Who Are Schooled in Urban Pakistan?

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Department of Economics
Islamia University
Bahawalpur-63100
www.iub.edu.pk

Rana Ejaz Ali Khan

Assistant Professor,
Department of Economics
Islamia University Bahawalpur. (Pakistan).
ranaejazalikhan@yahoo.com
Phone: 92 621 9250324 Ext. 344
Mobile: 0300 7803622

and

Karamat Ali

Professor of Economics
Vice Chancellor
Bahauddin Zakarya University Multan (Pakistan).

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Abstract: Pakistan is severely disadvantaged by its failure to achieve higher levels of human development. Low enrolment thirty years ago is reflected in the lower educational level of today's labor force, lower productivity and lower adaptation of technology. Even today less than half of the school-age children are going to school. Some common but many of them disputed perceptions about lower school-enrolment rate, at the household level are that the younger age children, younger in their brothers and sisters, male children, and the children from educated parents; high-income households; smaller households; wealthy households are more likely to be in school. We have analyzed these determinants for urban Pakistani children and framed some policy recommendations.

Key Words: Schooling, Education, Gender, Poverty, Children,

1. Introduction

In the economic literature Human capital is considered as the engine of growth (Romer 1990; Becker et. al. 1990). Barro (1991) found that human capital indicated by primary and secondary school enrolment had a positive impact on economic growth. Abbas (2000) provided evidence for Pakistan to support Romer's (1990) model of endogenous growth that the larger stock of human capital proxied by primary school enrolment rate, may enable an economy to make higher economic growth. Ranis et. al. (2000) hypothesized that economies can be on a mutually reinforcing upward spiral, with high levels of human development leading to high growth and high growth in turn further promoting human development. Unfortunately, there can also be a downward spiral or stagnant situation in which poor performance in human development tends to lead to poor growth performance, which in turn depresses human development achievements. Empirical evidence by Ranis et. al. (2000) shows that over the last decades Pakistan had fallen in categories either of lopsided development, under emphasizing human development, or the downward spiral, where human development is not leading to strong economic growth.

Significance of education especially schooling in developing countries may further be expressed as, the Article 28 of United Nations Conventions on the Rights of Child, requires that States Parties:

a) Make primary education compulsory and available free to all;
b) Encourage the development of different forms of secondary education;
c) Take measures to encourage regular attendance at schools and the reduction of drop-out rates.

Similarly, Primary Education Ordinance 1962 in Pakistan makes the education compulsory up to primary level. According to law primary education is put under the control of provincial governments and parents of the children are legally bound to send their children to schools until the children have completed the primary education course (Mokal 1992:16).

According to Pakistan Integrated Household Survey (PIHS) 2001-02, Gross Primary School Enrolment Rate (Primary School---5 years of schooling) is 84 percent and Net Primary Enrolment Rate is 58 percent. The Net Enrolment Rate at the middle (8 years of schooling) and matric (10 years of schooling) level is 20 percent and 18 percent respectively. As a result the literacy rate has remained as low as 48 percent. So Pakistan is severely disadvantaged by its failure to achieve higher levels of human resource development. Low enrolment rate, thirty years ago, is reflected in the poor educational level of today's labor force, lower productivity, lower adaptation of technology, higher fertility rates, higher maternal mortality rate and in other ways lower economic growth. Failure to educate today's children will continue to negatively affect the socio-economic variables 30 years from now. Thus the education, given to Pakistan's children today, has a key bearing on the level of social and economic development in the coming decades. Who are the children being schooled today in Pakistan? Some common, but many of them disputed perceptions at the household level are that the young age children, younger in their brothers and sisters, boys, and the children from educated parents, high-income groups, smaller households, wealthy households are more likely to be in school.

Focus of the present study is to analyze the schooling determinants of Pakistani children in urban areas using the non-linear maximum likelihood probability (probit) function. It is

important in the current paper, that we have also investigated the factors separately for boys and girls. Section 2 describes the objectives of the study. Section 3 lays out the data collection and general model applied for analysis. Section 4 presents and analyses the probit estimates. Finally, section 5 consists of policy recommendations.

2. Objectives

The principal feature of the study is the following questions that we seek to answer about Pakistani urban children

i) How sensitive is child schooling to child characteristics, like the birth-order, gender and age of the child?

ii) How much the child schooling has impact of head of household characteristics like gender, age, education, employment and income?

iii) Do the schooling of children is affected by the parental characteristics, i.e. education, employment and income level of father and mother?

iv) How much the likelihood of school participation is affected by household characteristics like, household size, income level of household and household composition?

v) Do the boys and girls are affected differently by the explanatory variables?

vi) What is relative importance of factors, which determine the child schooling?

3. Data Collection and Estimation Model

We have used the primary data collected for the study (primarily for Ph.D. thesis). Cluster sample technique was adopted for the study. The cluster of the sample represents the average conditions of the area of the sample. Household survey makes the collection of

data and two thousand households have been surveyed such that each household has at least one school-age child.

To analyze the decision of the parents regarding child's schooling (in the cohort of 5-15 years) we have estimated the regression model in which decision of the parents about child school participation (CSP) is a function of several explanatory variables. The dependent variable can take only two binary values: 1 if the child goes to school and 0 if he/she does not. The paper estimates the non-linear maximum likelihood function for the normal probability (probit model). It starts with a general function.

$$Y = f(X_1 \ldots\ldots X_n) \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots (1)$$

Where Y_i denotes CSP. Y is equal to 1 if a child goes to school and equal to zero if she/he does not. $X_1 \ldots\ldots X_n$ represent various socioeconomic and demographic factors leading to child's school participation.

To explain the dichotomous dependent variable the probit model that emerges from the normal cumulative distribution function is used. Suppose Y*, the decision to send the child to school is unobservable and it depends on a set of observed factors X_i. That is

$$y_i^* = \beta X_i + \varepsilon_i \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (2)$$

where β is a row vector of parameters, and X_i is the column vector of the variables that effect Y* and ε_i is normally distributed with 0 mean. The observable binary variable is related to y* in the following sense:

$$Y = \text{if } y^* > 0$$

$$= 0 \text{ otherwise}$$

Given the normality assumption, the probability that y* is less than or equal to Y can be computed from the standardized normal cumulative distribution function as:

$$P_i = P_r\,(Y = 1) = (y^* \leq Y) = F\,(Y_i) = \int_{-\infty}^{\beta x i} f\,(z)\,dx \;\ldots\ldots\ldots\; (3)$$

Where f (z) represents density function, z is normality distributed with 0 mean and unit variance and P_i is the probability that a child will participate in school.

There may be a number of socio-economic and demographic factors influencing parent's decision whether to send their children to school or not. The exogenous factors have been divided into child characteristics, head of household and parent characteristics, and household characteristics. The variables have been selected on the basis of previous relevant literature. First the probit model for the full sample is estimated and then to highlight the possible gender effect, the sub sample for boys and girls separately follows. The definitions of dependent and explanatory variables used in the model are presented in table No.1.

4. Results and Discussion

The mean and standard deviation of explanatory variables are shown in table No.2. The probit results are expressed in table No.3. The table reports the probability derivative of the parameter estimates, computed at the mean of the explanatory variables. The derivatives show the percentage point change in probability for one unit increase at the mean of a given explanatory variable holding all other variables constant at the mean. The majority of the results are consistent with the theoretical implications of child schooling.

Table No.1. Definitions of Variables Used in Probit Model for Schooling of Pakistani Urban Children

VARIABLES	DEFINITIONS
Dependent Variables	
CSP (Child's school participation)	•1 if child goes to school only, 0 otherwise
Independent Variables	
Child Characteristics	
BORD (Birth-order of child)	• Birth-order of child in his/her brothers and sisters
BORD615 (Birth-order of child in the age group of 6-15 years)	• Birth-order of child in his/her brothers and sisters
CGEN (Child's gender)	•1 if child is male, 0 otherwise
CAGE (Child's age)	• Child's age in completed years
CAGESQ (Child's age squared)	• Child's age squared in completed years
CAGE615 (Child's age in the age group of 6-15 years)	• Child's age in completed years
CAGESQ615 (Child's age squared in the age group of 6-15 years)	• Child's age squared in completed years
CEDU (Child's education)	• Child's education in completed years
Head of household Characteristics	
HGEN (Gender of the head of household)	• 1 if the head of household is male, 0 otherwise
HAGE (Head of household's age)	• Head of household's age in completed years
HAGESQ (Head of household's age squared)	• Head of household's age squared in completed years
HEDU (Head of the household's education)	• Head of the household's completed years of education
HLIT (Head of the household's literacy status[1])	• 1 if the head of the household is literate, 0 otherwise
HEMP (Head of household's employment)	• 1 If head of household is employed, 0 otherwise
HY (Head of household's income)	• Head of household's income per month (in 000 Rupees)
Parent characteristics	
FEDU (Father's education)	• Father's education in completed years of education
FLIT (Father's literacy status)	• 1 if father is literate, 0 otherwise

[1] Literacy status of the head of household, father and mother is defined as the individual has completed at least five years of formal schooling.

FEMP (Father' employment)	• 1 if father is employed, 0 otherwise
FY (Father's income)	• Father's income per month (in 000 Rupees)
MEDU (Mother's education)	• Mother's completed years of education
MLIT (Mother's literacy status)	• 1 if mother is literate, 0 otherwise
MEMP (Mother's employment)	• 1 if mother is employed, 0 otherwise
MEMP.MLIT (Mother's employment and literacy status simultaneously)	• 1 if mother is employed and literate, 0 otherwise
MEMP.POVTY (Mother's employment and household's poverty status simultaneously)	• 1 if mother is employed and belongs to poor household, 0 otherwise
MY (Mother's income)	• Mother's income per month (in 000 Rupees)
Household Characteristics	
ASST (Household's ownership of assets)	• 1 if the household owns of assets, 0 otherwise
HEXP (Household's total expenditure)	• Household's total expenditure per month (in 000 Rupees)
PCEXP (Per capita expenditure of household)	• Household's per capita expenditure (in 00 Rupees) per month
POVTY[2] (Household's poverty status)	• 1 if household's per capita income per month is Rs.670 or below, otherwise 0
FMSIZ (Family/household size)	• Number of family/household members
FMSSIZ (Family's small family)	• 1 if household members are less or equal to 5, otherwise 0
CHILD 015	• Number of children (15 or less than 15 years) in the household
CMRATIO (Child's male to female ratio)	• Ratio of the male to female school-age children (5-15 years) in the household
CHILD 04	• Number of children ages 4 or less than 4 years in the household
CHILD515	• Number of school-age children (5-15 years) in the household
BOY 515	• Number of school-age male children (5-15 years) in the

[2] The official Poverty Line of Pakistan is Rs.673.54 per capita per month (CRPRID 2002:297)

	household
GIRL515	• Number of school-age female children (5-15 years) in the household
CHILD16	• Number of elder siblings (16 years or above) of children in the household
BOY16	• Number of male elder siblings (16 years or above) of children in the household
GIRL16	• Number of female elder siblings (16 years or above) of children in the household

Table No.2. Summary Statistics of Variables (Means and Standard Deviations)

Variables	Overall Children		Boys		Girls	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
			Child Characteristics			
BORD	2.2105	(1.2281)	1.8778	(1.0078)	2.5862	(1.3453)
BORD615	2.1003	(1.2361)	1.3945	(1.6169)	2.0628	(1.2857)
CGEN	0.5303	(0.5000)	-	-	-	-
CAGE	9.8340	(3.0014)	10.0381	(3.1290)	9.6034	(2.8464)
CAGESQ	105.68	(59.7215)	110.48	(61.2575)	100.25	(57.7209)
CAGE615	10.6196	(4.2886)	11.3458	(5.2861)	9.9545	(3.4621)
CAGESQ615	108.642	(62.6658)	109.4591	(63.4391)	82.8771	(59.2751)
CEDU	3.8441	(2.6075)	3.9819	(2.8617)	3.0715	(2.7651)
			Head of Household Characteristics			
HGEN	0.9632	(0.0921)	0.9825	(0.0986)	0.9762	(0.9452)
HAGE	42.29	(7.3084)	41.78	(7.5273)	42.8793	(7.0405)
HAGESQ	1842.45	(639.28)	1802.32	(650.06)	1887.77	(626.60)
HEDU	8.9433	(6.0597)	6.7786	(5.8760)	7.1293	(6.2811)
HLIT	0.4766	(0.4364)	0.5972	(0.5684)	0.5285	(0.7295)
HEMP	0.9155	(0.2789)	0.9359	(0.2941)	0.8954	(0.3193)
HY	5.1265	(6.5738)	4.6464	(5.5858)	5.6810	(7.5437)
			Parent Characteristics			
FEDU	9.9271	(6.0769)	6.7633	(5.8924)	7.1120	(6.2994)
FEMP	0.8729	(0.3198)	0.8167	(0.3883)	0.8443	(0.3636)
FLIT	0.4894	(0.4372)	0.6275	(0.5874)	0.6838	(0.5826)
FY	5.7851	(6.5718)	4.6444	(5.5167)	5.6810	(7.5437)
MEDU	6.1538	(6.5828)	6.0992	(6.6238)	6.2155	(6.5644)
MLIT	0.4648	(0.4862)	0.4962	(0.5382)	0.5382	(0.6972)
MEMP	0.8178	(0.3867)	0.7938	(0.4060)	0.8448	(0.3636)

MEMP.MLIT	0.0965	0.8657	-	-	-	-
MEMP.POVTY	0.2493	0.5876	-	-	-	-
MY	2.8265	(3.9896)	2.5496	(2.623.7)	3.1392	(5.1069)
			Household Characteristics			
ASST	0.8137	(0.3900)	0.8396	(0.3683)	0.7844	(0.4129)
HEXP	11.7583	(1253.55)	9.7648	(4637.28)	10.562	(4952.41)
PCEXP	13.9403	(23.7751)	12.731	(14.1965)	14.9674	(27.1264)
POVTY	0.3451	(0.4862)	0.4173	(0.5295)	0.3496	(0.4839)
FMSIZ	6.8016	(1.7957)	6.4961	(1.7337)	7.1465	(1.8094)
FMSSIZ	0.3117	(0.4813)	0.3587	(0.4972)	0.2586	(0.4591)
CHILD015	3.8461	(1.5462)	3.4885	(1.4162)	4.2500	(1.5927)
CMRATIO	1.0014	(0.9647)	-	-	-	-
CHILD04	0.3684	(0.5754)	0.3587	(0.5957)	0.3793	(0.5541)
CHILD515	3.2173	(1.4279)	3.0024	(1.1836)	3.4572	(1.7952)
BOY515	1.6842	(1.0307)	1.9542	(0.8758)	1.3793	(1.1085)
GIRL515	1.7368	(1.4169)	1.1068	(1.0831)	2.4482	(1.4163)
CHILD16	0.5832	(0.9757)	0.3042	(0.5789)	0.8573	(0.9848)
BOY16	(0.7733)	0.3967	0.41222	(0.7632)	0.3793	(0.7874)
GIRL16	0.3643	(0.6902)	0.3587	(0.6571)	0.3709	(0.7286)

The summary statistics show interesting figures about children and their families. In the age group of 5-15 years the mean age of overall children is 9.83 years, of boys is 10.03 years and of girls is 9.6 years. Similarly, average years of education of overall children are 3.84 years, of boys are 3.98 years, and of girls are 3.07 years. In urban areas, 34 percent of the households are living below poverty line. Average family size of the households is 6.8 while 31 percent of the households have maximum of 5 household members.

Table No.3. Probit Model Results of Child Schooling in Urban Pakistan

Variables	Probability for the Children to Go to School					
	Overall Children		Boys		Girls	
	Marginal Probability	Parameter Estimates and T-Statistics	Marginal Probability	Parameter Estimates and T-Statistics	Marginal Probability	Parameter Estimates and T-Statistics
Constant	**-1.9140**	-7.0168 (-2.5307)	**-1.2921**	-4.4721 (-2.2232)	**0.1353**	-3.5063 (0.7918)
	Child Characteristics					
BORD	**-0.0047**	-0.1884	**-0.0018**	-0.2856	**0.0019**	1.3658
		(-1.3302)*		(-1.482)*		(1.5241)*
BORD615	**0.0921**	1.2677	**0.0553**	1.8427	**0.0845**	1.5528
		(1.9815)**		(2.0037)**		(1.3785)*
CGEN	**0.0753**	0.1279	-	-	-	-
		(1.7103)				
CAGE	**0.1742**	0.8739	**0.2469**	1.4627	**0.1207**	0.8975
		(2.1273)**		(3.2634)**		(2.3725)**
CAGESQ	**-0.0076**	-0.0503	**-0.0101**	-0.1624	**-0.0064**	-0.9542
		(-2.5559)**		(-2.6752)**		(-3.2729)**
CAGE615	**-0.0764**	-1.6639	**-0.0437**	-0.5387	**-0.1034**	-1.5239
		(-2.6551)**		(-1.8493)**		(-2.3652)**
CAGESQ615	**-0.0721**	-1.3584	**-0.4261**	-0.9234	**-0.9964**	-1.7819
		(-2.4139)**		(-0.8431)		(-1.2963)*
CEDU	**0.0857**	1.3113	**0.02561**	0.2478	**0.0824**	1.9435
		(1.8849)**		(1.9046)**		(3.4428)**
	Head of Household Characteristics					
HGEN	**-0.0010**	-0.5225	**-0.1472**	-1.3173	**-0.1965**	-0.7244
		(-1.3910)*		(-2.6837)**		(-1.9873)**
HAGE	**0.0654**	0.0445	**0.0352**	0.5213	**-0.2142**	0.9263
		(1.3110)*		(1.5387)*		(-0.7911)
HAGESQ	**-0.0007**	-0.7949	**-0.0056**	-0.4250	**0.8814**	-0.2596

		(-1.7433)**		(-1.457)*		(0.8371)
HEDU	**0.1491**	0.6074	**5.0721**	3.2539	**0.1799**	2.6005
		(1.3095)**		(0.0422)		(1.3687)*
HLIT	**0.2104**	0.7710	**0.2356**	1.3895	**0.2199**	1.3616
		(1.8557)**		(1.4182)*		(1.3265)*
HEMP	**0.0081**	0.5778	**0.4960**	0.7257	**-6.0852**	0.5634
		(1.6094)*		(0.2541)		(-0.4873)
HY	**0.0091**	0.7319	**0.0022**	0.2732	**0.0031**	0.2591
		(1.8348)**		(1.1578)**		(1.2869)*
		Parent Characteristics				
FEDU	**0.2135**	0.2518	**0.06783**	1.6525	**0.0216**	0.8718
		(1.4434)*		(1.9145)**		(1.5782)*
FLIT	**0.2816**	1.2317	**0.1745**	1.2469	**0.1467**	1.3864
		(2.2603)**		(2.3471)**		(2.2547)**
FEMP	**0.4167**	0.2393	**0.0539**	0.2547	**0.0643**	0.7324
		(0.4581)		(2.7635)**		(1.9753)**
FY	**0.1783**	0.1192	**3.3521**	-0.6917	**0.0021**	0.2134
		(0.7982)		(0.5672)		(2.1538)**
MEDU	**0.2366**	0.1580	**0.0538**	0.2639	**0.0634**	0.7665
		(1.6535)**		(1.8793)**		(1.6852)**
MLIT	**0.2917**	0.7621	**0.1397**	1.3295	**0.3762**	1.2435
		(2.1031)**		(1.8965)**		(0.9873)
MEMP	**0.1674**	0.7702	**0.0732**	0.3924	**0.0598**	0.9374
		(1.2991)*		(1.3491)*		(1.4872)*
MEMP.MLIT	**0.2917**	1.4296	-	-	-	-
		(2.1031)**				
MEMP.POVTY	**-0.0023**	-0.3425	-	-	-	-
		(-1.2945)*				
MY	**0.0003**	0.1120	**0.0021**	0.6493	**2.3738**	0.9127
		(1.5902)*		(0.2717)		(0.3575)

Household Characteristics						
ASST	**0.0805**	1.0158	**1.2108**	0.4563	**0.1783**	1.6775
		(1.8925)**		(0.2417)		(2.3467)**
HEXP	**0.0820**	0.5574	**0.0887**	1.5235	**0.0376**	1.3219
		(4.9287)**		(1.9872)**		(1.4813)*
HPCEXP	**0.0169**	0.6945	**0.0014**	0.5297	**-1.3443**	0.5318
		(2.7555)**		(0.1438)		(-0.3576)
POVTY	**-0.1814**	1.1355	**-0.0989**	-1.2082	**-0.3397**	-1.2954
		(-3.1874)**		(-1.8432)**		(-2.7632)**
FMSIZ	**-0.0194**	-0.1245	**-0.0374**	-0.2861	**-0.0865**	-0.6721
		(-1.7426)**		(-2.2855)*		(-1.7013)**
FMSSIZ	**0.1723**	0.3861	**2.0977**	0.3954	**0.1488**	1.8342
		(0.0222)		(0.2430)		(1.2977)*
NCHILD	**-0.0287**	-0.3687	**-0.0676**	-0.3964	**-0.0753**	-0.2059
		(-1.4062)*		(-1.7527)**		(-1.438)*
CMRATIO	**0.0719**	1.2447	-	-	-	-
		(1.3288)*				
CHILD04	**0.1550**	0.6313	**1.5155**	-0.4275	**-5.4758**	-1.1152
		(1.2753)		(0.2464)		(-0.2295)
CHILD515	**-0.2258**	-0.3394	**-0.0846**	-0.6364	**-0.0769**	-0.2366
		(-1.6576)**		(-1.3821)*		(-1.7211)**
BOY515	**-0.0477**	-0.1402	**1.6694**	-0.8972	**-0.0386**	-0.7254
		(-2.1898)**		(0.2577)		(-2.3191)**
GIRL515	**-10.0067**	-1.1287	**1.3808**	0.6479	**-1.4609**	-0.8174
		(-0.5231)		(0.2760)		(-0.6473)
CHILD16	**0.1067**	0.0875	**0.1682**	1.3479	**0.1942**	1.8259
		(2.4536)**		(1.9871)**		(1.8333)**
BOY16	**-0.4612**	-0.2281	**0.0319**	0.3974	**0.0871**	0.8790
		(-0.9347)		(-1.2907)**		(1.9457)**
GIRL16	**0.0369**	1.5626	**0.0313**	0.3551	**0.0642**	0.6528

	(1.6747)**	(0.0373)	(1.5546)*
Log of Likelihood Function	-5364.30	-3422.69	-2226.88
Number of Observations	6912	3916	3622
R-Squared	0.7430	0.7631	0.6803
Percent Correct Predictions	0.8785	0.9312	0.8879

** Indicates significant at 5 percent level and * indicates significant at 10 percent level.

Results: Looking at the results for overall Pakistani urban children it is found that 74 percent of the variation in school attendance across households is accounted for by the explanatory variables. For boys 76 percent and for girls 68 percent of variation in school participation is accounted for by the explanatory variables. The following features are worth noting from the results.

i) In the economic literature, there is no consensus whether school participation of children is affected by their birth order or not, if affected, whether it is positive, negative or non-linear in the form (Parish and Willis 1993; see also Behrman and Taubman 1986; Sathar 1993). Our research suggests that for the children in the age group of 5-15 years, the birth-order exists and it is negative for child schooling (for overall children). The younger children (higher birth-order) have lower probability to be in school. As concerns the boys, the birth-order is negatively related to the schooling, i.e. the younger boys are 2.2 percent less likely to go to the school. For the girls the birth-order effect is positive, that is younger girls are more likely to go to school.

The possible explanation for the negative sign of birth-order coefficient for overall children and boys may be that the first enrolment of children in schools is delayed for the

children in the age group of 5-15 years. At the age of 5 years all the children are not enrolled in schools, so the younger children (overall and boys) have lesser probability to be in school as compared to elder children.

As concern the girls, positive sign of birth-order coefficient shows that younger girls in the household have higher probability to be in school as compared elder girls. It seems that first enrolment of girls in schools is not delayed in the age group of 5-15 years, but the fact is that there is higher drop-out rate of girls in schools at higher grades of school. The other possibility may be that elder girls in household are more frequently involved in household chores.

To further analyze the phenomenon of first enrolment of children in schools and to see the impact of birth-order on child schooling, we also estimate the birth-order impact on schooling in the age group of 6-15 years. It is found that schooling of the child is positively associated with birth-order of the child (for overall children, boys, and girls). It means in the age group of 6-15 years, younger children (overall children, boys, and girls) are more likely to go to school. It may be concluded that in the age group of 5-15 years firs enrolment of children is delayed. Moreover, it is estimated that younger girls in their sisters are more likely to go to school as compared to younger boys in their brothers. It explained that fact that older girls are involved in household chores or in helping their mothers. It is further concluded that parents behave boys and girls differently in respect of their birth-order.

ii) In the context of Pakistan, gender of child is one of the most important characteristics affecting child schooling (Sathar 1993). The present study have found that boys are 7.2

percent more likely to go to school as compared to girls. It supports the results by Durrant (1998), Sawada and Lokshin (2000), Ray (2001) and Behrman and Knowles (1999). Moreover, the result supports the national composition of female literacy and enrolment pattern in Pakistan. There is extensive literature on human capital investments which evidenced intra-household gender bias. Studies (Kabir 1984:114; Ahmed 1990) have shown that the sons are favored in the intra-household allocation of resources. Sawada and Lokshin (2000) described that high opportunity cost of daughter's education in Pakistan may lead to apparent intra-household discrimination against women in terms of education. The poor quality of schools and conservative attitude of parents towards female education are also responsible. The phenomenon may be explained by the fact that most females help their parents in housekeeping (Burki and Shahnaz 2001). The lack of school availability affects girls' education more seriously than male education (Shah 1986). The parents perceive girl's education less advantageous and there is high drop out rate of girls in school. There may be a case of selective allocation of resources where girls might enter school but are not able to remain there for a long duration, presumably because their brothers get preferential treatment (Sathar 1993).

iii) For the children in the age bracket of 5-15 years the probability derivative of the age of child (for overall children, boys, and girls) is found positive, and of age squared is found negative. It shows that age is an important variable for the decision about child schooling. More specifically, it implies that the probability of going to school increases at a decreasing rate. It is contrary to the general perception that school participation decreases by increase in age (see, Illahi 2001). We have taken the minimum age of child to be in school at 5 years. At this age the children are not sent to school, that is the explanation of the probability derivative to be positive. The results explain the fact that

the first enrolment of children in schools is delayed in urban areas of Pakistan. The result is supported by the birth-order coefficient. Although greater opportunities for pre-school attendance exist in urban areas as compared to rural areas, but it favors the middle and upper class of society. In pre-school area, private-sector services excel public education facilities, privileging higher-income group.

The negative sign of squared age of child shows that the probability for the child to go to school increases at the decreasing rate. It suggests an inverted U-shaped (∩) relationship between age of child and its schooling. The school participation for overall children is highest at the age of 11.84 years. The decrease in schooling in the later ages of child (in the age group of 5-15 years) reflects the increase in foregone earnings with age. As child grows older the potential for earnings increases and he/she is pulled out of school.

As concerns the boys and girls, the probability derivative of age is positive for both boys and girls separately. The probability derivative for girls is lesser than boys, which shows an important notion that first enrolment of girls in schools is more delayed as compared to boys (see also Behrman and Knowles 1999:227 for Vietnam). So there is gender discrimination at the initial stage of education. Another explanation may be that, as the households neglect the girls in nutrition and health-care in early age, they suffer from malnutrition and weak health, and ultimately they are unable to attend school at an early age.

The probability derivatives of age squared for boys and girls separately have negative signs, which show a quadratic relationship between ages of boys and girls and their schooling. The school participation for boys is highest at the age of 12.15 years and for

girls, it is highest at the age of 9.35 years. The results reveal the gender discrimination in children's schooling. The results are further corroborated by the summary statistics, where average age of school-going girls is lower than the average age of school-going boys by 0.97 years.

The focus of the study is children in the age group of 5-15 years. It is found earlier that first enrolment of children (overall, boys and girls) in schools is delayed and parents do not send their children to school at the age of five. To see how the child's schooling is affected by increase in the age of child after 6 years of age, we have also analyzed the impact of age on child schooling in the age group of 6-15 years. In this age group, age of the child has shown negative impact on the child's schooling (for overall children, boys and girls). The probability for the child to go to school decreases by an incremental change in the age of the child at a decreasing rate. The result supports the findings of a number of studies (see for instance, Illahi 2001) and general perception that school participation decreases by increase in age.

iv) It is estimated that current level of education of children (overall, boys and girls) has positive impact on their schooling. One additional year of the education increases the probability of continuing school by 8.5 percent for overall children, 25 percent for boys and 8.2 percent for girls. It reflects a stark gender disparity in the continuation of schooling alternatively girls are more likely to drop out from school than boys. This result is corroborated by the results in summary statistics, where average years of education of boys are 3.68 years and of girls are 3.07 years.

v) The parameters of head of household are critical in determining child schooling. We have captured gender vulnerability of head of household by using a dummy variable for gender of head of household. Though the concept of female headship has come under a lot of criticism for not adequately identifying gender vulnerability, but it is the most useful single indicator in the absence of anything better (Rosenhouse 1989; Mason and Lampietti 1998). Our objective in including female headship as an indicator of gender vulnerability or female decision-making is to see if child time allocation in such households is significantly different from their counterparts in male-headed households. We have found that overall children from female-headed households are 6.2 percent more likely to go to school (see also Burki and Shahnaz 2001). Such type of impact is more intensive for girls as compared to boys, as girls from female-headed households are 19.6 percent more likely to go to school while boys from such households are 14.5 percent more likely to go to school. It means matriarchal households favor girls' schooling.

vi) The present study has found that the child schooling (overall children) is positively affected by the stage in life cycle of the head of the household. The older the head of the household, it is more likely that he/she will send the child to school. An incremental change in the age of the head of household increases the schooling probability by 6.5 percent at a decreasing rate. The possible explanation may be that the older heads of households have comparatively more elder off-spring (siblings more than 15 years of age) as compared to younger heads of households. These elder siblings have earning capacity so the financial status of the household is enhanced, resultantly school-age (5-15 years) children are more likely to go to school. Furthermore, if the head of household is older, who is more frequently father or mother of the children, and the elder siblings are studying instead of earning, the school-age children are more likely to be in school due to

economies of scale of education within the household. For the boys, like the overall children, the age of head of household positively affects the schooling but for girls, it had no significant results.

vii) It is generally perceived that schooling of a child is positively sensitive to the head of household's education (see Burki and Shahnaz 2001). This indicates important complementarity between the schooling of a child and education of the head of the household. This complemetarity is generated possibly by educated parent's positive perception for child schooling, improved technical or allocative efficiency of head of household, and/or superior home teaching environment (Behrman et. al. 2000). To capture the effect of head of household's education on child schooling, we include two types of variables regarding head of household education, i.e. continuous variable representing the number of years of education of head of household, and binary variable representing whether the head of household is literate or illiterate (same type of variables are used to capture the effect of parent's education on child schooling in coming pages). We have estimated that one additional year of education of head of household on average may increase the schooling of overall children by 13.4 percent. Similarly, by the same change in education of head of household, girls are 17.9 percent more likely to go to school. For boys' schooling the number of years of education of head of household has no significant effect.

The education of head of household as a binary variable has shown positive impact on child schooling (for overall children, boys, and girls). The overall children from households having literate head of households are 21 percent more likely to go to school,

the boys from such households are 23 percent more likely to go to school and girls are 21.9 percent more likely to go to school.

viii) It is found by the present study that the overall children from employed head of households are more likely to go to school though the effect is very slight. It contradicts the results by Burki and Shahnaz (2001), who found that employment status of heads of households do not matter in child's schooling. The present study has found insignificant effect of employment of head of household on boys and girls schooling separately.

Though the employment status of the head of household, as binary variable, may proxy for his/her income but we have also included the income (per month in thousand rupees) of the head of household (as continuous variable) as explanatory variable for child schooling. It is found that income of the head of household has positive impact on overall children, boys, and girls. The possible explanation may be that head of household with higher income may invest in child's schooling through quality education, home tutoring and care in health and nutrition.

viii) Parent's education is one of the important determinants of school participation of children (FBS 1998 for Pakistan; Jayachandran 2002 for India). Parents who have themselves attended schools are presumably more likely to invest in their children education. We have found that father's education (as a continuous variable-number of years of education) has a positive effect on child's schooling (for overall children, boys, and girls). One additional year of father's education increases the school participation of overall children by 21 percent. Mother's education has also shown positive effect on overall children's schooling and it is stronger than father's education impact. One

additional year of education of mother increases the school participation of overall children by 23.6 percent. The possible explanation may be that the mother's education is an input for the schooling of her children. The mother's own level of education raises the demand for her services as a home tutor for her children, rather than as a market laborer, so the returns to the time that she spends in children's education increases (see Behrman and Knowles 1999). Yet another possible explanation may be that education of mother increases her probability of outside employment. It enhances the financial status of the household and makes the children send school. The explanation is against the notion given by Basu (1993) that when the mothers find outside employment, they call upon their children to substitute them in home. Our estimation negates the Basu's (1993) argument, by the fact that the outside employment by the educated women enhances the household income so it is more probable for the children to go to school. It is corroborated by the coefficient of mother employment (MEMP), which shows that children from employed mothers are 16.7 percent more likely to go to school. The Basu argument may be true for illiterate, low-educated and ultimately low-paid women. But in urban areas of Pakistan, the opportunities of outside employment for educated women are more as compared to non-educated women, and rural women. Moreover the educated mothers perceive the education of children positively so they do not trade-off the education of their children with any other activity. Furthermore, the explanation for the positive effect of the mother's education on child schooling is that, education confers on the mother greater weight (moral authority or if education translates into income, bargaining power) in family decisions. If as some assume, mothers care for their children more than fathers so their education tends to increase the welfare of children (see Folbre 1986). Education of mothers may impact the children's schooling in another way. Many empirical studies show that highly educated mothers have lower infant mortality, fewer

children, healthier children and ultimately more educated children (King and Hill 1993). The possible coexistence of some or all of these factors may explain the positive effect of mother's education on child schooling. To make the positive impact of mother's education through outside employment, on child schooling, we have regressed another variable, i.e. employment and literacy status of mother's simultaneously. It is found that the children for employed as well as simultaneously literate mothers are 27 percent more likely to go to school. It makes clear that education of mothers through employment enhances school participation.

As concerns the binary variable of education of parents (whether the parents are literate or illiterate), it is found that literacy status of parents affects the child schooling positively (for overall children, boys, and girls). The overall children from literate fathers are 28.1 percent more likely to go to school while overall children from literate mothers are 29.9 percent more likely to go to school. Like the continuous variable of education of parents, the binary variable of education of parents represents that mother's education has strong effect on child schooling.

We have found an interesting gender aspect (of children) in the relationship between parental characteristics (education, employment and income) and child schooling. The father's education (both as continuous and binary variable) has stronger effect on boys' schooling as compared to mother's education (see also FBS 1998 for Pakistan; World Bank 1995; Emerson and Portela 2001 for Brazil). Father's income and employment has no significant impact on child's schooling while mother's employment and mother's income has positive impact on child schooling (for overall children). It is evident from the results of parent's characteristic (education, employment and income) that mother's

characteristics are more important than father's regarding child schooling. The findings suggest that there is difference between father's and mother's preference about child schooling (see also Thomas 1994; Basu 2001). They reject the unitary family model which assumes that parents have common preferences and they pool their resources for the same preferences.

The economic literature on child schooling evidenced that mother's employment status impacts the child schooling in two opposite ways. In the first, the mother's employment restricts child schooling as Burki and Shahnaz (2001) argued that most employed mothers work in home-enterprise or at farm and they involve their children at their work places and make drop out their children. In the other way employed mothers contribute to household income and pull the household out of poverty trap and enhance the probability of child schooling. Our study found that mother's employment results into 16.74 percent more probability for the child to go to school. As mother's income has a positive effect on child's schooling. It leads to an important finding, possibly reflecting the fact that mother's labor force participation increases the financial status of the household, which gives them greater powers in household decisions. Since women are expected to be more concerned about the education of their children, so increased household decision-making power of mothers enhance school participation of the children. In other words, women's labor force participation could enhance their influence on child's schooling decision, making it less male centered.

To further analyze the impact of mother's employment on child schooling, we hypothesized that the complementarity and substitutability between the employment of mother and child schooling depends upon (i) the employment and literacy status of

mother simultaneously, and (ii) employment and poverty status of mother simultaneously. More precisely, the employment of literate mothers has a complementary impact on child schooling and there is a substitution between employment of mothers belonging to poor households, and child schooling. We have found that children (overall) from literate and employed mothers (simultaneously) are 29 percent more likely to go to school, i.e. there is a complementary relation between the employment of literate mothers and their children's schooling. We further estimated that children from employed mothers belonging to poor households are less likely to go to school, i.e. there is a substitutionery relation between employment of poor mother and their child's schooling.

x) Empirically, it is fairly difficult to test directly the role of risk insurance of income in explaining child schooling. A study in rural India used a measure of variability of household income and found that when variability increased, school attendance declined (Jacoby and Skoufias 1997). Another approach is the direct measure of insurance in the model, i.e. assets like human capital, physical assets (land, dwellings, farm implements, durable goods) and financial savings. We have discussed the impact of human capital (education of head of household, father, and mother) on child schooling earlier, now we are going to estimate the impact of physical assets.

In the economic literature the ownership of assets has shown different impacts on child schooling. It is estimated by a number of studies that more assets a family has, richer is the household and more probability for the child to go to school (see Jensen and Nielsen 1997). On the other hand, if a household owns assets, it is easier for a child to work inside its home and to begin to contribute to home enterprise at an early age. Specifically in lower-income households, the presence of assets increases the demand for labor, which is

fulfilled by child labor. Bhalotra and Heady (2001) termed the situation as "wealth paradox". They analyzed the activities of rural children of Pakistan and found that daughters of land-rich households are less likely to go to school than the daughters of land-poor households. They found the wealth paradox weaker for boys. We have found that if the household has assets, the overall children are 8 percent more likely to go to school and girls are 17 percent more likely to go to school, that is wealth paradox is negated for urban households. The ownership of productive assets can influence the child schooling positively in many ways. The ownership of assets like household enterprises, house, land, shop etc. is obviously a measure of a household wealth. The wealth generates income, thereby making it easier for the households to send the children to school. Moreover, ownership of assets makes the household stable against the fluctuations in income through credit procurement or sale of the assets.

xi) To investigate the perception that household poverty compels the parents to stop their child's schooling, it is essential to determine whether public money committed to enhance school enrolment should be directed at reducing poverty or at raising the returns to education. Globally, the interventions reflect some diversity of strategies. For instance, former strategy was adopted by the Food-for-Education Program in Bangladesh (Ravallion and Wodon 2000), Progresa in Mexico (Skoufias and Parker 2001) and Bolsa Escola and PETI in Brazil (World Bank 2001), all of which offer subsidies to households that send their children to school to compensate them for opportunity cost and reduce poverty. The later strategy underlines the Back-to-school Program in Indonesia (Sayed 2000) which has offered bulk grants to poor schools and scholarships to children to raise the returns to education. To see the impact of poverty at household level on child schooling we have used two continuous and one binary variable, i.e. household per month

expenditures, household income per capita per month and poverty status of the household---whether the household live below poverty or, not. We have found a positive relation between household income and child schooling (for overall children, boys, and girls), a positive association between household per-capita income and child schooling (overall children) (see also Behrman and Knowles 1999 for Vietnam; Illion and Moock 1991 for rural Peru), and a negative relation between household poverty and child schooling (overall children, boys, and girls). It means the households take into account the cost of schooling when deciding their children's schooling. They weigh the child's schooling against the opportunity cost which includes direct school cost and forgone earnings from child labor. The households with higher household income and higher-per-capita income give more weight to education as they can easily afford the cost of schooling, so the probability for children to go to school from such households remains high. Moreover, poor health and malnutrition is cause and symptom of low-per-capita income/poverty. Many studies (for example, Glewwe and Jacoby 1995; Behrman and Lavy 1994) associated the poor health and malnutrition with less gains in schooling, delayed enrolment, more grade repletion, more absenteeism, less grade completed and poor performances at test score. All these factors decrease the probability of child schooling. As concern the policy option both types of policies are necessary simultaneously because poor households need compensation for opportunity cost of schooling while rise in returns to education may increase the schooling enrolment as many parents perceive lower returns to education especially of girls.

For the boys and girls separately, the probability to go to school increases with increase in household income. The boys are 8.8 percent more likely to go to school by an incremental change in household income but girls are 3.7 percent more likely to go to school by the

same change. It is obvious that household income has stronger impact on boys which reflects the gender discrimination aspect of child schooling. Similarly, boys from poor households are 8.8 percent less likely to go to school but girls from same type of households are 33.9 percent less likely to go to school. It means the girls' schooling is severely affected by fall of a household into poverty.

xii) In the economic literature, two alternative hypotheses are postulated in the impact of household size on child schooling. One is that in larger households, parents make lesser investment on schooling of their children because their income per head may be very low due to higher dependency ratio. In such households the likelihood of schooling becomes low (Lloyd 1994; Boyden 1994). The other equally compelling argument explaining the mechanics of larger household is that they have more earning hands therefore they have more tendencies to put their children in schooling (see Durrant 1998). The present study has included two types of explanatory variables in the model to analyze the impact of household size on child schooling. They are (i) continuous variable, i.e. number of household members, and (ii) binary variable, i.e. whether the household is small (having maximum of 5 members) or large. It is found that one additional member of the household decreases the probability for the child to go to school (for overall children, boys, and girls). The impact is more severe for girls than boys, that is, as the family size increases the girls are dropped out schooling earlier than boys.

xiii) In case of Pakistan, it is found that the household composition exerts an impact on child's schooling. The impact is through the number of children. The number of children (up to the age of 15 years) in the household has shown a negative effect on schooling of school-age children (for overall children, boys, and girls). The effect is stronger for girls

than boys. That is larger the number of children in the households, it is more likely for girls than boys not to go to school. Similarly, the number of school-age (5-15 years) children in the household has shown negative impact on child schooling (overall children, boys, and girls). The possible explanation may be that a child living in a household containing a large number of children is more likely to be living in poverty than a child residing in a household with few children (See also Ray 2001:10). The result is consistent with the findings of Sawada and Lokshin (2000:15), who concluded that students who could obtain higher education are from households with a small number of children. This is a reflection of the intra-household resource competition. So our study suggested that intra-household resource competition affects the girls schooling more severely. Sathar (1993) narrated that children from households with a large number of siblings are more likely to be dropped out. Jones (1990) described that the proportion of children in schools in Pakistan is closely linked to fertility levels. There are mutually reinforcing feedback here, i.e. low fertility makes it easier (after a small lag) to increase the proportion of children in schools and raise the educational level of young people-especially females-entering reproductive age which in tern tends to reduce fertility of next generation (Sathar and Mason1993) and ultimately child schooling. In Pakistan poor households have 75 percent more children in the households as compared to non-poor households (ADB 2002:3). So poverty and fertility mutually reinforce the child schooling negatively. It is estimated that higher fertility, poverty and non-participation of school makes a vicious spiral for human resource development.

The probability of child schooling depends on the composition of siblings in the household (see Jomo 1992; Partinos and Psacharopoulos 1997). We found that children from the overall households, in which ratio of male to female children is higher, are more

likely to go to school. That is families with more number of sons than daughters are more inclined towards children' schooling.

It is estimated that the probability for the child to go to school is positively associated with the presence of prime-age siblings (16 years or above) in the household (for overall children, boys and girls). The explanation may be that these siblings lower the demand of children' time for household chores and free the children to go to school. Sawada and Lokshin (2000:19) explained that education of school-age children is supported by the elder brother's and sister's resource contribution. On the other hand, if the prime-age siblings are studying, the school-age children may get advantage of economy of scale due to household level public goods, since the school-age children can learn easily from the experience of their elder siblings through home-teaching.

5. Conclusion

The paper investigates the determinants of child schooling and intra-household gender differences in school attendance in urban Pakistan. The main results have potential policy implications. They are summarized as follows:

i) To make rapid progress in child schooling in Pakistan, it requires action on a number of fronts; provision of pre-schooling facilities, eliminate gender disparity, increasing adult education specifically female education, making schooling free and affordable by low-income households, and support for programs to lower fertility.

ii) The increased demand for schooling from parents requires the development of both long and short-term policies. The long-term economic and social policies should aim towards the building of societies in which child schooling in needed and accepted by parents. Innovative economic policies to reduce the level of adult unemployment and

underemployment are a first vital step. Their positive rebounding effect on family welfare will eventually help to create a socio-economic framework in which the schooling of child is felt necessary.

iii) Changing attitudes to child schooling is another essential front on which fight is needed. Of particular importance in this regard is the development of programs to promote knowledge and awareness of parents about positive consequences of child schooling.

iv) Improvement in the income levels of poor families through targeted policies is needed in order to ensure children's access to, and completion of secondary schooling.

v) The short-term and immediate policies need attention to more equitable, accessible and adequate pre-school facilities in public-sector educational institutions, which constitute an indispensable basis for improving primary education.

vi) The policies for the progressive increase in school participation must be linked to structural changes in the education system, requiring:

- Provision of school books and essential material for children from targeted households by increasing educational budget;
- Promotion of community and family participation in school process so that education system may be molded according to the requirements of parents
- Eliminate gender disparity in education at all level of schooling by: providing incentives to parents for girl's schooling; increasing the demand for girl's schooling through provision of more separate schools for girls; and giving financial assistance to parents for girl's education

References

Abbas, Qaiser (2000) "The Role of Human Capital in Economic Growth: A Comparative Study of Pakistan and India" *Pakistan Development Review 39(4):451-473.*

ADB (2002) *"Poverty in Pakistan: Issues, Causes and Institutional Response"* Asian Development Bank. Pakistan Resident Mission. Islamabad.

Ahmed, Amber (1990) *"Gender Differentials in Access to Health for Pakistani Children"* Study conducted for UNICEF, Islamabad.

Barro, Robert J. (1991) "Economic Growth in a Cross section of Countries" *Quarterly Journal of Economics 106.*

Basu, Alaka Malwade (1993) "Family Size and Child Welfare in an Urban Slum: Some Disadvantages of Being Poor and But Modern" in Cynthia B Lloyd (ed) (1993) *Fertility, Family Size and Structure-Consequences for Families and Children.* Proceedings for the Population Control Seminar, New York 9-10 June 1992. Population Council, New York.

Basu, Kaushik (2001) *"Gender and Say: A Model of Household Behavior with Endogenously-determined Balance of Power"* Working Paper. Cornell University.

Becker, Garry., S. Murphy., M. Kevin and Robert Tamura (1990) "Human Capital, Fertility and Economic Growth" *Journal of Political Economy 98(5).*

Behrman, Jere R. and Hanan Jacoby (1995) "An Economic Analysis of Delayed Primary School Enrolment and Childhood Malnutrition in a Low-Income Country" *Review of Economics and Statistics 77(1):156-69.*

Behrman, Jere R. and James C. Knowles (1999) "Household Income and Child Schooling in Vietnam" *The World Bank Economic Review 13(2):211-56.*

Behrman, Jere R. and P. Taubman (1986) "Birth-Order, Schooling and Earnings" *Journal of Labor Economics 4(3).*

Behrman, Jere R. and Victor Lavy (1994) *"Children Health and Achievement in School"* LSMS Working Paper #104. Word Bank, Washington, D.C.

Behrman, Jere R., P. Sengupta and P. Todd (2000) *"Progressing Through PROGRESA: An Impact Assessment of Mexico's School Subsidy Experiment"* International Food Policy Research Institute (IFPRI), Rome.

Bhalotra, Sonia and Chris Heady (2001) *"Child Farm Labor: The Wealth Paradox"* Discussion Paper. Social Protection Series, The World Bank, Washington, D.C.

Boyden, Jo (1994) *"The Relationship between Education and Child Labor"* Innocenti Occasional Paper#9. International Child Development Center, UNICEF, Florence.

Burki, Abid A. and Lubna Shahnaz (2001) *"The Implications of Household Level Factors of Children's Time Use in Pakistan"* Paper presented at International Conference on Child Labor in South Asia, in New Delhi, October 15-17, 2001.

Burki, Abid A. and Tazeen Fasih (1998) "Household's Non-Leisure Time Allocation for Children and Determination of Child Labor in Punjab, Pakistan" *The Pakistan Development Review 7(4).*

CRPRID (2002) *"Pakistan Human Condition Report 2002"* Center for Research on Poverty Reduction and Income Distribution, Islamabad.

Durrant, Valerie L. (1998) "Community Influences on Schooling and Work Activity of Youth in Pakistan" *The Pakistan Development Review 37(4).*

Emerson, Patricks M. and Andre Portela (2001) *"Bargaining Over Sons and Daughters: Child Labor, School Attendance and Intra-household Gender Bias in Brazil"* Department of Economics, Cornell University.

FBS (1998) *Pakistan Integrated Household Survey- Education Sector Performance in the 1990s.* Federal Bureau of Statistics, Government of Pakistan, Islamabad.

FBS (2000) *Pakistan Integrated Household Survey 2001-02* (PIHS 2001-02). Federal Bureau of Statistics, Government of Pakistan, Islamabad.

Folbre, N. (1986) "Hearts and Spades: Paradigms of Household Economics" *World Development 14:245-255.*

Ghaus, A.F. Ayesha., Hafiz A. Pasha and Rafia Ghaus (1996) "Social Development Ranking of Districts of Pakistan" *Pakistan Development Review 35(4) Part II.*

Glewwe, Paul and Hanan Jacoby (1995) "An Economic Analysis of Delayed Primary School Enrolment and Childhood Malnutrition in Low-Income Country" *Review of Economics and Statistics 77(1):156-69.*

Illahi, Nadeem (2001) *"Children's Work and Schooling: Does Gender Matters?"* Evidence form the Peru LSMS Data" Research Report, World Bank, Washington, D.C.

Illion, L. and P. Moock (1991) "School Attendance, Household Characteristics and Determinants for Schooling: A Case Study for Rural Peru" *International Review of Education 37(4):429-452.*

Jacoby, Hanan and Emmanuel Skoufias (1997) "Risk, Financial Markets and Human Capital in a Developing Country" *Review of Economic Studies 64(3):311:335.*

Jayachandran, Usha (2002) *"Socio-Economic Determinants of School Attendance in India"* Working Paper#103. Center for Development Economics. Delhi.

Jensen, Peter and Helena Skyt Nielsen (1997) "Risk, Financial Markets and Human Capital in a Developing Country" *Review of Economic Studies 64(3):311-335.*

Jomo K. S. (ed) (1992) *Child Labor in Malaysia.* Varlin Press, Kuala Lumpur.

Jones, Gavin W. (1990) *"Population Dynamics and Educational and Health Planning"* Background Papers for Training in Population, Human Resources and Development Planning No.8. ILO, Geneva.

Kabir, Naila (1984) *Reserved Realities*. Verso, London.

King, Elizabeth M. and Anne M. Hill (eds) (1993) *Women's Education in Developing Countries.* Johns Hopkins University Press, Baltimore (for The World Bank).

Lloyd, Cynthia B. (1994) *"Investing in the Next Generation: The Implication of High Fertility at the Level of the Family"* Research Division Working Paper # 63. New York Population Council, New York.

Mason, Andrew and Julian Lampietti (1998) *"Integrating Gender into Poverty Analysis in Concepts and Methods"* Working Paper. The Word Bank, Washington, D.C.

Mokal, Sardar M. Iqbal (1992) *"Summary of Child Legislation in Pakistan"* National Commission for Child Welfare and Development, Government of Pakistan and UNICEF, Pakistan.

Parish, W.L. and R.J. Willis (1993) "Daughters, Education and Family Budgets: Taiwan Experience" *Journal of Human Resources 28(4).*

Patrinos, Harry A. and George Psacharopoulos (1995) "Educational Performance and child Labor in Paraguay" *International Journal of Education Development 15(1):47-60.*

Ravallion, Martin and Quentin Wodon (2000) "Does Child Labor Displace Schooling? Evidence on Behavior Responses to an Enrolment Subsidy" *The Economic Journal 110:158-175.*

Ray, Ranjan (2001) *"Simultaneous analysis of Child Labor and Child Schooling: Comparative Evidence from Nepal and Pakistan"* Schools of Economics, University of Tasmania, Australia.

Romer, Paul M. (1990) "Are Non-covexities Important for Understanding Growth" *American Economic Review 80(2).*

Rosenhouse, Sandra (1989) *"Identifying the Poor: Is Headship a useful concept"* LSMS Working Paper#58. The World Bank, Washington D.C.

Sathar, Zeba A. (1993) "Micro-Consequences of High Fertility: The Case of Child Schooling in Rural Pakistan" in Cynthia B. Lloyd (ed) *Fertility, Family Size and Structure: Consequences of Families and Children* (Proceedings of Population Council Seminar). The Population Council, New York.

Sathar, Zeba A. and Karen Oppenhein Mason (1993) "How Female Education Affects Reproductive Behavior in Urban Pakistan" *Asian and Pacific Population Forum 6(4):93-103.*

Sawada, Yasuyuki and Michael Lokshin (2000) *"Household Schooling Decisions in Rural Pakistan"* Study conducted by Japanese Ministry of Education, The

Foundation for Advance Studies on International Development, and Matsushita International Foundation, Japan.

Sayed, Hanan (2000) *"Indonesia: Back to School Program"* Paper presented at conference on child labor and child protection. The World Bank, Washington D.C.

Shah, Nasra M. (1986) *"Pakistani Women: A Socioeconomic and Demographic Profile"* Pakistan Institute of Development Economics, Islamabad and East-West Population Institute of East-West Center, Honolulu, Hawaii.

Skoufias, Emmannuel and Susan Parker (2001) *"Conditional Cash Transfers and Their Impact on Child Work and Schooling: Evidence from PROGRESA Program in Mexico".* International Food Policy Research Institute, Washington, D.C.

Thomas, Duncan (1994) "Like Father, Like Son: Like Mother, Like Daughter: Parental Resources and Child Height" *Journal of Human Resources 29:950-989.*

World Bank (2001) *"Spectrum: The Fight Against Child Labor"* Social Protection Department. The World Bank, Washington, D.C.

World, Bank (1995) *Priorities and Strategies for Education: A Word Bank Review.* Directions in Development, World Bank, Washington, D.C.