

Human Capital Policies as Part of a Growth Strategy

Ludger Woessmann

University of Munich and Ifo Institute



LSE Growth Commission

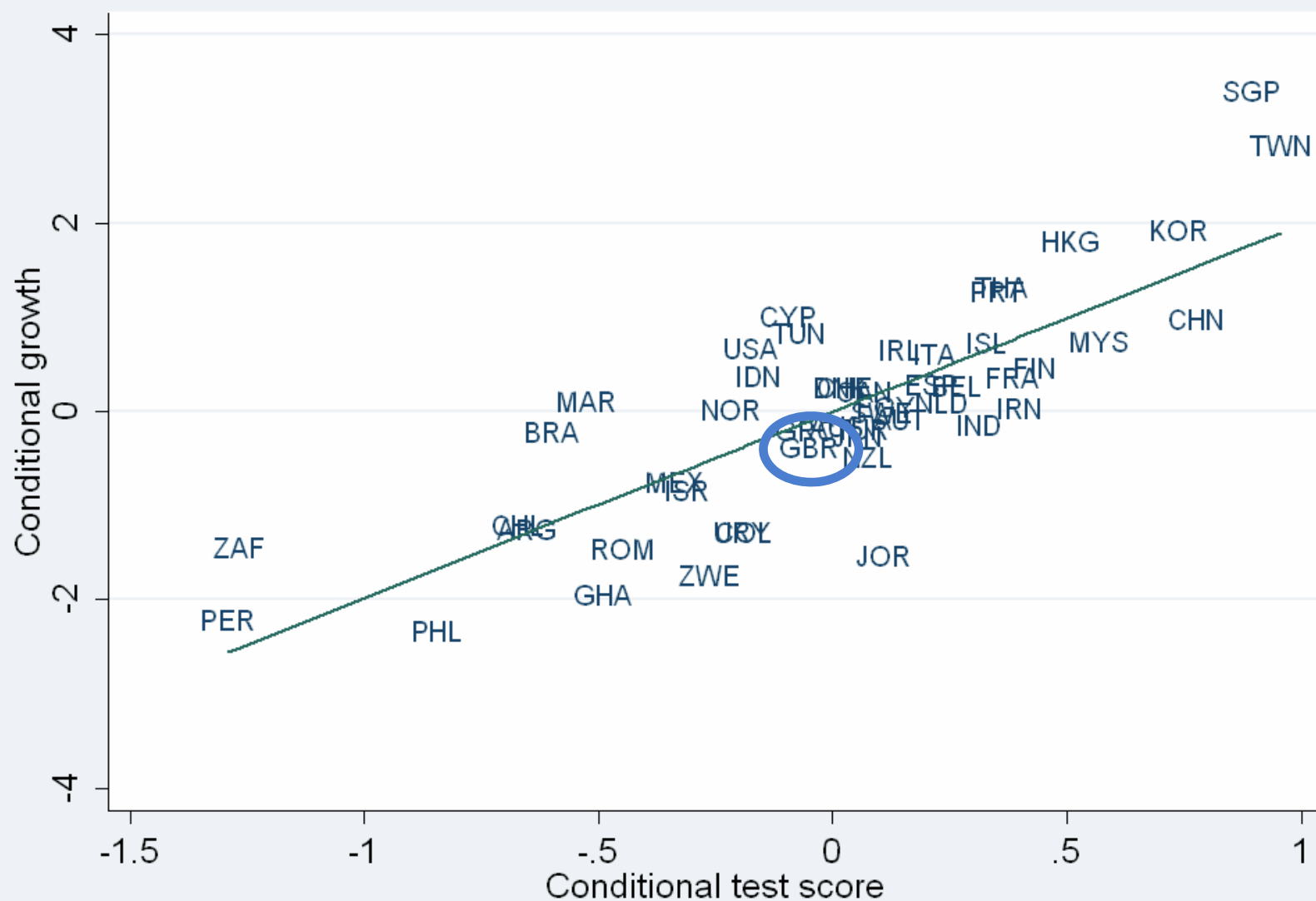
London, 14 March 2012



Human Capital Policies as Part of a Growth Strategy

1. Educational achievement and economic **growth**
2. The role of **spending** levels
3. Institutional reforms: **Accountability, autonomy and choice**
4. The **life cycle** of human capital policy

Educational Achievement and Economic Growth



Added-variable plot of regression of average annual growth rate of real GDP per capita 1960-2000 on initial level of GDP per capita, initial average years of schooling and average student achievement test scores. Source: Hanushek and Woessmann (JEL 2008).

Education and Long-run Prosperity

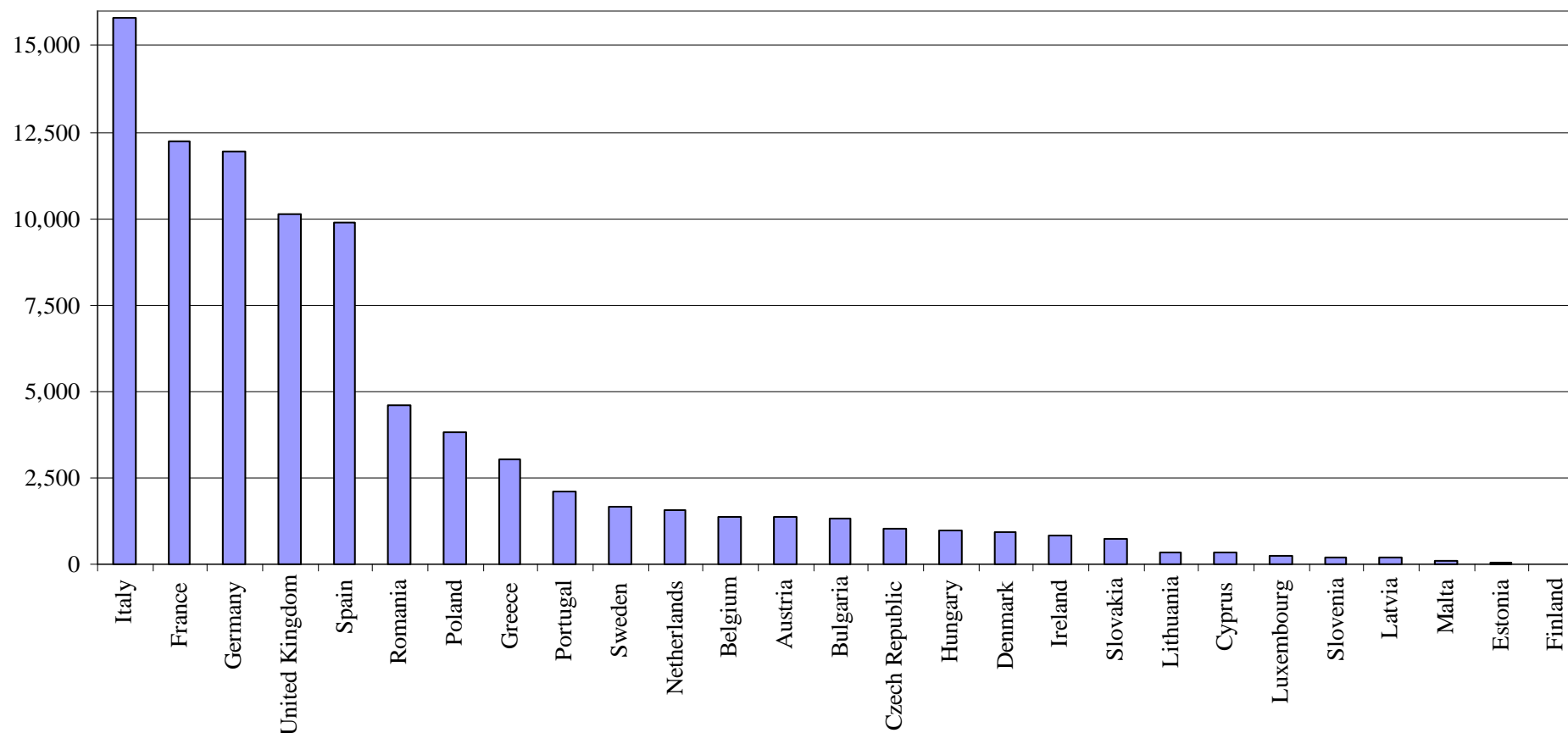
- Research on determinants of modern economic **growth**
 - Key: direct measures of **cognitive skills**
 - Hanushek and Woessmann (JEL 2008; EP 2011)
 - Focus on educational **outcomes**, not just attainment
- Importance of education also for **historical** development
 - Catch-up in the Industrial Revolution
 - Becker and Woessmann (QJE 2009); Becker, Hornung and Woessmann (AEJ:Macro 2011)

The Cost of Low Educational Achievement in the EU

- Research on determinants of economic **growth**
 - Key: direct measures of **cognitive skills**
 - Use available estimates of their growth impact to simulate how future GDPs would evolve under school reforms
 - **Gains** from improving skills are enormous:
 - Present value of long-run aggregate gains for EU:
 - 1) **€21 trillion** for reaching the ET 2020 benchmark of less than 15% low-achievers in basic skills by 2020
 - 2) **€32 trillion** for average increase of 25 PISA points
 - 3) **€87 trillion** for bringing each nation's achievement to level of top-performing Finland
- Focus on educational **outcomes**, not just attainment

The Cost of Low Educational Achievement in the EU

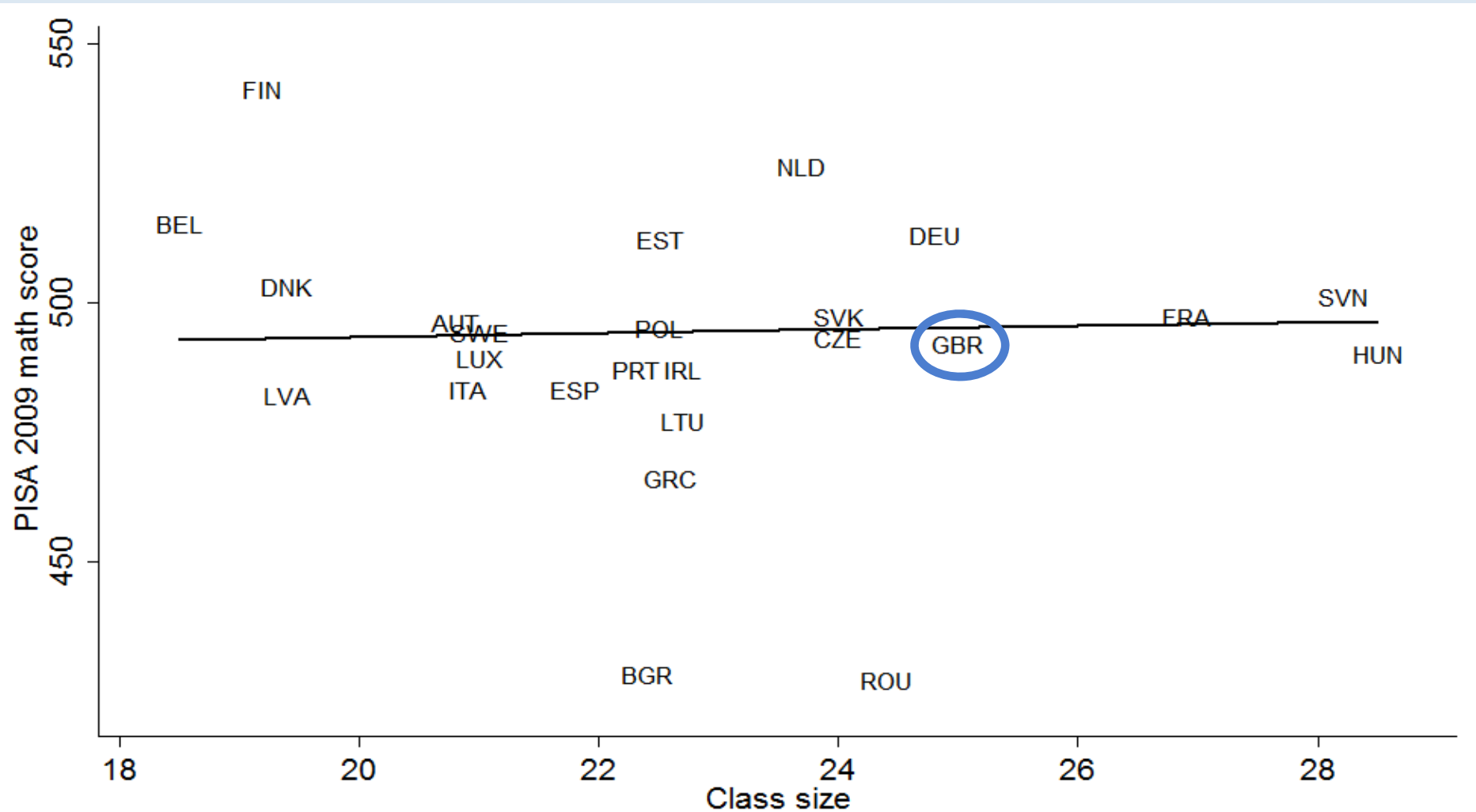
Gains from bringing each nation's educational achievement to the Finnish level, billion Euro:



Discounted value of future increases in GDP until 2090, expressed in billion Euro (PPP).
Source: Hanushek and Woessmann (CESifoEStud 2012).

What Is the Link between Resources and Outcomes?

Class size and math achievement of EU countries in PISA 2009:



Own depiction based on PISA 2009 data. Regression line of best fit (without three outliers).

What Is the Link between Resources and Outcomes?

- **Class size**

- Hanushek and Woessmann (HbEEdu 2011); Woessmann and West (EurER 2006); Woessmann (EP 2005); Gundlach, Gmelin and Woessmann (EJ 2001)

→ Need to focus on **teacher quality**

- Teacher skills
- Teacher salaries? Teacher performance pay?
 - Dolton (EP 2011); Woessmann (EEduR 2011)

- **Overall spending**

- **Infrastructure** maintenance and **equipment**

- **Public vs. private** contributions

- Financing of compulsory vs. post-compulsory education
- Financing vs. operation

Institutional Reforms: Accountability, Autonomy and Choice

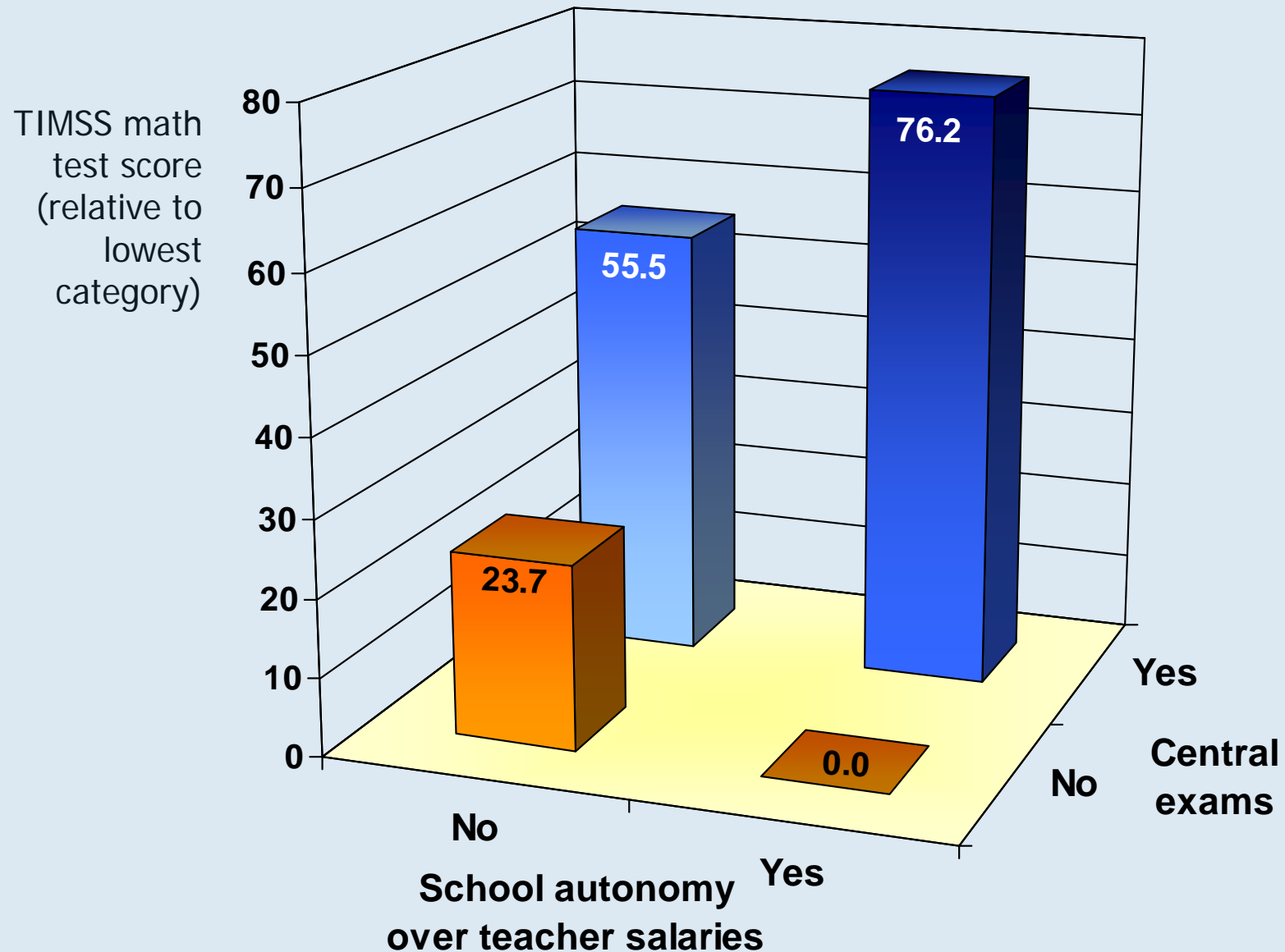
- **Incentives**

- Best way to use investments efficiently and effectively is to ensure that everyone in the system has incentives to focus on improving student outcomes

→ **Institutional framework:** provides the incentive schemes that create better student outcomes

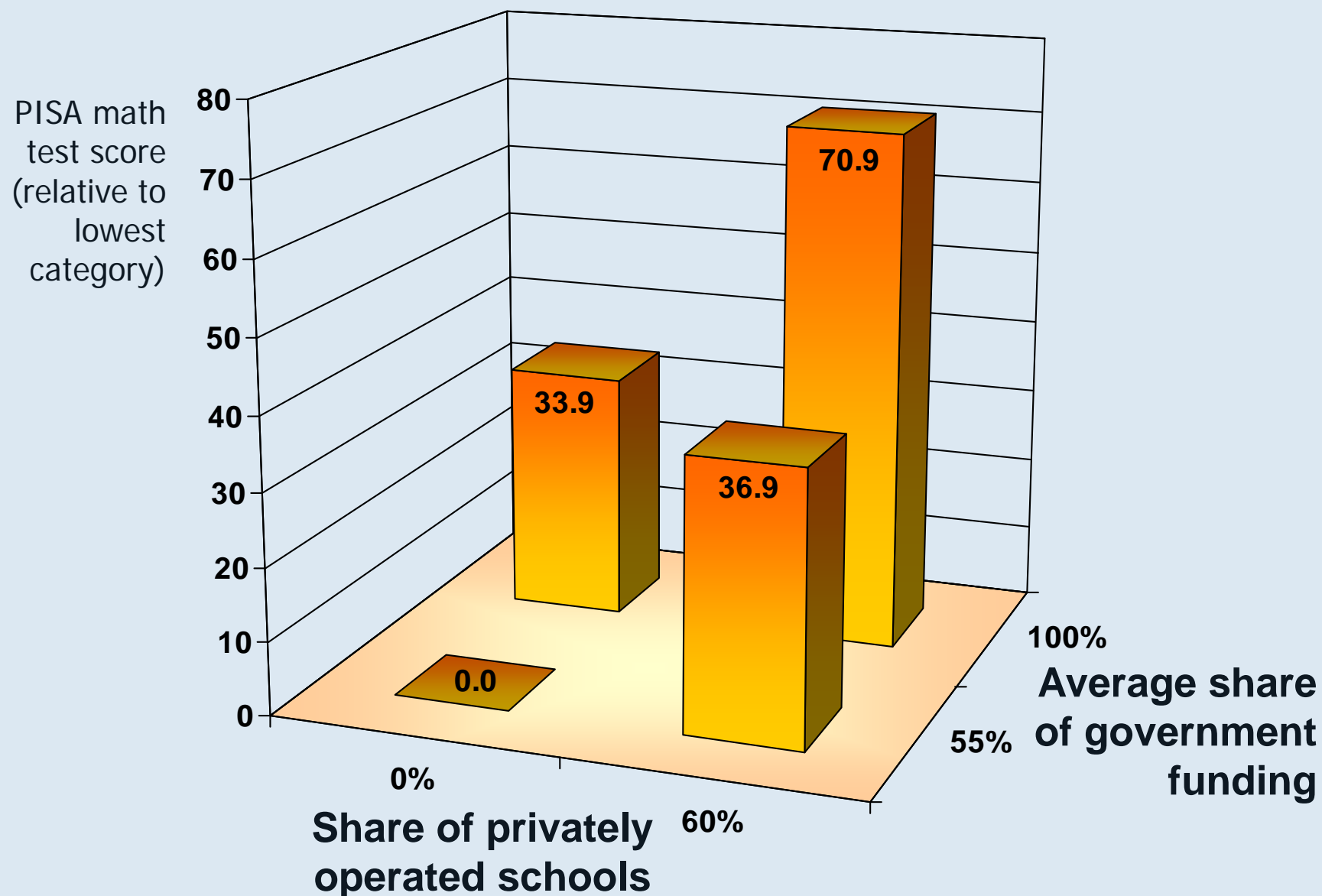
- Accountability
- Autonomy
- Choice and competition

External Exams, Autonomy and Student Outcomes



Source: Woessmann (2005); see also Hanushek, Link and Woessmann (NBER 2011).

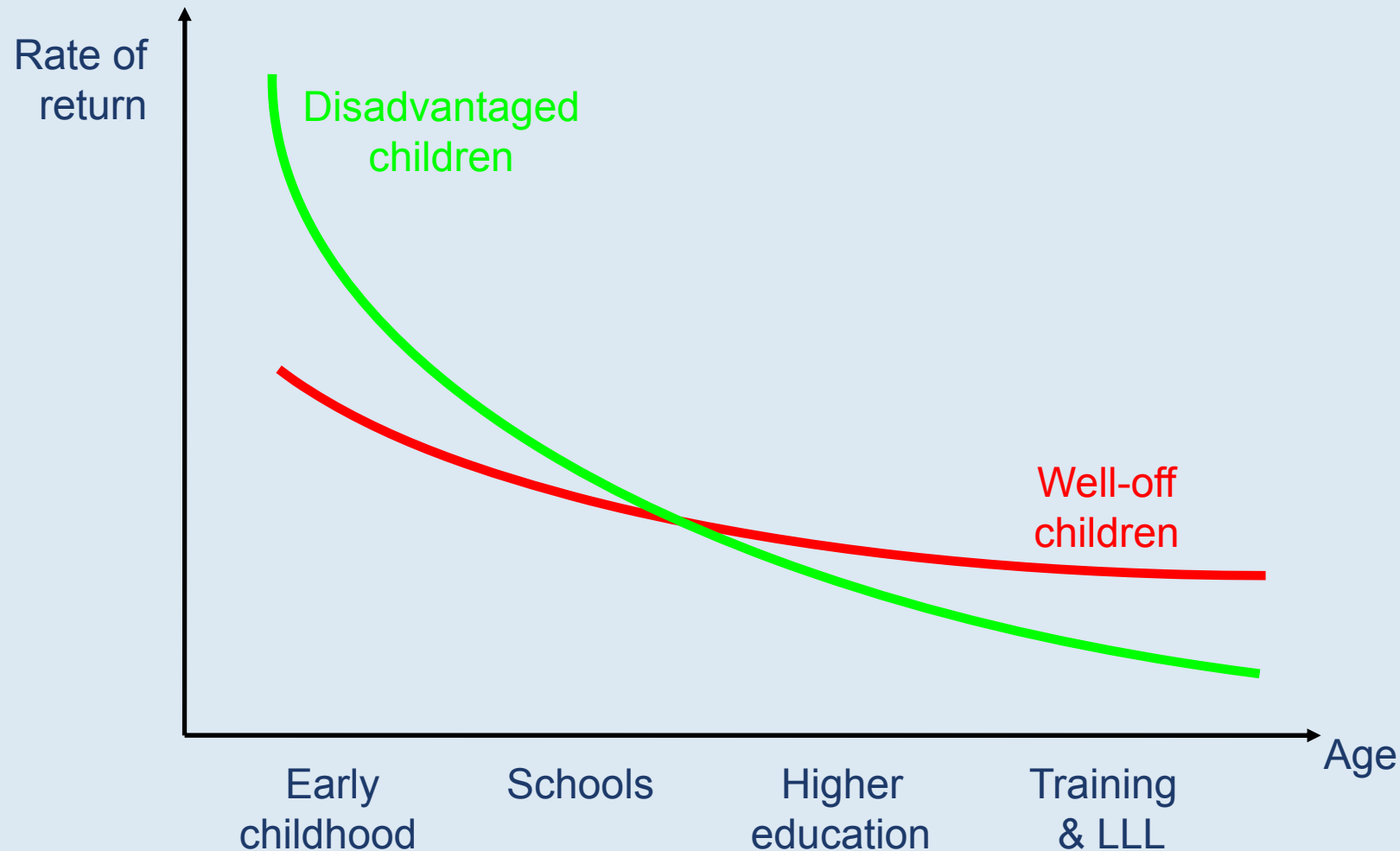
Funding, Operation and Student Outcomes



Source: Woessmann et al. (2009); see also West and Woessmann (EJ 2010).

The Life Cycle of Human Capital Policy

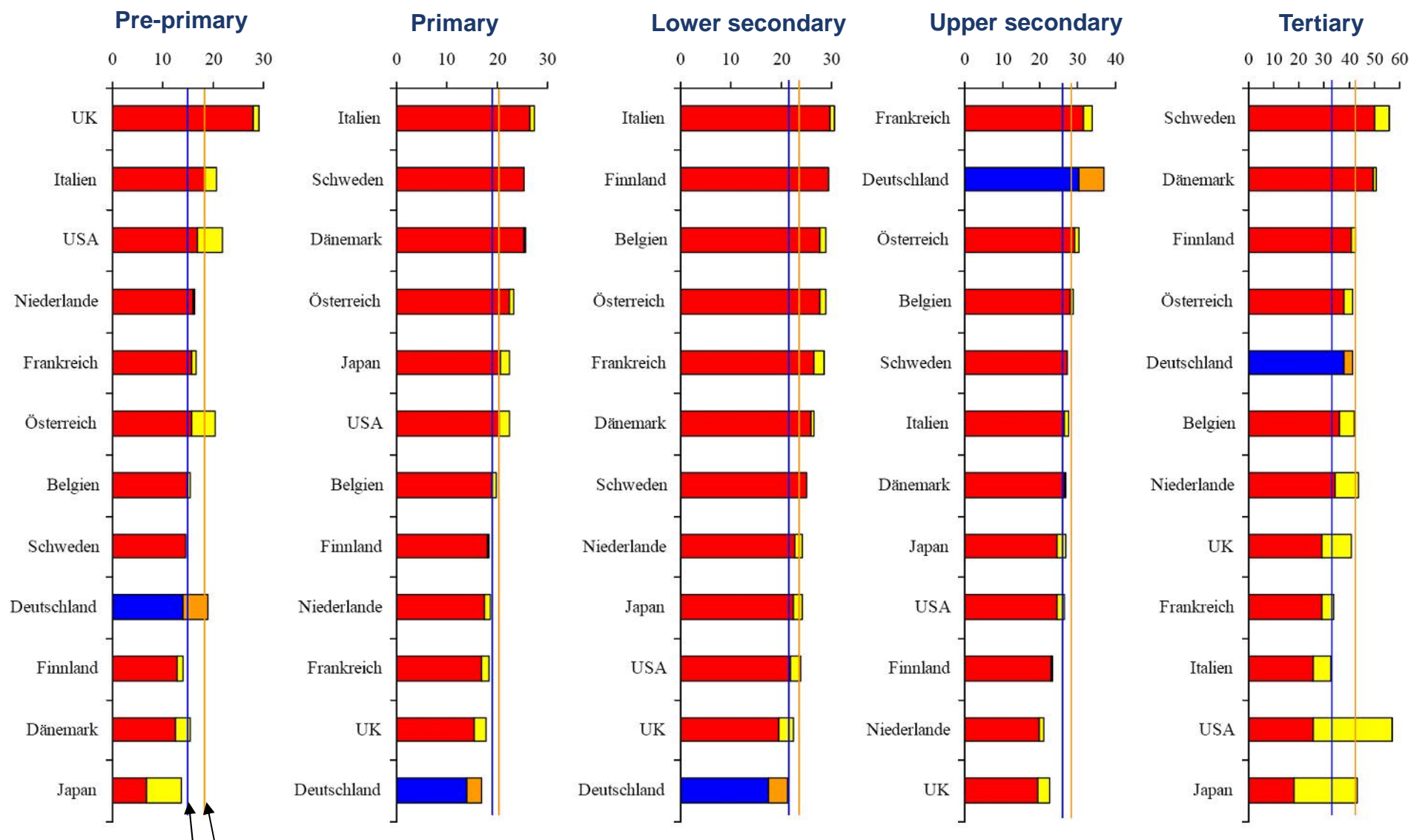
Stylized **returns** to a Euro spent at different stages of education:



Source: Woessmann (ITAX 2008), extending Cunha, Heckman et al. (HbEEdu 2006).

Educational Expenditure per Student (relative to GDP per capita)

Public expenditure
Private expenditure

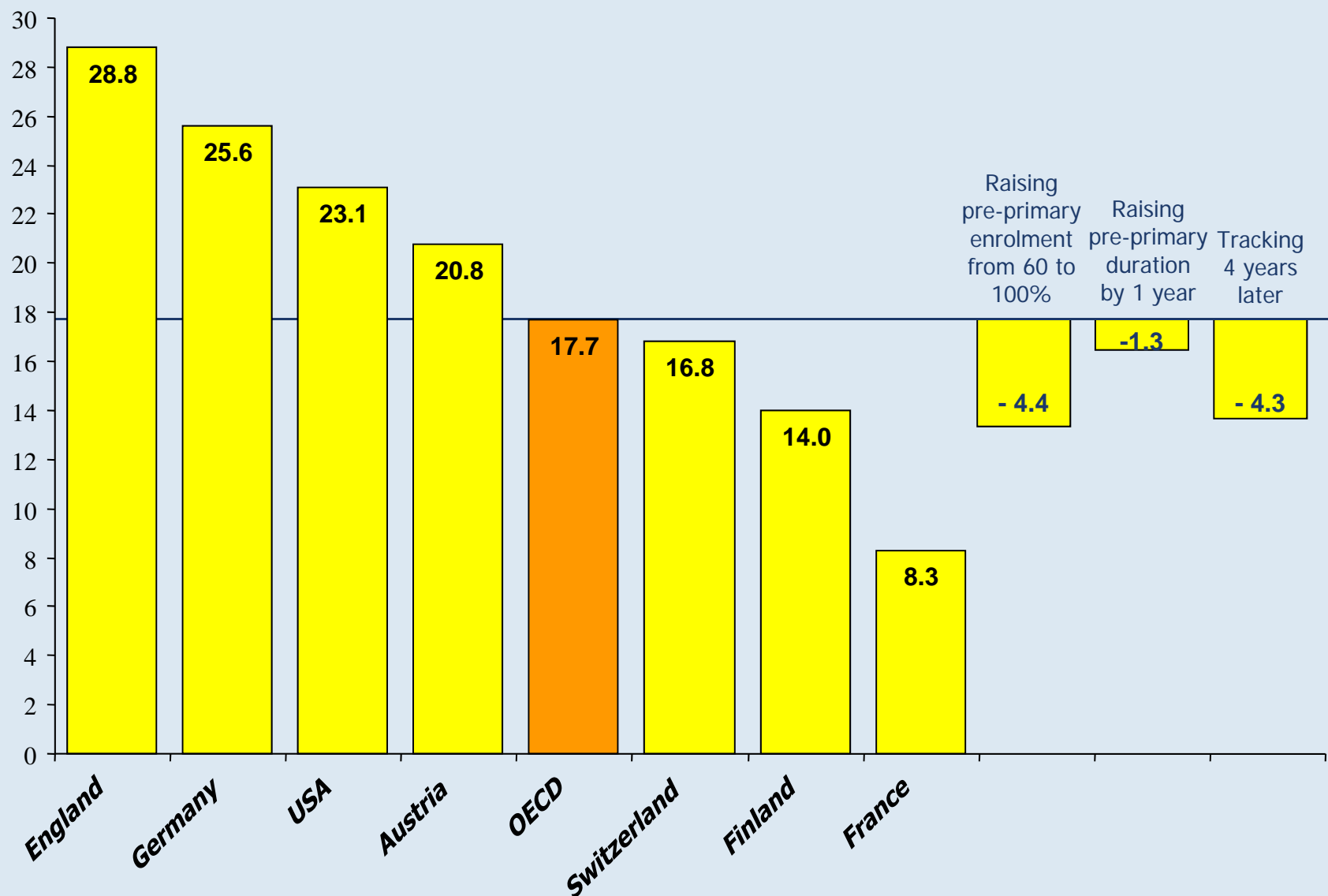


OECD Average

Source: Own depiction based on data from OECD Education at a Glance.

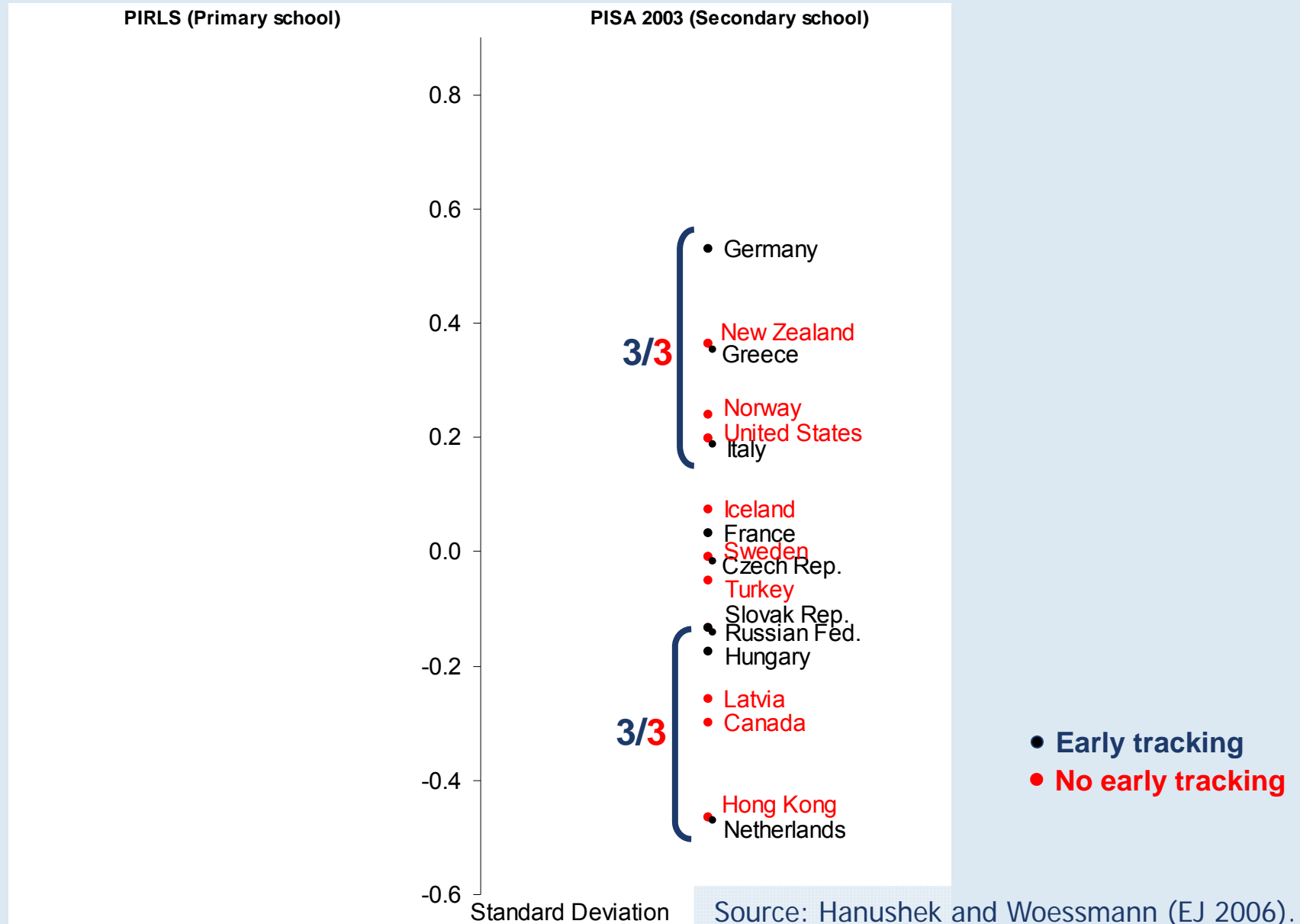
Education Policy and Inequality of Opportunity

Effect of family background on student achievement

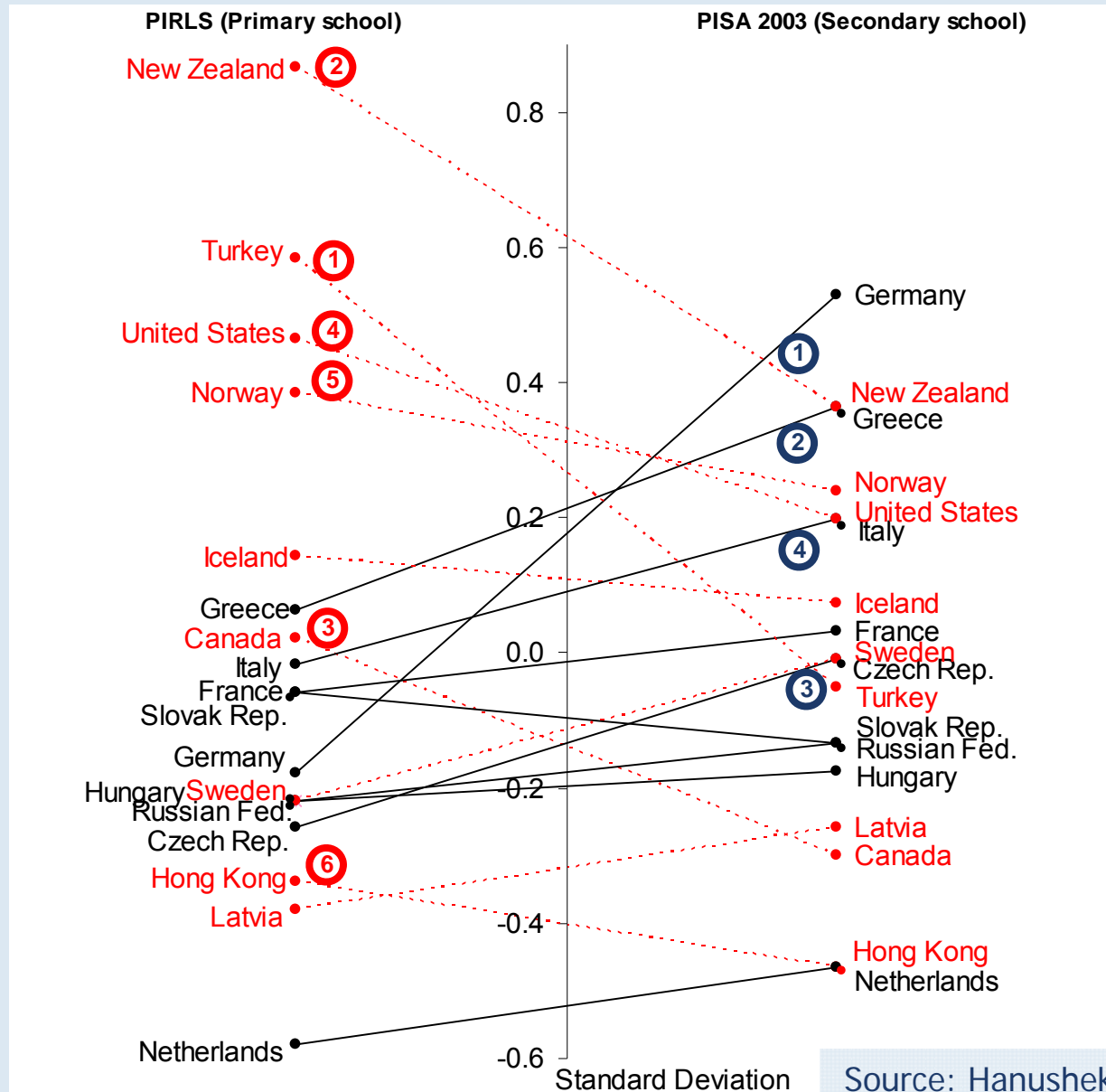


Source: Schuetz, Ursprung and Woessmann (Kyklos 2008).

Tracking and Inequality



Tracking and Inequality



Change:

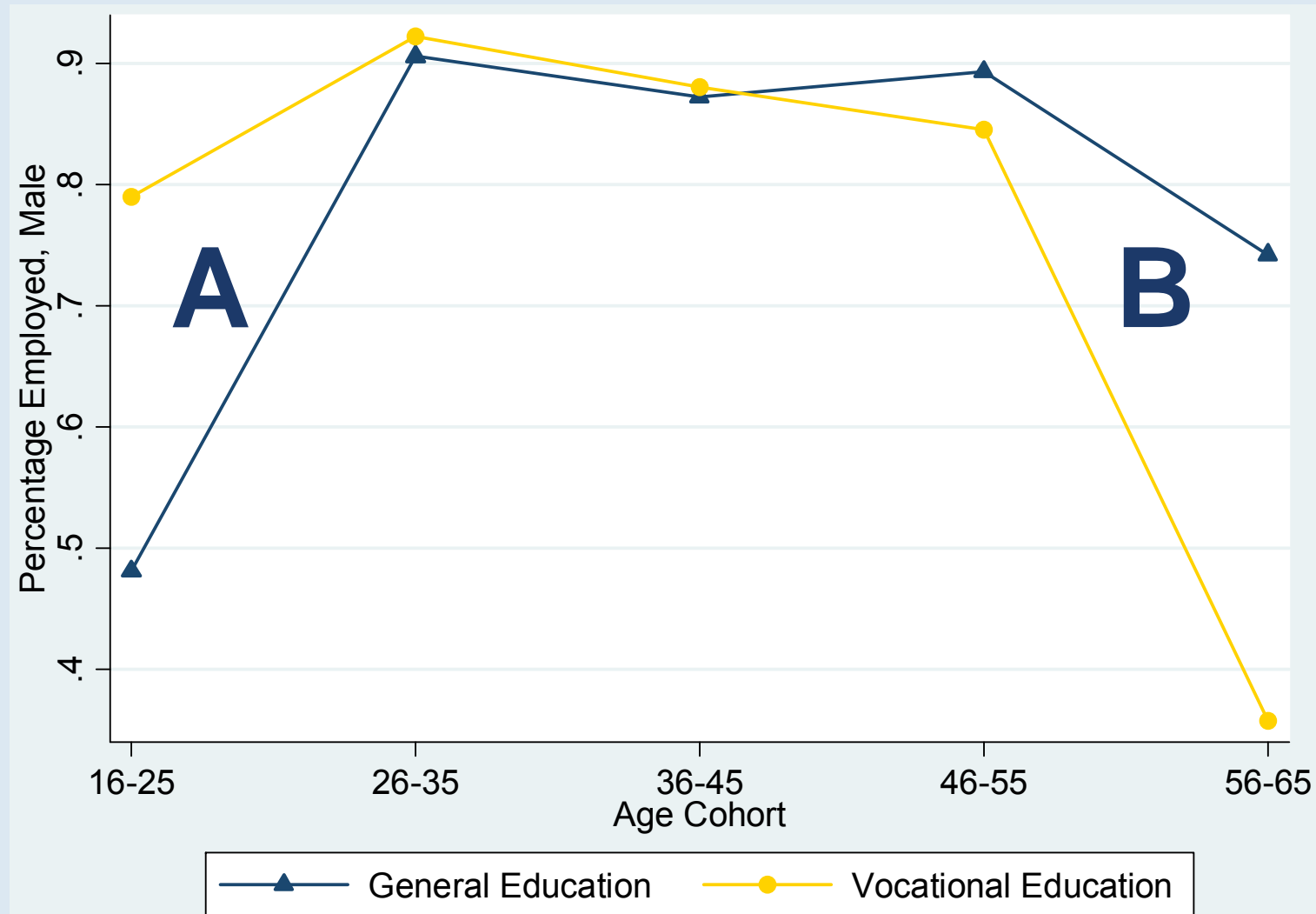
1. Germany	0.71
2. Greece	0.30
3. Czech Rep.	0.25
4. Italy	0.22
5. Sweden	0.21
6. Latvia	0.12
7. Netherlands	0.11
8. France	0.09
9. Russian Fed.	0.08
10. Hungary	0.04
11. Iceland	-0.07
12. Slovak Rep.	-0.08
13. Hong Kong	-0.13
14. Norway	-0.14
15. United States	-0.27
16. Canada	-0.32
17. New Zealand	-0.50
18. Turkey	-0.63

- Early tracking
- No early tracking

Source: Hanushek and Woessmann (EJ 2006).

General vs. Vocational Education over the Life Cycle

Employment probabilities by age and education type:



IALS data for "apprenticeship" countries. Source: Hanushek, Woessmann and Zhang (NBER 2011).

Financing Post-Compulsory Stages

- **Higher education:**
 - Combine fees with income-contingent loans
 - **Adult education and training:**
 - Government intervention to stimulate job-related training?
 - Direct subsidies, individual learning accounts, vouchers, income tax deductions
 - But: crowds out private investment – used by those who would participate anyways, rather than those most in need
 - Schwerdt, Messer, Woessmann and Wolter (JPubE forthc.) on Swiss adult education vouchers; Hidalgo, Oosterbeek and Webbink (2011) on training vouchers in the Netherlands; Abramovsky et al. (JLE 2011) on UK Employer Training Pilots
 - The Swiss field experiment on adult education vouchers:
 - No significant average effects on earnings, employment, subsequent educ.
 - Low-education individuals most likely to profit, but least likely to use voucher
 - Crowds out firm-financed training
 - Doubts on effectiveness of untargeted voucher programs
- Inefficiency of subsidising training of employees

Human Capital Policies as Part of a Growth Strategy

1. Improved educational achievement crucial for **growth**
2. Higher **spending** alone does not ensure better outcomes
 - Need to focus on teacher quality
3. **Institutional reforms**
 - Accountability, autonomy and choice
 - Output-oriented reforms properly designed to each stage:
State ensures accountability and funding for inclusive education
and uses choice and competition to deliver best results
4. **Life cycle** of human capital policy
 - Invest early in the life cycle – in particular, public investments
 - Vocational skills facilitate labor-market entry, but hinder at older age
 - Inefficiencies in subsidising adult education and training