san marinoforum 2008

PRESENTATION BY GARY S. BECKER

AT THE FORUM:

INNOVATION AND COMPETITIVENESS FOR THE FUTURE

San Marino, June 6 and 7, 2008

The European House Ambrosetti

FONDAZIONE CASSA DI RISPARMIO DELLA REPUBBLICA DI SAN MARINO - S.U.M.S. SAN MARINO

ENTE CASSA DI FAETANO

associazione nazionale DELL'INDUSTRIA SAMMARINESE REPUBBLICA SAN MARINO

Globalization, Human Capital, and Flexibility

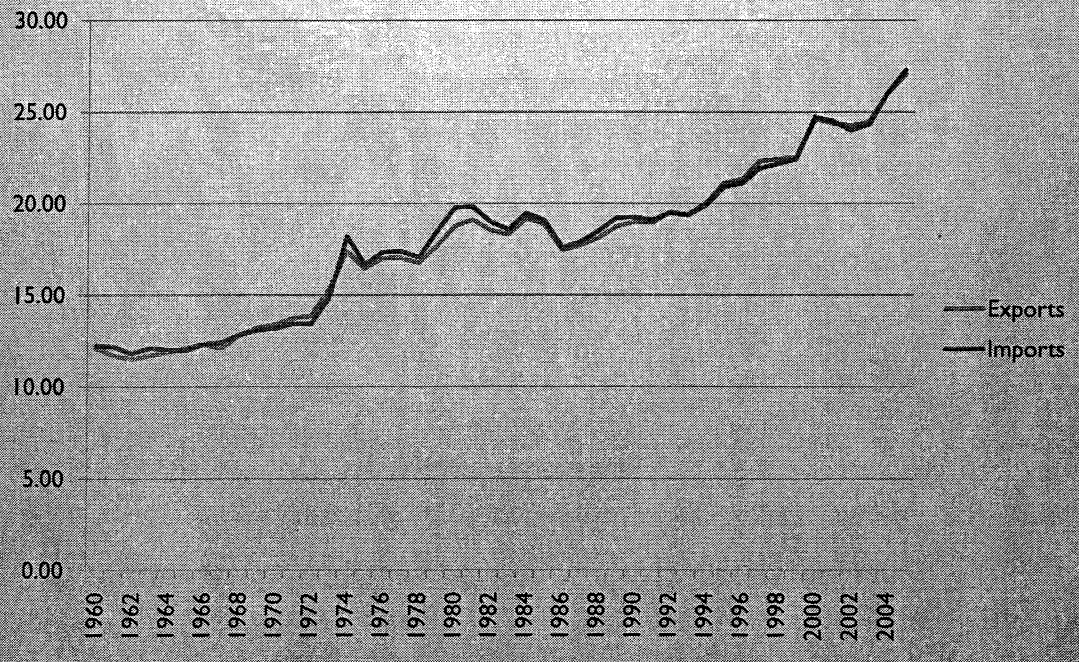
Gary S. Becker

San Marino Forum

June 7, 2008

World Trade Growth

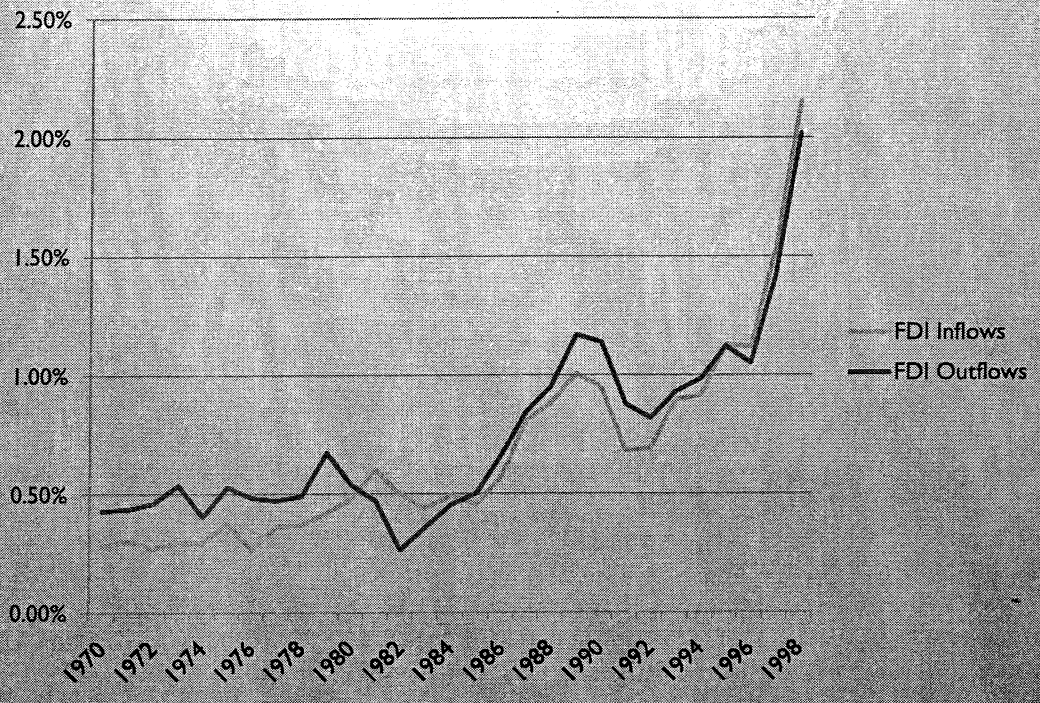
Trade in Goods and Services as a Percent of World GDP, 1960-2005



Source: World Bank, World Development Indicators (2007).

World Trade Growth

FDI as a Percent of World GDP, 1970-1998



Source: World Bank, World Development Indicators (2007); IMF, Balance of Payments Statistics Yearbook (1970-1998).

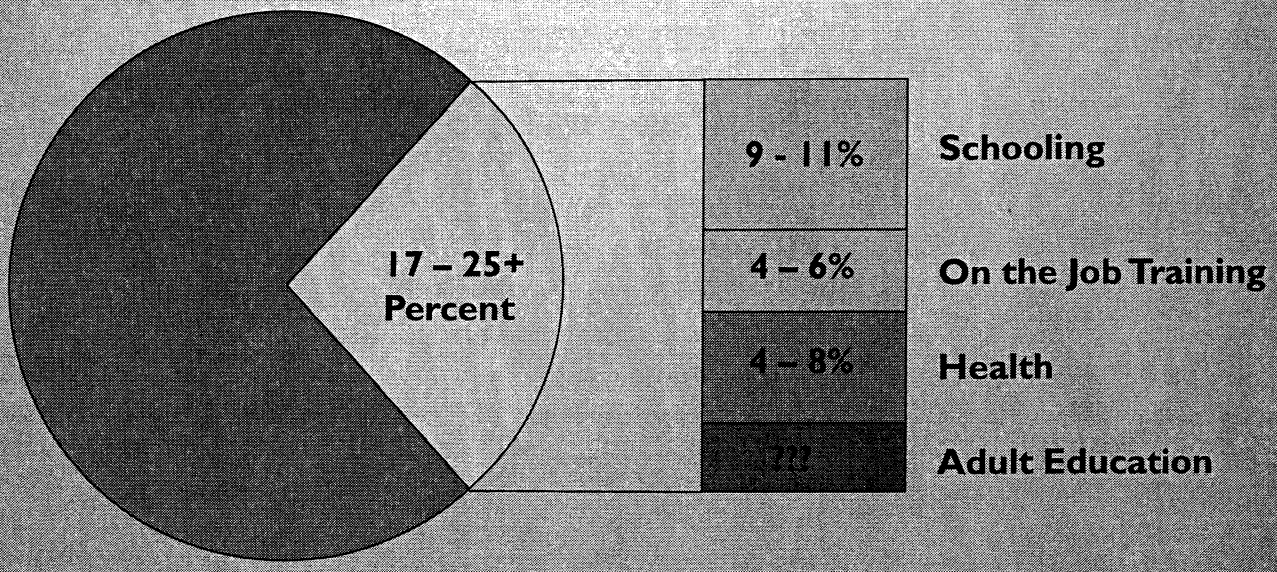
World Knowledge Indicators

World knowledge indicators	Now	Then	
College degree holders, total	212 million	82 million	1980
Share of population, ages 25+	9.1%	5.3%	1980
Bachelor's degree graduates	9.1 million	4.3 million	1981
Doctoral degree graduates	293,085	114,808	1983
Science and engineering doctorates	154,710	57,217	1983
Science and engineering doctorates in China	10,096	125	1985
College professors worldwide	8.5 million	3.8 million	1980
Think tanks	318	160	1980
R&D researchers	5.1 million	1.9 million	1985
R&D spending	$667 billion	$276 billion	1981
Scientific articles published	698,726	466,419	1988
Human genome base pairs decoded	all 3.1 billion	0	1990
Wikipedia articles	5.3 million	0	2001
Patent applications	1.1 million	701,151	1985
Licensing revenue	$109.8	$10.8 billion	1980

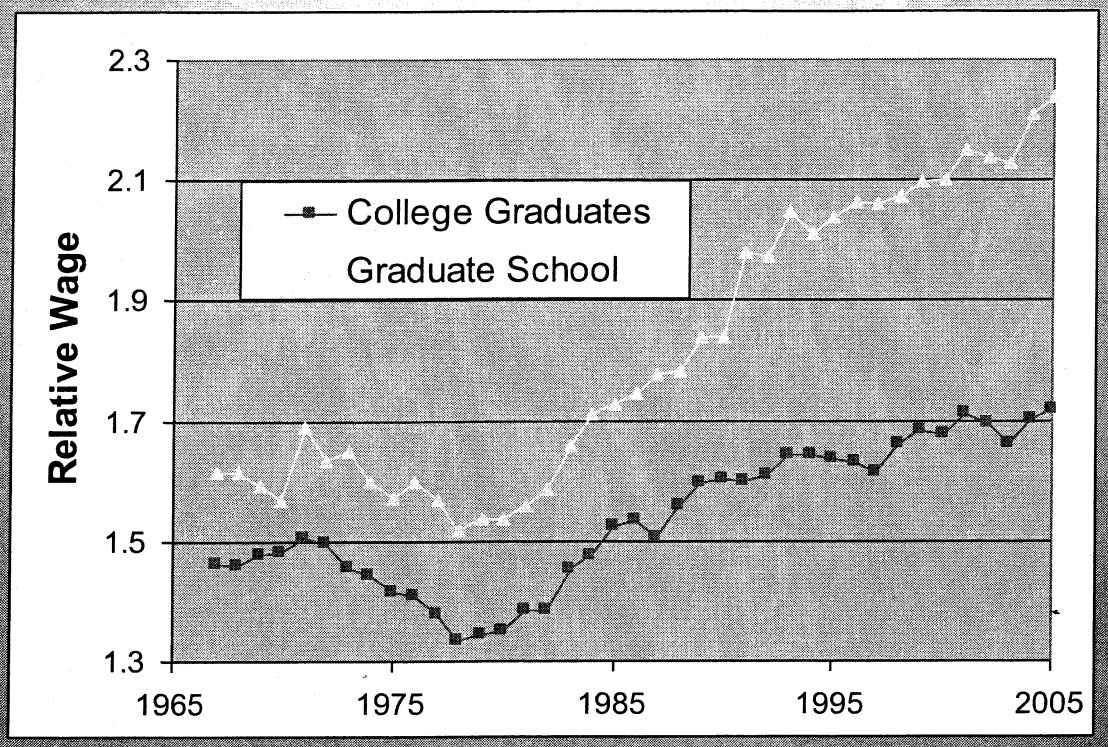
Information Infrastructure and Use

Information Infrastructure and Use	Now	Then	
Personal computers	898 million	131 million	1990
per 1,000 people	140	19	1990
Landline phones	1.2 billion	333 million	1980
per 1,000 people	217	75	1980
Cell phones	2.7 billion	11.2 million	1990
per 1,000 people	416	2	1990
Countries connected to the Internet	209	20	1990
Secure Internet servers	401,050	0	1990
Internet web sites	110 million	9,300	1990
Host computers connected to the Internet	395 million	313,000	1990
Internet storage (terabytes)	532,897	0	1990
Semiconductor sales	$248 billion	<$1 billion	1980
IT capital stock (U.S.)	$1.05 trillion	$16.7 billion	1980
Digital video recorders	17.4 million	0	1990

Investment in Human Capital as a Percent of GDP, United States



Education Wage Premiums



Source: Calculations by Kevin M. Murphy.

Changes in College/High School Wage Gap for European Countries

	Born 1940 - 1949			Born 1950 - 1959			Years
	80s	90s	% Change	80s	90s	%Change	
Austria	0.55	0.50	-8.4 %	0.32	0.37	15.6%	85, 97
Denmark	0.18	0.27	54.8%	0.14	0.27	95%	85, 95
Finland	0.38	0.44	15.9%	0.36	0.38	3.8%	87, 93
France	0.32	0.33	4.4%	0.35	0.35	1.1%	90, 98
Germany	0.40	0.48	18.9%	0.38	0.41	9.2%	85, 97
Italy	0.19	0.32	66.1%	0.24	0.28	13%	87, 98
Netherlands	0.27	0.18	-33.3%	0.16	0.19	16.4%	86, 96
Portugal	0.18	0.40	123.6%	0.46	0.57	22.6%	85, 93
Switzerland	0.33	0.35	5.4%	0.28	0.32	14.5%	92, 98
UK	0.27	0.28	3%	0.20	0.30	50.2%	85, 95

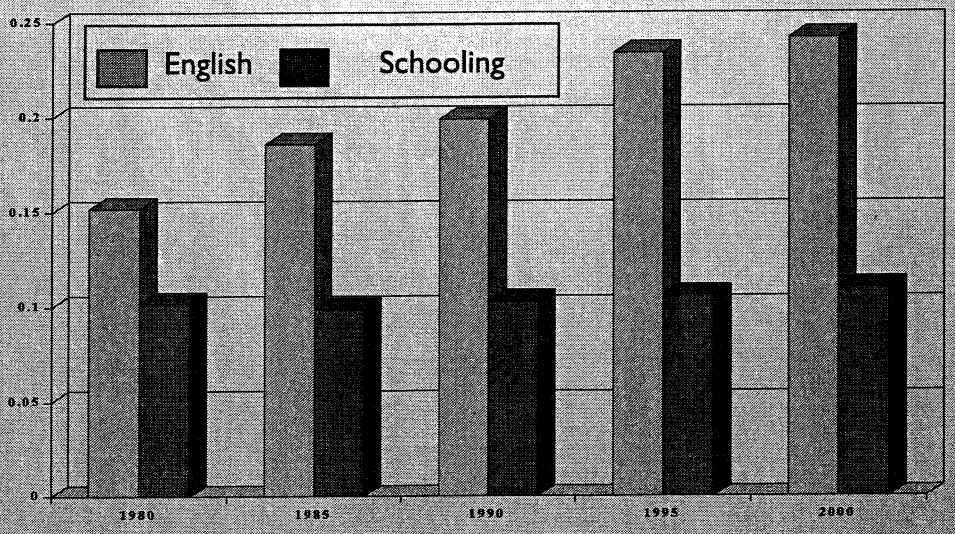
Source: Brunello, Giorgio, Simona Comi and Claudio Lucifora. The College Wage Gap in 10 European Countries: Evidence from Two Cohorts. IZA Discussion Papers 228, Institute for the Study of Labor (IZA), 2000.

Returns to Education: China, 1988, 2002

Year	Sample	Rate of Return to Education
1988	Urban – Males	3.3%
2000	Urban – Males	10.8%

Source: 1988 data: Johnson, Emily N., and Chow, Gregory C. (1997); 2000 data: Heckman, James J., and Li, Xuesong. (2004).

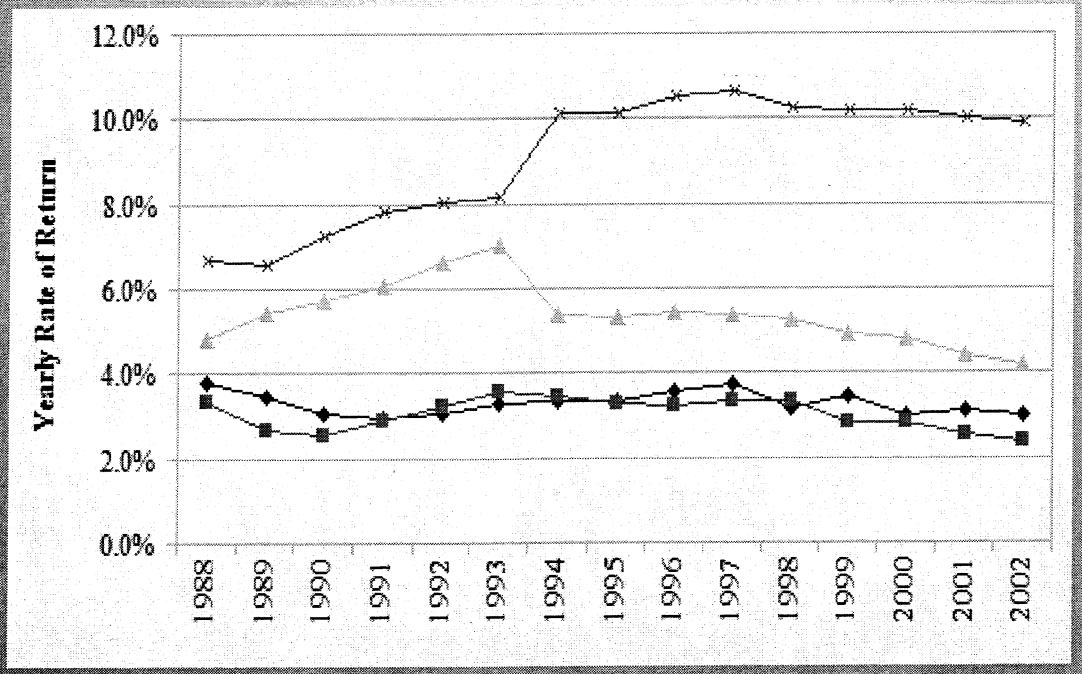
Returns to English and Schooling by Year: India, Men Aged 30-55, 1980-2000



Adjustment for Income Growth in Future: 10% + 4% = 14%

Source: Provided by Mark R. Rosenzweig from his own calculations.

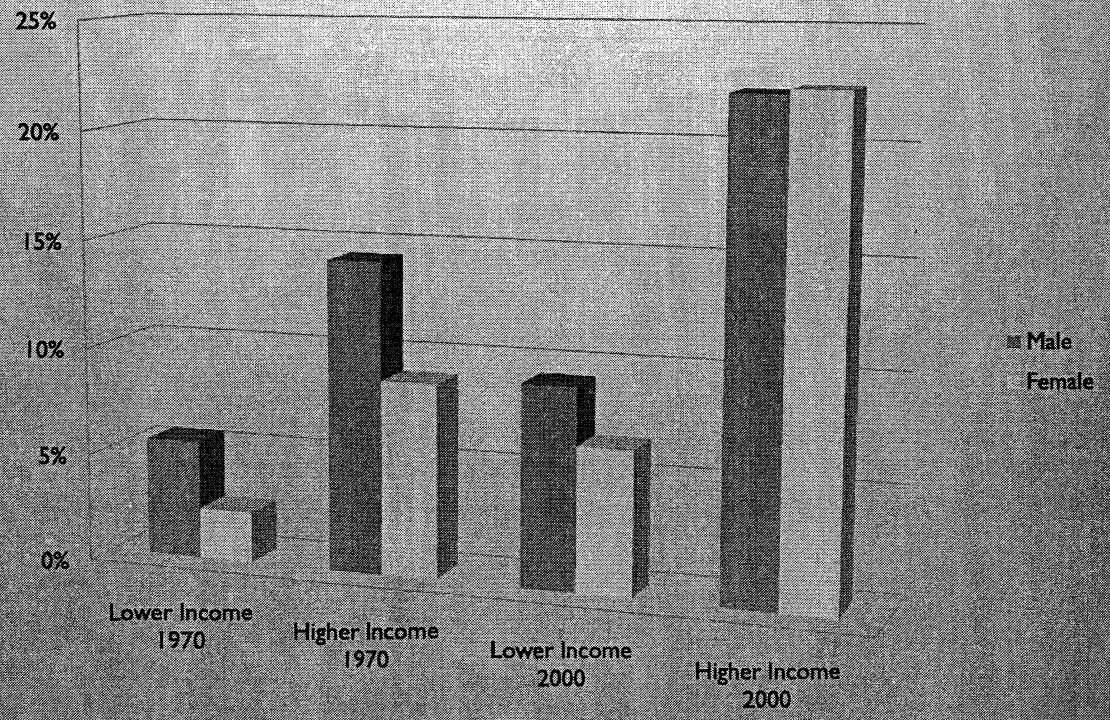
Yearly Rates of Return of Education Level: Mexico, Urban Areas, 1988-2002



Source: World Bank staff estimations using third quarter of ENEU from 1988 to 2001 and third quarter and urban section of ENET 2002.

College Boom

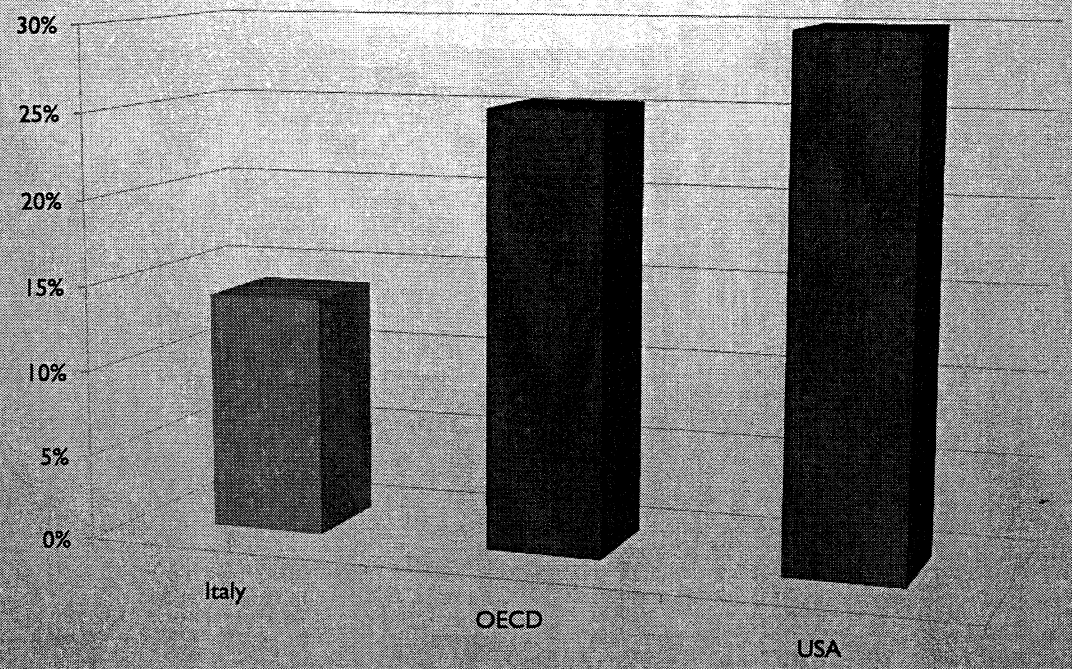
Percentage of 30-34 Year Olds with Higher Education, By Per Capita GDP: 1970 and 2000



Source: Analysis of Lutz et al. (2007) and World Bank, World Development Indicators (2007).

Italy Lags in College Education

Percent of 30-34 year olds with College Education, 2000



Source: Analysis of Lutz et al. (2007).

Causes of Rising Returns?

- Technological progress favoring skilled workers
- Globalization
- Technological progress comes in long waves

Economic Growth

- Human capital is an important engine of growth
- No country can grow with inferior investment in human capital
- Also need economic flexibility

Including Interaction with Rest of Economy

- Flexible labor markets
- Flexible product markets
- Easy to start business

Cost of Starting Business in Italy and Elsewhere

Measure	Procedures (Number)	Duration (Days)	Cost (% GNI per Capita)
Italy	9	13	18.7
OECD	6	14.9	5.1
USA	6	6	0.7

Source: World Bank (2008).

Conclusions

- Globalization integrates world economy
- To succeed in global economy requires:
  - Investments in human capital and knowledge, and
  - Flexible economy so that it adjusts more easily to world shocks and changes
- Combination of flexibility and human capital are main ingredients for more rapid economic growth