.5	17.1	17.7	17.5
All pensions, assets	23.6	24.8	31.7	37.6	39.6	33.4	18.3	:	:	:	:
Higher employment rate (1 p.p.); as % of GDP											
Social security pensions, gross	:	:	:	:	:	:	:	:	:	:	:
Old-age and early pensions, gross	:	:	:	:	:	:	:	:	:	:	:
Total pension expenditure, gross	:	:	:	:	:	:	:	:	:	:	:
All pensions, assets	:	:	:	:	:	:	:	:	:	:	:
Higher older workers empl. rate (5 p.p.); as % of GDP											
Social security pensions, gross	:	:	:	:	:	:	:	:	:	:	:
Old-age and early pensions, gross	:	:	:	:	:	:	:	:	:	:	:
Total pension expenditure, gross	:	:	:	:	:	:	:	:	:	:	:
All pensions, assets	:	:	:	:	:	:	:	:	:	:	:
Lower interest rate; as % of GDP											
Social security pensions, gross	10.0	10.0	9.8	10.9	11.9	13.7	15.0	16.4	17.0	17.7	17.4
Old-age and early pensions, gross	6.1	6.1	6.1	7.0	8.1	9.8	11.3	12.7	13.4	14.0	13.9
Total pension expenditure, gross	10.0	10.0	9.8	10.9	11.9	13.7	15.0	16.4	17.0	17.7	17.4
All pensions, assets	23.6	24.6	30.2	34.4	34.5	26.6	10.5	:	:	:	:
Higher interest rate; as % of GDP											
Social security pensions, gross	10.0	10.0	9.8	10.9	11.9	13.7	15.0	16.4	17.0	17.7	17.4
Old-age and early pensions, gross	6.1	6.1	6.1	7.0	8.1	9.8	11.3	12.7	13.4	14.0	13.9
Total pension expenditure, gross	10.0	10.0	9.8	10.9	11.9	13.7	15.0	16.4	17.0	17.7	17.4
All pensions, assets	23.6	25.1	33.2	40.7	44.6	40.5	27.2	4.9	:	:	:

: = data not provided

Luxembourg

OTHER AGE-RELATED EXPENDITURES as % of GDP

	2004	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
Health care spending as % of GDP											
Pure ageing scenario	5.1	5.1	5.2	5.4	5.5	5.7	5.8	5.9	6.1	6.1	6.2
Constant health scenario	5.1	5.1	5.1	5.2	5.2	5.3	5.4	5.5	5.6	5.6	5.6
Death-related costs scenario	5.1	5.1	5.2	5.3	5.4	5.5	5.7	5.8	5.9	5.9	6.0
Income elasticity of demand	5.1	5.1	5.4	5.6	5.8	6.0	6.2	6.4	6.5	6.6	6.7
Unit costs - GDP per worker	5.1	5.0	4.9	5.0	5.1	5.2	5.2	5.2	5.2	5.1	4.9
AWG reference scenario	5.1	5.1	5.3	5.4	5.6	5.7	5.9	6.1	6.2	6.3	6.3
Long-term care spending as % of GDP											
Pure ageing scenario	0.9	0.9	1.0	1.0	1.1	1.1	1.2	1.3	1.5	1.6	1.7
Unit costs - GDP per capita	0.9	0.9	1.0	1.1	1.2	0.8	1.3	1.5	1.7	2.0	2.1
Constant disability scenario	0.9	0.9	0.9	1.0	1.0	1.0	1.0	1.1	1.1	1.2	1.3
Increase in formal care	0.9	0.9	1.1	1.2	1.4	1.4	1.5	1.7	1.8	2.0	2.1
AWG reference scenario	0.9	0.9	1.0	1.0	1.0	1.0	1.1	1.2	1.3	1.4	1.5
Number of dependent people (in thousands)											
Pure ageing scenario	13	13	15	17	18	20	24	27	31	34	35
Unit costs - GDP per capita	13	13	15	17	18	11	24	27	31	34	35
Constant disability scenario	13	13	14	12	15	15	17	19	20	22	23
Increase in formal care	13	13	15	17	18	20	24	27	31	34	35
AWG reference scenario	13	13	14	15	17	18	20	23	26	28	29
of which receiving formal care											
Pure ageing scenario	7	8	9	10	11	12	14	16	18	20	22
Unit costs - GDP per capita	7	8	9	10	11	12	14	16	18	20	22
Constant disability scenario	7	7	8	9	9	9	10	11	13	14	15
Increase in formal care	7	8	10	13	15	17	19	22	25	28	29
AWG reference scenario	7	8	8	9	10	11	12	14	15	17	18
of which receiving informal or no care											
Pure ageing scenario	6	6	6	7	8	9	10	11	12	13	14
Unit costs - GDP per capita	6	6	6	7	8	4	10	11	12	13	14
Constant disability scenario	6	6	6	5	6	6	7	7	8	8	8
Increase in formal care	6	5	5	4	3	4	4	5	5	6	6
AWG reference scenario	6	6	6	6	7	7	8	9	10	11	11
Education spending as % of GDP											
Total	3.3	3.2	3.1	2.9	2.8	2.8	2.7	2.7	2.6	2.5	2.4
of which: Transfers	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0
Primary	1.4	1.4	1.3	1.2	1.2	1.2	1.2	1.2	1.1	1.0	1.0
of which: Transfers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Low secondary	0.8	0.8	0.8	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.6
of which: Transfers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Upper secondary	1.0	1.0	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.8	0.8
of which: Transfers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Tertiary education	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
of which: Transfers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Number of students (in thousands)											
Total	69	70	73	74	73	76	80	84	87	88	89
Primary	34	35	35	34	35	37	39	41	41	42	42
Low secondary	17	17	18	18	18	18	19	20	21	22	22
Upper secondary	18	18	20	21	21	21	22	23	24	25	25
Tertiary education	0	0	0	0	0	0	0	0	0	0	0
Memo											
Population aged 15-64 (in thousands)	303	306	322	336	347	353	357	361	369	382	394
Unemployment benefit spending as % of GDP	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2

Hungary

Main demographic and macroeconomic assumptions

(BASELINE SCENARIO)

Budgetary Projection: AWG variant population scenario

	2004	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
Demographic assumptions											
Fertility rate	1.3	1.3	1.3	1.4	1.5	1.6	1.6	1.6	1.6	1.6	1.6
Life expectancy at birth											
males	68.5	68.8	70.1	71.5	72.8	74.1	75.2	76.2	77.0	77.6	78.1
females	76.8	77.0	78.0	78.9	79.8	80.7	81.5	82.1	82.6	83.1	83.4
Life expectancy at 65											
males	13.1	13.2	13.9	14.6	15.4	16.1	16.8	17.4	17.9	18.3	18.6
females	16.7	16.8	17.3	17.9	18.5	19.1	19.7	20.1	20.5	20.8	21.1
Net migration (thousand)	14.8	14.7	13.3	7.1	13.8	20.4	21.2	21.1	20.8	20.4	20.1
Net migration as % of population	0.15	0.15	0.13	0.07	0.14	0.21	0.22	0.22	0.22	0.23	0.22
Population (million)	10.1	10.1	10.0	9.8	9.7	9.6	9.5	9.4	9.2	9.1	8.9
Population aged 0-14 as % of total	15.9	15.7	14.6	14.4	14.4	14.3	14.1	13.8	13.6	13.6	13.8
Prime age population (25-54) as % of total	43.5	43.6	42.7	42.1	42.6	41.6	39.7	37.1	36.1	35.4	34.9
Working age population (15-64) as % of total	68.6	68.7	68.6	67.5	65.2	63.7	63.6	62.9	61.6	59.2	58.1
Elderly population aged 65+ as % of total	15.5	15.6	16.7	18.0	20.3	22.0	22.3	23.2	24.8	27.2	28.1
Very elderly population aged 80 and over as % of total	3.2	3.3	3.9	4.3	4.7	5.4	6.2	7.6	8.3	8.1	8.5
lerly population aged 55+ as % of working age pop.15-64	6.4	6.4	6.5	6.8	7.0	7.3	7.5	7.8	8.0	8.3	8.5
Macroeconomic assumptions											
Real GDP (growth rate)	3.9	3.8	3.3	2.8	2.5	2.4	2.1	1.0	0.8	1.0	1.1
Labour input (growth rate)	0.6	0.5	0.2	-0.3	-0.5	-0.3	-0.6	-1.0	-1.1	-0.8	-0.6
Labour productivity (growth rate)	3.2	3.3	3.1	3.1	2.9	2.8	2.7	2.0	1.9	1.8	1.7
TFP (growth rate)	1.1	1.1	1.2	1.6	1.6	1.7	1.8	1.3	1.2	1.2	1.1
Capital deepening (contribution to labour productivity growth)	2.1	2.1	1.9	1.6	1.3	1.1	0.9	0.7	0.7	0.6	0.6
GDP per capita (growth rate)	4.1	4.0	3.6	3.1	2.7	2.6	2.3	1.3	1.1	1.4	1.5
GDP in 2004 prices (in billions of euro)	80	83	99	115	131	148	165	178	185	194	205
GDP per worker	10.9	11.3	13.7	16.1	18.6	21.2	23.9	26.0	27.6	29.3	31.5
Real interest rate	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Labour force assumptions											
Population growth (working age:15-64)		-0.1	-0.4	-0.9	-1.2	-0.4	-0.2	-0.6	-1.1	-1.0	-0.6
Labour force (thousands)	4245	4276	4373	4350	4269	4188	4089	3924	3723	3554	3440
Participation rate (15-64)	61.1	61.6	63.8	65.5	67.5	68.5	67.8	66.6	65.6	66.2	66.4
young (15-24)	31.1	31.0	31.7	33.3	31.9	31.1	31.4	31.4	31.5	31.9	31.7
prime-age (25-54)	78.4	78.8	80.7	82.2	82.7	82.9	82.8	82.5	82.5	82.4	82.5
older (55-64)	31.3	32.8	40.2	41.4	44.6	50.4	51.7	52.0	48.6	49.7	50.1
oldest (65-71)	2.5	3.0	5.9	7.8	8.2	8.0	8.8	9.8	9.8	9.4	8.9
Employment rate (15-64)	57.7	58.4	60.8	62.4	64.3	65.3	64.6	63.5	62.4	63.1	63.2
Employment rate (15-71)	53.0	53.6	55.7	56.9	57.5	58.2	58.8	57.5	55.6	54.9	55.6
Employment growth (15-64)		1.0	0.2	-0.3	-0.5	-0.3	-0.6	-1.0	-1.1	-0.8	-0.6
Unemployment rate (15-64)	5.5	5.3	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8
Dependency ratios:											
Share of older workers	8.7	9.3	12.4	13.2	12.6	13.8	16.2	19.1	18.2	17.2	17.2
Old-age dependency ratio (1)	22.6	22.8	24.3	26.7	31.2	34.5	35.1	36.9	40.3	45.9	48.3
Total dependency ratio (2)	45.7	45.5	45.7	48.1	53.3	56.9	57.4	59.0	62.4	69.0	72.0
Total economic dependency ratio	152.3	149.3	139.7	137.4	138.4	140.4	143.5	150.5	160.1	168.1	172.1
Economic old-age dependency ratio (15-64)	38.7	38.5	39.1	41.4	46.7	51.1	52.8	56.3	62.2	70.2	74.2
Economic old-age dependency ratio (15-71)	38.5	38.3	38.7	40.8	45.9	50.2	52.0	55.2	60.7	68.4	72.5

LEGENDA:

Share of older workers = Population aged 55 to 64 as % of population aged 15-64

Old-age dependency ratio (1) = Population aged 65 and over as a percentage of the population aged 15-64

Total dependency ratio (2) = Population under 15 and over 64 as a percentage of the population aged 15-64

Total economic dependency ratio= Total population less employed as % of employed population (15-64)

Economic old-age dependency ratio (15-64)=Inactive population aged 65+ as % of employed population (15-64)

Economic old-age dependency ratio (15-71)=Inactive population aged 65+ as % of employed population (15-71)

Hungary

EPC-AWG Pension expenditure projections

	2004	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
Baseline scenario; as % of GDP											
Social security pensions, gross	10.4	10.7	11.1	11.6	12.5	13.0	13.5	14.6	16.0	16.9	17.1
Old-age and early pensions, gross	8.3	8.6	9.1	10.0	11.3	11.8	12.2	13.2	14.7	15.6	15.8
Of which: earnings-related pensions, gross	8.3	8.6	9.1	10.0	11.3	11.8	12.2	13.2	14.7	15.6	15.8
Private sector employees, gross	:	:	:	:	:	:	:	:	:	:	:
Public sector employees, gross	:	:	:	:	:	:	:	:	:	:	:
Other pensions (disability, survivors), gross	2.1	2.0	2.1	1.6	1.3	1.2	1.3	1.4	1.3	1.3	1.3
Occupational pensions, gross	:	:	:	:	:	:	:	:	:	:	:
Private mandatory pensions, gross	0.0	0.0	0.0	0.0	0.1	0.2	0.5	0.9	1.6	2.4	3.1
Total pension expenditure, gross	10.4	10.7	11.1	11.6	12.6	13.3	13.9	15.4	17.6	19.3	20.3
Social security pensions, net	10.4	10.7	11.1	11.2	11.7	11.8	11.9	12.6	13.8	14.5	14.6
Total pension expenditure, net	10.4	10.7	11.1	11.2	11.8	12.0	12.3	13.4	15.1	16.5	17.3
Social security pensions, contributions	7.7	7.6	6.8	6.6	6.6	6.5	6.6	6.7	6.7	6.8	6.8
Total pension contributions	8.8	8.9	8.8	8.9	9.0	9.2	9.3	9.5	9.5	9.6	9.6
Social security pensions, assets	:	:	:	:	:	:	:	:	:	:	:
All pensions, assets	4.0	5.3	13.2	21.9	31.5	41.1	50.0	59.2	67.7	72.8	73.7
Additional indicators											
Social security pensions, net / Social sec. pensions, gross,%	100	100	100	97	93	90	88	87	86	85	85
Total pension expenditure, net / Total pension exp., gross, %	100	100	100	97	93	90	88	87	86	85	85
Social security pensions, number of pensioners , 1000 pers.	3069	3080	3210	3262	3343	3353	3353	3417	3529	3541	3467
All pensions, pensioners , 1000 pers.	3069	3080	3210	3262	3343	3353	3353	3417	3529	3541	3467
Number of pensioners aged 65+ , 1000 pers.	1557	1580	1765	2008	2252	2386	2364	2378	2450	2614	2614
Share of pensioners below age 65 as % of all pensioners	49.3	48.7	45.0	38.4	32.7	28.9	29.5	30.4	30.6	26.2	24.6
Average gross social sec. pension, 1000€ in 2004 prices	2.7	2.9	3.4	4.1	4.9	5.8	6.6	7.6	8.4	9.3	10.1
Average gross total pensions, 1000€ in 2004 prices	2.7	2.9	3.4	4.1	5.0	5.9	6.9	8.0	9.3	10.6	12.0
Output / Worker, 1000€ in 2004 prices	20.3	21.0	23.9	27.8	32.2	37.1	42.4	47.5	52.3	57.3	62.5
Social sec. benefit ratio	13.4	13.8	14.4	14.7	15.3	15.5	15.6	15.9	16.1	16.2	16.2
Total pension benefit ratio	13.4	13.8	14.4	14.7	15.4	15.8	16.2	16.9	17.7	18.4	19.1
Social security pensions, num of contributors, in 1000	4026	4070	4206	4201	4137	4057	3956	3810	3629	3475	3351
Average social sec. pension contribution, 1000€ in 2004 prices	1.5	1.6	1.6	1.8	2.1	2.4	2.8	3.1	3.4	3.8	4.1
Average total pension contribution, 1000€ in 2004 prices	1.7	1.8	2.1	2.4	2.9	3.3	3.9	4.4	4.9	5.4	5.8
Support ratio (contributors /100 pensioners, social sec. pens.)	131	132	131	129	124	121	118	111	103	98	97
High life expectancy; as % of GDP											
Social security pensions, gross	10.4	10.7	11.0	11.4	12.4	12.8	13.2	14.3	15.7	16.6	16.8
Old-age and early pensions, gross	8.3	8.6	9.0	9.8	11.1	11.6	12.0	12.9	14.4	15.3	15.6
Total pension expenditure, gross	10.4	10.7	11.0	11.5	12.5	13.1	13.7	15.2	17.4	19.0	20.0
All pensions, assets	4.0	5.3	13.2	21.9	31.4	40.9	49.7	58.8	67.2	72.1	72.7
Higher labour productivity; as % of GDP											
Social security pensions, gross	10.4	10.7	11.1	11.5	12.4	12.8	13.2	14.2	15.7	16.5	16.7
Old-age and early pensions, gross	8.3	8.7	9.0	9.9	11.1	11.6	11.9	12.9	14.3	15.2	15.4
Total pension expenditure, gross	10.4	10.7	11.1	11.5	12.5	13.1	13.7	15.1	17.2	18.7	19.6
All pensions, assets	4.0	5.3	13.2	21.8	31.0	40.2	48.6	57.3	65.2	69.9	70.5
Lower labour productivity; as % of GDP											
Social security pensions, gross	10.4	10.7	11.1	11.6	12.6	13.2	13.6	14.7	16.2	17.1	17.3
Old-age and early pensions, gross	8.3	8.7	9.0	10.0	11.3	11.9	12.3	13.3	14.9	15.8	16.0
Total pension expenditure, gross	10.4	10.7	11.1	11.6	12.7	13.4	14.1	15.7	17.9	19.6	20.7
All pensions, assets	4.0	5.3	13.2	22.1	31.9	41.8	51.1	60.8	69.7	75.1	76.0
Higher employment rate (1 p.p.); as % of GDP											
Social security pensions, gross	10.4	10.7	11.0	11.3	12.2	12.7	13.0	14.0	15.4	16.2	16.4
Old-age and early pensions, gross	8.3	8.6	9.0	9.7	11.0	11.5	11.8	12.7	14.1	15.0	15.2
Total pension expenditure, gross	10.4	10.7	11.0	11.3	12.3	12.9	13.5	14.9	17.0	18.6	19.5
All pensions, assets	4.0	5.3	13.2	21.9	31.5	41.0	49.9	59.1	67.6	72.8	73.7
Higher older workers empl. rate (5 p.p.); as % of GDP											
Social security pensions, gross	10.4	10.7	10.9	11.2	11.9	12.3	12.7	13.7	15.0	15.8	16.0
Old-age and early pensions, gross	8.3	8.6	8.9	9.5	10.7	11.1	11.4	12.3	13.7	14.6	14.8
Total pension expenditure, gross	10.4	10.7	10.9	11.2	12.0	12.6	13.2	14.5	16.6	18.1	19.0
All pensions, assets	4.0	5.3	13.2	21.8	31.2	40.6	49.2	58.2	66.6	71.9	73.0
Lower interest rate; as % of GDP											
Social security pensions, gross	10.4	10.7	11.1	11.6	12.5	13.0	13.5	14.6	16.0	16.9	17.1
Old-age and early pensions, gross	8.3	8.6	9.1	10.0	11.3	11.8	12.2	13.2	14.7	15.6	15.8
Total pension expenditure, gross	10.4	10.7	11.1	11.6	12.6	13.2	13.8	15.2	17.2	18.7	19.4
All pensions, assets	4.0	5.3	12.7	20.7	29.2	37.4	44.8	52.5	59.5	63.7	64.6
Higher interest rate; as % of GDP											
Social security pensions, gross	10.4	10.7	11.1	11.6	12.5	13.0	13.5	14.6	16.0	16.9	17.1
Old-age and early pensions, gross	8.3	8.6	9.1	10.0	11.3	11.8	12.2	13.2	14.7	15.6	15.8
Total pension expenditure, gross	10.4	10.7	11.1	11.6	12.7	13.3	14.1	15.7	18.1	20.1	21.3
All pensions, assets	4.0	5.4	13.7	23.3	34.1	45.3	55.9	67.2	77.6	83.8	84.4

: = data not provided

Hungary

OTHER AGE-RELATED EXPENDITURES as % of GDP

	2004	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
Health care spending as % of GDP											
Pure ageing scenario	5.5	5.5	5.7	5.8	5.9	6.1	6.2	6.3	6.4	6.5	6.5
Constant health scenario	5.5	5.5	5.5	5.6	5.6	5.6	5.6	5.7	5.7	5.7	5.8
Death-related costs scenario	5.5	5.5	5.6	5.6	5.7	5.8	5.8	5.9	5.9	5.9	6.0
Income elasticity of demand	5.5	5.5	5.8	6.0	6.2	6.4	6.6	6.7	6.8	6.9	6.9
Unit costs - GDP per worker	5.5	5.5	5.4	5.5	5.7	5.8	6.0	6.3	6.6	6.9	7.1
AWG reference scenario	5.5	5.5	5.7	5.9	6.0	6.2	6.3	6.3	6.4	6.5	6.5
Long-term care spending as % of GDP											
Pure ageing scenario	:	:	:	:	:	:	:	:	:	:	:
Unit costs - GDP per capita	:	:	:	:	:	:	:	:	:	:	:
Constant disability scenario	:	:	:	:	:	:	:	:	:	:	:
Increase in formal care	:	:	:	:	:	:	:	:	:	:	:
AWG reference scenario	:	:	:	:	:	:	:	:	:	:	:
Number of dependent people (in thousands)											
Pure ageing scenario	263	267	287	306	335	367	392	419	437	451	467
Unit costs - GDP per capita	263	267	287	306	335	178	392	419	437	451	467
Constant disability scenario	263	263	263	215	264	273	278	289	291	285	286
Increase in formal care	263	267	287	306	335	367	392	419	437	451	467
AWG reference scenario	263	265	275	283	300	320	335	354	364	368	376
of which receiving formal care											
Pure ageing scenario	0	0	0	0	0	0	0	0	0	0	0
Unit costs - GDP per capita	0	0	0	0	0	0	0	0	0	0	0
Constant disability scenario	0	0	0	0	0	0	0	0	0	0	0
Increase in formal care	0	13	76	132	187	205	219	235	245	253	261
AWG reference scenario	0	0	0	0	0	0	0	0	0	0	0
of which receiving informal or no care											
Pure ageing scenario	263	267	287	306	335	367	392	419	437	451	467
Unit costs - GDP per capita	263	267	287	306	335	178	392	419	437	451	467
Constant disability scenario	263	263	263	215	264	273	278	289	291	285	286
Increase in formal care	263	254	211	174	147	161	172	185	192	199	206
AWG reference scenario	263	265	275	283	300	320	335	354	364	368	376
Education spending as % of GDP											
Total	4.5	4.4	3.9	3.7	3.5	3.5	3.5	3.6	3.7	3.8	3.8
of which: Transfers	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Primary	0.9	0.9	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
of which: Transfers	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Low secondary	1.0	0.9	0.8	0.7	0.7	0.7	0.8	0.8	0.8	0.8	0.8
of which: Transfers	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Upper secondary	1.3	1.3	1.2	1.0	1.0	1.0	1.0	1.0	1.1	1.1	1.1
of which: Transfers	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Tertiary education	1.4	1.3	1.2	1.1	1.0	1.0	1.0	1.0	1.1	1.1	1.1
of which: Transfers	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Number of students (in thousands)											
Total	1929	1888	1710	1576	1505	1475	1457	1429	1390	1351	1324
Primary	448	432	391	390	382	375	372	356	342	338	336
Low secondary	500	492	418	390	390	383	380	374	357	345	342
Upper secondary	595	586	552	471	447	445	438	435	427	410	398
Tertiary education	385	379	349	324	286	271	267	264	263	259	249
Memo											
Population aged 15-64 (in thousands)	6944	6936	6852	6642	6325	6111	6028	5890	5679	5368	5182
Unemployment benefit spending as % of GDP	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2

Malta

Main demographic and macroeconomic assumptions

(BASELINE SCENARIO)

Budgetary Projection: AWG variant population scenario

	2004	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
Demographic assumptions											
Fertility rate	1.7	1.6	1.5	1.5	1.5	1.6	1.6	1.6	1.6	1.6	1.6
Life expectancy at birth											
males	76.2	76.5	77.4	78.3	79.0	79.6	80.1	80.6	81.0	81.4	81.8
females	80.7	80.9	81.7	82.3	82.9	83.3	83.7	84.1	84.4	84.8	85.0
Life expectancy at 65											
males	15.2	15.4	16.0	16.6	17.1	17.6	18.0	18.3	18.7	19.0	19.2
females	18.3	18.4	19.0	19.5	19.9	20.3	20.6	20.9	21.1	21.4	21.6
Net migration (thousand)	2.6	2.6	2.4	2.2	2.3	2.3	2.4	2.4	2.5	2.5	2.5
Net migration as % of population	0.64	0.64	0.58	0.51	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Population (million)	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Population aged 0-14 as % of total	18.2	17.8	16.2	15.6	15.7	15.6	15.4	15.0	14.6	14.4	14.5
Prime age population (25-54) as % of total	42.2	42.1	41.8	41.1	40.7	40.9	40.0	38.9	37.8	37.1	36.5
Working age population (15-64) as % of total	68.7	69.0	69.6	67.1	64.8	63.1	62.2	62.7	62.9	62.0	60.8
Elderly population aged 65+ as % of total	13.0	13.2	14.2	17.3	19.4	21.3	22.4	22.3	22.5	23.6	24.7
Very elderly population aged 80 and over as % of total	2.7	2.8	3.2	3.6	4.1	4.6	6.3	7.2	7.9	8.0	7.5
lerly population aged 55+ as % of working age pop.15-64	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4
Macroeconomic assumptions											
Real GDP (growth rate)	1.9	2.0	2.5	3.1	2.7	2.9	3.1	2.1	1.8	1.7	1.7
Labour input (growth rate)	0.5	0.5	1.6	1.1	0.3	0.4	0.4	0.2	0.0	-0.1	-0.1
Labour productivity (growth rate)	1.4	1.5	0.8	2.0	2.3	2.5	2.7	2.0	1.9	1.8	1.7
TFP (growth rate)	0.0	0.0	0.3	1.3	1.5	1.6	1.8	1.3	1.2	1.2	1.1
Capital deepening (contribution to labour productivity growth)	1.4	1.5	0.6	0.7	0.9	0.9	0.9	0.7	0.7	0.6	0.6
GDP per capita (growth rate)	1.2	0.9	1.6	2.4	2.0	2.3	2.6	1.8	1.6	1.4	1.4
GDP in 2004 prices (in billions of euro)	4	4	5	6	7	8	9	10	11	12	13
GDP per worker	13.7	13.8	14.8	16.4	18.1	20.2	22.9	25.4	27.6	29.7	31.8
Real interest rate	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Labour force assumptions											
Population growth (working age:15-64)		1.3	0.2	-0.1	0.2	0.0	0.4	0.6	0.2	-0.1	-0.1
Labour force (thousands)	163	167	182	190	195	198	203	205	205	205	204
Participation rate (15-64)	59.5	60.1	61.8	64.6	66.1	67.1	68.0	67.1	66.0	65.8	66.0
young (15-24)	57.9	58.0	59.5	60.4	59.6	58.0	59.0	58.4	58.8	59.4	59.4
prime-age (25-54)	67.2	68.6	73.4	77.0	79.1	79.7	79.7	79.7	79.6	79.6	79.9
older (55-64)	33.9	33.8	30.1	31.4	31.4	31.1	35.1	35.9	34.6	34.2	33.7
oldest (65-71)	3.2	2.8	2.5	2.6	2.5	2.5	2.4	2.4	2.6	2.6	2.5
Employment rate (15-64)	54.5	55.0	56.7	60.1	61.5	62.4	63.2	62.4	61.4	61.2	61.3
Employment rate (15-71)	50.5	50.9	52.4	53.5	54.6	55.3	56.2	56.4	55.2	54.0	53.7
Employment growth (15-64)		2.3	1.6	1.1	0.3	0.4	0.4	0.2	0.0	-0.1	-0.1
Unemployment rate (15-64)	8.4	8.5	8.3	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Dependency ratios:											
Share of older workers	9.9	10.1	10.0	9.9	9.6	8.5	9.3	10.9	11.5	11.6	11.4
Old-age dependency ratio (1)	19.0	19.2	20.4	25.7	30.0	33.8	36.0	35.5	35.9	38.0	40.6
Total dependency ratio (2)	45.5	45.0	43.6	48.9	54.2	58.4	60.7	59.4	59.1	61.4	64.6
Total economic dependency ratio	166.9	163.6	153.4	147.7	150.8	153.7	154.1	155.5	159.1	163.5	168.3
Economic old-age dependency ratio (15-64)	34.3	34.5	35.6	42.3	48.2	53.5	56.4	56.5	57.9	61.5	65.6
Economic old-age dependency ratio (15-71)	34.1	34.3	35.4	42.0	48.0	53.2	56.1	56.2	57.6	61.2	65.2

LEGENDA:

Share of older workers = Population aged 55 to 64 as % of population aged 15-64

Old-age dependency ratio (1) = Population aged 65 and over as a percentage of the population aged 15-64

Total dependency ratio (2) = Population under 15 and over 64 as a percentage of the population aged 15-64

Total economic dependency ratio= Total population less employed as % of employed population (15-64)

Economic old-age dependency ratio (15-64)=Inactive population aged 65+ as % of employed population (15-64)

Economic old-age dependency ratio (15-71)=Inactive population aged 65+ as % of employed population (15-71)

Malta

EPC-AWG Pension expenditure projections

	2004	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
Baseline scenario; as % of GDP											
Social security pensions, gross	7.4	7.5	8.8	9.8	10.2	10.0	9.1	8.4	7.9	7.5	7.0
Old-age and early pensions, gross	3.9	3.9	5.2	6.3	7.0	7.3	7.0	6.6	6.6	6.6	6.5
Of which: earnings-related pensions, gross	:	:	:	:	:	:	:	:	:	:	:
Private sector employees, gross	:	:	:	:	:	:	:	:	:	:	:
Public sector employees, gross	:	:	:	:	:	:	:	:	:	:	:
Other pensions (disability, survivors), gross	3.6	3.6	3.6	3.5	3.2	2.7	2.2	1.7	1.3	1.0	0.5
Occupational pensions, gross	:	:	:	:	:	:	:	:	:	:	:
Private mandatory pensions, gross	:	:	:	:	:	:	:	:	:	:	:
Total pension expenditure, gross	7.4	7.5	8.8	9.8	10.2	10.0	9.1	8.4	7.9	7.5	7.0
Social security pensions, net	:	:	:	:	:	:	:	:	:	:	:
Total pension expenditure, net	:	:	:	:	:	:	:	:	:	:	:
Social security pensions, contributions	7.1	6.9	6.8	6.4	5.9	5.4	4.8	4.3	3.9	3.6	3.3
Total pension contributions	7.1	6.9	6.8	6.4	5.9	5.4	4.8	4.3	3.9	3.6	3.3
Social security pensions, assets	:	:	:	:	:	:	:	:	:	:	:
All pensions, assets	:	:	:	:	:	:	:	:	:	:	:
Additional indicators											
Social security pensions, net / Social sec. pensions, gross,%	:	:	:	:	:	:	:	:	:	:	:
Total pension expenditure, net / Total pension exp., gross, %	:	:	:	:	:	:	:	:	:	:	:
Social security pensions, number of pensioners , 1000 pers.	60	62	74	86	97	107	113	118	122	126	130
All pensions, pensioners , 1000 pers.	60	62	74	86	97	107	113	118	122	126	130
Number of pensioners aged 65+ , 1000 pers.	42	43	48	61	72	82	90	92	94	98	102
Share of pensioners below age 65 as % of all pensioners	29.9	29.9	34.4	29.1	26.3	23.3	20.7	21.8	23.1	22.4	21.3
Average gross social sec. pension, 1000€ in 2004 prices	5.4	5.4	6.0	6.5	6.9	7.0	7.0	7.0	7.0	7.1	7.0
Average gross total pensions, 1000€ in 2004 prices	5.4	5.4	6.0	6.5	6.9	7.0	7.0	7.0	7.0	7.1	7.0
Output / Worker, 1000€ in 2004 prices	29.3	29.7	30.0	32.3	36.2	40.7	46.3	51.7	56.8	62.2	67.8
Social sec. benefit ratio	18.4	18.2	19.9	20.1	19.0	17.2	15.2	13.5	12.4	11.4	10.3
Total pension benefit ratio	18.4	18.2	19.9	20.1	19.0	17.2	15.2	13.5	12.4	11.4	10.3
Social security pensions, num of contributors, in 1000	159	162	171	177	181	185	191	196	199	202	205
Average social sec. pension contribution, 1000€ in 2004 prices	2.0	1.9	2.0	2.1	2.1	2.2	2.2	2.2	2.2	2.1	2.1
Average total pension contribution, 1000€ in 2004 prices	:	:	:	:	:	:	:	:	:	:	:
Support ratio (contributors /100 pensioners, social sec. pens.)	264	262	233	206	186	173	168	166	163	160	158
High life expectancy; as % of GDP											
Social security pensions, gross	7.5	7.6	9.0	10.1	10.6	10.5	9.6	8.9	8.4	8.1	7.6
Old-age and early pensions, gross	3.9	4.0	5.3	6.5	7.3	7.6	7.3	7.1	7.1	7.1	7.0
Total pension expenditure, gross	7.5	7.6	9.0	10.1	10.6	10.5	9.6	8.9	8.4	8.1	7.6
All pensions, assets	:	:	:	:	:	:	:	:	:	:	:
Higher labour productivity; as % of GDP											
Social security pensions, gross	7.5	7.6	8.8	9.7	10.1	9.7	8.8	7.9	7.4	6.9	6.4
Old-age and early pensions, gross	3.9	3.9	5.2	6.3	6.9	7.1	6.7	6.3	6.1	6.1	5.9
Total pension expenditure, gross	7.5	7.6	8.8	9.7	10.1	9.7	8.8	7.9	7.4	6.9	6.4
All pensions, assets	:	:	:	:	:	:	:	:	:	:	:
Lower labour productivity; as % of GDP											
Social security pensions, gross	7.4	7.5	8.8	9.8	10.4	10.3	9.6	8.8	8.5	8.2	7.7
Old-age and early pensions, gross	3.9	3.9	5.2	6.4	7.2	7.6	7.3	7.0	7.1	7.1	7.1
Total pension expenditure, gross	7.4	7.5	8.8	9.8	10.4	10.3	9.6	8.8	8.5	8.2	7.7
All pensions, assets	:	:	:	:	:	:	:	:	:	:	:
Higher employment rate (1 p.p.); as % of GDP											
Social security pensions, gross	7.4	7.5	8.7	9.7	10.1	9.9	9.1	8.3	7.8	7.5	7.0
Old-age and early pensions, gross	3.9	3.9	5.2	6.2	7.0	7.3	6.9	6.6	6.5	6.5	6.4
Total pension expenditure, gross	7.4	7.5	8.7	9.7	10.1	9.9	9.1	8.3	7.8	7.5	7.0
All pensions, assets	:	:	:	:	:	:	:	:	:	:	:
Higher older workers empl. rate (5 p.p.); as % of GDP											
Social security pensions, gross	7.4	7.5	8.8	9.7	10.2	10.0	9.1	8.4	7.9	7.5	7.1
Old-age and early pensions, gross	3.9	3.9	5.2	6.3	7.0	7.3	7.0	6.6	6.6	6.6	6.5
Total pension expenditure, gross	7.4	7.5	8.8	9.7	10.2	10.0	9.1	8.4	7.9	7.5	7.1
All pensions, assets	:	:	:	:	:	:	:	:	:	:	:
Lower interest rate; as % of GDP											
Social security pensions, gross	7.4	7.5	8.8	9.8	10.2	10.0	9.1	8.4	7.9	7.5	7.0
Old-age and early pensions, gross	3.9	3.9	5.2	6.3	7.0	7.3	7.0	6.6	6.6	6.6	6.5
Total pension expenditure, gross	7.4	7.5	8.8	9.8	10.2	10.0	9.1	8.4	7.9	7.5	7.0
All pensions, assets	:	:	:	:	:	:	:	:	:	:	:
Higher interest rate; as % of GDP											
Social security pensions, gross	7.4	7.5	8.8	9.8	10.2	10.0	9.1	8.4	7.9	7.5	7.0
Old-age and early pensions, gross	3.9	3.9	5.2	6.3	7.0	7.3	7.0	6.6	6.6	6.6	6.5
Total pension expenditure, gross	7.4	7.5	8.8	9.8	10.2	10.0	9.1	8.4	7.9	7.5	7.0
All pensions, assets	:	:	:	:	:	:	:	:	:	:	:

: = data not provided

Malta

OTHER AGE-RELATED EXPENDITURES as % of GDP

	2004	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
Health care spending as % of GDP											
Pure ageing scenario	4.2	4.3	4.5	4.8	5.1	5.4	5.6	5.8	6.0	6.1	6.2
Constant health scenario	4.2	4.3	4.4	4.6	4.8	4.9	5.1	5.3	5.4	5.4	5.5
Death-related costs scenario	4.2	4.2	4.4	4.6	4.8	5.0	5.1	5.3	5.3	5.3	5.4
Income elasticity of demand	4.2	4.3	4.6	4.9	5.2	5.5	5.8	6.0	6.2	6.4	6.5
Unit costs - GDP per worker	4.2	4.3	4.4	4.6	4.9	5.2	5.5	5.7	6.0	6.2	6.4
AWG reference scenario	4.2	4.3	4.5	4.8	5.0	5.3	5.5	5.7	5.9	6.0	6.1
Long-term care spending as % of GDP											
Pure ageing scenario	0.9	0.9	0.9	0.9	0.9	1.0	1.1	1.2	1.2	1.3	1.2
Unit costs - GDP per capita	0.9	0.9	0.9	0.9	1.0	0.8	1.1	1.2	1.2	1.2	1.2
Constant disability scenario	0.9	0.9	0.9	0.9	0.9	0.9	1.0	1.0	1.1	1.1	1.0
Increase in formal care	0.9	0.9	0.9	0.9	0.9	1.0	1.1	1.2	1.3	1.3	1.3
AWG reference scenario	0.9	0.9	0.9	0.9	0.9	0.9	1.0	1.1	1.1	1.2	1.1
Number of dependent people (in thousands)											
Pure ageing scenario	13	13	15	19	22	26	31	33	35	36	37
Unit costs - GDP per capita	13	13	15	19	22	13	31	33	35	36	37
Constant disability scenario	13	13	14	13	18	19	22	24	24	24	23
Increase in formal care	13	13	15	19	22	26	31	33	35	36	37
AWG reference scenario	13	13	15	17	20	23	26	29	30	30	30
of which receiving formal care											
Pure ageing scenario	11	11	13	16	19	22	27	30	31	32	32
Unit costs - GDP per capita	11	11	13	16	19	22	27	30	31	32	32
Constant disability scenario	11	11	12	14	15	17	20	21	22	22	21
Increase in formal care	11	12	14	17	20	24	29	32	33	34	35
AWG reference scenario	11	11	13	15	17	19	23	26	27	27	27
of which receiving informal or no care											
Pure ageing scenario	2	2	2	3	3	4	4	4	4	4	4
Unit costs - GDP per capita	2	2	2	3	3	1	4	4	4	4	4
Constant disability scenario	2	2	2	2	2	3	2	2	2	2	2
Increase in formal care	2	2	2	2	1	2	2	2	2	2	2
AWG reference scenario	2	2	2	2	3	3	3	3	3	3	3
Education spending as % of GDP											
Total	4.4	4.4	3.7	3.3	3.2	3.3	3.3	3.3	3.3	3.3	3.3
of which: Transfers	0.5	0.5	0.4	0.4	0.3	0.4	0.3	0.4	0.4	0.4	0.4
Primary	1.1	1.0	0.9	0.9	0.9	0.9	0.9	0.9	0.8	0.8	0.9
of which: Transfers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Low secondary	1.6	1.5	1.3	1.1	1.2	1.1	1.1	1.2	1.2	1.1	1.1
of which: Transfers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Upper secondary	0.6	0.6	0.6	0.5	0.4	0.5	0.5	0.5	0.5	0.5	0.5
of which: Transfers	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2
Tertiary education	1.2	1.1	1.0	0.9	0.8	0.8	0.8	0.8	0.8	0.8	0.8
of which: Transfers	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Number of students (in thousands)											
Total	77	76	69	67	68	70	71	72	72	71	71
Primary	31	30	27	29	29	30	31	30	30	30	30
Low secondary	29	29	25	22	25	25	26	26	26	25	25
Upper secondary	9	9	9	8	7	8	8	8	8	8	8
Tertiary education	9	9	8	8	7	7	7	7	7	7	7
Memo											
Population aged 15-64 (in thousands)	275	279	294	295	294	295	298	306	311	311	309
Unemployment benefit spending as % of GDP	1.2	1.2	1.2	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0

Netherlands

Main demographic and macroeconomic assumptions

(BASELINE SCENARIO)

Budgetary Projection: AWG variant population scenario

	2004	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
Demographic assumptions											
Fertility rate	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
Life expectancy at birth											
males	76.2	76.4	77.0	77.6	78.3	78.8	79.4	79.8	80.3	80.7	81.1
females	80.8	80.9	81.4	82.0	82.5	83.0	83.5	83.9	84.4	84.8	85.2
Life expectancy at 65											
males	15.4	15.5	15.9	16.3	16.7	17.1	17.5	17.9	18.2	18.5	18.9
females	19.0	19.0	19.4	19.8	20.1	20.5	20.8	21.2	21.5	21.8	22.1
Net migration (thousand)	21.0	24.1	32.6	33.3	32.5	31.9	31.6	31.6	31.5	31.3	31.1
Net migration as % of population	0.13	0.15	0.20	0.20	0.19	0.18	0.18	0.18	0.18	0.18	0.18
Population (million)	16.3	16.3	16.7	17.0	17.2	17.5	17.6	17.8	17.8	17.7	17.6
Population aged 0-14 as % of total	18.5	18.5	17.8	17.1	16.3	16.0	16.1	16.3	16.2	15.9	15.6
Prime age population (25-54) as % of total	44.1	43.7	42.0	40.4	38.7	37.1	36.4	36.6	36.7	36.7	36.6
Working age population (15-64) as % of total	67.6	67.5	67.3	65.8	64.8	63.2	61.1	59.4	58.7	59.3	60.0
Elderly population aged 65+ as % of total	13.8	14.0	14.9	17.1	18.9	20.8	22.7	24.4	25.1	24.8	24.4
Very elderly population aged 80 and over as % of total	3.4	3.5	3.7	3.9	4.2	4.8	6.0	6.8	7.6	8.5	9.2
lerly population aged 55+ as % of working age pop.15-64	10.6	10.7	11.3	12.2	13.0	14.1	15.1	15.7	15.8	15.5	15.2
Macroeconomic assumptions											
Real GDP (growth rate)	1.3	1.4	2.1	1.8	1.7	1.4	1.3	1.5	1.8	1.8	1.7
Labour input (growth rate)	0.5	0.7	0.4	0.1	-0.1	-0.3	-0.4	-0.2	0.1	0.1	0.0
Labour productivity (growth rate)	0.8	0.8	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
TFP (growth rate)	0.4	0.5	1.2	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Capital deepening (contribution to labour productivity growth)	0.3	0.3	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
GDP per capita (growth rate)	0.9	1.0	1.7	1.5	1.4	1.1	1.1	1.4	1.8	1.9	1.8
GDP in 2004 prices (in billions of euro)	465	472	517	568	620	668	713	765	833	912	996
GDP per worker	21.9	22.1	23.7	25.6	27.5	29.2	30.9	32.9	35.8	39.4	43.2
Real interest rate	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Labour force assumptions											
Population growth (working age:15-64)		0.3	0.2	0.0	-0.1	-0.4	-0.5	-0.5	0.0	0.2	0.1
Labour force (thousands)	8444	8504	8727	8808	8832	8728	8548	8424	8424	8481	8509
Participation rate (15-64)	76.8	77.1	77.8	78.9	79.1	79.1	79.3	79.9	80.8	80.7	80.5
young (15-24)	72.9	73.0	73.4	73.5	73.5	74.1	73.8	73.5	73.4	73.5	73.7
prime-age (25-54)	85.8	86.3	88.0	89.1	89.8	90.2	90.4	90.4	90.5	90.5	90.5
older (55-64)	46.8	47.5	49.0	52.6	54.1	54.3	53.8	53.3	55.4	56.0	56.0
oldest (65-71)	8.5	9.1	9.9	10.0	9.9	10.1	10.2	10.1	9.7	9.9	10.1
Employment rate (15-64)	74.0	74.4	75.3	76.4	76.5	76.5	76.7	77.4	78.2	78.1	77.9
Employment rate (15-71)	69.0	69.4	69.7	69.3	69.2	68.8	68.2	68.4	69.4	70.6	70.6
Employment growth (15-64)		0.9	0.4	0.1	-0.1	-0.3	-0.4	-0.2	0.1	0.1	0.0
Unemployment rate (15-64)	3.7	3.5	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
Dependency ratios:											
Share of older workers	10.4	10.8	12.1	13.2	14.6	15.4	14.9	13.3	12.7	13.1	13.7
Old-age dependency ratio (1)	20.5	20.7	22.2	26.0	29.2	32.8	37.2	41.1	42.8	41.8	40.6
Total dependency ratio (2)	47.9	48.1	48.7	52.0	54.3	58.2	63.7	68.5	70.3	68.6	66.7
Total economic dependency ratio	99.8	99.0	97.4	99.0	101.5	106.7	113.3	117.8	118.0	115.8	114.1
Economic old-age dependency ratio (15-64)	26.7	26.8	28.3	32.5	36.5	41.2	46.6	51.1	53.0	51.9	50.6
Economic old-age dependency ratio (15-71)	26.5	26.6	27.9	32.0	35.9	40.5	45.7	50.1	52.0	51.1	49.9

LEGENDA:

Share of older workers = Population aged 55 to 64 as % of population aged 15-64

Old-age dependency ratio (1) = Population aged 65 and over as a percentage of the population aged 15-64

Total dependency ratio (2) = Population under 15 and over 64 as a percentage of the population aged 15-64

Total economic dependency ratio= Total population less employed as % of employed population (15-64)

Economic old-age dependency ratio (15-64)=Inactive population aged 65+ as % of employed population (15-64)

Economic old-age dependency ratio (15-71)=Inactive population aged 65+ as % of employed population (15-71)

Netherlands

EPC-AWG Pension expenditure projections

	2004	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
Baseline scenario; as % of GDP											
Social security pensions, gross	7.7	7.4	7.6	8.3	9.0	9.7	10.7	11.4	11.7	11.4	11.2
Old-age and early pensions, gross	4.9	4.8	5.2	6.0	6.7	7.6	8.6	9.4	9.7	9.6	9.4
Of which: earnings-related pensions, gross	:	:	:	:	:	:	:	:	:	:	:
Private sector employees, gross	:	:	:	:	:	:	:	:	:	:	:
Public sector employees, gross	:	:	:	:	:	:	:	:	:	:	:
Other pensions (disability, survivors), gross	2.8	2.6	2.4	2.3	2.3	2.2	2.1	2.0	1.9	1.9	1.9
Occupational pensions, gross	4.6	4.8	4.7	5.2	5.8	6.7	7.7	8.6	9.0	8.8	8.7
Private mandatory pensions, gross	:	:	:	:	:	:	:	:	:	:	:
Total pension expenditure, gross	12.4	12.2	12.3	13.6	14.8	16.4	18.4	20.0	20.6	20.3	20.0
Social security pensions, net	6.2	6.0	6.2	6.8	7.4	8.1	8.9	9.6	9.8	9.6	9.4
Total pension expenditure, net	9.6	9.4	9.6	10.6	11.5	12.8	14.4	15.6	16.1	15.8	15.5
Social security pensions, contributions	6.8	6.5	6.4	6.4	6.4	6.4	6.5	6.6	6.7	6.7	6.6
Total pension contributions	13.0	12.9	12.7	13.1	13.5	13.4	13.2	12.9	12.9	13.0	12.9
Social security pensions, assets	:	:	:	:	:	:	:	:	:	:	:
All pensions, assets	135.5	140.4	160.6	177.5	195.6	214.5	230.1	239.2	241.0	241.4	243.7
Additional indicators											
Social security pensions, net / Social sec. pensions, gross,%	81	81	81	82	83	83	83	84	84	84	84
Total pension expenditure, net / Total pension exp., gross, %	77	77	78	78	78	78	78	78	78	78	78
Social security pensions, number of pensioners , 1000 pers.	3317	3310	3437	3818	4156	4514	4879	5168	5291	5213	5120
All pensions, pensioners , 1000 pers.	3540	3548	3765	4139	4487	4872	5224	5468	5556	5477	5399
Number of pensioners aged 65+ , 1000 pers.	:	:	:	:	:	:	:	:	:	:	:
Share of pensioners below age 65 as % of all pensioners	:	:	:	:	:	:	:	:	:	:	:
Average gross social sec. pension, 1000€ in 2004 prices	10.9	10.6	11.5	12.4	13.4	14.4	15.6	16.9	18.3	20.0	21.8
Average gross total pensions, 1000€ in 2004 prices	16.3	16.2	16.9	18.6	20.4	22.5	25.1	28.0	30.9	33.8	36.8
Output / Worker, 1000€ in 2004 prices	55.7	56.1	61.3	66.7	72.6	79.1	86.2	93.9	102.2	111.2	121.0
Social sec. benefit ratio	19.5	18.8	18.8	18.6	18.4	18.2	18.1	18.0	18.0	18.0	18.1
Total pension benefit ratio	29.2	28.9	27.6	27.9	28.2	28.5	29.2	29.9	30.3	30.4	30.4
Social security pensions, num of contributors, in 1000	12064	12105	12484	12844	13156	13454	13612	13664	13660	13641	13615
Average social sec. pension contribution, 1000€ in 2004 prices	2.6	2.5	2.6	2.8	3.0	3.2	3.4	3.7	4.1	4.5	4.9
Average total pension contribution, 1000€ in 2004 prices	:	:	:	:	:	:	:	:	:	:	:
Support ratio (contributors /100 pensioners, social sec. pens.)	364	366	363	336	317	298	279	264	258	262	266
High life expectancy; as % of GDP											
Social security pensions, gross	7.7	7.4	7.6	8.4	9.0	9.9	10.8	11.7	12.0	11.9	11.7
Old-age and early pensions, gross	4.9	4.8	5.2	6.0	6.8	7.7	8.7	9.7	10.1	10.0	9.9
Total pension expenditure, gross	12.4	12.2	12.3	13.5	14.8	16.5	18.5	20.3	21.1	20.9	20.7
All pensions, assets	135.5	140.4	161.0	178.3	197.0	217.5	235.9	247.4	251.4	253.7	257.4
Higher labour productivity; as % of GDP											
Social security pensions, gross	7.7	7.4	7.7	8.3	9.0	9.7	10.7	11.4	11.6	11.4	11.2
Old-age and early pensions, gross	4.9	4.8	5.2	6.0	6.7	7.6	8.6	9.4	9.7	9.5	9.3
Total pension expenditure, gross	12.4	12.2	12.3	13.6	14.7	16.3	18.2	19.8	20.4	20.0	19.6
All pensions, assets	135.5	140.4	160.5	176.1	192.2	210.1	225.4	234.4	236.3	236.9	239.3
Lower labour productivity; as % of GDP											
Social security pensions, gross	7.7	7.4	7.6	8.3	8.9	9.7	10.7	11.4	11.7	11.5	11.3
Old-age and early pensions, gross	4.9	4.8	5.2	6.0	6.7	7.6	8.6	9.4	9.8	9.6	9.4
Total pension expenditure, gross	12.4	12.2	12.3	13.6	14.8	16.5	18.6	20.2	20.9	20.6	20.3
All pensions, assets	135.5	140.4	160.7	178.9	198.6	218.0	234.1	243.5	245.3	245.6	247.8
Higher employment rate (1 p.p.); as % of GDP											
Social security pensions, gross	7.7	7.4	7.6	8.3	8.9	9.7	10.6	11.3	11.6	11.4	11.1
Old-age and early pensions, gross	4.9	4.8	5.2	6.0	6.7	7.5	8.5	9.3	9.7	9.5	9.3
Total pension expenditure, gross	12.4	12.2	12.3	13.5	14.7	16.3	18.3	19.9	20.5	20.2	19.9
All pensions, assets	135.5	140.4	160.1	176.3	194.4	213.6	229.7	239.3	241.5	242.2	244.7
Higher older workers empl. rate (5 p.p.); as % of GDP											
Social security pensions, gross	7.7	7.4	7.6	8.3	8.9	9.6	10.6	11.3	11.6	11.4	11.1
Old-age and early pensions, gross	4.9	4.8	5.2	6.0	6.7	7.5	8.5	9.3	9.7	9.5	9.3
Total pension expenditure, gross	12.4	12.2	12.3	13.5	14.7	16.3	18.3	20.0	20.6	20.3	19.9
All pensions, assets	135.5	140.4	160.3	176.9	194.6	213.4	229.7	239.5	241.7	242.1	244.3
Lower interest rate; as % of GDP											
Social security pensions, gross	7.7	7.4	7.6	8.3	9.0	9.7	10.7	11.4	11.7	11.4	11.2
Old-age and early pensions, gross	4.9	4.8	5.2	6.0	6.7	7.6	8.6	9.4	9.7	9.6	9.4
Total pension expenditure, gross	12.4	12.2	12.2	13.2	14.3	15.8	17.8	19.4	20.1	19.9	19.7
All pensions, assets	135.5	140.4	166.9	189.2	211.4	235.2	256.1	270.1	275.9	279.5	284.3
Higher interest rate; as % of GDP											
Social security pensions, gross	7.7	7.4	7.6	8.3	9.0	9.7	10.7	11.4	11.7	11.4	11.2
Old-age and early pensions, gross	4.9	4.8	5.2	6.0	6.7	7.6	8.6	9.4	9.7	9.6	9.4
Total pension expenditure, gross	12.4	12.2	12.5	13.9	15.2	16.9	18.9	20.5	21.1	20.6	20.2
All pensions, assets	135.5	140.4	152.1	165.6	180.8	196.1	208.1	213.9	212.9	211.0	211.2

: = data not provided

Netherlands

OTHER AGE-RELATED EXPENDITURES as % of GDP

	2004	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
Health care spending as % of GDP											
Pure ageing scenario	6.1	6.1	6.3	6.5	6.7	6.9	7.1	7.3	7.4	7.4	7.4
Constant health scenario	6.1	6.1	6.2	6.3	6.5	6.6	6.8	6.9	6.9	6.9	6.9
Death-related costs scenario	6.1	6.1	6.2	6.4	6.6	6.8	6.9	7.0	7.1	7.1	7.1
Income elasticity of demand	6.1	6.1	6.3	6.6	6.8	7.1	7.3	7.5	7.6	7.7	7.7
Unit costs - GDP per worker	6.1	6.1	6.2	6.4	6.7	7.1	7.6	7.9	8.0	7.9	7.9
AWG reference scenario	6.1	6.1	6.3	6.5	6.7	6.9	7.1	7.3	7.4	7.4	7.4
Long-term care spending as % of GDP											
Pure ageing scenario	0.5	0.5	0.5	0.5	0.6	0.7	0.8	0.9	1.0	1.1	1.2
Unit costs - GDP per capita	0.5	0.5	0.5	0.5	0.6	0.5	0.8	0.9	1.0	1.1	1.1
Constant disability scenario	0.5	0.5	0.5	0.5	0.5	0.6	0.7	0.8	0.8	0.9	0.9
Increase in formal care	0.5	0.5	0.7	0.9	1.1	1.2	1.5	1.8	1.9	2.1	2.3
AWG reference scenario	0.5	0.5	0.5	0.5	0.5	0.6	0.8	0.9	0.9	1.0	1.1
Number of dependent people (in thousands)											
Pure ageing scenario	362	367	396	441	490	561	652	721	775	813	833
Unit costs - GDP per capita	362	367	396	441	490	286	652	721	775	813	833
Constant disability scenario	362	362	365	316	393	423	473	502	523	539	543
Increase in formal care	362	367	396	441	490	561	652	721	775	813	833
AWG reference scenario	362	365	380	410	442	492	563	612	649	676	688
of which receiving formal care											
Pure ageing scenario	79	80	87	97	110	128	149	166	180	190	194
Unit costs - GDP per capita	79	80	87	97	110	128	149	166	180	190	194
Constant disability scenario	79	79	80	83	88	97	109	116	121	126	127
Increase in formal care	79	94	168	245	323	370	431	477	513	539	552
AWG reference scenario	79	79	83	90	99	113	129	141	151	158	161
of which receiving informal or no care											
Pure ageing scenario	283	287	309	344	381	432	503	555	596	623	639
Unit costs - GDP per capita	283	287	309	344	381	220	503	555	596	623	639
Constant disability scenario	283	283	285	247	305	326	364	386	402	413	416
Increase in formal care	283	273	227	196	168	190	221	244	262	274	281
AWG reference scenario	283	285	297	320	343	379	433	471	499	518	527
Education spending as % of GDP											
Total	4.8	4.8	4.7	4.7	4.6	4.5	4.6	4.7	4.7	4.7	4.6
of which: Transfers	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Primary	1.5	1.4	1.5	1.4	1.3	1.3	1.4	1.4	1.4	1.4	1.3
of which: Transfers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Low secondary	1.2	1.2	1.1	1.2	1.1	1.1	1.1	1.1	1.2	1.2	1.1
of which: Transfers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Upper secondary	0.9	0.9	0.9	0.9	0.9	0.9	0.8	0.9	0.9	0.9	0.9
of which: Transfers	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Tertiary education	1.3	1.3	1.2	1.2	1.3	1.3	1.3	1.2	1.2	1.2	1.3
of which: Transfers	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Number of students (in thousands)											
Total	3232	3237	3301	3298	3226	3148	3125	3150	3179	3170	3126
Primary	1282	1283	1332	1276	1207	1201	1229	1254	1258	1234	1197
Low secondary	800	808	800	841	805	761	756	772	788	791	777
Upper secondary	629	629	650	651	673	642	619	618	627	634	634
Tertiary education	522	517	518	530	541	544	522	506	506	511	517
Memo											
Population aged 15-64 (in thousands)	10991	11029	11214	11158	11167	11037	10783	10538	10431	10509	10575
Unemployment benefit spending as % of GDP	1.8	1.7	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5

Austria

Main demographic and macroeconomic assumptions

(BASELINE SCENARIO)

Budgetary Projection: AWG variant population scenario

	2004	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
Demographic assumptions											
Fertility rate	1.4	1.4	1.4	1.4	1.4	1.5	1.5	1.5	1.5	1.5	1.5
Life expectancy at birth											
males	76.2	76.4	77.4	78.4	79.3	80.1	80.8	81.4	81.9	82.3	82.8
females	82.1	82.3	83.2	84.0	84.7	85.4	85.9	86.3	86.7	86.9	87.2
Life expectancy at 65											
males	16.2	16.3	16.9	17.5	18.1	18.6	19.1	19.5	19.8	20.1	20.4
females	19.7	19.8	20.5	21.2	21.7	22.2	22.6	22.9	23.2	23.4	23.6
Net migration (thousand)	25.0	24.7	23.6	22.8	20.6	19.6	19.1	19.4	19.7	20.0	20.3
Net migration as % of population	0.31	0.30	0.29	0.27	0.24	0.23	0.22	0.23	0.23	0.24	0.25
Population (million)	8.1	8.1	8.3	8.4	8.4	8.5	8.5	8.5	8.4	8.3	8.2
Population aged 0-14 as % of total	16.3	16.1	14.9	14.2	14.0	13.8	13.5	13.1	12.6	12.4	12.4
Prime age population (25-54) as % of total	44.0	43.9	43.8	42.7	40.8	38.4	37.1	36.6	35.9	35.4	34.8
Working age population (15-64) as % of total	68.2	67.9	67.4	66.9	66.0	64.1	61.5	59.2	58.2	58.1	57.5
Elderly population aged 65+ as % of total	15.5	16.0	17.7	18.8	20.0	22.1	25.0	27.7	29.1	29.6	30.1
Very elderly population aged 80 and over as % of total	4.1	4.2	4.8	5.0	5.4	6.6	7.2	7.9	9.1	10.9	12.4
lerly population aged 55+ as % of working age pop.15-64	5.2	5.3	5.4	5.7	6.2	6.8	7.3	7.6	7.8	7.8	7.9
Macroeconomic assumptions											
Real GDP (growth rate)	1.8	1.9	2.6	2.0	1.7	1.1	1.0	1.1	1.4	1.3	1.2
Labour input (growth rate)	0.3	0.5	0.9	0.2	-0.1	-0.7	-0.7	-0.6	-0.4	-0.4	-0.6
Labour productivity (growth rate)	1.5	1.4	1.7	1.8	1.8	1.8	1.7	1.7	1.7	1.7	1.7
TFP (growth rate)	0.8	0.7	1.2	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Capital deepening (contribution to labour productivity growth)	0.8	0.7	0.5	0.7	0.7	0.7	0.6	0.6	0.6	0.6	0.6
GDP per capita (growth rate)	1.2	1.6	2.3	1.8	1.5	1.0	1.1	1.3	1.5	1.6	1.5
GDP in 2004 prices (in billions of euro)	232	236	265	297	326	348	367	387	413	441	468
GDP per worker	23.5	23.9	26.5	29.3	31.8	33.7	35.6	37.6	40.5	43.8	47.2
Real interest rate	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Labour force assumptions											
Population growth (working age:15-64)		-0.1	0.2	-0.1	-0.2	-0.6	-0.9	-0.8	-0.4	-0.3	-0.5
Labour force (thousands)	4016	4049	4233	4331	4349	4234	4100	3967	3889	3815	3715
Participation rate (15-64)	72.6	73.3	76.1	77.4	78.1	77.7	78.3	79.1	79.5	79.1	79.1
young (15-24)	56.2	56.6	56.5	57.7	57.3	56.9	56.7	56.7	56.9	57.2	57.2
prime-age (25-54)	88.1	88.6	90.5	91.5	92.0	92.3	92.5	92.6	92.6	92.6	92.5
older (55-64)	32.3	33.5	41.6	47.9	54.4	55.3	56.8	57.3	59.5	58.8	59.2
oldest (65-71)	4.4	4.4	3.7	4.8	5.0	5.6	5.7	6.2	5.9	6.2	6.3
Employment rate (15-64)	69.6	70.4	73.5	74.8	75.4	75.1	75.7	76.3	76.7	76.4	76.4
Employment rate (15-71)	64.6	65.0	66.4	68.1	68.3	67.0	66.0	65.8	66.9	67.7	67.3
Employment growth (15-64)		1.1	0.9	0.2	-0.1	-0.7	-0.7	-0.6	-0.4	-0.4	-0.6
Unemployment rate (15-64)	4.2	3.9	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
Dependency ratios:											
Share of older workers	7.8	7.9	9.2	11.6	15.3	17.3	17.1	15.4	15.9	16.4	17.1
Old-age dependency ratio (1)	22.8	23.6	26.3	28.1	30.3	34.4	40.6	46.8	50.0	50.9	52.4
Total dependency ratio (2)	46.7	47.3	48.4	49.4	51.5	55.9	62.6	68.9	71.7	72.2	73.9
Total economic dependency ratio	110.8	109.2	101.9	99.8	100.9	107.7	114.9	121.2	123.8	125.4	127.7
Economic old-age dependency ratio (15-64)	32.2	33.0	35.2	36.9	39.4	44.8	52.5	59.9	64.0	65.5	67.4
Economic old-age dependency ratio (15-71)	32.1	32.8	35.0	36.6	39.1	44.4	51.8	59.0	63.2	64.8	66.6

LEGENDA:

Share of older workers = Population aged 55 to 64 as % of population aged 15-64

Old-age dependency ratio (1) = Population aged 65 and over as a percentage of the population aged 15-64

Total dependency ratio (2) = Population under 15 and over 64 as a percentage of the population aged 15-64

Total economic dependency ratio= Total population less employed as % of employed population (15-64)

Economic old-age dependency ratio (15-64)=Inactive population aged 65+ as % of employed population (15-64)

Economic old-age dependency ratio (15-71)=Inactive population aged 65+ as % of employed population (15-71)

Austria

EPC-AWG Pension expenditure projections

	2004	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
Baseline scenario; as % of GDP											
Social security pensions, gross	13.4	13.2	12.8	12.7	12.8	13.5	14.0	14.0	13.4	12.7	12.2
Old-age and early pensions, gross	11.2	11.0	10.9	11.0	11.3	12.1	12.6	12.7	12.3	11.7	11.3
Of which: earnings-related pensions, gross	:	:	:	:	:	:	:	:	:	:	:
Private sector employees, gross	8.2	8.0	8.2	8.4	8.8	9.6	10.3	10.7	10.6	10.4	10.3
Public sector employees, gross	3.0	3.0	2.7	2.6	2.5	2.4	2.3	2.0	1.7	1.3	0.9
Other pensions (disability, survivors), gross	2.2	2.2	1.9	1.7	1.6	1.5	1.3	1.3	1.2	1.1	0.9
Occupational pensions, gross	:	:	:	:	:	:	:	:	:	:	:
Private mandatory pensions, gross	:	:	:	:	:	:	:	:	:	:	:
Total pension expenditure, gross	13.4	13.2	12.8	12.7	12.8	13.5	14.0	14.0	13.4	12.7	12.2
Social security pensions, net	11.4	11.1	10.7	10.6	10.7	11.3	11.6	11.7	11.3	10.7	10.3
Total pension expenditure, net	11.4	11.1	10.7	10.6	10.7	11.3	11.6	11.7	11.3	10.7	10.3
Social security pensions, contributions	9.0	9.0	9.1	9.0	8.9	8.7	8.6	8.6	8.5	8.6	8.6
Total pension contributions	9.0	9.0	9.1	9.0	8.9	8.7	8.6	8.6	8.5	8.6	8.6
Social security pensions, assets	:	:	:	:	:	:	:	:	:	:	:
All pensions, assets	:	:	:	:	:	:	:	:	:	:	:
Additional indicators											
Social security pensions, net / Social sec. pensions, gross,%	86	84	84	83	83	83	83	84	84	84	84
Total pension expenditure, net / Total pension exp., gross, %	86	84	84	83	83	83	83	84	84	84	84
Social security pensions, number of pensioners , 1000 pers.	2337	2392	2449	2525	2611	2777	2912	3021	3023	2971	2892
All pensions, pensioners , 1000 pers.	2337	2391	2449	2524	2613	2778	2912	3018	3019	2966	2888
Number of pensioners aged 65+ , 1000 pers.	1594	1646	1750	1857	1944	2099	2301	2464	2478	2397	2313
Share of pensioners below age 65 as % of all pensioners	31.8	31.1	28.5	26.4	25.6	24.4	21.0	18.4	17.9	19.2	19.9
Average gross social sec. pension, 1000€ in 2004 prices	13.3	13.0	13.9	14.9	16.0	16.9	17.6	18.0	18.4	18.9	19.8
Average gross total pensions, 1000€ in 2004 prices	13.3	13.0	13.9	14.9	16.0	16.9	17.6	18.0	18.4	19.0	19.8
Output / Worker, 1000€ in 2004 prices	60.9	61.8	64.9	71.0	77.6	85.0	92.7	101.0	110.0	119.7	130.4
Social sec. benefit ratio	21.8	21.1	21.4	21.0	20.6	19.9	19.0	17.8	16.7	15.8	15.2
Total pension benefit ratio	21.8	21.1	21.4	21.0	20.6	19.9	19.0	17.8	16.7	15.8	15.2
Social security pensions, num of contributors, in 1000	3526	3638	3799	3864	3870	3764	3653	3557	3500	3445	3370
Average social sec. pension contribution, 1000€ in 2004 prices	5.9	5.8	6.3	6.9	7.5	8.1	8.7	9.3	10.1	11.0	11.9
Average total pension contribution, 1000€ in 2004 prices	5.9	5.8	6.3	6.9	7.5	8.1	8.7	9.3	10.1	11.0	11.9
Support ratio (contributors /100 pensioners, social sec. pens.)	151	152	155	153	148	136	125	118	116	116	117
High life expectancy; as % of GDP											
Social security pensions, gross	13.4	13.2	12.9	12.7	12.9	13.7	14.2	14.3	13.8	13.1	12.6
Old-age and early pensions, gross	11.2	11.0	10.9	11.0	11.3	12.2	12.8	13.0	12.5	12.0	11.6
Total pension expenditure, gross	13.4	13.2	12.9	12.7	12.9	13.7	14.2	14.3	13.8	13.1	12.6
All pensions, assets	:	:	:	:	:	:	:	:	:	:	:
Higher labour productivity; as % of GDP											
Social security pensions, gross	13.4	13.2	12.8	12.6	12.6	13.2	13.5	13.5	12.8	12.1	11.4
Old-age and early pensions, gross	11.2	11.0	10.9	10.9	11.1	11.8	12.2	12.3	11.7	11.1	10.6
Total pension expenditure, gross	13.4	13.2	12.8	12.6	12.6	13.2	13.5	13.5	12.8	12.1	11.4
All pensions, assets	:	:	:	:	:	:	:	:	:	:	:
Lower labour productivity; as % of GDP											
Social security pensions, gross	13.4	13.2	12.8	12.8	13.1	13.9	14.5	14.7	14.2	13.6	13.2
Old-age and early pensions, gross	11.2	11.0	10.9	11.1	11.5	12.4	13.1	13.3	13.0	12.5	12.2
Total pension expenditure, gross	13.4	13.2	12.8	12.8	13.1	13.9	14.5	14.7	14.2	13.6	13.2
All pensions, assets	:	:	:	:	:	:	:	:	:	:	:
Higher employment rate (1 p.p.); as % of GDP											
Social security pensions, gross	13.4	13.2	12.8	12.6	12.7	13.4	13.8	13.8	13.2	12.5	12.0
Old-age and early pensions, gross	11.2	11.0	10.9	10.9	11.1	11.9	12.4	12.6	12.1	11.5	11.1
Total pension expenditure, gross	13.4	13.2	12.8	12.6	12.7	13.4	13.8	13.8	13.2	12.5	12.0
All pensions, assets	:	:	:	:	:	:	:	:	:	:	:
Higher older workers empl. rate (5 p.p.); as % of GDP											
Social security pensions, gross	13.4	13.2	12.8	12.6	12.6	13.2	13.6	13.7	13.1	12.3	11.8
Old-age and early pensions, gross	11.2	11.0	10.9	10.9	11.1	11.7	12.3	12.4	11.9	11.3	10.8
Total pension expenditure, gross	13.4	13.2	12.8	12.6	12.6	13.2	13.6	13.7	13.1	12.3	11.8
All pensions, assets	:	:	:	:	:	:	:	:	:	:	:
Lower interest rate; as % of GDP											
Social security pensions, gross	13.4	13.2	12.8	12.7	12.8	13.5	14.0	14.0	13.4	12.7	12.2
Old-age and early pensions, gross	11.2	11.0	10.9	11.0	11.3	12.1	12.6	12.7	12.3	11.7	11.3
Total pension expenditure, gross	13.4	13.2	12.8	12.7	12.8	13.5	14.0	14.0	13.4	12.7	12.2
All pensions, assets	:	:	:	:	:	:	:	:	:	:	:
Higher interest rate; as % of GDP											
Social security pensions, gross	13.4	13.2	12.8	12.7	12.8	13.5	14.0	14.0	13.4	12.7	12.2
Old-age and early pensions, gross	11.2	11.0	10.9	11.0	11.3	12.1	12.6	12.7	12.3	11.7	11.3
Total pension expenditure, gross	13.4	13.2	12.8	12.7	12.8	13.5	14.0	14.0	13.4	12.7	12.2
All pensions, assets	:	:	:	:	:	:	:	:	:	:	:

: = data not provided

Austria

OTHER AGE-RELATED EXPENDITURES as % of GDP

	2004	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
Health care spending as % of GDP											
Pure ageing scenario	5.3	5.3	5.5	5.7	5.9	6.1	6.3	6.5	6.7	6.9	6.9
Constant health scenario	5.3	5.3	5.3	5.5	5.6	5.7	5.8	6.0	6.1	6.2	6.3
Death-related costs scenario	5.3	5.3	5.4	5.6	5.8	6.0	6.1	6.3	6.4	6.5	6.6
Income elasticity of demand	5.3	5.3	5.5	5.8	6.1	6.3	6.5	6.8	7.0	7.1	7.2
Unit costs - GDP per worker	5.3	5.3	5.3	5.5	5.7	6.1	6.6	7.0	7.3	7.5	7.6
AWG reference scenario	5.3	5.3	5.5	5.7	5.9	6.1	6.3	6.5	6.7	6.8	6.8
Long-term care spending as % of GDP											
Pure ageing scenario	0.6	0.6	0.7	0.7	0.8	0.9	1.0	1.1	1.2	1.4	1.5
Unit costs - GDP per capita	0.6	0.6	0.7	0.7	0.8	0.9	0.9	1.0	1.1	1.3	1.4
Constant disability scenario	0.6	0.6	0.7	0.7	0.8	0.9	1.0	1.1	1.2	1.4	1.5
Increase in formal care	0.6	0.6	0.7	0.7	0.8	0.9	1.0	1.1	1.2	1.4	1.5
AWG reference scenario	0.6	0.6	0.7	0.7	0.8	0.9	1.0	1.1	1.2	1.4	1.5
Number of dependent people (in thousands)											
Pure ageing scenario	197	203	223	238	259	289	322	357	388	410	419
Unit costs - GDP per capita	197	203	223	238	259	143	322	357	388	410	419
Constant disability scenario	197	200	204	167	205	216	227	238	251	261	263
Increase in formal care	197	203	223	238	259	289	322	357	388	410	419
AWG reference scenario	197	201	214	221	232	252	275	298	319	335	341
of which receiving formal care											
Pure ageing scenario	:	:	:	:	:	:	:	:	:	:	:
Unit costs - GDP per capita	:	:	:	:	:	:	:	:	:	:	:
Constant disability scenario	:	:	:	:	:	:	:	:	:	:	:
Increase in formal care	:	:	:	:	:	:	:	:	:	:	:
AWG reference scenario	:	:	:	:	:	:	:	:	:	:	:
of which receiving informal or no care											
Pure ageing scenario	:	:	:	:	:	:	:	:	:	:	:
Unit costs - GDP per capita	:	:	:	:	:	:	:	:	:	:	:
Constant disability scenario	:	:	:	:	:	:	:	:	:	:	:
Increase in formal care	:	:	:	:	:	:	:	:	:	:	:
AWG reference scenario	:	:	:	:	:	:	:	:	:	:	:
Education spending as % of GDP											
Total	5.1	5.0	4.6	4.3	4.1	4.1	4.2	4.2	4.2	4.1	4.1
of which: Transfers	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Primary	1.1	1.1	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
of which: Transfers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Low secondary	1.4	1.4	1.2	1.1	1.1	1.1	1.1	1.2	1.1	1.1	1.1
of which: Transfers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Upper secondary	1.3	1.3	1.2	1.1	1.0	1.0	1.1	1.1	1.1	1.1	1.0
of which: Transfers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Tertiary education	1.4	1.3	1.2	1.2	1.1	1.1	1.1	1.1	1.1	1.1	1.1
of which: Transfers	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Number of students (in thousands)											
Total	1428	1414	1341	1270	1226	1205	1192	1170	1131	1089	1057
Primary	371	362	330	323	320	322	318	304	289	279	275
Low secondary	395	395	360	335	327	325	326	320	306	292	283
Upper secondary	426	429	431	394	371	362	359	359	352	337	323
Tertiary education	236	228	220	218	207	196	189	186	184	181	176
Memo											
Population aged 15-64 (in thousands)	5531	5525	5562	5594	5569	5447	5233	5018	4895	4822	4698
Unemployment benefit spending as % of GDP	0.8	0.7	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6

Poland

Main demographic and macroeconomic assumptions

(BASELINE SCENARIO)

Budgetary Projection: AWG variant population scenario

	2004	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
Demographic assumptions											
Fertility rate	1.2	1.2	1.2	1.3	1.4	1.5	1.6	1.6	1.6	1.6	1.6
Life expectancy at birth											
males	70.5	70.7	72.0	73.3	74.6	75.8	76.8	77.6	78.2	78.7	79.1
females	78.5	78.7	79.6	80.5	81.3	82.1	82.8	83.3	83.7	84.1	84.4
Life expectancy at 65											
males	13.7	13.8	14.5	15.2	15.9	16.6	17.3	17.8	18.1	18.5	18.8
females	17.4	17.5	18.1	18.6	19.2	19.8	20.3	20.7	21.0	21.2	21.5
Net migration (thousand)	-27.9	-27.8	-35.4	-51.5	-10.6	29.7	35.9	36.0	35.4	34.5	33.7
Net migration as % of population	-0.07	-0.07	-0.09	-0.14	-0.03	0.08	0.10	0.10	0.10	0.10	0.10
Population (million)	38.2	38.1	37.8	37.4	37.1	36.8	36.5	36.1	35.4	34.5	33.7
Population aged 0-14 as % of total	17.2	16.7	14.7	14.3	14.5	14.6	14.2	13.4	12.9	12.8	13.0
Prime age population (25-54) as % of total	43.7	43.8	44.3	43.7	43.4	42.9	41.3	38.8	36.0	34.3	33.4
Working age population (15-64) as % of total	69.8	70.2	71.8	70.5	67.3	64.3	63.3	63.1	62.4	60.4	57.6
Elderly population aged 65+ as % of total	13.0	13.1	13.5	15.3	18.2	21.1	22.6	23.4	24.8	26.8	29.4
Very elderly population aged 80 and over as % of total	2.4	2.5	3.2	3.9	4.2	4.3	5.4	7.3	8.8	9.0	8.8
lerly population aged 55+ as % of working age pop.15-64	21.7	21.6	21.7	23.5	25.5	27.2	28.2	29.1	30.4	31.9	33.4
Macroeconomic assumptions											
Real GDP (growth rate)	3.3	3.6	5.0	3.7	3.2	2.9	2.2	1.2	0.7	0.5	0.4
Labour input (growth rate)	-0.9	-0.6	1.4	0.4	0.1	0.0	-0.5	-0.8	-1.2	-1.3	-1.3
Labour productivity (growth rate)	4.1	4.2	3.6	3.3	3.1	2.9	2.7	2.0	1.9	1.8	1.7
TFP (growth rate)	2.5	2.4	2.4	1.9	1.9	1.8	1.8	1.3	1.2	1.2	1.1
Capital deepening (contribution to labour productivity growth)	1.7	1.8	1.2	1.4	1.3	1.1	0.9	0.7	0.7	0.6	0.6
GDP per capita (growth rate)	3.4	3.8	5.2	3.9	3.4	3.1	2.4	1.5	1.2	1.0	0.9
GDP in 2004 prices (in billions of euro)	195	202	259	318	375	436	490	530	554	570	582
GDP per worker	9.0	9.4	12.1	15.0	17.9	20.9	23.7	25.9	27.7	29.1	30.5
Real interest rate	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Labour force assumptions											
Population growth (working age:15-64)		0.4	0.1	-0.9	-1.1	-0.8	-0.4	-0.4	-0.8	-1.2	-1.6
Labour force (thousands)	17153	17343	18381	18445	17961	17438	17066	16508	15696	14720	13778
Participation rate (15-64)	64.3	64.8	67.7	69.9	72.0	73.6	73.8	72.5	71.1	70.5	71.0
young (15-24)	37.5	38.6	40.4	41.1	39.9	38.2	37.3	37.8	38.7	39.4	39.2
prime-age (25-54)	82.1	82.6	85.6	88.0	89.3	89.7	89.8	89.4	89.2	89.3	89.6
older (55-64)	29.9	29.9	37.1	40.2	41.0	43.6	49.1	51.4	51.3	49.7	49.3
oldest (65-71)	7.8	7.5	6.2	8.0	7.7	7.8	7.7	8.4	9.4	9.2	9.2
Employment rate (15-64)	52.1	52.7	57.0	61.0	64.9	68.4	68.6	67.4	66.2	65.6	66.1
Employment rate (15-71)	48.8	49.3	53.6	56.5	58.2	60.7	61.6	61.2	59.5	57.6	56.8
Employment growth (15-64)		1.5	1.4	0.4	0.1	0.0	-0.5	-0.8	-1.2	-1.3	-1.3
Unemployment rate (15-64)	19.0	18.7	15.8	12.9	9.9	7.0	7.0	7.0	7.0	7.0	7.0
Dependency ratios:											
Share of older workers	6.3	6.5	9.9	12.0	11.5	10.9	12.8	15.8	18.5	18.9	17.8
Old-age dependency ratio (1)	18.6	18.7	18.8	21.7	27.1	32.8	35.7	37.1	39.7	44.3	51.0
Total dependency ratio (2)	43.3	42.5	39.3	41.9	48.6	55.4	58.0	58.4	60.3	65.4	73.5
Total economic dependency ratio	174.9	170.5	144.4	132.8	129.1	127.1	130.2	134.8	142.3	152.4	162.7
Economic old-age dependency ratio (15-64)	34.4	34.4	32.1	34.3	40.2	46.2	50.5	53.6	58.1	65.3	74.5
Economic old-age dependency ratio (15-71)	34.0	34.0	31.9	33.9	39.6	45.5	49.8	52.8	57.1	63.8	72.5

LEGENDA:

Share of older workers = Population aged 55 to 64 as % of population aged 15-64

Old-age dependency ratio (1) = Population aged 65 and over as a percentage of the population aged 15-64

Total dependency ratio (2) = Population under 15 and over 64 as a percentage of the population aged 15-64

Total economic dependency ratio= Total population less employed as % of employed population (15-64)

Economic old-age dependency ratio (15-64)=Inactive population aged 65+ as % of employed population (15-64)

Economic old-age dependency ratio (15-71)=Inactive population aged 65+ as % of employed population (15-71)

Poland

EPC-AWG Pension expenditure projections

	2004	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
Baseline scenario; as % of GDP											
Social security pensions, gross	13.9	13.7	11.3	9.8	9.7	9.5	9.2	8.9	8.6	8.3	8.0
Old-age and early pensions, gross	10.7	11.1	9.4	8.2	8.4	8.3	7.9	7.4	7.1	6.8	6.6
Of which: earnings-related pensions, gross	:	:	:	:	:	:	:	:	:	:	:
Private sector employees, gross	:	:	:	:	:	:	:	:	:	:	:
Public sector employees, gross	:	:	:	:	:	:	:	:	:	:	:
Other pensions (disability, survivors), gross	3.2	2.6	2.0	1.6	1.3	1.3	1.3	1.4	1.5	1.5	1.4
Occupational pensions, gross	:	:	:	:	:	:	:	:	:	:	:
Private mandatory pensions, gross	0.0	0.0	0.0	0.0	0.1	0.2	0.3	0.4	0.7	1.0	1.3
Total pension expenditure, gross	13.9	13.7	11.3	9.8	9.8	9.7	9.4	9.3	9.3	9.3	9.3
Social security pensions, net	11.8	11.7	9.6	8.3	8.3	8.1	7.8	7.5	7.3	7.1	6.8
Total pension expenditure, net	11.8	11.7	9.6	8.3	8.3	8.2	8.0	7.9	7.9	7.9	7.9
Social security pensions, contributions	7.7	7.8	8.0	8.1	8.1	8.0	7.9	7.9	7.9	7.9	7.9
Total pension contributions	9.0	9.3	9.7	9.9	10.1	10.1	10.1	10.1	10.1	10.1	10.1
Social security pensions, assets	0.1	0.2	0.4	0.4	0.3	0.3	0.4	0.4	0.4	0.5	0.5
All pensions, assets	7.1	8.4	15.9	24.0	33.5	42.5	51.1	60.3	69.9	78.4	85.0
Additional indicators											
Social security pensions, net / Social sec. pensions, gross,%	85	85	85	85	85	85	85	85	85	85	85
Total pension expenditure, net / Total pension exp., gross, %	85	85	85	85	85	85	85	85	85	85	85
Social security pensions, number of pensioners , 1000 pers.	7652	7632	7254	7445	7975	8392	8635	8865	9139	9416	9574
All pensions, pensioners , 1000 pers.	9943	9761	9123	8966	9280	9564	9771	10033	10353	10638	10769
Number of pensioners aged 65+ , 1000 pers.	6409	6348	6877	7383	8026	8380	8548	8786	9157	9613	9915
Share of pensioners below age 65 as % of all pensioners	35.5	35.0	24.6	17.7	13.5	12.4	12.5	12.4	11.6	9.6	7.9
Average gross social sec. pension, 1000€ in 2004 prices	3.5	3.6	4.0	4.2	4.6	4.9	5.2	5.3	5.2	5.0	4.9
Average gross total pensions, 1000€ in 2004 prices	2.7	2.8	3.2	3.5	4.0	4.4	4.7	4.9	5.0	5.0	5.0
Output / Worker, 1000€ in 2004 prices	14.2	14.8	16.7	19.8	23.2	26.9	30.8	34.5	38.0	41.6	45.4
Social sec. benefit ratio	25.0	24.6	24.1	21.1	19.7	18.4	16.9	15.4	13.8	12.1	10.7
Total pension benefit ratio	19.2	19.2	19.2	17.5	17.1	16.4	15.3	14.2	13.1	12.0	11.1
Social security pensions, num of contributors, in 1000	14433	14605	16156	16988	17287	17227	16815	16237	15443	14486	13565
Average social sec. pension contribution, 1000€ in 2004 prices	1.0	1.1	1.3	1.5	1.8	2.0	2.3	2.6	2.9	3.1	3.4
Average total pension contribution, 1000€ in 2004 prices	1.2	1.3	1.5	1.9	2.2	2.5	2.9	3.3	3.6	4.0	4.3
Support ratio (contributors /100 pensioners, social sec. pens.)	189	191	223	228	217	205	195	183	169	154	142
High life expectancy; as % of GDP											
Social security pensions, gross	13.9	13.7	11.3	9.8	9.7	9.5	9.2	9.0	8.8	8.5	8.2
Old-age and early pensions, gross	10.7	11.1	9.4	8.2	8.4	8.3	7.9	7.6	7.3	7.0	6.8
Total pension expenditure, gross	13.9	13.7	11.3	9.8	9.8	9.7	9.5	9.4	9.4	9.5	9.5
All pensions, assets	7.1	8.4	15.9	24.1	33.5	42.7	51.3	60.7	70.5	79.4	86.5
Higher labour productivity; as % of GDP											
Social security pensions, gross	13.9	13.7	11.3	9.7	9.5	9.2	8.9	8.5	8.2	7.9	7.6
Old-age and early pensions, gross	10.7	11.1	9.4	8.1	8.2	8.0	7.6	7.1	6.8	6.5	6.2
Total pension expenditure, gross	13.9	13.7	11.3	9.7	9.6	9.4	9.1	8.9	8.9	8.8	8.8
All pensions, assets	7.1	8.4	15.8	23.8	32.7	41.3	49.2	57.7	66.5	74.2	80.4
Lower labour productivity; as % of GDP											
Social security pensions, gross	13.9	13.7	11.3	9.8	9.8	9.7	9.4	9.1	8.9	8.6	8.3
Old-age and early pensions, gross	10.7	11.1	9.4	8.2	8.5	8.4	8.0	7.7	7.3	7.1	6.8
Total pension expenditure, gross	13.9	13.7	11.3	9.8	9.9	9.8	9.6	9.5	9.6	9.6	9.7
All pensions, assets	7.1	8.4	15.8	24.1	33.7	43.0	51.9	61.5	71.5	80.5	87.6
Higher employment rate (1 p.p.); as % of GDP											
Social security pensions, gross	13.9	13.7	11.3	9.7	9.6	9.4	9.1	8.8	8.5	8.2	7.9
Old-age and early pensions, gross	10.7	11.1	9.3	8.1	8.3	8.2	7.8	7.4	7.0	6.7	6.5
Total pension expenditure, gross	13.9	13.7	11.3	9.7	9.7	9.6	9.3	9.2	9.2	9.2	9.2
All pensions, assets	7.1	8.5	15.9	24.1	33.5	42.5	51.0	60.1	69.6	77.9	84.5
Higher older workers empl. rate (5 p.p.); as % of GDP											
Social security pensions, gross	13.9	13.7	11.3	9.7	9.7	9.5	9.2	8.9	8.6	8.3	8.0
Old-age and early pensions, gross	10.7	11.1	9.3	8.2	8.4	8.3	7.9	7.5	7.1	6.8	6.6
Total pension expenditure, gross	13.9	13.7	11.3	9.8	9.8	9.7	9.4	9.3	9.3	9.3	9.3
All pensions, assets	7.1	8.5	16.1	24.4	33.9	43.1	51.8	61.0	70.4	78.7	85.1
Lower interest rate; as % of GDP											
Social security pensions, gross	13.9	13.7	11.3	9.8	9.7	9.5	9.2	8.9	8.7	8.4	8.0
Old-age and early pensions, gross	10.7	11.1	9.4	8.2	8.4	8.3	7.9	7.5	7.1	6.9	6.6
Total pension expenditure, gross	13.9	13.7	11.3	9.8	9.8	9.7	9.5	9.3	9.3	9.4	9.3
All pensions, assets	6.9	8.3	15.1	22.5	30.7	38.4	45.4	52.8	60.4	67.1	72.3
Higher interest rate; as % of GDP											
Social security pensions, gross	13.9	13.7	11.3	9.8	9.7	9.5	9.2	8.9	8.7	8.4	8.0
Old-age and early pensions, gross	10.7	11.1	9.4	8.2	8.4	8.3	7.9	7.5	7.1	6.9	6.6
Total pension expenditure, gross	13.9	13.7	11.3	9.8	9.8	9.7	9.5	9.4	9.4	9.6	9.6
All pensions, assets	7.2	8.6	16.6	25.8	36.6	47.3	57.8	69.3	81.4	92.3	101.0

: = data not provided

Poland

OTHER AGE-RELATED EXPENDITURES as % of GDP

	2004	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
Health care spending as % of GDP											
Pure ageing scenario	4.1	4.1	4.3	4.5	4.7	4.8	5.0	5.1	5.2	5.3	5.4
Constant health scenario	4.1	4.1	4.2	4.3	4.4	4.5	4.5	4.6	4.7	4.7	4.8
Death-related costs scenario	4.1	4.1	4.3	4.4	4.5	4.6	4.8	4.8	4.9	5.0	5.0
Income elasticity of demand	4.1	4.2	4.4	4.7	4.9	5.2	5.4	5.5	5.6	5.7	5.8
Unit costs - GDP per worker	4.1	4.2	4.0	4.0	4.1	4.2	4.4	4.6	4.8	5.1	5.4
AWG reference scenario	4.1	4.1	4.4	4.6	4.8	5.0	5.1	5.2	5.3	5.4	5.5
Long-term care spending as % of GDP											
Pure ageing scenario	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2
Unit costs - GDP per capita	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2
Constant disability scenario	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2
Increase in formal care	0.1	0.1	0.2	0.2	0.2	0.2	0.3	0.3	0.4	0.4	0.4
AWG reference scenario	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2
Number of dependent people (in thousands)											
Pure ageing scenario	885	906	990	1098	1237	1401	1598	1780	1903	1949	2004
Unit costs - GDP per capita	885	906	990	1098	1237	650	1598	1780	1903	1949	2004
Constant disability scenario	885	892	906	773	978	1026	1118	1219	1276	1255	1226
Increase in formal care	885	906	990	1098	1237	1401	1598	1780	1903	1949	2004
AWG reference scenario	885	899	948	1016	1108	1214	1358	1500	1590	1602	1615
of which receiving formal care											
Pure ageing scenario	148	152	166	188	215	242	275	308	335	345	356
Unit costs - GDP per capita	148	152	166	188	215	242	275	308	335	345	356
Constant disability scenario	148	150	153	161	171	179	195	214	227	225	221
Increase in formal care	148	190	384	580	787	891	1016	1133	1213	1243	1278
AWG reference scenario	148	151	160	174	193	210	235	261	281	285	288
of which receiving informal or no care											
Pure ageing scenario	737	754	823	910	1022	1160	1323	1472	1568	1603	1648
Unit costs - GDP per capita	737	754	823	910	1022	534	1323	1472	1568	1603	1648
Constant disability scenario	737	742	753	639	807	847	923	1004	1049	1030	1006
Increase in formal care	737	716	605	517	450	510	582	648	690	706	725
AWG reference scenario	737	748	788	842	915	1003	1123	1238	1309	1316	1327
Education spending as % of GDP											
Total	5.0	4.9	3.9	3.3	3.0	2.9	3.0	3.0	3.0	3.0	3.1
of which: Transfers	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Primary	1.8	1.7	1.3	1.2	1.2	1.2	1.2	1.2	1.1	1.2	1.2
of which: Transfers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Low secondary	0.9	0.9	0.7	0.6	0.5	0.5	0.6	0.6	0.6	0.6	0.6
of which: Transfers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Upper secondary	1.2	1.1	0.9	0.7	0.6	0.6	0.6	0.6	0.7	0.6	0.6
of which: Transfers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Tertiary education	1.2	1.2	1.0	0.8	0.7	0.6	0.6	0.6	0.7	0.7	0.7
of which: Transfers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Number of students (in thousands)											
Total	8775	8518	7248	6283	5767	5648	5643	5526	5256	4955	4749
Primary	2860	2733	2276	2094	2130	2190	2159	2021	1857	1763	1755
Low secondary	1681	1644	1336	1123	1043	1070	1105	1085	1011	927	884
Upper secondary	2232	2139	1823	1481	1273	1229	1276	1298	1256	1162	1076
Tertiary education	2002	2002	1813	1584	1321	1158	1105	1121	1132	1102	1033
Memo											
Population aged 15-64 (in thousands)	26659	26759	27159	26372	24943	23703	23121	22762	22062	20883	19399
Unemployment benefit spending as % of GDP	0.5	0.5	0.4	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2

Portugal

Main demographic and macroeconomic assumptions

(BASELINE SCENARIO)

Budgetary Projection: AWG variant population scenario

	2004	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
Demographic assumptions											
Fertility rate	1.5	1.5	1.5	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
Life expectancy at birth											
males	74.2	74.4	75.5	76.5	77.4	78.2	79.0	79.6	80.2	80.7	81.2
females	81.0	81.2	82.2	83.1	83.9	84.6	85.2	85.6	86.0	86.4	86.7
Life expectancy at 65											
males	15.6	15.7	16.4	17.0	17.6	18.1	18.6	18.9	19.3	19.6	19.9
females	19.0	19.1	19.8	20.4	21.0	21.5	21.9	22.3	22.6	22.9	23.1
Net migration (thousand)	41.8	36.4	18.3	16.6	15.6	15.1	15.0	14.9	14.9	14.9	14.9
Net migration as % of population	0.40	0.35	0.17	0.15	0.14	0.14	0.14	0.14	0.14	0.15	0.15
Population (million)	10.5	10.5	10.7	10.8	10.8	10.7	10.7	10.6	10.5	10.3	10.1
Population aged 0-14 as % of total	15.7	15.7	15.7	15.6	15.1	14.2	13.4	13.1	13.1	13.1	13.0
Prime age population (25-54) as % of total	43.5	43.6	43.8	42.5	40.7	38.9	37.0	35.1	34.0	33.7	33.6
Working age population (15-64) as % of total	67.4	67.3	66.6	65.5	64.5	63.7	62.2	60.5	58.3	56.0	54.9
Elderly population aged 65+ as % of total	16.8	17.0	17.7	18.9	20.4	22.2	24.4	26.4	28.6	30.8	32.1
Very elderly population aged 80 and over as % of total	3.7	3.8	4.4	5.0	5.6	6.0	6.8	7.7	8.6	9.8	10.7
lerly population aged 55+ as % of working age pop.15-64	6.8	6.8	7.3	7.7	8.2	8.5	9.0	9.6	10.1	10.5	10.5
Macroeconomic assumptions											
Real GDP (growth rate)	1.4	1.4	2.4	2.4	2.2	2.1	1.0	0.9	0.6	0.8	1.0
Labour input (growth rate)	0.9	0.7	0.3	-0.1	-0.3	-0.4	-0.7	-0.8	-1.1	-0.9	-0.7
Labour productivity (growth rate)	0.5	0.6	2.1	2.5	2.5	2.5	1.7	1.7	1.7	1.7	1.7
TFP (growth rate)	0.1	0.2	1.3	1.6	1.6	1.6	1.1	1.1	1.1	1.1	1.1
Capital deepening (contribution to labour productivity growth)	0.4	0.4	0.8	0.9	0.9	0.9	0.6	0.6	0.6	0.6	0.6
GDP per capita (growth rate)	0.7	0.9	2.2	2.3	2.2	2.1	1.2	1.1	0.9	1.2	1.5
GDP in 2004 prices (in billions of euro)	135	137	152	171	192	213	231	242	251	260	272
GDP per worker	13.7	13.8	15.0	16.9	18.9	21.1	23.0	24.3	25.5	26.8	28.7
Real interest rate	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Labour force assumptions											
Population growth (working age:15-64)		0.3	-0.1	-0.2	-0.3	-0.4	-0.7	-0.8	-1.1	-1.0	-0.7
Labour force (thousands)	5188	5249	5425	5440	5382	5278	5125	4933	4696	4458	4282
Participation rate (15-64)	73.4	74.1	76.2	77.2	77.4	77.2	77.1	77.0	77.0	77.4	77.7
young (15-24)	45.6	46.0	45.0	44.3	43.5	43.8	44.6	45.2	45.0	44.4	44.1
prime-age (25-54)	86.5	86.9	88.8	90.1	90.9	91.0	90.8	90.7	90.8	91.0	91.0
older (55-64)	54.7	55.5	58.3	60.7	62.8	64.5	66.4	66.7	66.0	65.7	66.2
oldest (65-71)	23.6	23.6	24.9	26.4	26.5	26.8	27.4	27.3	27.9	27.4	27.1
Employment rate (15-64)	68.9	69.7	71.9	72.9	73.1	72.9	72.8	72.7	72.8	73.1	73.4
Employment rate (15-71)	64.6	65.3	67.6	68.2	67.9	67.5	67.0	66.5	66.1	65.8	66.2
Employment growth (15-64)		1.4	0.3	-0.1	-0.3	-0.4	-0.7	-0.8	-1.1	-0.9	-0.7
Unemployment rate (15-64)	6.2	6.0	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6
Dependency ratios:											
Share of older workers	12.1	12.3	13.7	15.1	16.9	18.4	20.1	21.8	21.8	19.9	18.5
Old-age dependency ratio (1)	24.9	25.2	26.5	28.8	31.6	34.8	39.2	43.6	49.1	55.0	58.5
Total dependency ratio (2)	48.3	48.5	50.0	52.7	54.9	57.1	60.7	65.2	71.5	78.4	82.3
Total economic dependency ratio	115.2	113.2	108.6	109.5	112.0	115.5	120.6	127.2	135.7	144.2	148.5
Economic old-age dependency ratio (15-64)	32.6	32.7	33.4	35.5	38.7	42.9	48.2	54.1	60.9	68.1	73.0
Economic old-age dependency ratio (15-71)	31.5	31.6	32.2	34.1	37.1	40.9	45.7	51.0	57.1	63.6	68.4

LEGENDA:

Share of older workers = Population aged 55 to 64 as % of population aged 15-64

Old-age dependency ratio (1) = Population aged 65 and over as a percentage of the population aged 15-64

Total dependency ratio (2) = Population under 15 and over 64 as a percentage of the population aged 15-64

Total economic dependency ratio= Total population less employed as % of employed population (15-64)

Economic old-age dependency ratio (15-64)=Inactive population aged 65+ as % of employed population (15-64)

Economic old-age dependency ratio (15-71)=Inactive population aged 65+ as % of employed population (15-71)

Portugal

EPC-AWG Pension expenditure projections

	2004	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
Baseline scenario; as % of GDP											
Social security pensions, gross	11.1	11.5	11.9	12.6	14.1	15.0	16.0	17.4	18.8	20.0	20.8
Old-age and early pensions, gross	8.6	9.0	9.4	10.2	11.6	12.3	13.2	14.3	15.5	16.5	17.2
Of which: earnings-related pensions, gross	:	:	:	:	:	:	:	:	:	:	:
Private sector employees, gross	4.4	4.7	5.5	6.3	7.1	7.8	8.7	9.8	10.9	12.2	12.9
Public sector employees, gross	3.6	3.7	3.5	3.6	4.3	4.4	4.3	4.4	4.4	4.2	4.1
Other pensions (disability, survivors), gross	2.4	2.5	2.5	2.5	2.6	2.7	2.8	3.1	3.3	3.5	3.6
Occupational pensions, gross	:	:	:	:	:	:	:	:	:	:	:
Private mandatory pensions, gross	:	:	:	:	:	:	:	:	:	:	:
Total pension expenditure, gross	11.1	11.5	11.9	12.6	14.1	15.0	16.0	17.4	18.8	20.0	20.8
Social security pensions, net	10.3	10.8	11.1	11.8	13.2	14.0	14.9	16.2	17.6	18.7	19.4
Total pension expenditure, net	10.3	10.8	11.1	11.8	13.2	14.0	14.9	16.2	17.6	18.7	19.4
Social security pensions, contributions	10.5	10.6	10.5	9.9	9.6	9.5	9.4	9.2	9.1	9.2	9.2
Total pension contributions	10.5	10.6	10.5	9.9	9.6	9.5	9.4	9.2	9.1	9.2	9.2
Social security pensions, assets	4.3	4.4	4.0	:	:	:	:	:	:	:	:
All pensions, assets	4.3	4.4	4.0	:	:	:	:	:	:	:	:
Additional indicators											
Social security pensions, net / Social sec. pensions, gross,%	93	93	93	93	93	93	93	93	93	93	93
Total pension expenditure, net / Total pension exp., gross, %	93	93	93	93	93	93	93	93	93	93	93
Social security pensions, number of pensioners , 1000 pers.	3048	3143	3304	3585	4005	4351	4698	4989	5244	5379	5454
All pensions, pensioners , 1000 pers.	3048	3143	3304	3585	4005	4351	4698	4989	5244	5379	5454
Number of pensioners aged 65+ , 1000 pers.	:	:	:	:	:	:	:	:	:	:	:
Share of pensioners below age 65 as % of all pensioners	:	:	:	:	:	:	:	:	:	:	:
Average gross social sec. pension, 1000€ in 2004 prices	4.9	5.0	5.5	6.0	6.8	7.3	7.9	8.4	9.0	9.7	10.4
Average gross total pensions, 1000€ in 2004 prices	4.9	5.0	5.5	6.0	6.8	7.3	7.9	8.4	9.0	9.7	10.4
Output / Worker, 1000€ in 2004 prices	26.4	26.5	29.6	33.4	37.8	42.8	47.7	52.0	56.7	61.7	67.3
Social sec. benefit ratio	18.6	18.9	18.4	18.1	17.9	17.2	16.5	16.2	15.9	15.7	15.4
Total pension benefit ratio	18.6	18.9	18.4	18.1	17.9	17.2	16.5	16.2	15.9	15.7	15.4
Social security pensions, num of contributors, in 1000	4285	4332	4436	4362	4335	4268	4108	3939	3751	3576	3468
Average social sec. pension contribution, 1000€ in 2004 prices	3.3	3.3	3.6	3.9	4.3	4.8	5.3	5.7	6.1	6.7	7.3
Average total pension contribution, 1000€ in 2004 prices	:	:	:	:	:	:	:	:	:	:	:
Support ratio (contributors /100 pensioners, social sec. pens.)	141	138	134	122	108	98	87	79	72	66	64
High life expectancy; as % of GDP											
Social security pensions, gross	11.1	11.5	11.9	12.7	14.2	15.1	16.2	17.6	19.2	20.5	21.4
Old-age and early pensions, gross	8.6	9.0	9.4	10.2	11.6	12.4	13.3	14.5	15.8	16.9	17.7
Total pension expenditure, gross	11.1	11.5	11.9	12.7	14.2	15.1	16.2	17.6	19.2	20.5	21.4
All pensions, assets	4.3	4.4	4.0	:	:	:	:	:	:	:	:
Higher labour productivity; as % of GDP											
Social security pensions, gross	11.1	11.5	11.9	12.5	13.9	14.6	15.4	16.6	17.9	18.9	19.6
Old-age and early pensions, gross	8.6	9.0	9.4	10.1	11.3	12.0	12.7	13.7	14.7	15.5	16.1
Total pension expenditure, gross	11.1	11.5	11.9	12.5	13.9	14.6	15.4	16.6	17.9	18.9	19.6
All pensions, assets	4.3	4.4	4.0	:	:	:	:	:	:	:	:
Lower labour productivity; as % of GDP											
Social security pensions, gross	11.1	11.5	11.9	12.7	14.4	15.4	16.6	18.2	19.8	21.2	22.1
Old-age and early pensions, gross	8.6	9.0	9.4	10.2	11.8	12.7	13.7	15.0	16.4	17.6	18.4
Total pension expenditure, gross	11.1	11.5	11.9	12.7	14.4	15.4	16.6	18.2	19.8	21.2	22.1
All pensions, assets	4.3	4.4	4.1	:	:	:	:	:	:	:	:
Higher employment rate (1 p.p.); as % of GDP											
Social security pensions, gross	11.1	11.5	11.8	12.5	14.0	14.9	15.8	17.2	18.7	19.8	20.6
Old-age and early pensions, gross	8.6	9.0	9.4	10.1	11.5	12.2	13.0	14.2	15.4	16.4	17.0
Total pension expenditure, gross	11.1	11.5	11.8	12.5	14.0	14.9	15.8	17.2	18.7	19.8	20.6
All pensions, assets	4.3	4.4	4.4	0.3	:	:	:	:	:	:	:
Higher older workers empl. rate (5 p.p.); as % of GDP											
Social security pensions, gross	11.1	11.5	11.9	12.6	14.0	14.8	15.8	17.2	18.6	19.8	20.5
Old-age and early pensions, gross	8.6	9.0	9.4	10.1	11.5	12.2	13.0	14.1	15.3	16.3	17.0
Total pension expenditure, gross	11.1	11.5	11.9	12.6	14.0	14.8	15.8	17.2	18.6	19.8	20.5
All pensions, assets	4.3	4.4	4.0	:	:	:	:	:	:	:	:
Lower interest rate; as % of GDP											
Social security pensions, gross	11.1	11.5	11.9	12.6	14.1	15.0	16.0	17.4	18.8	20.0	20.8
Old-age and early pensions, gross	8.6	9.0	9.4	10.2	11.6	12.3	13.2	14.3	15.5	16.5	17.2
Total pension expenditure, gross	11.1	11.5	11.9	12.6	14.1	15.0	16.0	17.4	18.8	20.0	20.8
All pensions, assets	4.3	4.4	3.8	:	:	:	:	:	:	:	:
Higher interest rate; as % of GDP											
Social security pensions, gross	11.1	11.5	11.9	12.6	14.1	15.0	16.0	17.4	18.8	20.0	20.8
Old-age and early pensions, gross	8.6	9.0	9.4	10.2	11.6	12.3	13.2	14.3	15.5	16.5	17.2
Total pension expenditure, gross	11.1	11.5	11.9	12.6	14.1	15.0	16.0	17.4	18.8	20.0	20.8
All pensions, assets	4.3	4.4	4.2	:	:	:	:	:	:	:	:

: = data not provided

Portugal

OTHER AGE-RELATED EXPENDITURES as % of GDP

	2004	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
Health care spending as % of GDP											
Pure ageing scenario	6.7	6.7	6.8	6.8	6.7	6.6	6.7	6.9	7.0	7.2	7.3
Constant health scenario	6.7	6.7	6.7	6.5	6.4	6.2	6.2	6.3	6.4	6.5	6.6
Death-related costs scenario	6.7	6.7	6.8	6.7	6.6	6.4	6.5	6.6	6.7	6.9	6.9
Income elasticity of demand	6.7	6.7	6.9	6.9	6.9	6.8	6.9	7.1	7.3	7.4	7.5
Unit costs - GDP per worker	6.7	6.7	6.7	6.7	6.7	6.7	6.9	7.3	7.8	8.2	8.5
AWG reference scenario	6.7	6.7	6.8	6.8	6.7	6.6	6.6	6.8	6.9	7.1	7.2
Long-term care spending as % of GDP											
Pure ageing scenario	:	:	:	:	:	:	:	:	:	:	:
Unit costs - GDP per capita	:	:	:	:	:	:	:	:	:	:	:
Constant disability scenario	:	:	:	:	:	:	:	:	:	:	:
Increase in formal care	:	:	:	:	:	:	:	:	:	:	:
AWG reference scenario	:	:	:	:	:	:	:	:	:	:	:
Number of dependent people (in thousands)											
Pure ageing scenario	295	302	331	363	394	427	471	514	557	599	626
Unit costs - GDP per capita	295	302	331	363	394	214	471	514	557	599	626
Constant disability scenario	295	297	303	258	315	321	335	350	366	382	390
Increase in formal care	295	302	331	363	394	427	471	514	557	599	626
AWG reference scenario	295	299	317	337	355	374	403	432	462	491	508
of which receiving formal care											
Pure ageing scenario	0	0	0	0	0	0	0	0	0	0	0
Unit costs - GDP per capita	0	0	0	0	0	0	0	0	0	0	0
Constant disability scenario	0	0	0	0	0	0	0	0	0	0	0
Increase in formal care	0	15	88	157	221	239	264	288	312	335	351
AWG reference scenario	0	0	0	0	0	0	0	0	0	0	0
of which receiving informal or no care											
Pure ageing scenario	295	302	331	363	394	427	471	514	557	599	626
Unit costs - GDP per capita	295	302	331	363	394	214	471	514	557	599	626
Constant disability scenario	295	297	303	258	315	321	335	350	366	382	390
Increase in formal care	295	287	243	206	173	188	207	226	245	264	276
AWG reference scenario	295	299	317	337	355	374	403	432	462	491	508
Education spending as % of GDP											
Total	5.1	5.0	4.7	4.6	4.7	4.6	4.5	4.4	4.5	4.6	4.8
of which: Transfers	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Primary	1.8	1.8	1.8	1.8	1.8	1.7	1.6	1.6	1.7	1.8	1.8
of which: Transfers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Low secondary	1.2	1.2	1.1	1.2	1.2	1.2	1.1	1.1	1.1	1.2	1.2
of which: Transfers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Upper secondary	1.1	1.1	0.9	0.9	1.0	1.0	1.0	0.9	0.9	0.9	1.0
of which: Transfers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Tertiary education	1.0	1.0	0.8	0.8	0.7	0.8	0.8	0.8	0.8	0.8	0.8
of which: Transfers	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Number of students (in thousands)											
Total	1908	1882	1815	1812	1805	1749	1657	1569	1515	1488	1462
Primary	763	760	788	809	795	739	683	654	648	647	633
Low secondary	391	388	366	379	388	379	352	327	313	311	310
Upper secondary	360	351	325	315	325	329	317	294	275	267	266
Tertiary education	393	383	335	308	298	302	304	295	278	262	252
Memo											
Population aged 15-64 (in thousands)	7064	7086	7123	7050	6958	6840	6645	6407	6095	5761	5514
Unemployment benefit spending as % of GDP	1.0	0.9	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8

Slovenia

Main demographic and macroeconomic assumptions

(BASELINE SCENARIO)

Budgetary Projection: AWG variant population scenario

	2004	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
Demographic assumptions											
Fertility rate	1.2	1.2	1.3	1.4	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Life expectancy at birth											
males	72.6	72.8	73.9	75.0	76.1	77.2	77.9	78.4	78.9	79.4	79.8
females	80.2	80.3	81.2	82.0	82.8	83.4	83.8	84.2	84.6	84.9	85.1
Life expectancy at 65											
males	14.3	14.4	14.9	15.6	16.2	16.9	17.4	17.7	18.1	18.4	18.7
females	18.4	18.5	19.1	19.7	20.3	20.7	21.0	21.3	21.5	21.8	22.0
Net migration (thousand)	6.1	6.2	5.9	3.8	5.3	6.8	7.0	7.0	6.9	6.8	6.7
Net migration as % of population	0.31	0.31	0.29	0.19	0.26	0.34	0.35	0.35	0.35	0.35	0.35
Population (million)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.9	1.9
Population aged 0-14 as % of total	14.6	14.3	13.5	13.5	13.5	13.4	12.9	12.3	12.1	12.4	12.8
Prime age population (25-54) as % of total	45.7	45.8	45.4	44.1	42.1	39.8	37.9	35.7	34.3	33.7	34.0
Working age population (15-64) as % of total	70.4	70.4	70.0	68.7	66.1	63.8	62.1	60.7	59.5	57.6	56.0
Elderly population aged 65+ as % of total	15.0	15.3	16.5	17.8	20.4	22.8	25.1	27.0	28.4	30.0	31.1
Very elderly population aged 80 and over as % of total	2.9	3.0	3.8	4.6	5.1	5.6	6.3	7.8	9.1	9.9	10.6
lerly population aged 55+ as % of working age pop.15-64	1.1	1.2	1.2	1.3	1.5	1.6	1.7	1.8	1.8	1.9	1.9
Macroeconomic assumptions											
Real GDP (growth rate)	3.5	3.4	3.6	2.8	2.4	2.1	2.0	1.2	1.0	1.0	1.1
Labour input (growth rate)	0.0	-0.1	0.6	-0.4	-0.5	-0.7	-0.7	-0.8	-0.9	-0.8	-0.6
Labour productivity (growth rate)	3.5	3.5	3.1	3.2	3.0	2.8	2.7	2.0	1.9	1.8	1.7
TFP (growth rate)	1.1	1.1	1.2	1.6	1.6	1.7	1.8	1.3	1.2	1.2	1.1
Capital deepening (contribution to labour productivity growth)	2.4	2.4	1.9	1.6	1.3	1.1	0.9	0.7	0.7	0.6	0.6
GDP per capita (growth rate)	3.4	3.2	3.5	2.8	2.5	2.1	2.1	1.4	1.3	1.3	1.5
GDP in 2004 prices (in billions of euro)	26	27	32	38	43	48	53	57	60	63	66
GDP per worker	14.7	15.1	18.1	21.1	23.9	26.7	29.6	32.2	34.4	36.6	39.3
Real interest rate	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Labour force assumptions											
Population growth (working age:15-64)		0.2	0.1	-0.6	-0.8	-0.6	-0.6	-0.5	-0.8	-1.0	-0.8
Labour force (thousands)	955	967	1010	1007	981	950	916	882	845	810	782
Participation rate (15-64)	68.0	68.7	71.6	72.5	73.6	74.0	73.6	73.0	72.3	72.6	73.4
young (15-24)	33.3	32.7	32.9	32.1	31.2	30.9	30.2	31.1	31.9	32.0	31.4
prime-age (25-54)	88.5	88.9	90.3	91.4	92.6	92.8	92.5	92.1	91.9	92.1	92.3
older (55-64)	25.6	28.8	40.9	43.2	46.2	50.4	52.9	55.5	54.3	53.6	53.0
oldest (65-71)	6.1	6.1	7.4	13.3	13.1	12.5	12.7	12.4	12.7	12.8	12.3
Employment rate (15-64)	63.7	64.6	67.7	68.5	69.6	69.9	69.5	68.9	68.3	68.6	69.3
Employment rate (15-71)	58.8	59.6	62.4	63.4	62.8	62.4	61.9	61.1	60.6	60.1	60.4
Employment growth (15-64)		1.6	0.6	-0.4	-0.5	-0.7	-0.7	-0.8	-0.9	-0.8	-0.6
Unemployment rate (15-64)	6.3	6.0	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Dependency ratios:											
Share of older workers	5.8	6.6	10.6	12.7	13.9	15.7	16.7	18.7	19.4	18.6	16.7
Old-age dependency ratio (1)	21.4	21.7	23.6	25.9	30.8	35.8	40.4	44.5	47.7	52.1	55.6
Total dependency ratio (2)	42.1	42.0	42.9	45.5	51.3	56.9	61.1	64.7	68.0	73.6	78.5
Total economic dependency ratio	123.1	120.0	111.2	112.3	117.5	124.4	131.8	138.9	146.1	153.1	157.5
Economic old-age dependency ratio (15-64)	32.6	32.8	33.8	35.7	41.7	48.5	55.3	61.7	66.9	72.6	76.9
Economic old-age dependency ratio (15-71)	32.4	32.5	33.5	35.1	40.7	47.3	53.8	59.9	65.0	70.3	74.4

LEGENDA:

Share of older workers = Population aged 55 to 64 as % of population aged 15-64

Old-age dependency ratio (1) = Population aged 65 and over as a percentage of the population aged 15-64

Total dependency ratio (2) = Population under 15 and over 64 as a percentage of the population aged 15-64

Total economic dependency ratio= Total population less employed as % of employed population (15-64)

Economic old-age dependency ratio (15-64)=Inactive population aged 65+ as % of employed population (15-64)

Economic old-age dependency ratio (15-71)=Inactive population aged 65+ as % of employed population (15-71)

Slovenia

EPC-AWG Pension expenditure projections

	2004	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
Baseline scenario; as % of GDP											
Social security pensions, gross	11.0	11.0	11.1	11.6	12.3	13.3	14.4	15.6	16.8	17.8	18.3
Old-age and early pensions, gross	11.0	11.0	11.1	11.6	12.3	13.3	14.4	15.6	16.8	17.8	18.3
Of which: earnings-related pensions, gross	:	:	:	:	:	:	:	:	:	:	:
Private sector employees, gross	:	:	:	:	:	:	:	:	:	:	:
Public sector employees, gross	:	:	:	:	:	:	:	:	:	:	:
Other pensions (disability, survivors), gross	:	:	:	:	:	:	:	:	:	:	:
Occupational pensions, gross	0.0	0.0	0.0	0.0	0.1	0.2	0.3	0.5	0.7	0.9	1.0
Private mandatory pensions, gross	:	:	:	:	:	:	:	:	:	:	:
Total pension expenditure, gross	11.0	11.0	11.1	11.6	12.4	13.5	14.7	16.1	17.5	18.7	19.3
Social security pensions, net	11.0	11.0	11.1	11.6	12.3	13.3	14.4	15.6	16.8	17.8	18.3
Total pension expenditure, net	11.0	11.0	11.1	11.6	12.4	13.5	14.7	16.0	17.4	18.5	19.1
Social security pensions, contributions	9.3	9.6	10.1	10.4	10.6	10.7	10.7	10.7	10.6	10.6	10.6
Total pension contributions	10.0	10.3	10.9	11.4	11.7	11.9	12.0	12.0	11.9	11.9	11.9
Social security pensions, assets	:	:	:	:	:	:	:	:	:	:	:
All pensions, assets	1.4	2.1	5.5	9.6	13.9	18.3	22.6	26.5	30.1	33.3	35.9
Additional indicators											
Social security pensions, net / Social sec. pensions, gross,%	100	100	100	100	100	100	100	100	100	100	100
Total pension expenditure, net / Total pension exp., gross, %	100	100	100	100	100	100	100	99	99	99	99
Social security pensions, number of pensioners , 1000 pers.	524	530	571	609	647	686	722	752	778	789	781
All pensions, pensioners , 1000 pers.	524	530	571	609	647	686	722	752	778	789	781
Number of pensioners aged 65+ , 1000 pers.	315	324	354	386	438	490	537	572	595	619	629
Share of pensioners below age 65 as % of all pensioners	39.8	39.0	38.1	36.7	32.2	28.7	25.6	24.0	23.4	21.5	19.5
Average gross social sec. pension, 1000€ in 2004 prices	5.4	5.6	6.3	7.1	8.1	9.2	10.5	11.7	12.9	14.1	15.4
Average gross total pensions, 1000€ in 2004 prices	5.4	5.6	6.3	7.2	8.2	9.4	10.7	12.1	13.4	14.8	16.3
Output / Worker, 1000€ in 2004 prices	28.8	29.8	33.8	39.5	46.0	53.0	60.7	68.0	74.8	81.9	89.4
Social sec. benefit ratio	18.9	18.6	18.5	18.0	17.7	17.4	17.3	17.2	17.2	17.3	17.3
Total pension benefit ratio	18.9	18.6	18.5	18.1	17.8	17.7	17.7	17.8	17.9	18.1	18.2
Social security pensions, num of contributors, in 1000	807	829	873	878	860	833	803	773	741	712	688
Average social sec. pension contribution, 1000€ in 2004 prices	3.0	3.1	3.7	4.4	5.2	6.1	7.0	7.8	8.6	9.4	10.2
Average total pension contribution, 1000€ in 2004 prices	:	:	:	:	:	:	:	:	:	:	:
Support ratio (contributors /100 pensioners, social sec. pens.)	154	156	153	144	133	121	111	103	95	90	88
High life expectancy; as % of GDP											
Social security pensions, gross	10.9	10.9	10.9	11.4	12.2	13.2	14.4	15.6	17.0	18.1	18.8
Old-age and early pensions, gross	10.9	10.9	10.9	11.4	12.2	13.2	14.4	15.6	17.0	18.1	18.8
Total pension expenditure, gross	10.9	10.9	10.9	11.4	12.2	13.2	14.4	15.6	17.0	18.1	18.8
All pensions, assets	:	:	:	:	:	:	:	:	:	:	:
Higher labour productivity; as % of GDP											
Social security pensions, gross	11.0	11.0	11.1	11.5	12.3	13.2	14.3	15.5	16.7	17.7	18.1
Old-age and early pensions, gross	11.0	11.0	11.1	11.5	12.3	13.2	14.3	15.5	16.7	17.7	18.1
Total pension expenditure, gross	11.0	11.0	11.1	11.5	12.3	13.2	14.3	15.5	16.7	17.7	18.1
All pensions, assets	:	:	:	:	:	:	:	:	:	:	:
Lower labour productivity; as % of GDP											
Social security pensions, gross	11.0	11.0	11.1	11.5	12.3	13.2	14.3	15.4	16.7	17.6	18.1
Old-age and early pensions, gross	11.0	11.0	11.1	11.5	12.3	13.2	14.3	15.4	16.7	17.6	18.1
Total pension expenditure, gross	11.0	11.0	11.1	11.5	12.3	13.2	14.3	15.4	16.7	17.6	18.1
All pensions, assets	:	:	:	:	:	:	:	:	:	:	:
Higher employment rate (1 p.p.); as % of GDP											
Social security pensions, gross	11.0	11.0	11.0	11.4	12.1	13.0	14.1	15.2	16.4	17.4	17.8
Old-age and early pensions, gross	11.0	11.0	11.0	11.4	12.1	13.0	14.1	15.2	16.4	17.4	17.8
Total pension expenditure, gross	11.0	11.0	11.0	11.4	12.1	13.0	14.1	15.2	16.4	17.4	17.8
All pensions, assets	:	:	:	:	:	:	:	:	:	:	:
Higher older workers empl. rate (5 p.p.); as % of GDP											
Social security pensions, gross	11.0	11.0	11.0	11.2	11.8	12.6	13.6	14.7	15.9	16.9	17.4
Old-age and early pensions, gross	11.0	11.0	11.0	11.2	11.8	12.6	13.6	14.7	15.9	16.9	17.4
Total pension expenditure, gross	11.0	11.0	11.0	11.2	11.8	12.6	13.6	14.7	15.9	16.9	17.4
All pensions, assets	:	:	:	:	:	:	:	:	:	:	:
Lower interest rate; as % of GDP											
Social security pensions, gross	11.0	11.0	11.1	11.6	12.3	13.3	14.4	15.6	16.8	17.8	18.3
Old-age and early pensions, gross	11.0	11.0	11.1	11.6	12.3	13.3	14.4	15.6	16.8	17.8	18.3
Total pension expenditure, gross	11.0	11.0	11.1	11.6	12.4	13.5	14.7	16.1	17.5	18.7	19.3
All pensions, assets	1.4	2.1	5.5	9.6	13.9	18.3	22.6	26.5	30.1	33.3	35.9
Higher interest rate; as % of GDP											
Social security pensions, gross	11.0	11.0	11.1	11.6	12.3	13.3	14.4	15.6	16.8	17.8	18.3
Old-age and early pensions, gross	11.0	11.0	11.1	11.6	12.3	13.3	14.4	15.6	16.8	17.8	18.3
Total pension expenditure, gross	11.0	11.0	11.1	11.6	12.4	13.5	14.7	16.1	17.5	18.7	19.3
All pensions, assets	1.4	2.1	5.5	9.6	13.9	18.3	22.6	26.5	30.1	33.3	35.9

: = data not provided

Slovenia

OTHER AGE-RELATED EXPENDITURES as % of GDP

	2004	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
Health care spending as % of GDP											
Pure ageing scenario	6.4	6.5	6.6	6.8	7.0	7.2	7.4	7.6	7.7	7.8	7.8
Constant health scenario	6.4	6.5	6.6	6.6	6.8	6.9	7.0	7.2	7.2	7.3	7.3
Death-related costs scenario	6.4	6.5	6.6	6.7	6.8	7.0	7.1	7.2	7.3	7.4	7.4
Income elasticity of demand	6.4	6.5	6.8	7.0	7.3	7.6	7.8	8.0	8.1	8.3	8.3
Unit costs - GDP per worker	6.4	6.5	6.5	6.7	7.1	7.5	8.0	8.4	8.8	9.1	9.4
AWG reference scenario	6.4	6.5	6.7	6.9	7.2	7.4	7.6	7.8	7.9	8.0	8.0
Long-term care spending as % of GDP											
Pure ageing scenario	0.9	1.0	1.1	1.2	1.3	1.5	1.6	1.9	2.1	2.3	2.4
Unit costs - GDP per capita	0.9	1.0	1.1	1.3	1.3	1.1	1.5	1.7	1.9	2.0	2.1
Constant disability scenario	0.9	1.0	1.1	1.2	1.2	1.3	1.4	1.6	1.8	1.9	1.9
Increase in formal care	0.9	1.0	1.3	1.6	1.9	2.0	2.3	2.7	3.1	3.4	3.6
AWG reference scenario	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.7	1.9	2.1	2.2
Number of dependent people (in thousands)											
Pure ageing scenario	58	59	68	75	84	93	104	116	125	132	135
Unit costs - GDP per capita	58	59	68	75	84	46	104	116	125	132	135
Constant disability scenario	58	58	62	54	67	70	74	80	83	85	85
Increase in formal care	58	59	68	75	84	93	104	116	125	132	135
AWG reference scenario	58	59	65	70	75	81	89	98	104	108	110
of which receiving formal care											
Pure ageing scenario	22	23	26	29	32	36	40	45	49	52	53
Unit costs - GDP per capita	22	23	26	29	32	36	40	45	49	52	53
Constant disability scenario	22	22	24	25	26	27	29	32	34	35	35
Increase in formal care	22	24	37	49	61	68	76	85	92	96	99
AWG reference scenario	22	22	25	27	29	32	34	39	41	43	44
of which receiving informal or no care											
Pure ageing scenario	36	37	42	46	51	57	64	71	76	80	82
Unit costs - GDP per capita	36	37	42	46	51	27	64	71	76	80	82
Constant disability scenario	36	36	38	32	40	42	45	48	50	51	50
Increase in formal care	36	35	31	26	22	25	28	31	34	35	36
AWG reference scenario	36	37	40	42	46	50	54	60	63	65	66
Education spending as % of GDP											
Total	5.3	5.2	4.6	4.3	4.3	4.5	4.7	4.7	4.7	4.8	4.9
of which: Transfers	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Primary	1.3	1.2	1.1	1.1	1.2	1.2	1.2	1.2	1.2	1.2	1.3
of which: Transfers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Low secondary	1.2	1.2	1.0	1.0	1.0	1.1	1.1	1.1	1.1	1.1	1.1
of which: Transfers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Upper secondary	1.5	1.4	1.2	1.1	1.1	1.1	1.2	1.2	1.2	1.2	1.2
of which: Transfers	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Tertiary education	1.4	1.4	1.3	1.2	1.1	1.1	1.1	1.2	1.3	1.3	1.2
of which: Transfers	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Number of students (in thousands)											
Total	384	377	345	321	312	313	314	306	293	284	282
Primary	86	84	81	78	82	82	78	72	69	70	72
Low secondary	87	84	75	73	71	75	76	71	66	64	65
Upper secondary	109	106	88	81	79	79	84	83	77	73	71
Tertiary education	102	103	100	88	80	76	77	81	81	78	73
Memo											
Population aged 15-64 (in thousands)	1405	1408	1410	1388	1333	1284	1245	1208	1170	1115	1065
Unemployment benefit spending as % of GDP	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4

Slovak Republic

Main demographic and macroeconomic assumptions

(BASELINE SCENARIO)

Budgetary Projection: AWG variant population scenario

	2004	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
Demographic assumptions											
Fertility rate	1.2	1.2	1.2	1.2	1.3	1.4	1.5	1.6	1.6	1.6	1.6
Life expectancy at birth											
males	69.7	69.9	70.9	72.0	73.1	74.3	75.3	76.1	76.7	77.2	77.7
females	77.8	77.9	78.7	79.5	80.3	81.1	81.8	82.3	82.7	83.1	83.4
Life expectancy at 65											
males	12.9	13.0	13.5	14.0	14.7	15.4	16.0	16.5	16.9	17.3	17.6
females	16.5	16.6	17.0	17.5	18.1	18.7	19.2	19.6	19.9	20.1	20.4
Net migration (thousand)	-2.3	-2.3	-2.4	-2.3	1.2	4.6	5.1	5.1	5.0	4.9	4.7
Net migration as % of population	-0.04	-0.04	-0.05	-0.04	0.02	0.09	0.10	0.10	0.10	0.10	0.10
Population (million)	5.4	5.4	5.3	5.3	5.3	5.2	5.2	5.1	5.0	4.9	4.7
Population aged 0-14 as % of total	17.6	17.0	15.0	14.3	14.2	14.0	13.5	13.0	12.6	12.6	12.8
Prime age population (25-54) as % of total	44.8	45.2	45.8	45.8	45.6	44.6	42.4	39.3	36.7	34.7	33.3
Working age population (15-64) as % of total	70.9	71.3	72.7	71.9	69.4	67.1	65.7	64.8	63.2	60.4	57.9
Elderly population aged 65+ as % of total	11.5	11.6	12.3	13.7	16.3	18.8	20.8	22.2	24.1	26.9	29.3
Very elderly population aged 80 and over as % of total	2.3	2.4	2.7	3.0	3.1	3.5	4.4	5.9	7.1	7.7	8.0
lerly population aged 55+ as % of working age pop.15-64	2.9	2.9	2.9	3.1	3.3	3.6	3.8	4.0	4.2	4.5	4.7
Macroeconomic assumptions											
Real GDP (growth rate)	3.9	3.9	5.3	4.1	3.3	2.9	2.0	0.8	0.4	0.2	0.3
Labour input (growth rate)	0.4	0.1	1.1	0.6	0.0	-0.1	-0.7	-1.1	-1.5	-1.6	-1.4
Labour productivity (growth rate)	3.5	3.8	4.2	3.5	3.3	3.0	2.7	2.0	1.9	1.8	1.7
TFP (growth rate)	2.0	2.1	2.5	2.0	1.9	1.8	1.8	1.3	1.2	1.2	1.1
Capital deepening (contribution to labour productivity growth)	1.5	1.8	1.7	1.6	1.4	1.2	0.9	0.7	0.7	0.6	0.6
GDP per capita (growth rate)	3.9	4.0	5.4	4.3	3.4	3.1	2.2	1.2	0.8	0.8	0.9
GDP in 2004 prices (in billions of euro)	33	34	44	55	66	77	85	91	93	95	96
GDP per worker	9.8	10.2	13.0	16.5	19.9	23.2	26.1	28.3	29.6	30.8	32.1
Real interest rate	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Labour force assumptions											
Population growth (working age:15-64)		0.5	0.0	-0.6	-0.9	-0.6	-0.7	-0.6	-1.2	-1.5	-1.5
Labour force (thousands)	2696	2726	2849	2908	2845	2748	2657	2535	2363	2186	2026
Participation rate (15-64)	70.7	71.1	73.3	76.2	77.8	78.2	78.0	76.6	74.7	74.2	73.9
young (15-24)	42.3	42.7	43.3	44.5	42.9	41.5	41.4	41.6	42.2	42.5	42.2
prime-age (25-54)	89.7	89.9	91.5	92.3	92.9	93.4	93.5	93.4	93.1	92.8	92.8
older (55-64)	30.4	31.9	41.3	50.7	53.4	52.9	55.8	56.5	53.5	52.8	52.0
oldest (65-71)	1.8	1.8	2.2	2.1	2.6	2.5	2.6	2.6	2.8	2.7	2.6
Employment rate (15-64)	58.7	59.2	62.1	66.7	70.2	72.7	72.6	71.2	69.5	69.0	68.7
Employment rate (15-71)	55.0	55.5	58.0	61.4	63.1	64.7	64.7	63.6	61.2	58.8	58.0
Employment growth (15-64)		1.3	1.1	0.6	0.0	-0.1	-0.7	-1.1	-1.5	-1.6	-1.4
Unemployment rate (15-64)	16.9	16.7	15.2	12.5	9.7	7.0	7.0	7.0	7.0	7.0	7.0
Dependency ratios:											
Share of older workers	5.8	6.3	9.5	12.7	13.3	12.8	14.6	17.7	18.8	19.1	18.6
Old-age dependency ratio (1)	16.3	16.3	16.9	19.1	23.5	28.1	31.7	34.2	38.1	44.5	50.6
Total dependency ratio (2)	41.0	40.2	37.5	39.0	44.1	49.0	52.3	54.2	58.1	65.4	72.9
Total economic dependency ratio	140.2	136.8	121.4	108.6	105.3	104.9	109.9	116.6	127.6	139.9	151.5
Economic old-age dependency ratio (15-64)	27.5	27.3	27.0	28.4	33.1	38.2	43.2	47.6	54.3	63.8	73.0
Economic old-age dependency ratio (15-71)	27.4	27.3	26.9	28.3	33.0	38.0	43.0	47.3	54.0	63.4	72.4

LEGENDA:

Share of older workers = Population aged 55 to 64 as % of population aged 15-64

Old-age dependency ratio (1) = Population aged 65 and over as a percentage of the population aged 15-64

Total dependency ratio (2) = Population under 15 and over 64 as a percentage of the population aged 15-64

Total economic dependency ratio= Total population less employed as % of employed population (15-64)

Economic old-age dependency ratio (15-64)=Inactive population aged 65+ as % of employed population (15-64)

Economic old-age dependency ratio (15-71)=Inactive population aged 65+ as % of employed population (15-71)

Slovak Republic

EPC-AWG Pension expenditure projections

	2004	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
Baseline scenario; as % of GDP											
Social security pensions, gross	7.2	7.4	6.7	6.6	7.0	7.3	7.7	7.9	8.2	8.5	9.0
Old-age and early pensions, gross	5.4	5.6	4.8	4.4	4.6	4.8	5.0	5.1	5.5	5.9	6.3
Of which: earnings-related pensions, gross	:	:	:	:	:	:	:	:	:	:	:
Private sector employees, gross	:	:	:	:	:	:	:	:	:	:	:
Public sector employees, gross	:	:	:	:	:	:	:	:	:	:	:
Other pensions (disability, survivors), gross	1.8	1.8	1.9	2.1	2.3	2.5	2.7	2.8	2.7	2.7	2.7
Occupational pensions, gross	:	:	:	:	:	:	:	:	:	:	:
Private mandatory pensions, gross	0.0	0.0	0.0	0.1	0.2	0.4	0.7	1.0	1.4	1.9	2.3
Total pension expenditure, gross	7.2	7.4	6.7	6.7	7.2	7.8	8.3	8.9	9.7	10.4	11.2
Social security pensions, net	7.2	7.4	6.7	6.6	7.0	7.3	7.7	7.9	8.2	8.5	9.0
Total pension expenditure, net	7.2	7.4	6.7	6.7	7.2	7.8	8.3	8.9	9.7	10.4	11.2
Social security pensions, contributions	6.5	5.1	5.0	4.9	4.8	4.7	4.7	4.7	4.7	4.6	4.4
Total pension contributions	6.5	6.4	6.3	6.3	6.3	6.3	6.4	6.4	6.4	6.3	6.3
Social security pensions, assets	:	:	:	:	:	:	:	:	:	:	:
All pensions, assets	0.0	1.2	7.0	12.8	18.9	25.1	31.5	38.4	45.7	52.3	58.0
Additional indicators											
Social security pensions, net / Social sec. pensions, gross,%	100	100	100	100	100	100	100	100	100	100	100
Total pension expenditure, net / Total pension exp., gross, %	100	100	100	100	100	100	100	100	100	100	100
Social security pensions, number of pensioners , 1000 pers.	1212	1225	1282	1347	1458	1570	1664	1748	1833	1892	1919
All pensions, pensioners , 1000 pers.	1212	1225	1282	1347	1458	1570	1664	1748	1833	1892	1919
Number of pensioners aged 65+ , 1000 pers.	621	631	684	771	910	1040	1136	1189	1254	1350	1420
Share of pensioners below age 65 as % of all pensioners	48.7	48.5	46.6	42.7	37.6	33.7	31.7	31.9	31.6	28.7	26.0
Average gross social sec. pension, 1000€ in 2004 prices	2.0	2.1	2.3	2.7	3.2	3.6	3.9	4.1	4.2	4.3	4.5
Average gross total pensions, 1000€ in 2004 prices	2.0	2.1	2.3	2.7	3.3	3.8	4.3	4.6	4.9	5.2	5.6
Output / Worker, 1000€ in 2004 prices	15.1	15.7	18.1	21.7	25.7	30.0	34.5	38.6	42.5	46.6	50.9
Social sec. benefit ratio	13.0	13.4	12.6	12.4	12.3	12.0	11.4	10.7	9.9	9.1	8.8
Total pension benefit ratio	13.0	13.4	12.7	12.6	12.7	12.7	12.4	12.0	11.6	11.2	11.0
Social security pensions, num of contributors, in 1000	2244	2273	2419	2550	2579	2568	2483	2370	2213	2050	1901
Average social sec. pension contribution, 1000€ in 2004 prices	1.0	0.8	0.9	1.1	1.2	1.4	1.6	1.8	2.0	2.1	2.2
Average total pension contribution, 1000€ in 2004 prices	1.0	1.0	1.1	1.4	1.6	1.9	2.2	2.5	2.7	2.9	3.2
Support ratio (contributors /100 pensioners, social sec. pens.)	185	186	189	189	177	164	149	136	121	108	99
High life expectancy; as % of GDP											
Social security pensions, gross	7.2	7.4	6.7	6.6	7.0	7.4	7.8	8.1	8.5	8.9	9.4
Old-age and early pensions, gross	5.4	5.6	4.8	4.5	4.7	4.9	5.1	5.3	5.7	6.1	6.6
Total pension expenditure, gross	7.2	7.4	6.7	6.7	7.3	7.9	8.5	9.1	9.9	10.8	11.7
All pensions, assets	0.0	1.2	7.0	12.8	19.0	25.2	31.7	38.7	46.2	53.0	59.1
Higher labour productivity; as % of GDP											
Social security pensions, gross	7.2	7.4	6.7	6.5	6.9	7.3	7.6	7.8	8.1	8.4	8.8
Old-age and early pensions, gross	5.4	5.6	4.8	4.4	4.6	4.8	4.9	5.1	5.4	5.8	6.1
Total pension expenditure, gross	7.2	7.4	6.7	6.7	7.2	7.7	8.3	8.8	9.5	10.2	10.9
All pensions, assets	0.0	1.2	7.0	12.7	18.7	24.6	30.8	37.3	44.2	50.3	55.8
Lower labour productivity; as % of GDP											
Social security pensions, gross	7.2	7.4	6.7	6.6	7.0	7.4	7.7	8.0	8.4	8.7	9.2
Old-age and early pensions, gross	7.2	5.6	4.8	4.5	4.7	4.9	5.0	5.2	5.6	6.0	6.4
Total pension expenditure, gross	7.2	7.4	6.7	6.7	7.3	7.9	8.5	9.1	9.9	10.7	11.6
All pensions, assets	0.0	1.2	7.0	12.8	19.2	25.6	32.4	39.6	47.4	54.4	60.6
Higher employment rate (1 p.p.); as % of GDP											
Social security pensions, gross	7.2	7.4	6.7	6.5	6.9	7.3	7.6	7.9	8.2	8.5	8.9
Old-age and early pensions, gross	5.4	5.6	4.8	4.4	4.6	4.8	4.9	5.1	5.5	5.8	6.3
Total pension expenditure, gross	7.2	7.4	6.7	6.6	7.2	7.7	8.3	8.9	9.6	10.4	11.2
All pensions, assets	0.0	1.2	7.0	12.8	19.0	25.2	31.6	38.5	45.9	52.5	58.3
Higher older workers empl. rate (5 p.p.); as % of GDP											
Social security pensions, gross	7.2	7.4	6.7	6.5	6.9	7.3	7.6	7.9	8.2	8.5	9.0
Old-age and early pensions, gross	5.4	5.6	4.7	4.4	4.6	4.8	4.9	5.1	5.5	5.9	6.3
Total pension expenditure, gross	7.2	7.4	6.7	6.6	7.1	7.7	8.3	8.9	9.6	10.5	11.3
All pensions, assets	0.0	1.2	7.0	12.7	18.9	25.1	31.5	38.4	45.7	52.3	58.1
Lower interest rate; as % of GDP											
Social security pensions, gross	7.2	7.4	6.7	6.6	7.0	7.3	7.7	7.9	8.2	8.5	9.0
Old-age and early pensions, gross	5.4	5.6	4.8	4.4	4.6	4.8	5.0	5.1	5.5	5.9	6.3
Total pension expenditure, gross	7.2	7.4	6.7	6.7	7.2	7.7	8.3	8.8	9.4	10.1	10.8
All pensions, assets	0.0	1.2	6.8	12.2	17.8	23.2	28.7	34.4	40.4	45.7	50.4
Higher interest rate; as % of GDP											
Social security pensions, gross	7.2	7.4	6.7	6.6	7.0	7.3	7.7	7.9	8.2	8.5	9.0
Old-age and early pensions, gross	5.4	5.6	4.8	4.4	4.6	4.8	5.0	5.1	5.5	5.9	6.3
Total pension expenditure, gross	7.2	7.4	6.7	6.7	7.3	7.8	8.5	9.1	10.0	10.9	11.9
All pensions, assets	0.0	1.2	7.2	13.3	20.2	27.2	34.8	43.1	52.0	60.1	67.3

: = data not provided

Slovak Republic

OTHER AGE-RELATED EXPENDITURES as % of GDP

	2004	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
Health care spending as % of GDP											
Pure ageing scenario	4.4	4.4	4.6	4.8	5.1	5.3	5.5	5.7	5.9	6.0	6.1
Constant health scenario	4.4	4.4	4.5	4.7	4.8	4.9	5.0	5.2	5.3	5.4	5.5
Death-related costs scenario	4.4	4.4	4.6	4.7	4.9	5.1	5.3	5.4	5.5	5.6	5.7
Income elasticity of demand	4.4	4.4	4.7	5.1	5.4	5.7	6.0	6.2	6.4	6.5	6.7
Unit costs - GDP per worker	4.4	4.4	4.4	4.3	4.5	4.7	5.0	5.3	5.7	6.2	6.6
AWG reference scenario	4.4	4.4	4.7	5.0	5.2	5.5	5.7	5.9	6.0	6.2	6.3
Long-term care spending as % of GDP											
Pure ageing scenario	0.7	0.8	0.8	0.8	0.8	0.8	0.9	1.0	1.2	1.3	1.4
Unit costs - GDP per capita	0.7	0.8	0.8	0.8	0.9	0.7	1.0	1.1	1.2	1.3	1.3
Constant disability scenario	0.7	0.8	0.8	0.7	0.7	0.7	0.8	0.9	1.0	1.1	1.2
Increase in formal care	0.7	0.8	0.8	0.9	0.9	1.0	1.1	1.3	1.5	1.7	1.8
AWG reference scenario	0.7	0.8	0.8	0.7	0.7	0.8	0.9	1.0	1.1	1.2	1.3
Number of dependent people (in thousands)											
Pure ageing scenario	127	129	138	150	170	197	227	253	275	293	309
Unit costs - GDP per capita	127	129	138	150	170	89	227	253	275	293	309
Constant disability scenario	127	127	126	103	133	143	156	170	179	184	185
Increase in formal care	127	129	138	150	170	197	227	253	275	293	309
AWG reference scenario	127	128	132	138	152	170	191	212	227	238	247
of which receiving formal care											
Pure ageing scenario	68	69	74	81	93	108	124	138	151	163	171
Unit costs - GDP per capita	68	69	74	81	93	108	124	138	151	163	171
Constant disability scenario	68	68	68	69	73	79	86	94	99	103	104
Increase in formal care	68	72	91	111	137	158	181	203	221	236	248
AWG reference scenario	68	68	71	75	83	94	105	116	125	133	138
of which receiving informal or no care											
Pure ageing scenario	59	60	64	69	77	89	103	115	123	130	137
Unit costs - GDP per capita	59	60	64	69	77	39	103	115	123	130	137
Constant disability scenario	59	59	58	47	60	64	70	76	80	81	82
Increase in formal care	59	57	47	39	34	39	45	51	54	57	60
AWG reference scenario	59	59	61	63	68	77	87	96	101	106	109
Education spending as % of GDP											
Total	3.7	3.6	3.0	2.4	2.2	2.1	2.2	2.2	2.3	2.3	2.4
of which: Transfers	0.4	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Primary	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
of which: Transfers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Low secondary	0.9	0.9	0.7	0.6	0.5	0.5	0.6	0.6	0.6	0.6	0.6
of which: Transfers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Upper secondary	1.3	1.3	1.1	0.8	0.7	0.7	0.7	0.7	0.8	0.8	0.8
of which: Transfers	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Tertiary education	0.9	0.9	0.8	0.7	0.6	0.5	0.5	0.5	0.6	0.6	0.6
of which: Transfers	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Number of students (in thousands)											
Total	1066	1033	884	778	728	712	698	671	636	606	590
Primary	256	244	212	206	204	202	194	180	170	166	166
Low secondary	372	360	285	250	244	243	241	230	214	203	199
Upper secondary	281	271	239	191	170	168	167	165	157	147	140
Tertiary education	158	157	149	131	110	99	96	95	94	90	85
Memo											
Population aged 15-64 (in thousands)	3815	3834	3887	3818	3658	3516	3405	3312	3163	2947	2741
Unemployment benefit spending as % of GDP	0.3	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1

Finland

Main demographic and macroeconomic assumptions

(BASELINE SCENARIO)

Budgetary Projection: AWG variant population scenario

	2004	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
Demographic assumptions											
Fertility rate	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
Life expectancy at birth											
males	75.3	75.5	76.7	77.8	78.7	79.5	80.2	80.7	81.2	81.6	81.9
females	81.9	82.0	82.8	83.5	84.2	84.8	85.3	85.7	86.0	86.3	86.6
Life expectancy at 65											
males	15.7	15.8	16.6	17.2	17.9	18.4	18.8	19.2	19.4	19.7	20.0
females	19.5	19.6	20.3	20.9	21.4	21.9	22.3	22.6	22.9	23.1	23.3
Net migration (thousand)	6.3	6.2	6.2	6.3	6.1	6.0	6.0	6.0	6.0	6.0	6.0
Net migration as % of population	0.12	0.12	0.12	0.12	0.11	0.11	0.11	0.11	0.11	0.11	0.12
Population (million)	5.2	5.2	5.3	5.4	5.4	5.4	5.4	5.4	5.4	5.3	5.2
Population aged 0-14 as % of total	17.6	17.5	16.5	16.1	16.1	16.0	15.8	15.4	15.2	15.1	15.3
Prime age population (25-54) as % of total	41.7	41.2	39.4	37.9	36.8	35.8	35.6	35.2	34.9	35.0	34.7
Working age population (15-64) as % of total	66.8	66.7	66.6	63.7	61.3	59.4	58.1	57.6	58.1	58.1	57.8
Elderly population aged 65+ as % of total	15.6	15.8	16.9	20.1	22.6	24.6	26.1	27.0	26.7	26.8	27.0
Very elderly population aged 80 and over as % of total	3.7	3.8	4.5	4.8	5.4	6.0	8.0	9.3	9.9	10.2	10.3
lerly population aged 55+ as % of working age pop.15-64	3.6	3.6	3.8	4.2	4.6	4.9	5.0	5.1	5.0	4.9	4.9
Macroeconomic assumptions											
Real GDP (growth rate)	3.1	3.1	2.2	1.9	1.7	1.5	1.4	1.6	1.5	1.4	1.4
Labour input (growth rate)	0.9	0.8	0.3	-0.3	-0.4	-0.4	-0.3	-0.1	-0.2	-0.3	-0.3
Labour productivity (growth rate)	2.1	2.2	1.9	2.2	2.1	1.9	1.7	1.7	1.7	1.7	1.7
TFP (growth rate)	2.1	2.1	1.8	1.7	1.5	1.3	1.1	1.1	1.1	1.1	1.1
Capital deepening (contribution to labour productivity growth)	0.0	0.1	0.1	0.5	0.6	0.7	0.6	0.6	0.6	0.6	0.6
GDP per capita (growth rate)	2.8	2.8	2.0	1.7	1.6	1.4	1.4	1.8	1.8	1.7	1.6
GDP in 2004 prices (in billions of euro)	150	154	175	193	212	229	246	266	288	309	331
GDP per worker	21.9	22.5	25.2	27.5	29.9	32.2	34.5	37.5	41.0	44.7	48.4
Real interest rate	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Labour force assumptions											
Population growth (working age:15-64)		0.1	0.1	-0.7	-0.6	-0.4	-0.4	-0.1	-0.1	-0.3	-0.4
Labour force (thousands)	2609	2620	2656	2636	2600	2549	2504	2482	2469	2438	2399
Participation rate (15-64)	74.8	75.1	75.3	77.2	78.5	78.9	79.2	79.7	79.4	79.4	79.6
young (15-24)	51.7	51.9	51.7	53.2	52.6	52.0	51.9	52.1	52.3	52.5	52.5
prime-age (25-54)	87.8	88.1	89.8	90.9	91.5	92.0	92.2	92.3	92.3	92.2	92.2
older (55-64)	55.0	56.0	56.5	60.6	64.3	64.9	64.8	67.4	67.1	66.8	67.5
oldest (65-71)	6.7	7.0	8.6	11.3	11.9	12.4	12.7	12.4	12.5	13.0	13.0
Employment rate (15-64)	68.5	69.1	70.2	72.2	73.4	73.8	74.1	74.5	74.3	74.3	74.4
Employment rate (15-71)	63.3	63.7	64.5	64.6	65.2	65.7	66.0	66.4	67.1	66.9	66.6
Employment growth (15-64)		1.0	0.3	-0.3	-0.4	-0.4	-0.3	-0.1	-0.2	-0.3	-0.3
Unemployment rate (15-64)	8.5	8.0	6.8	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
Dependency ratios:											
Share of older workers	13.9	14.6	16.8	17.2	17.9	17.9	16.5	16.8	17.7	17.6	18.2
Old-age dependency ratio (1)	23.3	23.7	25.4	31.6	37.0	41.3	45.0	46.9	46.0	46.1	46.7
Total dependency ratio (2)	49.7	49.9	50.2	56.9	63.3	68.3	72.2	73.7	72.1	72.1	73.1
Total economic dependency ratio	118.7	117.0	113.8	117.3	122.3	128.2	132.5	133.2	131.8	131.7	132.6
Economic old-age dependency ratio (15-64)	33.2	33.4	35.0	41.5	47.8	53.5	58.1	60.5	59.7	59.6	60.2
Economic old-age dependency ratio (15-71)	32.9	33.1	34.5	40.6	46.6	52.2	56.7	59.0	58.4	58.2	58.7

LEGENDA:

Share of older workers = Population aged 55 to 64 as % of population aged 15-64

Old-age dependency ratio (1) = Population aged 65 and over as a percentage of the population aged 15-64

Total dependency ratio (2) = Population under 15 and over 64 as a percentage of the population aged 15-64

Total economic dependency ratio= Total population less employed as % of employed population (15-64)

Economic old-age dependency ratio (15-64)=Inactive population aged 65+ as % of employed population (15-64)

Economic old-age dependency ratio (15-71)=Inactive population aged 65+ as % of employed population (15-71)

Finland

EPC-AWG Pension expenditure projections

	2004	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
Baseline scenario; as % of GDP											
Social security pensions, gross	10.7	10.4	11.2	12.0	12.9	13.5	14.0	14.1	13.8	13.7	13.7
Old-age and early pensions, gross	7.9	8.0	8.8	9.7	10.7	11.5	12.0	12.2	12.0	12.0	12.1
Of which: earnings-related pensions, gross	6.8	7.0	8.0	9.1	10.1	10.9	11.6	11.8	11.7	11.7	11.9
Private sector employees, gross	4.0	4.1	4.9	5.7	6.4	7.0	7.5	7.8	7.9	8.0	8.2
Public sector employees, gross	2.8	2.9	3.1	3.4	3.7	3.9	4.0	4.0	3.8	3.7	3.6
Other pensions (disability, survivors), gross	2.8	2.4	2.4	2.3	2.2	2.1	2.0	1.9	1.8	1.7	1.7
Occupational pensions, gross	:	:	:	:	:	:	:	:	:	:	:
Private mandatory pensions, gross	:	:	:	:	:	:	:	:	:	:	:
Total pension expenditure, gross	10.7	10.4	11.2	12.0	12.9	13.5	14.0	14.1	13.8	13.7	13.7
Social security pensions, net	8.7	8.5	9.1	9.8	10.5	11.0	11.4	11.5	11.3	11.2	11.2
Total pension expenditure, net	8.7	8.5	9.1	9.8	10.5	11.0	11.4	11.5	11.3	11.2	11.2
Social security pensions, contributions	9.1	9.1	9.0	9.7	10.3	10.8	11.2	11.3	11.2	11.2	11.2
Total pension contributions	9.1	9.1	9.0	9.7	10.3	10.8	11.2	11.3	11.2	11.2	11.2
Social security pensions, assets	52.4	53.9	59.3	63.1	66.0	68.2	69.9	70.8	71.3	72.2	72.9
All pensions, assets	52.4	53.9	59.3	63.1	66.0	68.2	69.9	70.8	71.3	72.2	72.9
Additional indicators											
Social security pensions, net / Social sec. pensions, gross,%	81	81	82	82	82	82	82	82	82	82	82
Total pension expenditure, net / Total pension exp., gross, %	81	81	82	82	82	82	82	82	82	82	82
Social security pensions, number of pensioners , 1000 pers.	1282	1309	1413	1530	1640	1721	1771	1773	1748	1727	1714
All pensions, pensioners , 1000 pers.	1282	1309	1413	1530	1640	1721	1771	1773	1748	1727	1714
Number of pensioners aged 65+ , 1000 pers.	824	834	919	1096	1231	1335	1415	1440	1407	1390	1386
Share of pensioners below age 65 as % of all pensioners	35.7	36.3	35.0	28.3	24.9	22.4	20.1	18.8	19.5	19.5	19.1
Average gross social sec. pension, 1000€ in 2004 prices	12.5	12.3	13.9	15.2	16.6	18.0	19.5	21.1	22.8	24.6	26.5
Average gross total pensions, 1000€ in 2004 prices	12.5	12.3	13.9	15.2	16.6	18.0	19.5	21.1	22.8	24.6	26.5
Output / Worker, 1000€ in 2004 prices	62.7	64.1	70.5	78.3	87.0	96.2	105.2	114.5	124.6	135.7	147.7
Social sec. benefit ratio	19.8	19.1	19.6	19.4	19.1	18.8	18.5	18.4	18.3	18.1	18.0
Total pension benefit ratio	19.8	19.1	19.6	19.4	19.1	18.8	18.5	18.4	18.3	18.1	18.0
Social security pensions, num of contributors, in 1000	2311	2313	2365	2360	2341	2305	2272	2257	2246	2221	2187
Average social sec. pension contribution, 1000€ in 2004 prices	5.9	6.1	6.7	8.0	9.3	10.7	12.1	13.3	14.4	15.7	17.0
Average total pension contribution, 1000€ in 2004 prices	5.9	6.1	6.7	8.0	9.3	10.7	12.1	13.3	14.4	15.7	17.0
Support ratio (contributors /100 pensioners, social sec. pens.)	180	177	167	154	143	134	128	127	128	129	128
High life expectancy; as % of GDP											
Social security pensions, gross	10.7	10.4	11.2	12.1	12.9	13.6	14.1	14.2	14.0	13.9	13.9
Old-age and early pensions, gross	7.9	8.0	8.8	9.8	10.7	11.5	12.1	12.3	12.2	12.2	12.3
Total pension expenditure, gross	10.7	10.4	11.2	12.1	12.9	13.6	14.1	14.2	14.0	13.9	13.9
All pensions, assets	52.4	53.9	59.3	63.1	66.1	68.3	70.1	70.9	71.3	72.1	72.6
Higher labour productivity; as % of GDP											
Social security pensions, gross	10.7	10.4	11.2	12.0	12.7	13.3	13.6	13.6	13.4	13.3	13.3
Old-age and early pensions, gross	7.9	8.0	8.8	9.7	10.5	11.2	11.7	11.8	11.6	11.6	11.7
Total pension expenditure, gross	10.7	10.4	11.2	12.0	12.7	13.3	13.6	13.6	13.4	13.3	13.3
All pensions, assets	52.4	53.9	59.3	62.5	64.6	66.1	67.2	67.5	67.6	68.1	68.4
Lower labour productivity; as % of GDP											
Social security pensions, gross	10.7	10.4	11.2	12.1	13.1	13.8	14.4	14.5	14.3	14.2	14.2
Old-age and early pensions, gross	7.9	8.0	8.8	9.8	10.8	11.7	12.4	12.5	12.4	12.4	12.5
Total pension expenditure, gross	10.7	10.4	11.2	12.1	13.1	13.8	14.4	14.5	14.3	14.2	14.2
All pensions, assets	52.4	53.9	59.4	63.6	67.3	70.3	72.6	74.0	74.9	76.2	77.2
Higher employment rate (1 p.p.); as % of GDP											
Social security pensions, gross	10.7	10.4	11.2	11.9	12.8	13.5	13.9	14.0	13.8	13.7	13.8
Old-age and early pensions, gross	7.9	8.0	8.8	9.7	10.6	11.4	12.0	12.2	12.0	12.0	12.1
Total pension expenditure, gross	10.7	10.4	11.2	11.9	12.8	13.5	13.9	14.0	13.8	13.7	13.8
All pensions, assets	52.4	53.9	59.3	62.9	66.0	68.4	70.3	71.3	71.8	72.8	73.5
Higher older workers empl. rate (5 p.p.); as % of GDP											
Social security pensions, gross	10.7	10.4	11.1	11.8	12.6	13.2	13.7	13.8	13.6	13.5	13.5
Old-age and early pensions, gross	7.9	8.0	8.8	9.7	10.6	11.3	11.9	12.1	12.0	11.9	12.0
Total pension expenditure, gross	10.7	10.4	11.1	11.8	12.6	13.2	13.7	13.8	13.6	13.5	13.5
All pensions, assets	52.4	53.9	59.0	62.5	65.1	67.1	68.9	69.8	70.2	71.0	71.6
Lower interest rate; as % of GDP											
Social security pensions, gross	10.7	10.4	11.2	12.0	12.9	13.5	13.9	14.0	13.8	13.7	13.6
Old-age and early pensions, gross	7.9	8.0	8.8	9.7	10.7	11.4	12.0	12.1	12.0	11.9	12.0
Total pension expenditure, gross	10.7	10.4	11.2	12.0	12.9	13.5	13.9	14.0	13.8	13.7	13.6
All pensions, assets	52.4	53.9	56.6	58.2	59.3	60.1	60.4	60.3	59.9	60.0	60.0
Higher interest rate; as % of GDP											
Social security pensions, gross	10.7	10.4	11.2	12.0	12.9	13.6	14.0	14.1	13.9	13.8	13.8
Old-age and early pensions, gross	7.9	8.0	8.8	9.7	10.7	11.5	12.1	12.2	12.1	12.1	12.2
Total pension expenditure, gross	10.7	10.4	11.2	12.0	12.9	13.6	14.0	14.1	13.9	13.8	13.8
All pensions, assets	52.4	54.3	62.1	67.8	72.8	77.0	80.5	83.0	84.9	87.2	88.8

: = data not provided

Finland

OTHER AGE-RELATED EXPENDITURES as % of GDP

	2004	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
Health care spending as % of GDP											
Pure ageing scenario	5.6	5.6	5.8	6.0	6.2	6.4	6.7	6.9	7.0	7.0	7.0
Constant health scenario	5.6	5.6	5.6	5.7	5.9	6.0	6.2	6.3	6.4	6.4	6.4
Death-related costs scenario	5.6	5.6	5.7	5.9	6.0	6.2	6.4	6.6	6.7	6.7	6.7
Income elasticity of demand	5.6	5.6	5.8	6.1	6.4	6.6	6.9	7.1	7.3	7.3	7.3
Unit costs - GDP per worker	5.6	5.6	5.7	6.0	6.3	6.7	7.1	7.4	7.5	7.5	7.5
AWG reference scenario	5.6	5.6	5.8	6.0	6.2	6.4	6.6	6.9	7.0	7.0	7.0
Long-term care spending as % of GDP											
Pure ageing scenario	1.7	1.7	1.9	2.0	2.3	2.5	3.2	3.6	3.8	3.9	3.9
Unit costs - GDP per capita	1.7	1.8	1.9	2.0	2.2	1.9	3.0	3.4	3.6	3.7	3.7
Constant disability scenario	1.7	1.7	1.8	1.9	2.0	2.2	2.7	3.0	3.0	3.0	3.0
Increase in formal care	1.7	1.8	2.0	2.3	2.6	2.9	3.7	4.2	4.4	4.5	4.6
AWG reference scenario	1.7	1.7	1.9	2.0	2.1	2.4	3.0	3.3	3.4	3.5	3.5
Number of dependent people (in thousands)											
Pure ageing scenario	183	187	206	234	266	303	349	375	381	379	374
Unit costs - GDP per capita	183	187	206	234	266	153	349	375	381	379	374
Constant disability scenario	183	184	190	167	213	228	254	264	261	252	242
Increase in formal care	183	187	206	234	266	303	349	375	381	379	374
AWG reference scenario	183	185	198	217	240	265	301	320	321	316	308
of which receiving formal care											
Pure ageing scenario	109	111	125	139	157	180	217	238	246	246	242
Unit costs - GDP per capita	109	111	125	139	157	180	217	238	246	246	242
Constant disability scenario	109	110	116	122	129	141	165	176	176	172	165
Increase in formal care	109	115	146	180	218	249	291	315	321	321	316
AWG reference scenario	109	111	120	130	143	160	191	207	211	209	204
of which receiving informal or no care											
Pure ageing scenario	74	75	81	96	109	122	132	136	135	133	131
Unit costs - GDP per capita	74	75	81	96	109	51	132	136	135	133	131
Constant disability scenario	74	74	74	63	84	87	89	89	85	81	77
Increase in formal care	74	72	60	54	48	54	58	60	59	59	58
AWG reference scenario	74	75	78	87	96	105	110	113	110	107	104
Education spending as % of GDP											
Total	6.0	6.0	5.6	5.4	5.3	5.3	5.4	5.4	5.3	5.3	5.3
of which: Transfers	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4
Primary	1.4	1.3	1.2	1.2	1.2	1.2	1.3	1.2	1.2	1.2	1.2
of which: Transfers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Low secondary	1.1	1.1	1.1	1.0	1.0	1.0	1.0	1.1	1.0	1.0	1.0
of which: Transfers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Upper secondary	1.4	1.5	1.4	1.4	1.3	1.3	1.4	1.4	1.3	1.3	1.3
of which: Transfers	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Tertiary education	2.1	2.1	1.9	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8
of which: Transfers	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Number of students (in thousands)											
Total	1169	1185	1121	1079	1056	1044	1040	1029	1006	983	967
Primary	388	382	347	344	348	352	350	342	329	321	319
Low secondary	198	201	195	178	177	179	181	180	175	168	165
Upper secondary	300	309	309	291	278	273	274	273	269	262	256
Tertiary education	283	293	269	266	253	240	236	234	233	232	228
Memo											
Population aged 15-64 (in thousands)	3486	3491	3526	3412	3311	3231	3162	3115	3109	3069	3015
Unemployment benefit spending as % of GDP	1.5	1.4	1.2	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1

Sweden

Main demographic and macroeconomic assumptions

(BASELINE SCENARIO)

Budgetary Projection: AWG variant population scenario

	2004	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
Demographic assumptions											
Fertility rate	1.7	1.8	1.8	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
Life expectancy at birth											
males	78.1	78.2	79.0	79.7	80.4	80.9	81.4	81.8	82.1	82.4	82.6
females	82.4	82.5	83.2	83.8	84.4	84.9	85.4	85.7	86.1	86.4	86.6
Life expectancy at 65											
males	16.7	16.8	17.3	17.8	18.3	18.7	19.0	19.3	19.5	19.8	20.0
females	19.8	19.9	20.4	20.8	21.3	21.7	22.0	22.3	22.5	22.8	23.0
Net migration (thousand)	28.2	27.2	24.1	23.9	22.7	22.1	21.8	21.7	21.5	21.4	21.3
Net migration as % of population	0.31	0.30	0.26	0.26	0.24	0.23	0.22	0.22	0.21	0.21	0.21
Population (million)	9.0	9.0	9.2	9.4	9.6	9.8	9.9	10.0	10.0	10.1	10.2
Population aged 0-14 as % of total	17.8	17.6	16.5	16.8	17.1	17.1	17.0	16.6	16.2	16.1	16.3
Prime age population (25-54) as % of total	40.2	39.9	38.9	38.7	38.7	37.1	36.1	36.2	36.4	36.2	35.5
Working age population (15-64) as % of total	65.0	65.2	65.3	63.1	61.7	60.8	60.0	59.4	59.3	59.4	59.4
Elderly population aged 65+ as % of total	17.2	17.2	18.3	20.1	21.2	22.1	23.0	24.0	24.5	24.4	24.3
Very elderly population aged 80 and over as % of total	5.3	5.3	5.3	5.1	5.3	6.3	7.6	8.0	8.2	8.6	9.1
lerly population aged 55+ as % of working age pop.15-64	6.6	6.6	6.7	7.3	7.8	8.3	8.7	8.8	8.8	8.9	9.1
Macroeconomic assumptions											
Real GDP (growth rate)	2.1	2.7	2.9	2.7	2.5	2.2	1.6	1.8	1.9	1.9	1.8
Labour input (growth rate)	0.0	0.8	0.3	0.2	0.1	0.1	-0.1	0.1	0.2	0.2	0.0
Labour productivity (growth rate)	2.1	1.9	2.6	2.6	2.4	2.1	1.7	1.7	1.7	1.7	1.7
TFP (growth rate)	1.7	1.6	2.1	1.9	1.6	1.4	1.1	1.1	1.1	1.1	1.1
Capital deepening (contribution to labour productivity growth)	0.4	0.3	0.5	0.7	0.8	0.7	0.6	0.6	0.6	0.6	0.6
GDP per capita (growth rate)	1.7	2.3	2.5	2.3	2.1	1.8	1.3	1.7	1.7	1.8	1.6
GDP in 2004 prices (in billions of euro)	278	286	329	378	429	481	526	572	626	690	756
GDP per worker	22.6	23.1	26.1	29.3	32.6	35.8	38.7	41.7	45.4	49.7	54.0
Real interest rate	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Labour force assumptions											
Population growth (working age:15-64)		0.7	0.0	-0.3	0.1	0.1	-0.2	0.1	0.1	0.2	0.1
Labour force (thousands)	4522	4563	4698	4745	4769	4794	4790	4783	4812	4873	4905
Participation rate (15-64)	77.5	77.7	78.3	80.3	80.8	80.8	80.7	80.7	80.9	81.1	81.1
young (15-24)	48.4	48.7	50.7	54.2	50.9	50.6	51.2	51.0	51.2	51.8	51.7
prime-age (25-54)	88.0	88.2	89.4	90.1	90.6	91.0	91.2	91.3	91.3	91.2	91.2
older (55-64)	71.8	72.5	73.4	75.3	76.3	77.5	77.3	77.6	78.0	79.0	79.0
oldest (65-71)	10.9	11.1	14.3	13.5	13.4	13.7	14.3	13.6	13.9	13.6	14.0
Employment rate (15-64)	73.4	73.8	74.9	76.8	77.3	77.4	77.2	77.2	77.4	77.6	77.6
Employment rate (15-71)	68.1	68.5	68.8	69.1	70.0	70.3	69.9	69.3	69.8	70.4	70.7
Employment growth (15-64)		1.3	0.3	0.2	0.1	0.1	-0.1	0.1	0.2	0.2	0.0
Unemployment rate (15-64)	5.3	5.0	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
Dependency ratios:											
Share of older workers	18.3	18.8	18.7	18.0	18.6	19.9	20.0	18.8	18.0	19.1	20.9
Old-age dependency ratio (1)	26.4	26.4	28.0	31.9	34.4	36.4	38.4	40.5	41.4	41.1	40.9
Total dependency ratio (2)	53.8	53.4	53.2	58.6	62.1	64.6	66.7	68.4	68.7	68.3	68.4
Total economic dependency ratio	109.6	107.7	104.4	106.4	109.7	112.7	115.9	118.1	118.1	116.8	116.9
Economic old-age dependency ratio (15-64)	34.6	34.4	35.2	39.2	42.3	44.8	47.4	50.0	51.1	50.8	50.5
Economic old-age dependency ratio (15-71)	34.2	33.9	34.4	38.2	41.3	43.9	46.2	48.8	49.9	49.7	49.4

LEGENDA:

Share of older workers = Population aged 55 to 64 as % of population aged 15-64

Old-age dependency ratio (1) = Population aged 65 and over as a percentage of the population aged 15-64

Total dependency ratio (2) = Population under 15 and over 64 as a percentage of the population aged 15-64

Total economic dependency ratio= Total population less employed as % of employed population (15-64)

Economic old-age dependency ratio (15-64)=Inactive population aged 65+ as % of employed population (15-64)

Economic old-age dependency ratio (15-71)=Inactive population aged 65+ as % of employed population (15-71)

Sweden

EPC-AWG Pension expenditure projections

	2004	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
Baseline scenario; as % of GDP											
Social security pensions, gross	10.6	10.4	10.1	10.3	10.4	10.7	11.1	11.4	11.6	11.4	11.2
Old-age and early pensions, gross	7.8	7.6	7.7	8.2	8.5	8.9	9.4	9.8	10.1	10.0	9.9
Of which: earnings-related pensions, gross	6.4	6.5	6.8	7.2	7.4	7.6	7.9	8.2	8.4	8.1	8.0
Private sector employees, gross	3.8	3.9	4.0	4.2	4.1	4.2	4.3	4.4	4.5	4.4	4.3
Public sector employees, gross	2.6	2.6	2.8	3.1	3.2	3.4	3.6	3.8	3.9	3.8	3.7
Other pensions (disability, survivors), gross	2.8	2.8	2.4	2.1	1.9	1.8	1.7	1.6	1.4	1.4	1.3
Occupational pensions, gross	2.3	2.3	2.3	2.5	2.5	2.6	2.8	2.9	2.9	2.7	2.6
Private mandatory pensions, gross	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total pension expenditure, gross	12.9	12.6	12.4	12.8	12.9	13.3	13.9	14.3	14.5	14.1	13.9
Social security pensions, net	7.8	7.6	7.4	7.5	7.6	7.8	8.1	8.3	8.5	8.3	8.2
Total pension expenditure, net	9.4	9.2	9.1	9.3	9.4	9.7	10.1	10.5	10.6	10.3	10.1
Social security pensions, contributions	7.7	7.7	7.5	7.4	7.4	7.4	7.4	7.4	7.3	7.3	7.3
Total pension contributions	9.1	9.0	8.8	8.8	8.8	8.7	8.7	8.7	8.6	8.6	8.6
Social security pensions, assets	32.1	33.7	40.0	43.1	45.6	47.7	49.6	49.6	47.7	45.5	44.4
All pensions, assets	38.6	41.5	53.5	60.7	66.0	69.7	72.3	71.6	68.1	63.9	60.9
Additional indicators											
Social security pensions, net / Social sec. pensions, gross,%	73	73	73	73	73	73	73	73	73	73	73
Total pension expenditure, net / Total pension exp., gross, %	73	73	73	73	73	73	73	73	73	73	73
Social security pensions, number of pensioners , 1000 pers.	2126	2132	2275	2507	2715	2902	3079	3201	3297	3303	3327
All pensions, pensioners , 1000 pers.	2126	2132	2275	2507	2715	2902	3079	3201	3297	3303	3327
Number of pensioners aged 65+ , 1000 pers.	1629	1630	1802	2053	2263	2451	2633	2756	2848	2845	2868
Share of pensioners below age 65 as % of all pensioners	23.4	23.5	20.8	18.1	16.6	15.6	14.5	13.9	13.6	13.9	13.8
Average gross social sec. pension, 1000€ in 2004 prices	13.9	13.9	14.6	15.6	16.4	17.7	18.9	20.4	22.0	23.8	25.6
Average gross total pensions, 1000€ in 2004 prices	16.9	17.0	18.0	19.3	20.4	22.0	23.7	25.6	27.5	29.4	31.5
Output / Worker, 1000€ in 2004 prices	65.4	66.7	73.2	83.2	94.0	104.8	114.9	125.0	136.1	148.0	161.1
Social sec. benefit ratio	21.3	20.9	20.0	18.7	17.5	16.9	16.5	16.3	16.2	16.0	15.9
Total pension benefit ratio	25.9	25.4	24.6	23.1	21.7	21.0	20.6	20.5	20.2	19.9	19.5
Social security pensions, num of contributors, in 1000	:	:	:	:	:	:	:	:	:	:	:
Average social sec. pension contribution, 1000€ in 2004 prices	:	:	:	:	:	:	:	:	:	:	:
Average total pension contribution, 1000€ in 2004 prices	4.7	4.8	5.3	6.0	6.8	7.6	8.2	8.8	9.5	10.3	11.2
Support ratio (contributors /100 pensioners, social sec. pens.)	:	:	:	:	:	:	:	:	:	:	:
High life expectancy; as % of GDP											
Social security pensions, gross	10.6	10.4	10.1	10.3	10.5	10.8	11.2	11.6	11.8	11.7	11.6
Old-age and early pensions, gross	7.8	7.6	7.7	8.3	8.6	9.0	9.5	10.0	10.4	10.3	10.2
Total pension expenditure, gross	12.9	12.6	12.5	12.8	13.0	13.4	14.1	14.6	14.8	14.4	14.2
All pensions, assets	38.6	41.5	53.2	60.2	65.3	68.7	71.1	70.0	66.1	61.3	57.9
Higher labour productivity; as % of GDP											
Social security pensions, gross	10.6	10.4	10.1	10.3	10.3	10.6	10.9	11.3	11.4	11.2	11.0
Old-age and early pensions, gross	7.8	7.6	7.7	8.2	8.4	8.8	9.3	9.8	10.0	9.9	9.8
Total pension expenditure, gross	12.9	12.6	12.4	12.7	12.8	13.1	13.7	14.0	14.1	13.7	13.5
All pensions, assets	38.6	41.5	53.4	60.2	65.0	68.1	70.3	69.3	65.9	61.8	59.3
Lower labour productivity; as % of GDP											
Social security pensions, gross	10.6	10.4	10.1	10.4	10.5	10.8	11.3	11.6	11.8	11.6	11.5
Old-age and early pensions, gross	7.8	7.6	7.7	8.3	8.6	9.0	9.5	10.0	10.3	10.2	10.1
Total pension expenditure, gross	12.9	12.6	12.4	12.9	13.1	13.5	14.2	14.7	14.9	14.5	14.3
All pensions, assets	38.6	41.5	53.5	61.1	67.2	71.6	74.9	74.6	71.3	66.9	63.7
Higher employment rate (1 p.p.); as % of GDP											
Social security pensions, gross	10.6	10.4	10.1	10.2	10.3	10.6	11.0	11.4	11.5	11.3	11.2
Old-age and early pensions, gross	7.8	7.6	7.7	8.1	8.4	8.8	9.3	9.8	10.1	9.9	9.9
Total pension expenditure, gross	12.9	12.6	12.4	12.7	12.9	13.3	13.8	14.3	14.4	14.0	13.8
All pensions, assets	38.6	41.5	53.1	60.3	65.8	69.4	72.1	71.5	68.1	64.1	61.4
Higher older workers empl. rate (5 p.p.); as % of GDP											
Social security pensions, gross	:	:	:	:	:	:	:	:	:	:	:
Old-age and early pensions, gross	:	:	:	:	:	:	:	:	:	:	:
Total pension expenditure, gross	:	:	:	:	:	:	:	:	:	:	:
All pensions, assets	:	:	:	:	:	:	:	:	:	:	:
Lower interest rate; as % of GDP											
Social security pensions, gross	10.6	10.4	10.1	10.3	10.4	10.6	11.0	11.3	11.4	11.1	11.0
Old-age and early pensions, gross	7.8	7.6	7.7	8.2	8.5	8.8	9.3	9.7	9.9	9.8	9.6
Total pension expenditure, gross	12.9	12.6	12.4	12.7	12.9	13.1	13.6	13.9	14.0	13.5	13.2
All pensions, assets	38.6	41.2	51.5	56.6	59.8	61.4	62.3	60.3	56.2	52.0	49.4
Higher interest rate; as % of GDP											
Social security pensions, gross	10.6	10.4	10.1	10.3	10.5	10.7	11.2	11.6	11.8	11.7	11.6
Old-age and early pensions, gross	7.8	7.6	7.7	8.2	8.5	8.9	9.5	10.0	10.4	10.3	10.3
Total pension expenditure, gross	12.9	12.6	12.5	12.9	13.1	13.5	14.2	14.8	15.1	14.8	14.6
All pensions, assets	38.7	41.8	55.5	65.1	73.0	79.2	84.5	86.0	84.1	80.6	78.2

: = data not provided

Sweden

OTHER AGE-RELATED EXPENDITURES as % of GDP

	2004	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
Health care spending as % of GDP											
Pure ageing scenario	6.7	6.7	6.8	7.0	7.2	7.3	7.5	7.6	7.7	7.7	7.8
Constant health scenario	6.7	6.7	6.7	6.7	6.8	6.9	6.9	7.0	7.0	7.0	7.0
Death-related costs scenario	6.7	6.7	6.8	6.9	7.0	7.1	7.2	7.3	7.4	7.5	7.5
Income elasticity of demand	6.7	6.7	6.9	7.1	7.4	7.6	7.8	7.9	8.0	8.1	8.1
Unit costs - GDP per worker	6.7	6.7	6.7	6.9	7.2	7.5	7.8	8.0	8.1	8.1	8.1
AWG reference scenario	6.7	6.7	6.8	7.0	7.2	7.4	7.5	7.6	7.7	7.7	7.7
Long-term care spending as % of GDP											
Pure ageing scenario	3.8	3.8	3.7	3.7	3.9	4.5	5.3	5.7	5.8	6.0	6.3
Unit costs - GDP per capita	3.8	3.8	3.8	3.7	3.8	3.3	5.1	5.4	5.5	5.7	6.0
Constant disability scenario	3.8	3.8	3.6	3.4	3.5	3.9	4.5	4.6	4.6	4.6	4.7
Increase in formal care	3.8	3.9	3.9	3.9	4.2	4.9	5.8	6.1	6.2	6.4	6.8
AWG reference scenario	3.8	3.8	3.7	3.5	3.7	4.2	4.9	5.1	5.2	5.3	5.5
Number of dependent people (in thousands)											
Pure ageing scenario	322	324	331	348	379	432	487	514	531	549	569
Unit costs - GDP per capita	322	324	331	348	379	241	487	514	531	549	569
Constant disability scenario	322	320	308	259	310	337	366	372	370	372	378
Increase in formal care	322	324	331	348	379	432	487	514	531	549	569
AWG reference scenario	322	322	320	326	345	384	427	443	450	460	474
of which receiving formal care											
Pure ageing scenario	243	244	248	254	275	321	370	392	404	421	442
Unit costs - GDP per capita	243	244	248	254	275	321	370	392	404	421	442
Constant disability scenario	243	242	232	226	231	258	288	294	293	297	306
Increase in formal care	243	248	270	295	334	383	435	460	475	492	513
AWG reference scenario	243	243	240	240	253	289	329	343	349	359	374
of which receiving informal or no care											
Pure ageing scenario	79	79	84	94	104	111	116	122	126	128	127
Unit costs - GDP per capita	79	79	84	94	104	47	116	122	126	128	127
Constant disability scenario	79	78	76	62	79	79	79	78	77	75	73
Increase in formal care	79	75	61	53	46	49	51	54	56	56	56
AWG reference scenario	79	78	80	86	92	95	98	100	102	102	100
Education spending as % of GDP											
Total	7.3	7.3	6.7	6.5	6.4	6.4	6.6	6.6	6.6	6.5	6.4
of which: Transfers	1.1	1.1	1.0	1.0	0.9	0.9	0.9	1.0	1.0	0.9	0.9
Primary	2.0	1.9	1.7	1.8	1.8	1.9	1.9	1.9	1.8	1.8	1.8
of which: Transfers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Low secondary	1.2	1.2	1.0	0.9	1.0	1.0	1.0	1.0	1.0	1.0	1.0
of which: Transfers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Upper secondary	1.7	1.7	1.8	1.5	1.5	1.5	1.6	1.6	1.6	1.6	1.5
of which: Transfers	0.3	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Tertiary education	2.4	2.4	2.2	2.3	2.1	2.0	2.1	2.1	2.1	2.1	2.1
of which: Transfers	0.7	0.7	0.6	0.7	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Number of students (in thousands)											
Total	2100	2111	1991	1943	1961	1984	2025	2048	2033	2009	2005
Primary	745	713	629	687	704	717	737	730	706	701	715
Low secondary	405	420	363	328	361	366	375	385	380	367	365
Upper secondary	540	564	597	515	514	532	538	552	559	549	536
Tertiary education	411	415	402	413	381	367	375	381	388	392	387
Memo											
Population aged 15-64 (in thousands)	5835	5874	5998	5909	5902	5929	5936	5926	5951	6006	6046
Unemployment benefit spending as % of GDP	1.1	1.1	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9

United Kingdom

Main demographic and macroeconomic assumptions

(BASELINE SCENARIO)

Budgetary Projection: AWG variant population scenario

	2004	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
Demographic assumptions											
Fertility rate	1.7	1.7	1.7	1.7	1.8	1.8	1.8	1.8	1.8	1.8	1.8
Life expectancy at birth											
males	76.4	76.6	77.6	78.5	79.4	80.1	80.7	81.3	81.7	82.1	82.4
females	80.9	81.1	82.1	83.0	83.8	84.5	85.1	85.6	86.0	86.3	86.7
Life expectancy at 65											
males	16.1	16.2	16.9	17.6	18.2	18.7	19.2	19.6	19.9	20.2	20.4
females	19.0	19.1	19.8	20.5	21.1	21.7	22.1	22.5	22.8	23.1	23.3
Net migration (thousand)	139.5	134.5	116.1	107.7	102.8	100.3	99.2	98.8	98.7	98.5	98.5
Net migration as % of population	0.23	0.22	0.19	0.17	0.16	0.16	0.15	0.15	0.15	0.15	0.15
Population (million)	59.7	59.9	60.9	61.9	62.9	63.8	64.4	64.6	64.7	64.5	64.2
Population aged 0-14 as % of total	18.3	18.0	17.0	16.5	16.3	16.1	15.8	15.3	14.9	14.7	14.7
Prime age population (25-54) as % of total	41.5	41.4	41.2	40.9	39.8	38.2	37.2	37.1	36.6	36.0	35.5
Working age population (15-64) as % of total	65.7	65.9	66.3	65.2	64.2	63.0	61.3	59.9	59.2	59.2	58.8
Elderly population aged 65+ as % of total	16.0	16.1	16.6	18.3	19.5	20.9	22.9	24.8	25.8	26.0	26.5
Very elderly population aged 80 and over as % of total	4.3	4.4	4.6	4.8	5.2	5.7	6.8	7.3	8.1	9.2	10.1
lerly population aged 55+ as % of working age pop.15-64	41.5	41.6	42.1	44.3	47.8	51.4	54.4	56.1	57.3	58.1	59.0
Macroeconomic assumptions											
Real GDP (growth rate)	2.6	2.6	3.0	2.6	2.1	1.7	1.3	1.5	1.7	1.5	1.3
Labour input (growth rate)	0.7	0.6	0.7	0.2	0.0	-0.2	-0.4	-0.2	0.0	-0.2	-0.4
Labour productivity (growth rate)	1.9	2.0	2.4	2.3	2.2	1.9	1.7	1.7	1.7	1.7	1.7
TFP (growth rate)	1.2	1.2	1.6	1.5	1.3	1.2	1.1	1.1	1.1	1.1	1.1
Capital deepening (contribution to labour productivity growth)	0.7	0.8	0.7	0.9	0.8	0.7	0.6	0.6	0.6	0.6	0.6
GDP per capita (growth rate)	2.2	2.2	2.7	2.2	1.8	1.5	1.2	1.4	1.7	1.6	1.5
GDP in 2004 prices (in billions of euro)	1706	1751	2019	2309	2587	2843	3054	3277	3547	3843	4123
GDP per worker	21.0	21.5	24.4	27.4	30.2	32.8	34.9	37.3	40.3	43.8	47.2
Real interest rate	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Labour force assumptions											
Population growth (working age:15-64)		0.6	0.3	0.0	0.0	-0.2	-0.4	-0.3	-0.1	-0.2	-0.3
Labour force (thousands)	29599	29827	30859	31402	31476	31280	30759	30320	30155	30011	29577
Participation rate (15-64)	75.5	75.6	76.4	77.7	77.9	77.8	77.9	78.3	78.7	78.5	78.3
young (15-24)	63.8	63.9	65.2	65.7	65.2	64.9	64.8	64.8	65.0	65.2	65.2
prime-age (25-54)	84.0	84.3	85.2	85.7	86.2	86.6	86.8	87.0	87.0	87.0	86.9
older (55-64)	57.5	57.6	58.5	62.8	63.6	63.9	63.5	63.8	65.6	65.6	65.2
oldest (65-71)	15.7	16.0	16.1	16.4	16.3	16.4	16.6	16.3	16.1	16.3	16.6
Employment rate (15-64)	71.8	72.0	72.9	74.2	74.3	74.2	74.3	74.7	75.1	74.9	74.7
Employment rate (15-71)	67.0	67.2	67.8	68.0	68.2	67.9	67.1	66.9	67.6	68.2	67.7
Employment growth (15-64)		0.9	0.7	0.2	0.0	-0.2	-0.4	-0.2	0.0	-0.2	-0.4
Unemployment rate (15-64)	4.9	4.8	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6
Dependency ratios:											
Share of older workers	13.3	13.5	14.0	14.8	16.5	18.0	17.6	16.2	16.4	17.7	18.2
Old-age dependency ratio (1)	24.3	24.4	25.1	28.1	30.3	33.1	37.3	41.3	43.6	44.0	45.0
Total dependency ratio (2)	52.1	51.7	50.8	53.3	55.7	58.7	63.0	66.9	68.8	68.9	70.0
Total economic dependency ratio	111.9	110.9	106.9	106.7	109.6	113.7	119.3	123.4	124.8	125.4	127.5
Economic old-age dependency ratio (15-64)	31.9	31.9	32.3	35.3	38.3	42.0	47.1	52.0	55.0	56.0	57.2
Economic old-age dependency ratio (15-71)	31.3	31.2	31.7	34.4	37.4	40.9	45.7	50.4	53.4	54.4	55.6

LEGENDA:

Share of older workers = Population aged 55 to 64 as % of population aged 15-64

Old-age dependency ratio (1) = Population aged 65 and over as a percentage of the population aged 15-64

Total dependency ratio (2) = Population under 15 and over 64 as a percentage of the population aged 15-64

Total economic dependency ratio= Total population less employed as % of employed population (15-64)

Economic old-age dependency ratio (15-64)=Inactive population aged 65+ as % of employed population (15-64)

Economic old-age dependency ratio (15-71)=Inactive population aged 65+ as % of employed population (15-71)

United Kingdom

EPC-AWG Pension expenditure projections

	2004	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
Baseline scenario; as % of GDP											
Social security pensions, gross	6.6	6.7	6.6	6.7	6.9	7.3	7.9	8.3	8.4	8.4	8.6
Old-age and early pensions, gross	6.6	6.7	6.6	6.7	6.9	7.3	7.9	8.3	8.4	8.4	8.6
Of which: earnings-related pensions, gross	2.2	2.2	2.5	2.7	3.1	3.3	3.7	3.9	4.1	4.2	4.5
Private sector employees, gross	0.7	0.7	0.8	0.9	1.0	1.1	1.3	1.4	1.5	1.7	2.0
Public sector employees, gross	1.5	1.5	1.6	1.8	2.1	2.2	2.5	2.5	2.5	2.5	2.5
Other pensions (disability, survivors), gross	:	:	:	:	:	:	:	:	:	:	:
Occupational pensions, gross	:	:	:	:	:	:	:	:	:	:	:
Private mandatory pensions, gross	:	:	:	:	:	:	:	:	:	:	:
Total pension expenditure, gross	:	:	:	:	:	:	:	:	:	:	:
Social security pensions, net	:	:	:	:	:	:	:	:	:	:	:
Total pension expenditure, net	:	:	:	:	:	:	:	:	:	:	:
Social security pensions, contributions	5.7	5.8	5.9	6.1	6.2	6.2	6.3	6.3	6.3	6.3	6.3
Total pension contributions	:	:	:	:	:	:	:	:	:	:	:
Social security pensions, assets	:	:	:	:	:	:	:	:	:	:	:
All pensions, assets	:	:	:	:	:	:	:	:	:	:	:
Additional indicators											
Social security pensions, net / Social sec. pensions, gross,%	:	:	:	:	:	:	:	:	:	:	:
Total pension expenditure, net / Total pension exp., gross, %	:	:	:	:	:	:	:	:	:	:	:
Social security pensions, number of pensioners , 1000 pers.	:	:	:	:	:	:	:	:	:	:	:
All pensions, pensioners , 1000 pers.	:	:	:	:	:	:	:	:	:	:	:
Number of pensioners aged 65+ , 1000 pers.	:	:	:	:	:	:	:	:	:	:	:
Share of pensioners below age 65 as % of all pensioners	:	:	:	:	:	:	:	:	:	:	:
Average gross social sec. pension, 1000€ in 2004 prices	:	:	:	:	:	:	:	:	:	:	:
Average gross total pensions, 1000€ in 2004 prices	:	:	:	:	:	:	:	:	:	:	:
Output / Worker, 1000€ in 2004 prices	59.3	60.5	68.6	77.1	86.2	95.3	104.1	113.3	123.3	134.2	146.1
Social sec. benefit ratio	:	:	:	:	:	:	:	:	:	:	:
Total pension benefit ratio	:	:	:	:	:	:	:	:	:	:	:
Social security pensions, num of contributors, in 1000	:	:	:	:	:	:	:	:	:	:	:
Average social sec. pension contribution, 1000€ in 2004 prices	:	:	:	:	:	:	:	:	:	:	:
Average total pension contribution, 1000€ in 2004 prices	:	:	:	:	:	:	:	:	:	:	:
Support ratio (contributors /100 pensioners, social sec. pens.)	:	:	:	:	:	:	:	:	:	:	:
High life expectancy; as % of GDP											
Social security pensions, gross	6.6	6.7	6.7	6.8	6.9	7.4	8.0	8.4	8.5	8.6	8.8
Old-age and early pensions, gross	6.6	6.7	6.7	6.8	6.9	7.4	8.0	8.4	8.5	8.6	8.8
Total pension expenditure, gross	:	:	:	:	:	:	:	:	:	:	:
All pensions, assets	:	:	:	:	:	:	:	:	:	:	:
Higher labour productivity; as % of GDP											
Social security pensions, gross	6.6	6.7	6.6	6.7	6.7	7.1	7.7	8.0	8.0	8.1	8.2
Old-age and early pensions, gross	6.6	6.7	6.6	6.7	6.7	7.1	7.7	8.0	8.0	8.1	8.2
Total pension expenditure, gross	:	:	:	:	:	:	:	:	:	:	:
All pensions, assets	:	:	:	:	:	:	:	:	:	:	:
Lower labour productivity; as % of GDP											
Social security pensions, gross	6.6	6.7	6.6	6.7	7.0	7.5	8.1	8.5	8.7	8.7	8.9
Old-age and early pensions, gross	6.6	6.7	6.6	6.7	7.0	7.5	8.1	8.5	8.7	8.7	8.9
Total pension expenditure, gross	:	:	:	:	:	:	:	:	:	:	:
All pensions, assets	:	:	:	:	:	:	:	:	:	:	:
Higher employment rate (1 p.p.); as % of GDP											
Social security pensions, gross	6.6	6.7	6.6	6.7	6.8	7.2	7.8	8.2	8.3	8.4	8.5
Old-age and early pensions, gross	6.6	6.7	6.6	6.7	6.8	7.2	7.8	8.2	8.3	8.4	8.5
Total pension expenditure, gross	:	:	:	:	:	:	:	:	:	:	:
All pensions, assets	:	:	:	:	:	:	:	:	:	:	:
Higher older workers empl. rate (5 p.p.); as % of GDP											
Social security pensions, gross	6.6	6.7	6.6	6.7	6.8	7.2	7.8	8.2	8.3	8.4	8.5
Old-age and early pensions, gross	6.6	6.7	6.6	6.7	6.8	7.2	7.8	8.2	8.3	8.4	8.5
Total pension expenditure, gross	:	:	:	:	:	:	:	:	:	:	:
All pensions, assets	:	:	:	:	:	:	:	:	:	:	:
Lower interest rate; as % of GDP											
Social security pensions, gross	6.6	6.7	6.6	6.7	6.9	7.3	7.9	8.3	8.4	8.4	8.6
Old-age and early pensions, gross	6.6	6.7	6.6	6.7	6.9	7.3	7.9	8.3	8.4	8.4	8.6
Total pension expenditure, gross	:	:	:	:	:	:	:	:	:	:	:
All pensions, assets	:	:	:	:	:	:	:	:	:	:	:
Higher interest rate; as % of GDP											
Social security pensions, gross	6.6	6.7	6.6	6.7	6.9	7.3	7.9	8.3	8.4	8.4	8.6
Old-age and early pensions, gross	6.6	6.7	6.6	6.7	6.9	7.3	7.9	8.3	8.4	8.4	8.6
Total pension expenditure, gross	:	:	:	:	:	:	:	:	:	:	:
All pensions, assets	:	:	:	:	:	:	:	:	:	:	:

: = data not provided

United Kingdom

OTHER AGE-RELATED EXPENDITURES as % of GDP

	2004	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
Health care spending as % of GDP											
Pure ageing scenario	7.0	7.0	7.2	7.4	7.7	8.0	8.3	8.6	8.9	9.1	9.3
Constant health scenario	7.0	7.0	7.0	7.1	7.1	7.2	7.4	7.6	7.7	7.9	7.9
Death-related costs scenario	7.0	7.0	7.1	7.3	7.5	7.7	8.0	8.3	8.5	8.7	8.8
Income elasticity of demand	7.0	7.0	7.3	7.6	7.9	8.3	8.6	9.0	9.3	9.6	9.7
Unit costs - GDP per worker	7.0	7.0	7.0	7.3	7.6	8.1	8.6	9.2	9.5	9.8	10.0
AWG reference scenario	7.0	7.0	7.2	7.4	7.6	7.9	8.1	8.4	8.7	8.8	8.9
Long-term care spending as % of GDP											
Pure ageing scenario	1.0	1.0	1.0	1.0	1.1	1.2	1.4	1.5	1.7	1.9	2.0
Unit costs - GDP per capita	1.0	1.0	1.0	1.1	1.1	0.9	1.4	1.5	1.6	1.7	1.9
Constant disability scenario	1.0	1.0	1.0	1.0	1.0	1.1	1.2	1.3	1.3	1.4	1.5
Increase in formal care	1.0	1.1	1.4	1.6	2.0	2.2	2.5	2.8	3.0	3.4	3.6
AWG reference scenario	1.0	1.0	1.0	1.0	1.1	1.1	1.3	1.4	1.5	1.6	1.8
Number of dependent people (in thousands)											
Pure ageing scenario	2899	2923	3075	3380	3686	4047	4517	4917	5236	5436	5564
Unit costs - GDP per capita	2899	2923	3075	3380	3686	1901	4517	4917	5236	5436	5564
Constant disability scenario	2899	2880	2809	2329	2895	2974	3156	3262	3343	3399	3408
Increase in formal care	2899	2923	3075	3380	3686	4047	4517	4917	5236	5436	5564
AWG reference scenario	2899	2902	2942	3117	3291	3510	3837	4090	4289	4417	4486
of which receiving formal care											
Pure ageing scenario	718	726	763	820	897	997	1147	1247	1354	1472	1553
Unit costs - GDP per capita	718	726	763	820	897	997	1147	1247	1354	1472	1553
Constant disability scenario	718	717	711	720	744	785	868	906	952	1015	1053
Increase in formal care	718	835	1376	1924	2459	2705	3034	3302	3528	3691	3799
AWG reference scenario	718	721	737	770	820	891	1008	1076	1153	1244	1303
of which receiving informal or no care											
Pure ageing scenario	2181	2198	2312	2559	2790	3050	3371	3671	3882	3963	4011
Unit costs - GDP per capita	2181	2198	2312	2559	2790	1329	3371	3671	3882	3963	4011
Constant disability scenario	2181	2163	2097	1709	2151	2189	2287	2356	2391	2384	2355
Increase in formal care	2181	2088	1700	1456	1228	1342	1484	1616	1709	1744	1765
AWG reference scenario	2181	2180	2205	2347	2471	2620	2829	3014	3136	3173	3183
Education spending as % of GDP											
Total	4.6	4.5	4.2	4.0	4.0	4.0	4.1	4.1	4.0	3.9	4.0
of which: Transfers	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Primary	1.1	1.1	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
of which: Transfers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Low secondary	0.8	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
of which: Transfers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Upper secondary	1.5	1.5	1.4	1.3	1.3	1.3	1.3	1.4	1.3	1.3	1.3
of which: Transfers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Tertiary education	1.1	1.1	1.1	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
of which: Transfers	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Number of students (in thousands)											
Total	16352	16250	15647	15292	15151	15153	15171	14970	14577	14244	14155
Primary	4428	4367	4118	4128	4131	4170	4136	4013	3891	3832	3818
Low secondary	2340	2307	2162	2024	2037	2045	2065	2043	1977	1918	1893
Upper secondary	7166	7159	6964	6784	6702	6687	6734	6694	6516	6339	6311
Tertiary education	2418	2417	2404	2357	2281	2251	2235	2220	2192	2155	2132
Memo											
Population aged 15-64 (in thousands)	39218	39461	40413	40389	40418	40201	39488	38716	38307	38226	37763
Unemployment benefit spending as % of GDP	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3