

## **Post-Primary Education Initiative Review Paper Executive Summary**

Effective, evidence-based policies on post-primary education are of vital importance as many developing countries start to see a bulge in secondary and post-secondary enrollment, the product of near-universal access to primary schooling. Finding ways to deliver and promote access to high-quality post-primary education, and to ensure that education is relevant to labor market needs, is one of the great challenges of our times. This must be accomplished in countries where governments face severe budget constraints and many, if not most, parents are too poor to cover the costs out of pocket. Meeting these challenges will require using existing resources more effectively—which entails understanding which inputs are key and which are not—as well as a range of innovations that may fundamentally alter the current methods of instruction.

To that end, the Abdul Latif Jameel Poverty Action Lab (J-PAL) has launched a Post-Primary Education (PPE) Initiative intended to promote policy-relevant research on secondary, tertiary, and vocational education in developing countries, which together will be referred to as post-primary education. This paper is a first step in that process. We review the evidence to date on post-primary education and highlight the gaps in the literature, with a focus on identifying policies that should be given the highest priority for future research.

The evidence on PPE may be organized into two broad topics: the demand for education from students and parents, and the supply of education from governments and private providers.

### **I. EXISTING RESEARCH: DEMAND FOR EDUCATION**

One way to understand the issue of access to post-primary education is in terms of individual and household demand, which depends on costs as compared to perceived benefits. The costs may include direct fees, the opportunity cost of the child’s time, and “optional” costs such as transportation fees and purchases of educational materials. Perceived benefits can include higher incomes, better health outcomes, social prestige, and a direct desire to be educated. Thirty-five papers were surveyed on demand, and the results clustered around the following themes:

#### **1. Cost Reduction and Its Impact on Attendance and Learning**

The research on cost-reducing interventions shows that students’ school attendance and completion are sensitive to the price of schooling, and that poorer households tend to be the most responsive to price changes. However, there is little evidence that price-based policies improve student learning, perhaps because they draw relatively poorly prepared students into post-primary education.

Conditional cash transfers (CCTs) are popular programs for reducing the out-of-pocket costs of education. These programs provide regular cash payments to students or their parents if the student satisfies an attendance requirement, and this conditionality plays an important role in encouraging school enrollment, attendance, and completion. However, there appear to be rapidly diminishing returns to transfer size. Surprisingly, relatively small transfers have worked almost as well as larger transfers. There is also some evidence that CCT programs that are explicitly designed to help households overcome commitment problems and other problems associated with saving for education yield larger benefits than the traditional model, which focuses only on day-to-day attendance. These transfers may also cause significant reallocation of resources both within and between households. In one study, nonrecipient households that had family links to recipient households in the same village experienced increases in secondary school enrollment. In another study, however, siblings (especially girls) of children who received CCTs were less likely to be enrolled in school, perhaps because parents concentrated their efforts on educating the child perceived as most promising.

### Key Open Questions

- *How responsive is student attendance to the price of schooling? Does it vary across student subgroups? Does it depend on the students' grade?*
- *How should CCT programs be designed? Should the transfer be comprised of a prize/scholarship at the end of the year, or multiple short-term prizes? Does the structure of the prize affect the stronger and weaker students differentially? How about using some of the money as an incentive to matriculate or go to college, or forcing students to save a part of it which could help them finance their future education?*
- *Does the identity of the transfer recipient matter? Should these transfers go to the family or be given in a way that only the student can access?*
- *Is it possible to design CCTs to work on a large scale in government systems (as in India) where there is no public exam until 12<sup>th</sup> grade and attendance statistics are routinely exaggerated, so there is no reliable information on which to condition transfers? In systems where monitoring is weak, could unconditional cash transfers (UCTs) be more effective?*
- *What are the effects of CCTs on student performance as measured by test scores, and does this vary across types of students?*

## **2. Performance-Based Incentives for School Participation**

Limited, existing evidence suggests that financial incentives that are conditional on students' academic performance can play an important role in improving academic performance, both for students who are targeted by the incentives and, more surprisingly, for their untargeted peers. Further research and experimentation is necessary to shed light on the efficacy of the various forms of performance incentives, their longer-term impact, whether their impact varies across different subgroups of students, and whether incentives risk undermining students' intrinsic motivation to learn.

### Key Open Questions

- *Do nonmonetary performance incentives affect student performance?*
- *Do performance incentives crowd out students' intrinsic effort?*
- *What are the long-term effects (if any) of performance incentives?*
- *Do all students respond to performance incentives, or are there particular groups that are particularly responsive?*
- *Are individual or group-based incentives more effective? Does their relative effectiveness depend on specific circumstances?*
- *Are small incentives sufficient to obtain large effects? More generally, does the marginal (per dollar) impact of incentives decline rapidly as the monetary value of the incentives increases?*

### 3. Credit-Based Interventions

It is often assumed that poor households underinvest in education due to lack of access to credit. The research in this domain is sparse, and existing studies focus primarily on credit constraints in higher education. These studies find large increases in enrollment resulting from policies that extend educational loans to poor students. Oftentimes these loans have interest rates that are lower than the market rate. This simultaneously expands access to credit while reducing the cost of education due to lower interest rates. Although difficult to disentangle, there is some evidence that most of the positive effect of these loan expansion programs runs through the credit-access channel. Further research is needed to identify the mechanisms through which relieving credit constraints can increase the demand for post-primary education.

#### Key Open Questions

- *Does a lack of access to credit constrain educational decisions at the middle and secondary school level?*
- *Is the main issue a lack of access to loans, or is the problem primarily that loans are available but the interest rates are very high (so that subsidies would be the appropriate policy)?*
- *What policies can be implemented so that lenders can be repaid once the borrower has a job? Can the government garnish wages from government workers, or even from workers in the formal private sector?*

### 4. Income Supplementation

Given that households seem to be credit-constrained, an alternative, though less well targeted, way to stimulate demand is to provide income support to households. These unconditional cash transfers (UCTs) have been found to increase student attendance and enrollment in a number of studies, though in some cases the observed effects are limited to certain subgroups of children. In fact, the observed increases in enrollment and attendance can be quite large, which raises several questions about how beneficiaries think the money is supposed to be spent. For instance, they may mistakenly believe the money is conditional on school attendance, or they may mentally set aside money they receive through these programs for their children's education. Understanding

how unconditional cash transfers affect demand for education and student attendance is of great policy interest, since UCTs can be much less expensive to implement than CCTs.

### Key Open Questions

- *Why do UCTs have effects much larger than estimates of the income elasticity of the demand for education predict? Is it because parents interpret the program as the government recommendation for how they should behave?*
- *Which groups are most affected by UCTs?*

## **5. Perceptions about the Benefits of Education**

The perceived returns to education, i.e., how much the child will benefit (usually measured as earnings) from schooling net of the costs, are a key input into schooling decisions. Estimates from the studies under review confirm that there are substantial returns to education throughout the developing world (generally 5-15 percent higher earnings per year of schooling attained), and that these returns are often higher for girls than for boys. There is also evidence, however, that parents and students are misinformed or lack information regarding the returns to education, and that this misinformation may distort their decisions about investing in schooling. The evidence shows that when people who underestimate the economic benefits of education are provided with accurate information, they revise their beliefs, and children remain in school longer. Additionally, there is evidence that exposure to female role models can increase educational attainment for girls, perhaps by changing people's beliefs about what women can achieve. The provision of information seems to be an inexpensive way to improve the efficiency of educational investment, but there are many interesting open questions about what sort of information is most effective.

### Key Open Questions

- *How does the content of the information provided affect school enrollment, performance and attainment? Is it sufficient to give the average rate of return to education, or should there be information about the shape of the distribution of returns?*
- *Are economists' estimates of the rates of return to additional years of education reasonably accurate? How accurate must they be in order to be helpful, as opposed to potentially harmful, to students and their families?*
- *How much emphasis should be on job market information and how much on the returns to education in terms of increased wages later on?*
- *Can households distinguish between different quality levels of education, and is there a role for information in helping households make that distinction? Relatedly, are households willing to pay differently for different qualities or types of education?*
- *How does the medium of communication for the information affect school enrollment, performance and attainment?*
- *How accurate are households' current beliefs regarding the returns to education? Are their beliefs shaped by local observations, experience, or national trends?*

- *What are the relative effects of information versus exposure to role models? Are these complements or substitutes?*

## 6. Health

Existing evidence on how health conditions affect school enrollment at the post-primary level is extremely limited. The intersection of health and education has been explored much more extensively at the primary level, and researchers have found that simple, low-cost health interventions including school-based deworming, iron fortification, and iodine supplementation can be highly cost-effective at increasing school participation. Additional research is needed to understand whether students' health status has a similar effect on post-primary education levels as it does on primary education.

### Key Open Questions

- *To what extent does student health affect educational attainment and performance at the post-primary level?*
- *Are nutrition-based interventions still effective—and cost-effective—at the post-primary level, when sensitive periods of development may have passed?*
- *Do information or incentives regarding healthy lifestyles and risky behaviors affect educational outcomes?*

## II. EXISTING RESEARCH: SUPPLY OF EDUCATION

The delivery models for post-primary education tend to be much more diverse than in the case of primary schools. Private, religious, and NGO-run schools and colleges all play important roles. Some private schools are largely government-funded, while others are either funded by the fees they collect or rely on charitable donations. There are also tutorial centers and distance learning programs, especially at the higher secondary and college levels. There is little rigorous evidence on how best to provide quality, relevant education at the post-primary level. Many questions, such as appropriate pedagogies for PPE; measurement tools to track the performance of schools, teachers, and students; and the best ways to reach students who have dropped out of school are not addressed at all. The review included twenty papers on the supply side of post-primary education, many with inconclusive results, under the following general themes:

### 1. Incentives and Organizations

The studies in this section cover an eclectic range of topics dealing with the way schools are organized and the way teachers are compensated. The evidence on public versus private provision is limited and inconclusive. Evidence from India suggests no difference in quality between public and private colleges. However, evidence from a voucher program in Colombia shows that individuals who won vouchers to attend a more expensive private school had better educational outcomes, including higher school graduation rates. The better outcomes, however,

might be primarily driven by access to higher quality peers, not by superior provision of education by private schools.

Studies on teacher pay suggest that it does matter for student outcomes, but research at the post-primary level has not dealt with compensation that is tied explicitly to outcomes. In the primary education literature, giving teachers bonus pay based on an objective measure of their attendance has been shown to improve student achievement. Providing bonus pay for teachers based on their students' test scores has had more mixed results; there is some evidence of "teaching to the test," so some caution about the design of these incentives is warranted.

### Key Open Questions

- *How does quality differ among private and public post-primary educational institutions? Are these differences driven primarily by organizational differences, profit motives, or student quality?*
- *Are voucher programs widely used in developing countries to address inequities in school choice? Do voucher programs in settings other than Colombia improve student outcomes? How do voucher programs affect the full distribution of student outcomes?*
- *How can teacher incentives be designed at the post-primary level to improve student outcomes? Is a monetary incentive the primary driver of teacher effort, or is teacher recognition more important?*
- *Who should provide the teacher incentives? Should the government or an external party like an NGO provide the incentives? Should parents' associations also be involved? Who will measure the outcomes on which the teacher incentives are based (e.g., school principal, parents, external observers), or some piece of equipment (e.g., cameras or fingerprint readers in the case of attendance)?*

## **2. School Inputs and School Quality**

One way to get at the issue of school quality is to look at the effect of going to more selective schools. This rests on the assumption that students or their parents can evaluate school quality and therefore the more selective schools are "better." The evidence on the effects of attending a more selective school is mixed. In some cases, there are small, positive effects of attending a more selective school on students' subsequent academic performance, while in other studies the estimated effect size is close to zero.

With regard to the determinants of school quality, the message from the few studies on school inputs and quality at the post-primary level appear consistent with what we have learned from the primary school literature. Input-based interventions generally have either no effect or a small effect, at least when introduced into educational systems with elite-focused curricula and weak teacher incentives. However, inputs that help students move through an appropriate curriculum at their own pace are a promising avenue for further study.

### Key Open Questions

- *Are there specific school or teacher characteristics that affect student performance in a wide variety of settings?*
- *Is there a role for information and communications technology (ICT) in post-primary education? Would tailoring educational technologies (including educational software) to students' specific needs improve academic performance? At the post-primary level, to what extent does training teachers in the use of new ICTs affect the impact of introducing that ICT on student performance?*
- *Is it possible to adapt successful models using lightly trained para-teachers (e.g., remedial tutors, locally hired teaching assistants on short-term contracts, or volunteers) in primary education to post-primary education? More generally, are there ways to improve and adapt the current models of teacher training, especially in situations where the potential teachers do not have particularly strong academic backgrounds?*

### 3. Selection Rules

While most children attend a local primary school near their homes, this is less true for secondary schools and even less true for tertiary education, especially in countries where slots in these schools are rationed. Most developing countries have complex rules about who can go to which school. This section focuses on two examples of such selection: single-sex schools and affirmative action policies for groups that were historically discriminated against.

One study on single-sex schools finds benefits for girls, but only for those with a strong preference for all-girls' schools. Affirmative action policies for disadvantaged castes and tribes in India have been shown to increase access for disadvantaged students, but the evidence is more equivocal on whether the education provided actually improves labor market outcomes later on.

#### Key Open Questions

- *What are good selection rules? How much weight should be put on actual preparation for a given grade level versus innate potential, given that some of the more privileged children will be better prepared than more talented children from less privileged backgrounds? How do we separate innate talent from preparation?*
- *How should selective policies optimally integrate beneficiaries into the education system?*
- *What methods should be used for selection into vocational versus general education?*
- *What are the effects of affirmative action policies in contexts other than India?*

### 4. Pedagogy and Curriculum

There is very little rigorous evidence on what types of curricula or pedagogies are most effective at the post-primary level. Given the greater complexity of material taught in secondary or vocational schools and the qualifications required to teach it, it may not be feasible to replicate interventions with local volunteers and para-teachers at the post-primary level. There is likely to be an even greater role at the post-primary level for ICT platforms such as computers, tablets,

and mobile devices. One finding from the primary education literature that is likely to carry over to the post-primary sphere is that simply providing technological inputs is not enough to improve learning. A great deal of research will be needed to assess how to use ICT to help students learn at their own pace and acquire knowledge and skills that are relevant to the labor market. Similarly, research on vocational education is very scarce, though there is some emerging evidence that vocational education can have positive economic impacts.

### Key Open Questions

- *What is the optimal mix of theoretical knowledge and practical knowledge in post-primary teaching: How much of it should it be computer science rather than computer programming? Spoken and written English rather than English literature? What about soft skills versus hard skills?*
- *Do teaching styles matter? How do learning outcomes vary for dynamic, inquiry-based and student-centered learning approaches compared to a rote-learning teaching style?*
- *What is the role of tutoring and supplementary teaching, especially given that there are many students who will enter the post-primary stage without having mastered the primary-level content? Should content be taught in the mother tongue or in some international language? And do the answers to these questions depend on what has been done about the demand side and incentives of teachers and students?*
- *How to deliver vocational training? How much of it should be hands-on, practical training and how much of it should be classroom instruction? Can virtual models be used for the training? How should teachers be incentivized?*