

The Rise of Private Schooling in Pakistan: Catering to the Urban Elite or Educating the Rural Poor?

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Abstract: Using a new census of private educational institutions in Pakistan together with the population census, we present evidence that private schooling, particularly at the primary level is indeed a large and increasingly important factor in education in Pakistan both in absolute terms and relative to public schooling. While the rural-urban gap still remains, the growth trends showed a marked improvement in rural areas. Contrary to expectations, private schools are not an urban elite phenomenon. Not only are they prevalent in rural areas but also are affordable to middle and even low income groups. Private schools have lower student-teacher ratios than public schools and while teachers were largely untrained and less experienced, their education level matched those in public schools. Fees respond in predictable ways to measured school inputs, suggesting that parents can infer quality variation between schools. Private schools are mainly coeducational, have a high percentage of girls' enrollment and a majority of the teachers are females. Looking at just the rural areas at the *patwar circle* level, we find that those areas that have a greater supply of educated women are able to respond very effectively to the growing demand for education by formation of schools and by increased enrollment.

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Glossary of Terms and Abbreviations

AJK	Azad Jammu and Kashmir
EMIS	Educational Management Information System
FA/FSc	12 th grade equivalent
FATA	Federally Administered Tribal Areas
High School	Grades 9-10
Higher Secondary	Grades 11-12
Matriculation, Matric	10 th grade equivalent
Middle School	Grades 6-8
Northern Areas	Federally administered Northern Areas
NWFP	North West Frontier Province
PIHS 1998	Pakistan Integrated Household Survey 1998
Primary School	Grades 1-5

Introduction

Since the denationalization of private schooling in Pakistan in 1979, there has been significant growth in the share of education in the private sector, both in terms of the numbers of schools, as well as the proportion of children enrolled. Nevertheless, there has been little work done on this phenomenon, largely due to a lack of reliable nationwide data either on private schools or on the population since there was no population census in Pakistan between 1981 and 1998.

In two related papers in 1985 and 1987, Jimenez and Tan examined the role of private education in Pakistan. Based on a school mapping exercise conducted in 1983, the authors noted that there had been a large increase in the number of private schools, leading to substantial cost savings for the government in the provision of education. The authors also noted (although they caution that the available data does not allow for an unambiguous statement) that despite the growth in private schools, educational institutions did still not service large proportions of the country's population, and this was particularly important in the case of girls in rural areas. Lastly, based on tuition and other fees in private schools, Jimenez and Tan argued that private schools seemed to be catering only to the rich.

Subsequently, there has been considerable work on particular regions in Pakistan, including a body of work by Alderman et al. in Lahore and Quetta during the nineties, where surprisingly the authors show that private schooling is used extensively both by the rich and the poor- for instance, even among the lowest quintile in Lahore, more children are sent to private than public schools. The conclusions of this work point towards the importance of a nationwide analysis of private schooling and their role in educational delivery, particularly with regards to future government policy in this sector.

What has happened to private schools since 1983? In the new millennium, are private schools still primarily an urban elite phenomenon, or has there been a change in the character of such institutions over the last decade? If so, who and what have been the drivers of this change? Do private schools need extensive government regulations or does the structure of the market lead to efficiency in the provision of education? The current study explores these important questions on the basis of new data from the Federal Bureau of Statistics, Islamabad and the Population Census Organization.

Specifically, we use data from the census of private schools conducted in 2000 by the Federal Bureau to provide a description of the private education sector in Pakistan. However, this data in itself does not allow us to address some important concerns regarding the spread of private schools. For instance, in

comparing the number of schools in rural Sindh to rural Punjab, we might like to know for instance, whether the *penetration* of the private sector, measured by the population weighted number of schools, is comparable in the two regions. Till recently, such an analysis had not been possible due to the lack of a population census. However, by combining data from the census of private schools and the population census, it is now possible to explore these issues in some detail, and this is the primary focus of our study.

We begin by examining the stock and growth of private schools during the last decade, largely with a view to providing a benchmark for the importance of the private sector. Our focus in this section is to examine the private sector both in terms of the number of private institutions as well as enrollment in such schools. We provide a description of the private sector in the country as a whole, and then explore differences within the country, both across provinces and urban and rural designations.

The second section of our study then provides some evidence on equity considerations that arise when schooling is provided by the private sector. For example, extensive use of the private sector may generate some concern if primarily upper income groups in the population use such schools for two related reasons. First, exclusively 'elite' private schools could lead to a decrease in the amount of funding available to public schools, if such funding is partly contingent on the income base of the students attending a school (perhaps through additional levies or donations). Thus, an important role performed by public schools – that of cross-subsidization of the poor by the rich – may be lost when such sorting occurs. Second, under 'elite' sorting, there may also be a decline in educational outcomes if there is a 'peer effect', whereby all 'good' students go to private schools, and all 'bad' students are forced to remain within the public system (Hsieh and Urquiola, (2002) provide evidence for such sorting in the context of Chilean vouchers). While a clear answer to either of these questions would require data both on the public and the private schooling system over a period of time, in this study we attempt a first cut at this issue by examining the fee structure in private schools and comparing these to existing wage rates in the region. Our conclusions are commiserate with those of Alderman et al: tuition fees in private schools *do* allow for the use of such institutions by lower income groups, and there is some indication that the strong growth in private schools has restricted increases in fees over the last decade.

Our analysis of the fee structure then brings us to a related question: even if fees are relatively low, we may be concerned that the quality of education received in private schools is poor and moreover, in a population with low overall educational attainments parents may not be in a position to accurately evaluate educational quality and could thus be paying 'too much' for the services received. Thus, even though fees are low, private schools may still be exploiting the poor households due to the low quality of

services provided. We examine the quality of inputs in private schools and compare these to public schools using data from the PIHS 1998– the evidence here is mixed, with private schools performing better in some indicators comparing to others. In itself however, the quality of inputs does not address the question of whether households *know* what they are getting. Again, answering this important question would require more data (particularly on educational outcomes), but we provide some preliminary evidence that households *are* able to judge the quality of educational services, with the prices of such services relating in sensible ways to educational inputs which are correlated to school quality (although the relationship between school inputs and educational outputs is an open debate- see for instance Hanushek (1995), Kremer (1995), Krueger and Lindahl (2001).

The last section of this study examines one of the most neglected areas of educational development in education- the role of women. Traditionally, we have been interested in the poor schooling attainments of girls compared to boys- this has been a particularly important issue in the context of Pakistan where girl enrollment has been historically much lower than that of boys. The total primary enrollment ratio in 1965 was 40 % in 1965 whereas the female primary enrollment ratio was 20 %. In 1984 the total primary enrollment ratio was 42 % while the female had gone up but was still an extremely low 29%¹. However, private schooling in Pakistan has also involved women in the *provision* of education, through their role as teachers. Our section focuses on this important relationship through two different avenues. First, we look at the relationship between female teachers and girl enrollment. We then look at the relationship between educated women in the *population* and *total enrollment*. A positive effect for both has important consequences for long run growth. As Banerjee (2000) points out, the long run equilibrium that an economy faces depends on the accumulation of human capital and the nature of the feedback mechanism- if is the case that more educated women lead to more schools *and* to more girls in the school, there is a positive feedback loop that reinforces the formation of human capital in each period. Our study shows that the private sector in Pakistan seems to be a segment of the economy where such feedback mechanisms are indeed operative, and this could provide strong circumstantial evidence for engendering the creation of such institutions.

At this stage, we would like to caution the reader that our study is primarily a description of the private educational sector in Pakistan with the analysis limited to conditional correlations to highlight certain relationships. Establishing causal relations that could be used as policy levers requires more data, particularly on public schools, household attributes and educational outcomes and remains the focus of

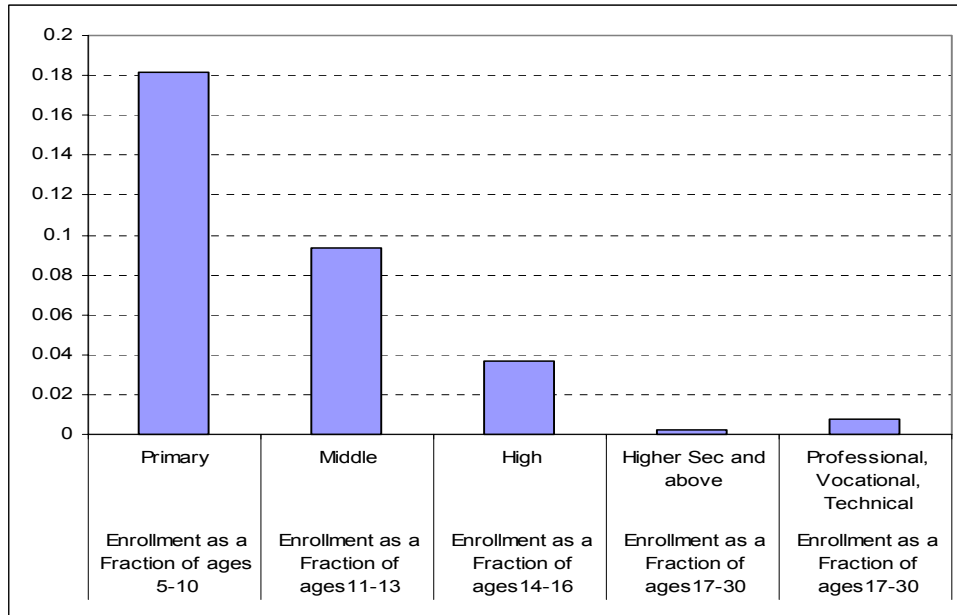
¹ World Development Report, 1987, Table 31

our future work. The aim of this study is to provide a basic picture of the private sector, which can then be used as background for further research.

Section I: Is Private Schooling in Pakistan a Significant Phenomenon?

More than 36,000 private institutions in Pakistan attend to the educational needs of 6.3 million children. In 1983 there were approximately 3,300 private primary and secondary schools in the four big provinces (Sindh, NWFP, Balochistan and Punjab) in Pakistan.² In the year 2000 the same four provinces have over 32,000 such schools, an almost ten-fold increase in less than two decades.³ Moreover, most of the enrollment in these private schools is at the primary level, accounting for 75% of the total enrollment in private schools. The predominance of primary level enrollment is also reflected in the age-adjusted proportion of the population attending private schools shown below in Figure 1a, with 18% of those in the 5-10 years age group attending primary grades in private schools and with a corresponding figure of only 4% for those in high school.⁴

Figure 1a: Enrollment rates by Grade Levels



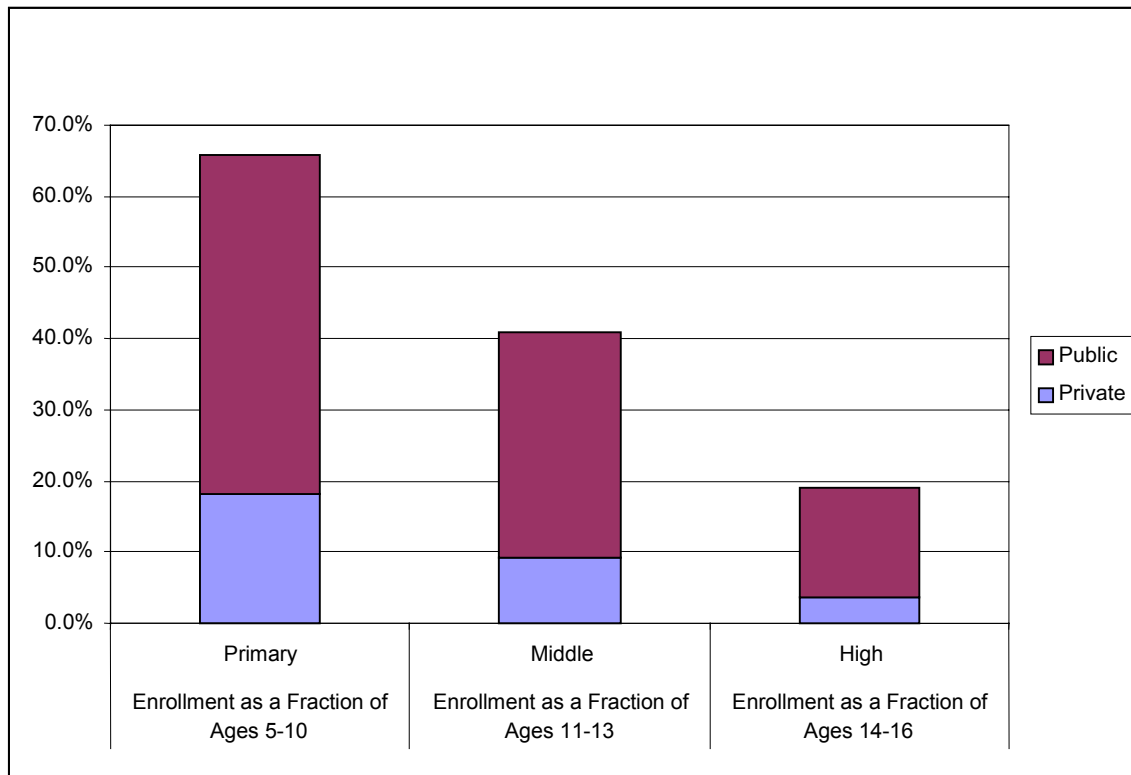
² Jimenez and Tan (1987)

³ At an implied annual growth rate of 14.3% this far outstrips population growth in that period which averaged 2.7%

⁴ Grades 9- 10.

Private enrollment is also significant relative to public enrollment since it accounts for 35% of public enrollment at the school level (primary, middle and high). Figure 1b shows these respective enrollment rates grade level types in private and public schools. Note that not surprisingly, there is drop-off in enrollment after primary grades in both public and private schools.

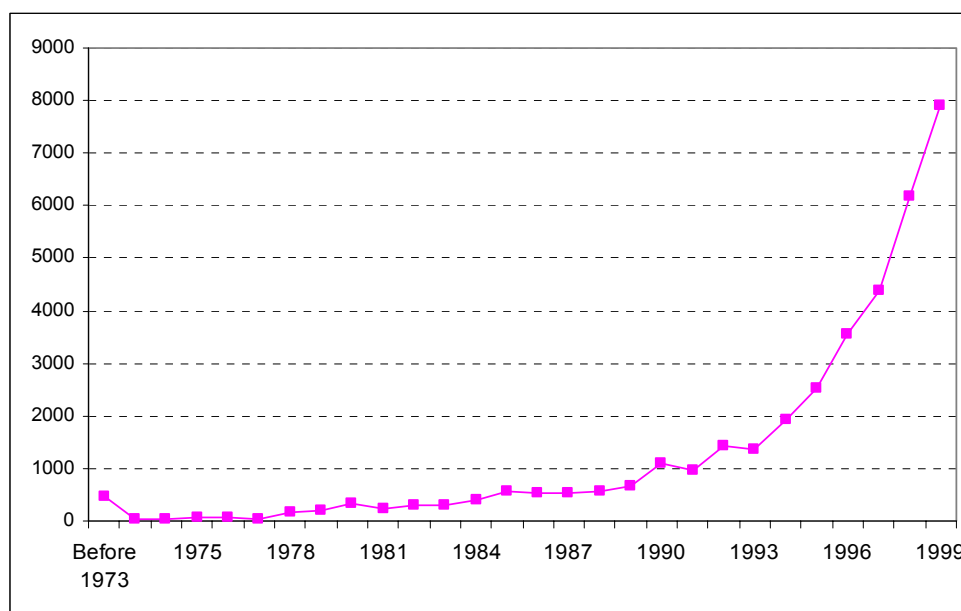
Figure 1b: Public vs. Enrollment rates by Grade Levels



Perhaps more surprising is the completely unanticipated high growth of private schooling⁵ that the country has witnessed since the early nineties. The census of private schools provides data on the year of formation of the school, and from this, the median year of formation for a private school that was functional in 2000 is 1996. Figure 2 below shows the total number of schools in 2000 based on the year of formation. 22% of the schools currently in existence were formed in 1998 and in fact, 50% are less than 4 years old (i.e. were formed on or after 1996).

⁵ Interestingly, in one report (Jimenez and Tan, 1987) it was estimated that the private school system would reach full capacity at an enrollment of 2.1 million children. Currently there are 6.3 million children in private schools –an indication of how unanticipated the growth of private schools has been during the last decade.

Figure 2: Number of Schools in 2000 by Year of Formation



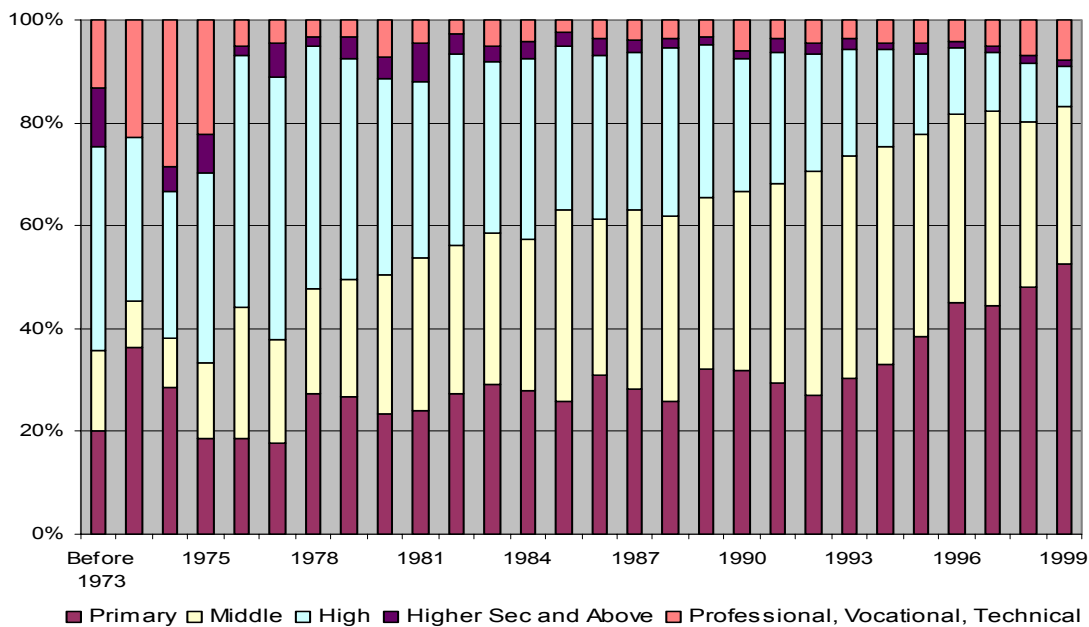
However, some care should be taken in interpreting these figures as indicative of *faster growth* of private schools in recent years. The complication with this interpretation is that data on age of schools *currently* existing does not yield any information about the average duration that a school remains functional i.e. the school survival rate. For instance, if it were the case that over a three year span 1000 schools are set up each year but 500 shut down a year later, a survey after three years would only have 125 schools aged 3 years, 250 schools aged 2 years, 500 schools aged 1 year and 1000 schools established in the current year. The difference in these numbers is entirely due to the school survival rate, and is unrelated to the growth of schools. To some extent though, a separation of the joint effect of school formation and school survival rates can be obtained by a simple exercise based on data from 1983: In 1983, there were 3300 private schools in the four provinces. In contrast, the current census indicates that by 2000 there were 1,764 private schools formed in 1983 or before in these provinces, suggesting that a bit over half the schools survived over the 17-year period i.e. an implied annual survival rate of 96.4%. Thus even if we discount the numbers in figure 2 above by this survival rate, and therefore look at schools which are expected to last at least 17 years, we can see that there is still a substantial growth in schools starting in the 90s.

In fact, as suggested earlier, this rate of private school formation far exceeds the rate of population growth. Using numbers for primary school enrollment in 1983 from Jimenez (578,330 students in the four provinces of Pakistan) and our latest numbers we get an overall increase of 937%, far greater than the 57% population increase (in the same four provinces) between 1981 and 1998. Thus the growth in private school enrollment, even after controlling for population growth, is enormous.

What then are the new schools that are being set up, and which segment of the population are they catering to? To examine this issue more closely, Figure 3 shows the distribution of school types by year of formation. In the stock of currently existing schools, there is a clear shift towards primary and middle schools as the age of the school decreases – slightly more than 50% of all schools dating from 1981 are either primary or middle, but this number increases steadily during the eighties and the nineties, and of schools that are one year old, more than 80% fall in this category. Since even in middle schools, the bulk of enrollment is in primary grades (out of the 2.2 children enrolled in middle schools, 1.84 million are in primary grades) the increasing numbers is largely a reflection of a vast increase in the private schooling capacity at the primary level.

Finally, note that as long as these two school types do not have significantly lower survival rates than others, our observation regarding the increase in their currently existing stock is also a valid statement regarding the recent *growth* trends of private schooling. Thus, it appears that the driving force in the expansion of private schools during the nineties has mostly been an increase in the provision of private educational services for the primary school going population.

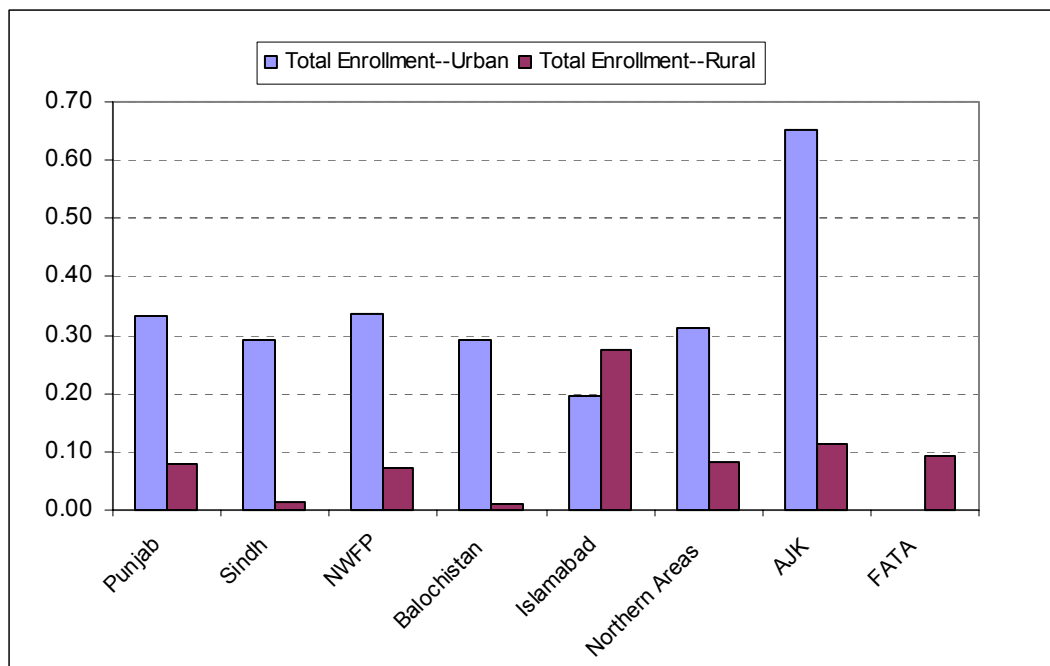
Figure 3: School Type distribution by Year of Formation of School



A concern regarding the growth of private schools is the distribution of such schools across urban/rural and provincial divisions. In 1987, Jimenez and Tan argued that private schooling was mostly an urban phenomenon and while this is true even today, there has been a significant increase in the rural areas.

Figure 4 below shows enrollment as a proportion of the age-adjusted school going population for urban and rural regions in different provinces. From the figure it is clear that the urban enrollment rates far exceed those in rural regions, often by a factor of three or more. Surprisingly however, apart from this clear distinction between urban and rural areas, there do not seem to be major differences in enrollment ratios across provinces, except in the case of rural Sindh and Balochistan (which consistently under perform compared to the other provinces) both in the number of schools as well in the population adjusted enrollment rates. This disaggregation provides us an insight into which areas may need strengthening in the future – while across provinces there are few differences; across rural and urban regions there is significant disparity.⁶

Figure 4: Total Enrollment Ratios (fraction of children ages 5-16) across Regions

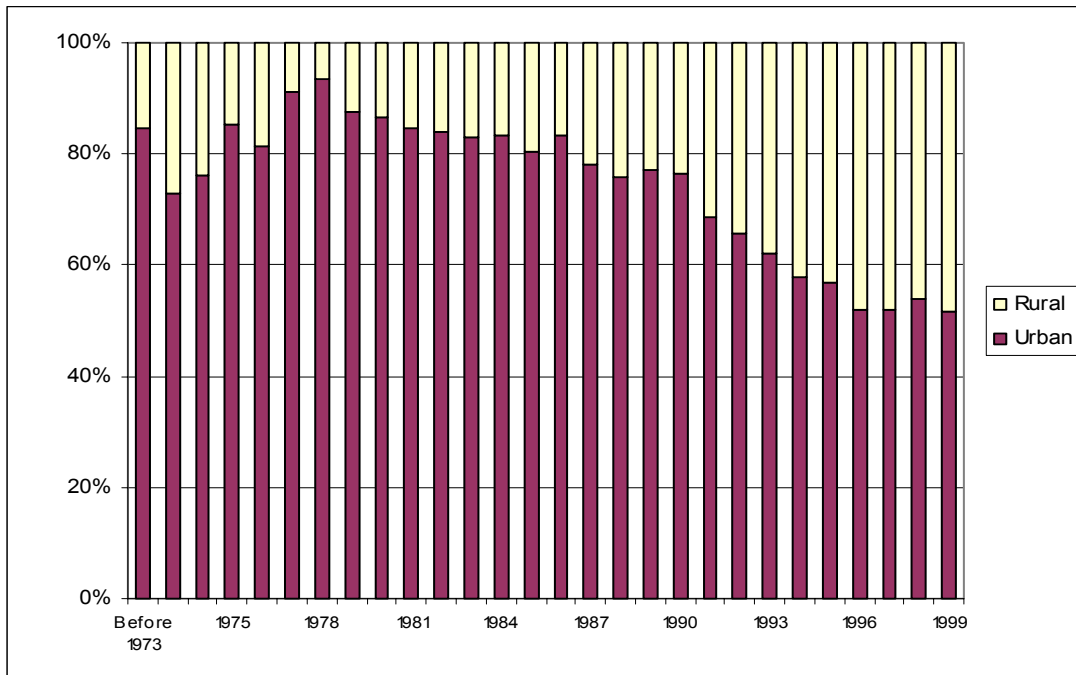


How worried should we be about the urban/rural divide in private schooling? Is this a reflection of historical schooling patterns, or is this a trend that is expected to continue in the next decade? Some answers are suggested by examining the creation rather than the stock of existing schools during the recent past. Figure 5 below graphs the distribution of private schools across the rural-urban divide by year of formation of schools. The figure clearly shows that while the majority of existing schools that were

⁶ Using numbers reported by Jimenez and Tan (1987) we get that while there has been some increase in the number of private schools in Sindh and NWFP, almost no change in Balochistan, there has been a huge 2000% increase in Punjab over a 17 year period. However, we should be careful in interpreting these numbers and the extraordinary growth in Punjab, because we suspect the data used by Jimenez and Tang misses part of the Punjab.

formed before 1990 were urban, since then there has been a qualitative shift in the formation of schools with a steady increase in the rural/urban ratio till 1996, followed by a leveling off. Keeping in mind that most private schools have actually been formed in recent years, these ratios suggest that Pakistan has seen even greater *absolute* increases in the number of private schools in rural areas.⁷

Figure 5: Urban-Rural School Distribution by Year of School Formation



The analysis presented in this section has provided strong evidence on the importance of private schooling in Pakistan, both in terms of the existing stock of private schools and private school going children, as well as the expected trends for the future. Moreover, the trends across provinces and rural/urban divisions seem to be encouraging. In particular, although there has been a historical imbalance with urban areas far better served than their rural counterparts, the last decade has seen a reversal of this trend with more schools being set up in rural compared to urban regions. Finally, except in the case of rural Sindh and Balochistan, there do not seem to be wide disparities across provinces.⁸ Given the importance of private institutions, the next two sections probe deeper into the characteristics of such institutions, both in terms of fees charged as well as the quality received.

⁷ As before, we need to be careful that stock translates into growth only if the survival rate across urban and rural schools is similar.

⁸ One possible reason for why there has been a persistent feeling of cross province differences in the past is that the *number of schools* are indeed very different, and due to the lack of a population census, it was not possible to normalize this number with the underlying population. With the population normalizations, as we discuss, the picture is very different and a lot more equal.

Section II: How much do Private Schools Cost?

In light of the current and growing importance of private schooling highlighted in the previous section, a key question that then arises is regarding equity issues: One potential problem often voiced about private schooling is that, although the quality of schooling provided may be better than that in public schools, this increase in quality is obtained by restricting access only to a select 'elite'.

The access to private education by the rich only is essentially a consequence of high admission and tuition fees that a private provider may be tempted to charge. However, work by Alderman et al (2001) has shown that in some regions of Pakistan (notably Quetta and Lahore) this assumption is not necessarily true – although there is a more than proportional increase in the use of private schooling with an increase in income, private school costs are low enough (Rs.85/month) so that even among households that are in the two lowest income brackets, more than 50% of the children use private schooling facilities.

In this section we show that Alderman's findings, at least in terms of the cost of private schools as measured through annual tuition fees, seems to hold more generally for all the provinces in Pakistan, as well as for rural and urban regions within each province: in particular, the distribution of fees is centered around a fairly low median, and a large percentage of schools in each province charge fees that are concentrated around this median.

Tables 1a-b summarize the distributional statistics of tuition fees in province for self-owned primary schools (this eliminates NGO schools that may charge lower fees), disaggregated at the province and at the rural/urban level.

Table 1a: Annual Fees for self-owned (for-profit) primary schools in urban areas

Province	Median	Mean	Standard Deviation	Inter-quartile range	Number of Schools
NWFP	1342.85	1688.56	2160.58	914.39	533
PUNJAB	850	1286.94	3331.34	661.13	4,201
SINDH	1297.18	1950.62	3375.17	1175.33	1,290
BALUCHISTAN	1740.98	2095.64	2327.21	1200	61
ISLAMABAD	3390.91	4791.86	4941.39	2940.1	50
NORTHERN AREAS	2688	5543.68	5800.98	2183.76	5
AJK	1541.9	2138.75	3793.97	992.31	110

Table 1b: Annual Fees for self-owned (for-profit) primary schools in rural areas

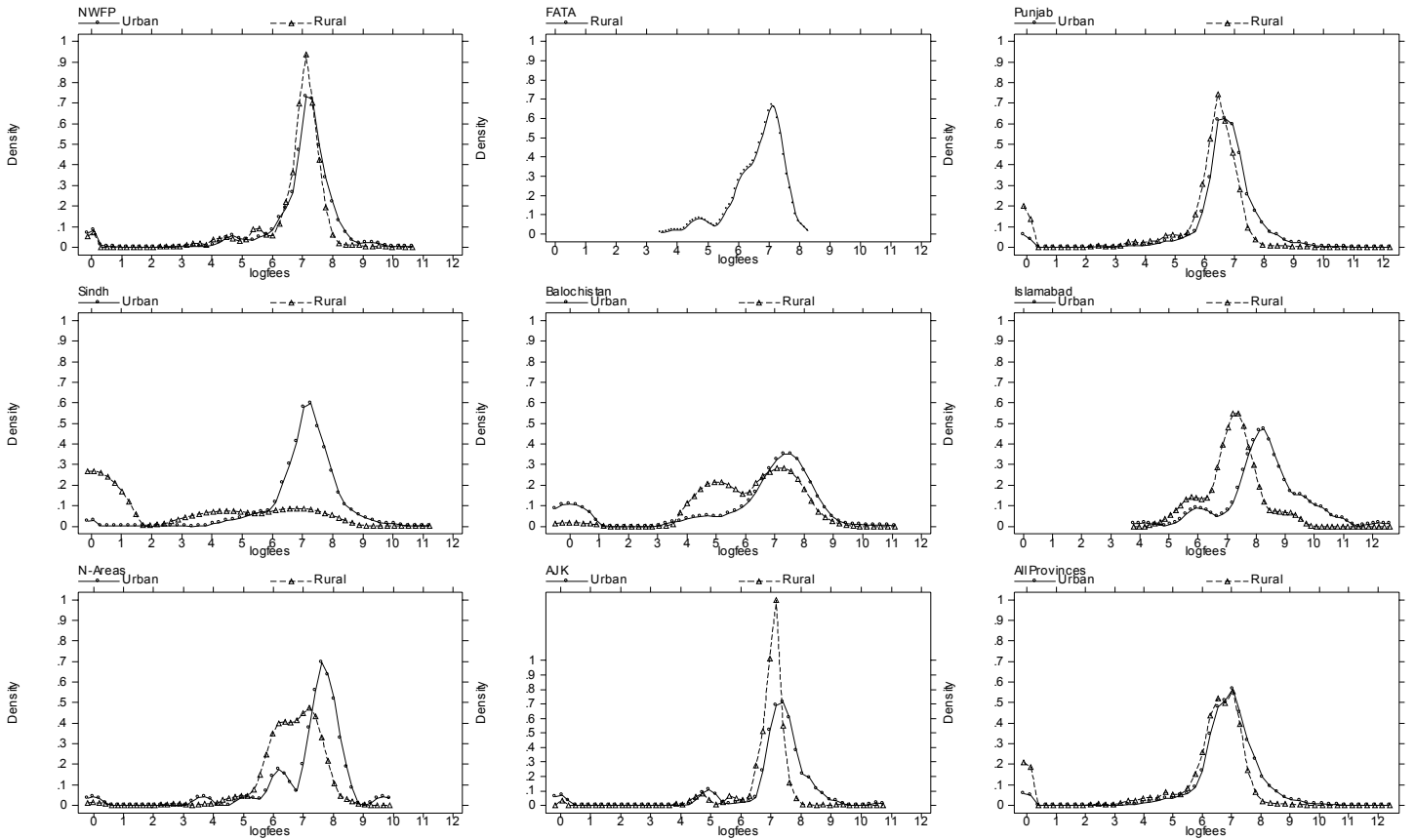
Province Code	Median	Mean	Standard Deviation	Inter-quartile range	Number of Schools
NWFP	1200	1367.71	1551.57	649.83	1,165
FATA	1080	1067.63	530	705.99	117
PUNJAB	632.21	762.72	931.16	423.64	3,955
SINDH	1142.97	1014.47	537.8	661.2	84
BALUCHISTAN	1351.36	1308.78	732.26	526.67	34
ISLAMABAD	1489.13	1973.4	2037.78	1065.5	64
NORTHERN AREAS	1560	1295.6	669.91	700	11
AJK	1162.16	1192.34	725.94	463.33	643

Two conclusions follow immediately. *First*, except for Islamabad and the Northern Areas (which together account for less than 0.5% of all schools), the median school fees in Pakistan are low: the highest median school fee in urban areas is in Balochistan, and amounts to Rs.145 per month. For rural regions, this drops down to Rs.112 per month. Punjab, with more than 50% of the school going age population, reports the lowest fees both in the urban and the rural regions (Rs.71/month and Rs.53/month respectively). Using household expenditure data from the PIHS, we can get sense of the magnitude of these fees: In Punjab, the mean tuition fee represents 1.7% of average household expenditure at the rural level and 2.1% at the urban level. Thus a family with 4 children in an urban area will have to spend 8.4% of their budget on school tuition fees in the average private school.⁹

Second, the consistently higher mean compared to the median suggests that the distribution is skewed at the upper tails, with a high concentration of schools around lower school fees. This observation is borne out by data on the interquartile range, which shows the range of fees between the schools at the 75th and 25th percentiles of the fee distribution. The maximum interquartile range (excluding Islamabad and the Northern Areas) are Rs.1,200 and Rs.705: in rural regions, 50% of all schools are concentrated in a tight band ranging from Rs.75 to Rs.125. Further, it appears that provinces with more schools tend to report a lower median fee, as well as a tighter distribution around the median. This relationship between the density of educational provision and the shape of the fee distribution is better seen in the kernel densities plotted in Figure 6 below.

⁹ Note that total expenditure in schooling includes more than just tuition fees and these numbers do represent an underestimate.

Figure 6: Distribution of Logarithm of School Fees by Region (Rural/Urban)



This figure constructs the kernel densities of log fees by province and location (rural/urban) in Pakistan. Comparing the shape of the density function to the numbers of schools in the province (given by the tables above), it is clear that the provinces that have the highest number of schools (Punjab, NWFP and AJK), also have the highest concentration of fees around the median. In addition, it appears that there are a large number of schools on the left tail of the fee distribution for all provinces except Islamabad: a significant fraction of the variation in the tuition charges across schools is actually due to schools charging *lower* rather than above the median tuition fees.

The above discussion focused on the important question of equity in private schooling – is it the case that private schools in Pakistan are designed primarily for use by the elite? Although a clear answer to this question would require both school and household level data, we can tentatively provide an answer by combining Alderman’s work with the data above. In Alderman et al (2001), for mean tuition fees of Rs.79 per month, more than 50% of the lowest two income brackets were using private schooling. From this

data, the mean tuition fees are higher in some provinces, but substantially lower for the provinces with the greatest number of private schools.

To the extent that the structural relations identified in Alderman's work hold more generally, it would appear that for the majority of private schools, tuition fees reflect the fact that schools are catering more to the lower and middle class income group, rather than a rich elite. Finally, to the extent that the relationship between the density of private schools and the concentration of the fees distribution is causal, the description suggests that an effective way to *decrease* fees in private schools is through the competitive pressure that arises from the number of such schools providing educational services.

Section III: The Characteristics of Private Schools

So far we have argued that private schools in Pakistan are an important phenomena in terms of the stock of education, as well as their growth rate. Moreover, contrary to popular wisdom, these schools do not seem to be catering only to the rich – in fact, most schools have very low fees. These two observations do not, however, address an important concern regarding the use of private schools. It has been argued at the popular level that there are actually two kinds of private schools in Pakistan: there are private high quality schools that are accessible only to the 'elite', and while there are also low cost schools used by a wider section of the population, the quality of education offered in these schools leaves much to be desired.

In this section we address this concern, by asking whether it is the case that private schools in Pakistan are exploiting the poor by providing them with little or no education albeit for low fees? We break our answer to this question into two parts: in the first part we examine whether, on the basis of what little quality indicators that we have available, private schools indeed offer low quality schooling. In the second part we then argue that even if school quality is low, this in itself need not be a cause for concern given the low prices in this sector – the crucial question that we need to address is whether households are aware of the quality of education that they receive for the price they pay. We present some preliminary evidence that this condition is satisfied, but argue that more data on quality is required before any specific policy proposals for this sector can be drawn.

Section A: Are private schools of really low quality?

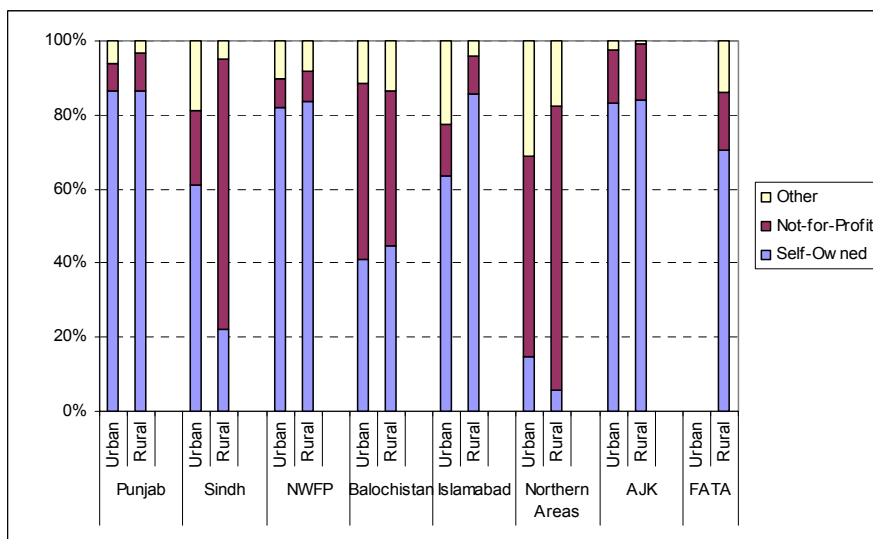
The typical private school in Pakistan is a small primary school that is self-owned, has mostly untrained teachers, and has been set up after 1996: Around 42% of all schools are primary schools, median year of

formation is 1997, median percentage of trained teachers is 33, and 79.3% are self-owned. Looking at newer schools, we see similar patterns and with an even higher percentage of self-owned schools.

Figures 7-8 below examine these patterns more closely. In particular they check to see whether these patterns are more or less pronounced in different provinces and across rural and urban areas.

Figure 7: School Ownership by Region

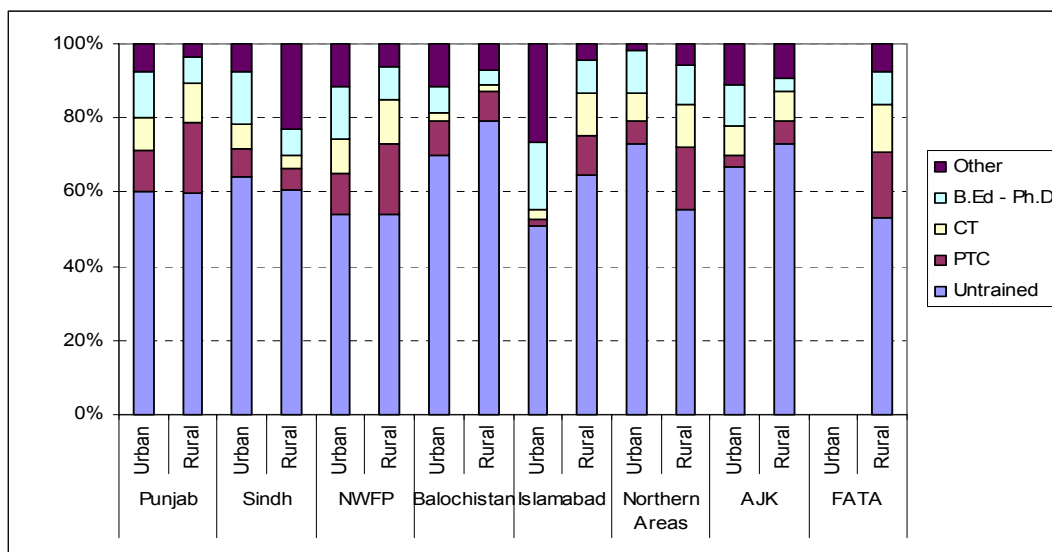
In terms of ownership, exception of Balochistan Northern (which has a amount of schools), it is the initial the predominance



distribution with the rural Sindh, and the Areas large NGO clear that assertion of of self-

owned private schools holds, especially in Punjab, AJK and NWFP (which together represent 73% of total private enrollment). Moreover, as Figure 8 below shows, in almost all the provinces and in urban and rural areas most of the Teachers have little training. This profile is not very flattering for private schools and does suggest some cause for concern.

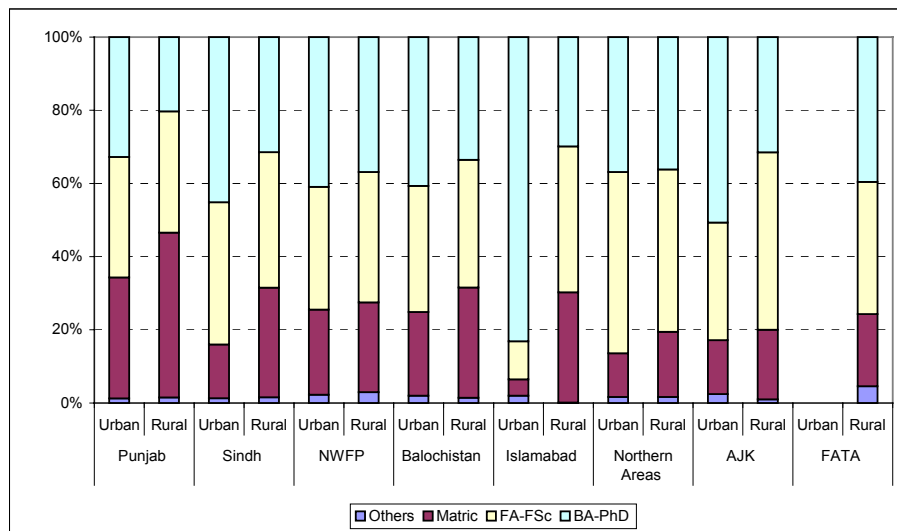
Figure 8: Teacher Training by Region



However, turning to other statistics at the aggregate level we see that the picture is in fact not as bleak. While teachers are mostly untrained, the vast majority of them are educated to at least to 10th grade: 95% of the teachers in private schools have at least a matric (10th grade) education, and in fact two-thirds have 12th grade and above. Moreover, the schools have low student-teacher ratios and reasonable expenditures per student: the median student-teacher ratio being 19 students to a teacher, and the mean expenditure per student Rs.195/month. Finally, most of the schools (64%) are registered.

Figure 9 and Tables 2-3 provide regional patterns for the above somewhat more reassuring private school statistics. Figure 9 shows that in all regions most teachers have at least a matriculation degree and a significant fraction have FA-FSc¹⁰ or higher. Even rural Sindh, which generally has the worst educational performance, has less than 2% of teachers who list their education as “other” which we take to mean less than matriculation. Rural Punjab is interesting in that it has the largest fraction of teachers amongst all regions (45%) with only a matriculation degree.

Figure 9: Teacher Education by Region



Tables 2-3 below look at regional patterns in student-teacher ratios and expenditure per student incurred by the school. Table 2 shows that the overall pattern in student-teacher ratios holds similarly across regions with most regions having median ratios between 15 to 25 students to a teacher. Moreover, primary schools display similar ratios suggesting that overcrowding does not seem to be a concern even at that level.

¹⁰ FA-FSc is the equivalent of 12th grade.

Table 3 shows that median annual expenditures incurred on each student vary from Rs 674 (rural Punjab) to Rs 9,089 (urban Islamabad) suggesting that while these expenditures do vary significantly across regions (as expected they are higher in urban areas), even the lowest ones are still fairly reasonable.¹¹

Table 2: Student-Teacher Ratios by Region

		All schools		Primary Schools	
		Mean	Med.	Mean	Med.
Punjab	Urban	21.2	18.9	21.5	18.8
	Rural	23.6	21.0	22.7	20.7
Sindh	Urban	19.1	16.7	20.1	17.1
	Rural	26.6	23.6	20.9	18.5
NWFP	Urban	21.8	15.3	20.5	15.8
	Rural	19.1	17.4	18.8	17.3
Balochistan	Urban	21.9	19.0	23.1	19.6
	Rural	24.3	19.0	28.8	22.3
Islamabad	Urban	17.1	10.6	19.6	10.0
	Rural	17.5	15.6	15.4	14.5
Northern Areas	Urban	17.7	16.2	20.4	18.8
	Rural	22.9	20.0	22.7	20.2
AJK	Urban	16.7	15.0	16.6	15.0
	Rural	23.3	22.0	20.6	19.3
FATA	Urban	-	-	-	-
	Rural	29.6	25.1	30.7	25.2

Table 3: Expenditure per Student (Rs) by Region

		All schools		Primary Schools	
		Mean	Med.	Mean	Med.
Punjab	Urban	2177	1012	1360	772
	Rural	1115	674	813	561
Sindh	Urban	3531	1647	2732	1412
	Rural	2307	713	1039	608
NWFP	Urban	5863	1959	2245	1502
	Rural	2054	1392	1509	1255
Balochistan	Urban	3453	1996	2514	1825
	Rural	1829	1313	1547	1158
Islamabad	Urban	16985	9089	7814	5240
	Rural	1941	1283	1827	1241
Northern Areas	Urban	4069	2490	2729	2239
	Rural	2757	1962	2129	1743
AJK	Urban	3268	1981	2035	1405

¹¹ These expenditures include routine expenditures, repair and maintenance of machinery and equipment, purchases (store & stationery), traveling/POL/Transport, utilities, rent of building, repair and maintenance of building, pay and allowance of teaching staff, pay and allowance of non-teaching staff, and miscellaneous expenditures. Investment expenditures include improvement of land, construction of building, furniture and fixture, transport and transport equipment, machinery & equipment, teaching materials.

	Rural	1245	1104	1114	1039
FATA	Urban	-	-	-	-
	Rural	1765	1288	1621	1101

It is also worth noting that the potential quality concerns tend to be more pronounced in rural Punjab; it has the highest fraction of teachers with only matriculation education, lowest expenditure per student, amongst the higher fraction of self-owned schools and fairly high student-teacher ratios. Since this is also the region with potentially one of the largest absolute increase in schools, it is important to understand the prevalence of these patterns. We will shed more light on this in subsequent sections.

While these absolute statistics regarding private school quality are reassuring a useful comparison is to contrast them with public school data. Since the education census is only for private schools we instead use the community survey of educational facilities in the rural areas from the PIHS 1998. There are 892 public and 116 private primary schools in this nationally representative sample. Table 4 compares various attributes of private and government schools based on this dataset. The results show that private schools compare favorably to public schools.

Table 4: Public vs. Private School Characteristics

		Public	Private
School Characteristics			
	Mean Student-Teacher Ratio	42.7	24.8
	% Schools having Toilet Facility	48	84
	% Classrooms with Desks in a School	40	80
	% Classrooms that are Unusable in a School	24	12
Head Teacher Characteristics			
	Average years of Teaching Experience	14.6	6.7
	Number of In-Service Trainings in last Three Years	.69	.18
	Highest Grade Completed	11.76	12.73
	Number Of Leave Days In The Last One Year	12.7	6.0

The first thing to note is that, at least in terms of comparable information, the PIHS data is consistent with the private school census data with similar student-teacher ratios. The stunning difference in the student teacher ratio between the public and the private schools is also confirmed in an independent check on the EMIS data that is publicly reported. The rural primary student teacher ratio in public schools in the EMIS data also exceeds 40.

In addition, the stereotype of the public school with less usable facilities in terms of desks and toilets is borne out. While it is true is that the public school teachers are more experienced and have more training,

the greater leave days in public schools and almost double the number of students per teacher suggest that public school teachers spend less time per student.

Thus while it is true that private schools may not be imparting very high quality education, they do seem to provide decent quality both in absolute terms and especially in comparison to public schools. However, it should be emphasized that the measures presented are at best crude measures of quality and beg the need to have a more careful evaluation of these schools.¹² In particular, future research must involve direct testing of students in a sub-sample of these private schools with care being taken to interpret outcomes in both qualitative and quantitative ways. We end this section with a few remarks on testing.

At the high school levels, there are observable measures of quality such as board examination numbers, admission to colleges, etc. Thus it seems that quality would be easier to judge for parents from school performance in such exams. Recently, however, the general public seems to be losing faith in the results of government schooling exams and there is a growing movement among professional and independent colleges to institute their own testing for high school graduates.

However, at the primary level, evaluation of quality is extremely difficult for parents. There are no school leaving examinations and thus while parents can look at admissions rates to selective secondary schools, there are no test scores as such. So, a rigorous test of outcomes is a necessary component for any evaluation of private education.¹³ In the development of appropriate tests for quality of schooling, two things need to be kept in mind. First, the appropriate gauge of quality education, particularly in primary schools, is taken by many educators to be, besides the three “R”s, the development of multiple skills and intelligences, study habits, attitudes towards learning and social and leadership skills. Secondly, it is important to keep mind that education, particularly of young children in all parts of the world is about developing a sense of values. In fact the major argument for public provision of education is to “indocrinate” children with a sense of citizenship. The earlier cited newspaper articles talk increasingly of a lack of standardization of private schools in terms of values underlying education, the pedagogic philosophy and actual teaching practice. Pakistan has always had a vigorous debate on the appropriate set

¹² For newspaper accounts of parental concerns on quality, see Qureshi (2001) and Naqvi and Javed (2002)

¹³ Warwick and Reimers (1995) report on outcome tests conducted in the government primary schools of Pakistan. Gazdar (1999) and Khan, et. al (1999) provide comparisons between public and private schools. Alderman, et. al (1997) and Behrman, et. al (1997) provide evidence on outcomes as well. None of these studies provide testing specifically on private schools using the PEIP data set as a base.

of values taught in schools.¹⁴ Fear of further fragmentation of body politic on the one hand due to lack of any standardization and “educational apartheid” between an English-speaking elite and the rest worries many social commentators.¹⁵ Thus any test instrument must eschew “just the facts” type of tests prevalent in Pakistan to include some means of testing critical thinking, etc. but also incorporate a serious and sustained attempt at observation and monitoring of actual classroom and teaching practice.

Section B: Should we be concerned about low quality private schools?

Even though the previous discussion suggests that private schools in Pakistan may in fact be providing a reasonable, or at least not very poor quality of education, it is still worth asking how much this level of quality costs. In particular, since these schools typically charge very low fees, the critical question to look at is whether these low prices provide an equivalent quality of education. This is a particularly important question in a country such as Pakistan, where a large fraction of the children currently enrolled are first generation literates and this may lead us to believe that for the households with such children the quality of primary education is particularly hard to evaluate.

Our analysis provides some preliminary evidence that households are able to evaluate the quality of a school, with schools that use higher quality inputs being rewarded by correspondingly higher fees. Figures 10-11 below shows the trade-off between quality and fees in Pakistani private schools. These figures show that there is a fairly strong response of fees to two important factors that affect the quality of educational inputs; student-teacher ratios and teacher education. These figures are out of sample predictions based on a linear semi-log regression with log fees as the dependant variable, various school controls (including registration, urban or rural and the level of the school) and community controls (implemented through district level dummies). Although the results could arise due to selection problems (richer areas have more educated women, and all that the figure picks up is that rich people pay more), some of this is taken care of through the use of district level dummies in the regression. Both the figures show that fees respond positively to increases in the quality of inputs. Also worth noting is the fact that as we would expect, self-owned schools respond more steeply to this quality change as compared to trust or

¹⁴ For an economist’s perspective on these issues, see Arrow (1997). He persuasively talks of the role of preference formation of the child, and on positive and normative problems created by the recognition that education changes values. In Pakistan this has been an issue of discussion right from the first days after independence. For example, Fazlur Rahman, the first education minister, in a speech in 1947 says, “Men must learn to earn a living, to be good members of a society, to understand the meaning of the phrase ‘the good life,’ and education must help them to achieve these three ends.” For more on a flavor of the early debate over these issues and this speech, see Rahman (1953).

¹⁵ See the collection of articles in Hoodbhoy (1999)

NGO schools suggesting that the self-owned schools are indeed charging customers in proportion to the quality they impart.

Figure 10: Predicted relationship by School Ownership Type: Fees and Student-Teacher ratios¹⁶

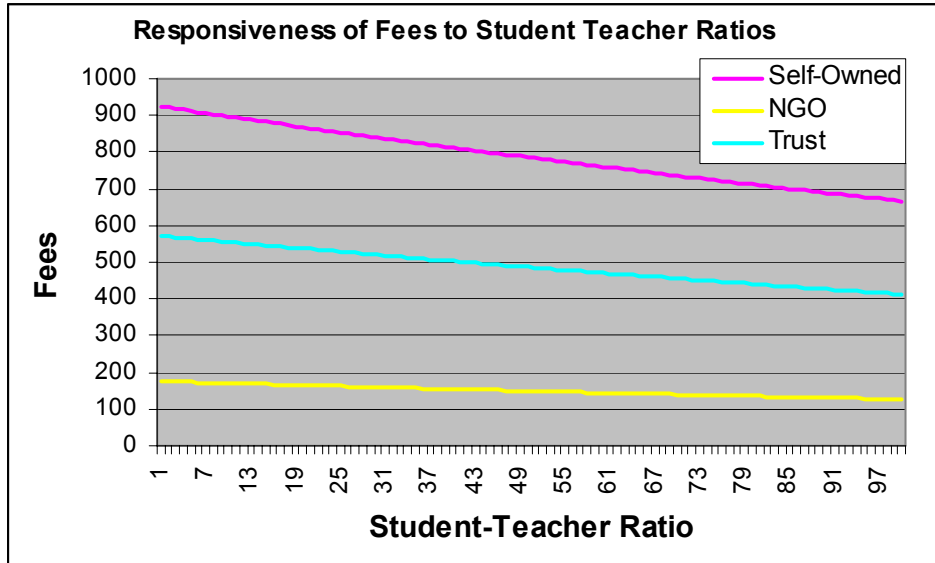
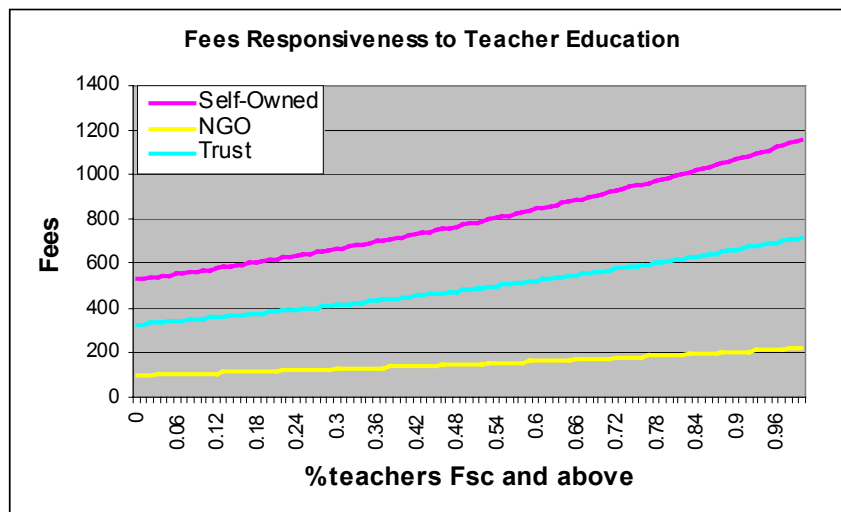


Figure 11 performs the same exercise as before but now looks at the predicted relationship between fees and teacher education as measured by percentage of teachers with 12th grade and above education.

Figure 11: Predicted relationship by School Ownership Type: Fees and Student-Teacher ratios¹⁷



¹⁶ Based on the regression $\text{Log}(\text{Fees}) = \text{constant} + b * \text{stteacherratio} + c * \text{percent_fsc_above} + d * \text{registration status} + \text{district level dummies} + \text{urban dummy} + \text{level dummies}$. The out of sample prediction is at the mean for percent_fsc_above, and for an unregistered school in a rural area.

¹⁷ Based on the regression $\text{Log}(\text{Fees}) = \text{constant} + b * \text{stteacherratio} + c * \text{percent_fsc_above} + d * \text{registration status} + \text{district level dummies} + \text{urban dummy} + \text{level dummies}$. The out of sample prediction is at the mean for percent_fsc_above, and for an unregistered school in a rural area.

To conclude, the picture one is left with is one of self-owned with not very highly trained teachers that also do not charge high fees but do seem to charge according to the quality they deliver. As hinted at above, how this translates into overall welfare is unclear. i.e. is it bad to have education in low quality schools if they are also charging low fees. The answer we suggest is that as long as parents realize that the quality of the education that they are receiving is not high, and they do have the option to send their children to high quality-high fees schools as well, then this by itself may not be a problem and definitely not a reason for clamping down on these private schools. However, to provide a detailed answer to this question, and indeed to understand ways in which the private school phenomenon can be encouraged while enhancing its quality, we need more careful evaluation and testing of these schools. We will return to this theme in the conclusion of this report.

Section IV: So what about girls and women?

Our previous discussion focused on equity issue in terms of access for different income levels since our concern was that private schools may be a purely elite phenomenon, and even if they are not, could be providing services far worse than what their prices justify. On both these counts we find that the evidence, while not conclusive, suggests that private schools cater to every segment of the population, including the lower and middle-income groups and that households can judge school quality. This then brings us to another equity consideration – even within income groups, there can be significant differences across population groups, and one such source of disparity in Pakistan arises due to discrimination by gender. The history of gender disparity in educational outcomes in Pakistan is well documented, with very low enrollment rates for girls through the 70's and the 80's. The Sixth Five Year Plan 1983-88 reports that “In Pakistan today, the profile of women is shocking...In the primary schools, girls' participation rate is 33 percent of the relevant age group, with only 21 percent in rural areas. At the secondary level, girls' enrollment is 12 percent of age group, with only 3 percent in rural areas.” In this section we will examine this gender issue in two different ways: girls as students and women as teachers.

Girls As Students

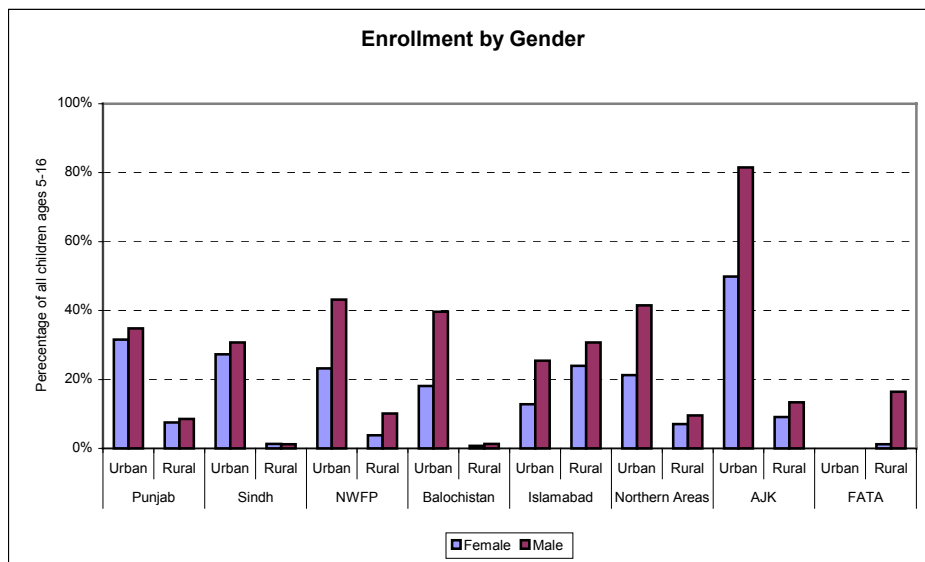
Pakistan has historically seen low female enrollment rates: The primary enrollment ratio for both sexes in 1965 was 40 %, whereas the female primary enrollment ratio was 20 %. In 1984 the total primary enrollment ratio was 42 % while the female had gone up but was still an extremely low 29%.¹⁸ The

¹⁸ World Development Report, 1987, Table 31

Second Five Year Plan(1960-65)of the government of Pakistan stated that, “of the 4.7 million children attending primary schools in 1959-60, only 1.1 million are girls.”¹⁹

The current picture for private schools however, is strikingly different. The figure below shows enrollment rates as a percentage of school going age children, disaggregated by gender and region. Although enrollment rates are higher for boys compared to girls, the differences are not as big as the historical evidence would lead us to believe – in fact, girl and boy enrollments are roughly equal for Punjab and Sindh, the two provinces that account for over 70% of the total population of Pakistan. In Punjab particularly, gender differences in private enrollment rates are very low with female enrollment exceeding 90% of that of males in some districts. For example, in Lahore, Gujranwala, Sialkot, Gujrat, Narowal and Sheikhpura, the numbers are very close to being equal.²⁰ In fact these numbers are even more striking when one compares to current public school enrollment data which show that only 37.4% of overall public school enrollment is girls. The comparable number in private schools is 43%.

Figure 12: Male-Female Enrollment by Region



Part of this phenomenon may be due to the ability of the private sector to better assess the demands of the underlying population, and to respond quickly to changes in order to deal with competitive pressure. A case in point is the formation of co-educational schools. Public schools in Pakistan have usually been

¹⁹ See also Curle (1966) for an interesting perspective on Pakistani educational issues including gender in the 1960s.

²⁰ The district enrollment numbers are not normalized by the underlying population. As the Pakistan sex ratio is in favor of boys, so actual enrollment numbers translate into even greater normalized numbers as a percentage of the girls population.

single-sex schools, under the belief that households would feel uncomfortable in sending girl children to co-educational institutions. As a result, 72% of rural PSUs have a public primary girls school present while only 9% have a public co-educational school. Looking at private primary schools, single sex girls schools were present in only 3% of the rural communities while coeducational schools were present in 22% of the rural communities.²¹

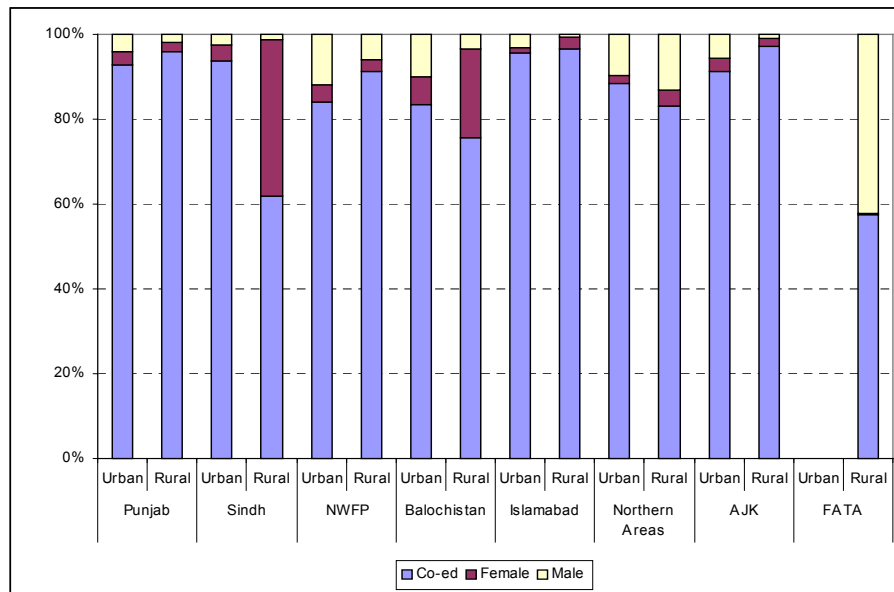
This leads to an important policy issue for increasing access of schools for girls at the primary level. Single sex schools are often justified in terms of cultural beliefs that favor segregation. As indicated above, private school data however show that parents are quite willing to send their girls under a co-educational system, particularly if there is a female teacher. If there is a minimum of threshold of students before a school can be started, then waiting for a critical mass of girls to exist before a school can be started can lead to lack of educational opportunities for girls. In addition, since distance to school has shown to be a significant factor in determining enrollment (Alderman), if single-sex schools are far apart and girls have to travel alone to the schools, female enrollment may actually increase with the formation of co-educational institutions that siblings can travel to together.²²

Private schools in fact have been extremely active in the promotion of co-educational institutions, and their growing importance is some evidence of the fact that the single-sex schools may not be the barrier in the education of girls. Figure 14 below shows the distribution of co-educational private institutions disaggregated at the urban/rural and province levels. As is immediately clear, with the exception of FATA (and to a limited extent rural Sindh), the majority of private schools in Pakistan cater to both sexes simultaneously. However, what is more surprising is that even in FATA, which is considered an extremely conservative area, more than 50% of all schools are coeducational.

²¹ Source: PIHS 1998 data.

²² The Sixth Five Year Plan (1983-88) states in chapter 15 on education, “Another problem pertains to the wide scatter of population in large parts of the country. It is estimated that at least 20 per cent of the population in rural areas lives in settlements of less than 300 persons. Under these circumstances, the provision of a school building becomes an expensive proposition in view of small number of students that are likely to enroll, a problem that becomes unmanageable if separate schools are to be provided for boys and girls.”

Figure 13: Distribution of coeducational schools by Region

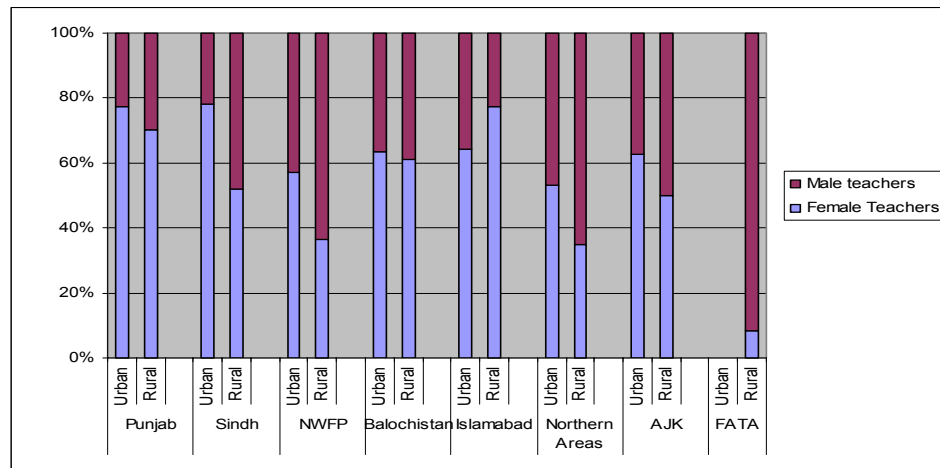


Women As Educators

Thus, one contribution of private schools to gender equity has been the possible effect they have had on enrollment through their widespread use of co-educational instruction. Here we argue that there is another, possibly greater, impact that works through the supply of *teachers*. In stark contradiction to the public sector, where females are only 36% of the teaching staff, women staff the majority of private schools in Pakistan.

Figure 15 below demonstrates this point. Except for rural FATA and Sindh, women are the majority of teachers in private schools, and in some regions (Punjab for instance), they represent more than 70% of the instructional staff. We examine two related questions here. *First*, we look at how the predominance of women in private sector teaching impacts the enrollment of girls. *Second*, we take a step back and think about how *population and labor market characteristics* may lead, not only to the staffing of private schools by women, but in the setting up of private schools in the first instance. This allows us to then make a link between the education of girls and the impact that this education may have in the future, through their roles as potential teachers.

Figure 14: Gender Distribution of Teachers by Region



The first correlation we establish is that schools with more female teachers attract more female students. Thus, in schools with no female teachers, the percentage of children enrolled who are girls is 22% and this number increases to 52% for schools that are staffed *only* by women.²³

From these estimates it is tempting to conclude that we could increase girl enrollment by simply increasing the number of female teachers in public schools. However, this need not be the case. Specifically, it may be the case that the very factors that affect the percentage of women staff members also affect the enrollment of girls. One clear example is the degree of discrimination in the labor market—in areas where there are very strict rules about the ability of women to work it is likely that there will be very few women teachers. Simultaneously, household demand for girl children’s education is also likely to be poor. In this case, providing more female teachers in public schools may do nothing to change girl enrollment, unless there is a change in the demand for education as well.

The second correlation of interest relates to the supply of teachers, and links underlying population characteristics with the formation of schools. We show that the proportion of educated females in the population largely drives the proportion of female teachers in a school. This is easily seen in a bivariate regression of percentage of teachers that are female on the percentage of educated females to educated

²³ In the bivariate regression of percentage of female enrollment in a school on percentage female teachers in a school, the regression coefficient is .296 and is highly significant with a t-statistic of 116. A one standard deviation increase (34.5%) in the percentage of women staffing a school increases girl enrollment by 10%.

males.²⁴ The regression estimates show that this relationship is almost one-to-one: a ten percentage point increase in the number of educated females to educated males in the *patwar circle* results in a increase of 8.34 percentage points in the percentage of female to total teachers in a *patwar circle*.²⁵ Thus, there is a clear relationship between the gender of teachers in school, and the supply of potential female teachers in the *patwar circle*. In itself this is not surprising, and merely shows that private schools do not seem to overtly discriminate against women – for instance, if the same correlation was tried in government schools, it would probably be very low, given the high percentage (64 %) of male teachers in the profession.

What is perhaps more interesting is that not only is an increase in the ratio of educated women associated with more female teachers in the school, it is also associated with a *greater number of schools* in the first place. To establish this, we first note that there is considerable variation, both in the number of schools and in the ratio of educated women to men in a *patwar circle*. Thus, while the mean number of schools in a *patwar circle* is 1.37, the range varies from a minimum of 0 to a maximum of 42. Similarly, while the mean percentage of educated women to educated men is 29.44%, this ranges from 0.5% to 155.55% across different *patwar circles*. Using this variation, we perform two simple bivariate regressions to present descriptive statistics on the relationship between educated women and the number of schools, and educated women and total enrollment in a *patwar circle*.

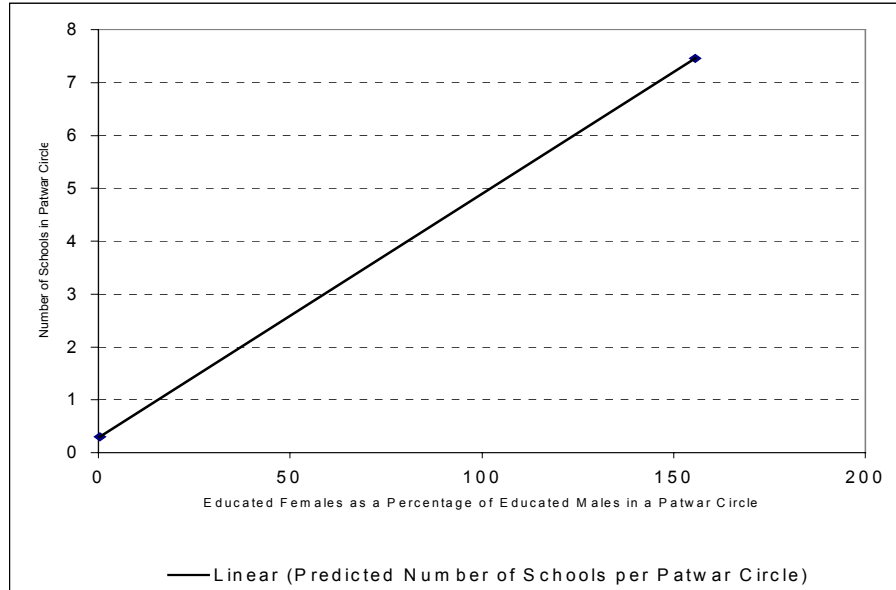
The predicted relationship between the number of schools in the *patwar circle* and the number of educated women is shown graphically in the figure below.²⁶ More precisely, one standard deviation increase in the percentage of educated women to men would result in an increase of 0.87 schools per *patwar circle*. Thus, bringing the number of educated females to equality with males would increase the number of schools in a *patwar circle* from 1.37 to 4.66.

²⁴ We are using Female teachers as a percentage of total teachers rather than a percentage of male teachers. This is because there are a number of *patwar circles* with no male teachers. The regression coefficient is .8347544, with a t-statistic of 31.64. There is one observation per *patwar circle*. The R-squared of the regression is .1817

²⁵ The population ratios are calculated only (because of data availability) for the rural areas of Punjab, NWFP and Sindh at the *patwar circle* level, which is one level of aggregation above the village and four levels below the district level.

²⁶ The regression run is $\#schools = 0.27 + .046(\text{ratio of educated women to men})$. The coefficient is very significant with a t-statistic of 33. The regression R-squared is 10%. Strictly speaking we should be running an ordered probit regression here but since the results are similar and easier to interpret for the former, that is what we present.

Figure 15: Number of schools in PC vs. Educated Female/Male %

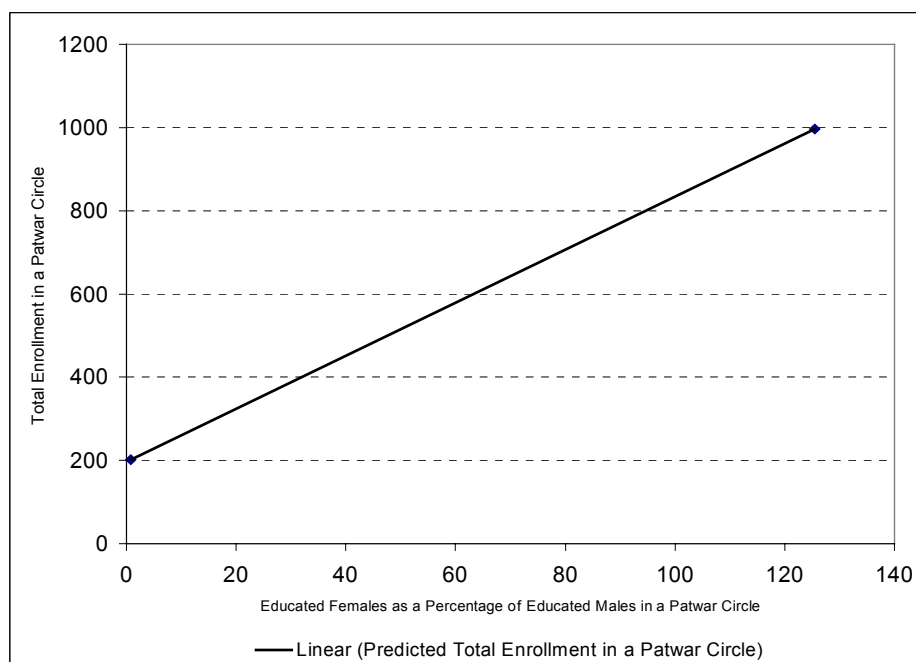


The bivariate regression of total enrollment in a *patwar circle* on the same variable as in the above regression, educated females as a percentage of educated males, leads to a similar conclusion.²⁷ The regression says that one standard deviation (18) increase in the percentage of educated females to educated males will increase enrollment in a *patwar circle* by 116 students from the current average of 384 students. Put another way, if the number of educated females were the same as the number of educated males in a *patwar circle* as opposed to the current 29.4% the enrollment in a *patwar circle* would increase from 387 students at the current average to 834 students. Note that this enrollment increase is for both boys and girls combined.

In this graph, we are running the regression only in *patwar circles* where there is already a school. So the above results are saying that conditional on there being a school, the increase in the percentage of educated females would increase enrollment. The first regression was over the entire sample including *patwar circles* where there were zero schools.

²⁷ Number of observations is 4505 and the R-squared is 0.0454. The constant is 197.4642. The coefficient on the regression is 6.365354. The t-statistic is 14.68. In this graph, we are running the regression only in *patwar circles* where there is already a school. So the above results are saying that conditional on there being a school, the increase in the percentage of educated females would increase enrollment. The first regression was over the entire sample including *patwar circles* where there were zero schools

Figure 16: Total Enrollment in PC vs. Educated Female/Male %



Thus the overall picture that emerges on the gender front is that not only do private schools have relatively high female enrollment rates, in some areas the rates are equal across girls and boys, which is in sharp contrast to the past and currently in public schools. One of the reasons, we forward is that private schools tend to employ relatively more female teachers. What is even more interesting though is that we present evidence that suggests that more educated women in an area not only make female enrollment more likely but they have a significant effect on the amount of total, male and female, private schooling provided.

It is interesting that private schools today are very close to the vision articulated by early planners of education in Pakistan.

“...We recommend, therefore, that in the future expansion of primary education the facilities provided for girls should be equal both in quantity and quality to those provided for boys. It has been strongly urged on the commission that the teaching of the early stages of primary education should be primarily entrusted to women. ..The Commission ...hopes that as women teachers become available, it will be possible for them to undertake the teaching of at least the first three classes. As the number of women primary teacher grows, it should be possible for primary education to become increasingly coeducational.”²⁸

²⁸ Report of the Commission on National Education, January-August, 1959

Conclusion

This report started off by presenting evidence that private schooling is indeed a large and increasingly important factor in education in Pakistan both in absolute terms and relative to public schooling. Moreover, both the stock and growth of private schooling was found to be relatively more at the primary level and while the rural-urban gap still remains, the growth trends showed a marked improvement in rural areas.

Next we examined school fees and argued that contrary to expectations, private schools are not an urban elite phenomenon but not only are they prevalent in rural areas but the fees charged in private schools make them affordable to middle and even low income groups.

A related issue was that of school quality. Based on the data we examined we found that while private schools did have a large number of untrained teachers and were mostly self-owned, there was little evidence to suggest that they were providing very poor quality education. In fact not only did the data indicate that private schools had reasonably well educated teachers, expenditures per students, teacher-student ratios and school facilities but on many counts, private schools fared better than public schools. Mostly notably private schools had almost twice as better teacher-student ratios. Even more reassuringly, the data suggested that school fees do respond in predictable ways to these observable measures of school inputs, which suggests that parents are indeed willing to pay for and hence infer school quality.

Finally, we examine gender patterns in private schooling and here too we provide comforting news. In terms of girl enrollment, private schools seem to cater just as much to girl as boy students and in fact the majority of private schools are in fact coeducational, dispelling the notion held by the government that the public demands gender segregated schooling. We find little evidence for this, at least at the primary level. In identifying mechanisms due to which private schools are able to attract relatively more girls, we note that private schools have much higher female teacher ratios as compared to public schools and this is significantly correlated with girl enrollment.

However, perhaps one of the most intriguing and definitely worth pursuing in more detail and rigor, finding of this study is that the role that educated women play in education. Not only do we find that areas with a greater fraction of educated women (to educated men) have greater relative ratios of female teachers, but that such regions also boast a significantly greater number of schools and higher levels of total, male and female, enrollment. This suggests that it is precisely those areas that have a supply of

educated women that are able to respond very effectively to the growing demand for education. While the causality of these effects cannot be clearly established with the data we have so far, we hope to do so in future work.

These findings were echoed half a century earlier:

“ It is specially important that provincial State Governments should, despite well-known obstacles, undertake a special drive for encouraging qualified women to take to the teaching profession. I suggest that their recruitment should be made on local basis so that after training they could be posted to the schools of the area to which they belong.”²⁹

Thus the pattern we have established in the private school phenomenon in Pakistan is that of a (young) moderately educated rural woman, who has suddenly mushroomed in the private schooling scene. Rural Punjab typifies this pattern. With its high percentage of female moderately educated teachers, primary self-owned schools and low fees, it seems to be the front runner in delivering affordable and accessible education to the masses. What needs to be examined far more carefully is what quality of education do these schools impart and it is here that we feel our future work should be focused. In order to do this not only, do we need to employ and better match existing data-sets (household level information with schooling and population census data) but also develop and conduct more careful and in-depth surveys to get at these issues more carefully and with the hope of understanding what role these private schools are playing and how that role can be improved and strengthened by policy.

²⁹“I, part I, Address delivered at the All-Pakistan educational Conference held at Karachi, 27 November 1947.” in Rahman (1953)

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Data Notes

We use the following data sources in this paper.

Federal Bureau of Statistics, Islamabad, Private Educational Institutions of Pakistan (PEIP), Census, March 2000. This is our principal data set. There is data on the four provinces of Punjab, Sindh, North west Frontier province (NWFP) and Balochistan, the federal capital Islamabad, plus Azad Jammu Kashmir (AJK), Federally Administered Tribal Areas (FATA) and the Northern Areas. The schools in this data are mainstream schools teaching a government approved mainstream curriculum. This data set does not include any information on *deeni madrassahs*.

Population Census Organization, Population Census 1998. We have publicly available data in the population census for Punjab, Sindh, NWFP and parts of Balochistan. We have used this data set for getting population numbers for the various normalizations and for the regressions at the Patwar circle level of educated men and women.

Federal Bureau of Statistics, Pakistan Integrated Household Survey (PIHS) 1998. We use the rural community questionnaire in the PIHS to compare public and private schools. We also estimate population for the missing regions in the population census data from the PIHS, and calculate expenditures for households. These different sources (census vs. survey) for estimation of population clearly lead to an error margin for the cases where the PIHS is used.

Academy of Educational Planning and Management, Educational Management Information Systems (EMIS) 1999-00. We use the EMIS information disaggregated at the provincial, rural-urban level to get the Public School enrollment numbers.

Both PEIP and the population census follow the same hierarchy as far as geographical units are concerned. It is : Province, Division, District, Tehsil. After Tehsil, the rural areas are subdivided into Qanungo Halqa, *patwar circle* and the Village. In the Urban areas, the Tehsil is subdivided into Municipal Committee/Town Committee, followed by the Charge, and then the Circle.³⁰ The PIHS follows the Province, rural-urban, Primary sampling Unit (PSU) hierarchy. The PIHS is representative only up to this level. We have mapped the PIHS PSU into the corresponding population census units.

³⁰ The current devolution plan has changed the above hierarchy as far as administration is concerned and eliminated the division as a tier of management in the civil services.