

The power of information in improving school performance

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Providing information to citizens can improve services for the poor, swiftly and at relatively low cost. That, encouragingly, is the lesson emerging from recent experiments in Uganda (Björkman and Svensson 2009), India (Banerjee et al. 2011), and Indonesia (Banerjee et al. 2015) as well as observational research in the US (Hoxby 2000) in sectors as diverse as health, voting behaviour, access to subsidised food and education.

Buoyed by these positive results, we were interested in investigating the impact of information (specifically, school and child report cards) on education markets, but with a two-fold twist (Andrabi et al. 2013). First, we work in an environment where there are both public *and* private schools; the latter receive no subsidies and face little (if any) de facto regulation in terms of prices or standards setting. Second, we were interested in what would happen if we intervened in an *entire market*, rather than a subset of consumers within the market.

Our findings can be seen through the lens of a theoretical model with the following characteristics. In classic models of asymmetric information (Akerlof 1970, Wolinsky 1983), the market aggregates consumer information and prices act as a substitute for (poor) information. In markets where there is separation so that higher prices signal higher quality, high quality firms receive an informational ‘rent’ that guarantees that they have no incentive to price high but produce low quality. If they choose to do so, they lose the rent among the set of consumers who receive an accurate quality signal; not surprisingly, the lower the number of these consumers, the higher the informational rent. In this model, providing consumers with more information will change the market equilibrium—but these changes will affect *both* informed and less-informed consumers. To tie existing models of asymmetric information to market equilibrium, we needed market prices (through private schools) and an intervention for the entire market.

A different kind of report card

Our experiment took place in 112 Pakistani villages, which we confirmed could be treated as ‘closed markets’ in our analysis. That is, households rarely crossed village boundaries in shopping for schools and schools drew their enrolment from the village. In half of the villages, we gave parents report cards that revealed their children’s grades as well as the performance of different private and public schools in the village. (There was an average of 7.3 schools per village.) The report cards went to both households and schools in treatment villages. We also conducted meetings to explain scores to parents, as many were illiterate. The other half of villages served as controls.

We conducted initial testing of the students and collected baseline surveys in the spring of 2004 and distributed the report cards in September, and then repeated the process in 2005. To our knowledge, this is the first experiment on the impact of information in education where both the treatment and the outcome measures are at the level of the market, in addition to the school and the child.

The results of this informational intervention were overwhelmingly positive.

First, learning improved. In treatment villages, the average test scores increased by 0.11 standard deviations, reflecting an additional gain of 42% over the test score increase in control villages. Remarkably, there were learning gains in government schools, which we wouldn’t have expected *ex ante* to respond to market pressure—test scores rose 0.09 standard deviations for the average child in government schools in response to the intervention.

Second, private schools lowered their fees. In treatment villages, fees declined by 17% relative to schools in control villages. These findings of higher learning and lower cost are consistent with models of quality and pricing in markets with asymmetric information when the initial equilibrium is separating. (See Wolinsky 1983, Shapiro 1983, and Milgrom and Roberts 1986.) Test score gains and price declines were greater among private schools in more competitive villages. This suggests that the report cards enabled parents to compare across schools, resulting in greater pressure to perform.

Third, enrolment went up. Before the intervention, 76% of boys and 65% of girls aged 5 to 15 were enrolled in school. Overall enrolment among primary-age children rose by 3 percentage points in treatment villages – or about 40 children in each village – apparently a response to the improved educational environment.

Finally, the worst-performing schools went out of business. Private schools with low baseline test scores were more likely to shut down in treatment villages, with their students shifting into alternate schooling options. Our findings suggest that quality will increase among initially low quality schools, but such responses will be muted (and may even be negative) among initially high quality schools. Correspondingly, we find that the test scores of children in initially low scoring private schools rose by 0.31 standard deviations relative to the control, while those in initially high scoring schools did not change.

Our surveys revealed little change in average household investments of time and money in children, apart from a significant increase in parent-school interactions. Instead, the change seemed to reflect the way schools responded to increased pressure from parents, bolstered by the report card intervention. We conducted detailed surveys of the schools too, and found a modest increase in teacher qualifications in public schools, and an increase in the time spent on schoolwork at initially low-scoring private schools.

In short, giving Pakistani households information improves their welfare as consumers of education. It lowers the mark-ups private schools charge and induces lower quality private schools to improve their test scores. Public schools respond to information by raising their quality as well, and more of the village's children enrol. And all of this at a cost of \$US1 per child.

However, one note of caution—we tested and constructed the report cards ourselves, effectively decreasing the likelihood of gaming and corruption in the information measures. When information measures can be 'gamed,' trouble surfaces—teachers cheat (Jacob and Levitt 2003) and doctors cream-skim (Dranove et al. 2003). Therefore, our experiment does not predict what would happen when the government scales up this program, particularly if it is not able to invest in the high quality systems required to ensure that these measures remain uncorrupted.

Supporting educational markets

Encouraged by these results, we are heading back to track the children from the 2004-05 experiment, which means we will see how this impact evolves over a ten-year-plus period. The children affected in the original intervention are now in their early-to-mid-twenties, so we will also be able to examine the impact of informational provision on the transition from schooling to early labour market experience.

Also, we are testing the effects of removing two types of constraints that low-cost private schools face. The first is financial. We have partnered with Tameer MicroFinance Bank to design and evaluate different financial products for low-cost private schools at scale in Pakistan. We offer loans whose terms, maturity, structure, and collateral requirements have been designed to fit the needs of the education sector, and a first-of-its-kind micro-equity product where the school's repayments are tied to its quarterly revenues. While both products can help enhance learning outcomes by alleviating credit constraints, the equity-based instrument hopes to take this a step further by introducing a risk-sharing element that may encourage schools to take on innovative investments that can lead to even higher learning gains. Our initial results in terms of product take-up and usage are promising—of the schools that expressed interest in obtaining financing in the on-going rollout (30–40% of all schools in the population), just over half have purchased the financial product they were offered.

The second constraint we aim to overcome is access to appropriate educational services. Over the past year, the research centre we are affiliated with, the Center for Economic Research in Pakistan (CERP), has held educational *melas* (like trade-fairs or 'expos') that bring village school owners, teachers, and parents face to face with representatives from leading educational support services companies. This gives private school owners far better options for classroom materials. The program has also spurred organisations like Oxford University Press to create products appropriate for rural low-cost classrooms, and it has brought school owners, teachers, and parents together on choosing among products and services to improve education quality.

Our approach therefore asks whether alleviating market failures - ranging from labour shortages through information and credit to thin markets - can take us in the directions of increased enrolment and greater learning. Alleviating teacher shortages leads to a second-generation rise in educational levels - the students of today are the teachers of tomorrow (Andrabi et al 2013). Alleviating information constraints increases enrolment and learning. These interventions take a 'hands-off' approach to estimating or basing the intervention on the education production function, under the hypothesis that the production function may vary across the villages that we work with. Thus far, our results have been surprisingly positive. This suggests both that such market failures plague educational markets - but also that the preferences of parents (after all, market efficiency is defined with reference to the demand curve) - are very much aligned with what we all want—children who are in school, and learning.

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