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Editor: Gabriel Heller Sahlgren

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Editor's Pick

Early Childhood Education by Massive Open Online Courses: Lessons from Sesame Street

By: Melissa S. Kearney and Phillip B. Levine

NBER Working Paper No. 21229

[Free version](#)

Expansions of early childhood education have become a popular intervention to improve outcomes. While the effectiveness of such interventions is a hotly debated topic, little research exists on indirect interventions outside the formal education system. The introduction of Sesame Street in 1969 on public television in America is an example of such an intervention, which aimed to decrease the educational gap between advantaged and disadvantaged children arising from differences in their pre-school environment. In this sense, the show was also the first example of electronic transmission of educational material, in many ways similar to the open online courses in higher education that have expanded rapidly in the past decade. In comparison with traditional early childhood education programmes, these types of interventions are also very cheap, therefore offering a potentially cost-effective tool to raise attainment and life chances among underprivileged children.

In this paper, economists Melissa Kearney and Phillip Levine analyse the long-term effects of the introduction of Sesame Street. In order to separate causation from correlation, they exploit limitations in TV technology, which limited access to the show when it was first introduced. This was because the programme tended to air on public television stations that used a specific frequency, which many TVs could not handle. The authors therefore use the distance to the closest television tower that broadcasted Sesame Street and an indicator for which frequency it utilised to predict access to the show. The idea is that since the locations of television towers and the channels they were assigned were decided by the federal regulator years before Sesame Street, they should not have an independent effect on outcomes after the programme started. By simultaneously comparing the impact on people who were 6 years or younger relative to individuals who were older when the programme began – the programme was explicitly targeting pre-school aged children – the authors argue that they are able to obtain causal effects.

Because the authors focus on *access* to Sesame Street, not actual viewership, they are also able to obtain policy-relevant conclusions. This is because while policymakers can't force children to watch the show, which clearly would be viewed as an unacceptable intrusion, they can influence viewership by improving coverage rates. For policy purposes, the question whether access

affects educational attainment is of greater relevance than whether actual viewership does.

Intriguingly, the authors find that Sesame Street had positive effects on 'grade-for-age' status, an indicator whether children progress at a normal pace through school without grade retention. The effect size implies that an increase in coverage rates by 30 percentage points generates a 2.9 percentage point increase in the share progressing on a normal pace through school. Moreover, the effect is considerably stronger among boys, African-American children, and children growing up in disadvantaged areas. Remarkably, these effects are fully comparable with the impact of Head Start, a traditional early education intervention programme in America.

While the authors find no consistent impact on longer-term educational outcomes, there is evidence that having access to Sesame Street also increased the probability of being employed and decreased the probability of being in poverty in 2000, although the effects are quite small. Nevertheless, this gives some indication that the short-term effects of the show may also translate into better prospects later in life.

Overall, the introduction of Sesame Street therefore accomplished its goal to prepare children for school entry, and especially among disadvantaged children. Since it cost merely £3 per child (in today's value), it was certainly a cost-effective way to do so. While the longer-term effects are somewhat unclear, the positive impact on employment and non-poverty, albeit small, should be seen in this light.

Certainly, it is unclear whether the introduction of similar TV shows today (or in other regions) would have the same effect – the effect of the first educational TV show ever in mid-20th century America can't be extrapolated to other contexts. Nevertheless, since expanding access to electronic educational content is generally considerably cheaper than traditional interventions, it would be useful to trial similar programmes in today's context and with today's technology. Clearly, such expansions have the potential to be an extremely cost-effective supplement to, or integrated tool in, formal schooling.

Effects of Policy and Practice – Developed World

On the causal effects of selective admission policies on students' performances: evidence from a quasi-experiment in a large Italian university

By: Vincenzo Carrieri, Marcello D'Amato, and Roberto Zotti

Oxford Economic Papers (forthcoming)

[Published version](#)

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Using a difference-in-differences approach, the authors exploit a quasi experiment occurred in a large public university located in southern Italy to examine whether the introduction of a selective admission test affects students' performances. The analysis on this unique data set shows that a change of regime to a restrictive admission policy reduces the drop-out rate of first-year students by about 14 percentage points, increasing their grade point average (GPA) by 0.78 point. In addition to the increase in average quality of admitted students, the results suggest that positive effects of an admission policy change largely operate through the impact of a better quality of social interactions at class level on the average individual performances. Results are robust to several checks. Compared with other studies using a similar approach, the authors' results provide evidence that selective admission policies can induce different educational outcomes in diverse geographic areas of the same national system of higher education.

School Desegregation and Teenage Fertility

By: Robert Bifulco, Leonard M. Lopoo, and Sun Jung Oh

Educational Evaluation and Policy Analysis (forthcoming)

[Published version](#)

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

The school desegregation efforts following the historic *Brown v. Board of Education* decision represent one of the most important social policy initiatives of the 20th century. Despite a large research literature that shows many positive effects of desegregation on educational outcomes, its effect on the lives of individuals outside of the educational domain are still not fully understood. In this article, the authors examine the effects of desegregation on the fertility of teenagers. In contrast to previous findings, their analysis suggests that

desegregation did not reduce the fertility of non-White teens, and, if it had any effect at all, it likely increased birth rates among non-White teens in counties with small to average-sized non-White populations.

Growing the Roots of STEM majors: Female Math and Science High School Faculty and the Participation of Students in STEM

By: Martha Cecilia Bottia, Elizabeth Stearns, Roslyn Arlin Mickelson, Stephanie Moller, and Lauren Valentino

Economics of Education Review (volume 45, 2015)

[Published version](#)

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

The underrepresentation of women in science, technology, engineering, and mathematics (STEM) fields is problematic given the economic and social inequities it fosters and the rising global importance of STEM occupations. This paper examines the role of the demographic composition of high school faculty—specifically the proportion of female high school math and science teachers—on college students’ decisions to declare and/or major in STEM fields. We analyse longitudinal data from students who spent their academic careers in North Carolina public secondary schools and attended North Carolina public universities. Our results suggest that although the proportion of female math and science teachers at a school has no impact on male students, it has a powerful effect on female students’ likelihood of declaring and graduating with a STEM degree, and effects are largest for female students with the highest math skills. The estimates are robust to the inclusion of controls for students’ initial ability.

Effects of Policy and Practice – Developing World

Public Education Spending and Private Substitution in Urban China

By: Cheng Yuan and Lei Zhang

Journal of Development Economics (volume 115, 2015)

[Published version](#)

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

This paper documents robust evidence that increases in public spending on basic education are associated with significant reductions in household private tutoring spending in urban China. This reduction comes primarily from the top and bottom income households, suggesting multi-dimensional demands for private tutoring. It concentrates on households with an only boy and is larger for middle-school than primary-school children. Increases in public education spending are associated with significant reduction in school tuition, which is homogeneous across households of different income levels. Changes in household spending on textbooks in response to more public education spending are modest but statistically insignificant.

The Effectiveness of an Early-Grade Literacy Intervention on the Cognitive Achievement of Brazilian Students

By: Leandro Oliveira Costa and Martin Carnoy

Educational Evaluation and Policy Analysis (forthcoming)

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

Beginning in 2007, the Literacy Program at the Right Age (Pacto pela Alfabetização na Idade Certa [PAIC]) in Brazil's Ceará state required municipal schools to implement a tiered, whole-school early-grade literacy intervention. This intervention was complemented by other policies to help municipalities improve student achievement. The present study identifies PAIC's impact using a triple-difference analysis (Difference-in-Difference-in-Difference [DDD] approach) that relies on comparisons of the test-score changes in Ceará and bordering states and for grades and schools treated and not treated by the literacy program since 2007. The results show that PAIC had a positive effect on student achievement in both Portuguese and mathematics, but that it did not help reduce the gap between students who had or had not participated in early childhood education.

General Education

Can You Leave High School Behind?

By: Sandra E. Black, Jane Lincove, Jennifer Cullilane, and Rachel Veron

Economics of Education Review (volume 26, 2015)

[Published version](#)

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

In recent years, many states, including California, Texas, and Oregon, have changed admissions policies to increase access to public universities for students from lower socioeconomic backgrounds. A key concern, however, is how these students will perform. This paper examines the relationship between high school quality and student success in college. Using administrative data from the University of Texas at Austin, the authors take advantage of the unique policy environment provided by Texas's Top 10% automatic admissions law, which has not only increased the diversity of high schools in the state that send students to the university, but also provides an admission criteria based on a sole observable characteristic: high school class rank. They find that high school characteristics do affect student performance, and these effects seem more pronounced for women and low-income students. In addition, there is little evidence that the effects of high school characteristics decay over students' time in college.

Socio-Economic Status and Enrolment in Higher Education: Do Costs Matter?

By: Koen Declercq and Frank Verboven

Education Economics (forthcoming)

[Published version](#)

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

The authors study the impact of socio-economic status on enrolment and study decisions in higher education. They use a discrete choice approach to distinguish between three channels. First, students from disadvantaged backgrounds may be more sensitive to the costs of education. Second, they may have lower preferences for education. Third, they may have developed less academic ability during previous schooling and are therefore less likely to participate. The authors apply their analysis to Flanders, where tuition fees are low and all high school graduates have access to higher education. They control for unobserved heterogeneity and find that preferences and (acquired) ability are more

important than cost sensitivity in explaining the lower enrolment of disadvantaged students. Finally, they use the cost sensitivity channel to simulate the impact of tuition fee increases. They find that a uniform tuition fee increase has a fairly small impact on total enrolment, but it especially reduces enrolment of socially disadvantaged students. An alternative discriminatory policy, which combines a higher tuition fee increase for advantaged students with a lower tuition fee increase for disadvantaged students, can be superior: it generates the same budgetary savings, has a lower impact on total enrolment and reduces the participation gap of disadvantaged students.

Mothers' Employment and Children's Educational Gender Gap

By: Xiaodong Fan, Hanming Fan, and Simen Markussen

NBER Working Paper No. 21183

[NBER version](#)

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

This paper analyses the connection between two concurrent trends since 1950: the narrowing and reversal of the educational gender gap and the increased labour force participation rate (LFPR) of married women. The authors hypothesise that the education production for boys is more adversely affected by a decrease in the mother's time input as a result of increasing employment. Therefore, an increase in the labour force participation rate of married women may narrow and even reverse the educational gender gap in the following generation. They use micro data from the Norwegian registry to directly show that the mother's employment during her children's childhood has an asymmetric effect on the educational achievement of her own sons and daughters. They also document a positive correlation between the educational gender gap in a particular generation and the LFPR of married women in the previous generation at the US state level. They then propose a model that generates a novel prediction about the implications of these asymmetric effects on the mothers' labour supply decisions and find supporting evidence in both the U.S. and Norwegian data.