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Editor: Gabriel Heller Sahlgren

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Editor's Pick

Teachers' Pay for Performance in the Long Run: Effects on Students' Educational and Labour Market Outcomes in Adulthood

By: Victor Lavy

[NBER Working Paper No. 20983](#)

In the past decades, policymakers have increasingly sought to alter the external incentive structure in education in order to give actors stronger incentives to improve pupil performance. One important reform in this respect has been to introduce performance pay among teachers. The idea is that teachers historically have had relatively weak incentives to produce generate higher pupil achievement, and that the introduction of various forms of pay for performance could help remedy the situation.

Yet many have also warned that performance pay may be counterproductive for a wide variety of reasons. These include the idea that the introduction of external incentives may crowd out internal motivation, which in turn may mean that pupil achievement would either not be affected or in fact adversely affected by performance pay. Another oft-voiced concern is that incentives induce various forms of gaming, such as teaching to the test, which all aim to improve measured results without a commensurate increase in pupils' human capital. In other words, critics are highly sceptical of the potential for teacher performance pay to raise pupil achievement.

The only way to fully solve this debate is by considering the effects of pay for performance programmes on long-term outcomes that directly measure how well pupils are doing in life. Until now, this has never been done before. In a new paper, however, Professor Victor Lavy investigates a performance pay experiment he designed in Israel, and its effects on long-term outcomes, including university attainment and earnings. The main feature of the programme was an individual-level bonus for teachers based on pupil achievement in the matriculation examinations in Arabic, English, Hebrew, and mathematics in grade 12. The measured outcome was the actual results minus a value predicted by pupil background, the school, and the specific study programme. A positive residual meant that teachers received a bonus: teachers in the top quartile received \$7,500, those in the second quartile received \$5,750, those in the third quartile received \$3,500, and those in the fourth quartile received \$1,750.

Exploiting a specific feature of the programme that induces random variation in the assignment of schools, the author can separate causation from correlation. He finds that pupils who studied under teachers competing for bonuses were 4.3 percentage points more likely to attend university, and completed 0.17 extra

years of university schooling, which represents a remarkable 60 per cent increase compared to the mean among pupils in the control group.

Yet the most fascinating and important finding is that the teacher performance pay programme had large positive effects on earnings about ten years after pupils sat the matriculation exam (when they were aged 28-30). The impact amounts to 7-9 per cent higher earnings compared to the control group, which is a strong effect. Additionally, it reduced the share of pupils who received unemployment benefits by 26 per cent compared to the control group, and decreased the share who received disability benefits by 63 per cent compared to the control group mean. Interestingly, a large share of these effects is indeed due to the impact of the programme on scores on the matriculation examination. There are no effects on employment, marriage, or fertility probabilities.

These findings shed important new light on the role of external incentives in education generally and on teacher performance pay more specifically. They strongly indicate that the dangers of performance-related pay may not be as severe as opponents have argued. Large positive effects on earnings and negative effects on benefits claiming cannot be dismissed as the result of gaming or teaching to the test.

Of course, the design of such programmes is likely to be important. Indeed, most research from developing countries, where researchers have been free to design the programmes, almost always finds positive effects, whereas experiments in America, where programmes have been relatively complex (often because of union involvement in the design) and incentives therefore have been diluted, have often been less successful. Since the teacher performance pay experiment in Israel was straightforward, it is perhaps therefore unsurprising that it was successful at improving long-term life outcomes for children.

The findings are not only relevant for policymakers. As schools in England are now required to base annual salary rises on teacher performance, they too should carefully study the conditions under which performance pay is the most likely to succeed.

Effects of Policy and Practice – Developed World

Choice of Ontario High Schools and its Impact on University Applications

By: *Philip S.J. Leonard*

Education Economics, volume 23

Published version:

<http://www.tandfonline.com/doi/full/10.1080/09645292.2013.856869#abstract>

Working paper version (free):

<https://aefpweb.org/sites/default/files/webform/High%20school%20choice%20and%20university%20applications%20-%20Phil%20Leonard.pdf>

The extent to which increasing students' ability to choose between schools can impact their educational outcomes continues to generate significant research interest. The author takes advantage of the unique context in the province of Ontario, where two publicly funded school systems operate in parallel. He finds a small positive impact of school choice on student applications to university. However, most of the impact is in terms of 'cross-effects'; the most robust finding is that the more Catholic high schools accessible from a neighbourhood, the better the public high schools perform. This is suggestive that one mechanism through which choice affects school outcomes is through competition between public and Catholic school boards.

Are Teacher Assessments Biased? Evidence from Sweden

By: *Erica Lindahl*

Education Economics, forthcoming

Published version:

<http://www.tandfonline.com/doi/abs/10.1080/09645292.2015.1014882#.VRh21EYvf8p>

Working paper version (free):

<http://www.ifau.se/en/Research/Publications/Working-papers/2007/Comparing-teachers-assessments-and-national-test-results---evidence-from-Sweden/>

This study investigates if the probability of being graded up in the school leaving certificates increases if the teacher is of the same gender as the student or if the teacher and the student both have a foreign background. The analysis is based on data on grade 9 students in Mathematics from Sweden. The author finds that

female students and non-native students perform better on national test results if the teacher is of the same gender or also is non-native, respectively. The probability of being graded up is less likely if the student and the teacher are of the same gender.

Disruptive School Peers and Student Outcomes

By: Jannie H. G. Kristoffersen, Morten Visby Kræggpøth, Helena Skyt Nielsen, and Marianne Simonsen

Economics of Education Review, volume 45

Published version:

<http://www.sciencedirect.com/science/article/pii/S0272775715000059>

Working paper version (free): <http://ftp.iza.org/dp8823.pdf>

This paper estimates how peers' achievement gains are affected by the presence of potentially disruptive and emotionally sensitive children in the school-cohort. The authors exploit that some children move between schools and thus generate variation in peer composition in the receiving school-cohort. They identify three groups of potentially disruptive and emotionally sensitive children from detailed Danish register data: children with divorced parents, children with parents convicted of crime, and children with a psychiatric diagnosis. They find that adding potentially disruptive children lowers the academic achievement of peers by about 1.7–2.3% of a standard deviation.

How Learning a Musical Instrument Affects the Development of Skills

By: Adrian Hille and Jürgen Schupp

Economics of Education Review, volume 44

Published version:

<http://www.sciencedirect.com/science/article/pii/S0272775714000995>

Working paper version (free): <http://ftp.iza.org/dp7655.pdf>

Despite numerous studies on skill development, we know little about the effects of extracurricular music activities on cognitive and non-cognitive skills. This study examines how music training during childhood and youth affects the development of cognitive skills, school grades, personality, time use and ambition using data from the German Socio-Economic Panel (SOEP). The authors' findings suggest that adolescents with music training have better school grades, are more conscientious, open and ambitious. These effects are stronger among adolescents from lower socio-economic status. In order to address the non-random selection into playing music, they take into account detailed

information on the child and its parents, which may determine both the decision to pursue music lessons and educational outcomes. While lacking truly exogenous variations in music activities, the results are robust to a large range of sensitivity tests. They argue that they approach causality better than previous observational studies.

Aiming High and Falling Short: California's Eight-Grade Algebra-for-All Effort

By: Thurston Domina, Andrew McEachin, Andrew Penner, and Emily Penner

Educational Evaluation and Policy Analysis, forthcoming

Published version:

<http://epa.sagepub.com/content/early/2014/08/13/0162373714543685.abstract>

Working paper version (free):

<http://sites.uci.edu/tdomina/files/2013/07/Domina-McEachin-Penner-Penner-2014-EEPA-final.pdf>

The United States is in the midst of an effort to intensify middle school mathematics curricula by enrolling more 8th graders in algebra. California is at the forefront of this effort, and in 2008, the state moved to make algebra the accountability benchmark test for 8th-grade mathematics. This article takes advantage of this unevenly implemented policy to understand the effects of curricular intensification in middle school mathematics. Using district-level panel data from all California K–12 public school districts, the authors estimate the effects of increasing 8th-grade Algebra enrolment rates on a 10th-grade mathematics achievement measure. They find that enrolling more students in advanced courses has negative average effects on students' achievement, driven by negative effects in large districts.

Effects of Policy and Practice – Developing World

One Laptop per Child at Home: Short-Term Impacts from a Randomised Experiment in Peru

By: Diether W. Beuermann, Julian Cristia, Santiago Cueto, Ofer Malamud, and Yyannu Cruz-Aguayo

American Economic Journal: Applied Economics, volume 7

Published version:

<https://www.aeaweb.org/articles.php?doi=10.1257/app.20130267>

Working paper version (free):

http://home.uchicago.edu/malamud/HomeComputersPeru_Oct2012.pdf

This paper presents results from a randomized controlled trial whereby approximately 1,000 OLPC XO laptops were provided for home use to children attending primary schools in Lima, Peru. The intervention increased access and use of home computers, with some substitution away from computer use outside the home. Children randomised to receive laptops scored about 0.8 standard deviations higher in a test of XO proficiency but showed lower academic effort as reported by teachers. There were no impacts on academic achievement or cognitive skills as measured by the Raven's Progressive Matrices test. Finally, there was little evidence for spill-overs within schools.

Improving Identification of Demand-Side Obstacles to Schooling: Findings from Revealed and Stated Preference Models in Two SSA Countries

By: Jane Arnold Lincove

[Published version](#)

Efforts to expand primary education have shifted from a policy focus on supply (building schools) to demand-side policies. Human capital theory posits that common demand-side obstacles are high direct costs, opportunity costs, and low perceived benefits – constructs that are difficult to measure empirically. This study compares strategies to estimate obstacles to schooling through revealed and stated preferences using similar household survey data from two Sub-Saharan African countries. The typical determinants of schooling model underestimates demand-side obstacles and gender differences, and additional useful information for theory testing and policy is derived from analysing parents' stated preferences as well.

General Education

Levelling Up: Early Results from a Randomized Evaluation of Post-Secondary Aid

By: Joshua Angrist, David Autor, Sally Hudson, and Amanda Pallais

[NBER Working Paper No. 20800](#)

Does financial aid increase college attendance and completion? Selection bias and the high implicit tax rates imposed by overlapping aid programs make this question difficult to answer. This paper reports on initial findings from a randomized evaluation of a large privately-funded scholarship program for applicants to Nebraska's public colleges and universities. The authors' research design answers the challenges of aid evaluation with random assignment of aid offers and a strong first stage for aid received: randomly assigned aid offers increased aid received markedly. This in turn appears to have boosted enrolment and persistence, while also shifting many applicants from two- to four-year schools. Awards offered to non-white applicants, to those with relatively low academic achievement, and to applicants who targeted less-selective four-year programs (as measured by admissions rates) generated the largest gains in enrolment and persistence, while effects were much smaller for applicants predicted to have stronger post-secondary outcomes in the absence of treatment. Thus, awards enabled groups with historically low college attendance to 'level up', largely equalising enrolment and persistence rates with traditionally college-bound peers, particularly at four-year programs. Awards offered to prospective community college students had little effect on college enrolment or the type of college attended.

Immigration and the Human Capital of Natives

By: Peter McHenry

Journal of Human Resources, volume 50

Published version: <http://jhr.uwpress.org/content/50/1/34.abstract>

Working paper version (free): <http://www.sole-jole.org/13085.pdf>

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. The author uses the National Education Longitudinal Study and U.S. 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.