

## **SMARTER TEACHERS PRODUCE SMARTER STUDENTS: Cross-country evidence on school performance**

Smarter teachers can make up as much as an extra year's worth of school progress for their students. That is the central finding of research by **Eric Hanushek, Marc Piopiunik** and **Simon Wiederhold**, to be presented at the annual congress of the European Economic Association in Mannheim in August 2015. Their study analyses data from the Programme for International Assessment of Adult Competencies, which compares teachers' numeracy and literacy skills across 23 developed countries.

The researchers find that while teachers in the worst performing countries (Italy and Russia) are as skilled as somebody with a vocational degree, teachers in the best performing countries (Finland and Japan) are as skilled as someone with a master's or PhD degree. These cross-country differences in teacher cognitive skills partly explain international differences in school students' performance.

For example, school students in Italy or Russia would experience an increase in maths performance equivalent to the learning progress of an entire school year if their teachers were brought up to the skill level of teachers in the best performing country (Finland). Students in Spain, the UK and the United States would experience an improvement of about three quarters of a school year.

Teachers also vary from country to country in terms of how they compare with their fellow graduates. The best performing countries tend to recruit teachers from their top graduates, while the worst performing countries tend to hire from the lower end of the scale. The authors comment:

'it is not just the overall skill levels of a country's college graduates that matter but also where teachers are drawn from the distribution. Our research highlights the role of differences in teachers' cognitive skills in determining differences in the performance of school students across developed countries.'

### **More...**

Differences in teacher quality are commonly cited as a key determinant of the huge differences in international student performance. One identifiable dimension of teacher quality is teacher cognitive skills, which for the first time this study computes on an internationally comparable basis.

The researchers find that teacher cognitive skills not only differ greatly across developed countries but are also linked to international differences in student performance. Furthermore, these differences partly reflect the recruitment of teachers from different parts of a country's skill distribution of college graduates, which can potentially be influenced by policy-makers.

The study exploits unique data from the Programme for International Assessment of Adult Competencies (PIAAC) that allow for the first time consistent measurement of teacher skills in numeracy and literacy across 23 developed countries.

Teacher cognitive skills differ widely internationally. For example, average numeracy and literacy skills of teachers in the worst performing countries (Italy and Russia) are

similar to the skills of employed adults with just a vocational degree in Canada. In contrast, the skills of teachers in the best performing countries (Japan and Finland) are higher than the skills of adults with a master's or PhD degree in Canada.

The researchers relate these country-level teacher skill measures to individual-level data on student performance in math and reading from the Programme for International Student Assessment (PISA).

They find that the cross-country differences in teacher cognitive skills partly explain international differences in student performance. For example, using the estimated relationship, students in Italy or Russia would experience an increase in maths performance equivalent to the learning progress of an entire school year if their teachers were brought up to the skill level of teachers in the best performing country (Finland). Students in Spain, the UK and the United States would experience an improvement of about three quarters of a school year.

These simulations account for country differences in the average cognitive skills in a country, educational spending and teacher's instructional practices.

The huge differences in teacher cognitive skills across countries reflect both where teachers are drawn from in each country's skill distribution and the overall level of cognitive skills in each country's population. As most teachers are college graduates, it is illuminating to compare teacher cognitive skills with the skills of all college graduates in a country.

While teacher cognitive skills fall in the middle of the skill range of college graduates in most countries, teachers come from the upper part of the skill distribution in some countries (Finland and Japan) and from the lower part of the college graduate skill distribution in other countries (Poland and Slovakia). This is an important observation since the position in the overall skill distribution from which countries recruit their teachers can potentially be influenced by policy-makers.

These internationally comparable measures of teacher skills permit new insights into how educational recruitment policies interact with labour market conditions in different countries. It is not just the overall skill levels of a country's college graduates that matter but also where teachers are drawn from the distribution.

This research highlights the role of differences in teachers' cognitive skills in determining differences in student performance across developed countries. Simply put: smarter teachers produce smarter students.

ENDS

The Value of Smarter Teachers: International Evidence on Teacher Cognitive Skills and Student Performance

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