

Quantifying the Economic Benefits of Educational Improvement in the EU

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Even though potential economic outcomes often motivate educational policy discussions, the magnitude of any such gains are seldom available to guide these discussions. Based on the historical linkage of educational achievement to economic growth, it is possible to quantify the potential economic benefits of educational improvement covered by the educational goals of the European Union. For example, an increase in student achievement of 25 PISA points across the EU would be expected to increase the present value of EU GDP by €71 trillion. By contrast, the more limited EU goal of reducing low achievement to 15 percent by country would have an impact of only €5 trillion. Understanding the implications of educational reforms requires careful attention to the dynamic interactions of schools and the future quality of a country's labour force.

Few people doubt that a well-educated population benefits each country. But many do not fully understand the magnitude of impact of high-quality education on economic wellbeing. In a new report, we provide an analysis of the economic benefits of educational improvement for each EU country.

PROJECTING ECONOMIC GAINS FROM DIFFERENT REFORMS INTO THE FUTURE

The analysis focuses on the relationship between educational achievement, as measured by scores on the Programme for International Student Assessment (PISA), and the long-run growth of nations. Prior research shows that test scores serve as a good proxy for the skills of a nation's workforce and that three-quarters of the variation in long-run growth rates across countries can be attributed to these quantitative measures of educational outcomes.

Using the historical relationship of growth and educational achievement, it is possible to project the aggregate economic results of improvements in achievement. The projections incorporate the dynamics of educational reform – that it takes time to adjust educational policies and programmes, that student outcomes

take added time to appear, and that the economy will only adjust when the new, highly-skilled workers become a noticeable proportion of the workforce. These dynamics imply that the economic gains of improvement take some time to be realised.

All estimates are calculated in present value terms that give today's monetary equivalent of future economic gains across the remainder of the century. Gains in the near term are weighted more heavily than gains later using a discount rate of three percent in order to allow for the time pattern of gains from growth. As is obvious, broad-based reforms have larger economic impacts compared to reforms affecting relatively small portions of the student population.

BROAD-BASED IMPROVEMENTS YIELD €71 TRILLION IN ADDITIONAL GDP

The first scenario considers an increase in student achievement of 25 points on the PISA scale (one-quarter of a standard deviation). While challenging, Portugal, Poland, and Germany have already demonstrated that such gains are feasible. If all EU countries met this goal within 15 years, the aggregate impact on the EU would be faster economic growth (by 0.5 percent

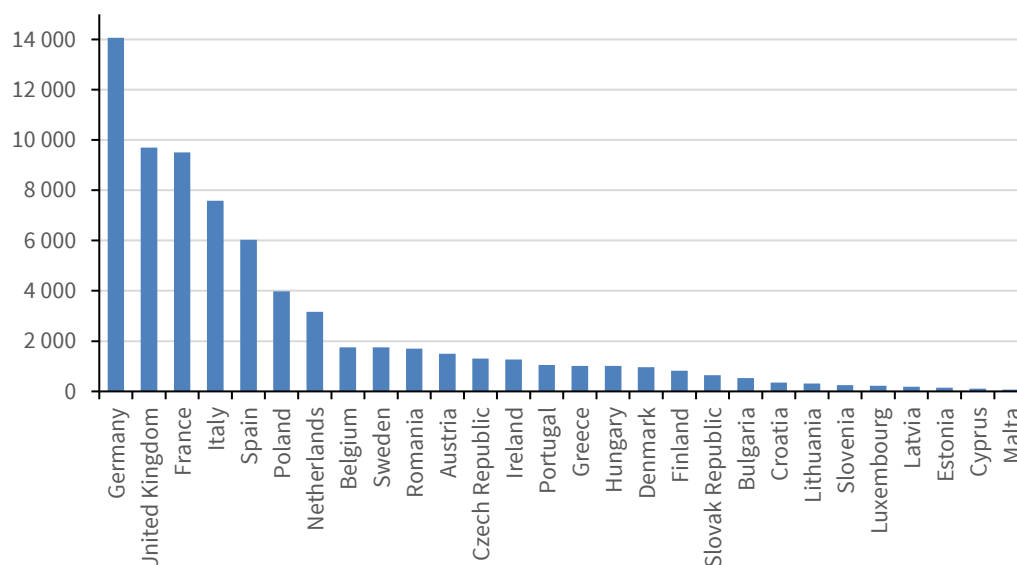
annually) in the long run, and this would add GDP over the status quo of €71.0 trillion. This amounts to an aggregate EU gain of almost 3½ times current levels of GDP and an average GDP that is seven percent higher for the remainder of the century. The figure presents individual country results for these aggregate outcomes.

LESS AMBITIOUS REFORMS YIELD SMALLER GAINS

The second scenario brings all low-performing students up to the basic skill requirements for competing in today's economy (taken to be level 2 on the PISA tests). Achieving this goal would boost average GDP over the 21st century by nearly four percent (€37.9 trillion). Countries facing more low-skilled students would obtain proportionately larger improvements in their future economic outcomes. A policy that would not bring all students up to basic skills but only reduce low achievement to 15 percent in each country (mirroring the ET 2020 goal of the Strategic Framework for European cooperation in education and training) would have only about one-seventh the aggregate impact.

The third scenario matches the goal of ET 2020 calling for a reduction in early school leaving to no more than 10 percent in each EU country. Enhancing the skills of all potential early school leavers is projected to raise average GDP by 0.7 percent (€7.1 trillion), while just reaching the 10 percent benchmark would have

Effect on GDP of increasing average performance by 25 PISA points



Notes: Discounted value of future increases in GDP until 2100 due to the reform, expressed in billion Euro (PPP). See reference below for details.

considerably less impact (0.1 percent) since only 11 Member States currently have more than 10 percent early school leavers.

The fourth scenario considers expanding the top end of the performance distribution. It ensures that at least 15 percent of students in each country achieve level 5 on the PISA test. While this takes limited adjustment for the top-performing countries, it represents a substantial increase in EU countries that are starting at a performance deficit. In aggregate, average GDP would be 0.5 percent (€4.6 trillion) higher over the remainder of the century.

EU AGGREGATE BENEFITS

Given the interconnectedness of EU economies, the benefits of broad-based improvements in education are immediately obvious. This should be a priority policy for the separate member countries and for the EU as a whole.

For more details see: Eric A. Hanushek and Ludger Woessmann, *The Economic Benefits of Improving Educational Achievement in the European Union: An Update and Extension*. EENEE Analytical Report 39, September 2019, http://www.eenee.de/dms/EENEE/Analytical_Reports/EENEE_AR39.pdf.