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Editor: Gabriel Heller Sahlgren

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Editor's Pick

The Effects of School Finance Reforms on the Distribution of Spending, Academic Achievement, and Adult Outcomes

NBER Working Paper No. 20118

http://socrates.berkeley.edu/~ruckerj/Jackson_Johnson_Persico_SFR_LRImpacts.pdf

By: C. Kirabo Jackson, Rucker Johnson, and Claudia Persico

The question about whether increased school resources have positive effects on children's attainment is one of the most debated in both education policy circles and the academic community. Yet it is a very difficult question to study. Simple correlations between resources and attainment are likely to be biased, but the direction of the bias is not clear-cut. For example, if more motivated parents, with more high-achieving children, seek out school districts where spending is higher, it is likely that there is a 'false' positive association between resources and attainment. However, in most countries, education spending tends to be compensatory in a way that ensures that pupils from lower socio-economic background, who tend to have the lower attainment, are given more resources. And if lower-achieving children get more resources, we should not be surprised by a lack of correlation between resources and attainment – or even by a negative correlation between the two variables. For this reason, rudimentary analyses such as this [one](#), published by the think tank Reform in 2013, are unable to tell us much at all about whether resources 'matter'. Instead, we need much better methodology to separate causation from correlation.

In a new study, economists C. Kirabo Jackson, Rucker Johnson, and Claudia Persico provide a rigorous analysis of whether resources matter. The authors analyse reforms across American states, implemented at different times, which attempted to produce a more equitable resource allocation between school districts. This means that some districts increased the amount of school funding much faster than others.¹ The authors analyse a sample of pupils across America who went to school during the period 1967-2010 in order to figure out how they were affected by certain court-ordered reforms that changed the resource allocation across districts. By doing so, they can pick up the causal effect of changes in spending on pupil outcomes.

The results suggest that a 20% increase in resources during pupils' entire schooling career increases the likelihood that pupils graduate from upper-secondary school by 17% and the number of years of total schooling by 6%. At

¹ Since the level of school spending in America for long depended on taxes raised from properties, a peculiar feature of its education system is that pupils from higher socio-economic backgrounds traditionally have received more education resources than those from lower socio-economic backgrounds.

the same time, there are *no* positive effects on average salaries, family income, or the probability that pupils fall into poverty later in life. This suggests that the resource expansions that occurred because of court-ordered reforms were not cost effective on average.

But the impact differs between poor and non-poor pupils. In fact, there is no effect at all among non-poor pupils, either on economic outcomes or the academic outcomes described above. Instead, there are signs that non-poor pupils educated during periods when education resources are higher have *lower* salaries and family incomes, although this effect is not statistically significant on average. Since the negative impact grows over time, it is nevertheless possible that the average effect hides a statistically significant impact in the long term. Among non-poor pupils, therefore, more education resources appear to be meaningless in a long-term perspective – and they may even be harmful. This is a remarkable result since the authors analyse effects of increased spending during pupils' entire schooling career.

Yet the authors find positive effect on long-term economic outcomes among poor pupils. The results indicate that a 20% increase in resources generates a 29% higher probability of graduating from upper-secondary school and a 7% increase in the number of years of schooling among poor pupils. Meanwhile, the same resource increase generates a 24.6% increase in poor pupils' salaries, a 52.2% increase in their family incomes, and a 19.7 percentage point decrease in the probability that they fall into poverty later in life. These are important and economically meaningful effects. As the authors note, however, the level of education resources was about 50% of what it is today, indicating that much higher resource increases would be required to achieve the same effects today.

However, it is unclear why the positive effects on poor pupils' economic outcomes appear. We know from other research, discussed in a previous issue of this research digest, that higher resources among poor pupils may increase grade inflation. Since upper-secondary school graduation in America has historically depended on grades from teacher assessment, without any external moderation, it is possible that the spending increases caused grade inflation – which in turn may have given advantages to the poor pupils who were exposed to them. The positive economic effects among poor pupils could then result from the fact that they graduated from upper-secondary school *as a result of grade inflation* – and thus be produced by a so-called 'signalling effect' rather than a 'human capital effect'. A signalling effect may occur if employers assume that pupils who graduate from upper-secondary school (or have higher grades than other pupils) perform better than those who do not, and thus award the former with higher salaries even if they do not necessarily perform better. On the other hand, a human capital effect occurs if pupils who graduate from upper-secondary school (or have higher grades than other pupils) indeed do perform better than those who do not, which should be reflected in salary differences.

The fact that there are no average effects on salaries or incomes supports the thesis that the results can be explained by signalling effects rather than human capital effects. The signs of negative effects on salaries and incomes among non-poor pupils support it too. Overall, therefore, the reforms appear to have produced a zero-sum game in terms of pupils' long-term economic outcomes. Of course, the signalling impact is important for the pupils who benefit from it, but by definition it also means that other pupils lose out.

Finally, of course, even if human capital effects were to explain the positive effects among poor pupils, it would be a waste of money to increase school spending through universal, untargeted reforms. Instead, the results should be interpreted as evidence that resources *may* matter among poor pupils under certain circumstances, but that other pupils may have to pay for it. So the policy lesson is clear: do not expect that universal increases in school spending are a cost-effective way to improve pupil outcomes in general.

Effects of Policy and Practice – Developed World

Human Capital Effects of Anti-Poverty Programs: Evidence from a Randomized Housing Voucher Lottery

NBER Working Paper No. 20178

<https://www.povertyactionlab.org/es/publication/human-capital-effects-anti-poverty-programs-evidence-randomized-housing-voucher-lottery>

By: Brian Jacob, Max Kapustin, and Jens Ludwig

Whether government transfer programs increase the human capital of low-income children is a question of first-order policy importance. Such policies might help poor children if their parents are credit constrained, and so underinvest in their human capital. But it is also possible that whatever causes parents to have low incomes might also directly influence children's development, in which case transfer programs need not improve poor children's long-term life chances. While several recent influential studies suggest anti-poverty programs have larger human capital effects per dollar spent than do even the best educational interventions, identification is a challenge because most transfer programs are entitlements. The authors overcome that problem by studying the effects on children of a generous transfer program that is heavily rationed—means-tested housing assistance. They take advantage of a randomised housing voucher lottery in Chicago in 1997, for which 82,607 people applied, and use administrative data on schooling, arrests, and health to track children's outcomes over 14 years. We focus on families living in unsubsidised private housing at baseline, for whom voucher receipt generates large changes in both housing and non-housing consumption. Estimated effects are mostly statistically insignificant and always much smaller than those from recent studies of cash transfers, and are smaller on a per dollar basis than the best educational interventions.

The Impact of Community Schools on Student Dropout in Pre-vocational Education

Economics of Education Review (Volume 41, August 2014)

<http://www.sciencedirect.com/science/article/pii/S0272775714000545>

http://www.tierweb.nl/assets/files/UM/TIER_WP%2012-08.pdf

By: Marieke Heers, Chris Van Klaveren, Wim Groot, and Henriëtte Maassen van Brink

Dropout prevention is highly ranked on the political agenda in many countries. It remains unclear, however, how dropout can be effectively reduced, as many different factors determine student dropout. Community schools recognise this and aim to modernise education such that it better accommodates pupils' personal needs. As a result, these schools cooperate more with external organisations, stimulate parental involvement in the educational process, and organise more extracurricular activities. This study examines the impact of Dutch community schools on student dropout. It focuses in particular on pre-vocational education, because dropout is particularly high in this educational track. Moreover, the focus is on the city of Rotterdam because this city is a frontrunner in the Netherlands in establishing community schools. Use is made of unique registration data on all Rotterdam students who were enrolled in pre-vocational education between 2004 and 2008. The impact of community schools is identified by exploiting the fact that community schools were not created before the beginning of the school year 2006/2007. This enables us the authors estimate the community school impact by means of a difference-in-differences estimation model combined with an iterative matching approach. The estimation results suggest that community schools are as effective as regular schools with respect to dropout reduction. Community school subsidies do not seem to contribute to reducing dropout.

Flaking Out: Student Absences and Snow Days as Disruptions of Instructional Time

NBER Working Paper No. 20221

<http://scholar.harvard.edu/files/joshuagoodman/files/absences.pdf>

By: Joshua Goodman

Despite the fact that the average American student is absent more than two weeks out of every school year, most research on the effect of instructional time has focused not on attendance but on the length of the school day or year. Student and school fixed effects models using Massachusetts data show a strong relationship between student absences and achievement but no impact of lost instructional time due to school closures. The author confirm those findings in instrumental variables models exploiting the fact that moderate snowfall induces student absences while extreme snowfall induces school closures. Prior work ignoring this non-linearity may have misattributed the effect of absences to such snow days. Each absence induced by bad weather reduces math achievement by 0.05 standard deviations, suggesting that attendance can account for up to one-fourth of the achievement gap by income. That absences matter but closures do not is consistent with a model of instruction in which coordination of students is the central challenge, as in Lazear (2001). Teachers appear to deal well with coordinated disruptions of instructional time like snow days but deal poorly with disruptions like absences that affect different students at different times.

Effects of Policy and Practice – Developing World

Incentives for Teacher Relocation: Evidence from the Gambian Hardship Allowance

Economics of Education Review (Volume 41, August 2014)

(<http://www.sciencedirect.com/science/article/pii/S0272775714000429>)

(http://oregonstate.edu/dept/econ/sites/default/files/pugatchschroeder_hardship_aug2013.pdf)

By: Todd Pugatch and Elizabeth Schroeder

This study evaluates the impact of the Gambian hardship allowance, which provides a salary premium of 30–40% to primary school teachers in remote locations, on the distribution and characteristics of teachers across schools. A geographic discontinuity in the policy's implementation and the presence of common pre-treatment trends between hardship and non-hardship schools provide sources of identifying variation. The authors find that the hardship allowance increased the share of qualified (certified) teachers by 10 percentage points. The policy also reduced the pupil–qualified teacher ratio by 27, or 61% of the mean, in recipient schools close to the distance threshold. Further analysis suggests that these gains were not merely the result of teachers switching from non-hardship to hardship schools. With similar policies in place in more than two dozen other developing countries, the study provides an important piece of evidence on their effectiveness.

General Education

Human Capital and Industrialization: Evidence from the Age of Enlightenment

NBER Working Paper No. 20219

(http://www.anderson.ucla.edu/faculty/nico.v/Research/Encyclopedie_latest.pdf)

By: Mara P. Squicciarini and Nico Voigtländer

While human capital is a strong predictor of economic development today, its importance for the Industrial Revolution is typically assessed as minor. To resolve this puzzling contrast, the authors differentiate average human capital (worker skills) from upper tail knowledge both theoretically and empirically. They build a simple spatial model, where worker skills raise the local productivity in a given technology, while scientific knowledge enables local entrepreneurs to keep up with a rapidly advancing technological frontier. The model predicts that the local presence of knowledge elites is unimportant in the pre-industrial era, but drives growth thereafter; worker skills, in contrast, are not crucial for growth. To measure the historical presence of knowledge elites, the authors use city-level subscriptions to the famous Encyclopédie in mid-18th century France. They show that subscriber density is a strong predictor of city growth after 1750, but not before the onset of French industrialisation. Alternative measures of development confirm this pattern: soldier height and industrial activity are strongly associated with subscriber density after, but not before, 1750. Literacy, on the other hand, does not predict growth. Finally, by joining data on British patents with a large French firm survey from 1837, we provide evidence for the mechanism: upper tail knowledge raised the productivity in innovative industrial technology.

The Career Prospects of Overeducated Americans

NBER Working Paper No. 20167

(www.amaurel.net/IMG/pdf/CJM_0514.pdf)

By: Brian Clark, Clément Joubert, and Arnaud Maurel

In this paper, the authors analyse career dynamics for the large share of U.S. workers who have more schooling than their peers in the same occupation. They use data from the NLSY79 combined with the CPS to analyse transitions into and out of overeducated employment, together with the corresponding effects on wages. Overeducation is a fairly persistent phenomenon at the aggregate and individual levels, with 66% of workers remaining overeducated after one year.

Overeducation is not only more common, but also more persistent among blacks and individuals with low scores on the Armed Forces Qualification Test. Further, the hazard rate out of overeducation drops by about 60% during the first 5 years spent overeducated. However, the estimation of a mixed proportional hazard model suggests that this is attributable to selection on unobservables rather than true duration dependence. Finally, overeducation is associated with lower current as well as future wages, which points to the existence of scarring effects.