Rethinking Growth Policy Two Years Into the Crisis

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Introduction

- In previous work and reports, I emphasized the need for structural reforms in Europe and for investing in higher education
- In this lecture I want to discuss the extent to which the recent crisis should affect our previous conclusions

Outline

- Schumpeterian growth paradigm
- My pre-crisis growth recommendations
- New constraints brought about by the recession
- Dominant policy views and their weaknesses
- Updating the recommendations
- Wrapping-up

A paradigm for analyzing growth policy

Schumpeterian Paradigm

- Innovation is driven by entrepreneurial investments (R&D…) which are themselves motivated by the prospect of monopoly rents

Schumpeterian Paradigm

- Frontier innovation and imitation requires different sets of policies and institutions

Schumpeterian Paradigm

$\longrightarrow$ Schumpeterian paradigm is flexible in modeling contribution of past innovations:

$$A_{t+1} - A_t = \mu_n (\gamma - 1) A_t + \mu_m (\overline{A}_t - A_t)$$

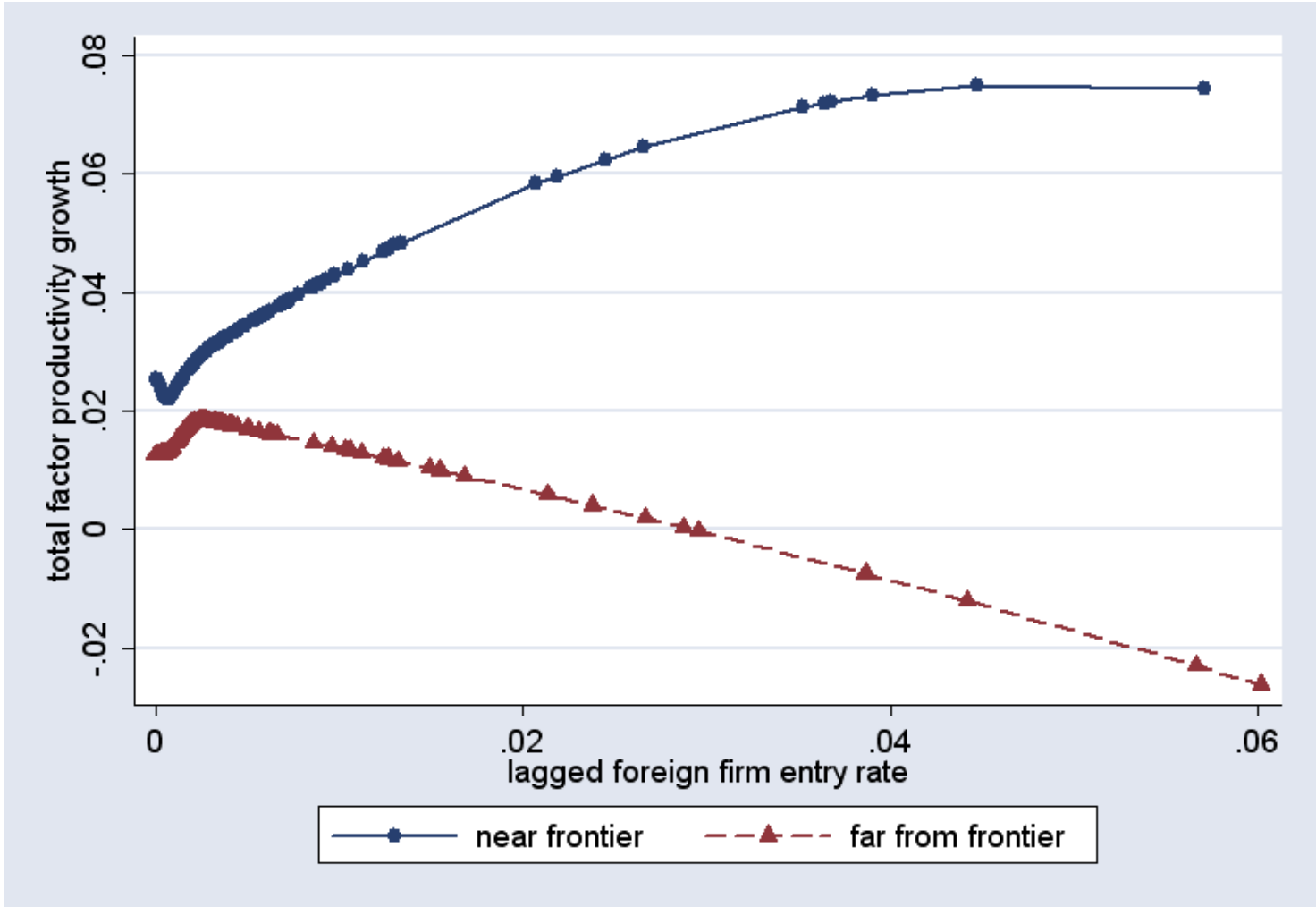
$$\Longrightarrow$$

$$g_t = \frac{A_{t+1} - A_t}{A_t} = \mu_n (\gamma - 1) + \mu_m \left(a_t^{-1} - 1 \right)$$

$\longrightarrow$ *policies aimed at influencing* μ_n *and* μ_m *will affect a country's growth performance differently depending upon its proximity to frontier as measured by a* (Acemoglu-Aghion-Zilibotti (2003))

Example 1: Competition & Growth

- Competition/entry is more growth-enhancing for countries or sectors that are closer to technological frontier


total factor productivity growth
-.02
0
.02
.04
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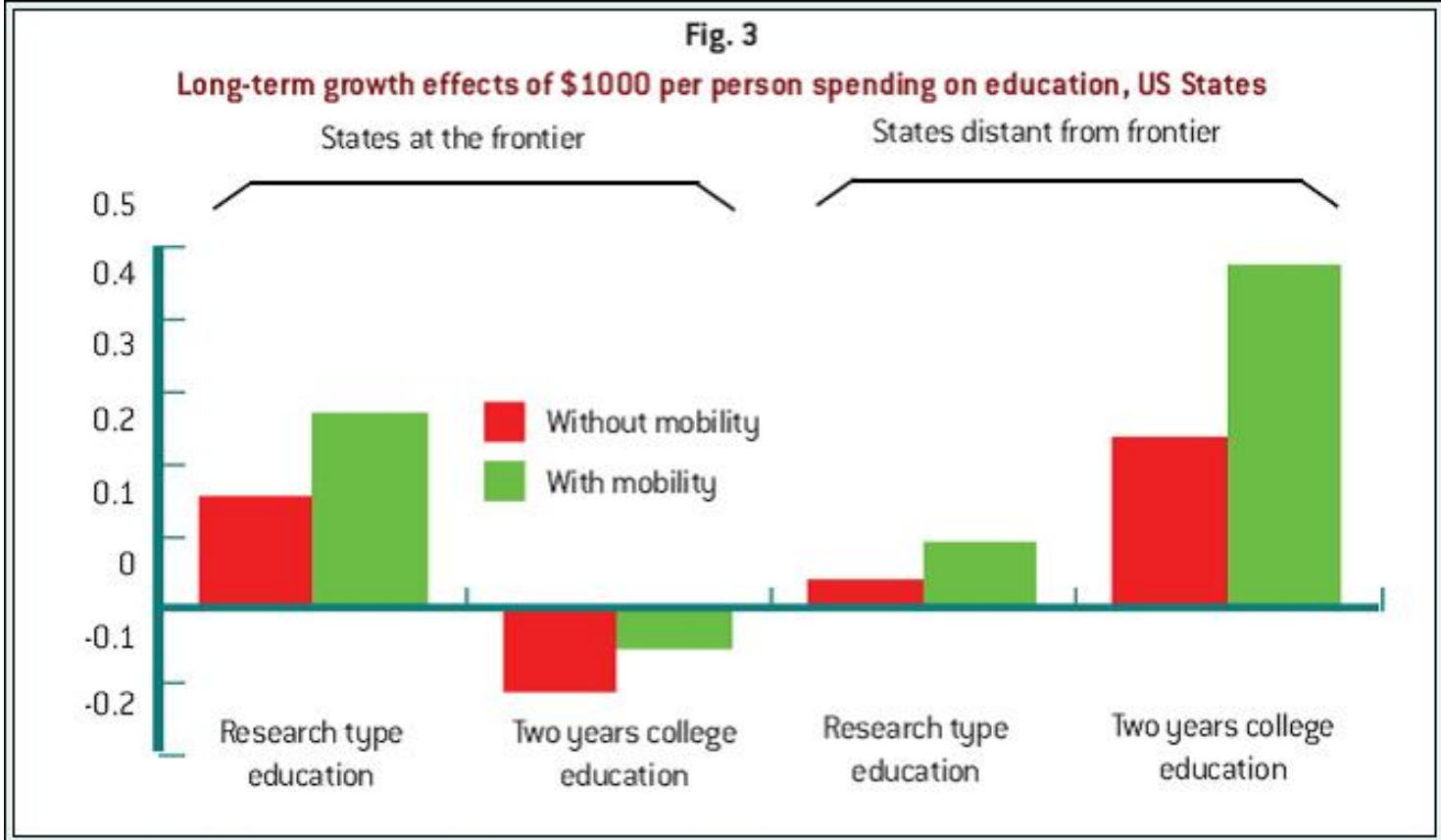
lagged foreign firm entry rate
near frontier
far from frontier

Example 2: Education

- Higher education is more growth-enhancing closer to technological frontier



Source: Aghion, Boustan, Hoxby and Vandenbussche (2005)

Similarly

- Labor market flexibility is more growth enhancing the closer a country is to the technological frontier
- Stock markets and equity finance are more growth-enhancing closer to technological frontier

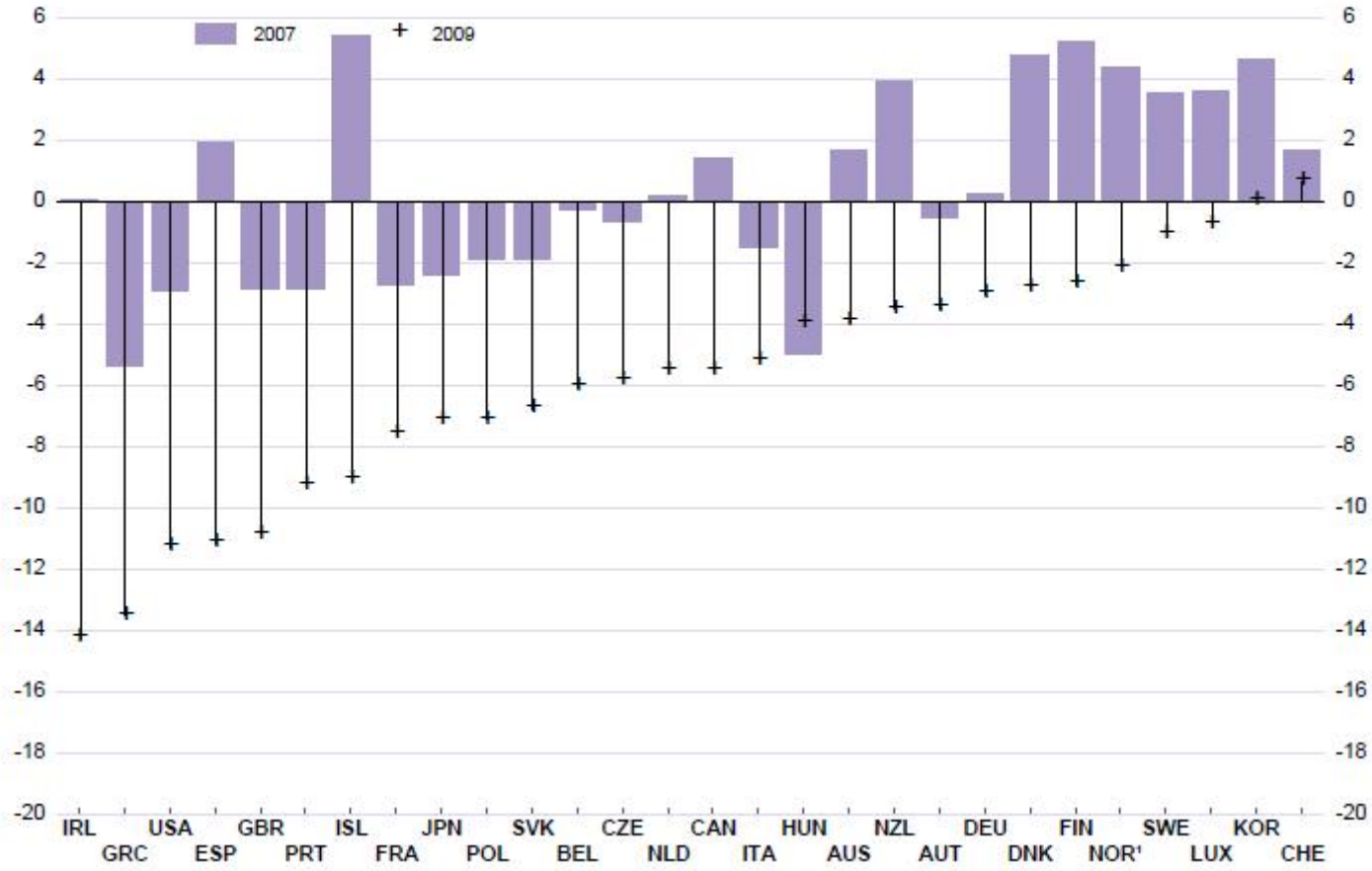
- Thus in previous reports on how to enhance growth in developed and emerging market economies we would all typically recommend:
  - Liberalization of trade, and of product and labor markets
  - Investment in higher education

New Constraints Brought About by the Recession

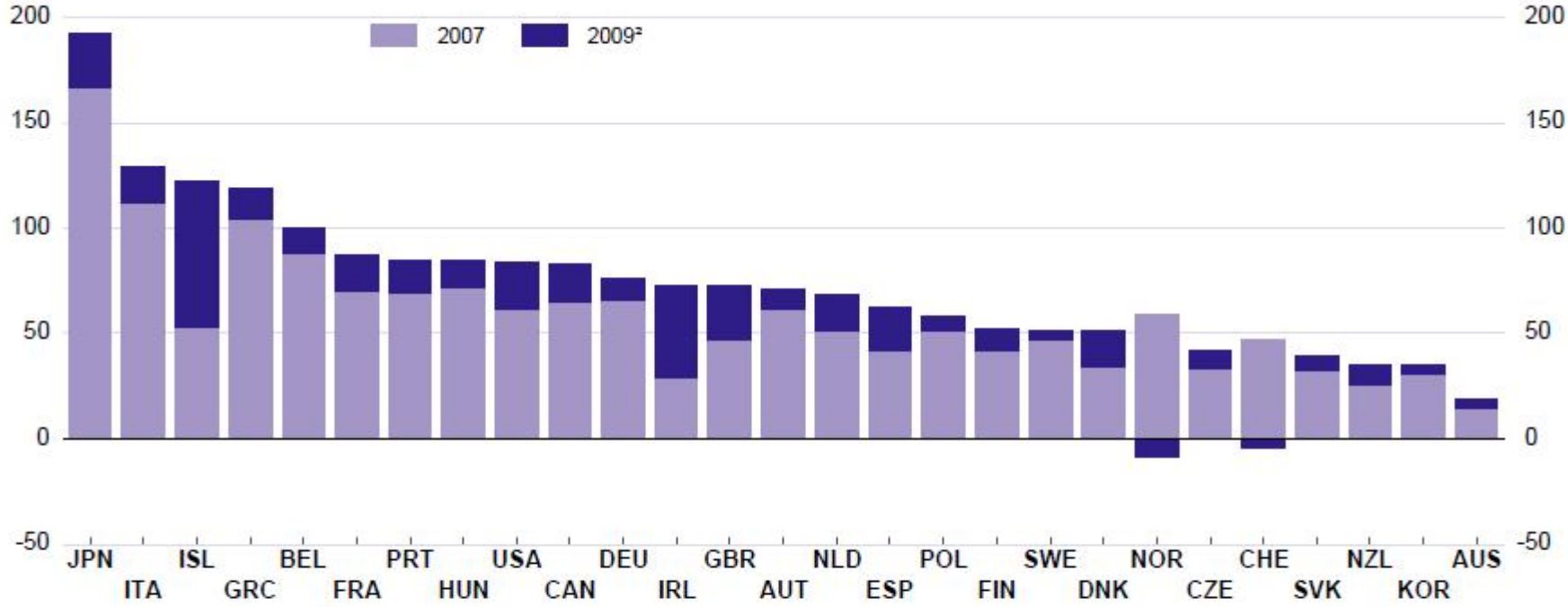
- Weakening of public finances
- Tightening of credit constraints
- Need to correct global imbalances

Public finances weakened significantly during the recession

General government balance, in per cent of GDP



Gross government debt, in per cent of GDP



Click here for underlying data

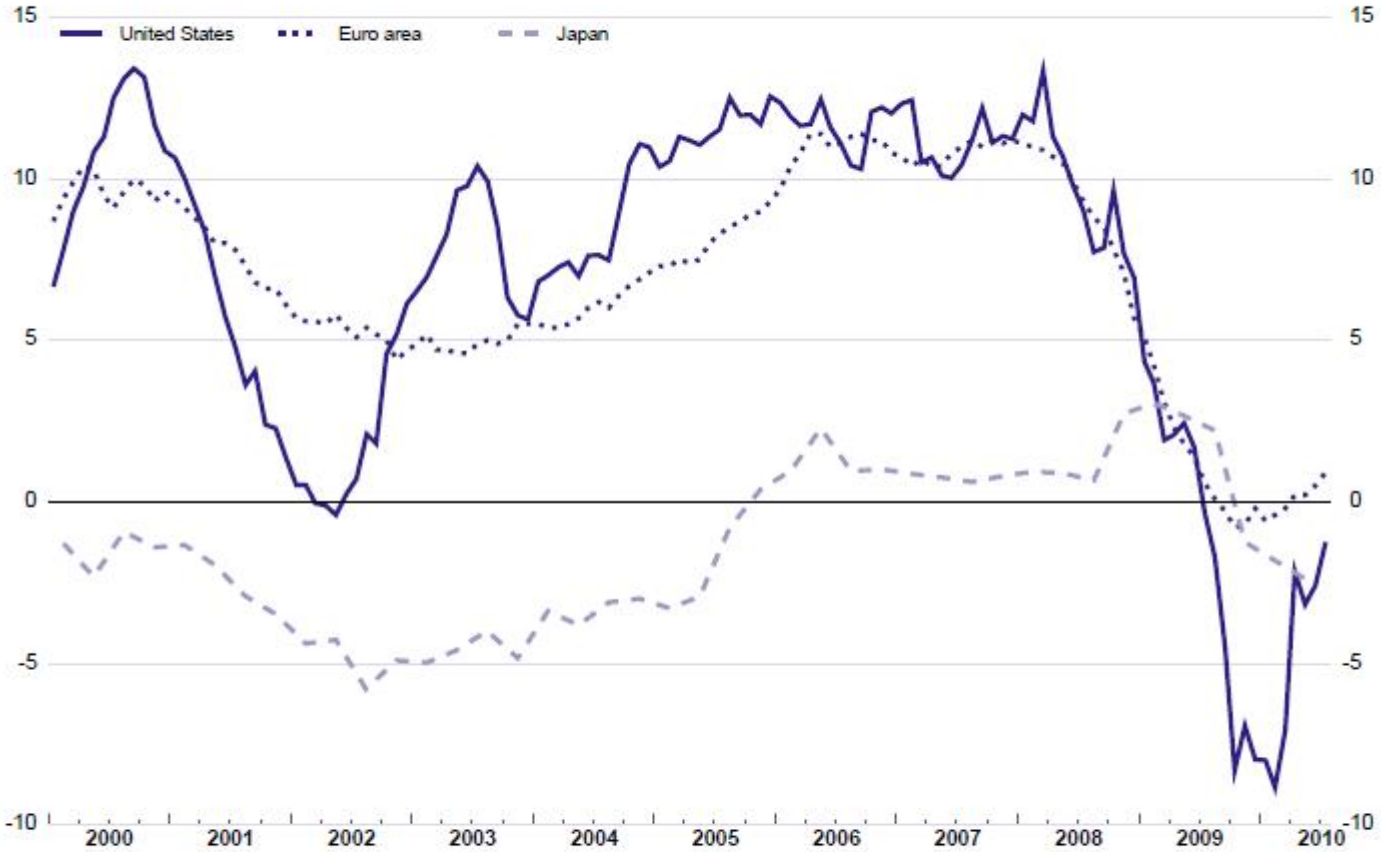
Note: Data for 2009 are estimates for some countries.

1. Mainland Norway only.
2. Change between 2007 and 2009.

Source: OECD, System of National Accounts database; and OECD Economic Outlook 87 database.

Bank lending continues to be weak

Bank loans to the non-financial private sector, year-on-year percentage changes



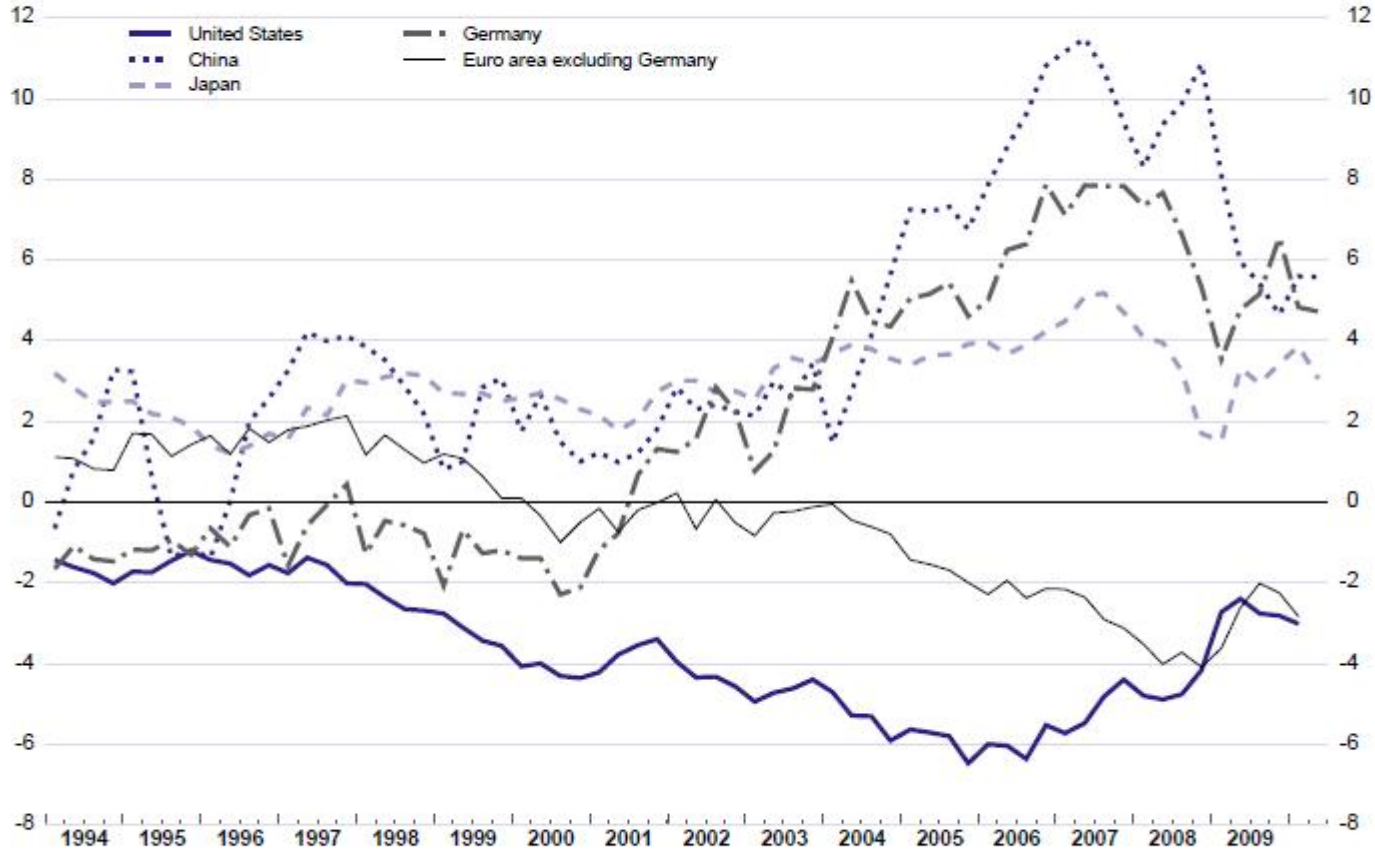
Click here for underlying data

Note: Data refer to all commercial banks for the United States, to monetary financial institutions (MFIs) for the euro area and to all banks for Japan. Year-on-year growth rates are calculated from end-of-period stocks. For the euro area, these are adjusted for reclassifications, exchange-rate variations and any other changes which do not arise from transactions.

Source: Datastream.

Global imbalances are widening but remain well below pre-crisis levels

Current account balance, in per cent of GDP



Click here for underlying data

Source: OECD, Quarterly National Accounts database; and OECD, Main Economic Indicators database.

Two Contrasted Views of How to React to the Crisis

- Keynesian view (non-discriminatory increase in public spending)
- Monetarist view (tax and spending cuts)

However

- Keynesian multiplier might be small
- Fiscal policy matters over the cycle when firms are credit-constrained

Keynesian Multiplier Might Be Small

- Perotti (2005): government spending multipliers larger than 1 can only be seen in the US pre-1980 period
- Cogan, Cwik, Taylor and Wieland (2009) find that permanent increase by 1% of GDP of government expenditures, increases GDP by only .44% (whereas Romer and Bernstein (2009) find a 1.57% increase).

Fiscal Policy Over the Cycle

- 17 OECD countries, 45 manufacturing industries
- Period 1980-2005
- Countercyclical fiscal policy enhances growth more in sectors that are more dependent on external finance or in sectors with lower asset tangibility

Dependent variable: Real Value Added Growth								
	(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)
Log of Initial Share in Manufacturing Value Added	-0.797**	-0.808**	-0.809***	-0.811***	-0.528	-0.530	-0.508	-0.510
	(0.280)	(0.278)	(0.246)	(0.247)	(0.350)	(0.350)	(0.351)	(0.352)
Interaction (Financial Dependence and Total Fiscal Balance to GDP Counter-Cyclicality)	6.687***							
	(1.510)							
Interaction (Financial Dependence and Total Fiscal Balance to potential GDP Counter-Cyclicality)		6.701***						
		(1.419)						
Interaction (Financial Dependence and Primary Fiscal Balance to GDP Counter-Cyclicality)			4.661***					
			(0.878)					
Interaction (Financial Dependence and Primary Fiscal Balance to potential GDP Counter-Cyclicality)				4.680***				
				(0.860)				
Interaction (Asset Tangibility and Total Fiscal Balance to GDP Counter-Cyclicality)					-13.30***			
					(4.406)			
Interaction (Asset Tangibility and Total Fiscal Balance to potential GDP Counter-Cyclicality)						-13.24***		
						(4.251)		
Interaction (Asset Tangibility and Primary Fiscal Balance to GDP Counter-Cyclicality)							-8.942***	
							(2.895)	
Interaction (Asset Tangibility and Primary Fiscal Balance to potential GDP Counter-Cyclicality)								-9.039***
								(2.830)
Observations	528	528	528	528	528	528	528	528
R-squared	0.579	0.581	0.579	0.579	0.560	0.561	0.560	0.560

Dependent variable: Labor Productivity Growth								
	(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)
Log of Initial Relative Labor Productivity	-2.549***	-2.541***	-2.539***	-2.537***	-2.512***	-2.510***	-2.505***	-2.502***
	(0.512)	(0.513)	(0.557)	(0.556)	(0.503)	(0.503)	(0.533)	(0.533)
Interaction (Financial Dependence and Total Fiscal Balance to GDP Counter-Cyclicality)	5.005***							
	(0.773)							
Interaction (Financial Dependence and Total Fiscal Balance to potential GDP Counter-Cyclicality)		4.957***						
		(0.718)						
Interaction (Financial Dependence and Primary Fiscal Balance to GDP Counter-Cyclicality)			3.403***					
			(0.498)					
Interaction (Financial Dependence and Primary Fiscal Balance to potential GDP Counter-Cyclicality)				3.408***				
				(0.496)				
Interaction (Asset Tangibility and Total Fiscal Balance to GDP Counter-Cyclicality)					-13.03***			
					(4.011)			
Interaction (Asset Tangibility and Total Fiscal Balance to potential GDP Counter-Cyclicality)						-12.81***		
						(3.971)		
Interaction (Asset Tangibility and Primary Fiscal Balance to GDP Counter-Cyclicality)							-8.118***	
							(2.656)	
Interaction (Financial Dependence and Primary Fiscal Balance to potential GDP Counter-Cyclicality)								-8.220***
								(2.642)
Observations	523	523	523	523	523	523	523	523
R-squared	0.548	0.548	0.546	0.547	0.538	0.538	0.535	0.535

Fiscal Policy Over the Cycle

- Similar conclusions for monetary policy
- Yet the latter does not substitute for the former

A Pledge for Targeted Intervention

- Labor market policies (subsidize training, provide job search assistance, subsidize part-time employment,...)
  - Example of Germany
- A renewed case for sectoral subsidies?

Sectoral Policy (1)

- In aftermath of WWII, many developing countries have opted for trade protection and import substitution policies aimed at promoting new infant industries
- Over time, and particularly since the 1980s, economists have come to dislike sectoral ("industrial") policy on two grounds:
  - (i) it focuses on big incumbents ('national champions);
  - (ii) governments are not great in 'picking winners'.
- Current dominant view is that sectoral policy should be avoided especially when it undermines competition

Sectoral Policy (2)

- A first argument for sectoral policy
  - Redirect technical change when there is **path-dependence** in the direction of innovation under laissez-faire (AABH)

Sectoral Policy (3)

- Basic idea: firms' propensity to innovate "clean" versus dirty:
  - Is positively correlated with stock of past clean innovation
  - Is negatively correlated with stock of past dirty innovation
- Hence a role for government intervention in redirecting technical change (carbon tax, research subsidies)

Sectoral Policy (4)

- 12,000 patents in “clean” technologies
  - Electric vehicles, hybrid vehicles, fuel cells
- 36,000 patents in “dirty” technologies
  - Regular combustion engines
- Filed by 7,000 patent holders
- Between 1978 and 2007

Sectoral Policy (5)

Dep.Variable	Difference between Clean and Dirty Patent applications ln(1+number of clean applications)-ln(1+number of dirty applications)					
	1	2	3	4	5	6
Stock of clean patents	0.142***		0.141***	0.140***	0.113***	-9.45
	(0.014)		(0.014)	(0.014)	(0.015)	(6.238)
Stock of dirty patents	-0.053***		-0.053***	-0.052***	-0.01	4.61
	(0.014)		(0.014)	(0.014)	(0.019)	(4.945)
Fuel Price		0.662***	0.590***	0.335**	0.457***	0.406***
		(0.154)	(0.150)	(0.138)	(0.142)	(0.145)
GDP				-2.846***		-2.085***
				(0.607)		(0.468)
GDP per capita				1.494**		0.15
				(0.697)		(0.587)
Stock of clean patents X Fuel Price					-0.099**	-0.169*
					(0.041)	(0.095)
Stock of dirty patents X Fuel Price					0.167***	0.07
					(0.029)	(0.063)
Stock of clean patents X GDP						0.474*
						(0.266)
Stock of dirty patents X GDP						-0.495*
						(0.272)
Stock of clean patents X GDP per capita						-0.44
						(0.339)
Stock of dirty patents X GDP per capita						0.974**
						(0.385)
Firm Fixed Effects	yes	yes	yes	yes	yes	yes
Country X Year Controls	yes	yes	yes	yes	yes	yes
Observations	141284	141284	141284	141284	141284	141284
Firms	6422	6422	6422	6422	6422	6422

Sectoral Policy (6)

- Current work with Ann Harrison
- Panel data of Chinese firms, 1988-2007
- Industrial firms from NBS: annual survey of all firms with more than 5 million RMB sales
- Regress TFP on:
  - Subsidies received by firm as a share of sales
  - COMP=1 - LERNER INDEX
  - Sector-level controls, firm and time fixed effects

Sectoral Policy (7)

- Findings are that:
  - The higher competition, the more positive (or less negative) the effect of subsidies on average TFP
  - The overall effect of subsidies on TFP is positive if competition is sufficiently high and/or subsidies are not too concentrated among firms in the sector

Sectoral Policy (8)

Table 2 Competition Effects (domestic firms)

	(1)	(2)	(3)	(4)
VARIABLES	logY	logY	logY	logY
logL	0.0810***	0.0809***	0.0810***	0.0809***
	(0.00363)	(0.00362)	(0.00363)	(0.00362)
logK	0.0255***	0.0254***	0.0255***	0.0254***
	(0.00157)	(0.00158)	(0.00157)	(0.00158)
logM	0.781***	0.781***	0.781***	0.781***
	(0.00813)	(0.00815)	(0.00813)	(0.00815)
stateshare	0.000974	0.00105	0.000883	0.000968
	(0.00336)	(0.00331)	(0.00335)	(0.00330)
horizontal	0.321***	0.334***	0.322***	0.334***
	(0.0757)	(0.0791)	(0.0756)	(0.0791)
ratio_subsidy	-0.185***	-0.187***	-8.494***	-7.034***
	(0.0293)	(0.0290)	(1.738)	(1.429)
competition_lerner		0.516		0.485
		(0.529)		(0.531)
interaction_lerner			8.512***	7.013***
			(1.785)	(1.465)
Observations	1,072,034	1,072,034	1,072,034	1,072,034
R-squared	0.844	0.844	0.844	0.844

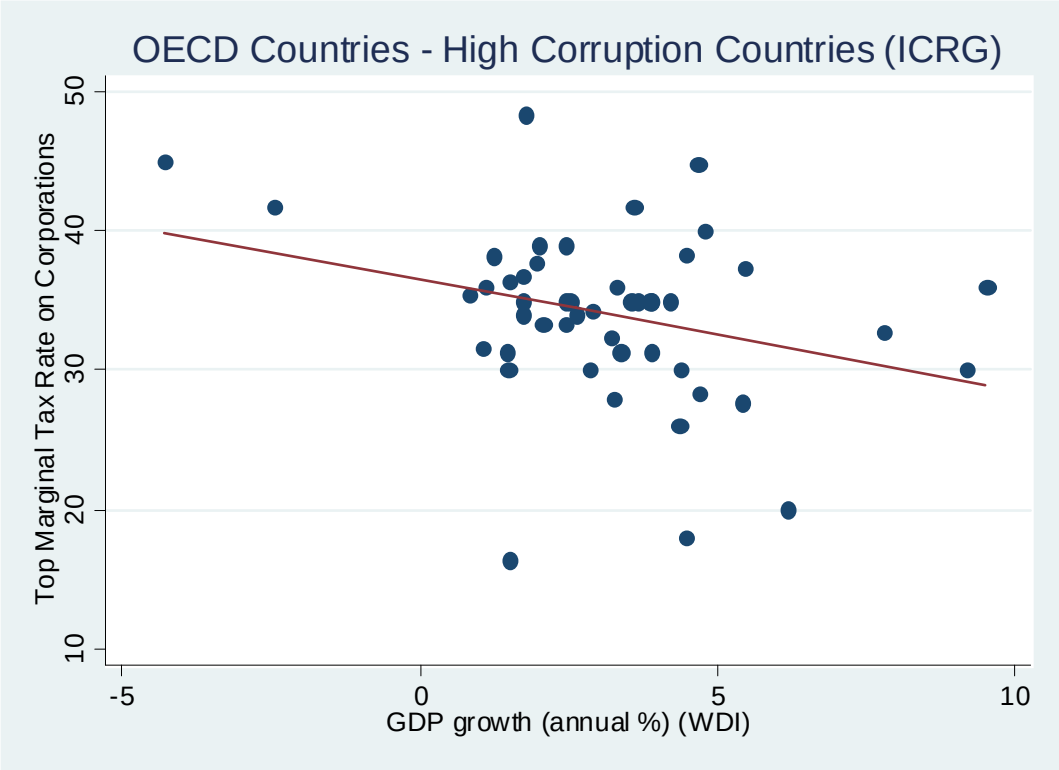
Investing in Growth While Reducing Public Deficits

- How to Square the Circle?
  - Cut spending intelligently
  - Fiscal Reform

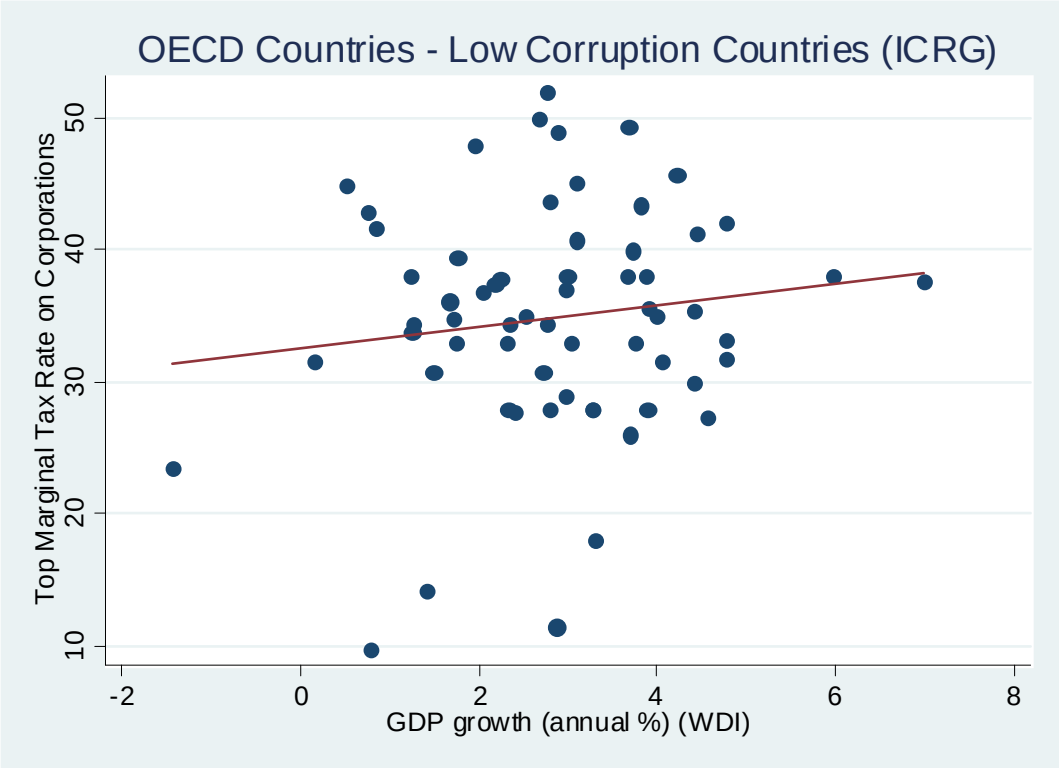
Side Remark on Tax and Growth

- Effect of taxation on growth depends a lot on how government uses tax revenues

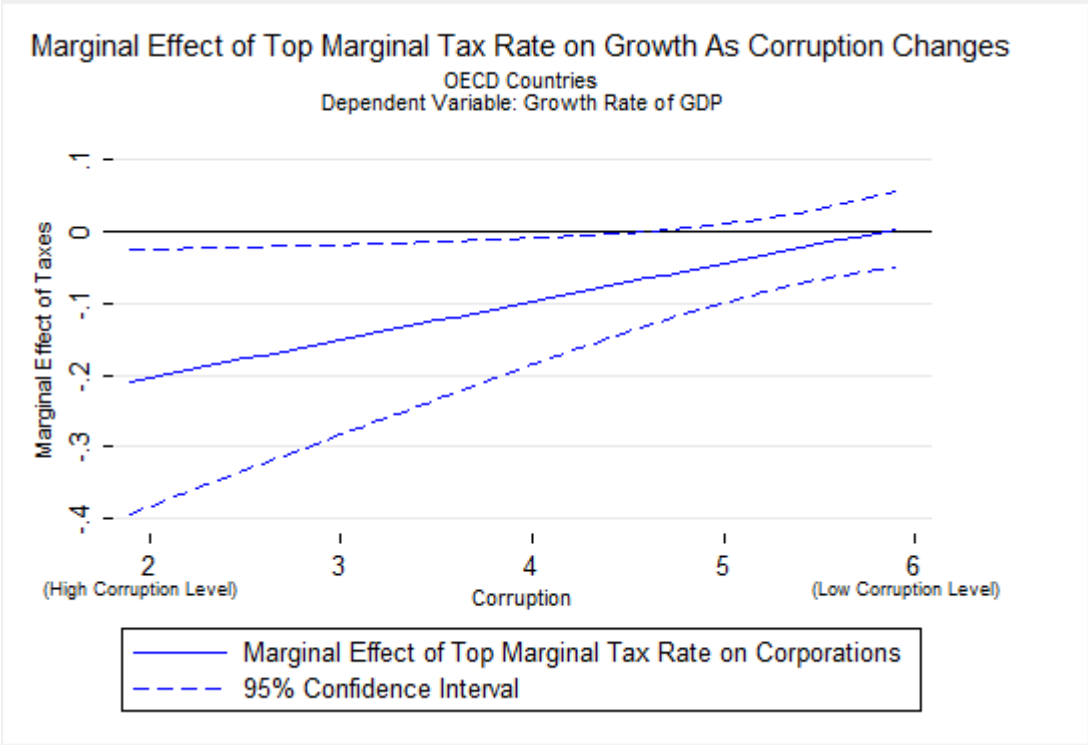
Growth Rate and Tax Burden
High Corruption Countries



Growth Rate and Tax Burden
Low Corruption Countries



Econometric Analysis



Conclusions

- (How) should we amend or complete the Spence Report in light of the recession?

Conclusion 1:

- A macroeconomic policy which is neither Keynesian nor monetarist
  - Government should pursue actively countercyclical fiscal and monetary policies, particularly to sustain investment and growth in credit-constrained sectors

Conclusion 2:

- Unlike what monetarists suggest, govt should not cut on all public spending...
- However, unlike what Keynesians would suggest...govt should target public spending
  - Labor market policies
  - Appropriate sectoral policies (e.g competition friendly)

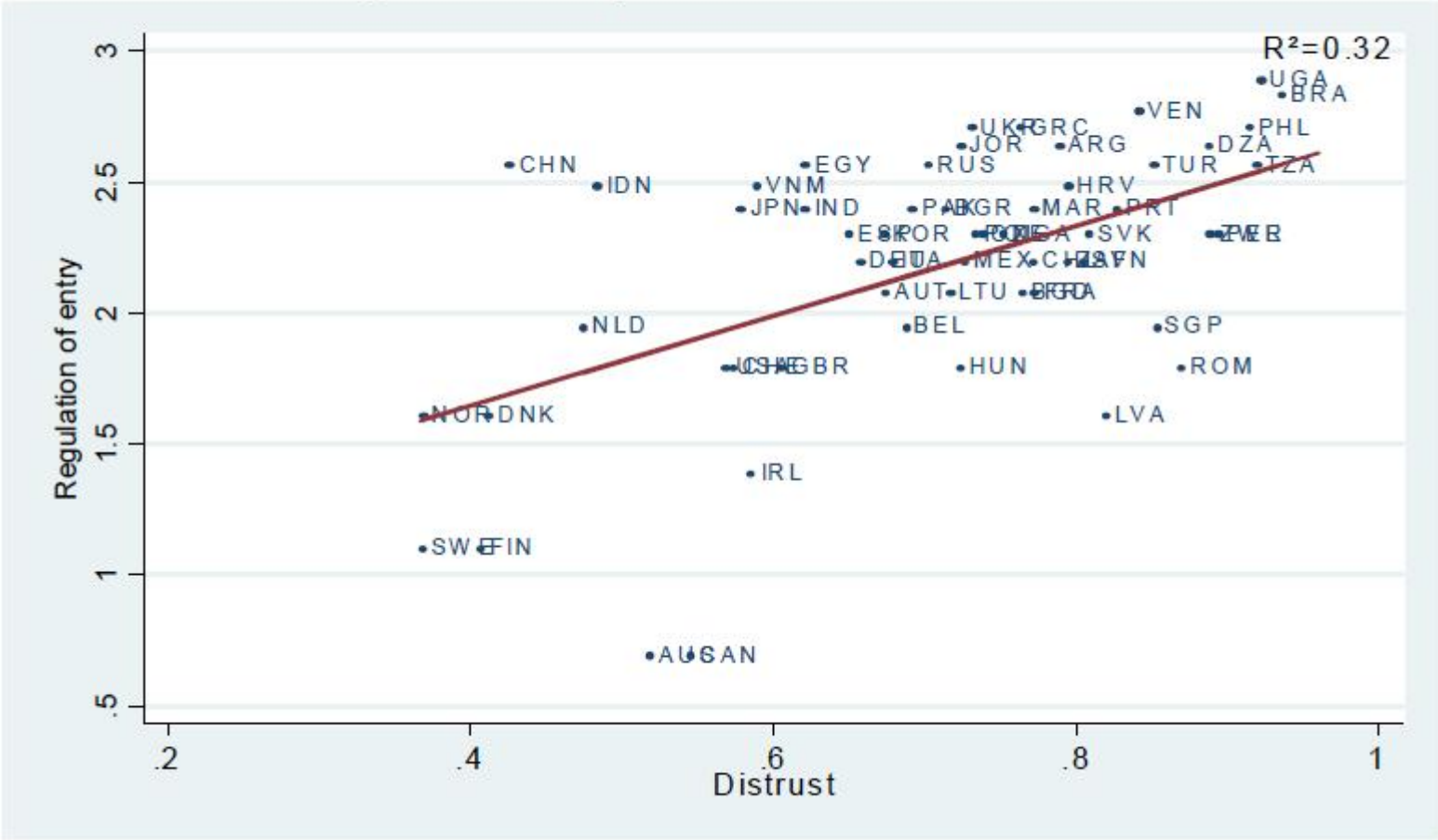
Conclusion 3:

- Unlike what monetarists recommend, government should not give up on progressive taxation if it can commit to make good use of tax revenues

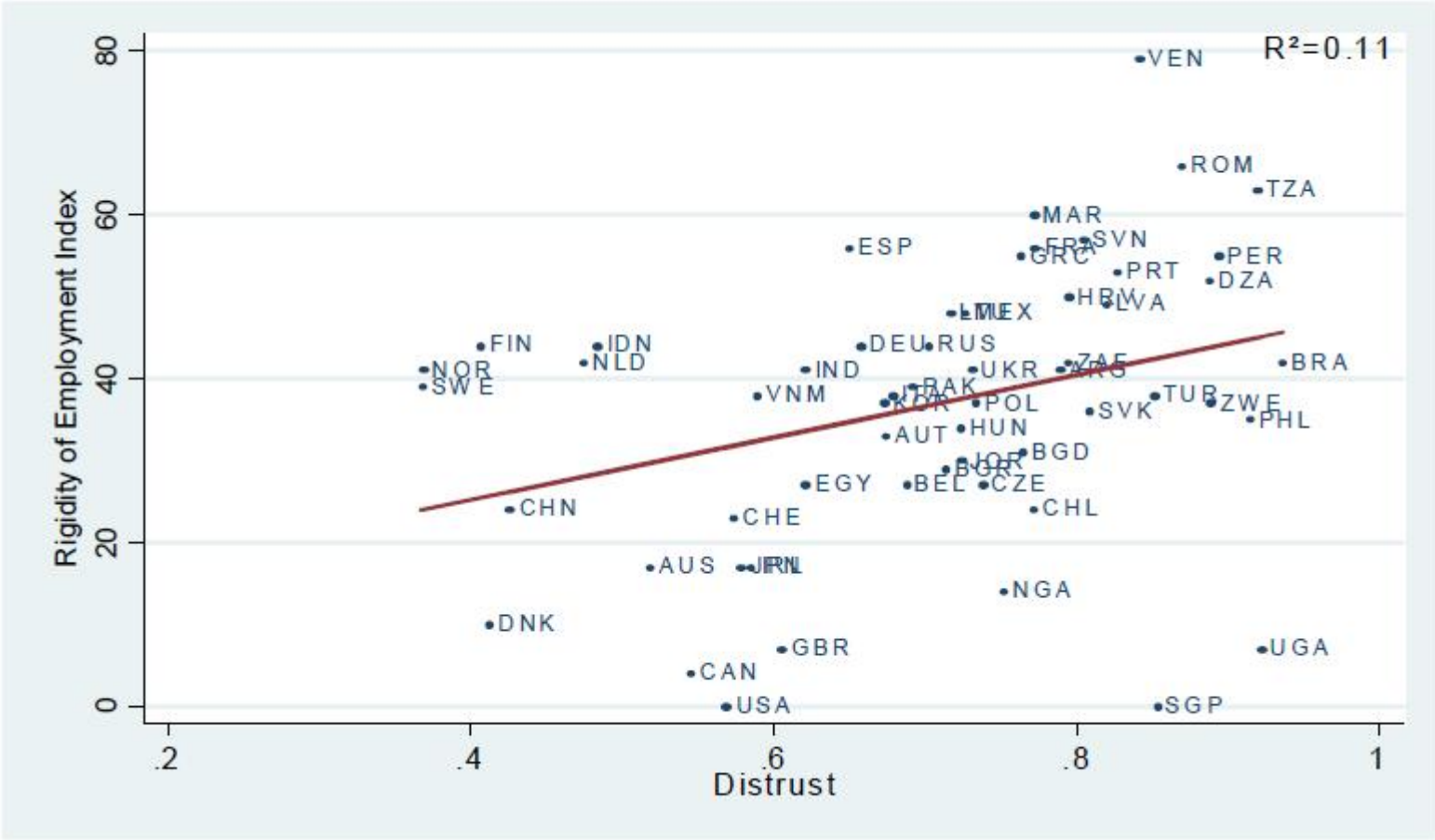
Conclusion 4:

- Government should invest in trust to foster market liberalization and consolidate structural reforms
- Mario Monti’s point on fiscal reform cum product market liberalization in Europe

Distrust and regulation of product market



Distrust and regulation of labor market



Conclusion 4 (cont)

- Hence regulation of product and labor markets, appear to be negatively correlated with trust
- This does not mean that liberalizing markets will automatically bring about trust
- Also, negative correlation between regulation and trust does not carry over to:
  - Financial regulation
  - Fiscal policy
    - tax ethics appears to be positively correlated with tax monitoring

Impact of Tax Staff on Tax Ethics

VARIABLES	(1) tax_ethic	(2) tax_ethic	(3) tax_ethic	(4) tax_ethic	(5) tax_ethic	(6) tax_ethic
staff_per_taxpayers	13.64***	14.90***	13.64***	13.69***	15.23***	13.27***
	(2.594)	(2.924)	(3.145)	(3.178)	(3.779)	(4.179)
gdp_per_cap		1.22e-06	1.59e-06		1.64e-06	1.81e-06
		(1.21e-06)	(1.26e-06)		(1.42e-06)	(1.42e-06)
tax_rate			-0.00362			-0.00385*
			(0.00216)			(0.00210)
Constant	0.432***	0.395***	0.523***	0.426***	0.377***	0.522***
	(0.0157)	(0.0400)	(0.0843)	(0.0170)	(0.0479)	(0.0788)
Observations	57	57	55	32	32	30
R-squared	0.332	0.343	0.419	0.383	0.404	0.493

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Impact of the Number of Audits on Tax Ethics

VARIABLES	(1) tax_ethic	(2) tax_ethic	(3) tax_ethic
audits_per_taxpayers	0.165***	0.228***	0.166***
	(0.0332)	(0.0582)	(0.0591)
gdp_per_cap		2.82e-06	3.13e-06
		(1.66e-06)	(1.84e-06)
tax_rate			-0.00389
			(0.00233)
Constant	0.474***	0.390***	0.527***
	(0.0168)	(0.0559)	(0.0858)
Observations	27	27	26
R-squared	0.076	0.185	0.225

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Intuition

- With higher tax monitoring you expect fellow citizens to evade taxes less you are more likely to find it unethical not to pay taxes

Wrapping-Up: Three Layers in Growth Policy Design

- Already in Spence report:
  - Policy layer: support to R&D, human capital investment, ...
  - Institutional layer: IPRs, law enforcement, market liberalization,...

Wrapping-Up: Three Layers in Growth Policy Design

- Need to add third “Trust” or “Norms” layer
  - Trust and ethics bolster market flexibility
  - However
    - Market liberalization without social capital investment may undermine trust
    - Financial regulation and progressive taxation enhance trust and ethics
    - Virtues of gradualism

Wrapping-Up: Three Layers in Growth Policy Design

- Should we all become Scandinavians?
  - Priority investments in R&D, higher education, green innovation
  - Highly progressive taxation
  - Transparency and trust
  - Strong regulation of financial sector