

# **CMRE Research Digest 2015-05 (4)**

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## Editor's Pick

### What Makes an Effective Teacher? Quasi-Experimental Evidence

By: Victor Lavy

**CESifo Economic Studies (forthcoming)**

[Published version](#)

[Working paper version \(free\)](#)

The debate about traditional versus progressive education largely concerns the proper role of teachers in the classroom. With the rise of child-centred teaching methods, teachers have often taken a back seat in the classroom, allowing children to work more by themselves or in groups. The first ever [issue](#) of this research digest reported findings from an evaluation of an ambitious universal school reform in Quebec, which revised teaching practices in the province from traditional approaches in favour of individualised approaches. The evaluators found that the reform had strong negative effects on pupil outcomes in domestic and international assessments among all pupils in the ability distribution.

In a recently published study, Professor Victor Lavy provides new evidence of importance for the debate regarding teaching methods. Exploiting surveys of teaching practices in Israeli primary and middle schools – with practices separated into categories developed in the educational-psychology literature, dating back to Benjamin Bloom – the author analyses longitudinal data at the pupil level. This allows him to (1) hold constant all unobserved characteristics of pupils and schools that do not vary over time and affect both outcomes and pupil allocation, and (2) control for the possibility that teachers adapt their practices to pupils' ability levels. Overall, these features allow for a quasi-experimental analysis of the impact of different teacher practices on outcomes in mathematics, science, Hebrew, and English.

The findings provide important nuances regarding the value of different teaching practices. Overall, traditional teaching with a focus on instilment of knowledge and enhancement of comprehension, via memorisation and homework etc., has the strongest positive effect of four different techniques in terms of absolute effect size. The results imply that an increase in the share of teachers utilising such methods from 0% to 100% improves pupil average outcomes in the four subjects by the equivalent of 79-88 PISA points. This contrasts starkly with the impact of instilling in pupils a capacity for individual study, which has a negative impact or no effect at best. One estimate indicates that increasing the share of teachers using this method from 0% to 100% decreases average outcomes by the equivalent of 41 PISA points.

At the same time, however, the effect of teachers' instilment of analytical and critical skills is positive for pupil attainment. The results imply that increasing the share of teachers using this method from 0% to 100% would raise scores by 52-54 PISA points. However, teaching styles characterising transparency, fairness, and feedback have no effect at all on outcomes. Overall, therefore, while the evidence does not support methods that aim to individualise learning, instilling a capacity for analysis and critical thinking appears to be a modern pedagogical feature that does work.

Intriguingly, when the author analyses heterogeneous effects, the picture becomes even more nuanced. The results indicate that girls especially benefit from traditional teaching, while boys benefit more from the instilment of analytical and critical skills. Encouraging boys to work more independently is also especially damaging: a 100% increase in the share of teachers employing such methods decreases results by the equivalent of 89 PISA points among boys, while the impact is not statistically significant among girls. Similarly, pupils from low socio-economic backgrounds appear to benefit especially from traditional teaching, while being especially hurt by individualised practices, whereas pupils from high socio-economic background benefit more from the instilment of analytical and critical skills, while not being affected at all by individualised practices.<sup>1</sup> While these differences are measured quite imprecisely and therefore should be interpreted with some caution, they certainly indicate that different teaching practices benefit/harm different pupils to different degrees.

Overall, therefore, the paper provides further evidence that teaching-driven methods are good for producing high average cognitive achievement, while more child-centred, individualised practices are harmful. This is troubling since policymakers and teachers worldwide increasingly embrace such methods. For example, Nordic countries have been at the forefront of this development and have simultaneously seen declining results in international assessments, as outlined in a recent [monograph](#) (by the author of this review) about the rise and decline of Finland's educational performance.

However, the paper also provides new evidence indicating that the instilment of critical thinking and skills has positive effects on cognitive achievement, which also deserves attention by policymakers; it is certainly possible to combine this emphasis with knowledge-focused approaches. The fact that different types of pupils benefit from different methods also carries policy implications: it indicates that some sorting of pupils into classrooms/schools may be beneficial on both efficiency and equity grounds – at least if such sorting is accompanied by a simultaneous differentiation of teaching practices.

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<sup>1</sup> The impact of transparency, fairness, and feedback is never statistically significant, but the point estimates indicate that these features may benefit boys and pupils from high socio-economic backgrounds more than girls and pupils from low socio-economic backgrounds.

## Effects of Policy and Practice – Developed World

### **The Effect of Primary School Size on Academic Achievement**

*By: Seth Gershenson and Laura Langbein*

#### **Educational Evaluation and Policy Analysis (May 2015)**

[Published version \(free\)](#)

Evidence on optimal school size is mixed. The authors estimate the effect of transitory changes in school size on the academic achievement of fourth- and fifth-grade students in North Carolina using student-level longitudinal administrative data. Estimates of value-added models that condition on school-specific linear time trends and a variety of teacher-by-school, student, and school-by-year fixed effects suggest that, on average, there is no causal relationship between school size and academic performance. However, two subgroups of interest are significantly harmed by school size: socioeconomically disadvantaged students and students with learning disabilities. The largest effects are observed among students with learning disabilities: A 10-student increase in grade size is found to decrease their math and reading achievement by about 0.015 test-score standard deviations.

### **The Heterogeneity of the ‘Private School Effect’ in Italian Primary Education**

*By: Tommaso Agasisti, Samuele Murtinu, and Piergiacomo Sibiano*

#### **CESifo Economic Studies (forthcoming)**

[Published version](#)

[Working paper version \(free\)](#)

In this study, the authors carry out an empirical investigation on the potential differences in school performance between pupils attending public schools and those attending private schools in the most densely populated region of Italy (Lombardy), employing a new data set of about 77,000 students in the final or fifth year (grade 5) of around 1000 schools. This is the first study analysing the effects of private schooling in primary education in Italy. The analysis uses an Instrumental Variables methodology to test the effectiveness of the voucher plan implemented by the regional government—the Region. The results show that, on average, there is no statistically significant ‘private school effect’. However, when exploring the potential heterogeneity of such effect, the authors did find that attending a private school is associated with higher performance in standardised test scores for two categories of pupils: immigrants and those from a relatively

disadvantaged socio-economic background. From a policy perspective, the authors argue that private schools at primary level can serve disadvantaged pupils better and so help to improve equal opportunities throughout the entire educational system. These results challenge previous evidence about the role of private schooling in the Italian educational system.

### **Immigration and the Human Capital of Natives**

*By: Peter McHenry*

**Journal of Human Resources (Winter 2015)**

[Published version](#)

[Working paper \(free\)](#)

Large low-skilled immigration flows influence both the distribution of local school resources and also local relative wages, which exert counterbalancing pressures on the local return to schooling. In this paper, the author uses the National Education Longitudinal Study (NELS:88) and US Census data to show that low-skilled immigration to an area induces local natives to improve their performance in school, attain more years of schooling, and take jobs that involve communication-intensive tasks for which they (native English speakers) have a comparative advantage. These results point out mechanisms that mitigate the potentially negative effect of immigration on natives' wages.

### **Effectiveness of Four Instructional Programs Designed to Serve English Learners Variation by Ethnicity and Initial English Proficiency**

*By: Rachel Valentino and Sean Reardon*

**Educational Evaluation and Policy Analysis (forthcoming)**

[Published version](#)

[Working paper version \(free\)](#)

This article investigates the differences in academic achievement trajectories from elementary through middle school among English Learner (EL) students in four different instructional programs: English Immersion (EI), Transitional Bilingual (TB), Developmental Bilingual (DB), and Dual Immersion (DI). Comparing students with the same parental preferences but who attend different programs, the authors find that the English Language Arts (ELA) test scores of ELs in all bilingual programs grow at least as fast as, if not faster than, those in EI. The same is generally true of math, with the exception of DB

programs, where average student scores grow more slowly than those of students in EI. Furthermore, Latino ELs perform better longitudinally in both subjects when in bilingual programs than their Chinese EL counterparts. The authors find no differences in program effectiveness by ELs' initial English proficiency.

## Effects of Policy and Practice – Developing World

### **Giving Kids a Head Start: The Impact and Mechanisms of Early Commitment of Financial Aid on Poor Students in Rural China**

*By: Hongmei Yu, Yingquan Song, Chengfang Liu, Xiaoting Huang, Linxiu Zhang, Yunli Bai, Baoping Ren, Yaojiang Shi, Prashant Loyalka, James Chu, and Scott Rozelle*

**Journal of Development Economics (March 2015)**

[Published version \(retrievable\)](#)

The authors estimate the impact of two early commitment of financial aid (ECFA) programs—one at the start and one near the end of junior high school (seventh and ninth grades, respectively)—on the outcomes of poor, rural junior high students in China. The results demonstrate that neither of the ECFA programs has a substantive effect. The authors find that the ninth-grade program had at most only a small (and likely negligible) effect on matriculation to high school. The seventh-grade program had no effect on either dropout rates during junior high school or on educational performance as measured by a standardised math test. The seventh-grade program did increase the plans of students to attend high school by 15%. In examining why ECFA was not able to motivate significant behavioural changes for ninth graders, the authors argue that the competitiveness of the education system successfully screened out poorer performing students and promoted better performing students. Thus by the ninth grade, the remaining students were already committed to going to high school regardless of ECFA support. In regards to the results of the seventh grade program, they show how seventh graders appear to be engaged in wishful thinking (they appear to change plans without reference to whether their plans are realistic).

## General Education

### **Determining Student Satisfaction: An Economic Analysis of the National Student Survey**

*By: Pamela Lenton*

#### **Economics of Education Review (forthcoming)**

[Published version \(free\)](#)

The UK National Student Survey (NSS) represents a major resource, never previously used in the economics literature, for understanding how the market signal of quality in higher education works. In this study, the author examines the determinants of the NSS overall student satisfaction score across eleven subject areas for 121 UK universities between 2007 and 2010. Using a unique panel data set and estimating random effects and fixed effects models, she finds large differences in NSS scores across subjects and across different groups of universities, which implies that the raw scores should not be used as a method of ranking. Additionally, the student-staff ratio and student employability are strong influencers of student satisfaction; both of which suggest that a policy which places emphasis on student support, personal development and employability skills will yield an advantage in the higher education marketplace.

### **Rising Aspirations Dampen Satisfaction**

*By: Andrew Clark, Akiko Kamesaka, and Teruyuki Tamura*

#### **Education Economics (forthcoming)**

[Published version](#)

[Working paper version \(free\)](#)

It is commonly believed that education is a good thing for individuals. Yet, its correlation with subjective well-being is most often only weakly positive, or even negative, despite the many associated better individual-level outcomes. The authors square the circle using novel Japanese data on happiness aspirations. If reported happiness comes from a comparison of outcomes to aspirations, then any phenomenon raising both at the same time will have only a muted effect on reported well-being. They find that around half of the happiness effect of education is cancelled out by higher aspirations, and suggest a similar dampening effect for income.

## **Do the Maths: An Analysis of the Gender Gap in Mathematics in Africa**

*By: Andy Dickerson, Steven McIntosh, and Christine Valente*

**Economics of Education Review (June 2015).**

[Published version \(free\)](#)

This paper uses micro-data for 19 African countries to examine the gender difference in maths test scores amongst primary school children. There is a significant difference in maths test scores in favour of boys, similar to that previously observed in developed countries. This difference cannot be explained by gender differences in school quality, home environment, or within-school gender discrimination in access to schooling inputs. However, the gender gap varies widely with characteristics of the regions in which the pupils live, and these regional characteristics are more predictive of the gender gap than parental education and school characteristics, including teacher gender. At the cross-country level, differences in fertility rates account for nearly half the variation in the gender gap, and this relationship is not due to the correlation between fertility and GDP.