The State and the Market in Education Provision: Evidence and the Way Ahead

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"The government has an execution deficit, the private sector has a trust deficit, and civil society has a scale deficit." - Manish Sabharwal

1 Introduction

Improving the quality of education is arguably one of the most important policy challenges for India today. Doing so is essential both for improving innovation and growth at the macro-level and for enabling broad participation by citizens in the growth process through improved wages and employment at the micro-level. While policy discussions on education have traditionally focused on improving enrollment and average years of schooling, considerable recent evidence suggests that what matters for both growth and employability is not just years of education per se, but the quality of education represented by learning outcomes and skills.[2]

There are several metrics from independent sources which suggest that the Indian education system is in crisis. Data from Pratham's Annual Status of Education Report shows that (a) half the children in rural India cannot read at a second-grade level after five years of schooling (ASER 2019), and (b) the large increases in education spending in this period have not led to meaningful improvements in these outcomes.[3] These results are consistent with findings from more detailed data collected in smaller studies.[4] Further, employers routinely complain that a large fraction of college graduates, including those with engineering degrees, do not possess

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[2] For instance, Hanushek and Woessmann (2012) show that learning outcomes as measured by PISA scores are more robustly correlated with economic growth than just years of schooling. Schoellman (2012) presents micro-evidence using wages of immigrants to the US and shows that cross-country differences in education quality are as important as cross-country differences in years of schooling in accounting for differences in worker productivity.

[3] Comparing ASER (2006) and ASER (2019), reading at a second-grade level for students in grades 3-5 is, overall, similar in 2005 and in the 2010s. At the same time, the combined total of central and state government spending on public school education in India was Rs 4.03 trillion in 2015-2016 a 224% increase relative to Rs. 1.245 trillion in 2008-2009. After accounting for cumulative inflation at 62.7% in this period, this is still a real increase in spending of 99%. See MHRD (2012) and (2018) for data on school education expenditure in India.

[4] For instance, Muralidharan et al. (2019) find that learning levels in mathematics in grades 6-9 in Delhi government schools several grade-levels below curricular standards and these patterns are also seen in recent data from Rajasthan as reported in Muralidharan (2019).

functional skills to be employable (Agarwal et al. 2019). Overall, India's demographic dividend is at risk of becoming a demographic disaster because over 10 million young adults reach age 18 every year without adequate skills to participate in the modern economy. Fixing the quality of the education system is central to addressing this challenge.

One striking statistic regarding the perceived quality of the government-run education system in India is the large-scale shift to private schooling. Recent estimates suggest that over 40 per cent of school enrollment in India is in private schools, with the share being over 70 per cent in several large cities.[5] The total share of private school enrollment in the 20 largest states is around 55 per cent at the secondary and higher secondary level. The most recent ASER data show that even in rural India, around 31% of children aged 6-14 attend a fee-charging private school and that this share has been increasing over time (ASER 2019).

The increasing market share of private schools does not reflect an abdication of public expenditure on schooling and is in fact taking place in a context of *increased* public expenditure on schooling. Further, government schools are free and actually have a negative price (after accounting for the free mid-day meals, textbooks, and other inputs). They also have more qualified and trained teachers, who are paid much more than their private school counterparts. Yet, as we show later, there is considerable evidence that the private schools have higher management quality and greater teacher effort, which parents value.

However, the large share of private schools comes with two social costs. The first is that people can only avail of private schooling if they can afford to pay for it, which increases economic stratification in education. Second, the secession from public education by those who can afford to pay for private schools weakens the voice of those left behind for demanding improvement of these services. This may create a vicious cycle of ever worsening government schools because they only cater to socially and economically disadvantaged populations.

Thus, the question of the optimal role of the private sector in the delivery of core services like education is an ideologically charged one. Many advocates of public education believe that private providers should be discouraged and that policy should focus mainly on strengthening the quality of public education.[6] Others argue that the private sector should be encouraged because the revealed preference of parents suggests that they perceive government schooling to be so poor that they are willing to pay out of pocket for private solutions. One striking way of thinking about the quality of government schooling is to ask: "What does it say about the

[5] Ernst & Young-FICCI (2014).
[6] See Drèze & Sen (2013) for a prominent example.

quality of your product that you cannot even give it away for free?" Proponents of private schools argue that the government should combine public financing with private provision to provide broad-based access while leveraging the greater operational efficiencies of private schools.[7] Specific models for achieving this goal include school vouchers and charter schools.

The broad view in this chapter is that public and private schools are complements and not substitutes. Specifically, education policy should worry less about public versus private schools, and focus more on expanding the supply of both high-quality public and private options with payment and regulatory structures that make it feasible for the poor to also access private options. Further, it is very important to pay careful attention to the details of the design of voucher and charter-school systems to ensure that the incentives for private actors are consistent with social objectives and that users benefit from increased choice and competition.

It is important to note that increased use of private schooling options in no way obviates the need for improving the quality of government schools both because the government-school system continues to be the main option for reaching socio-economically weaker students, and also because improving quality in the public sector will force the private providers to also improve. However, in prior work, I have written extensively on both the evidence as well as on policy suggestions for improving the public education system in India (see Muralidharan, 2013 and 2019, for instance). Thus, this paper will focus mainly on providing a policy framework for combining public financing and private delivery with increased choice and competition to improve education quality in India.

As the opening quote by Manish Sabharwal suggests, government provision has legitimacy and scale, but suffers from poor execution. The private sector is able to execute better at large scale, but suffers from lower trust and public legitimacy. Finally, there are several excellent models of civil society-led education delivery that have achieved high quality and trust, but these models are difficult to scale without public funding. A key goal for this chapter is to provide a framework for combining the strengths of these different sets of actors that may help to deliver improved education outcomes at scale.

This chapter comprises 4 major sections. First, it provides a succinct summary of the evidence on state versus non-state delivery of education in India and around the world. Second, it discusses the key principles in the design of policies to leveraging private schools to improve education quality. Third, it discusses the promises and pitfalls of the attempt by India's Right to

[7] The idea of school vouchers for education dates back to Milton Friedman (1962). Arguments in favor of such an approach in India have been made among others by Tooley (2009), and Bhagwati and Panagariya (2012).

Education (RTE) Act to achieve this goal. Fourth, it discusses an operational roadmap for charter-school pilots and evaluations that I believe represent a promising way forward for India to better leverage private management for improved education outcomes at scale.

2 Review of the evidence

2.1 Evidence from India

2.1.1 Prevalence and usage

As discussed above, private, fee-charging schools account for a substantial fraction of school enrollment in India, with a private market share of around 70% in large urban areas and over 30% in rural areas.[8] The majority of these are not "elite" private schools but are instead "budget" private schools with a much lower cost per child than in the government school system. However, since these schools charge fees, it is also true that households using these private schools are socioeconomically more advantaged than those using government schools.[9]

Correlational evidence suggests that private school entry is driven not only by parental ability to pay, but also by the poor quality of government schools. Using all-India data, Muralidharan and Kremer (2008) show that the presence of a private school in a village is negatively correlated with state-level GDP/capita and with district-level GDP/capita (with state fixed effects). In other words, it is *poorer* places that are more likely to have private schools. They also find that the probability of a village having a private school is significantly positively correlated with the rate of teacher absence in the government schools in the same village, after controlling for income. Finally, Kremer et al. (2005) show that government school teacher absence rates are significantly higher in poorer states of India. Thus, the surprising result that private schools in

[8] See Ernst & Young-FICCI (2014) for statistics on the market share of private schools in India. ASER surveys provide reliable annual data on the market share of private schools in rural India using household surveys, but statistics for urban market shares are less current. Note that official statistics may understate private school enrollment considerably. For instance, a study on private schools in the city of Patna found that official data grossly underreport the prevalence of private schools in the city: according to official data, there were a total of 350 schools in Patna; in contrast, this census found 1,224 private, unaided schools for a total of 1574 schools in the city (Rangaraju, Tooley, and Dixon, 2012).

[9] See Muralidharan and Kremer (2008) and Muralidharan and Sundararaman (2015) for summary statistics on characteristics of public and private schools and the demographics of those who use them. Kingdon (2017) discusses private school prevalence in urban and rural areas, broken down by state. She also provides benchmarks for private school fee levels to give context regarding who can afford them

rural India are more likely to be found in poorer districts and states may reflect the poorer performance of the government schools in these areas.[10]

Of course, this relationship is not causal and could reflect a process whereby government schools get worse when local elites migrate to private schools. However, the correlations highlight the close interdependency between the quality of public and private schools in a given market. Taken together, the results highlight that private school participation is positively correlated with SES within a given market, but that the prevalence of private schooling is driven at least in part by poor performance of government schools.

2.1.2 Inputs

There is limited representative all-India data comparing quality of infrastructure across private and government schools. However, data from studies in specific states suggest that private schools are slightly better on average infrastructure quality, including access to toilets, electricity, drinking water, and computers. The superior infrastructure of private schools is driven in part by their larger scale. For instance, the average private school in the AP school choice study (Muralidharan and Sundararaman, 2015) had enrollment nearly four times that of the average government school.[11]

The more pronounced differences are in terms of teacher quality and quantity. Private schools systematically have teachers who are less qualified, less likely to have teacher training, significantly younger, and much more likely to be female. They are also paid *much less* than civil servant government school teachers, with salaries that are one sixth to one tenth of government school teacher salaries.[12] However, these significantly lower salaries allow private schools to hire many more teachers, and, as a result, they have significantly lower pupil-teacher ratios than government schools. Private schools also have much lower rates of multi-grade teaching, where the same teacher simultaneously teaches students across multiple grades.

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[10] One caveat to this point is that it is based on data collected in 2003, and the facts may be different now. The main point of this discussion is to highlight the positive correlation between poor government school performance (proxied by teacher absence rates) and the prevalence of private schools.

[11] Note that the private schools studied in MS 2015 are all "recognized" private schools and exclude the unrecognized private schools (that may be smaller), that were expected to be shut down by the government under the provisions of the Right to Education (RTE) Act.

[12] See Muralidharan and Kremer (2008) for all-India data from 2003, Muralidharan and Sundaraman (2015) for data from Andhra Pradesh. Kingdon (2017) presents data on private versus government school teacher salaries from other states and time periods and finds that private school teacher salaries are paid one-twelfth to one-thirtieth the salaries of government school teachers.

Similar patterns are seen using all-India data on rural public and private schools from 2003 (Muralidharan and Kremer, 2008).[13]

2.1.3 Management quality and teacher effort

While private school teachers are less qualified, there is robust evidence from multiple studies that their level of effort and time on task is significantly higher than those in government schools. For instance, data from the AP school choice study show that private schools have longer school years (2 weeks longer), longer school days (45 minutes more per day), much lower teacher absence rates (9% vs. 24%), and a greater likelihood of classes being engaged in active teaching during unannounced visits to the school (51% vs. 34%). Similar patterns are seen in older all-India data (Muralidharan and Kremer, 2008).

There is also evidence that private schools have higher management quality, as measured by the measurement tools constructed for the World Management Survey (WMS).[14] Further, these measures of management quality (measured using interviews with head teachers) are significantly positively correlated with measures of good instructional practice (measured using classroom observations).[15]

Finally, there is also evidence that private schools are more effective than government schools at rewarding effective teachers. Using data from the AP school choice study, Lemos, Muralidharan, and Scur (2018) find that private school teacher salaries are significantly positively correlated with measures of teacher value-addition, but that there is no correlation between teacher salaries and their value-added in government schools.[16] Further, they find that private schools also appear to be more effective at retaining effective teachers and letting go of ineffective ones. Specifically, teachers with above-average value-addition are more likely to be present in the school in later years in private schools while there is no such relation in government schools.

2.1.4 Quality and cost-effectiveness

Given the widespread prevalence of private schools in India, a critical question for research and policy is to understand the relative effectiveness of public and private schools. While the *levels*

[13] Muralidharan and Sundararaman (2015) and any other papers on infrastructure.
[14] Bloom et al. (2015).
[15] Lemos, Muralidharan, and Scur (2018).
[16] Similar patterns are observed across public and private schools in Pakistan using the LEAPS data. (See Bau and Das (forthcoming) for details).

of learning in private schools tend to be systematically higher than those in government schools,[17] this does not imply that the private schools are more effective. In particular, these cross-sectional differences could be driven by differences in household characteristics as well as the fact that children attending private school often have 1-2 years of extra schooling by virtue of having attended lower and upper kindergarten, while government schools only start in the first grade.

Muralidharan and Sundararaman (2015) address this challenge by using a large-scale randomized experiment. The study provided 1980 randomly-selected applicants with a voucher to attend private primary schools and tracked outcomes over four years. Since these vouchers were randomly assigned, comparing outcomes between lottery winners and lottery losers allowed the authors to isolate the impact of attending a private school.

The study found that, despite the greater teacher effort and time on task in the private schools, there was no difference in test scores between lottery winners and losers on the two main subjects, math and Telugu (native language). However, analysis of school time use data revealed that private schools spent significantly less instructional time on Telugu (40% less) and math (32% less) than government schools, and instead spent more time on English, and science and social studies (EVS). They also taught third language, Hindi, which was not taught in public primary schools (Hindi is not the main language in AP, but is the most widely spoken language in India). The authors conducted tests in all these subjects after four years of the voucher program and found small positive effects of winning the voucher on English (0.12σ; $p = 0.098$), and EVS (0.08σ; $p = 0.16$), and large, positive effects on Hindi (0.55σ; $p < 0.001$).

Further, the cost per child in private schools was less than one third the per-child spending in government schools. Thus, private schools were more *productive* than government schools in that they were able to achieve achieve similar test score gains in math and language with much lower spending and significantly less instructional time. At the same time, they did not do better than government schools at improving test scores in the core subjects of math and language, suggesting that the large cross-sectional private school test-score advantage in these subjects (of 0.65σ) mostly reflected omitted variables.[18]

Taken together, these results suggest that a core open question for research and policy is to study the extent to which privately-managed schools can do better at improving learning

[17] This is seen in several studies, including annual ASER reports as well as Muralidharan and Kremer (2008), Muralidharan and Sundararaman (2015).

[18] The finding that private schools do not add significantly more value than government schools is also seen in evidence using panel data from Andhra Pradesh (Singh, 2015).

outcomes with the same amount of per-child spending as the government schools. Note that there is no guarantee that this increased expenditure with private management will yield a commensurate improvement in learning outcomes because private schools may choose to spend this money on inputs that are visible to parents as opposed to those that are effective at improving learning. However, the results do suggest that such an approach may have a lot of *potential* to deliver improved learning outcomes at the same level of per-child spending.

2.1.5 Medium of Instruction

One key driver for demand for private schools is English medium instruction, but this may be a case where demand may be ill-informed. The AP School Choice study (Muralidharan and Sundararaman, 2015) was not designed to study the effect of medium of instruction,[19] but it finds strong suggestive evidence that students who switched from attending a government school (taught in Telugu medium) to a Telugu-medium private school did better than those attending an English-medium one (especially on non-language subjects). Their results suggest that private schools may have been even more effective when students did not experience the disruption of changing their medium of instruction. But they also suggest suggest that switching to English-medium schools may have had negative effects on first-generation learners' literacy in the native language and on their learning of content in other non-language subjects.

There is now a large body of evidence from cognitive neuroscience showing that first-generation learners learn better when taught in their native language (see Abadzi, 2008 for a summary) and there is also well-identified evidence of improved education completion rates when instruction takes place in the native language (Jain, 2017; Ramachandran, 2017). The results in Muralidharan and Sundararaman (2015) on the negative effects of switching to English-medium school are consistent with these findings.

The heterogeneity of impacts by medium of instruction highlights the complexity of "school choice". On the one hand, it supports the "productivity" argument for private schools - since voucher-winning students attending Telugu medium private schools (and did not have their medium of instruction disrupted) did significantly better than lottery losers. Yet, it suggests caution in advocating for more "choice" because parents may choose English-medium schools believing they are better for their children, when they may in fact not be so. Of course, over

[19] While the vouchers were randomly-assigned, parents and students could still choose which school to go to and thus the choice of school was not random. Thus MS 2015 use the medium of instruction in the nearest private school and its interaction with the receipt of the voucher as an instrumental variable for medium of instruction of private school attended to study the impact of the medium of instruction of the private school.

time, the higher labor market returns to English may validate this choice - but there was also a clear cost in terms of learning outcomes at the end of primary school.[20]

The question of medium of instruction is a vexing one regardless of whether we focus on public or private schools. But parents are clearly demanding English medium schooling and even many governments are responding by converting existing schools to English medium. However, it is not clear if this will improve education quality and it may even worsen it - especially if government-school teachers are ill-equipped to teach in English. This demand for English-medium schools may in turn provide a policy window for charter school pilots and evaluations (as discussed in Section 5).

2.2 International evidence

Ever since Friedman (1962), there has been an active interest in the US in designing and testing ways to increase school choice and competition. These include increasing choice within public schools, voucher- and charter school-based models that combine public financing with private provision of schooling. This has led to a large number of research studies on this subject. There is also growing evidence on these questions from other international settings. In this section, we provide a very brief summary of the main insights from this body of work along with pointers to primary sources. We organize the discussion by looking at evidence on attending elite/magnet schools, effects of increasing parental choice among public schools, effects of vouchers to attend private schools, and effects of charter school programs.

2.2.1 Elite and magnet schools

Since a core component of school choice is the idea that parents should be able to choose better schools, a large literature has looked at the effect of attending schools perceived to be better, including "elite" or magnet schools. Evaluation strategies have typically relied on either lottery-based school admissions (where outcomes of lottery winners are compared to lottery losers) or regression discontinuity-based approaches (where outcomes of students scoring just above the admission cutoff threshold are compared to those just below).

The findings of this literature are mixed. Multiple high-quality studies in the US, Kenya, and China have found no effects on student learning outcomes (Abdulkadiroglu, Angrist, and Pathak, 2014; Lucas and Mbiti, 2014; Zhang, 2016). Evidence from Romania finds modest

[20] There is evidence of positive labor-market returns to knowing English (Azam, Chin, and Prakash 2013) but this is holding the level of education constant. It is unclear if the net effects of attending an English-medium school will be positive if overall learning is adversely affected by doing so.

positive effects, with suggestive evidence that potential positive effects of going to a better school may be attenuated by a reduction in household effort (Pop-Eleches and Urquiola, 2013). Finally, one high-quality study from Trinidad and Tobago finds that being accepted to a better school has large positive impacts on learning (Jackson, 2010). These results should be interpreted as the composite effect of going to schools that are perceived to be better, including changes in school characteristics, peer characteristics, and changes in household effort. Overall, these results suggest that increasing access to schools that are perceived to be "better" may have only a limited impact on learning outcomes, though we cannot rule out that there may be other unmeasured, longer-term benefits.

2.2.2 Increased choice between public schools

As in the case above, the evidence in this area is also mixed. An early and influential study in this area using an instrumental variable strategy finds that increasing parental choice between public schools improves learning outcomes (Hoxby, 2000). However, this result has been contested and the findings may not be robust (Rothstein, 2005). Later studies have made use of randomized lotteries to study this question, but the evidence continues to be mixed. Cullen, Jacob, and Levitt (2006) use public school lotteries in Chicago and find that winning a lottery to attend a public choice school had no impact on learning outcomes. In contrast, an experimental study that also used lottery-based admissions in North Carolina finds positive academic outcomes largely concentrated among girls, for whom attending a first-choice school increases the probability of completing a four-year degree by 14 percentage points (Deming et al., 2014).

2.2.3 Vouchers to attend private schools

A typical school voucher program provides students with a voucher worth a certain amount of money that can be used to pay fees at a private school. Many school voucher programs have been oversubscribed and therefore allocated by lottery. This allows researchers to credibly study the impact of alleviating financial constraints to attending private schools that may otherwise be unaffordable by comparing the outcomes of lottery winners to those of lottery losers over time. However, vouchers can vary substantially in their design, including whether parents can top up the value of the voucher (to go to even more expensive schools), whether there are conditionalities associated with voucher renewal or limitations on voucher use (at which schools the voucher is redeemable), and the extent to which private schools can turn down voucher recipients. Thus, an important caveat to interpreting the evidence from this literature is that variation in effects could be driven by variations on these dimensions.

As in the other cases, this literature is also inconclusive. Using data from the Milwaukee Parental Choice Program, Rouse (1998) found math scores of voucher recipients grew faster than those of students who applied but did not receive vouchers, though reading score gains were similar. Over a decade later, Wolf (2012) found that, in four years of private high school attendance, voucher recipients had one year of faster reader score gains than matched students in Milwaukee Public Schools but no difference in math or in reading score gains in other years. He did find they were more likely to graduate high school and enroll and persist in college by 4-7 percentage points. In Washington, DC, Wolf et al. (2010) evaluated the DC Opportunity Scholarship Program and found no statistically significant reading or math test score differences between students who were and were not offered vouchers, though they do find that being offered a voucher increased students' probability of graduating high school by 12 percentage points (graduation rates, calculated using parent-provided information, were 70% for the control group and 82% for the treatment group).

Finally, in Louisiana, Wolf et al. (2019) find that participating in the Louisiana Scholarship Program (a voucher program) had statistically significant negative effects on student scores in English Language Arts and math overall. The negative effect size varied with student and school characteristics, and at some schools, there were statistically significant positive effects on test scores. There was no effect on college enrollment. Abdulkadiroglu, Pathak, and Walters (2018) confirm the negative effects of voucher participation on learning and suggest that these impacts might be due, in part, to parents selecting low-quality private schools for their children.

In Colombia, two prominent studies (Angrist et al 2002, 2006) of PACES, a school voucher program that covers part of the cost of attending private secondary schools, find significant positive impacts of winning a voucher. However, in the PACES program, parents topped up the value of the voucher with their own funds, and students were required to advance to the next grade for voucher renewal. Thus, the positive effects here represent the composite effect of going to a private school, spending more money on education, and having additional incentives for student effort.

The closest implementation of a complete voucher-based choice system was in Chile in 1981. While the nation-wide rollout precluded randomized evaluations, several studies have attempted to look at the effects of Chile's voucher-based school education reforms. The evidence here is also mixed. One prominent study (Hsieh and Urquiola, 2006) reports that the program increased socioeconomic sorting and stratification across schools, but led to no improvement in average learning outcomes. Other studies exploit Chile's 2008 reform that increased voucher payments for the lowest 40% of the income distribution by 50%. Gallego and Hernando (2008) analyze the potential effects of such a reform and conclude that targeting

differentiated vouchers by income would mostly benefit the poor and reduce segregation. Neilson (2017) finds that compared to the old, flat voucher, the new, targeted voucher increases academic achievement while reducing market power of schools in poor neighborhoods. Murnane et al. (2017) find that the voucher reform caused the test score gap between poorest students and the rest of the students to drop by one third. On the other hand, Aguirre (2017) uses a previously unavailable administrative dataset with information on individual socioeconomic ranking (which is used to target the new vouchers) and rejects that the targeted vouchers increased test scores by more than .04 standard deviations.

2.2.4 Charter schools

Charter schools aim to combine public financing and private provision of education with additional regulatory safeguards to ensure a more "public" characteristic of the school. In particular, charter schools are typically not permitted to selectively deny admission or to charge additional fees. Further, the board granting the charter must approve their curriculum.[21] Charter schools offer the promise of overcoming many of the concerns regarding voucher-based school choice systems. These include the concern that private schools may find it easier to compete on the "selection" margin rather than on the margin of improving learning outcomes (or "value-addition"),[22] and the concern that the goal of public education of creating shared norms and values of common citizenship may be compromised by a balkanization of the school system into schools with very distinct curricula (especially influenced by religious instruction).

As in the case of voucher programs, many charter schools are oversubscribed and therefore allocate spots by lottery. This allows researchers to credibly study the impact of winning a charter lottery (which significantly increases the probability of attending a charter school) on later learning (and other) outcomes. The overall US evidence on the impact of attending charter schools on test scores is also mixed with some studies finding positive and others finding no or negative effects.[23] However, there is more consistent evidence of positive impact

[21] This last point is especially important given that a big concern regarding vouchers in the US and other settings has been about the possibility that they may be used to finance religious instruction, which would violate constitutional provisions against the separation of religion from the state.

[22] See MacLeod and Urquiola (2015) for a discussion of how learning outcomes can even be lower under such a system.

[23] Prominent individual studies of charter schools in the US include some that find no effects on test scores (in Chicago: Hoxby and Rockoff, 2004; and across 14 or 15 states: Gleason et al., 2010, and Furgeson et al., 2012); several that find positive effects on math or English language arts, but not both (in an anonymous, low-income school district: Hastings, Neilson, and Zimmerman, 2012; a national study of charters run by KIPP: Clark Tuttle et al., 2013; and in New York: Dobbie and Fryer, 2011, and Dobbie and Fryer, 2015); and several that find positive effects in both math and English language arts (in Boston: Abdulkadiroglu et al., 2011, Cohodes et al., 2013, Angrist

of charter schools in urban settings, where the neighborhood traditional school is of lower quality, and among charter schools that use a "No Excuses" approach to cater to socioeconomically disadvantaged groups.

As described in a recent review article, the "No Excuses" approach is "characterized by strict and clear disciplinary policies, mandated intensive tutoring, longer instruction times, frequent teacher feedback, and high expectations for students. A common feature of the most successful charter schools, regardless of their location, is that they often use mandated intensive tutoring to supplement classroom instruction." (JPAL, 2017). There is also evidence that the benefits are larger for more disadvantaged groups including blacks, Hispanics, and students receiving free or reduced priced lunch. Finally, not all benefits occur immediately or relate directly to academics: some of charter school studies show long-term benefits like increasing college preparation, increasing college enrollment, reducing teen pregnancy, and reducing incarceration (see the recent evidence brief by JPAL (2017) for a summary).

Finally, in a developing country setting, an important recent study (Romero et al., forthcoming) studies the impact of a charter-like program in Liberia where private school operators took on management contracts to run public schools (called the Partnership Schools for Liberia or PSL program). The schools remained "public" in character in that there were no fees, no selective admissions of students, and the private operators had to mostly use existing public-school teachers. Using a matched-pair randomization design Romero et al. (forthcoming) find that students in treatment schools scored 0.18σ higher on math and language tests after a year of the program. These gains reflect both improved management (lower teacher absence rates and greater time on task) as well as additional resources (since private operators raised additional funds for their schools) and so do not unambiguously suggest that the private operators were more efficient.

However, perhaps the most important finding of the study is that it finds striking variation across school operators, with some having gains as large as 0.36σ and others having no gains at all. These results highlight both the promise of private-management of public schools in developing countries, but also highlight that it may be important to go beyond average

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et al., 2016, Abdulkadiroglu et al., 2016, and Angrist et al., 2012; in New York City: Hoxby, Murarka, and Kang, 2009, and Dobbie and Fryer, 2013 --- both found especially large effects on math; and in Washington, DC: Curto and Fryer, 2014). Notably, while Boston charter school attendance have a positive effect on attendees' learning outcomes, attendance in non-urban areas outside Boston has a *negative* effect on learning outcomes on average (Angrist, Pathak, and Walters, 2013).

differences across public and private providers and also pay attention to the heterogeneity across providers for both research and policy.

2.2.5 Summary of International Evidence and Implications for India

The discussion of the international evidence above highlights that despite the theoretical promise of ideas such as school-choice and vouchers, the empirical evidence is quite mixed (see Epple, Romano, and Urquiola, 2017 for an excellent review). My personal view is that an important message from this body of evidence is that the impact of specific reform ideas will largely depend on the *design* of the reforms and that it is essential to pay careful attention not just to "evaluation" of a specific reform, but to the "design" of the reform itself. In other words, learning effectively from this body of evidence will require not just counting results from econometrically well-identified studies, but paying more attention to theory and the principles that have been validated across studies.

For instance, one pattern in the evidence that I find noteworthy is that there are several high-quality studies on charter schools (evaluated by comparing lottery winners to lottery losers) that have shown substantial improvements over the default public schools, whereas programs that provide vouchers to public school students to go to existing private schools seem to have limited or even negative effects.

One plausible reason for these differences is that the charter schools that typically produce large improvements in learning are schools that were created explicitly to serve children in low-income communities: their pedagogical practices cater to the needs of these children, and the schools take into account the lower available level of home support (such as those seen in the "No Excuses" schools). In contrast, existing private schools typically cater to more affluent sections of the population (who can afford to pay the fees in the first place). Thus, while the schools may appear aspirational to low-income parents and students, attending them may not be very helpful and in some cases may be counterproductive because the schools are not designed to cater to disadvantaged populations.

There is some suggestive evidence along these lines even in the AP school choice results: Children who used the voucher to attend Telugu medium private schools did substantially better than those who stayed in government schools (suggesting that the greater effort and time on task documented in the private schools did lead to better learning outcomes). However, the children who transferred to English medium private schools (which are aspirational but may not be a good fit) did significantly worse.

More generally, it suggests that pedagogy and classroom practice are as (or more) important than "public" versus "private" per se. However, conditional on pedagogy, private schools do appear to have an effort advantage. Thus, a lot more thoughtful work is needed on designing models that leverage the better management and accountability of private schools with the need to cater to the needs of the low-income demographics that are served by government schools. Further, even models that make more use of private or charter schools will need well-designed regulation to prevent cream-skimming and balkanization of curricula (say along religious lines). The next section provides a brief overview of the principles for doing so.

3 Principles for Leveraging Private Providers for Quality Education

The discussion above highlights that private schools in India are clearly an important part of the education provider landscape and have a substantial market share. While central and state departments of government mostly focus on government-run schools (for whom they have implementation responsibility), it is imperative that education policy account for the very large prevalence of private school providers. In particular, education policy should focus on the quality of education received by every student in India and not distinguish between whether a student is enrolled in a public or a private school.

There are two different sets of principles that matter. The first are principles for regulating existing private schools that will continue to be financed through fees paid by parents. The second are principles for leveraging a combination of public financing and private provision for expanding access to private schools to those who may not otherwise be able to afford them.

3.1 Principles for Regulating Private Schools

Even when private schools are financed solely through fees, with no public financing, there is still a case for a basic amount of regulation, for at least three broad reasons.[24] First, schools are public spaces and should therefore be subject to certain minimum standards of physical safety. Second, there is information asymmetry between schools and parents, which may be mitigated by requiring schools to disclose key operational details such as teachers' qualifications and experience. Third, there is asymmetry of power between schools and parents once children are enrolled, which exposes parents to arbitrary decisions by school management, including unexpected fee increases.

[24] For instance, restaurants are private businesses patronized by private clients, but are still subject to regulations on food safety and handling.

While these reasons for regulation make sense in theory, the Indian approach to regulation of private schools has, in practice, been heavy-handed and arbitrarily enforced. In particular, the approach has placed a lot of power in the hands of school inspectors, who can shut down schools for a wide variety of reasons, and extort bribes from school management to overlook regulatory violations. Further, this problem has worsened since the passing of the Right to Education (RTE) Act, which has taken a strict input-based approach to establish minimum norms for private schools to operate.

These norms (such as a minimum size of a playground), are often not viable in many locations, leading to the large-scale closure of many private schools that were otherwise popular in their communities.[25] Further, these norms sharply reduce the flexibility of schools to optimally spend their resources to improve education. For instance, the norms require that all teachers be qualified. While this may make sense in theory, in practice, there is very little evidence in India of a positive correlation between the possession of a teacher-training credential and effectiveness in the classroom. In contrast, several studies have found that supplemental instruction by modestly-paid teaching assistants (typically with only a secondary or higher-secondary school education and no teacher training) can be highly effective at improving early-grade reading and math skills. Thus, the input-based mandates of the RTE preclude private schools from using teaching assistants who may be highly effective. Finally, some states also prescribe minimum teacher salaries in private schools that are well above the market rate.

Two possible responses to these unwieldy input-based impositions are (a) for schools to shut down, or (b) for schools to report facts and figures that comply with regulatory norms (especially about teacher qualifications and pay), while deviating from them in practice. In the second case, it is also not uncommon to bribe the school inspector to turn a blind eye to this deviation. Overall, the status quo of uniform, unrealistically high input-based norms, which cannot be met by many schools, makes it more difficult for honest operators to enter this space. It also cedes market share to those who are more willing to claim compliance on paper while not doing so in practice.

My recommended approach, therefore, is to focus on regulation based on audited “disclosure” of key school inputs rather than on input-based mandates. By focusing regulation on disclosure, policy would acknowledge the considerable variation across India and allow diversity of models of effective schooling to emerge. Regulation is still important, and private schools can and should still be sanctioned for being untruthful in their disclosure, but should not be have to

[25] See India Institute (2015), Ramnani (2017) for examples of school closures and PTI (2018) for an example of state government-issued notices to show cause (for unrecognized private schools to explain why action should not be pursued against them).

meet input mandates. Such an approach will facilitate (as opposed to inhibit) the expansion of quality private-school providers and allow for variation in approaches across locations and providers. It will also make the environment less "corrosive" by moving from a low-level equilibrium of unrealistic laws that are not enforced uniformly and generate an ecosystem of bribes and corruption, to a more transparent policy regime based on disclosure of the truth and letting schools and parents decide on the inputs that they want to focus on.

Overall, the key constraint to education quality in India is that of low supply of high-quality options. This shortage, in turn, leads to queues and waiting lists for admission to relatively high-quality schools and increases the pricing power of these schools.[26] Thus, the single most important focus of education policy in India has to be on expanding the supply of high-quality options whether they are in the public or private sector.

It is worth recollecting that shortages, waiting lists, and side payments were common in many sectors, including telephones, computers, and cars, in the mid-1980s. The most important lesson for India from the successful economic liberalization in the early 1990s is that the key to expanding access, increasing quality, and reducing costs in sectors ranging from electronics to transport was the reduction of barriers to the entry of private providers and the resulting increases in choice for consumers and competition among producers. It is perhaps no accident that the greatest challenges for the Indian economy are in sectors like agriculture and education, that have not seen similar reforms.

A simple change such as regulation of private schools based on disclosure as opposed to mandatory compliance with arbitrary input-based mandates may have large down-stream benefits in terms of expanding the supply of quality school operators.

3.2 Principles for combining public financing and private provision

While the principles outlined in the previous section may encourage the expansion of the supply of high-quality schools, this will not by itself directly benefit the large number of Indians who are too poor to afford these schools. In general, private providers in competitive markets face more pressure to be cost-effective and responsive to user needs and feedback. However, an important challenge with relying on private providers for social "merit" goods like education is that they are unlikely to respond to the needs of those who cannot afford their fees.

[26] In the case of higher education, one striking metric of this shortage of quality options within India is the staggering size of expenditure undertaken by Indian citizens for education overseas. Recent estimates suggest that is nearly $3 billion per year (Nanda and Mishra, 2018).

As a result, the default policy approach to providing access to services like education and health to the poor has been direct provision by the state through government-run schools and clinics. However, as has been documented extensively, the quality of expenditure in publicly-provided services is quite poor. This is best seen in the case of expenditure on teacher salaries. First, salaries of government-school teachers are dramatically (five to ten times) higher than those of private-school teachers. Further, there is no evidence that higher teacher salaries in India help to either select better teachers or motivate greater effort.[27] Second, despite these higher salaries, teacher effort is low and best-exemplified by the higher rates of teacher absence and lower rates of teaching activity seen in government schools compared to private schools. The fiscal cost of teacher absence alone has been estimated to be over Rs. 10,000 crores ($1.5 billion) each year.

Thus, a key question for policy is whether it is possible to design models of education financing and provision whereby there is public financing of education for all students to provide universal access regardless of ability-to-pay, combined with private provision of education to leverage the better management quality seen in the private sector. In particular, the evidence to date suggests that it may be possible to substantially improve the quality of schooling available to the poor *at the same level of per-child expenditure* seen in the government schooling system under the status quo, if this expenditure is leveraged with better management.

There are two broad ways in which such a system can be designed. The first is to provide students with a voucher that has a value equal to the per-child variable cost of schooling in the public sector, and to make this voucher redeemable at any school of the student/parent's choosing. This is the traditional model of school choice that dates back to at least Friedman (1962). The posited mechanisms by which such a system is believed to be an improvement over the status quo include the following: (a) greater choice and flexibility for parents, (b) greater competition for students between schools and a corresponding increase in accountability and responsiveness, and (c) increasing the market share of good schools over time, and correspondingly reducing that of bad schools.

However, as the discussion of the evidence in section 2.2 highlights, this model of market-based choice and competition may be too simplistic for education. In particular, schools often have the characteristic of "club" goods, whose perceived quality is defined at least in part by who they exclude. The assessment of school productivity is further complicated by the role of peers

[27] For instance, both Muralidharan and Sundararaman (2011) and Lemos, Muralidharan, and Scur (2018) show that, in India, there is no correlation between the level of teacher pay and their effectiveness at improving student learning.

in the formation of human capital. As a result, it may be easier for schools to be considered "good" through selective admissions rather than through effectiveness at instruction (which can be much harder for parents to observe). As illustrated by MacLeod and Urquiola (2015), it is even possible for the equilibrium of a naive voucher-based system to produce lower learning outcomes than the status quo. Possible channels for this result include the following: (a) schools investing disproportionately in "screening and selecting" higher-ability students rather than in improved instruction, (b) schools investing disproportionately in visible aspects of school quality (such as buildings and facilities) rather than less-visible elements that affect instruction quality more, and (c) students reducing effort on studying after getting admitted to a prestigious school (because the market may place more weight on school reputation, especially in the absence of standardized exams).

This discussion does not imply that a voucher-based system *cannot* improve learning outcomes in equilibrium. However, it does highlight the need to pay careful attention to the details of a voucher system. In particular, it is essential to design systems that reward schools for being effective at improving human capital (broadly defined to include non-academic goals of schooling) and not just for being better at selecting higher-ability students (or, equivalently, turning away students who may be more difficult to educate).

A second design that mitigates some of these challenges is that of a charter school. While details vary, charter schools typically have the following broad characteristics. First, they are "public" in the sense that they are not allowed to selectively admit students, nor to charge fees over and above those that would be permissible in public schools. Second, while their curricula need not be identical to those of public schools, they do need to have their instructional program approved by the public body that grants the charter. Third, they have considerably more managerial autonomy, especially with regard to the hiring, retention, and performance management of teachers and staff.

As we discuss in section 5, there are several reasons why expanding charter schools could be a promising option for improving both school quality and access in India, and to do so in a cost-effective way. However, before we discuss a policy roadmap for achieving this potential, it is important to also account for the current policy landscape with regard to combining public financing and private provision of school education in India. In particular, there are provisions in the RTE Act that attempt to do exactly this. We discuss the theoretical promise and the practical disappointment of the RTE in the next section.

4 The Right to Education Act: Theory and Practice

4.1 RTE Clause 12(c): The theoretical promise

The Right to Education Act (RTE), passed by the Indian parliament in 2009, applies to many aspects of education across public and private schools. In this section, we focus on the provisions that apply to private schools. In addition to the input-based norms prescribed for private schools (described above), the RTE also includes a very ambitious provision with regard to improving the ability of socioeconomically disadvantaged students to attend private schools.

This provision, which is contained in Clause 12(c), mandates that all private schools in India reserve 25% of their capacity for students from economically weaker sections (EWS) and also stipulates that the government will reimburse the schools for the cost of these students up to the per-child expenditure in government schools. In cases where the demand for such slots exceed the capacity in the schools, these slots are to be allocated by lottery. The motivation for this provision was the concern of increasing stratification of schooling in India by socioeconomic status and the perceived need to integrate schools across the socioeconomic spectrum.

Interestingly, this provision was initially welcomed by commentators from both the Left and the Right. The Left was happy about the potential of this provision to reduce socioeconomic stratification in education in India and by its promise of providing access to higher-quality education opportunities to EWS students. In principle, the number of students potentially affected by this provision would far exceed the number affected by school desegregation in the United States (following the landmark Brown v. Board of Education ruling in 1954), and thereby be a signature achievement for socioeconomic justice.

On the other hand, the Right was happy about the potential of this provision to improve the effectiveness of public spending on education by allowing public funds to cover the cost of RTE beneficiaries attending private schools. Since the majority of private schools in India have a much lower cost per child than the government schools, the value of the reimbursement stipulated by the RTE would, in theory, be enough to cover their costs. Finally, since parents could apply to schools based on their preferences, the provision would also increase school choice for the poor. Thus, RTE Clause 12(c) would, in theory, create one of the largest school-choice systems in the world.

This enthusiasm was shared by many, including myself (see Muralidharan, 2014). In particular, the RTE Clause 12(c) promised to be a rare reform that could improve both equity and efficiency. However, it was also clear that delivering on this promise would require careful

attention to implementation details as well as smooth processes for reimbursement to private schools for the seats taken by students admitted under the RTE quota (as also outlined in Muralidharan, 2014). We now have data to assess the implementation of RTE Clause 12(c), to offer an informed view on how this has affected education quality and availability in India.

4.2 RTE Clause 12(c): The practical disappointment

Unfortunately, the net effect of RTE on education in India appears to have been negative. In the case of public schools, data from the annual Pratham ASER reports show that learning levels have actually declined in the last decade. While it is difficult to identify a single cause for this decline, one leading candidate explanation is the "no detention policy" of the RTE, which required that students be promoted to the next grade regardless of demonstrating an understanding of current grade level materials.[28]

In the case of private schools, the negative consequences of the RTE are both because of the input-based regulatory norms and because of the practical realities of how RTE Clause 12(c) has been implemented. While systematic data on school closures does not exist, several media accounts as well as reports suggest that the RTE has led to a sharp increase in the rate of closure of private schools. This is both because of not meeting input-based mandates and because of the financial pressures resulting from not being adequately compensated by the government for the slots allotted to EWS students.[29]

There are problems related to both extent and reliability of reimbursement by the government to private school for the EWS slots. While the draft of the RTE specifies that schools should be reimbursed their full costs up to the per-child cost in government schools, in practice, many states have set a uniform reimbursement level that is considerably lower than the per-child

[28] See Muralidharan, Singh, and Ganimian (2019) for an illustration of the wide variation in learning levels in Indian classrooms and a discussion of its implications for the low productivity of time and money spent on education.

[29] Ramachandran and Reddy (2015) overviews the norms prescribed by the RTE Act of 2009 and demonstrate evidence that it was likely not enforced for government schools, but more likely to have been enforced for private schools. They study whether and to what extent private schools closed due to the RTE Act of 2009, and find that this varied substantially by state: across India, they report that around 30,000 private schools were shut down after the RTE and that the relative number of private schools closed was much higher in Rajasthan, Uttar Pradesh, and Madhya Pradesh. The authors report inconsistency between cited reasons for school closure or mergers across sources, and recommend more in-depth research on this question. Centre for Civil Society (2019) overviews the shortcomings of the RTE Act of 2009, then reviews the challenges of identifying (or estimating) the number of schools closed, given notice to close, or threatened with closure. A number of states didn't respond to Right to Information applications; many of those that did responded with no or incomplete information. Even when states did report numbers of schools threatened, given notice, or shut down, the numbers appear to be substantially lower than the actual number (per media reports). The main takeaway is that India has a data problem that must be fixed to enable transparency and accountability in governance of private schools.

spending in government schools. Further, delays in payments are routine. While systematic data on payment delays is not available, several media reports have cited this as a source of considerable stress for school operators.[30] In some cases, schools have tried to cover the cost of their uncompensated EWS mandate by raising fees for other students. However, these have been met by protests from parents and courts and governments have often responded to these protests by instituting caps on fees or fee increases. Overall, the combination of low and unreliable reimbursements for EWS slots has likely contributed to the closure of a large number of schools, thereby reducing the schooling options for children in their communities.

A related reason for the underperformance of RTE in practice has been complexity in the rules and procedures used by states for allocating EWS slots, and the processes by which students can obtain admission under this quota. For instance, a recent study of the impact of RTE Clause 12(c) on learning outcomes using data from EWS-quota lotteries in Karnataka finds that winning such a lottery had no impact on learning outcomes (Damera, 2018). One reason for this was that even lottery losers had a very high chance of attending a private school. Thus, winning a lottery led to only a very small (6%) increase in the probability of attending a private school. In other words, students applying for the lottery were mainly those who would have attended private schools anyway, and were only entering the lottery to obtain government funding for their fees. One plausible reason is that the most marginalized households (who would not have attended private schools on their own) may not have been able to complete the paperwork needed to enter the lottery. Thus, the goal of RTE Clause 12(c) of increasing participation in private schools for more marginalized groups does not seem to have been met in this case.[31]

Another underappreciated cost of RTE Clause 12(c) is that it does not apply to schools that are classified as "minority" institutions. Section 30 of the Indian Constitution provides "minorities" (in quotes because the definition is not fixed) the autonomy to run their educational institutions. This is an important Constitutional Protection for the preservation of language, and culture of minorities. However, the definition of a minority institution has extended to not only education of minorities and preservation of language and culture but to educating *all* students as long as the institution itself is managed by a group deemed to be a Minority.

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[30] See Moudgil (2016), Jaswal (2019), and The Hindu (2019) for sample reports on the delays in government reimbursements to schools for and their effects on schools and students.

[31] One well-known study (Rao, 2019) finds that there are positive social effects from the greater socio-economic diversity in schools induced by lottery-based admissions of EWS students. In particular, the study finds a significant increase in the pro-social behavior of wealthy students when they are exposed to less privileged peers. However, there are two reasons for why this result may not generalize to RTE at scale. First, the study looked at impacts on students in "elite" Delhi schools and thus, the extent of socio-economic distance between the typical student in these schools and lottery winners was much larger than would be the case in a typical private school (with a much lower cost per child). Second, Delhi also has civil-society organizations helping EWS children enter the lotteries needed to attend a private school. As the Karnataka study shows, this is unlikely to be true in many other settings.

Thus, for all practical purposes, educational institutions designated as "minority-run" enjoy substantial advantages in running educational institutions in India including: complete autonomy in selection and employment terms of teachers, autonomy on student selection, autonomy on fee setting, and also being exempt from Clause 12 (c) of the RTE (which has been a particular burden for schools because of the arbitrary setting of reimbursement value by state governments and the irregular and unreliable payments for these). This has led to a significantly uneven playing field in the provision of education with negative consequences for Indian education and society more generally.

It has had the socially corrosive effect of more and more groups demanding official "minority" status – often for the main purpose of preserving the autonomy over educational institutions. This was true for the demand of Jains to be classified as minorities and also behind the recent Lingayat agitation in Karnataka to be classified as minorities. While commentators have focused on theological issues underlying these demands for groups to be declared as minorities, in practice, the reason that the issue has become so fraught is that: "the state distributes rights and privileges based on whether or not communities are minorities or not. The great drive towards minoritization is propelled largely by the view that getting a minority tag allows a community greater autonomy over its educational institutions" (Mehta, 2017).[32]

Overall, the RTE has likely hurt investments in education by socially-conscious trusts and non-profits who do not qualify for minority status. While the social need for such investments is high, very few philanthropists would be willing to invest when governments can arbitrarily intervene in the functioning of these schools and confiscate capacity (as was done with the RTE Clause 12(c)) – especially in ways that do not apply to other providers. Independent of parity issues as a matter of principle, the arbitrary interventions by the government combined with a non-level playing field strongly deter much needed private philanthropic investment in creating high-quality education capacity in India.

In retrospect, a fundamental design flaw of RTE Clause 12(c) is that it was *based on confiscating existing capacity in private schools as opposed to creating new capacity.* Further, it was deeply illiberal in that it was basically a stealth nationalization of a quarter of private schooling capacity without adequate compensation. Thus, approaches to reducing socio-economic disparities in access to higher-quality private schools should ideally comply with two principles: (a) they should aim to expand the supply of high-quality school options, and (b) they should be voluntary on all sides and not be based on coercion by the state. I outline one such approach in the next section.

[32] See the excellent discussion of these issues by Pratap Bhanu Mehta (Mehta, 2014 and 2017).

5. A charter school roadmap for India

5.1 The model

This section provides a roadmap for one promising way of using a combination of public financing and private provision to improve education quality in India in a way that is accessible to economically disadvantaged students in a cost-effective way. Specifically, I propose that Indian education policy should encourage pilots and evaluations of charter school models that preserve the "public" character of schools while leveraging private management for improved efficiency and accountability.

Recent years have seen a significant increase in the number philanthropically-funded organizations that aim to run high-quality schools for low-income students in India.[33] One common model has involved these organizations partnering with governments to improve the operations of government schools by using their premises but taking responsibility for their day-to-day management. In some cases, these organizations work with existing government school teachers and introduce a management and pedagogy layer to improve the governance and quality of instruction in these schools. In other cases, the government school teachers are reassigned to other schools, and these organizations hire and manage their own teachers. However, in all cases, the schools remain "public" in character with no fees charged and no selective admission of students.

While there has not been any high-quality impact evaluation of these initiatives to date, qualitative accounts suggest that these schools appear to function better than traditional government schools. In particular, the governments in the jurisdictions where these pilots have operated appear to be willing to expand the number of government schools that these entities are asked to manage. However, the main hurdle to expanding these models is financing, since the school operators have had to rely on raising their own philanthropic funding to cover the cost of running these schools. While the provision that companies should set aside 2% of their profits for CSR (corporate social responsibility) has increased the amount of charitable funds available to education providers, this model of financing is unlikely to generate positive impact at scale.

The combination of the availability of private-school providers in India who are willing to scale up such models to serve EWS students and the promising results from charter school

[33] Examples include the Satya Bharti Schools, Akanksha, Peepul, Muktangan, GyanShala, Katha, the Madhi Foundation, and several others.

experiments in the US (especially in urban settings) suggest that it would make a lot of sense for policy pilots in India to experiment with similar models, and to carefully evaluate them.

The basic structure of these models would be to hand over existing government schools to qualified private providers to manage and operate, and pay them a per-child amount equal to variable cost of educating a student in government schools. These schools would maintain their public characteristics, not charging fees, not practicing selective admissions,[34] and having curriculum and instruction linked to a recognized examination board. However, management would have autonomy on the selection, retention, and performance-management (including pay) of teachers and other staff. Such pilots should start with a few schools in selected urban and peri-urban areas to ensure adequate choice and competition between regular government schools and charter schools, and ensure that there is always a public option as a backstop.

Such a model has several attractive features. First, unlike the provisions of RTE Clause 12(c), this model is based on *expanding* the capacity of high-quality schooling rather than confiscating existing capacity to reallocate it to EWS students. Second, as seen in the examples of successful charter schools in the US, such a charter school model will allow providers to design and implement pedagogical techniques that are optimized for low-SES households. In particular, this may require additional time in school to complete homework and review, which may not be possible at home. Third, capping the reimbursement to charter schools at the per-child variable cost at government schools will ensure that the fiscal burden of such pilots is manageable.[35] Fourth, and perhaps most important, such an approach is likely to encourage publicly-motivated investment in expanding education capacity catering to low-SES households.

Ideally, the project itself can be announced as a "grand challenge" inviting proposals from not-for profit organizations to design cost-effective models for delivering a step-function improvement in learning outcomes for low-SES students within the same cost-per child as in the government school system. Evidence to date shows that while private schools may be more accountable than government schools, they are only slightly better in terms of value-added and are unlikely in their current form to deliver enough improvements in learning to solve the

[34] In the case of oversubscription, schools would either be able to expand capacity to accommodate all applicants or use a lottery for admissions.

[35] Of course, in the short run, the public school teacher salary cost is fixed and, therefore, there will be some additional cost to such pilots. However, it is also true that there are several public schools without enough teachers and so it should be possible for the government to fruitfully reassign teachers from pilot schools to areas where they are needed. In fact, analysis of spatial distribution of teachers across schools shows that even when average pupil-teacher ratios are within the prescribed norms, there is a large amount of spatial variation in the school-level pupil-teacher ratio. Thus, a certain amount of spatial "rationalization" of the teacher workforce may be beneficial even in the absence of charter school pilots.

learning crisis. Thus, what is needed is not just public funding for low-SES students to attend a "business as usual" private school. Rather, what is needed is a policy framework (and a modest amount of public funding) to catalyze innovation in models of schooling that combine improvements in both governance and pedagogy to deliver a step-function increase in the effectiveness of schools in India.[36]

The financing needed for such an effort is easily affordable. Governments will need to commit to funding the charters for a reasonably long period of time to motivate entry of high-quality charter school operators. Of course, the renewal of funding can be made conditional on meeting basic requirements each year, but there will need to be at least a five-year initial commitment (and ideally longer). In several states, the average per child spending in government schools ranges from Rs. 30,000 to 50,000/year.[37] Assuming a variable cost per child per year of Rs. 20,000, and an average school size of 250 students, the cost per school will be Rs. 50 lakhs/year. Thus, the cost of a 100-school pilot would be around Rs. 50 crores/year. For perspective, the annual school education budget for Maharashtra is around Rs. 40,000 crores/year, and that of Telangana is around Rs. 12,000 crores/year.

Thus, it would be possible to conduct a serious pilot and evaluation on a meaningful scale, reaching around 25,000 students/year at a cost of less than 0.1% of state education budgets. Since the annual growth in real state education budgets will almost certainly be greater than this amount, it should be easily possible to fund such pilots without reducing expenditure on any existing commitment (even after adjusting for inflation). If multiple states were to try out such an approach, it will be possible to test such a model in several settings and languages and also reach a larger number of students. One promising way to accelerate such experiments would be for the Ministry of Human Resource Development (MHRD) to set aside an "innovation fund" of say Rs. 500 crores/year that would be available to states wanting to try out such experiments and willing to put in their own funds to cover a part of the costs.

At the same time, it is important to note that there is no guarantee that such an approach will improve learning outcomes. It is therefore essential for such pilots to be accompanied by careful evaluations. In particular, it will not be difficult to identify pairs of schools that may be eligible for such a pilot and use a random lottery to select one school in each pair for the pilots.

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[36] It may also make sense to tie a part of the per-child payment to charter operators to demonstrated learning gains on independent assessments as is done in the case of Social Impact Bonds. However, doing this well will require additional effort on independent testing and measurement and so this component is not necessary to get started on the approach suggested here.

[37] These numbers are based on data from states such as Tamil Nadu, Telangana, Maharashtra, and Punjab, which are higher-income states. The figures may be lower in lower-income states.

Such a design will enable a credible, high-quality evaluation of charter school pilots, and allow us to estimate both the average effects of the program, as well as heterogeneity among providers (as was done by Romero et al., forthcoming, in Liberia). These evaluations can in turn inform policy decisions regarding whether and how to scale such an initiative.

5.2 Challenges and solutions

As with all reform ideas, there are also important challenges to keep in mind. We discuss three important challenges below, and provide suggestions for how they can be addressed.

5.2.1 Political economy

The first concern is political economy, and, in particular, resistance from teachers. It would be easy for teacher unions to characterize such a pilot as "privatization" and mobilize political opposition. This concern can be addressed in multiple ways. The most important of these is to solicit interest from parents and communities as to whether they would like their government school to be considered for such a pilot and to only include those schools in the pilot where there is community interest and consent. Such an approach will ensure that the pilot is democratically validated by beneficiaries and not imposed in a top-down way. Support from the community is also the best way to manage teacher resistance.[38]

A second entry point for such pilots is in the context of governments wanting to convert at least some government schools into English-medium schools. There is very large, unmet demand from parents for such schools, and government schools and teachers are not equipped to meet this demand in most places. This would be a natural place to invite reputable organizations with a track record of running English-medium schools as well as effectively catering to low-SES students to participate in charter school pilots.

A third politically-feasible entry point would be in the context of preschool education. Again, there is considerable demand from parents for high-quality preschool education, which is currently not met by the public education system. The draft document on the "New Education Policy" calls for universal preschool education to be a goal for Indian education policy in coming years. Since teachers have not yet been recruited for this desired expansion of schooling, this would be a natural place to experiment with charter school pilots and evaluations.

[38] The political challenge discussed here is an excellent example of Mancur Olson's classic point regarding "concentrated costs and diffuse benefits" of reforms. Thus, one way to address the opposition of a concentrated interest group (like teachers) is to engage with the potential beneficiaries of the reform and make them active stakeholders in the reform process.

Finally, it may be feasible and sensible to start these pilots in urban areas, in government schools whose infrastructure is significantly underutilized. It is not uncommon to see government schools occupying prime land in several Indian cities that are running at 20-40% of capacity because of the high demand for private schools in urban areas. Running charter school pilots in these areas is especially promising because it would improve the utilization of infrastructure, increase the enrollment in the "public" schools (because the charter schools would be considered public schools), and reduce the financial burden on low-income parents who may no longer need to pay out of pocket for private schools.

There are two practical ways of structuring the contract with charter school operators. The first is to reassign all existing teachers to other government schools, offer the operator full freedom in appointing new teachers, and pay the operator a per-child fee set at the variable cost of the government school system. The second is to keep the existing public school teachers, but to add a layer of private management to these schools. In this case, the charter school operator would be paid a (lower) per-child *management* fee that would cover the cost of the management support brought in by the charter school operator. In addition, the operator could be paid a per-child fee set at the variable cost of the government school system for *additional* children enrolled over and above the initial enrollment. Such a structure will both incentivize the operator to increase enrollment and provide the resources needed to hire teachers to cater to the increased enrollment. The second option may also be more politically palatable to teachers' unions because it does not require reassignment of existing teachers.

Overall, while some political resistance to such a reform is inevitable, the correct way to address this challenge is to engage directly with parents and communities and proceed with their support. It is also important to not imply that private or charter schools are superior to government schools on average. The evidence shows that the heterogeneity in quality *within* private schools is likely to be larger than the differences in average quality *between* government and private schools.[39] Thus, the logic of charter school pilots is to (a) increase the supply of high-quality schooling options with a focus on encouraging innovations in cost-effective models of schooling for low-SES students, and (b) empower low-income parents with more choices. This is also why it is important to first carry out these pilots in urban and peri-urban areas, where there is a high density of schooling options and where there is likely to always be a "public" option. In other words, the point of charter-school pilots is not to privatize

[39] For instance, the evaluation of PSL in Liberia finds that the difference in value-addition between the most and least effective private school operators was 0.36 SD, whereas it was only 0.18 SD between public and private schools on average (Romero et al. forthcoming).

or deprioritize public education, but to expand the number of options (and instructional and management models) available to provide education to low-income students.

5.2.2 Procurement & evaluation

The second main challenge is procurement. In particular, as the evidence from Liberia shows, there is likely to be considerable variation among charter-school operators in their effectiveness. Further, this variation is very difficult to identify at the procurement stage, where providers may submit strong proposals on paper and make excellent presentations, but not deliver in practice. Thus, an effective procurement process would allow for multiple providers to be awarded charters to allow variation in quality to be revealed in practice. An additional challenge is that normal procurement rules are based on specifying the deliverables and awarding the contract to the lowest bidder. However, in this case, what we would like is not a "race to the bottom" on cost, but rather a "race to the top" on quality. In particular, the goal should be to encourage operators to innovate on the quality and range of educational services offered, rather than focus on minimizing the cost of delivering a pre-specified bundle of services. Achieving these goals will require a modified approach to procurement, which we outline below.

The broad structure of a recommended procurement regime for charter schools is as follows. First, the government should identify a universe of schools that would be considered for the pilot and obtain consent/confirmation from parents/communities that they would like their school to be considered for a charter pilot. In parallel, the government should invite bids from qualified charter school operators to specify a bundle of educational services that they would commit to providing at different fee schedules.[40] This bundle would include core instructional services (such as class size, teacher qualifications and experience, and teaching/learning materials such as worksheets and exercise books) as well as supplementary offerings including transportation, uniforms, meals, and even after-school programs. The operators would also be expected to indicate the geographic areas where they would be willing to run charter schools.

The scoring of the bids would be done on a transparent set of criteria, including the operator's experience and track record in running schools, quality of services offered, independent assessments of performance (including references), the strength of the organization and managerial team, and their financial viability. Importantly, the awarding of charter contracts should not be a "winner-take-all" system. Rather, the goal should be to encourage participation

[40] These fee schedules could include the current per-child total cost in the government school system, the per-child variable cost, as well as an amount slightly below the per-child variable cost. This will provide the government with options based on its fiscal constraints.

by as many providers as possible, subject to passing a basic eligibility threshold. One practical way of implementing this idea is to set a minimum score for eligibility and to have the number of schools awarded be proportional to the total score.[41] Finally, the specific schools that will be offered to providers can be randomly chosen from within the set of schools/areas that the provider indicates an ability to serve.

There are two kinds of evaluation that can accompany such a pilot. One is an evaluation of the impact of charter schools on students in the concerned markets – including those who do not actually attend the charter schools (to study the market-level effects inclusive of competitive responses by other actors in response to such a pilot). This is mainly a research exercise, and will be valuable in informing decisions about scaling up (but should not be used to reward in.

The second kind of evaluation is a performance evaluation of individual providers to assess their effectiveness at achieving learning benchmarks for their students – and potentially link some bonus payments to. This is not necessary, but can provide a useful source of additional motivation to providers to focus on innovations that improve learning and not just those that appear attractive to parents and officials (such as better infrastructure and facilities, which may only have a weak correlation with better learning). The second approach is what is used by Social Impact Bonds or Development Impact Bonds and could be considered as part of the reform package.

5.2.3 Technical Capacity

A third potential concern is that running the procurement and evaluation processes described above also requires state capacity, which most governments likely do not possess. In other words, just like running effective government schools requires state capacity (which is weak), it is also non-trivial to manage non-state providers to deliver in the public interest. In particular, it is also possible for the procurement process above to get captured by vested interests, which may simply lead to a transfer of rents from teachers in government schools (who enjoy salaries that are considerably above the market rate) to provider profits. This is a deep issue and highlights that regardless of public or private provision, there is no way to get around the need for state capacity to deliver outcomes in the public interest.

However, at least at the scale of pilots and demonstration projects, there are several credible and high-quality non-profit organizations that can support the central and state governments in

[41] This is very similar to an electoral system with proportional representation subject to passing a minimum eligibility threshold.

the design of such a scheme, procurement of providers, and independent evaluations. Examples include the World Bank (for design and procurement) and JPAL (for evaluation).[42] Further, there are also non-profit organizations in India such as the "Education Alliance" that have been explicitly created to support the ecosystem of non-profit organizations seeking to run schools for the poor (typically through taking over the management of government schools). Thus, it will be easy for interested state governments to obtain the technical support needed to run charter-school pilots and evaluations successfully. Over time, governments will need to build the requisite technical capacity in-house.

Overall, state capacity will continue to be a key constraint for service delivery in India regardless of whether the ultimate service provider is public or private. Yet, one attraction of the charter-school model is that the government only has to manage the high-level structure of procurement and accountability without needing to manage service delivery all the way down to the last-mile. In principle, it should take less administrative capacity to do this relative to managing thousands of schools directly and the approach is therefore well worth trying.

To summarize, the approach outlined in this section should be able to encourage an increase in the supply of high-quality schooling options, increased innovation in their educational offerings, while also ensuring affordability of these options to low-income students and preserving the "public" character of these schools (no fees, no selective admission). While such a design is promising, it is also important to conduct high-quality evaluations, as well as independent evaluation of the impact of charter schools on learning outcomes.

6. Conclusion

The Indian education system is in crisis and the status quo is simply not working. On one hand, large increases in education spending have not translated into improved outcomes and on the other hand, parents and children are exiting to the private sector in large numbers. Yet, despite their superior management and governance, private schools in their current form are only slightly better than government schools, and are unlikely to deliver substantial improvements in learning outcomes at scale. Education policy in India therefore needs to focus on both improving public and private schooling options.

It is worth reiterating that the private-school based focus of this paper does not in any way seek to downplay the importance of improving the quality of government schools in cost-effective

[42] Indeed, given that India has graduated from being an IDA recipient from the World Bank, and can easily access private capital markets for its development financing needs, the main benefit of World Bank financial assistance is often the technical support that comes with the funding (including support on procurement and evaluation).

ways. There is a large body of evidence accumulated over the last two decades that identifies enormous variation in the cost-effectiveness of various policies to improve public education. Thus, the benefits of shifting public expenditure from less to more cost-effective ways are likely to be substantial. I have discussed the evidence and the policy ideas for improving public education in India extensively in prior work (see Muralidharan, 2013 and 2019). This paper, therefore, focuses on promising ideas for leveraging private management for improved education outcomes (both for fee paying students and for students supported through public financing). This is a topic that has received less systematic attention, and such attention is warranted by the large market share of private schools.

This paper has demonstrated, using evidence from both India and around the world, that it may be possible for charter-school models to deliver substantially more learning than the government school system at similar levels of per-student expenditure. In particular, India needs considerable innovation in models of mass education that are both effective at teaching the millions of first-generation learners and can do so in a cost effective way. The evidence points to a compelling case for experimenting with charter school models in India and evaluating them carefully. Even if the steady-state market share of charter schools is small, such pilots can help to foster innovation in pedagogical strategies to improve learning outcomes for low-SES students in a cost-effective way. Evaluating these pilots, can, in turn, help to shed light on effective management and pedagogical practices that can, over time, also be used to improve public schooling.[43]

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[43] See Fryer (2014) on applying charter school best practices to traditional public schools in Texas.

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