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Design, evaluation, and sustainability of private schools for the poor: the Pakistan urban and rural fellowship school experiments

Harold Alderman [a,*], Jooseop Kim [b], Peter F. Orazem [c]

[a] *World Bank, 1818 High Street, Washington DC, NW 20433, USA*

[b] *Korea Labor Institute, 9F Korea Federation of Small Business Building, 16-2 Yeoido-dong, Yeongdungpo-gu, Seoul 150-010, Yeoido PO Box 518, South Korea*

[c] *Iowa State University, Department of Economics, 267 Healy Hall, Ames, IO 50011-1070, USA*

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Abstract

Balochistan Province of Pakistan initiated two pilot programs attempting to induce the creation of private schools for poor girls. Randomized assignment to treatment and control groups are used to measure program effectiveness. The pilot schools were successful in urban areas, but relative failures in rural areas. Urban schools benefited from larger supplies of children not served by government schools, better availability of teachers, and more educated parents with higher incomes. Use of experienced school operators in the urban pilot was another critical difference. All urban schools appear self-sustaining or else require a modest subsidy, whereas only one rural school may survive as a private school. These pilots show that private schools may offer a viable alternative supply of educational services to poor urban neighborhoods in developing countries. However, they are not likely to offer solutions to undersupply of educational services to rural areas.

JEL classification: I22; H42; O22

Keywords: Educational finance; Privatization; Demand for schooling; Costs; Economic development

1. Introduction

Illiteracy is a serious barrier to Pakistan's economic development. Statistics based on the 1995–1996 wave of the Pakistan Integrated Household Survey show that 52 percent of males, and only 26 percent of females aged 10 and over had attained literacy. Women in rural Balochistan, the largest but most sparsely populated province of Pakistan, have the lowest literacy rates in the country at only 8 percent.

Efforts to encourage economic development have emphasized improvements in educational attainment with an extra emphasis on raising female enrollments. Several factors complicate efforts to effect these improvements. First, the low levels of income and educational attainment of adults in Pakistan hinder their children's educational opportunities. Moreover, it is commonly presumed that cultural taboos against exposing girls to the public further limit incentives for poor parents to send their daughters to school. This paper presents evidence that challenges this view and suggests that parental reticence regarding their children's edu-

* Corresponding author.

E-mail address: halderman@worldbank.org (H. Alderman).

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cation can be overcome. In particular, this paper reviews the planning, implementation, and sustainability of two pilot projects designed to address the constraints to the education of girls in Balochistan. A comparison of enrollment growth between pilot and control communities is used to measure the impact of each experimental program. The aim is to highlight lessons that can be learned from these projects that may be applied in other contexts.

2. Description of the pilot projects

2.1. Overall objectives

While there is substantial evidence that enrolment of girls in Pakistan reflects, in part, the limited number of female teachers (Alderman, Behrman, Ross, & Sabot, 1996), it is not clear how to relax this constraint. First, there is limited tax revenue; the government does not have the resources to build all the schools and hire the teachers necessary to rapidly expand enrolment. Second, government policy requires that a community donate the land for a new school. This affects urban slum areas, which often are settled by squatters on government land. Without clear title to the land, a community cannot assign property to the government, even if vacant lots are available. A third problem is that teachers are seldom locally hired, leading to absenteeism and compounding distrust in communities which can enforce local norms only amongst themselves. Finally, in a number of rural communities there are no women who have the educational prerequisites to be appointed as a teacher.

The private sector offers at least a partial solution to these problems. Public–private school partnerships provide a means for the government to leverage its scarce resources. Private schools are not hindered by the property rights problem—they often open in rented buildings rather than newly constructed facilities. To attract students, private schools have an incentive to locate near underserved populations. In contrast, the location of public schools is often less sensitive to the barriers that travel imposes on children, especially girls. Private schools have also been touted as a means of shifting power from the central government to the local neighborhoods if parents can vote with their feet to influence private school quality and policy.

Two pilot projects to encourage private school enrollment of poor girls were included in the 1994 Social Action Program (SAP) for Balochistan supported by a credit from the World Bank. One attempted to increase private girls' school supply in Quetta, the capital of Balochistan. Another was designed to raise private girls' school supply in rural areas. Both programs assisted communities in setting up private schools and offered financial assistance to defray the initial costs of operation as well as to assist in setting up an endowment.

The most obvious concern with such a strategy is the apparent equity issue: the poor were expected to pay to get schooling while residents of wealthier neighborhoods had access to government schools. A second concern was whether the poor could support even a subsidized private school sufficiently to enable these schools to survive. Partially allaying these concerns was global evidence that many low-income households opt for private schooling even when public alternatives are available (Gertler & Glewwe, 1990; Kingdon, 1996). Evidence from Lahore indicates that this may also be the pattern in Pakistan; 51 percent of children from families earning less than $1 per person per day attended private school (Alderman, Orazem, & Paterno, 2001). Even in Balochistan, a program supported by the Habib Bank was successful at a limited scale in promoting private home schooling for small groups.

Given both the risks and the potential returns, the government of Balochistan initiated its support to private schools in poor communities as pilot programs. The project design included a program of regular reviews using both beneficiary assessment and quantitative studies to determine impact and sustainability.

2.2. The urban girls' fellowship program

The urban girls' fellowship program invited parents in designated neighborhoods to form a Parent Education Committee (PEC). The PEC then develop a proposal for a new private girls' school which would receive public support for a specific period. This strategy was chosen over a voucher program in part because of the perceived difficulty of issuing vouchers to households that have no bank accounts. In addition, the government was worried that private school supply would not respond to the increased demand. The government proposed to provide the new schools with a three-year declining subsidy based on the number of girls they enrolled. The plan offered 150 rupees per month per enrolled girl in the first year.[1] One third of this subsidy was placed in an escrow account to endow the school. The schools would be provided 135 rupees per girl per month in the second year, 100 rupees per month in the third year, and zero thereafter. In addition, schools would receive an enrollment fee of 200 rupees per girl per year. The effective distinction between this program and a voucher, then, is that the fellowship was limited to participation in a single neighborhood school while a voucher could be used at any school.

The subsidy was capped at 15,000 rupees per month, although the school could choose to enroll additional

[1] The exchange rate at the time was US$ =33.3 rupees.

girls. They could also enroll boys provided boy enrollments did not exceed the number of girls. Schools were expected to charge tuition that would increase as the subsidy was reduced so that the schools could become self-sustaining.

Schools were initially set up in ten slum areas covering the main ethnic groups of the city. One neighborhood in each area was randomly chosen to be invited to participate in the pilot and another assigned as a control group. Only neighborhoods that had no government girls' school were selected for either category. All neighborhoods invited to participate successfully attracted a school operator, and several neighborhoods had more than one proposal to evaluate. By 1995, 11 new schools were operating, with one neighborhood having opted to open two schools

2.3. The rural girls' fellowship program

The rural fellowship school was an extension of an initiative to involve rural communities more directly in the process of setting up public schools. This program, the Community Support Program (CSP), begun in 1992, worked through a village education committee (VEC) composed of rural parents. The VEC was responsible for procuring or constructing a school and locating a qualified local woman who could serve as a teacher. The government trained and paid the teacher and provided basic school supplies (Rugh, 2000). The VEC was responsible for overseeing attendance of students and teachers and managing the school. If the school operated for three years, the government regularized the school by building a permanent school and making the teacher a government employee.

The CSP expanded rapidly—there were 247 CSP schools by April 1995—but many villages could not participate because they lacked an educated woman who could serve as a teacher. The rural girls' fellowship program attempted to fill that gap by allowing villages to identify an acceptable male teacher or a female teacher from another village to teach in private schools supported by the fellowship. Although this could also be achieved by a change in the CSP regulations, it was thought that the private school designation would give the local community more power to name an acceptable teacher as opposed to getting a teacher assigned through the government posting. Moreover, an added stipulation was imposed that the village must not have a resident woman with at least an eighth-grade education who could potentially be trained to be a teacher under the CSP. Consequently, villages that qualified for the rural girls' fellowship schools were among the least-educated villages in the province.

The rural girls' fellowship program resembled that in urban areas. However, because sustainability required a large enough population to help fund the school, a village that could not attract at least 15 students could not receive a subsidy. Schools could enroll more than 24 girls per class (up to a limit of 50 per class) but the subsidy would only be given on the basis of enrollment for the first 24. No additional subsidy was allowed unless the village hired a second teacher for a second classroom, again with a minimum size 15 and a cap on subsidies set at 24 students. Thus, if the village could attract 39 students, it could get operating subsidies of 2400 rupees per month (as well a contribution of 1200 to the escrow account) for the first classroom and 1500 rupees for the second. The government provided school supplies and books and the VEC supplied the school.

3. Evaluation using randomized assignment

The data generated by the pilot programs allowed several different methods to estimate the program's impact on child enrollments (Newman, Rawlings, & Gertler, 1994). The particular methods employed depended on data availability. A reflexive estimator of the program effect measures the change in enrollment before and after the school opens. The mean difference estimator compares mean enrollments in the fellowship school neighborhoods with enrollments in otherwise comparable neighborhoods that did not get a fellowship school. The difference in differences estimator compares the change in enrollment in the fellowship neighborhoods to the contemporaneous change in enrollment in the comparison neighborhoods. The remaining estimators use regression methods to control for other factors that could potentially affect enrollments in addition to the opening of the school. These covariate controls can be added to the cross-sectional or reflexive estimators to purge the estimate of potential bias from missing variables.[2]

3.1. Enrollment in the urban fellowship

The pilot project collected data in the treatment groups and the control communities prior to the implementation and again subsequent to the initiation of the project. One way of measuring the change in enrollment is to look at children in the target age of five to eight. Another is to measure enrollment rates longitudinally for children who were aged five to eight in the initial year of the fellowship program. The latter cohort-specific effects will show a greater increase in enrollment as compared to the age-specific analysis for both the treatment and the control since many children in the cohort were too young to be enrolled in the initial year. However, the 'difference in

[2] A detailed presentation of the estimators is available at http://www.econ.iastate.edu/faculty/orazem/eer-append.htm. See also Kim, Alderman, and Orazem (1999a).

differences' between the communities nets out this maturation effect.

As indicated in Table 1, the estimates of the program impacts vary somewhat depending on estimation method. Nevertheless, the overall story is the same; the girls' fellowship program led to a marked increase in primary school enrollment for girls in treatment neighborhoods. The effect over two years was larger than the one-year enrollment change. Estimated two-year enrollment changes ranged from 25–45 percentage points.

Perhaps even more impressive is that in these treatment neighborhoods enrollments grew for boys nearly as much as for girls. These increases in boys' enrollments occurred despite the fact that the schools received no subsidy for enrolling boys and that boys had to pay tuition that was as least as high as—and usually higher than—that for girls.

The explanation for the increase in boys' enrollments is straightforward. First, while boys' schools existed in these neighborhoods before the fellowship schools were installed, boys' schools were not plentiful relative to the population. Consequently, the creation of a new low-priced private school may have lowered the marginal price of schooling for boys in the neighborhood. Secondly, boys' and girls' education may be complementary goods—if only because parents may want boys to escort their sisters to and from school.[3]

3.2. Enrollment in the rural fellowship

The impact assessment of the rural is conceptually similar to that of the urban. However, no resurvey was undertaken in the control villages. This rules out a 'difference in differences' analysis, but not a reflexive comparison. Such comparisons are indicated in Table 2, both using community means and using a regression that controls for covariates. Holding constant child age and birth order, household income, and parent's education, we find that girls' enrollments rose by 25 and 29 percentage points in two districts but there was little change in enrollment in Mastung/Kalat which had comparatively high enrollments initially. However, in contrast to the urban fellowship effects, there was a decrease in the enrollment of boys.

Additional evidence on the impact of creating girls' schools in rural areas comes from an analysis of the CSP

[3] A model which formalizes these explanations is in an Appendix which can be accessed at http://www.econ.iastate.edu/faculty/orazem/eer-append.htm.

Table 1
Comparison of the effect of the urban fellowship program. Numbers in parentheses report standard errors corrected for cluster effects using Huber's method

Outcome measure	*Treatment*		*Control*	
	Boys	*Girls*	*Boys*	*Girls*
Enrollment rate before program E_0	56.33	45.29	51.06	34.86
Enrollment rate in 1995 (E_{95})	64.29	63.93	49.68	38.37
Enrollment rate in 1996 (E_{96})	76.15	71.30	43.50	36.20
	Effect			
Methods	*Boys*	*Girls*		
Measure of effect using means				
Reflexive (1994–1995)	8.0	18.6		
Reflexive (1994–1996)	19.8	26.0		
Difference in differences (1994–1995)	9.3	15.1		
Difference in differences (1994–1996)	27.4	24.8		
Mean-difference (1994–1995)	14.6	25.6		
Mean-difference (1994–1996)	32.7	35.1		
Measure of effect using regression				
Mean difference with covariates (1995 cross-sectional)[a]	22.4	33.4		
Mean difference with covariates (1996 cross-sectional)[a]	38.4	42.7		
Reflexive with covariates (1994–1996)	8.8	26.4		
	(0.10)	(0.08)		

[a] Controls include household income, father's and mother's education, birth order, citizenship, and average distance to school and average fees in the neighborhood.

Table 2
Enrollment effects using longitudinal observations of rural girls' fellowship villages enrollment rates, by district, age and time period

	Before Implementation		*After Implementation*	
	Girls	*Boys*	*Girls*	*Boys*
District[b]				
Chagai	50.3	73.3	64.9	72.7
Mastung/Kalat	61.3	81.0	56.0	60.8
Gwadar	21.8	49.1	43.9	53.7
Average	41.5	66.6	51.8	59.8
Methods	*Effect*			
Measure of effect using means	*Boys*	*Girls*		
Reflexive (1994–1995)				
Chagai	–0.6	14.6		
Mastung/Kalat	–20.2	–5.4		
Gwadar	4.6	22.1		
Average	–6.8	10.3		
Measure of effect using regression				
Mean difference with covariates[a] (1995 cross-section)	–10.1 (2.33)	15.1 (2.39)		

[a] Controls include district dummy variables, household income, father's education, child age, and birth order. Standard errors corrected for clustering are in parentheses.
[b] Data based on the census of all children in the village.

program. As discussed above, the CSP resembles the rural fellowship except that the villages had educated women who could serve as teachers and the schools did not charge tuition. Using similar methods as those used in Tables 1 and 2, Kim, Alderman, & Orazem (1999b) found that the CSP program increased girls' enrolments by 22 percentage points, that is slightly *less* than the fellowship. However, unlike the fellowship it also increased boys enrollment by 9 percent, even though most villages previously had a boys' school.

A key reason for the different patterns regarding boys is that the urban neighborhoods were characterized by insufficient supply of schools for both girls and boys. While girls' education was rationed more severely due to the absence of a girls' school, boys' schools were also overcrowded. The creation of a new girls' school relaxed the space constraint on boys' schools, both because there were fewer girls taking slots in boys' schools and because boys were allowed to enroll in the Girls' Fellowship schools.

In most rural villages that have a boys' school, boys' enrollment is not subject to a lack of space. Nevertheless, the opening of a girls' school can increase boys' enrollment by lowering the cost of sending a boy to school, improving the quality of boys' education (if boys are allowed to enroll in the girls' school) or through the underlying complementarity in consumption between boys' and girls' schooling. In the CSP program, these effects were sufficient to raise boys' enrollment. However, the CSP schools were free, whereas the Rural Girls' Fellowship Schools charged fees. We conclude that the lack of positive boys' enrollment response to the opening of the Rural Girls' Fellowship schools can be explained by the lack of pre-existing constraints on boys' enrollment and the higher price of enrolling boys in the Girls' Fellowship School.

4. Sustainability

4.1. Urban sustainability

Alderman, Orazem and Paterno (2001) found that many private schools in Lahore, Pakistan functioned in 1995 with monthly tuition under 100 rupees. The presumption was that households in Quetta, a poorer city than Lahore, could afford at most 50 rupees per month tuition. Would this be sufficient to create self-sustaining schools in Quetta?

Several scenarios for a sustainable school were analyzed. One such scenario is presented in Table 3A. The school was presumed to attract 160 students of whom 100 qualified for the subsidy. The school was presumed to charge 10 rupees initially and gradually raise the fee over time. Under these conditions, the break-even tuition level after four years would be 75 rupees per month, around the lowest-priced private school operating in Quetta at the time.

Table 3
Scenario for self-sustaining urban (the scenario assumes 160 enrolled students, 100 of whom receive the subsidy but all pay the tuition. Figures are monthly. All values are in constant rupees with exchange rate of US $ = 33.3 rupees. The subsidy is 150 rupees in year one, 135 in year two, and 100 in year three) and rural (the scenario assumes 40 enrolled students, 24 of whom receive the subsidy, but all pay the tuition. Figures are monthly. All values are in constant rupees with exchange rate of US $ = 33.3 rupees. The subsidy is 100 rupees in years one through four and zero thereafter) fellowship schools

A. Urban						*Cost*		
Year	*Monthly Subsidy*	*Enrollment Fee*[a]	*Endowment Income*	*Tuition*	*Revenue*	*Teacher*[b]	*Other*	*Net*[c]
1	15,000	1667	0	10	18,267	6000	7667	4600
2	13,500	1667	0	20	18,367	6000	7667	4700
3	10,000	1667	0	40	18,067	6000	7667	4400
4	0	1667	932	75	13,667	6000	7667	0
B. Rural						*Cost*		
Year	*Monthly Subsidy*	*Enrollment Fee*	*Endowment Income*	*Tuition*	*Revenue*	*Teacher*[d]	*Other*[e]	*Net*[f]
1	2400	0	0	10	2800	1800	NA	1000
2	2400	0	0	15	3000	1800	NA	1200
3	2400	0	0	20	3200	1800	NA	1400
4	2400	0	0	20	3200	1800	NA	1400
5	0	0	344	25	1344	1800	NA	–456

[a] 200 rupee annual enrollment fee prorated over 12 months, times 100 students.
[b] Four teachers assumed to be paid 1500 rupees per month.
[c] Assuming a monthly interest rate of 0.5 percent, the accumulated savings at the end of year three will be 186,428 rupees. This would generate additional income of 932 rupees per month which could be used to lower the break-even tuition by nine rupees after year three.
[d] One teacher assumed to be paid 1800 rupees per month.
[e] School received a package of books and supplies, and the community provided the building, so other costs are zero.
[f] Assuming a monthly interest rate of 0.5 percent with all interest reinvested in years one through four, the accumulated savings at the end of year four will be 68,787 rupees. This would generate additional income of 344 rupees per month after year four.

However, there were several ways the school could break even at a lower price. One way was to hold down costs during the first three years and generate an endowment from the savings. In the scenario presented in Table 3A, the school would have built up an endowment of 186,428 rupees by the end of the third year, sufficient to generate income that could be used to lower the break-even fee by 12 percent. If the school could attract additional students without having to add teachers, the schools could save even more toward the endowment, further lowering the break-even tuition. Alternatively, the school could request a continuing subsidy of up to 25 rupees per month to keep the break-even fee at the 50 rupee level. The provision of such subsidies to low-cost private schools that catered to girls and/or to the poor falls under the objectives of the independent Balochistan Education Fund, so the plan for sustainability seemed feasible.

As shown in Table 4A, enrollments averaged 111 girls and 123 total in the first year, lower than the initial scenario. However, most schools charged more than 10 rupees per month tuition at the outset and several were able to make use of property that was donated at little or no cost. Offsetting this was the fact that while teacher salaries ranged between 1500 and 1800 rupees in the initial two years of operation, the higher salaries of managers added to the operating costs. Nevertheless, most schools were able to generate savings in the first two years of the pilot because the subsidy was more than enough to cover recurring expenses per pupil.

Schools quickly learned that attracting more students, boys as well as girls, was critical to sustainability of the schools. Boys were charged at least as much as girls and usually more. By 1997, the last year of the planned subsidy, enrollments had risen to an average of 141 girls per school and 214 total. From their 1995 levels, girls' enrollments rose 27 percent, but overall enrollments rose 74 percent as the number of boys in these "girls'" schools rose tremendously. Enrollments continued to grow in all but one school after the initial subsidy ended.

Despite these successes, only six of the 11 original schools had attained self-sufficiency by 1999. The path to self-sufficiency was cost-containment and returns to scale as much as revenue generation. Tuition had grown to just 45 rupees per month for girls. Boys were charged 90 rupees per month, but the average tuition per student

Table 4
Enrollment in the urban (average monthly fees for girls in 1995, 1997, and 1999, respectively, were 23, 44, and 45; fees for boys in 1995, 1997, and 1999, respectively, were 44, 73, and 90.) and rural (the number of schools reporting is in parentheses. Tuition ranged from 10 to 12 rupees in Chagai, 10 to 15 rupees in Mastung/Kalat, and 10 to 25 rupees in Gwadar) girls' fellowship schools

A. Urban		*1995*		*1997*		*1999*	
	Neighborhood	*Girls*	*Total*	*Girls*	*Total*	*Girls*	*Total*
1	Kechi Beg	116.0	138.0	116.0	138.0	119.0	149.0
2	Killi Shelchan	103.0	145.0	110.0	152.0	125.0	165.0
3	Killi Shabo	102.0	112.0	159.0	212.0	161.0	221.0
4	Irrigation Colony	103.0	103.0	161.0	296.0	179.0	179.0[a]
5	Hudda	115.0	115.0	101.0	152.0	138.0	197.0
6	Hazara Town	100.0	100.0	110.0	140.0	121.0	230.0
7	Hussainabad	125.0	125.0	135.0	285.0	194.0	194.0[a]
8	Mariabad	122.0	122.0	205.0	220.0	284.0	362.0
9A	Nawan Killi 1	121.0	121.0	128.0	208.0	184.0	274.0
9B	Nawan Killi 2	118.0	153.0	118.0	228.0	130.0	246.0
10	Baradi Colony	100.0	115.0	210.0	321.0	113.	215.0
	Average per school	111.3	122.6	141.2	213.8	158.9	221.1
	Total	1225.0	1349.0	1553.0	2352.0	1748.0	2432.0

B. Rural Districts	*1995 Girls (schools)*	*1997 Girls (schools)*
Chagai	39 (5)	30 (7)[b]
Mastung/Kalat	55 (10)	56 (10)
Gwadar	53 (8)	52 (8)
Average per school	51	47
Total	1169	1186

[a] A boy's school was separated off and is not included in the school total.
[b] The average enrollment in the five schools reporting in 1995 was 31.

was 58 rupees, well below the projected break-even level. Additionally, salaries for teachers rose faster than anticipated so that schools needed to find ways to cut costs elsewhere. The schools that received in-kind transfers of facilities were the most successful at containing costs. However, even the schools that failed to attain self-sufficiency were close to the level of 25 rupees per month anticipated for ongoing support from the Balochistan Education Foundation.

Would such a policy be cost-effective for the government? The average recurring per-pupil expenditure in government schools was 200 rupees per month, so a subsidy of 30 rupees per month necessary to sustain the weakest of these private schools is 15 percent of the recurring cost of educating these students in a government school.

The start-up costs for these private schools are also lower than the cost of building and equipping a new government school. The nongovernmental organization's (NGO) per-student cost of surveying the neighborhood, assisting the PEC in formulating a proposal and evaluating potential operators, motivating parents to enroll their children, training teachers, and monitoring enrollments averaged 1500 rupees per student. The costs of obtaining a suitable school site (all had at least four rooms) were borne by the parents. Because the NGO had to collect data on part of the evaluation that would not normally be required in the future, the 1500 rupees is an upper-bound estimate of the start-up costs of a fellowship school. The average start-up cost of building a new government school is 6000 rupees per student. Therefore, the government's start-up costs and projected recurring costs of a fellowship school are much lower than the costs of building and operating an equivalent government school. Put another way, for the cost of a new government school, one could open between three and four new fellowship schools.

4.2. Rural sustainability

As with the urban program, rural fellowship school sustainability was tied to an ability to generate savings in the early years that could be used as a source of endowment income. There were three ways that the VEC could generate savings—by paying the teacher less than the 2400 rupees that government teachers were paid, by charging tuition, or by having class sizes above 24. The sustainability scenario in Table 3B assumed that the VEC was able to hire a teacher at 600 rupees less than the government rate and only hired the one teacher

despite having the option of hiring a second teacher. As a consequence, the school would be able to generate monthly savings that compound to 68,787 rupees by the end of the subsidy period. Despite this frugal budget, the schools were projected to lose 456 rupees per month from year five and to require a subsidy of 11.4 rupees per month per student to make the school sustainable.

In practice, VECs turned out not to be astute about saving. As shown in Table 4B, average school enrollments were in the target range in the districts of Mastung/Kalat and Gwadar. In Chagai, two of seven schools were large enough to generate savings. However, most schools that had the opportunity to hire a second teacher did so, even when that meant that the subsidy was not sufficient to pay teacher salaries. Moreover, rather than try to negotiate a lower pay scale than in the government schools, as was universally the case in urban fellowship schools, most of the rural fellowship schools paid their teachers what the government paid.

Table 3B does not include the 50 rupee per month that would be held back by the Balochistan Education Foundation for every month that a girl attended. Assuming 40 girls per month, this would add 2000 rupees per month over four years and lead to an endowment of 110,736 rupees by the beginning of year five. That endowment would have yielded an income sufficient to make up the monthly shortfall.

The communities also ran into problems on the revenue side. Typical fee structures were 5 or 10 rupees rather than the projected 25 rupees. Many schools reported difficulties getting parents to pay, although most communities had benefactors who paid the tuition for others. Nevertheless, most of the rural schools ended the subsidy period with little or no savings for the post-subsidy period.

Because the rural fellowship schools paid the government scale for teachers, instructional costs in these schools were comparable to costs of operating a government school. If the operating costs of the rural fellowship school are not lower than those of a government school, and if the revenue generated from households is small, then the government saves little by subsidizing the school as opposed to operating a government school. This is in contrast to the urban fellowship program where both lower instructional costs per pupil and considerable revenue generated through tuition make it cost-effective for the government to continue a subsidy sufficient to allow the schools to remain open.

We can summarize the differences in the success between the urban and rural fellowship schools by tracing out their recurring average cost curves. Fig. 1 shows the projected average cost curves for the two areas and the realized cost curve for the rural schools. As shown, costs per pupil decline with class size. Moreover, although this is not illustrated in Fig. 1, over a range, costs also decline per class with larger schools, *holding class size constant*, due to the spreading of fixed costs of administration. By the original program design, the average cost curve for rural schools should be lower than that for the urban schools because of lower facility costs and free school supplies. At the target class size of 40, rural average costs on AC_R^P were projected to be 45 rupees per month.

However, rural class size actually averaged around 24 because of the tendency to hire a second teacher as soon as the minimum class size could be attained. The lower rural class sizes increased per-student costs from 45 to 75 rupees. In addition, the rural parents paid their teachers hirer salaries than projected, shifting the actual rural cost curve upward to AC_R^A. This raised per-pupil recurring costs to around 100 rupees, above the projected cost in urban areas.

One advantage that helped urban schools keep down costs was that the urban schools used experienced school operators. These school operators knew the salary structures of existing private schools and were able to attract qualified teachers at low rates. The complexity of the personnel and financial management decisions that the VECs had to make in order to manage a rural fellowship school may have been too great.

By the 1999 school year, 14 rural girls' fellowship schools had been converted to CSP schools, one opted to remain a private school, three closed, and the others were weighing the options. The school in Gwadar district, which had chosen to remain a private school, finished the subsidy period with accumulated savings of 70,000 rupees. They had two local male teachers who were paid 2400 rupees apiece. The 57 girls and one boy paid fees totaling 1300 rupees per month. In addition, each member of the VEC contributed 50 rupees per month. The VEC was generating additional income by donating fishhooks to fishermen, getting paid in fish, and then selling the fish. The monthly income without the fishing income is (assuming a 0.5 percent monthly interest rate) 1950 rupees, a shortfall of 2850 rupees per month. Thus, despite this very strong performance, this school is also not self-sustaining. However, the recurring government subsidy necessary to make the school break even, 50 rupees per month per girl, is one-quarter of the average recurring cost the government would face if it were to take over the school.

With a more generous subsidy, more rural fellowship schools could have survived at below the government school cost of 200 rupees per month. However, there would be a need for stronger technical assistance on the budgeting and salary issues that would add to the cost. It may be that the more cost-effective plan would be to modify the existing CSP program, which requires less managerial expertise of its VECs, to accommodate villages without educated women. The rural experiment demonstrated that some rural families are willing to send their daughters to a segregated girls' school taught by a

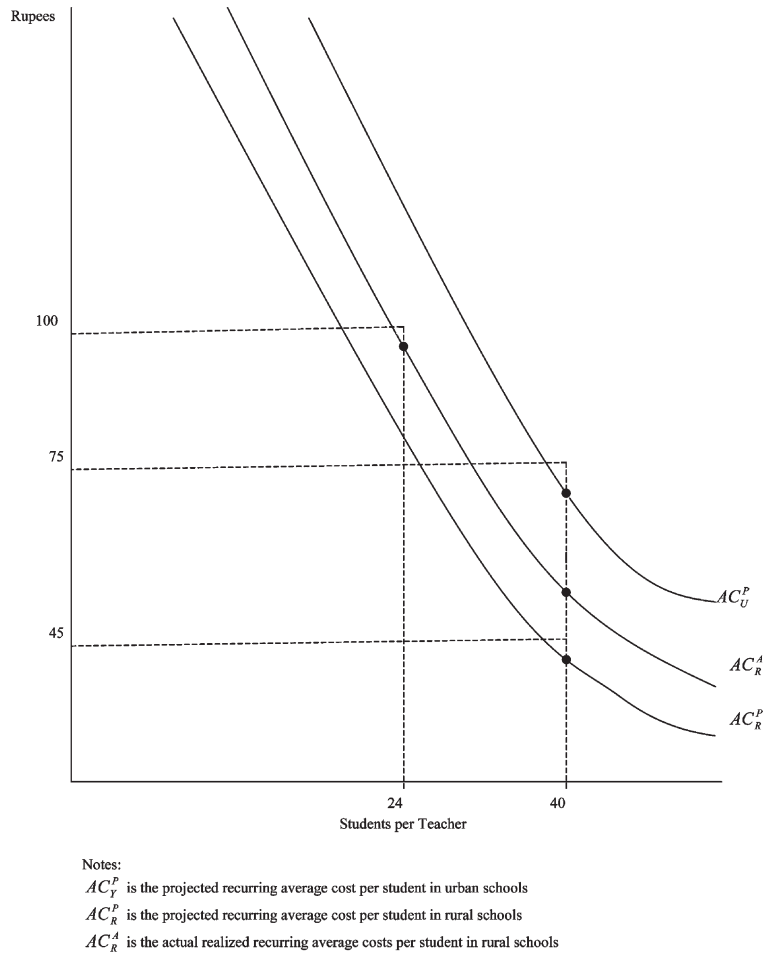

Fig. 1. Average recurring cost by class size in urban and rural fellowship schools

male teacher, provided that the teacher is from the local village. The experience in Mastung/Kalat also demonstrated that the lack of a girls' school is not always a constraint on girls' enrollments. It is not cost-effective to build a girls' school if families are willing to send their girls to a boys' school. The caveat to both these points is that the male teacher and the mixture of boys and girls are likely to become more important as the girls get older and they may be taken out of school before they attain full literacy.

5. Conclusions

The Balochistan fellowship experiments showed that subsidized private schools can be a viable option for the urban poor either with their current revenue stream or with a modest infusion of funds by the government. They are less likely to be a successful option for poor rural villages. Factors contributing to their relative success in contrast to the rural schools include:

- The latent demand for girls' schooling was higher in the urban slum areas, relative to the existing supply of schools. The substantial increase in both boys' enrollments and girls' enrollments indicates that the urban fellowship schools helped eliminate a significant under-supply of schooling services to all children in these neighborhoods.
- Urban parents were able to pay more than rural parents.
- Urban schools could take advantage of economies of scale to reduce costs per pupil.
- Use of experienced school operators is important. A key ingredient to the urban schools' success was their ability to hire good teachers at below the government rate and to build up their savings in anticipation of the subsidy's elimination. The rural VECs either

lacked the foresight to contain costs or else lacked the managerial expertise necessary to negotiate with teachers on pay.
- Urban schools found it much easier to attract good teachers, especially female teachers.

Two key questions remain. First, will these schools remain sustainable? The pilot indicates that a partnership between private school providers and the government can have a significant impact on enrollment. Moreover, the cost of subsidizing these schools is a fraction of the cost of educating the students in a government school. Thus, the main determinant of the future of the pilot is whether the government chooses to continue the partnership.

Second, how do the educational outcomes of fellowship schools compare to those of government schools? One might presume that the fellowship schools would be at a disadvantage in that they spend less per pupil than do government schools. On the other hand, the fellowship schools can hire and fire teachers who represent the most important input into the educational process. If government support of primary education wanes or if teacher hiring becomes more political, the private schools may be better able to maintain quality than could government schools. Limited achievement tests available in Quetta found that the fellowship school students preformed as well as students in government schools. Ultimately, however, the outcome indicator of greatest interest will be whether the girls in the fellowship program escape from poverty.

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References

Alderman, H., Orazem, P., & Paterno, E. (2001). School quality, school cost and the public/private school choices of low-income households in Pakistan. *Journal of Human Resources*, *36*(2), 304–326.

Alderman, H., Behrman, J., Ross, D., & Sabot, R. (1996). Decomposing the gender gap in cognitive skills in a poor rural Economy. *Journal of Human Resources*, *32*(1), 229–254.

Gertler, P., & Glewwe, P. (1990). The willingness to pay for education in developing countries: Evidence from rural Peru. *Journal of Public Economics*, *42*, 251–275.

Kim, J., Alderman, H., & Orazem, P. (1999a). Can private school subsidies increase schooling for the poor?: the Quetta urban fellowship Program. *World Bank Economic Review*, *13*(3), 443–466.

Kim, J., Alderman, H. and Orazem, P. 1999b. Evaluation of the Balochistan Rural Girls' Fellowship Program: Will Rural Families Pay to Send Girls to School. World Bank, Washington, D.C Processed.

Kingdon, G. (1996). The Quality and Efficiency of Private and Public Education: A Case Study of Urban India. *Oxford Bulletin of Economics and Statistics*, *58*(1), 57–82.

Newman, J., Rawlings, L., & Gertler, P. (1994). Using Randomized Control Designs in Evaluating Social Sector Programs in Developing Countries. *The World Bank Research Observer*, *9*(2), 181–201.

Rugh, A. (2000). *Starting Now. Strategies for Helping Girls Complete Primary*. Washington DC: Academy of Educational Development.