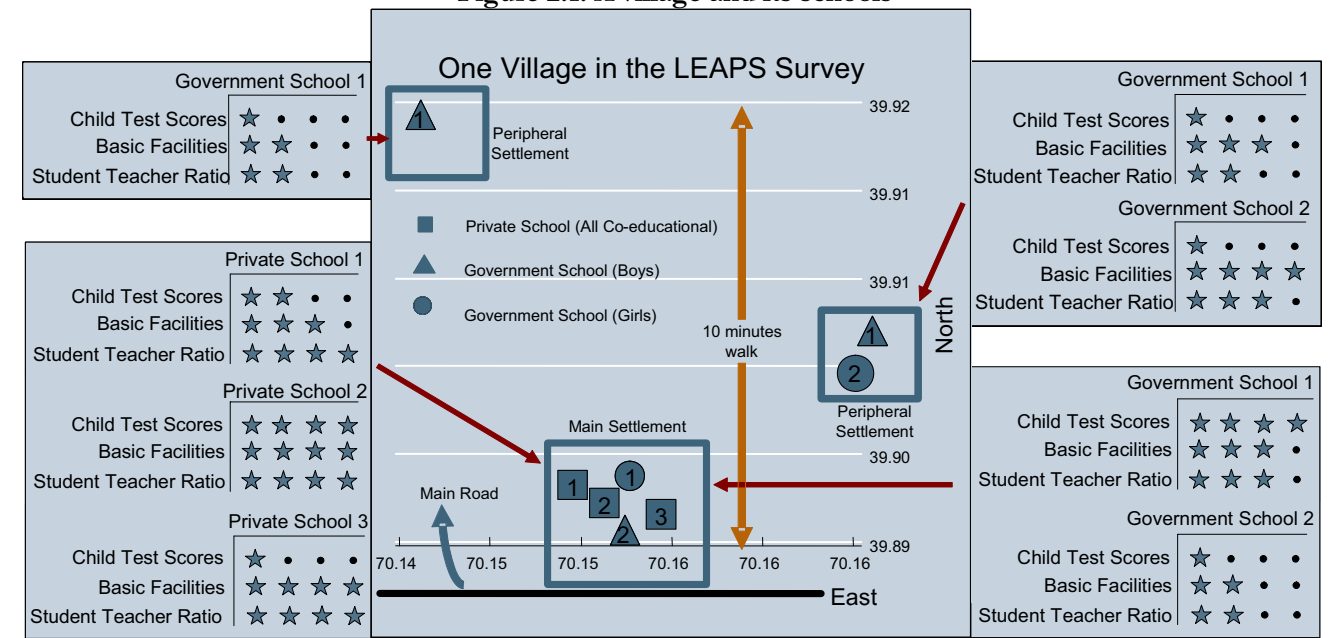


Chapter 2: Are Schools Functional?

2.1. *This chapter highlights basic characteristics of public and private schools in the LEAPS project villages.* It looks at over 800 schools offering primary schooling in 112 LEAPS project villages. That’s an average of almost 8 schools serving primary age children in any village. Before starting this work, our view of the schooling environment in a typical village was the same one shared by others in Pakistan—that a typical village is served by one school and that the decision for parents was simple—to send their children to school or not. Similarly, we also held the view that villages with private schools have 2 schools—one government (two if gender separated), one private—and the difference between the two lies in their quality and price. Reality is very different. One-third of all villages and 50 percent of the rural population in Punjab have, on average, 8 schools to choose from. This finding has led to a host of new questions.

2.2. Figure 2.1 depicts the schooling environment of a typical village. The main panel plots the geographical locations of schools in a single village in Attock district using Global Positioning System (GPS) coordinates (the relative coordinates are accurate, but to ensure anonymity, the actual numbers have been changed). The squares are private, circles are government girls’ schools, and triangles are government boys’ schools. For every school, the stars adjoining the schools show the relative performance in test scores, basic facilities, and student-teacher ratios. Four-star schools are in the top 25 percent, 1-star schools are in the bottom 25 percent.

Figure 2.1: A village and its schools



2.3. The figure shows a cluster of schools in the main settlement and the absence of private schools in peripheral settlements. Among the main cluster of 5 schools—three are private, one is a government boys’ school, and one is a government girls’ school—and they are all within 50-100m of each other. Apart from this cluster, there are two government schools (one boys’ and one girls’ East of the village) and a third government school (boys’) in the North—these government schools are all in smaller, separate settlements.

2.4. Another pattern is the wide variance in performance, infrastructure, and student-teacher ratios within villages. On average, private schools report higher test scores than government schools, yet there are both well-performing government and poorly performing private schools. In contrast, student-teacher ratios and basic infrastructure is better in all private schools.

2.5. Is the educational marketplace—as depicted—largely representative of the villages in the LEAPS sample? If so, what does this imply for the fees that private schools charge and the types of facilities they offer? The findings in this chapter are directly tied in with ongoing policy debates and initiatives, which focus largely on access to schools, costs, and infrastructure to the exclusion of learning and educational quality.

2.6. This chapter explores three issues that have received considerable attention in recent debates on education policy.

- *Regulating private schools.* Typically, the case for regulation is built either on (a) a desire for standardization of quality; (b) a concern over monopoly abuses or (c) a concern that consumers do not have enough information to make optimal decisions on their own. Chapters 1 and 4 examine the merits of the first and last of these rationales, while concerns over monopoly behavior and pricing are addressed in this chapter.
- *Upgrading infrastructures and improving student-teacher ratios in government schools.* Stories abound of schools being used as cowsheds, schools without roofs, desks or even mats for children to sit on, and classes with 150 children. Indeed, the current education reform program in the province has been concerned about upgrading infrastructure and improving student-teacher ratios in government schools. This section will review the quality of school infrastructure and student-teacher ratios across government and private schools and across different types of villages.
- *The implications of access to both private and public schools.* There is a concern that the presence of multiple schools in the same village may lead to a stratified system of education. These concerns have been expressed not only about stratification by *wealth* across public and private schools, but also by *social* status; the idea that schools are essentially divided along *biraderi* or *zawat* lines. The section looks at the

data on the student body in public and private schools, focusing on their parents' wealth, education and caste.

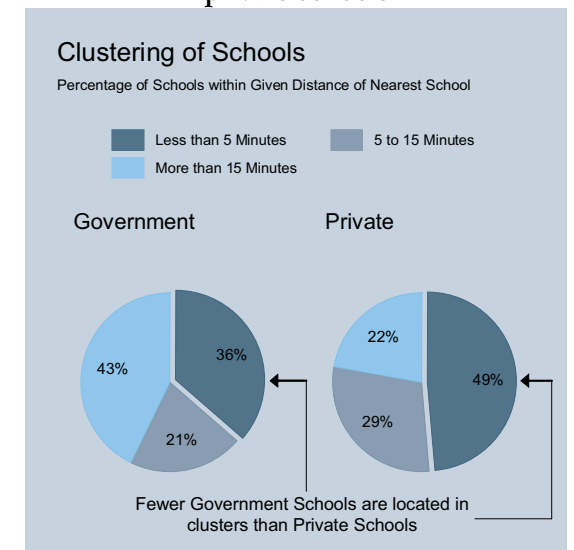
2.7. The analysis in the remainder of the chapter addresses the extent to which the patterns in this village in Attock are observed in the entire sample of data.

I. PRIVATE SCHOOL LOCATION PATTERNS

Private schools are overwhelmingly located in schooling “clusters” in the main settlements of villages. Government schools are located both in the main clusters and on the periphery of the village. Across both types of schools, clustering is more common in richer and more literate villages.

2.8. *Much of what we have to say about private school costs, their infrastructure, and the degree to which they promote segregation within villages is directly linked to the way in which schools are geographically distributed within villages.* Private schools tend to locate closer to banks and health centers (which are generally close to roads and to denser, richer settlements). Upward of 82 percent of all private schools are within a 30-minute walk to a bank and 92 percent are within a 30-minute walk from a health center. By contrast, 60 percent of government schools are within a 30-minute walk of a bank and 71 percent with a 30-minute walk of a health center. A “school overlap” measure computed from the school mapping exercise for the illustrative village in Attock shows that all schools in the main cluster have four other schools within a 5-minute walking distance. The two schools in the eastern peripheral settlement each have one such school and the single school in the northern periphery has none.

Figure 2.2: Most schools are located close to each other...this is particularly true for private schools



2.9. Figure 2.2 shows the different walking times for all schools in the LEAPS project villages and the difference between public and private schools. The pattern is similar to the illustrative village in Attock. Schools tend to cluster within the village—for the average school, 40 percent of all other schools in the village are located within a 5-minute walking distance and 66 percent are located within a 15-minute walking distance. Furthermore, such clustering is more common for private schools than public schools. The average

private school has more than 75 percent of the village's schools located within a 15-minute walk while for the average government school this is only 56 percent.

2.10. *An immediate question is whether such clustering patterns will eventually disappear as villages become richer. As it turns out, in richer and more literate villages, schools tend to be located closer to banks and health centers than in their poorer and less literate counterparts. Similar patterns arise using the school overlap measure. In richer villages, 52 percent of all the schools in the village are located within a 5-minute walk of the average school compared to 30 percent in poorer villages. The picture is similar across more- and less-literate villages—villages with relatively high levels of literacy have 47 percent of schools located within 5 minutes compared to 32 percent in villages with low levels of literacy.*

2.11. *Most villages thus have a well-defined “school cluster” located in the richer settlement and the clear majority of private schools are located in this cluster. The fact that private schools locate in close proximity to one another encourages competition and drives down school prices, but their tendency to locate in richer neighborhoods limits the access of the poor to private education. The next section looks at the data on school operating costs and revenues, before turning to infrastructure, access, and potential caste and wealth segregation.*

II. REVENUES AND PROFITS

2.12. *School fees in private schools are low on average, priced competitively with small profits, and increase with school quality. The median revenue of a private school is Rs.1141 a year or Rs.95 a month per child.⁶ The median annual school fee is Rs.1089 per child, and this accounts for more than 95 percent of the revenue generated by private schools. Factoring in the costs incurred in running a private school, which are computed in the next section, the median private school makes a total annual profit of Rs.14580 or just over Rs.1200 a month. So a private school owner earns as much from running the school as he would from working as a teacher in another private school. Given that this is usually the career option available to the owner, this is the minimum compensation he would require to keep the school functional.*

2.13. *In contrast to the “law of one price” in economics, there is considerable variation in private school fees and revenues. While the median revenue per child is Rs.1141 a year, competitive pricing also implies that all private schools should charge the same amount—this is the “law of one price” in economics. In contrast, the data show large differences across private schools: The bottom 10 percent generate annual revenues as low as Rs.516 per child compared to schools in the top 10 percent, which generate four times as much at Rs.2086 per child*

⁶ Government schools are not included in the analysis of school revenue. Unlike the owner/head-teacher of a private school, the government school-head teacher is not responsible for generating or collecting revenue. Government school revenue is essentially transfers from the education department and hence obtained ultimately through public taxation and grants.

(Table 2.1). The same pattern holds for profitability—while the median private school earns total profits of Rs.14580 annually, the bottom 10 percent operate at a loss (Rs.71060) and the top 10 percent make a profit of Rs.148850. While capturing revenues and costs in a survey like this (as in most firm surveys) is difficult,⁷ the substantial variation in private schools fees and revenues is revealing.

Table 2.1: Revenues and Profits of Private Schools in different types of villages (Rs., 2003)

		Revenue per Student				Total Profits			
		Mean	Median	10 th %tile	90 th %tile	Mean	Median	10 th %tile	90 th %tile
Overall	Total	1259.4	1140.6	516	2086.1	24713.1	14580	-71060	148850
Wealth	Poor	1185.8	1214.9	538.6	1853.1	28211.7	11869	-91800	168660
	Middle	1401.6	1250	548.9	2378.8	35982.0	16870	-45640	143050
	Rich	1175.8	857.4	509.7	2040.8	9810.0	10875	-91440	133515
Literacy	Low	1466.6	1239.9	511.9	2405.8	42681.7	20000	-83800	191610
	Medium	1177.9	1155.1	505.4	1881.1	22892.2	5146	-84505	181230
	High	1127.9	1034.5	546.0	1589.5	8307.4	14606	-58215	116300

2.14. *The variation in costs and revenues for private school does not stem from differences between villages.* While villages with higher literacy levels report *lower* school revenues and fees, the differences are not large. It seems that private schools in the middle-wealth villages have the highest revenues and school fees, but again the differences are not large. Similar differences hold for total profits. There are large differences in revenues and fees across private schools in the same village.

2.15. *The failure of the “law of one price” stems from the fact that private schools differ in the quality of education they offer and this is reflected in the fees they can charge.* Schools with better educational quality, more facilities, and convenient locations are also able to charge more. A multivariate analysis relating school fees to a variety of school and village characteristics shows that the most important factor in explaining school revenues per child is the quality of the school. Schools with average English scores one standard-deviation above average (with similar results for other subjects) are able to charge fees almost 20 percent higher. These results also hold for schools within the same village (thus removing all village-level effects).⁸ The private sector responds to market conditions and higher quality schools are able to charge higher fees.

⁷ Revenues could be over-estimated if schools are unable to raise fees regularly (and there is evidence that parents may not pay on time or fully) or underestimated if schools are able to raise funds through other means (school material fees etc.) that are not reported or if schools fail to report non-teaching staff expenditures.

⁸ Schools with better infrastructure and in more central locations charge higher fees, but these differences arise due to differences across villages and disappear once we include village fixed-effects in the regression.

III. SOCIAL COSTS OF SCHOOLING

2.16. *The cost to society of educating a child in government schools is at least double the cost of educating a child in a private school. These cost savings arise from lower wages for teachers in the private sector.*

2.17. *The social cost of schooling must include the total cost of raising money and spending money.* Even if private schools are relatively cheap, education in the public sector still seems relatively “free”. However, while the parent may not be directly paying fees in the public sector, society does have to pay this cost indirectly as their taxes go towards paying the costs of creating and running public schools. Moreover, to the extent that the tax burden does not fall more on the rich, the poor/middle-class and salaried may be paying a high cost for such provision. Therefore, if the overall costs for providing education are lower in private schools, a relevant question is whether taxpayers can get more out of their money taking their public dollars and paying for children to attend private schools—the idea behind voucher systems.

2.18. *There are large differences in the cost of educating a child in public and private schools.* The per-child annual expenditure in the median public school of Rs.2039 is twice that of the median private school of Rs.1012. Multivariate regression analysis shows that these differences remain just as large even with controls for parental wealth and education and village wealth and literacy. Moreover, the differences remain even when comparing government and private schools in the *same* village.⁹ Furthermore, since the administrative cost of running government schools is not included in this analysis, this estimate is a *lower-bound* of the true cost difference between public and private schooling.

Table 2.2: Private schools are half as expensive as government schools

		Total Cost per Student		
		Median	10 th Percentile	90 th Percentile
School Type	Government School	2039.2	963.7	4006.1
	Private School	1012.1	435.8	2248.8
Village Income	Poor	1608.8	679.3	3898.2
	Middle	1558.834	593.5	3446.2
	Rich	1602.2	436.8	3316.9

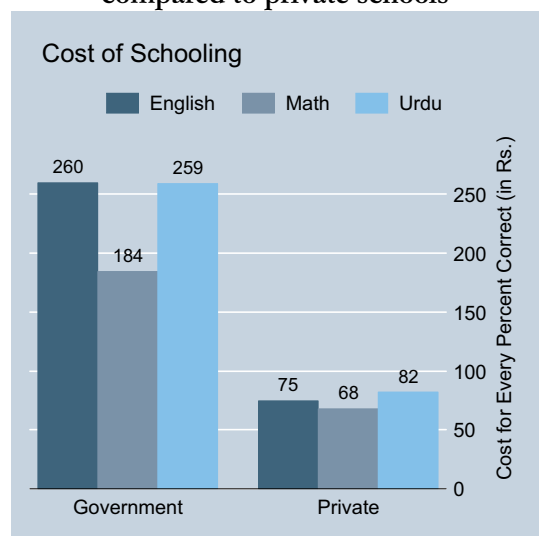
2.19. *Private schools cost less not because they have fewer teachers per student, but because they pay teachers a lot less.* The median government school spends almost three times as much per student on teacher’s salaries as the median private school. Since more than three-fourths of a school’s expenditure is spent on teaching costs (almost 90

⁹ It is also likely that this is actually an underestimate of the true difference: Since government schools rarely report rental costs of buildings, it is likely that we are underestimating these costs at least relative to private schools that do not own their own premises. According to the Punjab Education Foundation (2006), the cost of educating a child in a government school is Rs.6000 a year, which is more than 3 times the amount reported here.

percent if salaries of non-teaching staff are included), the large differences in per-student teaching costs drive up the overall cost difference between public and private schools.¹⁰ This difference is even more remarkable given that private schools have almost twice as many teachers per students as government schools. Private schools cost less not because they have fewer teachers per student, but because they pay teachers a lot less.

2.20. *The societal “cost of learning” is much lower in private schools.* Putting together the results on learning and

Figure 2.3: The cost per percentage correct is 3 times higher in public compared to private schools



costs shows that the quality-adjusted cost in government schools is three times higher than in private schools. Figure 2.3 shows “the cost per percentage correct” on the test. This assumes children in Class III have been through three years of schooling in the same type of school, and then divide the costs accumulated over three years by the percentage obtained in the test for every child. The results are shown for the three subjects tested, and separately for public and private schools. For every subject tested, the cost per percentage in the government sector is at least three times higher than the private sector. The societal “cost of learning” is much lower in private schools.

IV. SCHOOL FACILITIES

With the exception of a few very poorly equipped government schools, most government and private schools have adequate classrooms and blackboards but both lack extra facilities such as libraries, adequate toilets and sports equipment. Private schools however, do offer better school facilities across all categories compared to government schools.

2.21. School infrastructure is valued for its expected input into the educational production function—it is believed that children cannot learn well unless they have functioning classrooms and blackboards and reasonable student-teacher ratios. It also is likely to provide direct intrinsic value. Boundary walls, fans, and toilets make classrooms more comfortable and safe for children and, it is assumed, more conducive to learning. The following discussion reviews the basic infrastructure and student-teacher ratios in public and private schools, “extra” facilities, and differences across public and private schools.

¹⁰ These costs may be over-stated to the extent that schools do not report rental costs of buildings they own (in the case of private schools) or do not have to pay rent on (in the case of government schools). However, even if we examine (private) schools that do pay rental, we still find that teaching costs are the largest share of expenditure.

School Size and Student Teacher Ratios

2.22. Table 2.3 reports the mean, the median, the 10th percentile and the 90th percentile for a number of indicators related to school size and student teacher ratios. The typical school in the LEAPS sample has 120 children, 5 teachers, and 7 classes. The median student-teacher ratio is 27, which is below the benchmark figure of 40 suggested by the government. Nevertheless, the student-teacher ratio is a problem in schools in the 90 percentile—the student-teacher ratio for the top 10th percentile of schools is only 15, compared to close to 50 for the 90th percentile. We return to this issue further below.

	Mean	Median	10 th percentile	90 th percentile
Students	163.64	119	46	320
Teachers	5.96	5	2	12
Classes	7.45	7	5	11
Students Per Teacher	30.36	27	14.5	49.75

Basic physical facilities

2.23. *The typical school is reasonably equipped in terms of classrooms and blackboards.* Close to 96 percent of the schools in the sample have classrooms and 86 percent of these rooms are permanent structures. These classrooms typically accommodate 33 children. Even without data on the physical dimensions of these rooms, this information alone shows that school facilities are better than generally believed. Similarly, 95 percent of all schools have a blackboard with 26.5 students to a blackboard. However, as with student-teacher ratios, the worst 10 percent of schools have an average of 78 children to a classroom and 60 students to a blackboard.

2.24. *The picture worsens, however, when considering the availability of toilets and seating arrangements.* Slightly more than a one-quarter of schools have no toilet facilities. And those that do seem inadequate, with almost 74 children per toilet. Only 60 percent of schools have desks available and almost one-third only use floors or mats. Parents frequently expressed a preference for schools with better seating facilities.

Additional Facilities in Public and Private Schools

2.25. *Apart from these basic facilities, schools offer little else in terms of infrastructure.* Only one-third of all schools offer *any* of the following extra facilities – a library, a computer facility, sports equipment, and transport facilities. Schools are roughly equally split in terms of which of these four facilities they offer. One may not expect computers to be common in villages, but the lack of sports equipment is surprising. The average village child probably lacks such equipment at home and so the only exposure to this type of equipment may be at school. The lack of transport facilities suggests that distance will play an important role in school choice and we will examine this in later sections.

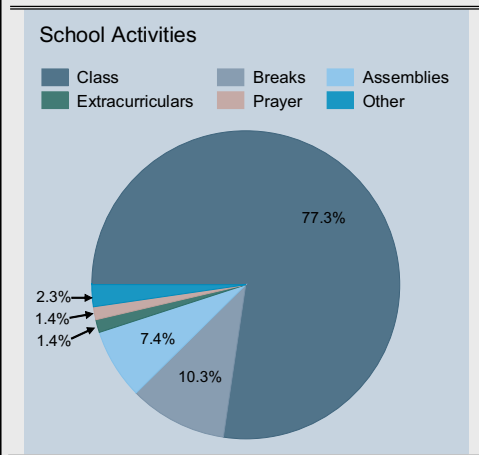
2.26. *Lack of electricity.* It is also worth pointing out that one-third of the schools we surveyed lacked electricity. This may sound minor but most of villages tend to be in fairly hot locations with temperatures rising over 40°C during the school term (schools are closed for summer recess during the hottest months). Since children are likely to learn better in a comfortable environment, this is a serious impediment. It is common on hotter days to see children sitting under the shade of trees rather than inside stifling classrooms.

2.27. A broader issue is whether schools offer an attractive environment for primary school aged children (typically between 6 and 12 years of age) both physically and mentally. To the extent that children can be excited about learning through the use of libraries, or just having a good time at school through organized sports, it seems that most schools in our sample offer no such benefits. This aspect of LEAPS schools is examined in Box 2.1 below.

Box 2.1: Are schools too boring?

Do schools with few facilities over and above the basic necessities affect what children do in school? For many children in high income countries, schools are a fun place to go to, especially at the primary level, not because of the time spent in classes, but because of the extra-curricular and sports activities during the school day. The LEAPS project constructed detailed time charts of a day at school to look at this issue.

Figure 2.4: School Activities



For the vast majority of students, the typical school day lasts 5½ hours. Figure 2.4 shows how the different activities. More than three-fourths of the day is spent in formal classes and the rest of the time is divided into break and assembly times.

Less than 5 percent of the day (30 minutes) involves non-academic activities such as supervised sports, music/art classes, and extra-curricular activities such as drama/debates. The vast majority of schools do not even offer such activities (65 or 8 percent). But most schools have a 30-minute assembly period. Low-cost enrichment programs could add another important element to learning and educational quality.

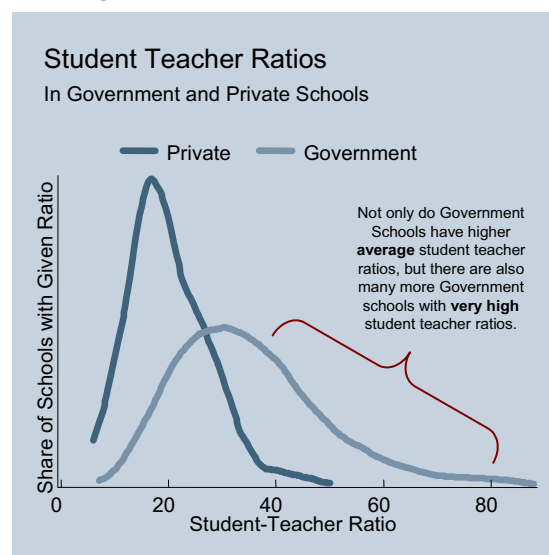
Differences in School Infrastructure

2.28. While most schools report adequate classrooms and blackboards, there is a small but significant fraction that lack even basic facilities. For example, 10 percent of schools have too few (or no) classrooms. Most of these are government schools. Private schools report better facilities overall, and the average infrastructure indicator for government schools is dragged down by schools where there is almost nothing.

Average and distributional differences

2.29. Figure 2.5 presents the *distribution* of student-teacher ratios across government and private schools using a smoothed histogram. The typical private school has almost one-half the student-teacher ratio of the typical government school. As with the results on learning outcomes, large differences exist *within* government schools. The difference between the top 10 percent and the bottom 10 percent in private schools is small (9 students per teacher compared to 33 students per teacher) relative to that in the government sector—17 students per teacher in the top 10 percent and 65 students per teacher in the bottom 10 percent. Out of a total of 823 schools, there are 76 schools (9 percent) with more than 50 students per teacher and almost all (75) of these are government schools.

Figure 2.5: Student Teacher Ratios



2.30. *The results for facilities across public and private schools are similar: private schools report better infrastructure on average while public school figures are skewed by a number of very poorly equipped government schools.* Table 2.4 presents simple mean comparisons of basic and additional facilities in public and private schools. The latter come out looking better with more classrooms, toilets, blackboards, boundary walls and access to electricity. Combining these different types of infrastructure into two “infrastructure indexes” (one for basic facilities and one for extra facilities) yields similar results.¹¹ There is a 1.2 standard-deviation difference in the basic facilities index between the average private and government school and a 1.4 standard-deviation difference for the extra facilities index. While the best government schools are comparable to the best private ones, there are a number of government schools that are truly dismal. The 10 percent of all schools that have few or no classrooms are almost all government schools. Similarly 80 percent of the 65 schools that have no or inadequate (more than 100 students/board) blackboard facilities are government schools. As with other infrastructure, it is also government schools that typically lack toilet facilities.

¹¹ In order to undertake comparison in facilities across type of school we construct an infrastructure index using principal component analysis (PCA). PCA allows us to combine a variety of related measures into a single index. The basic facilities index is constructed using four indicators: (i) classrooms per student, (ii) black-boards per student (iii) toilets per student, and (iv) sitting arrangements (like desks). The basic facilities index is the first principal component and by construction has a mean of 0 and standard deviation 1. Higher values of this index mean better facilities. For instance, a basic facilities index of -1 means that the school has 50 students to a classroom, 40 to a blackboard, 250 to a toilet and a 40 percent chance of having desks. In comparison an index value of 1 implies that the school has 20 students to a classroom, 18 to a blackboard, 65 to a toilet and a 90 percent chance of having desks.

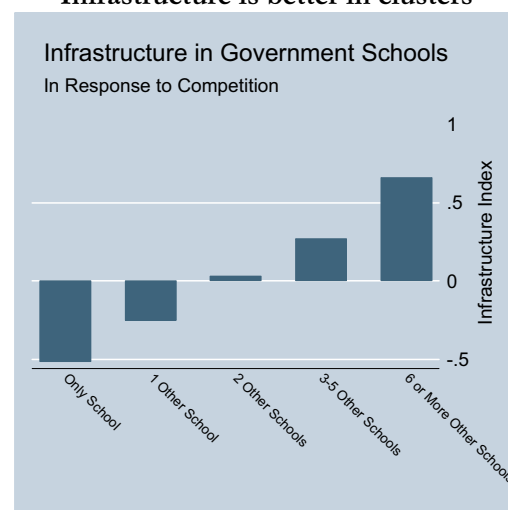
Table 2.4: Average School Facilities (in 2003)

	Government Schools	Private Schools
Number of Classrooms	3.58	4.64
Number of Semi-permanent classrooms	0.41	1.08
Number of Toilets	0.26	0.71
Number of Blackboards	5.04	6.65
Percentage of Schools with a Library	16%	23%
Percentage of Schools with Walls	67%	98%
Percentage of Schools with Fans	44%	91%
Percentage of Schools with Electricity	50%	96%

2.31. *As with the location patterns of public and private schools, village characteristics do not explain the quality of school infrastructure.* There is hardly any difference in student-teacher ratios or the availability of infrastructure across different types of villages. Multivariate regression analysis shows that whether the school is public or private is far more important in explaining these differences than village wealth, literacy, or even the parental education and wealth of students attending these schools.

2.32. *While political-economy stories driven by differences across villages are not consistent with the data, government schools in peripheral settlements generally lack extra facilities like libraries, computers, sport equipment, and transport.* Figure 2.6 divides all government schools in the LEAPS sample into those that have no other school (23 percent of all government schools), one other school (25 percent), two other schools (23 percent), 3-5 other schools (23 percent) and 6 or more schools (5 percent) within a 5-minute walking distance. The number of other schools within 5 minutes is a good indicator of whether the school is in a main cluster or on the outskirts. The vertical axis plots the infrastructure index of the school. What is clear from the figure is that government schools on the outskirts fare worse

Figure 2.6: Government Extra Infrastructure is better in clusters



than those within schooling clusters with a difference of more than 1 standard-deviation in the extra infrastructure index. In a multivariate regression context, controlling for the village that the school is in using village-level fixed-effects, the difference is hardly reduced and remains highly significant. Interestingly, the

same variable is *not correlated* with infrastructure for private schools. This finding suggests that the community that the government school is located in may not be the issue, or that private schools are better able to maintain and look after their infrastructure compared to their government counterparts even when located in the same settlement.

2.33. *The fact that differences in basic facilities are driven more by school type rather than village wealth/ literacy suggests that problems with inadequate facilities in government schools may not be intractable.* If private schools are able to retain teachers and provide basic facilities even in less desirable environments, government schools can do so as well. The problem appears to be the vast differences in government school infrastructure *within* the same village, with those schools located in central clusters faring better. In 2003, the government recognized that a significant fraction of public schools lacked basic facilities, and one of the focuses of the Punjab Education Sector Reform Program was to provide “missing facilities” in government schools.



Box: 2.2 “Someone from the village stole our water pump”

Whenever we see government schools without desks, without blackboards and without electric fans, our first instinct is to blame the government for not providing these resources. However, providing resources to schools may not be enough. They still need to be maintained and looked after, and our experience often shows that this does not happen.

One school that I encountered during my field work had the resources necessary to improve the learning environment, but was unable to use them. I was working in a village in Rahim Yar Khan and when I visited the government girl’s elementary school, the head-teacher came out to meet us. She seemed quite experienced, with more than 15 years in the teaching profession.

The school building appeared to be newly constructed, with six class rooms and a separate office for the head-teacher. Despite the relatively high quality infrastructure, there were no electric fans and children were sitting in temperatures exceeding 45 degrees. When I asked the head-teacher if the school had electricity, she told me that they did have a connection. Were electric fans not given to the school despite the electric connection? The head-teacher replied:

“The government did give us fans for the classrooms but the doors of the classrooms and office are not strong and are easily broken. If someone steals the fans, I cannot compensate the government for the loss. Already the water pump has been stolen twice. We (the school teachers and myself) had to buy them again from our own pockets. So we have removed the fans and keep them locked separately”.

“Why don’t you involve the community, so that they take care of the resources in the school? This may be a good idea since they are present in the village even at night.” I asked.

She replied, *“Someone from the village stole the water-pump. They do not have any interest in the school and their attitude towards the school is very negative. We requested the education department for a full time gate-keeper; only if we are given a gate keeper, will our students be able to use the fans during the summer.”*

—Contributed by Irfan Ahmed

2.34. *The data show that infrastructure in government schools has improved between 2003 and 2005, but the improvements in private schools have been even greater.* Table 2.5 uses the 2005 round of the LEAPS surveys and combines it with data on school infrastructure from 2003. There have been dramatic improvements in government schools in terms of the number of semi-permanent classrooms, availability of toilets and availability of libraries. For many types of facilities though, the improvements in private sector schools have been even higher. For instance, the number of semi-permanent classrooms in government schools increased by 86 percent, compared to 127 percent in private schools. While the government sector has shown greater improvements for certain types of facilities (such as toilets), the gap between the government and private sector still remains large and significant.

Table 2.5: Changes in School Infrastructure

	Public 2003	Public 2005	Private 2003	Private 2005	Percent Increase in Government	Percent Increase in Private
No. Classrooms	3.58	3.47	4.64	4.07	-3%	-12%
No. Semi-permanent classrooms	0.41	0.77	1.08	2.46	86%	127%
No. Toilets	0.26	0.36	0.71	0.71	38%	0%
No. Blackboards	5.04	5.19	6.65	7.02	3%	6%
Has Library	0.16	0.26	0.23	0.49	65%	109%
Has Wall	0.67	0.63	0.98	0.92	-5%	-6%
Has Fans	0.44	0.48	0.91	0.94	8%	4%
Has Electricity	0.50	0.55	0.96	0.95	10%	0%

V. SCHOOLING MARKET: POTENTIAL CONCERNS

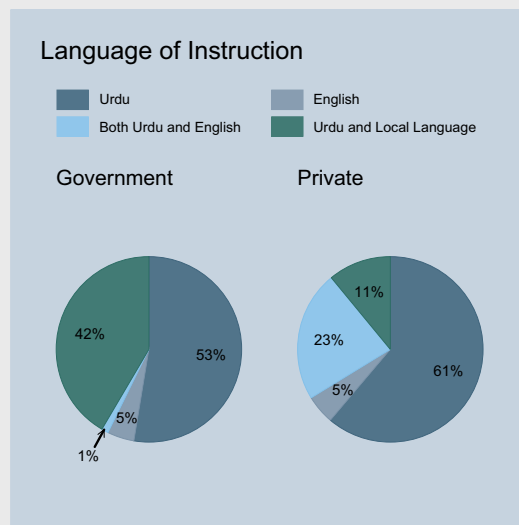
2.35. *There is a rising concern in Pakistan that the presence of private schools is leading to “educational apartheid”.* According to this argument, English medium private schools offer a different level of education—but at a price. Consequently, they are used only by the very rich while the rest are forced to use (lower quality) government schools. The increasing tie-up between English skills and wages means that private schools will offer a way for the rich to become even richer. Compounding the problem of wealth stratification is that of social stratification—internecine and clan-based politics has fed its way into the educational systems and student bodies in schools are coming to represent these divides in the community. At a very basic level, these concerns about different mediums of instruction are true—private schools tend to use English far more as a medium of instruction and almost never teach in the local language (see the box). Yet, the data suggest a more nuanced picture than the commonly heard stories of *perfect* segmentation.

Box 2.3: Language of instruction - English versus Urdu?

More than half the schools in the LEAPS sample use only Urdu, which is not the local language in any of the villages in Punjab, as their medium of instruction. Around 30 percent either partly (in combination with Urdu) or primarily use a local language as well, whereas the remaining 15 percent partly use English. While we find little differences across schools of different types (government or private) or in different villages (rich/poor, level of education) in terms of the length of the class day or time spent on formal teaching, but there are large differences across schools in terms of language of instruction. Figure 2.7 shows that government schools are much more likely to use the local language (Punjabi, Saraiki, Hindko, Pastho) in addition to Urdu as their language of instruction. Private schools are relatively more likely to use English in addition to Urdu in the classroom, and also slightly more likely to exclusively use Urdu. In comparison there are little differences in language of instruction across villages with different literacy levels, although richer villages are slightly more likely to use English (with Urdu) in the classroom.

Differences across school types do not necessarily lead to educational apartheid to the extent that all types of parents choose what type of school they prefer. It is not the case that the poor or less educated are destined only for one approach to teaching.¹²

Figure 2.7: Language of Instruction



¹² For more on language of instruction in Pakistan, see Rahman (1997).

2.36. *The first nuance suggested by the data is that of geographical segregation of private schools.* Figure 2.8 shows greater clustering of private schools and their location in richer settlements. Schools are again divided (as in Figure 2.6) into different categories depending on the number of schools within a 5-minute walking distance—those with no other schools, those with one other school, two other schools, 3-5 other schools and 6 or more schools. It then plots two different variables. The lighter bar shows the percentage of all schools in the relevant category that are private. For instance, of all schools that do not have any other schools within a 5-minute walking distance, fewer than 20 percent are private and the rest are government. The percentage of private schools increases with the number of other schools in close proximity—among all schools with 6 or more schools nearby, 60 percent are private and 40 percent are public. The darker bar shows the average wealth of students attending schools by the same clustering categories. Students in schools located far from any other school are relatively poor, with average wealth levels 0.5 standard-deviations below the mean, and student wealth increases with the number of other schools in the vicinity.

Figure 2.8: Private School Clustering

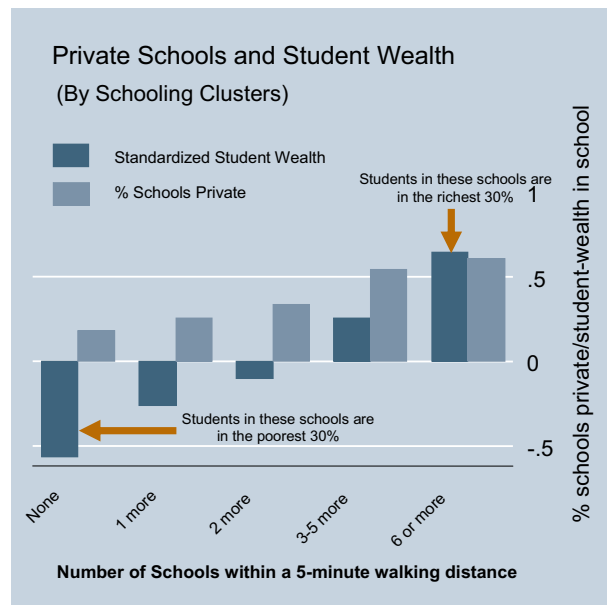
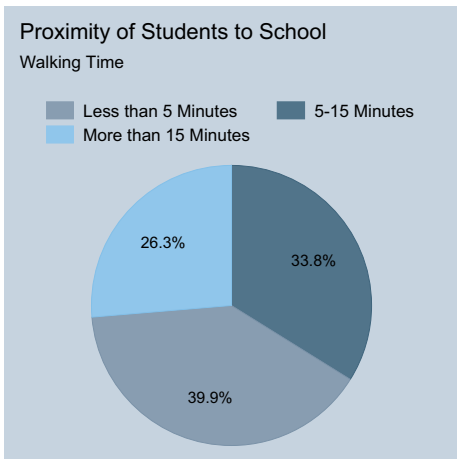


Figure 2.9: Most students come from within 5 minutes of the school

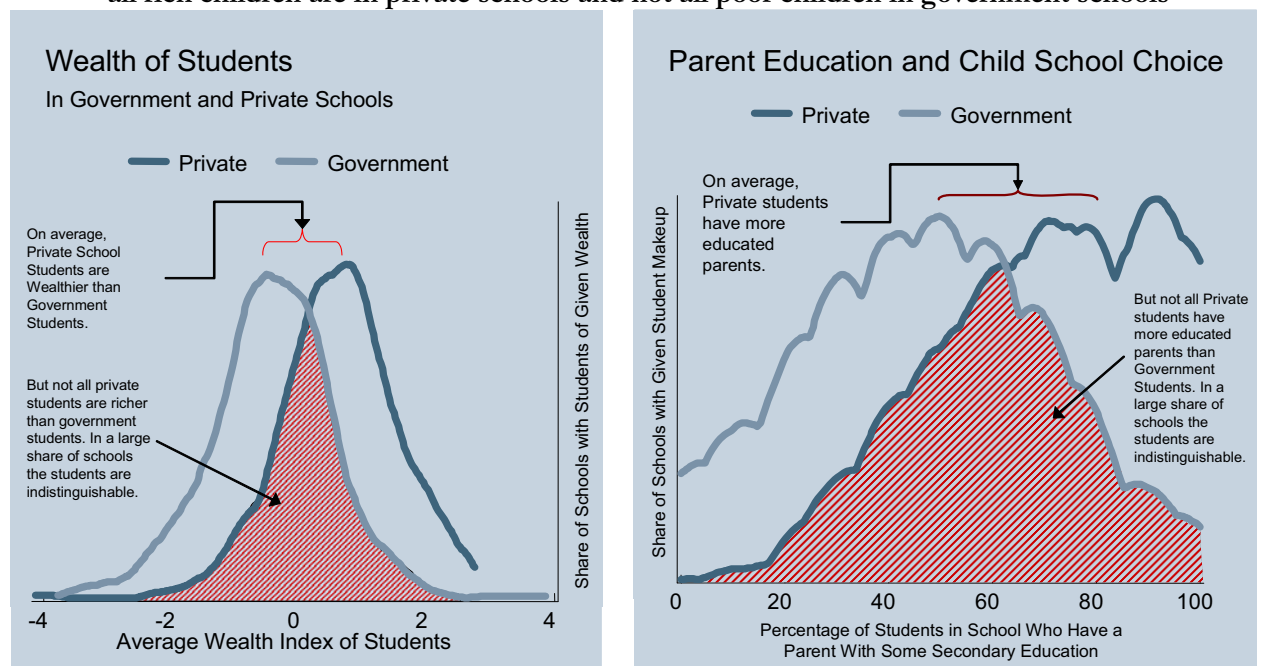


2.37. *Research on education in Pakistan as well as this fieldwork suggests the choice of school may be affected by the distance of the school to the household—a finding confirmed by data presented in the chapter on households.* Figure 2.9 shows what this implies for the student population in a school, in terms of their geographical locations. Here, the graph shows the percentage of children who come to the school from different distances, as reported by the school head-teacher. The overwhelming majority live less than a 15-minute walk from the school they attend, and close to 40 percent come from houses within 5 minutes of the school they attend. The patterns are similar for public and private schools with 38 and 42 percent of all students, respectively, living within a 5-minute distance of the school. Interestingly, in richer and more literate villages, the percentage of children

who come from within 5 minutes *increases* by 3-7 percentage points, suggesting that children in poorer villages travel *farther* to school. To the extent that distance to school is an important factor in school choice, the fact that private schools generally do not locate in peripheral settlements suggest that the poor are *geographically* segregated. Providing incentives for private schools to move to peripheral areas will enhance accessibility for the poor.

2.38. *The second nuance is that, despite this geographical segregation, poor and illiterate parents do also send their children to private schools—typically, such schools have children from all kinds of backgrounds.* Figure 2.10 shows the distribution of household wealth and education for students in public and private schools. The construction of these measures is described in the technical box below. The wealth index has a mean of 0 and standard-deviation 1, and the education index measures the percentage of children in the school who come from households where at least one parent reports higher than elementary education. Both indices show that the parents of children in private schools are wealthier and more educated—these children tend to come from families with wealth indices 1.2 standard deviations higher and 60 percent of private school students have at least one parent with more than primary education compared to 45 percent for those in public schools. Nevertheless, there is substantial *overlap* between the two distributions: Private schools are not composed only of students from wealthy and educated families, and government schools also have students from rich and educated backgrounds. For example, in 13 percent of private schools, more than 50 percent of the student body comes from households where the parents report no education.

Figure 2.10: Children in Private schools come from richer and more educated backgrounds...but not all rich children are in private schools and not all poor children in government schools



2.39. *The third nuance is the lack of segmentation along caste lines.* A school caste segregation index was constructed to estimate the probability that two students chosen from the *same* school will be from a different caste. An index value of 1.0 for this intra-school fractionalization index indicates that the student body in the school is mixed, since the probability of two students being from different castes is 100 percent. Conversely, a value of 0.0 indicates perfect segregation (the probability of two students in the school being from different castes is 0 percent). The first two rows of Table 2.6 below show that if we look across schools, the probability that randomly selected children from a *given* school will be from different castes is around 0.52-0.53. This suggests that there isn't that much caste segregation *within* schools—if there are two castes in the school, students are equally likely to belong to one of them. However, we may still see segregation across schools if these two castes are not present in the other schools. In order to check for segregation *across* schools we construct a similar index but now look at the probability that two students randomly picked from *different* schools will be from a different caste – an *inter*-school fragmentation index. In this case an index value of 1 means complete segregation. The last three rows of the table show that this measure is 0.78. This suggests that while there clearly isn't full segregation across schools, there is some degree of segregation across schools as this index is higher than then intra-school fragmentation index. Also worth noting is that the social stratification observed in private schools is much the same as in government schools.

Table 2.6: School Segregation

Intra-School Fractionalization	Mean Caste Segmentation Index
Within Individual Government Schools	0.52
Within Individual Private Schools	0.53
Inter-School Fractionalization	Mean Caste Segmentation Index
Between Different Government Schools in the Same Village	0.78
Between Different Private Schools in the Same Village	0.75
Between Government Schools and Private Schools in the Same Village	0.73

2.40. *Public and private schools are thus not perfectly segmented by either parental wealth/literacy, or by caste (zqaat).* The observed segmentation is driven by a combination of price factors—the poor are less likely to be able to afford the fees of private schools—and distance factors, because private schools are located further from the poor. It is encouraging that apart from these two effects, we do not find private schools systematically discriminating against children from any particular background. Chapter 5 discusses how the price segregation may be addressed through government policy. The segregation arising from location patterns may be harder to address—but it is worth pointing out that the best way of addressing such segregation is by encouraging more private schools to open, rather than trying to close or regulate those already in existence.

Box 2.4: Socioeconomic indices



Wealth Index

This index is constructed from data collected in a short survey administered in every school to a randomly selected group of 10 students in Class III (or all, if less than 10). Using ownership of different assets as reported by the students, we construct a single wealth index through principal component analysis. The index (with a mean of 0 and standard deviation of 1) is the first principal component and has a higher value for wealthier students.

Education Index

This index is constructed using the fraction of children in a school with at least one parent who has some non-zero level of schooling (similar results obtain if we look at higher levels of parental education).

Zaat Fragmentation Index

This index is a measure of the heterogeneity of castes within and between schools. A value of 1 means that all students are from different castes, while a value of 0 means that everyone is from the same caste. A further explanation of the index is presented in paragraph 2.38.

VI. DISCUSSION

2.41. *This chapter highlights basic characteristics of public and private schools in the LEAPS project villages and how these characteristics differ between schools in central clusters and schools located on settlement peripheries.* It also examines claims that private schools lead to social stratification, and finds little evidence of strong segregation along socio-economic or caste lines. Private schools are almost always clustered in the main settlement while government schools are present in the settlements as well at the village periphery. Three implications follow from these location patterns. First, private school fees and profits are fairly low. The schools that report higher revenues and profits also have a higher quality of learning. The cost to educate a child in the government sector is twice that in the private sector. Factoring in differences in learning implies that the cost-per-percent in public schools is three times that in private schools. Second, basic infrastructure in public and private schools appears to be in place. Private schools do a somewhat better job of providing basic infrastructure than government schools, which have some of the worst infrastructure. Third, there is evidence of segregation arising from pricing and location patterns, but no evidence of discrimination against illiterate or poor parents, or children from different castes. The discussion below suggests how these characteristics can be used to inform a debate on what should be done about schools in the province.

Infrastructure— basic, add-ons, and extras

2.42. LEAPS project villages by and large report functional classrooms, reasonable access to blackboards and manageable student-teacher ratios. The problem appears when we look at additional facilities, such as

electricity, fans and toilets and even more so when we look at libraries and basic sports equipment. Three important questions present a framework for the wider debate.

2.43. *First, what should the infrastructure “package” for a school look like?* Following the division in the chapter, one could think of the “basics” (classrooms and blackboards) and “extras” such as fans, toilets, libraries and transportation. There appears to be a widespread consensus that both the basic and some extra facilities (like bathrooms) should be available in every school. Yet “extras” make schools a fun place for children, and educators often suggest that simple additions that make learning “fun” also make children want to come to school more regularly. What this really hinges on is whether we think of the decision to attend a school as a parental choice, or partly, a choice of the child. The chapter on households shows that parents make very conscious choices about which child to “push” through school, and which child to exert less effort on. The fact that schools are boring means that those children whose parents do not push them to attend school will likely not attend. In our survey, the reasons parents gave for children not attending school were sometimes related to the child’s perceptions of school, rather than the opinions of the parents. Reasons for children remaining out of school included reasons such as the child was “afraid of teacher” or “does not want to go to school”.

2.44. *Evidence shows that simple things that make schools more attractive lead to large gains in attendance, even without a substantial change in the benefit-cost ratio for parents.* For instance, an experimental school meal program in Rajasthan carried out by the NGO Seva Mandir, dramatically increased enrollment although the cost of the feeding program was much smaller than the wage losses incurred by parents when their children stopped working to attend school. In a detailed evaluation, Ravallion and Wodon (2000) find similar effects in Bangladesh—school meal programs led to large gains in attendance, but no decline in child labor. Recent studies by the International Labor Organization (ILO) find that a large group of children are “idle”, in the sense that they are neither in school, nor engaged in child-labor and the chapter on households shows similar patterns for Pakistan. A recent evaluation of a program run by the organization Child Resources International in Islamabad shows that “child-centered” teaching approaches help to improve attendance and test-scores (Naseer and Patnam (2007)). Among primary-age children, the hours saved by not going to school for out-of-school children are not spent working—they are spent playing. The fact that most out-of-school children are “idle” suggests that increasing enrollment may not be that hard since it does not need to address the trade-off between schooling and wages. Making schools “child-attractors” by putting in extra facilities, such as small libraries could improve enrollments substantially.

2.45. *Second, what is process by which decisions are made to renovate or put in place new infrastructure in public schools?* Under the Punjab Education Reform Program considerable funds were spent to provide and repair “missing

facilities”. The situation has improved for many schools since 2003, but improvements in private school infrastructure were even *greater* during the same period, without any financial assistance from the government. Not surprisingly, in recent interviews head-teachers expressed concern that there is no clear mechanism for petitioning the education authorities to fulfill an infrastructure need. When such petitions are made, there is often no response. Given that the condition of infrastructure varies dramatically across schools, there is a clear need for a process to meet needs in a timely and targeted fashion, rather than by blanket provision. In addition, the current stock of infrastructure requires maintenance. Communities are often implicated in the improper use of school infrastructure. Maintenance is a critical issue that requires imaginative solutions.

Village level school locations: who decides?

2.46. *Who should decide where to locate a school?* The decision of where to place a government school becomes far more complicated once private schools enter the picture and we recognize that there are multiple settlements with differing population characteristics in the same village and there is a strong relationship between distance and enrollment. The problem of access to schooling is illustrated in village after village by the large variation *within* the same village— some schools have 2 teachers and 200 children and others have 8 teachers and 90 students. This huge variation reflects large cost differences in educating children in the government sector, which can be as low as Rs.400 per child per year to as high as Rs.8000 per child per year.



Box 2.5: Locating a school? Who decides?

In one of the sample villages, there are two government girls’ primary schools. One school was built in 1973 and the other was built in 1987. The government girls’ primary school is a little bit further from the main settlement, but still less than a 15-minute walk. There are three teachers and 35 students.

When we visited this school and talked to the teacher about the small number of students, she told us that this school was the first school in the village but the Nazim approved a new government girls’ primary school in the main village settlement instead of upgrading this old school. Parents now prefer to send their children to the newer school, especially when they are living in the main settlement.

The teacher told me that their school was in the fields and there is no boundary wall; sometimes they find dangerous animals in the school and two days ago, when she opened a cupboard there was a snake in it. The government is spending almost Rs.17500 every month on teachers’ salaries, which means it costs Rs.6000 per child per year.

I don’t understand why the government did not check before opening the new school if there is already a school near the “settlement” or in the “settlement”, and if there was, whether they should close or upgrade it when they built the new school.

—Contributed by Kashif

2.47. *Balancing the needs of a peripheral village settlement with a poor population and a main village settlement with a large number of private schools is difficult.* Government schools in peripheral settlements significantly improve equity in access to schooling—the children attending these schools are usually from poorer families and are at risk of bypassing education entirely without access to these schools. In main settlements, government schools compete directly with private schools and there are several such schools with few students. Access here is not an issue. The real question is what would happen to enrollments if these schools were shut down? The type of data that is collected by the province cannot be used to inform such a decision since school codes used in the Educational Management Information System (EMIS) do not allow easy mapping of schools to villages. As incredible as this may sound, there is currently no easy way to identify the number of schools in every *village*, which of course precludes going below this level to the settlement. The single exception is the recently completed school census, which details all schools in the country, both public and private, and identifies them by the village they are in. Ensuring access to these data would support a greater understanding .

2.48. *An important first step would be to pull together data on the locations of schools and make them public so that researchers and planners can come up with potential solutions with full access to the relevant information.* Having such data would make it easier to set up a process for setting up or closing down a school and deciding how teachers could be relocated within schools in the same village. A central allocation of teachers to specific schools in a village may be less efficient than allowing Village Education Committees to make these decisions taking into account their specific environment. Again, within the Pakistani context and the existing structure of power relations this may or may not work.

Should private school fees be regulated?

2.49. Regulating private school fees is a topic of regular discussion among policymakers. In some areas such as Islamabad, measures have been taken to ensure that private schools are charging “appropriate” fees. The argument for regulating prices can stem from one of two economic rationales: (a) either the firm (private school) being regulated is a monopoly with excessive profits or (b) that lack of information on the part of consumers leads to prices that do not reflect quality.

2.50. *The results highlighted here from the schooling environment in Punjab villages suggest that justification for either of these rationales is weak.* Private schools are overwhelmingly located in school clusters and therefore behave in a highly competitive manner. In fact, the only potential monopolies in these environments are government schools located outside the main settlement where children have no other choice. Consequently, private school fees are relatively low and profits roughly correspond to the monthly wage of a private school teacher. This is precisely the opportunity cost of the private school’s head-teacher. Finally the considerable variation in private school fees suggests that fees respond to quality. A school with average test scores (across all three

tests) charges Rs.1000 per year; a school with test scores 2 standard-deviations above the mean charges Rs.1800 per year. Some private schools are more expensive because they are better.

2.51. *In such an educational market attempts to “control” or regulate prices will result in compensating action by private schools.* For instance, capping the prices that private schools can charge implies that those providing quality levels above that justified by the price will either lower their quality or shut down. Undoubtedly, there may be some private schools where profits are not excessively high, or prices are above those justified by the quality of learning, but cracking down on a few such schools could well impose a heavy regulatory burden on the rest. Instead, given that there may still be a concern that parents are not adequately informed about school quality, an alternate approach would be to foster competition between schools through standardized testing and the provision of report cards. The LEAPS project initiated such a scheme and the initial results of the randomized intervention appear quite positive: Providing information on the relative performance of schools to parents induced greater competition between schools and raised their investments, leading to improvements in learning outcomes for the average child, and even more so for those who started off at lower levels of learning.

Social costs and private schools

2.52. Consider the following arguments:

“Governments should get out of the provision of education and focus only on its financing. Figure 2.14 is the reason—if the cost-per-percent in public schools is three times as high as in private schools, it is much cheaper to let the money follow the child by providing vouchers and letting children decide where to go.”

And,

“Private schools can never provide education to the poor, because they are interested only in making profits. Look at Figure 2.7. It is clear that private schools locate only in the richer settlements of the village, and where government schools are already present. If government schools are shut down, how will poor children in peripheral settlements get access to schooling, which is their constitutional right?”

2.53. This chapter shows that both statements are correct. Costs of learning are far lower in private schools and their fees are set in a competitive fashion since they are located in schooling clusters. The downside of these location patterns is that private schools are seldom found in peripheral settlements where households are poorer. Despite criticisms, the government is delivering education in an equitable manner. Not only are basic infrastructure and student-teacher ratios similar in rich and poor villages, but government schools are often the only access to education for children outside the main settlements. Data from the National Education Census (2005) confirm that these patterns hold for the entire country—there are more government schools per capita in poorer compared to richer villages.

2.54. *The correct policy (or “public-private partnership”) would seriously consider the spatial distribution of the population in a village and the access to schooling.* For instance, vouchers may leave a lot of children out of school if they are insufficient to cover the cost of educating children in peripheral areas. Alternatively, where private schools are already operational, vouchers may make a lot of sense given the dramatic differences in cost-per-percent across public and private schools.

2.55. *What is also clear is that the main reason for these large cost differences between public and private schools is the compensation of teachers.* The wage-bill in private schools is less than one-quarter of that in government schools; controlling costs thus has everything to do with limiting the wage bill and restructuring teacher compensation. The next chapter turns to this difficult topic.