How Much do Educational Outcomes Matter in European Union Countries?

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Effective policies for the development of competencies of youth in Europe
Warsaw, Poland
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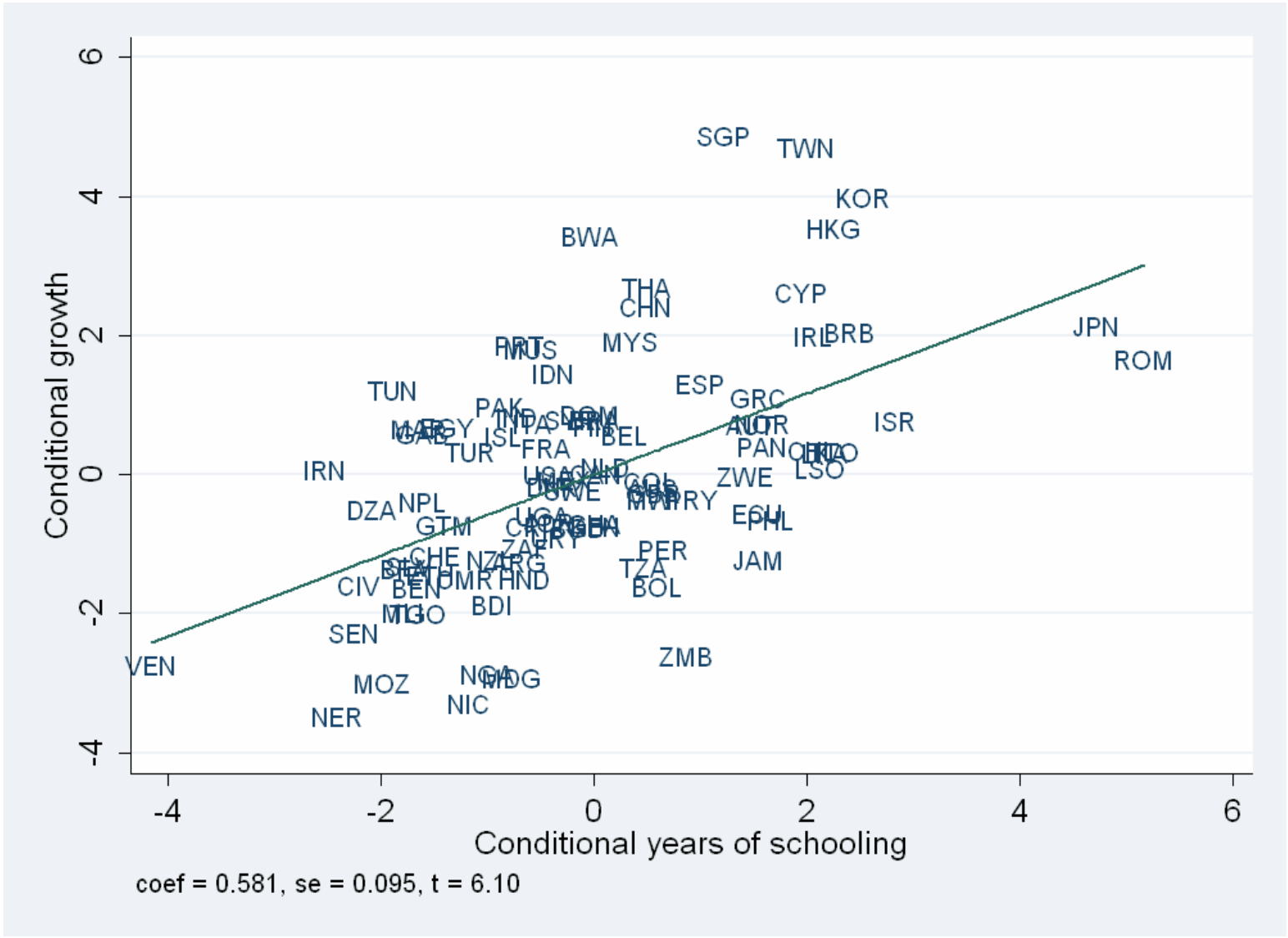
Plan for Discussion

- School quality and economic growth
  - Cognitive skills
  - Early versus late investment
- Special policy considerations
  - Basic skills v. advanced skills
  - Tertiary education
- Some policy options

Human Capital in Empirical Growth

- Simple cross-country growth regressions
  - Enrollment rates
- Wide variety of measurement alternatives
  - Literacy
  - School enrollment and attainment

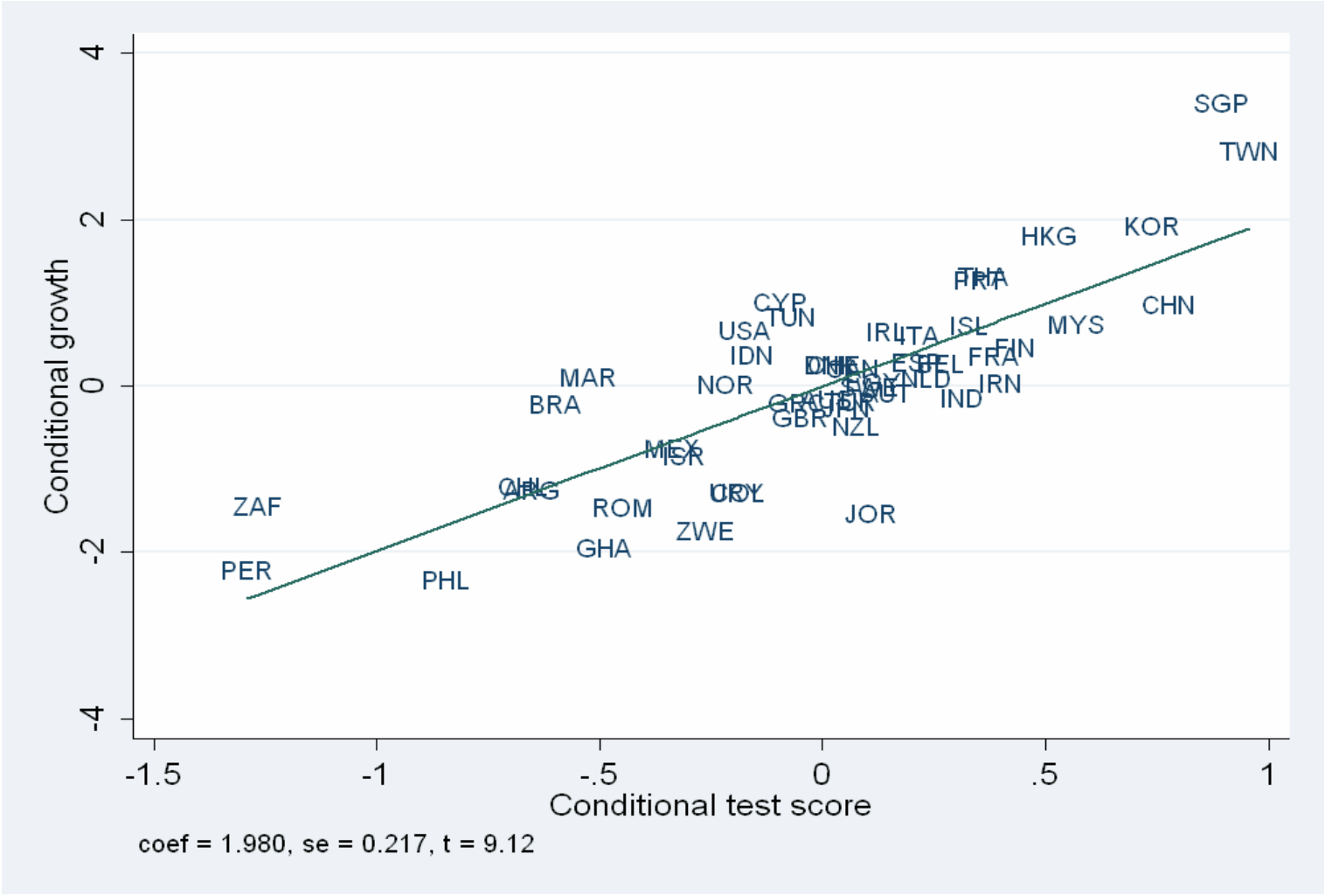
Years of Schooling and Long Run Economic Growth



Human Capital in Empirical Growth

- Simple cross-country growth regressions
  - Enrollment rates
- Wide variety of measurement alternatives
  - Literacy
  - School enrollment and attainment
- Cognitive skills
  - Measuring knowledge, not sitting in the classroom
  - International tests of students' performance in cognitive
    - 12 testing occasions, 36 separate test observations (age levels, subjects)

Cognitive Skills and Economic Growth



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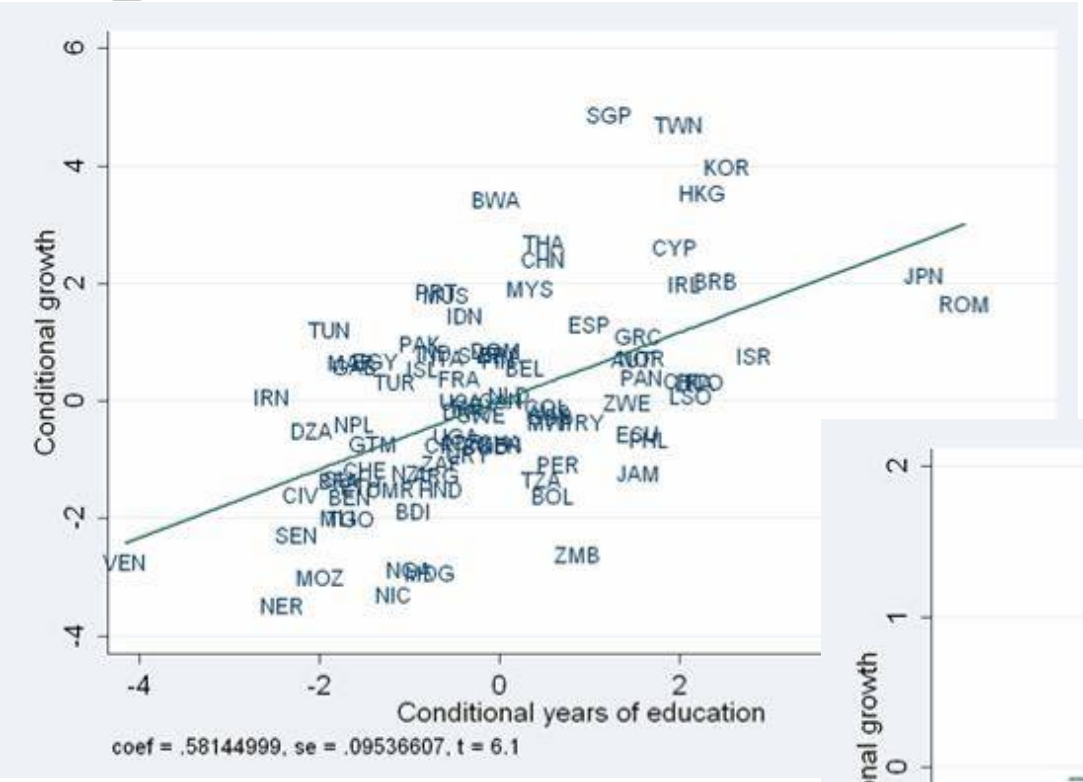
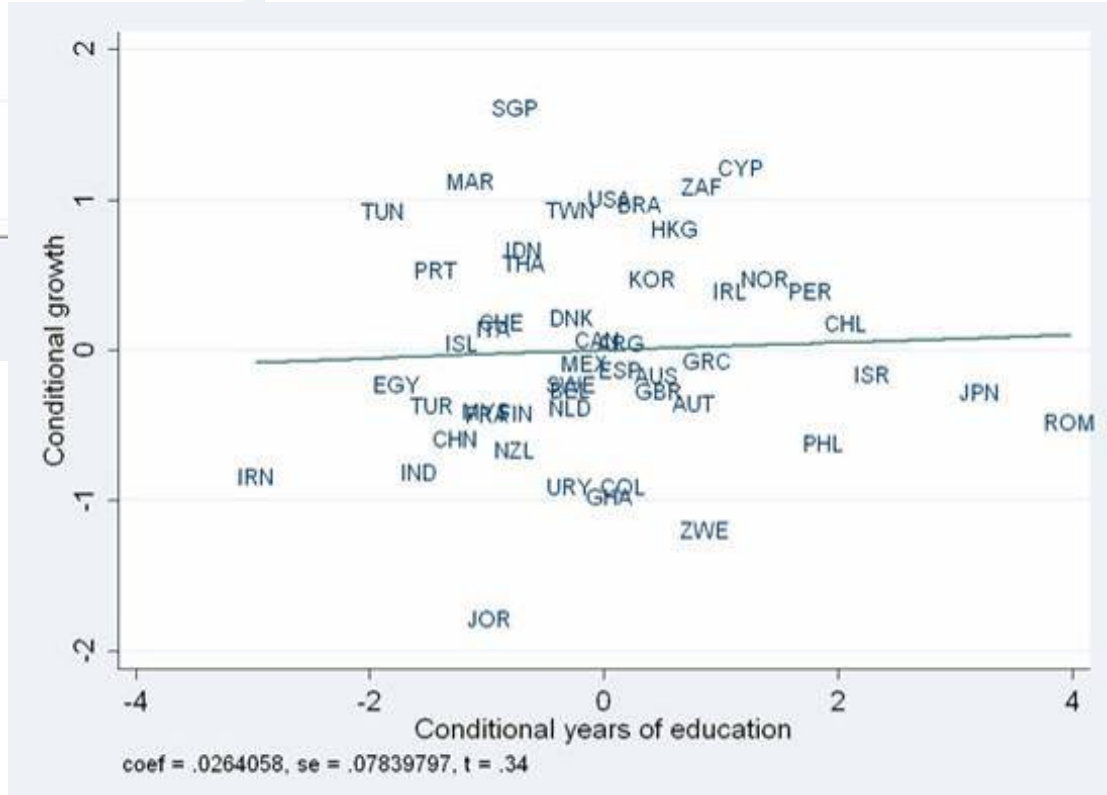
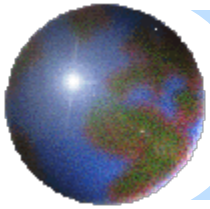


Without quality control

With quality control

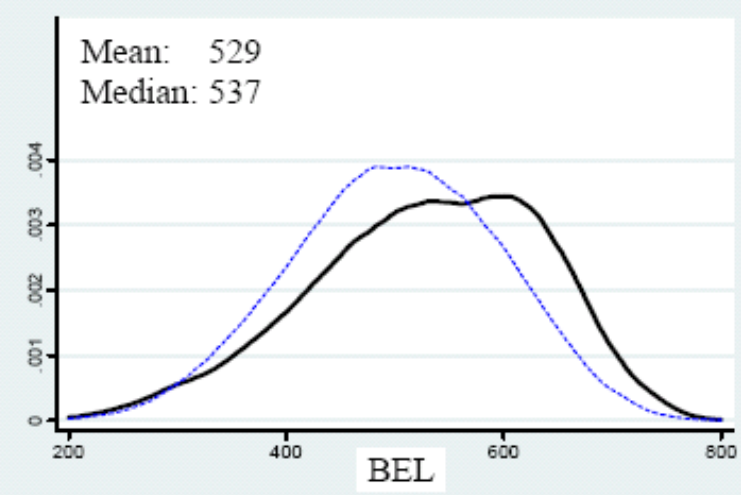


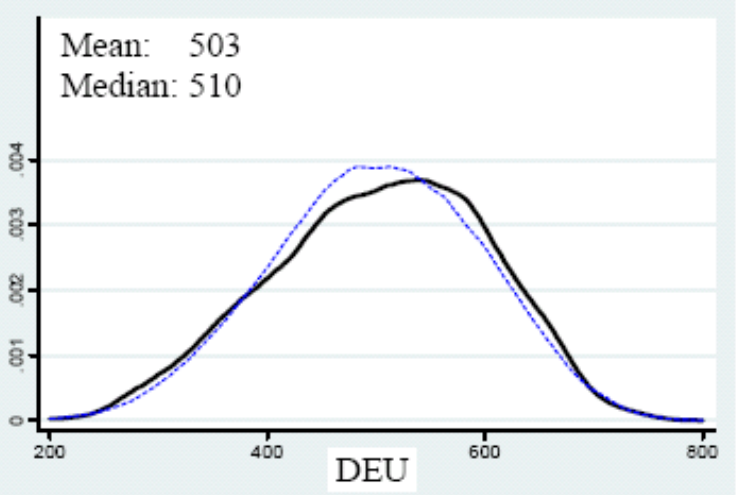


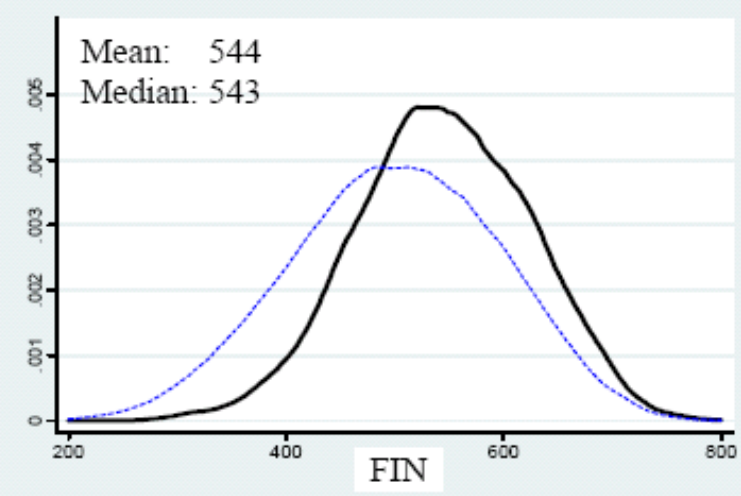
Rocket Scientists or Basic Education for All?

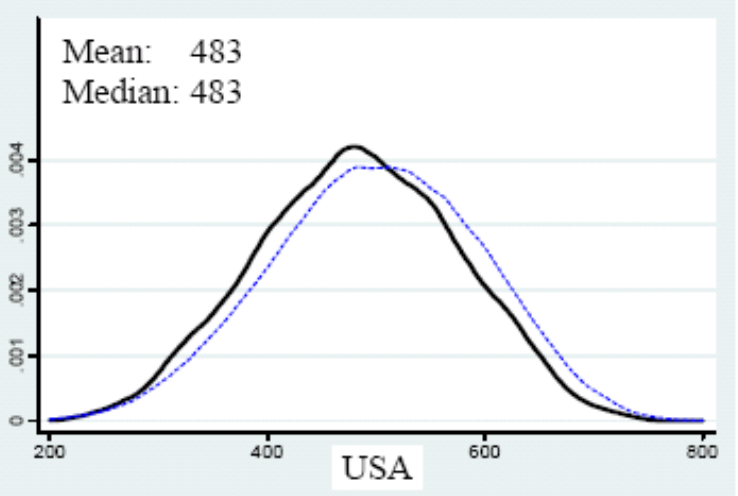
- Should policy concentrate on lowest or highest achievers?

Selected Examples of the Distribution of Student Performance









Rocket Scientists or Basic Education for All?

- Should policy concentrate on lowest or highest achievers?
  - BOTH seem important
  - Rocket scientists more important in developing countries
- Does more tertiary education make sense?
  - Frontier vs. off-frontier
  - No evidence for developing or developed *after considering cognitive skills*

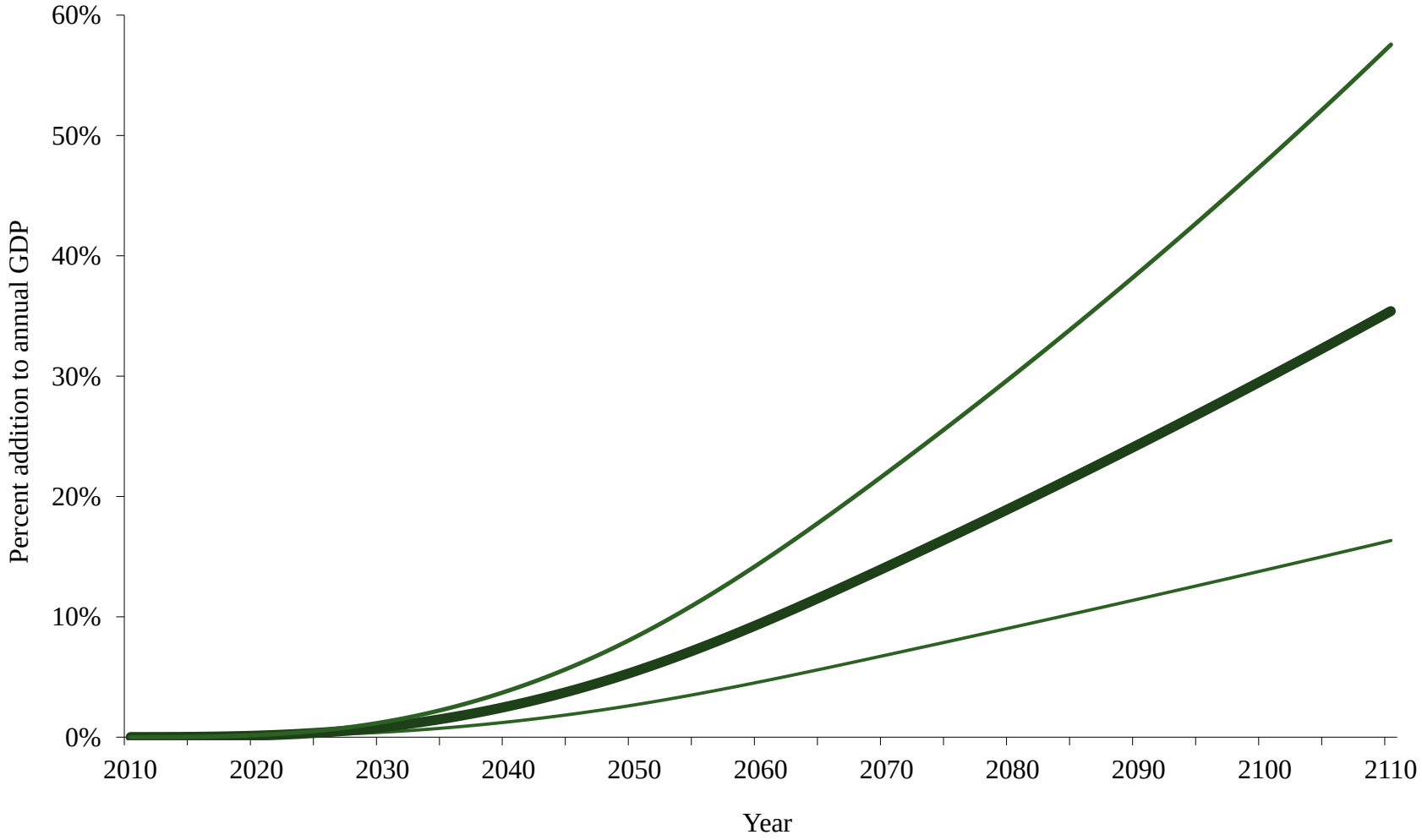
Estimating the Value of School Reform

- Reform that increases achievement
  - 20 years to reach new levels
- Assume future growth like 1960-2000 growth
  - Holds for former communist members
- Discount future at 3 percent
- Growth without education reform at 1.5 percent
- Calculate present value over lifetime of person born today
  - 80 year expected life
  - 40 year working life

Growth Projections

- Scenario 1
  - Achievement improves by 25 points (1/4 s.d.)

Annual Gains from 25 PISA-Points Improvement



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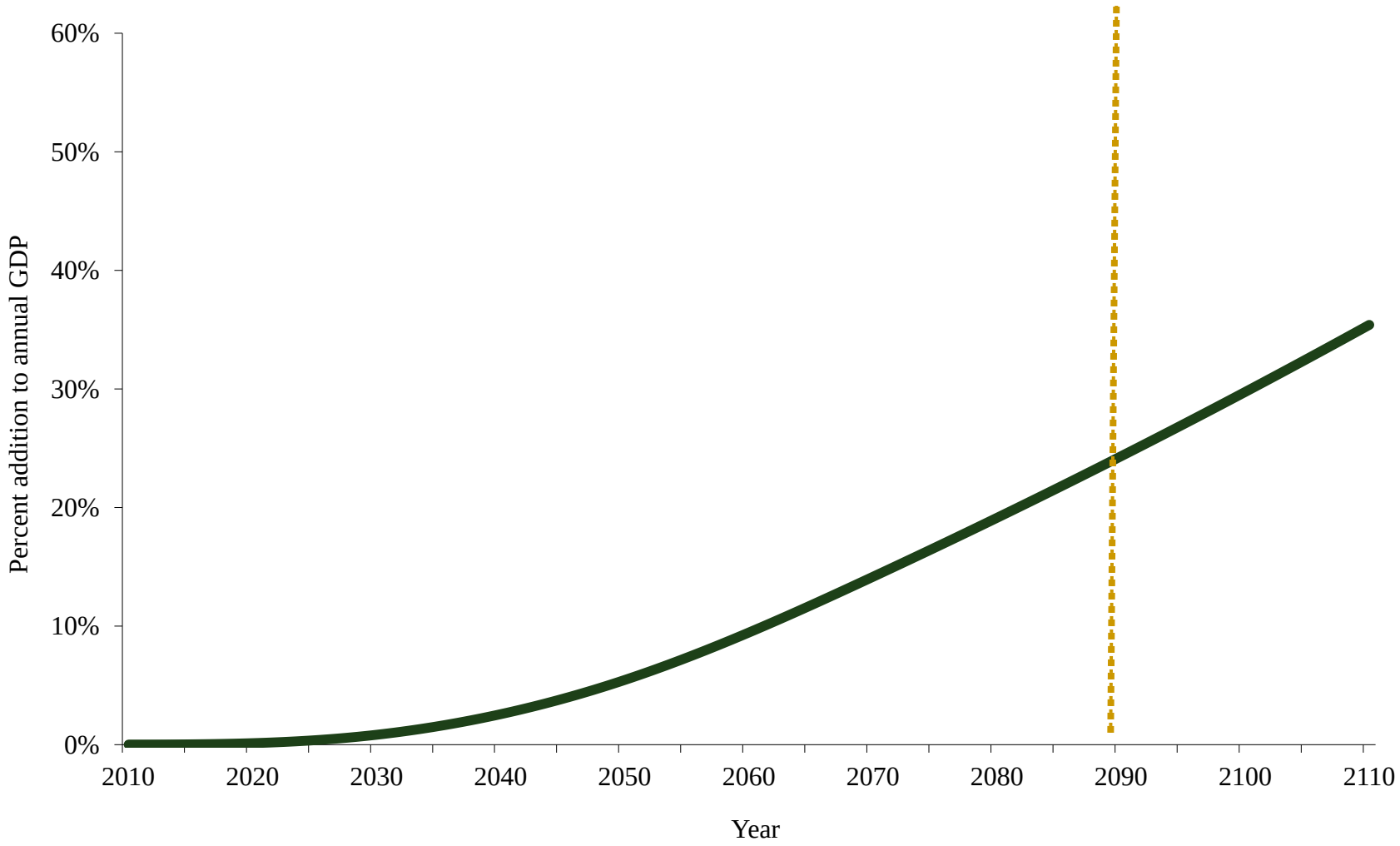

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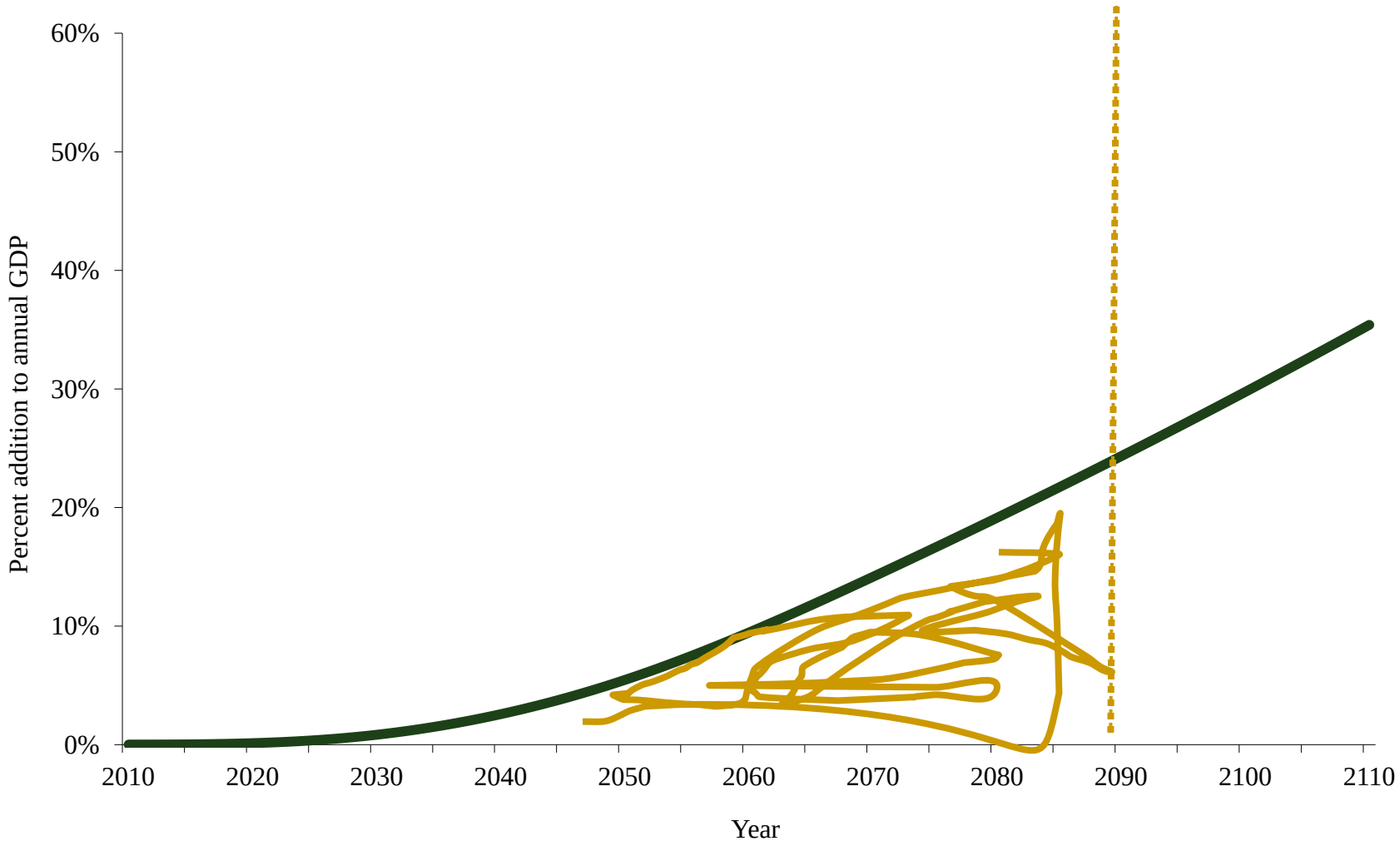
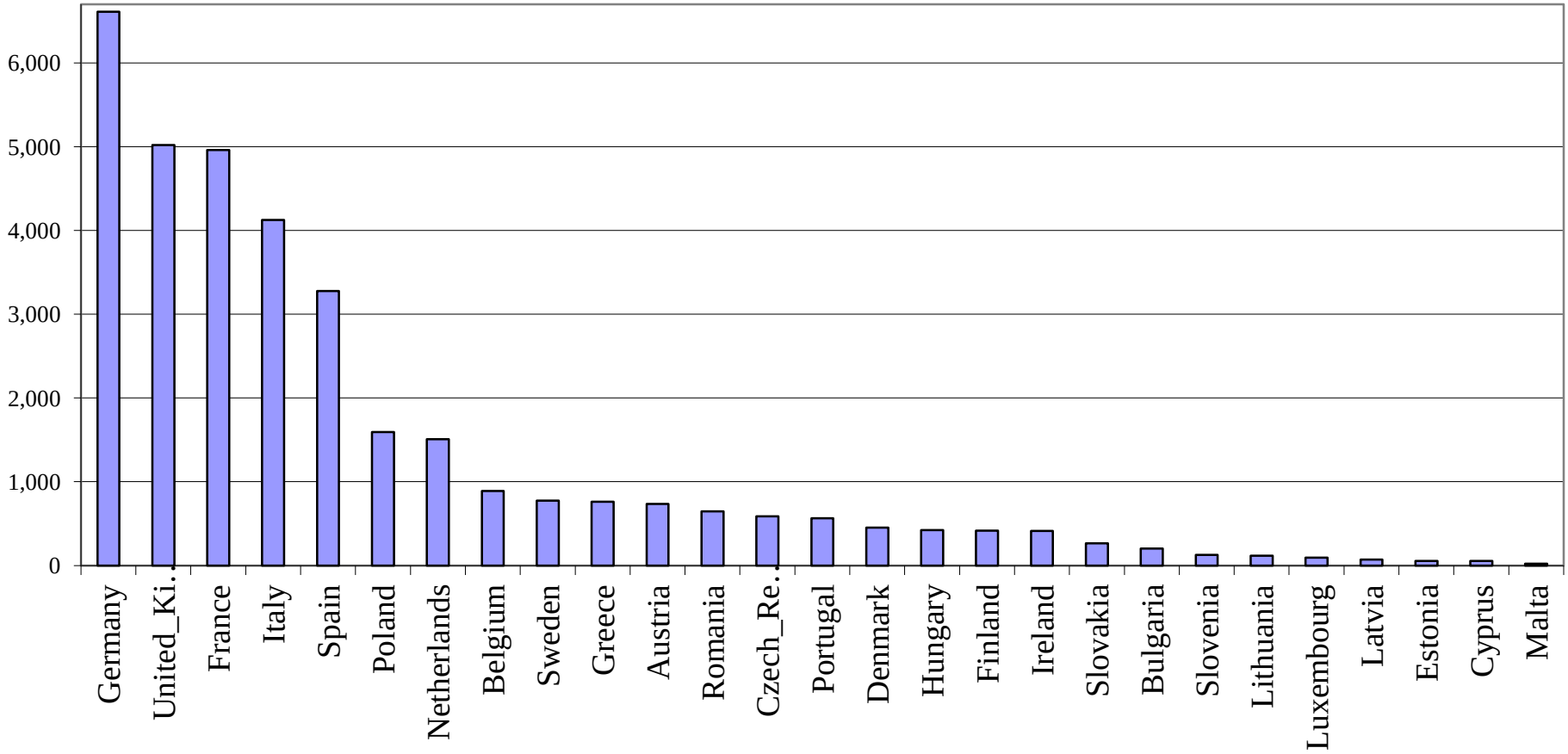


Growth Projections

- Scenario 1
  - Achievement improves by 25 points (1/4 s.d.)
    - PV = 288% of current GDP
    - 6.2% of present value of GDP 2010-2090
    - **€35T for European Union**

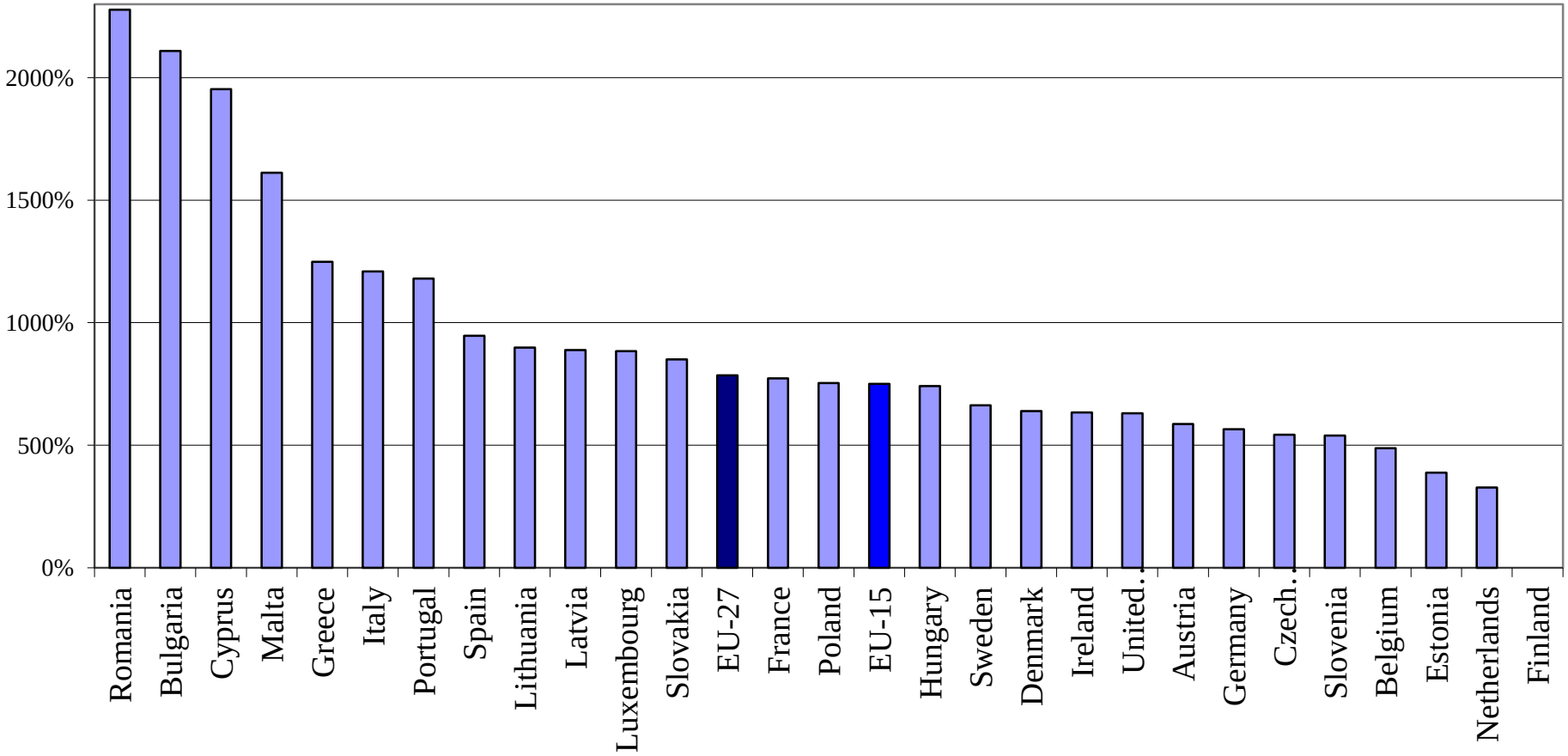
Present Value of Added GDP from ¼ Standard Deviation Improvement in Achievement



Growth Projections

- Scenario 1
  - Achievement improves by 25 points (1/4 s.d.)
- Scenario 2
  - Everybody Achieves at Level of Finland
    - PV = 785% of current GDP in EU-27
    - 16.8% of present value of GDP 2010-2090
    - **€95 trillion for European Union**

Present Value of Added GDP from Increasing to the Achievement of Finland (% of current GDP)



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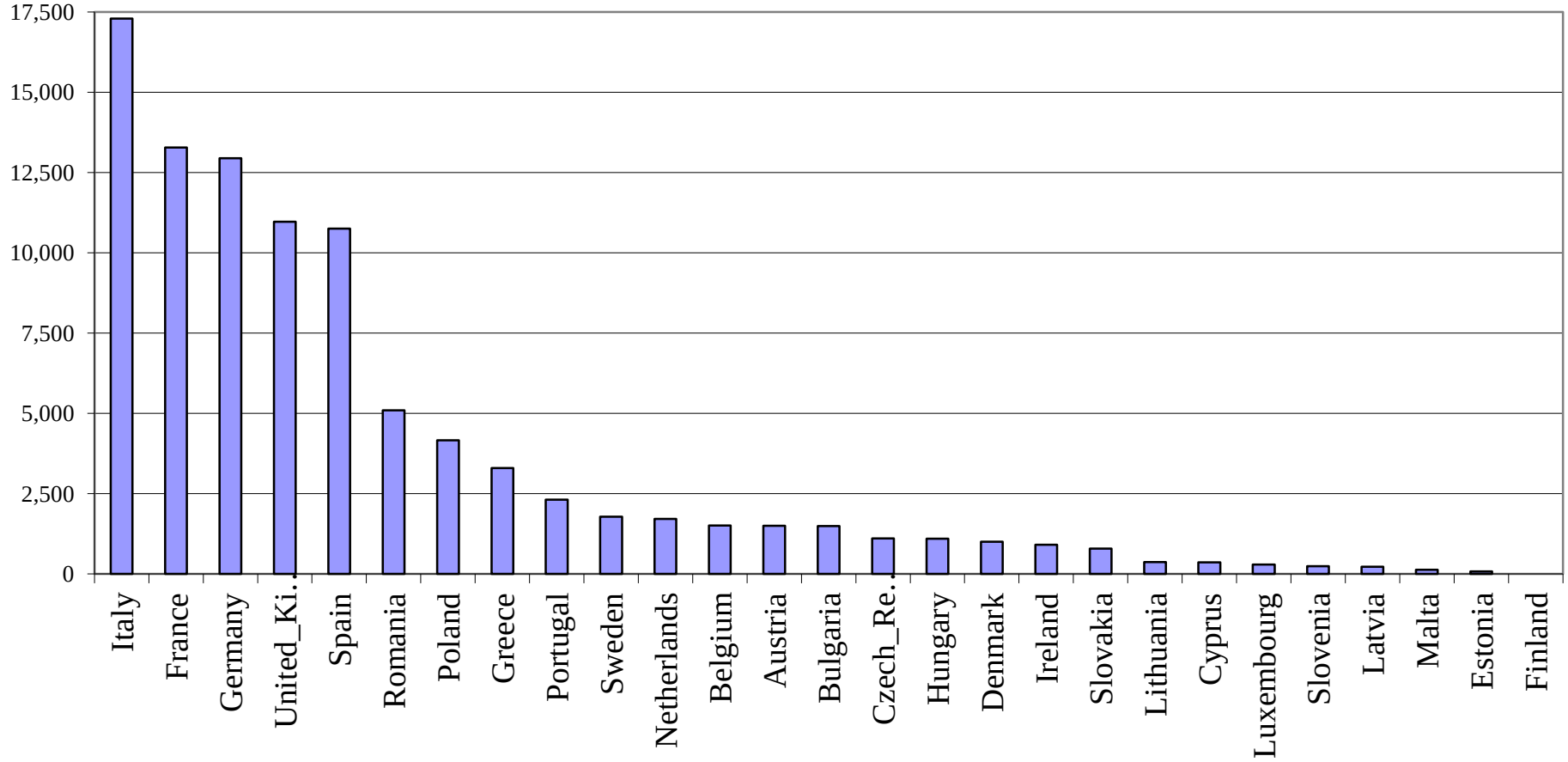
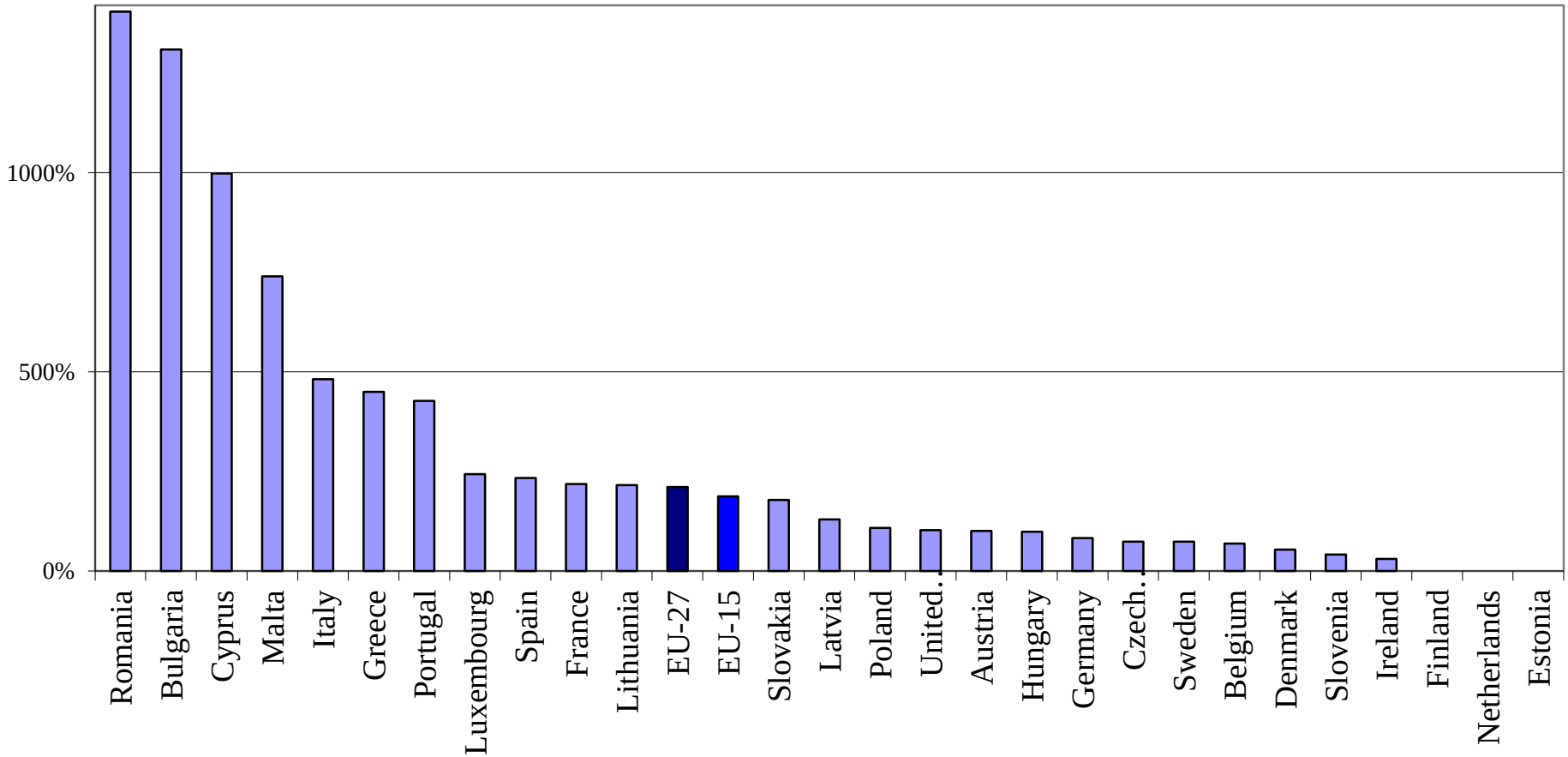


Growth Projections

- Scenario 1
  - Achievement improves by 25 points (1/4 s.d.)
- Scenario 2
  - Everybody Achieves at Level of Finland
- Scenario 3
  - Less than 15% at Level 1 or below (basic skills)
    - PV = 211% of current GDP in EU-27
    - 4.5% of present value of GDP 2010-2090
    - **€25 trillion for European Union**

Present Value of Europe 2020 Literacy Benchmark: Less than 15% Below Level 1 (% current GDP)



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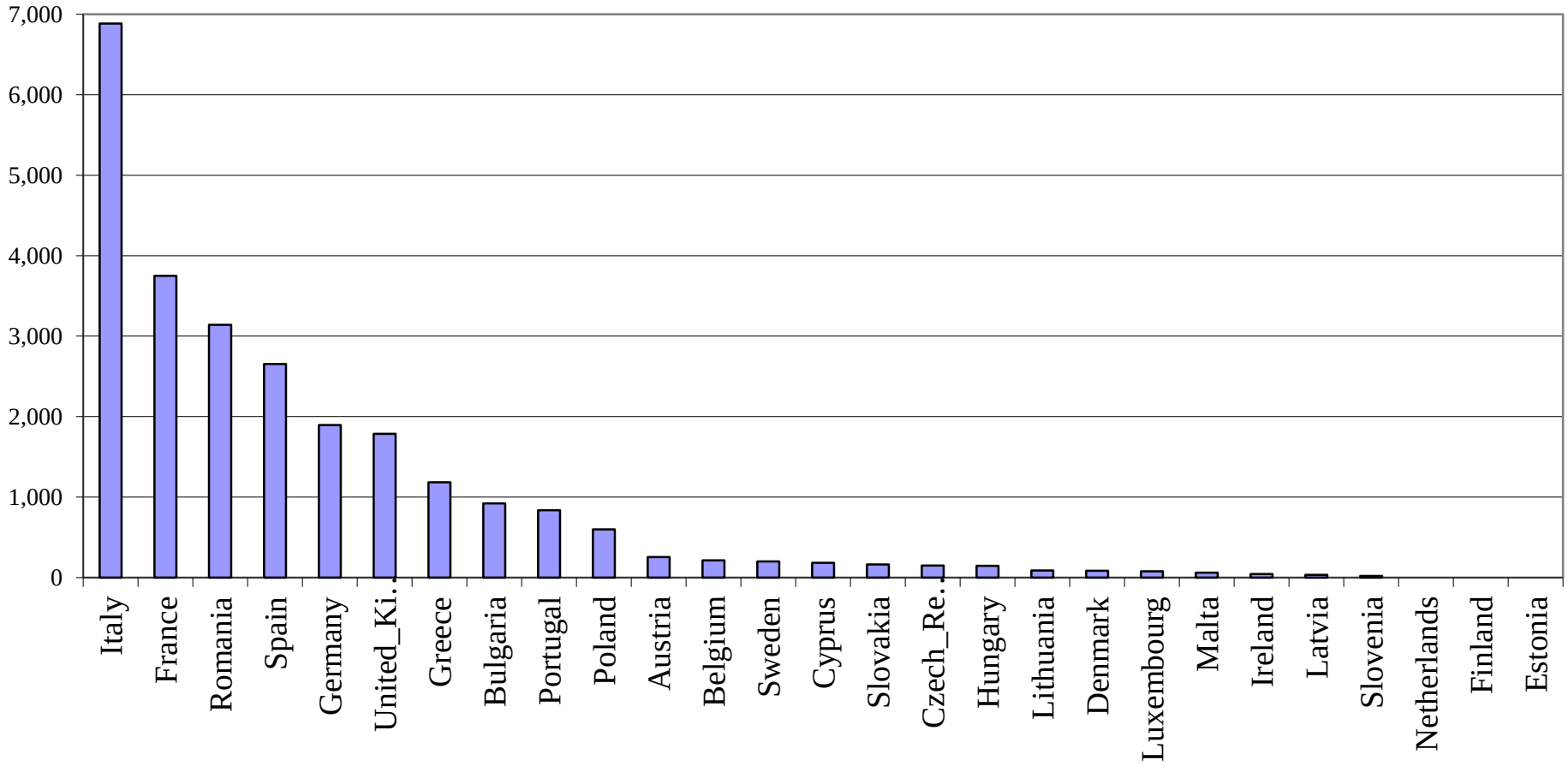
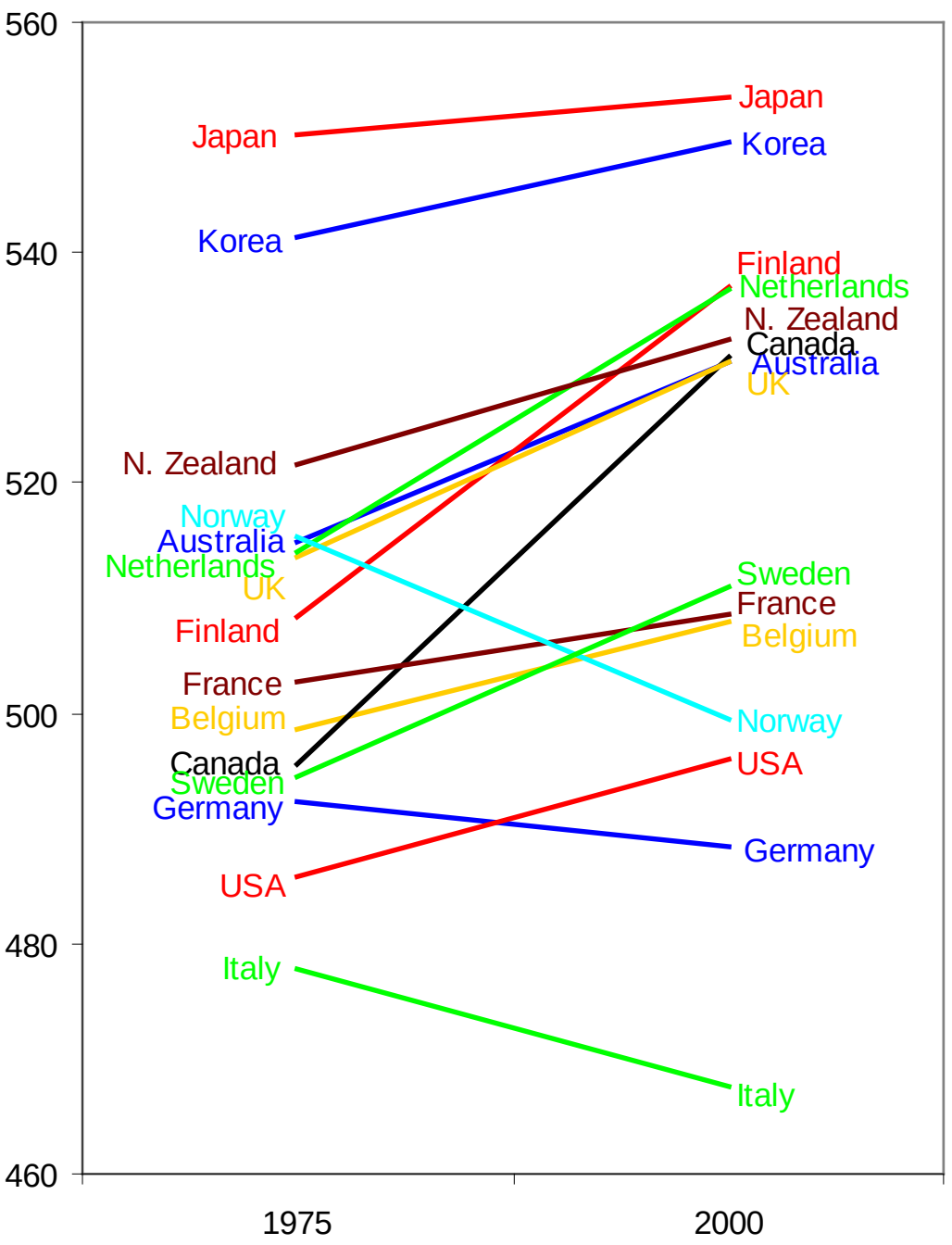


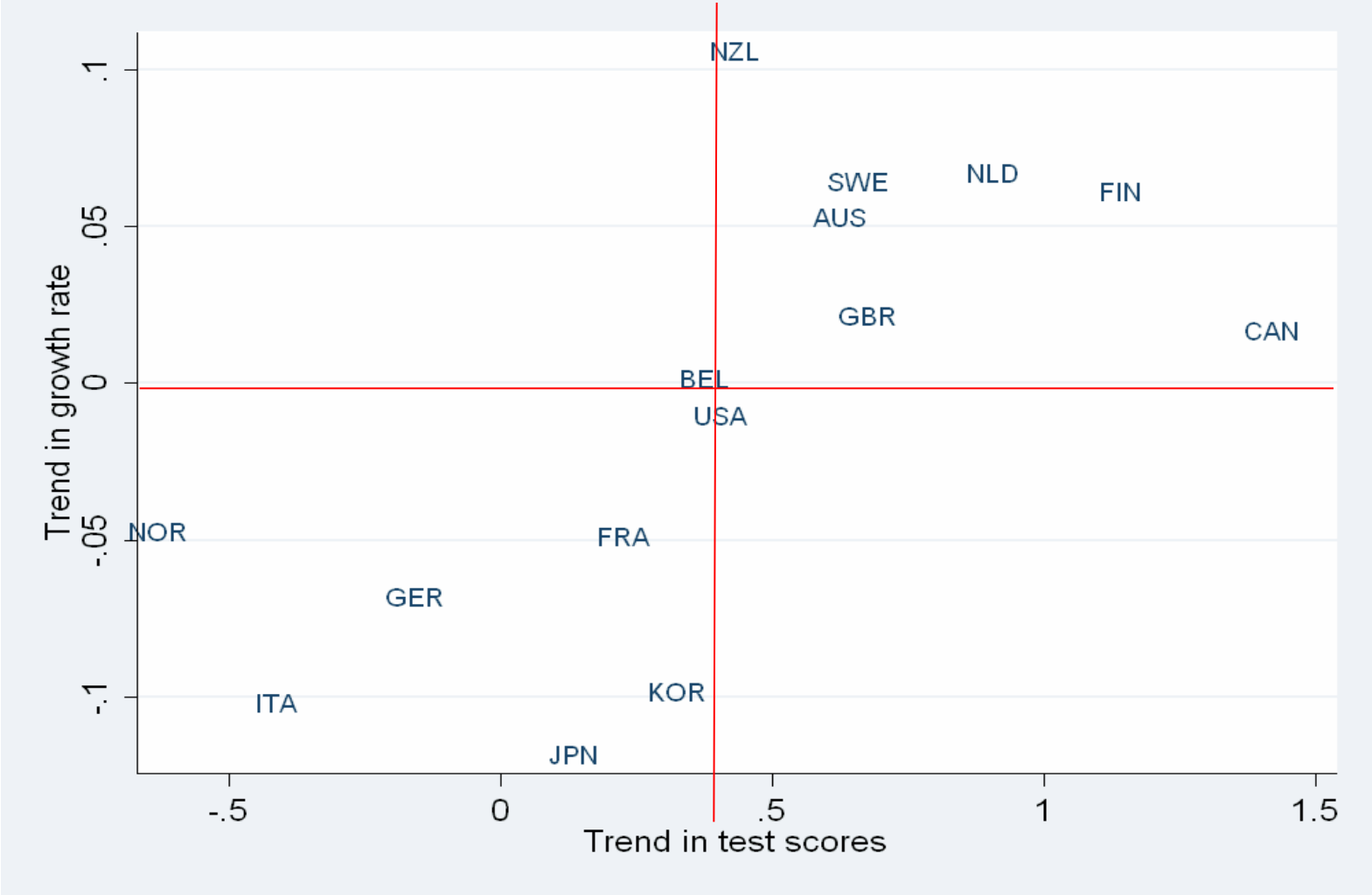
Do Skills Cause Growth?

- Simple reverse causation
- Omitted factors
  - Institutions (openness, property rights)
  - Regulations

Trends in Test Scores



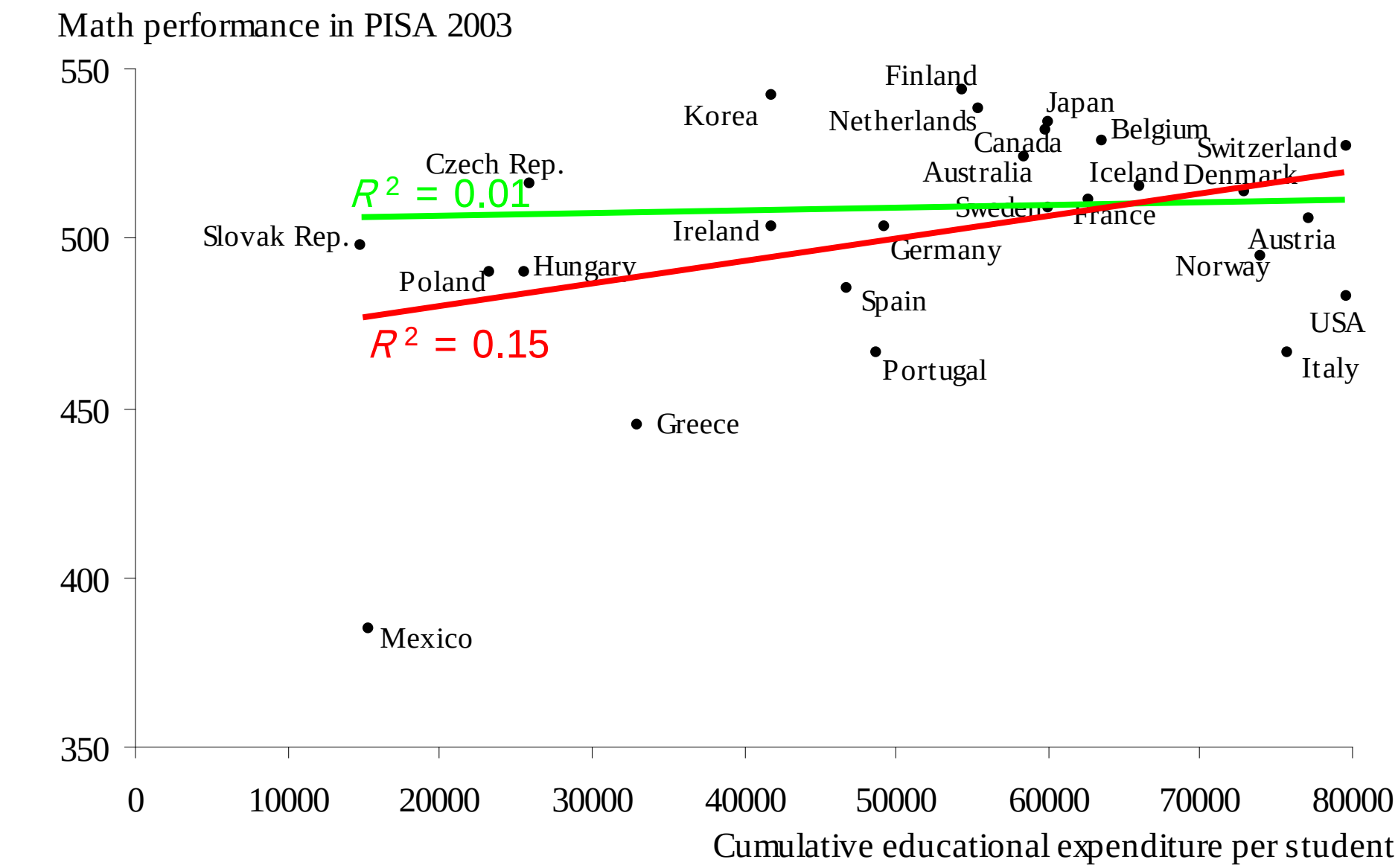
Trends in Growth Rates vs. Trends in Test Scores



Policy options

- **Spending**

Resources and Performance across Countries



Policy options

- **Spending**
- **Teacher quality**

Teacher Quality

- Strongest evidence on systematic effects
- Not related to common measures
- Observable through both student performance *and* supervisor ratings

Policy options

- **Spending**
- **Teacher quality**
- **Institutional changes**
  1. Competition and choice (private schools)
  2. Accountability (central exit exams)
  3. Autonomy
  4. Teacher performance pay
  5. Pre-primary education system

How Autonomy Affects Student Performance
— Depending on Given Incentives —

- School autonomy
  1. Use of superior local knowledge
  2. Opportunistic behavior

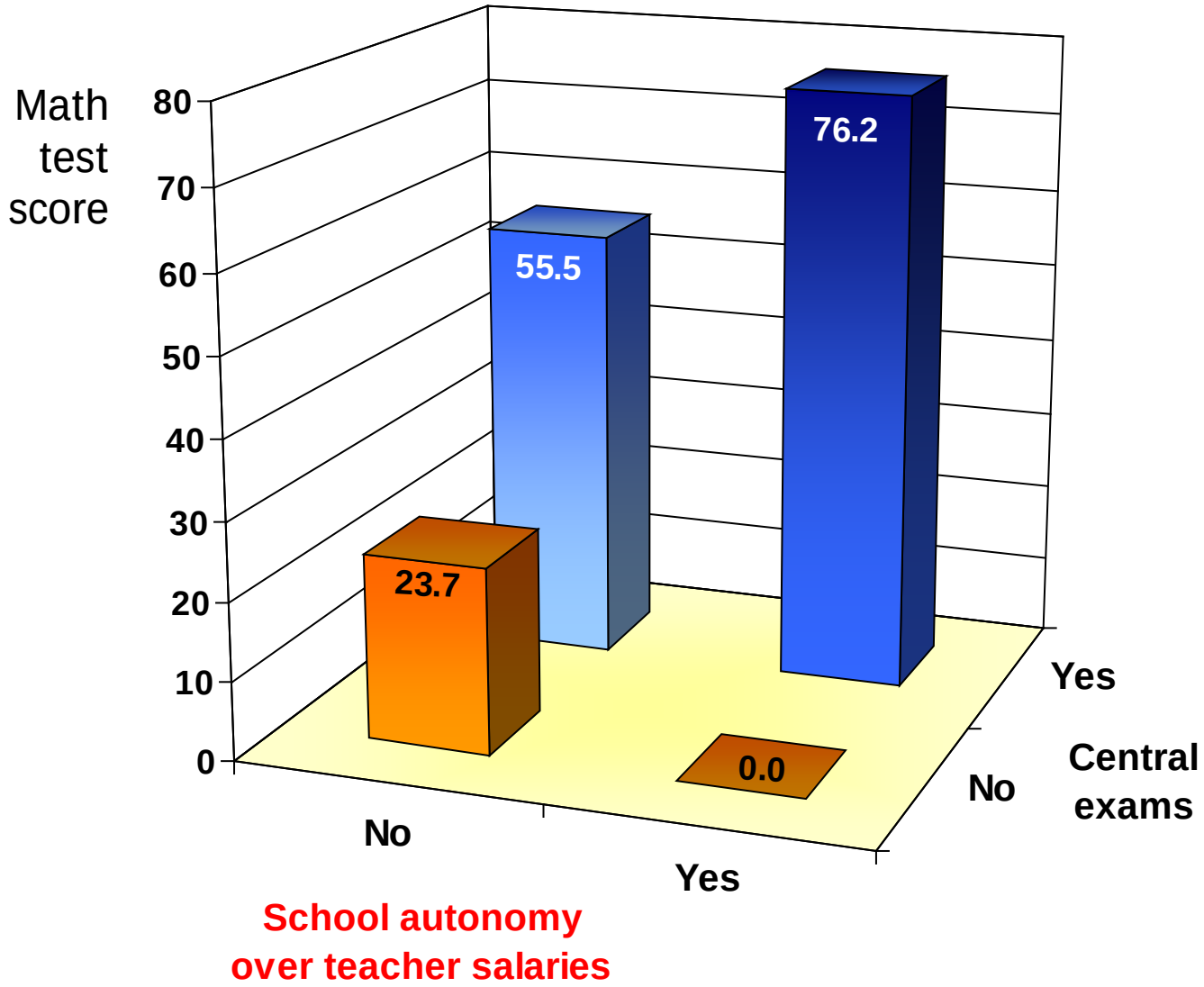
- School autonomy may be good or bad

- Complementary institutions

How Central Exams Change Behavior
— Thus Changing the Effects of Autonomy —

- Central exams provide *information*
- Central exams ease the monitoring
- By introducing accountability, central exams ease the “bad” effects of autonomy, ensuring a “good” net effect

Central Exams, School Autonomy, and Student Performance



TIMSS + TIMSS-R

Conclusions

- Europe 2020
  - Correct to emphasize human capital development
  - Incorrect to headline quantity
    - Reduce dropouts to less than 10 percent
    - 40 percent of 30-34 year olds with tertiary education
- Early versus late investment strategies
- Vocational v. general education
- Huge benefits to quality
- Must deal with myopic pressures of fiscal problems