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Article

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He is an NBER research associate, a program director at the Canadian Institute for Advanced Research, and co-chair of the education sector at the Abdul Latif Jameel Poverty Action Lab. He has held visiting appointments at Harvard University and the Massachusetts Institute of Technology, and is a member of the board of editors of the *Journal of Labor Economics*.

Oreopoulos' current work focuses on education policy, especially the application of behavioral economics to education and child development. He often examines this field by initiating and implementing large-scale field experiments, with the goal of producing convincing evidence for public policy decisions.

Behavioral Barriers to Education

Philip Oreopoulos

Research in the economics of education has devoted much attention to the role of external factors, such as teacher quality, class size, curriculum, peers, financial constraints, and parental investments in determining students' development. Students' own role in their development has received comparatively less attention. This is perhaps due to the assumption from the traditional human capital model that students always do the best they can when making decisions about how much to study or how hard to work. In this investment framework, students carefully weigh immediate costs against long-term uncertain benefits to maximize lifetime well-being.

Clearly this process does not adequately describe the behavior of a six-year-old, who must be delicately persuaded to go to school, practice violin, or try addition. An elementary-school student's brain is simply not yet sufficiently developed to execute plans for the future. But over time and with experience, a remarkable neural circuitry expansion and pruning process occurs that makes it possible to hold information in mind before deciding what to do with it. With age, children gradually come to think about the future more. Impulses, feelings, and distractions can be held in check before making a choice. This process can take 25 years to mature, though our tendency to focus on the present or what's salient never fully disappears.

The emerging field of behavioral economics attempts to integrate these tendencies and others identified by research from psychology and sociology in order to better understand individual decision making and consider economic implications. While classical economics often assumes that individuals always make correct short- and long-run trade-offs (*ex ante*), behavioral eco-

nomics does not. The field often explores consequences of myopia or lack of salience for decisions related to savings, finance, and health. Education represents a relatively new application of the field, one that seems particularly promising. Indeed, it is hard to imagine a group more challenged by short- and long-term trade-offs than children facing school-related decisions.

In a series of research studies, my co-authors and I have explored this topic using a range of methodologies. This research summary briefly describes our work and points to future possibilities. A more detailed introduction to the topic of behavioral barriers to education is provided in a review article I co-wrote with Adam Lavecchia and Heidi Liu last year.¹

Compulsory Schooling

Compulsory schooling policies that place constraints on when students may start or finish school are not easily justified from a human capital investment model in the absence of positive externalities. Instead they are usually motivated by the belief that children are too short-sighted.

Consider the attitude of former British Prime Minister David Cameron, speaking in 2003 on why he favored raising the school-leaving age to 18: "Think about it: with your children, would you dream of just leaving them to their own devices, not getting a job, not training, nothing? No — you'd nag and push and guide and do anything to get them on their way... and so must we."

Many studies have used legal constraints as instrumental variables to estimate returns to schooling. Some, though not all, find substantial improvements to annual income, health, and other measures of socioeconomic

success.² I have argued that even a 7 percent expected increase in lifetime wealth from an extra year of school would be hard to turn down under the human capital investment model. Present bias, combined with a strong distaste for school, seems a more plausible explanation of failure to undertake such investment.³

Compulsory schooling's effectiveness is not only from forcing students to stay in school. Closer examination reveals that these policies more often serve to drive expectations and adults' efforts to encourage youth to stay in class. Truant students are given more attention. They or their parents are often first contacted by teachers, principals, or caseworkers in an effort to reengage the students and address reasons behind their truancy.

Adding School Structure and Support

Lavecchia, Robert Brown, and I provide additional evidence that the approach of addressing students' immediate distaste for school by offering more structure and support can be effective.⁴ "Pathways to Education" is a comprehensive youth support program developed to improve academic outcomes among those entering high school from very poor socioeconomic backgrounds. The program includes proactive mentoring of each student, daily tutoring, group activities, career counseling, and college transition assistance, combined with immediate and long-term incentives to reinforce a minimum degree of mandatory participation. The program began in 2001 for students entering Grade 9 and living in Regent Park, the largest public housing project in Toronto. It expanded in 2007 to include two additional Toronto

housing projects. In all three locations, participation rates quickly rose, to more than 85 percent, even though parents and students were required to commit in writing to the conditions and high expectations of the program. High school graduation and post-secondary enrollment rates rose dramatically for Pathways students, in some cases by more than 50 percent, in comparisons with students from other housing projects before and after introduction of the program [Figure 1].

Offering Financial Incentives to Offset Immediate Costs

In experiments I conducted with Joshua Angrist, Daniel Lang, and Tyler Williams, we offered large short-term monetary rewards for academic performance in an attempt to offset families' immediate costs and make possible larger lifetime gains.⁵ Similar to other attempts to improve grades and retention, results were mixed and overall not

group, women who were offered both the scholarship and services performed better in both their first and second years, even though the program occurred only in the first year.

But we were not able to replicate this general result in the second experiment when we tried to improve results by making the monetary incentives stronger, linear (starting with grades of 70 percent and increasing), shorter-term (awarded at the end of each semester), and more focused, awarding them for each course (rather than overall GPA). Treatment effects were small and mostly insignificant. Thus far, offering immediate incentives to offset immediate costs appears to deliver at most modest increases in student performance, but considerable latitude exists in designing such programs. It is possible that alternative designs, with different incentives, different target populations, or focusing on specific inputs (like reading) instead of outputs (like grades) could prove worthwhile.

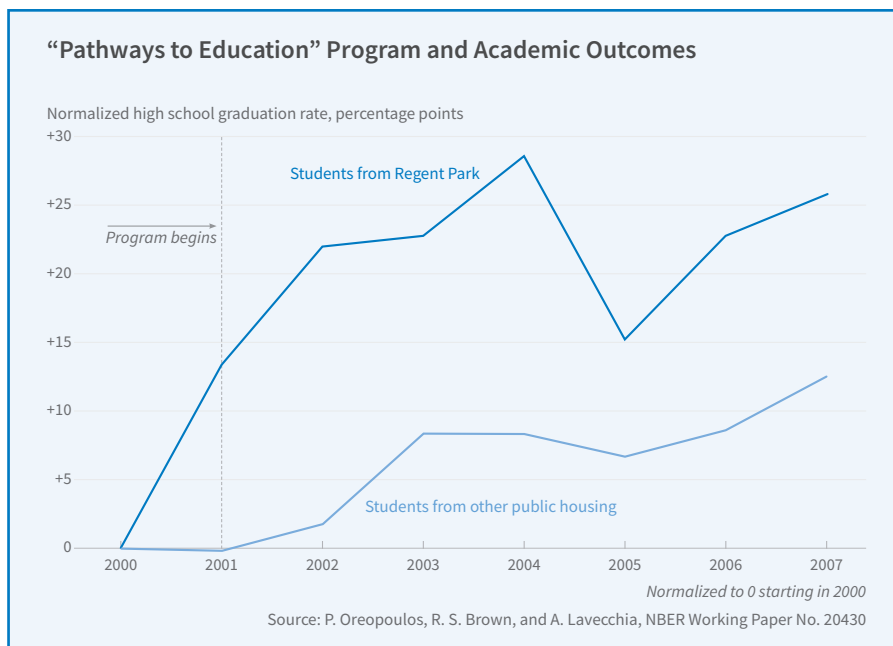


Figure 1

very promising.

In the first study, first-year college students were offered \$1,000 to \$5,000 for attaining solid, but not necessarily top, grades. Others were offered access to additional student services. A third group was offered both. Relative to the control

Helping Complete College Applications

The transition from high school to college involves many small steps: considering where and how to go, completing each program application and paying each fee, applying for financial aid, deciding what program and courses to take, and figuring out one's new daily routine. These costs are often perceived as "too small to matter" in the traditional investment

model. From a behavioral perspective, application processes can often get in the way of take-up and realization of benefits. Actions that require taking time out of our routine, that are complex and without social support, and whose benefits are very long-term and uncertain are tempt-

ing to put off.

Eric Bettinger, Bridget Long, Lisa Sanbonmatsu, and I partnered with H&R Block to provide assistance completing the Free Application for Federal Student Aid (FAFSA) to low-income parents visiting H&R Block who had children in their senior year in high school.⁶ Much of the information called for in the application is collected in the process of completing the annual tax form. Guiding parents through the remaining questions needed to complete the FAFSA took only about 10 minutes. The children of parents who were randomly offered this service were 16 percentage points more likely to apply to college and 8 percentage points more likely to attend and stay enrolled for at least two years. The intervention is among the most cost-effective ever tested for increasing college enrollment of children from low-income families.

The FAFSA study's intervention, however, only helped with one component of the transition to college. Applicants still had to determine which colleges and programs to apply to. They still had to pay program application fees and register for courses, and only children of parents visiting H&R Block were affected. To explore a more scalable program which offered assistance for both financial aid and program applications as part of high school seniors' curriculum, Reuben Ford and I created a program called LifeAfterHighSchool.⁷ The program provided all seniors at low-transition high schools with in-class assistance over three 50-minute workshops. The first workshop encouraged students to consider local post-secondary programs that they could get into based on their high school grades and pro-

vided a simple financial aid calculator to demonstrate how they could afford to attend. The second had students apply for real to colleges or universities, with the application fees covered from cutting and pasting the application number to the LifeAfterHighSchool website. The third workshop helped students open and get started on the Ontario Student Assistance

more continuous actions, such as studying. Can we apply insights from this literature to encourage better habits or influence social identity? To begin to explore these issues, I created the Student Achievement Lab (SAL) at the University of Toronto. All students taking first-year economics courses are asked to take an online warm-up exercise for a small grade requirement. After registering an account and taking a short survey, they are randomized into groups; some are asked to think about potential obstacles likely to be encountered during the school year and given advice in how to cope, while others are invited to receive follow-up, either in person or by text. The setup and large representative sample offer a promising method for collecting detailed quantitative and qualitative data, trying various experiments, and iterating on those that

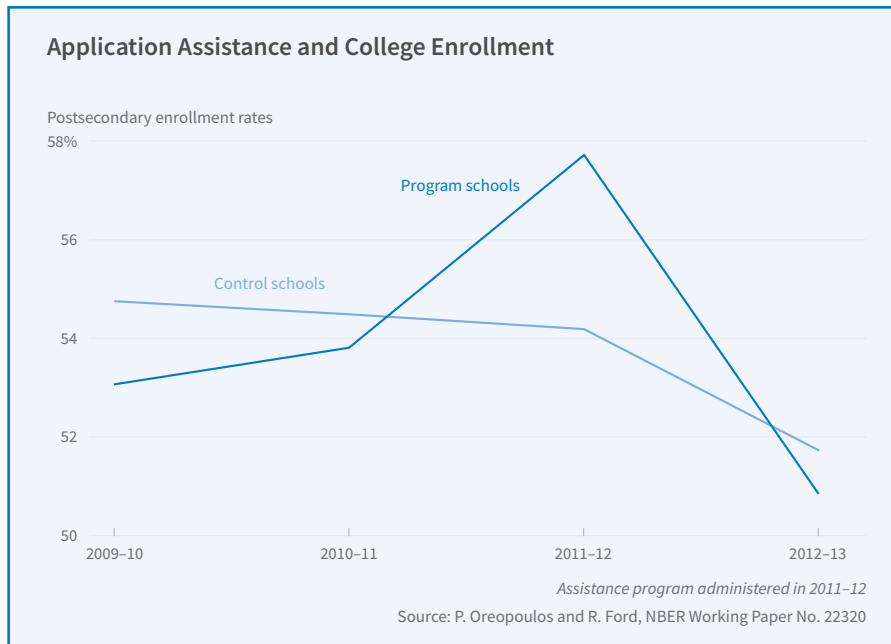


Figure 2

Program application and sent follow-up emails and letters to parents with instructions to complete the task. For students at low-transition schools that were randomly provided assistance through LifeAfterHighSchool, post-secondary application rates increased from 64 to 78 percent, while enrollment increased the following school year by 5 percentage points [Figure 2]. The greatest impact was for students who were not taking any university-track courses in their last year of high school: their enrollments increased 9 percentage points.

Leveraging Technology to Advise and Motivate Students

Simplification or salient reminders are often effective approaches to tackling behavioral biases that discourage one-time actions like completing an application. They are less effective for influencing

work best.

In one SAL experiment, Uros Petronijevic and I examine three specific interventions against a comparison group that is assigned a simple personality test instead.⁸ The treatment group receives: 1) A one-time, online exercise designed to affirm students' goals and purpose for attending university; 2) the online intervention plus text and email messaging throughout the full academic year (students can communicate back); and 3) the online intervention plus one-on-one engagement with upper-year undergraduate students who act as coaches and try to meet weekly.

Overall, we find large positive effects from the coaching program, amounting to approximately a 35 percent increase in average course grades. In contrast, we find no effects on academic outcomes from either the online exercise or the text messaging campaign, even after investigat-

ing potentially heterogeneous treatment effects across several student characteristics, including gender, age, incoming high school average, international-student status, and whether students live on campus.

Our results suggest that the benefits of coaching are not easily replicated without a personal touch. They do point to possible directions for future interventions. One of my current projects tries to customize advice provided to students based on their own perceptions of why “students like them” struggle. It also explores the potential for providing more personalized coaching through text, making it possible to reach out to a larger number of students compared to having to meet one-on-one.

Summary

My father used to quote Aristotle to me whenever I complained about homework, reminding me that “The roots of education are bitter, but the fruit is sweet.” This long-run and uncertain trade-off remains one of the biggest struggles when growing up. It is difficult to imagine, for example, how an extra evening’s worth of homework is really worth it against the much more tempting option of watching Netflix or going out. We all struggle with tendencies to procrastinate or focus on what is top of the mind.

The good news is that these behavioral barriers point to ways to help. Opportunities exist to simplify applications, provide more structure, remind students of educational opportunities, and

motivate them to want to learn. But context, population, timing, and details are also all crucial. We are far from understanding a student’s own role in her production of human capital; this research highlights reasons for trying.

¹ A. Lavecchia, H. Liu, and P. Oreopoulos, “Behavioral Economics of Education: Progress and Possibilities,” NBER Working Paper No. 20609, October 2014, and forthcoming in E. A. Hanushek, S. J. Machin and L. Woessmann, eds., Handbook of Economics of Education, Volume 5, Amsterdam, The Netherlands: North Holland Press.

[Return to Text](#)

² J. Angrist and A. Krueger, “Does Compulsory School Attendance Affect Schooling and Earnings?” NBER Working Paper No. 3572, December 1990, and Quarterly Journal of Economics, 106 (4), 1991, pp. 979–1014.

[Return to Text](#)

³ P. Oreopoulos, “Do Dropouts Drop Out Too Soon? Wealth, Health, and Happiness from Compulsory Schooling,” Journal of Public Economics, 91 (11-12), 2007, pp. 2213–29.

[Return to Text](#)

⁴ P. Oreopoulos, R. S. Brown, and A. Lavecchia, “Pathways to Education: An Integrated Approach to Helping At-Risk High School Students,” NBER Working Paper No. 20430, August 2014, and forthcoming in Journal of Political Economy.

[Return to Text](#)

⁵ J. Angrist, D. Lang, and P. Oreopoulos, “Incentives and Services for College Achievement: Evidence from a Randomized Trial,” American Economic Journal: Applied Economics, 1(1), 2009, pp. 136–63; and J. Angrist, P. Oreopoulos, and T. Williams, “When Opportunity Knocks, Who Answers? New Evidence on College Achievement Awards,” NBER Working Paper No. 16643, December 2010, and Journal of Human Resources, 49 (3), 2014, pp. 572–610.

[Return to Text](#)

⁶ E. Bettinger, B. Long, P. Oreopoulos, and L. Sanbonmatsu, “The Role of Simplification and Information in College Decisions: Results from the H&R Block FAFSA Experiment,” NBER Working Paper No. 15361, September 2009, and published as “The Role of Application Assistance and Information in College Decisions: Results from the H&R Block FAFSA Experiment,” Quarterly Journal of Economics, 127 (3), 2012, pp. 1205–42.

[Return to Text](#)

⁷ P. Oreopoulos and R. Ford, “Keeping College Options Open: A Field Experiment to Help All High School Seniors Through the College Application Process,” NBER Working Paper No. 22320, June 2016.

[Return to Text](#)

⁸ P. Oreopoulos and U. Petronijevic, “Student Coaching: How Far Can Technology Go?” NBER Working Paper No. 22630, September 2016.

[Return to Text](#)