

Research Reports Series No. 156

THE EDUCATION SECTOR IN PAKISTAN

Khwaja Sarmad
Chief of Research

Fazal Husain
Staff Economist

G. M. Zahid
Staff Demographer

1989

Pakistan Institute of Development Economics
Post Box 1091, Islamabad (Pakistan)

Research Reports Editorial Committee

Dr M. Ghaffar Chaudhry (Convener)

Dr Khwaja Sarmad (Member)

ACKNOWLEDGEMENTS

The authors are grateful to Prof. Syed Nawab Haider Naqvi, Director PIDE for his interest and encouragement in writing this report. The authors are also grateful to the Friedrich-Ebert Foundation for its cooperation.

THE EDUCATION SECTOR IN PAKISTAN

K. Sarmad, Fazal Hussain and G.M. Zahid

The education scene in Pakistan, during the past four decades, has been characterized by substantial quantitative expansion at all levels. But this expansion has not brought about the kind of transformation envisaged in the various plan documents and government policies. In fact, the educational system has barely kept pace with the rapid growth of the school-age population. And the expansion in educational services has been accompanied by a deterioration in the quality of education, reflected, in the least, by the inability of an increasing proportion of students to complete the prescribed courses in the allotted time. As a result, the literacy situation in Pakistan remains far from satisfactory. The level of illiteracy is a staggering 70 percent and there are wide inter-regional, inter-gender and inter-provincial inequalities in the distribution of the literate population and of educational services. The improvement in the national rate of literacy since the decade of the Fifties has been only marginal while large disparities in the literacy levels persist in various regions and between genders. There are also considerable differences in the enrollment rates of males and females as well as between various regions. Over time there has been a decline in the quality of education, particularly at the higher levels, while the amount of wastage in terms of the number of pupils dropping out of the system, remains at a high level. This suggests that Pakistan's development during the past four decades and its impressive growth performance in recent years has been shaped on a fragile educational

foundation, which is likely to inhibit the country's future growth potential and skew the distribution of the benefits from growth.

The main reason for the slow improvement in the education sector is that throughout the past four decades resources allocated to this sector have been far from adequate, reflecting the low priority accorded to this sector. The institutional expenditure on education, as a percentage of GNP, has fluctuated over the years and though it has improved marginally since the early Seventies it has rarely exceeded 2 percent of GNP. Private expenditure on education actually declined during the period from 1971/72 to 1979 and has shown a small improvement during the decade of the Eighties, which may only be a reflection of the increase in the cost of education.

The strategy of educational development as mandated in the Seventh Plan (1988-1993) emphasizes the harnessing of the country's human resources and improving their capability for development. It stresses the development of the resource base for education to facilitate universal access to primary education and to raise the literacy rate to 40 percent by the end of the plan period, and subsequently to 80 percent by the turn of the century. There is an increasing realization that programmes for alleviation of poverty, reduction in inequality and improving productivity need to be integrated with educational development. And given the extremely low educational attainments of women, children and the economically weaker groups the focus of such programmes has to be on them to enable them to participate fully in the development process.

GROWTH OF LITERACY

Tables 1 and 2 present the literacy rates and the number of literates and their growth rates in the country in different Census years and estimates for 1986/87. The literacy rates are adjusted rates and conform to a uniform definition of literacy. The tables show that during the period

Table 1
Literacy Rates (1951-1987) (Percent)

Year	Both Sexes			Male			Female		
	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural
1951#	13.2			17.0			8.6		
1961#	18.4			26.9			8.2		
1972	21.71	41.50	14.34	30.17	49.95	22.57	11.62	30.91	4.69
1981	26.17	47.12	17.33	35.05	55.32	26.24	15.99	37.27	7.33
1986/87*	30.00	46.41 [⊙]	22.54	41.06	54.77	34.76	17.74	36.83	9.16

Source: Naushin (1978), Population Census Organisation (1984) and Federal Bureau of Statistics (Labour Force Survey 1986/87).

Note # For 1951 and 1961 the figures are adjusted Census figures which conform to the definition of literacy used in the 1972 Census. The 1981 Census used a definition of literacy similar to that of the 1972 Census.

* The figures for 1986/87 are from the Labour Force Survey 1986/87, adjusted for 9.73 percent overreporting of overall literacy rate.

⊙ There seems to be underreporting of the literacy rate in the urban areas as the Labour Force Surveys 1982/83 and 1986/87 show an improvement of over 3 percent in the literacy rate in the urban areas during this period.

from 1951 to 1986/87, the total number of literates in the country increased at an annual compound rate of growth of 5.47 percent, raising the total number of literates from a little more than 3 million to over 20 million and almost doubling the literacy rate from 13.2 percent in 1951 to 30

percent in 1986/87. During the period from 1951 to 1981 the number of formally educated literates has grown at a slightly slower pace of around 5 percent per annum. However, in both cases, the number of male literates has grown at a faster pace of 5.51 percent and 5.16 percent per annum respectively, as compared with the growth rate of female literates of 5.3 percent and 4.74 percent per annum respectively, thereby increasing the gap in the number of male and female literates. In 1951, the female literacy rate was a little more than half of the male literacy rate of 17 percent but by 1986/87, the female literacy rate had increased to only 17.7 percent as compared with the male literacy rate of 41 percent.

The growth of the literate population has varied during the different inter-Census years reflecting the variation in the relative importance accorded to the education sector. The smallest growth rate of 4.98 percent per annum was registered during the period from 1951 to 1961, which was due largely to the minimal increase of only 1.11 percent per annum in the number of female literates, even though the number of male literates increased at a fast pace of over 6 percent per annum. During this period, the number of males receiving formal education also increased at a respectable rate of 5.32 percent per annum. But the number of formally educated females declined, reflecting a neglect of female education during this period. As a result, the gap in the inter-gender literacy rate increased__ the rate of female literacy declined to 8.2 percent in 1961, while male literacy rate climbed to 26.9 percent.

In the inter-Census years from 1961 to 1972 there was significant im-

provement in female education, which is reflected in the rapid growth of 10.15 percent per annum of females receiving formal education. This pushed

Table 2
Number and Growth of the Literate Population

	All Literates			Formal Literates		
	Total	Male	Female	Total	Male	Female
Number (Thousands)						
1951	3002.0	2110.7	891.3	3002.0	2110.7	891.3
1961	4878.9	3883.7	995.2	4323.0*	3544.1	778.9
1972	9318.8	7044.6	2274.2	9281.5	7016.4	2265.1
1981	14745.2	10544.5	4200.7	13131.5	9552.5	3579.0
1986/87	20440.0	14711.0	5728.0			
Growth Rates (Percent per annum)						
1951 to 1961	4.98	6.29	1.11	3.71	5.32	- 1.34
1961 to 1972	6.06	5.56	7.80	8.22	7.74	10.15
1972 to 1981	5.23	4.58	7.06	2.06	1.22	4.67
1981 to 1986/87	5.59	5.71	5.30			
1951 to 1981	5.45	5.51	5.30	5.04	5.16	4.74
1951 to 1986/87	5.47	5.54	5.30			

Sources: As in Table 1

*: Calculated from HED survey 1973 because the 1972 census does not provide information on formal literates.

up the female literacy rate to 11.62 percent but failed to narrow the large gap between the numbers of male and female literates. By 1972, the female literate population, of only around 2.2 million, still accounted for less than a third of the literate male population. During this time, there was also impressive growth of male education, which contributed significantly to the overall growth of the literate population and raised the literacy

rate by almost 3 percentage points to 21.71 percent in 1972.

The gains in literacy during the period from 1961 to 1973 were confined mostly to the urban areas where the literacy rate was 41.5 percent as compared with the literacy rate of 14.34 percent in the rural areas. In the urban areas almost half of the male population and a little more than 30 percent of the female population was literate, while in the rural areas male literacy was only 22.67 percent and female literacy less than 5 percent.

The years from 1972 to 1981 witnessed a further increase in the literacy rate to 26.17 percent. However, as in the previous decade, the improvements in literacy occurred largely in the urban areas, while the rural areas suffered from a high rate of illiteracy. A similar pattern of the growth in literacy persisted during the years from 1981 to 1986/87. Urban rural and male female differentials continue to be significant even though there have been marginal improvements in literacy in all segments of the population. The least literate group continued to be females in the rural areas with a literacy rate of only 9.13 percent.

The unequal distribution of literates in the population is also reflected at the provincial level. Table 3 shows that while there are significant inter-provincial differences in literacy rates, within each province the lowest literacy rates are in the least developed areas. The urban areas of Sind have the highest percentage of literates in the country but there are vast differences in the distribution of the literate

population between the urban and the rural areas. Only a tiny minority of the females in the rural areas of Sind are educated as compared with over

Table 3
Literacy Rates by Provinces (Percent) (1972, 1981, 1986/87)

Province	Both Sexes			Male			Female		
	1972	1981	1986/87	1972	1981	1986/87	1972	1981	1986/87
Punjab									
Total	20.71	27.58	30.53	29.10	36.99	41.08	10.74	16.93	19.03
Urban@	38.95	46.90	44.64	47.83	55.41	52.25	28.04	36.88	35.56
Rural	14.75	20.03	24.35	22.85	29.64	36.10	5.21	9.40	11.94
Sind									
Total	30.17	31.45	34.76	39.06	39.74	45.79	19.22	21.64	22.08
Urban@	47.43	50.77	50.69	54.50	57.77	57.76	38.88	42.23	42.87
Rural	17.58	15.57	20.55	27.47	24.54	34.97	5.77	5.21	3.89
NWFP									
Total	14.52	16.70	24.01	23.14	25.85	36.50	4.74	6.48	10.01
Urban@	33.70	35.77	35.98	44.71	46.96	46.31	19.85	21.88	22.94
Rural	11.02	13.18	21.70	18.98	21.73	34.56	2.16	3.82	7.64
Baluchistan									
Total	10.06	10.32	18.10	14.82	15.20	28.50	4.17	4.32	5.17
Urban@	32.29	32.16	35.94	42.39	42.42	47.70	19.20	18.54	20.81
Rural	5.61	6.18	14.85	9.16	9.82	24.89	1.25	1.75	2.47

Source: Population Census Organisation (Provincial Censuses) (1984).

Note: @ There seems to be underreporting of the literacy rate in the urban areas as the Labour Force Surveys 1982/83 and 1986/87 show an improvement of over 3 percent in the literacy rate in the urban areas during this period.

42 percent of the females in the urban areas. The highest literacy rate of almost 58 percent is of males in the urban areas, which also contributes significantly to the provincial literacy rate of almost 35 percent__ the

highest among the four provinces. The literacy profile of Sind, with its urban-rural and male-female inequalities in the literacy rates, is mirrored in the literacy profiles of the other provinces as well. The most literate group in all provinces is of males in the urban areas, followed by the group of females in the urban areas, while the least literate group is of females in the rural areas. With the exception of Punjab, in all other provinces the literacy rate of females in the rural areas is less than 10 percent.

Tables 1 and 2 above showed that during the inter-Census years from 1951 to 1961 there was a marked deterioration in the literacy rates of the females relative to the males. This was due to the neglect of female education as a result of which, in 1961 females accounted for only 18 percent of the total of formal literates in the country, as compared with almost 30 percent in 1951. However, as table 4 shows, the situation has changed significantly since the decade of the Fifties, though, as the figures in table 5 bear out, not enough to rectify the imbalance in the male-female ratios of enrollments, institutions and teachers.

Table 4 gives the growth rates of enrollments, teachers and institutions of males and females for different levels of education and for different sub-periods. It shows that during the period from 1959/60 to 1987/88, on an average, at all levels of education there was an improvement in the female enrollments and in the availability of female teachers and educational institutions relative to males. This was particularly true about the decade of the Sixties. A similar situation prevailed during the

Table 4

Growth of Enrollments, Teachers and Institutions (1960 - 1988)
(Percent per annum)

Level	Primary			Secondary			Higher		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
1959/60 to 1969/70									
Enrollments	7.6	6.7	10.7	8.1	7.5	11.2	9.4	8.8	11.8
Teachers	7.0	6.0	10.3	7.6	6.4	11.9	6.6*	5.9*	9.1*
Institutions	7.5	6.5	11.0	6.6	5.4	11.0	7.4	6.7	9.3
1969/70 to 1976/77									
Enrollments	5.5	4.9	7.0	5.9	5.0	9.1	3.7	3.2	5.0
Teachers	5.6	4.0	6.3b	6.9	6.1	9.2	6.3	6.5	5.7
Institutions	3.7	3.0	5.5	5.7	5.2	7.1	4.8	5.7	2.5a
1976/77 to 1987/88									
Enrollments	3.9	3.5	4.8	4.5	4.2	5.5	5.5	5.0	7.2
Teachers	3.8	4.1	3.2	3.1	2.9	3.4	5.5	4.8	7.4
Institutions	4.6	4.9	3.9	3.3	2.9	4.6	4.8	4.3	6.6
1959/60 to 1987/88									
Enrollments	4.5	3.7	6.4	5.5	5.0	7.2	6.0	5.6	7.4
Teachers	4.9	4.2	6.9	5.5	4.8	7.4	6.1*	5.5*	7.5*
Institutions	4.6	4.2	6.0	4.8	4.3	6.6	4.5	4.5	4.5

Note: Growth rates are trend values obtained from the equation:

$$\text{Log } Y_t = c + r * \text{Time}$$

where Y_t is the variable at time t , c is a constant term and r is the growth rate. All values are significant at the 95 percent confidence level except for the following:

a value is significant at the 85 percent level of confidence;
b statistically insignificant value.

* Growth rates are from the year 1963/64.

period from 1969/70 to 1976/77, as a result of which, the male-female ratios for educational institutions, enrollments and teachers showed a significant improvement at all levels of education. Further, the proportion of females in the total of formal literates improved steadily from 18 percent in 1961 to 22.3 percent in 1972 and to 27.3 percent in 1981. Table 4 also shows that, on an average, the period 1959/60 - 1987/88 witnessed a faster growth of enrollments, of males and females, as compared to the growth of educational institutions, implying that there must have been a deterioration in the student-institution ratio with negative consequences for the quality of education.

INVESTMENT AND INEQUALITY IN EDUCATION

In this section we show that there exist large inequalities in the distribution of education services across regions and across genders so that ensuring equal opportunity for all in education, either for normative or economic reasons, will require large additional investments in this sector. We also present evidence which shows that while the rate of return to education in the country may not be high it has been increasing over time, so that higher expenditure on the education sector is also economically justifiable. Enrollments at all levels have been increasing over time, along with household and institutional expenditure on the education sector, which suggests a greater willingness to invest in education. If the productivity of education is low then it would be natural to expect a decline over time in the willingness of the people and the government to bear the

costs of education. But first, we examine the evidence about the increasing unemployment of educated labour and show that this does not mean that there is an economic surplus of education in the country, nor that the education sector is overextended, but that it can be explained by 'search time'.

Educated Unemployed

The Labour Force Survey for 1986/87 shows an increase in the proportion of unemployed educated labour in the total from less than 43 percent in 1982/83 to almost 50 percent in 1986/87. During the same period, the proportion of highly educated unemployed labour i.e. graduates and those with more than graduate training, has more than doubled, from 1.66 percent of the total unemployed, to 3.86 percent. The total number of unemployed workers with ten or more years of education is now 181 thousand, while the number of unemployed workers with graduate or higher degrees is almost 35 thousand or almost twice as many as in 1984/85.

This is clearly an alarming situation. It leads to the suggestion that there may be an economic surplus of education in the country, where only 30 percent of the population is literate, implying that the education sector in the country is overextended. But the little evidence that is available about the educated unemployed suggests that this is unjustified. The problem of educated unemployment arises not because the unemployed are educated but because of search time. A large majority of the educated unemployed are young who eventually find employment [see Khan and Ali (1986)]. An extended family system enables the educated unemployed to search for suitable jobs for a time period which is short enough to keep

the return to investment in education positive.

Investment in Education

No estimate of investment in education is available for Pakistan. The reported public expenditure on the education sector does not include the rental value of fixed assets and the Household Income and Expenditure Surveys have no information about the income foregone by students. In the absence of such information we use expenditure on education as a proxy for investment. Table 5 reports the institutional and household expenditure on education.

Table 5

Investment in Education in Pakistan (Million Rupees)

Year	Household Expenditure	Institutional Expenditure	3 as % of National Income	Social Expenditure	5 as % of National Y.
1	2	3	4	5	6
1968/69	345.9	553.0	1.46	898.9	2.37
1969/70	429.0	578.7	1.33	1007.7	2.32
1970/71	452.7	789.9	1.72	1242.6	2.71
1971/72	525.0	736.8	1.60	4988.3	2.65
1979	1657.6	4153.5	1.81	5811.1	2.54
1984/85	3557.9	8893.4	1.90	12451.3	2.65

Source: Calculated from FBS (1984/85) and Finance Division (1988).

The table shows that while the absolute amount of social expenditure on the education sector has been increasing over time its growth during the

decades of the Seventies has been less than the growth of national income. In consequence, educational expenditure, as a percentage of GNP, has declined during the Seventies from 2.71 percent in 1970/71 to 2.54 in 1979. Though the total social expenditure on education has increased during the Eighties to 2.65 percent of GNP it compares poorly with the expenditure of 3.4 percent of GNP in 1985 by the public sector alone for the lower middle-income countries as a whole. However, since the Seventies the increasing share in national income of institutional expenditure on education reflects an increasing willingness of the government to bear the costs of education.

Table 6 shows that the share of private expenditure on education in the total private expenditure, which had reached a high point of 1.27 percent in 1972, declined in subsequent years to reach 0.86 percent of total private expenditure in 1979. In the rural areas the decline in the expenditure on education during the period 1972 to 1979 was significant as the

Table 6

Private Expenditure on Education
(as a Percentage of Total Household Expenditure)

Year	1971/72	1979	1984/85
Total	1.27	0.86	0.92
Urban	2.26	1.27	1.39
Rural	0.77	0.48	0.69

Source: Calculated from HIES (Various Issues)

share of education in total expenditure declined from 0.77 percent to 0.48 percent respectively. The behaviour of private expenditure on education during the decade of the Seventies seems to conform to the finding about the low rates of return to education as there is a strong correlation between the decline in household expenditure on education and the low rate of return to education¹. Moreover, this was also a period of large scale out-migration of labour and it can be argued that because of labour shortage, particularly in the rural areas, the opportunity cost of education must have been high.

In the absence of any evidence about the rate of return on investment in education in recent years the above suggests that since 1979 there may have been an increase in the expected return from investment in education. It is possible that the increase in the proportion of total household expenditure allocated to education, during the period 1979 to 1984/85, from 0.86 percent to 0.92 respectively, was accompanied by an increase in the expectations regarding the return to investment in education (i.e. only if the cost of education did not increase relative to household expenditure).

1. There are few estimates of the private rate of return to education in Pakistan. Among those that are available the tendency is for the rate of return to be low for all levels of education [see e.g. Haque (1977) and Guisinger (1984)] except in the case of Hamdani (1977). The most recent estimates for the rates of return to education in Pakistan are for the year 1979 [Khan and Irfan (1985)], which are also low but show increasing private returns to education. If individual externalities to educational investment are taken into account they would increase the returns to education. However, the operation of the β -factor would serve to depress the rates of return to education although in the case of Pakistan it would not be far fetched to assume that the effect of 'innate ability' on earnings is only minimal because of low lateral mobility. On the other hand, the influence of parental status on gaining access and achieving success in the labour market is significant [see e.g. Khan and Irfan(1985)].

Inequalities in Enrollments

The enrollment rates in primary and secondary education in Pakistan are low. The five year average rates for the years 1980/81 - 1984/85 are only 44.3 percent and 18.5 percent, for primary and secondary education, respectively. But they represent a significant improvement since the early Fifties, when the enrollment rates were 31.1 percent and 9.6 percent, for primary and secondary education, respectively. However, the inter-regional and inter-gender inequalities in the enrollment rates continue to persist even though there has been a marked improvement over time in female enrollments both at the primary and secondary levels.

Despite the significant improvement over time in the female enrollments, teachers and educational institutions, which is reflected in the relatively faster growth rates of these variables as compared with those for males, table 7 shows that large male-female discrepancies still remain in enrollments and in the educational facilities available. These discrepancies are larger at the secondary and the higher levels of education.

In the early Fifties females were enrolled in primary education, on an average, 4.8 times less frequently than males, whose average enrollment rate did not exceed half the population of the relevant age group. In secondary education less than 3 percent of the girls in the relevant age group were enrolled, as compared with 15 percent of the boys.

Table 7
Male / Female Ratios in Education (Averages)

Years	Primary			Secondary			Higher		
	Inst*	Enrol@	Teach#	Inst	Enrol	Teach	Inst	Enrol	Teach
1959/60 to 1969/70	3.29	3.40	3.52	3.81	4.39	3.73	2.37	3.76	7.27
1970/71 to 1976/77	2.44	2.58	2.23	2.83	3.62	2.51	2.21	3.06	3.23
1977/78 to 1987/88	2.36	2.07	2.14	2.56	2.91	2.33	2.46	2.70	2.82

Note: * Institutions; @ Enrollments; # Teachers.

During the past three decades the situation has improved significantly. Table 7 shows that while there are now 10 percent more boys enrolled in primary and secondary education as compared with the early half of the Fifties, enrollment for girls has increased by three times, at the primary level of education, and by 3.6 times at the secondary level. However, female enrollment rate at the primary level is still only half as much as that of males, while at the secondary level almost 90 percent of the females in the relevant age group are not enrolled at all.

Table 8 shows that the male-female differentials in enrollment rates are largest in the rural areas and there are also large differences in enrollment rates of urban and rural females. At the secondary level of educa-

tion the urban rural differentials in enrollment rates, particularly for females, are the largest. In the rural areas of Sind, NWFP and Baluchistan less than 1 percent of the girls in the relevant age group are enrolled,

Table 8

Enrollment Rates for Primary and Secondary Education
(Average) (Percent)

YEARS	[1975/76 - 1979/80]			[1980/81 - 1984/85]		
	TOTAL	Male	Female	TOTAL	Male	Female
PAKISTAN*	40.7(18.5)	53.0(26.0)	27.3(10.1)	44.3(18.5)	57.6(25.2)	30.0(10.5)
Urban	61.1(40.7)	64.1(49.8)	57.8(30.1)	63.6(40.7)	67.1(49.9)	59.8(30.5)
Rural	33.4 (9.8)	49.1(16.2)	16.3 (1.8)	37.1 (9.3)	54.1(15.4)	18.8 (2.0)
PUNJAB	44.8(20.2)	54.6(28.5)	34.0(10.2)	49.0(20.3)	58.4(28.3)	38.7(11.3)
Urban	61.5(42.5)	59.2(53.3)	60.0(30.1)	63.3(42.1)	60.4(52.3)	66.5(30.8)
Rural	39.1(11.9)	53.1(19.5)	23.6 (2.6)	43.5(11.5)	57.7(18.8)	28.0 (3.2)
SIND	41.3(20.2)	56.3(23.9)	25.2(15.8)	45.2(22.3)	62.5(27.6)	27.3(16.2)
Urban	65.2(40.3)	74.2(46.2)	55.6(33.7)	67.6(42.7)	77.8(49.9)	56.7(34.7)
Rural	26.5 (4.5)	45.2 (7.4)	6.5 (0.6)	30.7 (6.0)	52.4(10.5)	8.9 (0.6)
N.W.F.P*	30.4(13.4)	48.2(21.6)	11.3 (3.4)	38.7(12.6)	60.9(20.3)	14.7 (3.3)
Urban	45.4(32.6)	59.1(44.8)	30.8(18.6)	54.3(30.2)	69.3(41.6)	38.6(17.7)
Rural	28.1(10.2)	46.5(17.9)	8.3 (0.8)	36.2 (9.7)	59.5(17.0)	10.9 (0.9)
BALUCH.*	20.9 (5.8)	33.3 (8.2)	8.0 (2.5)	20.1 (5.9)	32.7 (8.1)	7.0 (3.0)
Urban	43.1(26.3)	52.0(35.6)	33.6(14.8)	47.5(31.2)	57.9(40.3)	36.3(20.1)
Rural	17.1 (2.1)	30.0 (3.6)	3.7 (0.1)	15.7 (2.0)	28.5 (3.3)	2.4 (0.2)

Sources: Calculated from Statistics Division (1951, 1961, 1972, 1981), Bureaus of Education of Punjab and Sind, Directorates of Education NWFP and Baluchistan.

Note: Figures in brackets are enrollments for Secondary education.

* Figures are averages for 1980/81 - 1983/84.

while in Punjab only 3.2 percent of the females in the relevant age group are enrolled in secondary schools. Between the provinces total enrollment

rates at the secondary school level vary from 22.3 percent in Sind to 5.9 percent in Baluchistan.

At the district level there is large variation in enrollment rates. Representation Indices for 1961 and 1981, indicating the representation of the district vis-a-vis the national norm, and Gini coefficients, which is a summary measure of inequality, were calculated for 44 districts of Pakistan to measure the extent of this variation. Table 9 gives the results.

Table 9
Variation in Enrollment Rates
(1961 and 1981)

	1961	1981
Representation Index		
Primary Level	26 < 1, 18 > 1	30 < 1, 14 > 1
Secondary Level	31 < 1, 13 > 1	36 < 1, 8 > 1
Gini Coefficient		
Primary Level	0.183	0.197
Secondary Level	0.251	0.272

Source: Calculated from W. Fak. Punjab Bureau of Education (1961/62), Punjab Bureau of Education (1980/81), Sind Bureau of Statistics (1980/81), Directorate of education Peshawar (1980/81) and Directorate of Education Quetta (1980/81).

Table 9 shows that in 1961 26 districts had a Representation Index of less than 1 for enrollments in primary education, implying that these districts were under-represented in enrollments as compared with the national norm. At the secondary school level 31 districts were under-represented. In 1981, at the primary education level, the number of under-represented dis-

districts increased to 30, while at the secondary level 36 districts had enrollments less than the national norm. The Gini coefficients for enrollments reflect a similar pattern showing an increase in the variation in enrollments across districts. At the primary level of education the Gini coefficient has increased from 0.183 to 0.197, while at the secondary level the increase has been from 0.251 to 0.272. These figures show that during the period 1961 to 1981, despite a significant increase in enrollments, both at the primary and secondary levels, there has been an increase in the inequality in the distribution of schooling across various districts. Further, at the higher level of education there is greater variation in the availability of schooling and the inequality has worsened over time.

The presence of educated unemployed in Pakistan suggests that the productivity of education is low and there may be an economic surplus of education in the country. This seems to be an unjustified conclusion because an extended family system enables the educated unemployed to search for suitable jobs for a time period which is short enough to keep the return to investment in education positive. In this section we have used different techniques of educational planning: aggregate social expenditure on education, enrollment rates, etc. to show that while additional investment in the education sector may not be uneconomic it is necessary for removing disparities in the provision of educational services.

WASTE IN THE EDUCATION SYSTEM

In recent years The increase in the provision of educational facilities at various levels², has been accompanied by a substantial amount of waste in the educational system³. And because of this the rise in educational expenditure in recent years is not entirely explained by the increase in school enrolments. Educational waste is a major problem in Pakistan. Its incidence and intensity vary according to region, gender, province and socio-economic conditions and where it is most prevalent it is accompanied by illiteracy and non-enrollment. The problem of drop-out is of most concern at the primary level because at this stage the drop-out is lost to the educational system and lapses into illiteracy.

Of the various forms of educational waste like the inability of the system to provide educational facilities to all the school-going age population, inefficiency in the achievement of objectives, repetition, drop-out etc., drop-out is the most important and results in a large number of illiterates or of practically uneducated persons⁴. It is also identifi-

-
2. Which has enabled a fairly large section of the population, traditionally excluded from the education system, to take part in the education system.
 3. Wastage in education arises when there is repetition by a pupil of class or when the pupil drops out of the system. In both cases the course of education is not completed within the prescribed period. Repetition of class reduces the enrolment capacity and prevents other children from being admitted or creates overcrowding. When a pupil drops out of the system before completing the course the educational objectives are not achieved. Both situations lead to higher educational costs and to waste.
 4. An educational system like that in Pakistan which involves only a small proportion of the school-going age population merely disguises its waste.

able and despite problems of measurement drop-out rates are the most readily quantifiable symptoms of waste in the educational system. The prevailing high level of the drop-out rate in Pakistan constitutes a heavy cost. Estimates of this cost in money terms are not available but the indications are that it is considerable and may account for a sizeable proportion of the education budget. Reducing waste by removing sources of inefficiency is, therefore, a very important way of increasing the return from educational expenditure.

To distinguish some important features of the waste involved in the operation of primary and secondary education in the country we estimate drop-out rates for various categories of the school-going population and provide a quantitative analysis of waste and inefficiency in the education system. The data on drop-out may be of uncertain nature but its deficiencies do not overshadow the seriousness of the problem, which is undeniable by any measure⁵. The main purpose of this exercise is to identify

5. Leaving school after the completion of a cycle without moving into the following educational cycle does not constitute drop-out. Though not finishing a given cycle will be a reflection of operational deficiency. All drop-out cannot be identified with waste particularly when this occurs after some years of schooling. Though in the very early years of schooling drop-out inevitably leads to illiteracy because of the tendency of drop-outs to forget. But there are other problems relating to the quality of data and the methodology used to estimate drop-out rates which constrain the interpretation of results. But drop-out rates provide an estimate of premature leaving and can identify some important features of educational waste despite problems in available data. Drop-out is also closely related to repetition as the following most often leads to drop-out.

common features about the level and pattern of drop-out rates in the country.

Tables 10 and 11 which present the cumulative drop-out rates in primary and secondary education and the average drop-out rates by class for the years 1976 - 1985, reveal that in Pakistan there is a fairly general tendency towards considerable wastage in education. Furthermore, the figures suggest that the level of waste varies greatly according to the level of education, gender, province and region. The figures for repetition rates are averages for the years from 1977/78 to 1982/83 and in almost all cases do not exceed 6 percent, which suggests that an overwhelming proportion of wastage arises from dropping out from the system rather than in repetition of class.

A number of common features can be identified related to the level and pattern of the drop-out rates. The most important is the very great disparity in the drop-out levels of males and females at different levels of education. Second, drop-out rates are higher in the rural areas as compared with the urban areas, for males and females and for primary and secondary education. Third, drop-out rates for males at the primary level seem to be inversely related to the level of economic development of the province. Thus, the lowest drop-out rates are in Punjab followed by Sind, NWFP and Baluchistan, which are different as regards their level of development. But this is only true for male pupils at the primary level. For other categories of pupils e.g. females at the primary level, and males and females at the secondary level Punjab is an important exception with drop-

out rates much higher than those of the other provinces. Fourth, and this is brought out most clearly in Table 11, the highest drop-out rate is in the first year of school, while drop-out rates are also high at the end of primary school and in eighth year of schooling i.e. just before the completion of secondary school.

For the country as a whole the average drop-out rate for the years 1976 to 1985 for males at the primary education level is 47.9 percent and for females 61.8 percent, of the total enrollments in class I, which represents a significant waste in education. At the secondary level the drop-out level at 53.3 percent appears to be higher for males, as compared with females, though the tendency is towards a lower drop-out rate at the secondary level as compared with the primary level. That the over all drop-out rate for males at the secondary level turns out to be higher for males is due to the fact that in Punjab almost 60 percent of secondary school male children drop-out of the education system. And as this province accounts for the largest proportion of the secondary school-going population its high drop-out rate brings down the overall average. The drop-out rate at the secondary level is higher as compared with the primary level for one more category of school-children -- females in the rural areas, who also have the highest drop-out rates for both levels of education. In primary education only around 30 percent of the female cohort enrolled in class I manage to successfully complete five years of education. The proportion of females in the rural areas completing secondary education is even less as 84.5 percent of the females drop out during the four year course. Apart

Table 10
Cumulative Drop Outs (1976 - 1985) (Percent)

	Primary		Secondary	
	Male	Female	Male	Female
	Pakistan			
Total	47.9	61.8	53.3	46.7
Urban	39.2	52.9	32.6	38.8
Rural	51.6	71.0	72.3	84.5
	Punjab			
Total	37.5	63.7	58.7	52.5
Urban	30.6 (5.0)	54.8 (5.3)	37.0	43.1
Rural	40.1 (5.3)	70.8 (5.2)	75.4	81.8
	Sind			
Total	56.1	46.9	30.8	35.5
Urban	46.2 (4.3)	44.4 (3.2)	22.4	33.7
Rural	63.6 (5.8)	57.4 (5.7)	59.2	95.5
	NWFP			
Total	63.6	73.3	49.3	47.4
Urban	52.0 (2.3)	61.0 (4.5)	30.7	36.1
Rural	65.7 (3.3)	79.7 (3.5)	55.3	77.0
	Baluchistan			
Total	70.5	72.1	54.8	39.5
Urban	50.0 (6.0)	63.2 (5.8)	30.8	36.2
Rural	75.3 (5.5)	83.4 (3.3)	84.3	89.8

Source: Provincial Directorates of Education.

Note : Figures in brackets are averages of repeater rates for the years 1977/78 to 1982/83.

Drop Out rates have been calculated from the following formula:

$$d_t = ((E_t - E_{t+1}) / (E_t)) * 100$$

where, d_t is the drop out rate for class i at time t,
 E_t is the enrollment in class i at time t, and
 E_{t+1} is the enrollment in class i+1 at time t+1.

from overall drop-out rate at the secondary level, which is higher for males than for females, the drop-out rate for females is much higher than for males at both primary and secondary levels and for urban and rural areas in all provinces except Punjab.

There is a sharp difference in the drop-out rates in urban and rural areas. The drop-out rate in the urban areas for males at the primary level is 39.2 percent as compared with 51.6 percent in the rural areas. The corresponding figures for females, which are much higher than for males, are 52.9 percent and 71 percent respectively. At the secondary level regional differences are brought out even more sharply as the drop-out rates are more than twice as much in the rural areas. Again, the drop-out rates for females are much higher as compared with the corresponding category of males, though the difference is not as acute at the secondary level.

The pattern of drop-out rates in the various provinces bears out the hypothesis that relatively more developed provinces have a proportionately less number of drop-outs. But this is only true after accounting for the exceptionally high drop-out rates in the Punjab at the secondary level for females. The lowest drop-out rate at the primary level for males is 37.5 percent in Punjab, with urban areas registering an even lower rate of 30.6 percent. Sind and NWFP have successively higher drop-out rates, followed by Baluchistan, which is the least developed province and has the highest drop-out rates in almost all categories of pupils. At the secondary level of education Punjab has the highest drop-out rates for both males and females.

females. And within the province males have an overall drop-out rate higher than that of females. For the other provinces the general pattern of a higher drop-out rate for the less developed areas, in general, holds true, with the highest rates registered by females in the rural areas. These rates are as high as 95.5 percent in Sind, almost 90 percent in Baluchistan and 81.8 percent in Punjab. The corresponding figures for males are also high reflecting a very high degree of wastage in secondary education in the rural areas of the country.

Tables 10 and 11 show a familiar profile: drop outs are relatively more in the NWFP and Baluchistan and within these provinces the largest incidence of drop outs is among females in the rural areas. In Punjab and Sind wastage in education due to dropping out is less, though in no case does it amount to a drop-out rate less than 30 percent of the relevant cohorts. In Table 11 which shows the drop-out pattern by years of schooling a number of interesting features can be identified. First, it clearly shows that differences between drop-out rates by grades are particularly marked in the first two grades⁶. On an average, more than 30 percent of the pupils drop-out before completing their second year of school. The proportion of females dropping out at this stage is much more than of males and in the rural areas the proportions are larger as compared with the urban areas. Second, the drop-out rate is unusually high at the end of primary school

6. The drop out figures for class V include the migration of pupils from rural areas to urban areas after completing primary education.

Table 11
Average Drop-Out Rates by Class (1976 - 1985) (Percent)

Class	Pakistan		Punjab		Sind		NWFP		Baluchistan	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Total										
I	30.4	42.7	18.6	45.3	34.1	24.3	54.3	55.8	49.0	50.3
II	10.4	12.5	10.2	12.3	12.4	12.8	7.9	16.3	17.6	18.0
III	8.0	11.4	6.0	11.4	13.4	10.9	8.5	13.9	11.0	14.6
IV	10.4	14.2	11.1	14.9	10.4	10.6	7.6	20.0	16.8	12.3
V	13.4	25.8	7.9	30.8	20.8	6.6	14.4	28.8	27.1	17.5
VI	13.7	13.7	15.0	14.5	8.6	10.5	11.4	12.0	15.8	1.6
VII	13.4	11.4	15.1	12.4	5.9	6.9	12.0	8.9	8.2	-1.8
VIII	23.4	22.5	24.5	24.2	18.2	18.3	20.9	25.6	14.0	-35.5
IX	18.7	13.2	23.5	16.7	2.6	5.5	19.1	16.0	14.8	11.7
Urban										
I	24.8	36.9	21.9	41.5	20.5	21.7	52.5	54.5	40.1	48.1
II	6.8	8.3	4.8	6.5	11.1	12.4	5.5	6.4	5.2	7.0
III	5.6	7.6	2.4	7.0	12.3	9.4	3.3	4.5	0.9	5.5
IV	7.5	9.9	6.0	9.8	12.2	9.9	-10.6	7.5	4.5	7.9
V	-26.5	3.0	-40.0	6.5	-12.1	-6.0	-6.7	-8.0	-27.1	-6.9
VI	10.6	12.2	11.8	12.4	7.1	10.0	6.8	10.6	12.5	0.8
VII	6.9	9.8	7.4	10.3	5.6	6.5	5.1	7.0	4.1	-4.2
VIII	3.1	14.6	0.1	13.2	10.3	16.7	4.5	12.8	-28.9	-42.2
IX	15.6	12.9	21.4	16.6	1.7	5.1	18.3	17.0	10.7	11.6
Rural										
I	32.7	48.6	17.3	48.3	44.6	34.3	54.6	56.5	51.0	53.1
II	12.1	17.8	12.2	17.5	13.8	15.3	8.3	21.5	21.0	32.5
III	9.2	16.6	7.4	15.7	14.5	17.6	9.5	19.8	13.9	28.2
IV	12.3	20.1	13.0	20.4	8.3	14.9	11.3	29.0	21.1	16.2
V	33.8	65.3	28.2	61.2	58.9	81.8	19.7	63.2	51.7	78.5
VI	16.6	21.2	17.4	20.9	13.0	19.7	12.7	15.8	19.3	5.4
VII	19.9	19.8	21.7	19.6	7.4	18.2	14.5	14.3	12.7	13.3
VIII	45.8	70.8	47.4	66.5	47.1	88.0	27.2	67.8	71.1	81.0
IX	24.5	18.4	27.1	17.6	8.7	22.6	19.4	6.8	28.1	12.9

Source: As in table 10

and secondary school. Thus, while the country-wide drop-out rate between classes three and four is only 8 percent for males and 11.4 percent for females it jumps to 10.4 percent and 14.2 percent respectively for males and females in the next class. There is a similar sort of an increase in the drop-out rate between classes eight and nine. It may be noticed that this pattern is true, in general, for urban and rural areas, for males and females and for the different provinces. A closer examination of the urban and rural drop-out rates between classes five and six and between classes eight and nine brings out an interesting feature of the internal operation of the education system in the country. At these stages rural areas in all provinces reveal very high drop-out rates, at the primary level ranging from 28.2 percent for males in Punjab to as high as 81.8 percent for females in Sind, and at the secondary level from 27.2 percent for males in the NWFP to 88 percent for females in Sind. The corresponding drop-out rates for the urban areas are negative, because of migration of pupils from rural areas to the urban areas due to lack of proper educational facilities at the higher levels. The drop-out rates at these stages of education thus do not provide much information about the degree of wastage involved because of the very large element of rural-urban migration.

The failure of the education to retain pupils within the system may be due to a number of factors, which are internal and also external to the system. In Pakistan among the causes of drop-out the problem of socio-economically linked educational disadvantage appears to be of primary concern. Poverty, employment of children in rural households, high opportunity

cost of education, indifferent attitude towards female education influence children's motivation to learning and achievement and contribute to a high drop-out rate. The evidence presented above shows the probable influence exerted by economic conditions on the rate of drop-out. In recent years the expansion of the primary schooling system has enabled children from vulnerable social groups to participate in the education system. But because of the above mentioned reasons motivation to educate is low, in these social groups is low, which combined with indifferent educational aspirations contributes to low educational achievement and a high drop-out rate.

There are certain determinants of waste and drop-out which can be overcome only in the long-run like the low educational achievement of parents. But the education system has to be socially relevant in terms of relating to the social and economic needs of the community. In the rural areas where waste in the education system is largest this means that the course content and even school timings should be in harmony with rural life and contribute to the survival and upward mobility of the pupil. The elimination of waste in the education system requires improvement in the whole system though, to begin with, the focus can be on specific aspects of the system like the relevance of the curriculum, quality of teaching, adequate provision to off-set the opportunity cost of education to vulnerable groups etc. These recommendations can be only of a very general nature but they emphasize the need for further studies on the subject, which are related to determining the causes of drop-out and finding remedies.

In the field of education estimating the incidence of waste and ef-

efficiency in measurable and comparable terms poses many difficulties, particularly with regard to estimating actual output of the system. The empirical approach used to identify waste in Pakistan's education sector has many limitations. But despite this a number of interesting features of the internal operation of the education system have been distinguished, which indicate serious defects in the functioning of the system. And which point to the urgent need to improve the education system through efficiency increases.

SUMMARY AND CONCLUSIONS

Education is now widely accepted as a critical factor of development. Empirical studies on the contribution of factors of production to growth have shown that human capital accounts for a large share of the growth of output and that the differences in human resources between the developed countries and the less developed countries account for more of the differences in per capita incomes than all other factors combined. At the individual level more education is found to be associated with more income. Education has also been shown to exert a positive effect on fertility reduction, life expectancy and productivity and on crop yields and farm output. These studies also suggest that without large investments in human beings it is not possible to enjoy the benefits of modern agriculture and modern industry (see e.g. Schultz, 1962, Kreuger, 1968, Hicks, 1980, Wheeler, 1980, Psacharopoulos, 1981).

The significant contribution of the existence of a large pool of human capital to Japan's post-war economic reconstruction and to the remarkable growth record of Korea have been well documented in economic literature. By one estimate, educational capital constituted 40 percent of physical capital in Korea as compared with 44 percent in US and 6 to 17 percent in Asian and African countries (in Heyneman, 1980).

The role of human capital in sustaining a process of self-propelling development is fully recognized by the government. One of the objectives of the government in recent years has been to prepare "the country for the modern scientific age after removing illiteracy from the country." Implicit in this objective is the understanding that the real power of a nation flows from its mastery of science and technology and that to become industrially competitive it must be able to generate and absorb technical innovation. But the assimilation of scientific skills, the mass diffusion of technology and the establishment of a competitive industry require an accelerated pace of human capital formation through the horizontal expansion of educational facilities and improvement in labour productivity.

The examination of the literacy profile of the country in this paper has, however, shown that the condition of the education sector in the country is far from satisfactory. The overall literacy rate of around 30 percent places Pakistan at the bottom of the Third World countries. The enrollment rates of around 47 percent in primary education and 17 percent in secondary education are among the lowest in the World and compare poorly with the average enrollment rates of 67 percent for primary education and

of 22 percent for secondary education for the low income countries (excluding India and China). The corresponding enrollment rates for the lower middle income countries are 104 percent for primary education and 42 percent for secondary education respectively (World Bank, 1988)

Further, there are sharp and highly visible inequalities in educational attainment and enrollments across provinces, across regions and between males and females. In 1951, the literacy rate in the country was only 13.2 percent. Male literacy was 17 percent and female literacy 8.6 percent. During the period 1951 to 1981, total literacy grew at an average annual rate of growth of 5.45 percent. But the growth rate of male literacy of 5.5 percent was higher than the growth rate of female literacy of 5.3 percent. As a result, the gap in the number of male and female literates increased over time. In 1981, the total literacy rate was 26 percent. Male literacy was 35 percent as compared with the female literacy of 16 percent.

The growth rate of formally literate females during this period has been even less reflecting a relative neglect of female education. Moreover, the gains in the overall female literacy rate during the period 1951 to 1981 were confined mainly to the urban areas. During the period from 1972 to 1981, urban literacy rate rose from 41.5 percent to 47 percent, while rural literacy improved from only 14 percent to 17 percent. The worst off in the country, in terms of low literacy rates, are females in the rural areas, with a literacy rate of less than 10 percent.

Between the Provinces there are wide disparities in literacy attain-

ment. Literacy rates vary from almost 35 percent in Sind to 18 percent in Baluchistan. But within the provinces, the pattern of inequality is quite similar. For all provinces, the urban areas are better off as compared with rural areas and males have a higher literacy rate as compared with females. The worst off, in terms of literacy attainment, are females in the rural areas. The literacy rate for females in rural Baluchistan is only 2.5 percent, in rural Sind it is around 4 percent and 7.6 percent in rural NWFP. Females in rural Punjab have a literacy rate of 11.9 percent.

The structure of enrollments also shows a highly inequitable pattern and explains to a large degree the inequality of literacy attainment. There has been only marginal improvement in enrollment rates during the 1980's as compared with the later half of the decade of the Seventies. Total enrollment rates in primary education averaged less than 45 percent, though there was some improvement as compared with the average for the later half of the decade of the Seventies. However, enrollment rates in secondary education have remained stagnant at around 18.5 percent. In primary education, there has been improvement in enrollment rates both in the urban and the rural areas and for males and females. But in secondary education enrollment rates have remained more or less the same, reflecting an improvement in enrollments which has not exceeded the growth of the corresponding age cohorts.

Enrollment rates are highest for Punjab. But the urban areas of Sind have by far the highest enrollment rates both in primary and secondary education. However, enrollment rates of females in rural Sind are only 8.9

percent in primary education and 0.6 percent in secondary education.

At the aggregate level there has been improvement in the male - female ratios for enrollments, institutions and teachers at all levels of education. But the average ratios for the years 1977/78 to 1987/88 still remain higher than 2.

At the district level, there is also large variation in enrollment rates. Representation indices for 1961 and 1981, indicating the representation of the district vis-a-vis the national norm and Gini coefficients, which are a summary measure of inequality, were calculated for 44 districts of Pakistan to measure the extent of the variation in the enrollment rates. In 1961, 26 districts had a $RI < 1$ for primary education, and 31 districts had a $RI < 1$ for secondary education. By 1981, more districts had a $RI < 1$ both at the primary and secondary levels of education i.e 30 and 36 districts respectively. The Gini coefficients registered an increase from 0.183 to 0.197 for primary level enrollments and from 0.251 to 0.272 for secondary enrollments indicating that while enrollments have increased, both at the primary and secondary levels of education, there has been an increase in the inequality in the distribution of schooling across various districts. The variation is more at the secondary level and has worsened over time.

The inequality in the distribution of education has both normative and economic consequences. Equal access to education must be ensured not only because it is a basic need and an essential requirement of social justice

but also to ensure that potential talent is not lost (see Heyneman, 1980). There are, in addition, two factors, which suggest that the economic basis of education in Pakistan is strong. First, during the 1980's the proportion of household expenditure allocated to education has increased and not all of this increase is due to higher relative education costs; and Second, the high rate of growth of enrollments throughout the past three decades implies that there has been increasing individual and collective willingness to invest in education and to bear the direct and opportunity costs of education. This suggests that while the consumption aspects of educational expansion may not overshadow the effects of investment in human capital the return to formal education in Pakistan is not uneconomic but positive and significant enough to make investment in this sector a reasonable choice.

The inequitable distribution of literacy attainment and enrollments is a fetter to efficient growth and it seems reasonable to assume that the effort to maximize equality in the distribution of educational services will be economic and normative. The amelioration of educational disparities will facilitate the rapid progress of the economy.

There are also large variations in school achievement in the country. Drop out rates for the country as a whole are very high in primary and secondary education. Almost 48 percent of male students drop out of the educational system at the primary level as compared with 62 percent of females. At the secondary level more than half of the males drop out of the system as compared with 47 percent of females. Drop out rates are highest in NWFP and Baluchistan. Within the provinces drop out rates are largest

for females in the rural areas.

To ensure equality of access to education and to prevent waste in education by improving school quality and by instituting measures to offset the opportunity cost of education, particularly in the rural areas, will require that educational expenditure be increased many times. At present, a very small proportion of the national income is spent on the education sector. And the total educational expenditure as a percentage of national income has fluctuated over time, from 1.46 percent in 1968/69 and 1.33 percent in 1969/70, to 1.72 percent in 1970/71, 1.60 percent in 1971/72 and 1.90 percent in 1984/85. Household expenditure has also fluctuated widely from 1.27 percent of the total household expenditure in 1971/72 to 0.86 percent in 1979 and up again to 0.92 percent in 1984/85. Throughout these years the proportion of household expenditure allocated to education in the urban areas has exceeded that in the rural areas by more than two times.

Government expenditure on education compares poorly with the relatively higher percentage of National Income allocated by other countries to the education sector. Many countries in Asia have attained a remarkable improvement in the rate of literacy by emphasizing the development of the education sector. South Korea, Hong Kong, Thailand and the Philippines have achieved high rates of literacy of around 80-85 percent by allocating, on an average, over 3 percent of their National Income to the education sector over a fairly long period of time.

REFERENCES

- Government of Baluchistan (1975/76 - 1984/85). Directorate of Education. Unpublished data.
- Government of NWFP (1975/76 - 1984/85). Directorate of Education. Unpublished data.
- Government of Pakistan (1968/69, 1969/70, 1970/71, 1971/72, 1979, 1984/85). Federal Bureau of Statistics. Household Income and Expenditure Survey.
- Government of Pakistan (1986/87). Federal Bureau of Statistics. Labour Force Survey.
- Government of Pakistan (1987). Finance Division. Economic Advisers Wing. Pakistan Economic Survey 1986/87 (Statistical Supplement).
- Government of Pakistan (1951, 1961, 1972, 1981), Statistics Division, Population Census Organization. Islamabad.
- Government of Punjab (1975/76 - 1984/85). Bureau of Education. Educational Statistics in Punjab.
- Government of Sind (1979/80, 1983/84, 1984/85). Sind Bureau of Statistics. School Education Statistics in Sind.
- Government of West Pakistan (1961/62). West Pakistan Bureau of Education. Educational Statistics for West Pakistan.
- Guisinger, S.E., J.W. Henderson and G.W. Sculley (1984). "Earnings Rates of Return to Education and the Earnings Distribution in Pakistan." Economics of Education Review. Vol. 3.
- Hamdani, K.A. (1977). "Education and Income Differential: An Estimation for Rawalpindi City." Pakistan Development Review. Volume 16.
- Haque, N. Ul. (1977). "An Economic Analysis of Personal Earnings in Rawalpindi City." Pakistan Development Review. Volume 26. pp. 353-382.
- Heyneman, S.P. (1980). "Investment in Indian Education: Uneconomic ?", World Development, pp. 145-163.
- Hicks, n. (1980). "Human Development in South Asia," World Bank Staff Working Paper No. 408.
- Khan, S.R. and M. Irfan (1985). "Rates of Return to Education and the Determinants of Earnings in Pakistan." Pakistan Development Review, Vol. 24. pp. 671-680.

Khan, S.R. and S.Z. Ali (1986). "Some Findings About the unemployed Highly Educated Persons in Pakistan," Pakistan Development Review, Vol. 25. pp.731-737.

Kreuger, A.O. (1968). "Factor Endowments and Per-Capita Income Differences Among Countries," Economic Journal, September.

Naushin, M. (1978). "Literacy and Educational Attainment Levels in Pakistan, 1951 - 1973." Pakistan Development Review, pp. 267-301.

Schultz, T.W. (1962). "Reflections on Investment in Man," The Journal of Political Economy, vol. LXX, No. 5, Part 2.

Wheeler, d. (1980). "Human Resource Development and Economic Growth in Developing Countries - A Simultaneous Model," World Bank Staff Working Paper No. 407.

World Bank, (1988). World Development Report 1988.

This work is licensed under a
Creative Commons
Attribution – NonCommercial - NoDerivs 3.0 Licence.

To view a copy of the licence please see:
<http://creativecommons.org/licenses/by-nc-nd/3.0/>