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Gender Analysis of Children's Activities in Pakistan

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This paper estimates gender differences in children's time allocation among four ordered options. It analyses the sample of boys and girls separately through a series of probit models using primary data. We compare the socio-economic determinants of boys' and girls' activities. The results suggest that boys are more likely to go to school as compared to girls with the increase in their age. The provision of schooling as an instrument to decrease child labour and home-care would affect boys more than girls. To make the adults literate (five years of education) only is not enough to eliminate the gender gap in schooling; a greater number of years of adult education is necessary. The female adult education may be devised to eliminate gender discrimination in child schooling. In the larger households, girls drop out of school and are absorbed in the labour market earlier than boys. The results further suggested that the use of resources is significantly different for boys' and girls' welfare. Thus, we conclude that girls can be a better target for increase in the welfare of all children in Pakistan.

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1. INTRODUCTION

The interaction of gender-based indictors of welfare, capability, work participation, and earnings reflects the centrality of female education for economic growth, mortality and fertility reduction, and equity. In Asia, in the next decade, gender-based educational inequality in the countries will be a weightier source of inequality [Bardhan and Klasen (1998)]. Gender discrimination in human investment is one of the major reasons of poverty in South Asia [Human Development Report (1997)]. Pakistan has remained at rank 92nd out of 94 on gender empowerment Index [Haq (1997)]. Ranis, *et al.* (2000) opined that human development in Pakistan has suffered a lot due to discrimination against females. Girls lag remarkably behind boys in education in many developing countries,[1] which may slow economic growth and increase inequality [Todaro and Smith (2003); ADB (2003)]. In Pakistan, the rise in poverty in the 1990s has

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[1]There are some exceptional results by some studies. For example Akhtar (1996) found that the probability of drop-out of girls is lower than boys at institutionally established 'exit' points in the schooling system of Karachi (Pakistan), and Bhaotra and Attfield (1998) have a little evidence of gender differences among Pakistani rural children in intra-household resource allocation.

adversely affected welfare of children especially of girls [Arif (2000)]. Mahmood and Nayab (1998) have shown that gender inequalities persist at large in various social indicators as women have gained disproportionately from the development process. Particular attention is needed to reduce these large gender disparities. Recent research suggested that female schooling has important externality as it plays a significant beneficial role on fertility [Summers (1994); Hill and King (1993); Pall and Makepeace (2003) for India] and child health outcomes [Pall (1999) for India]. The rate of return on investment on female education is highest in Pakistan [Summers (1991); see also, Khan (1997)].

Human capital theory explains how national output increases more quickly than could be accounted by the neoclassical growth models. Unlike neoclassical growth models, human capital theory explicitly considers how society invests to enhance its labour force quality. One deficiency of human capital growth models is their failure to consider gender differences in human capital. The primary concern is with low-income countries where gender differences continue to be relatively large and where human capital is an important and crucial force for economic development [Polachek and Robst (1997)]. Evidences from Pakistan, Bangladesh, and other low-income countries shows that girls' education cannot automatically increase by increase in family income [Todaro and Smith (2003)]. But some specific policy measures are needed, which require examining the issue of gender in children activities. Bardhan and Klasen (1998) narrated that economic growth is not sufficient condition for gender equality but public policies must consistently pursue for it in the distribution of opportunities and resources. The urgency of achieving gender equity can be gauged by the fact that it has been identified as one of the three millennium development goals set by the United Nations General Assembly [ADB (2003)].

The child labour hinders human capital development, and the nature and intensity of girls' work (child labour) is very different from that of boys. Girls tend to work for longer hours than boys, often in physically and socially isolating occupations. Girls are more likely than boys to be concentrated in home-care [Rosati and Rossi (2001)]. The girl child labour faces more moral and health hazards. Girls are found starting work at far earlier age than boys and their work is often invisible, that is why girls are identified as a priority group within the IPEC strategy. The gender issue of children activities has important implications for research and policy matter.

In Pakistan, 8.72 percent of the children in the age group of 5-14 are child labourers, while 11.78 percent of boys and 4.54 percent of girls are labouring in the same age group [FBS (1996)].[2] The twin problems of child schooling and child labour and the related problem of gender disparity in Pakistan have been discussed in the previous studies [see for instance, Ray (2000, 2001); Rosati and Rossi (2001); Barki and Shahnaz (2003); Bhalotra and Heady (2003); see also, Behrman and Knowles (1999) for Vietnam; Duraisamy (2000) for India; Emerson and Portela (2001) for Brazil]. Ray (2000) using the data from Peru and Pakistan [Pakistan Integrated Household Survey (1991) for the children 10-17 years] confirmed the hypothesis for Pakistan and rejected for Peru, that there is a positive association between hours of child labour and poverty and there is a negative association between child labour schooling and poverty. On the gender basis the

[2]The same is the pattern in all South Asian countries, see for details CUTS (2003).

hypothesis was also tested. The interaction between the adult and child labour markets was found varied with gender of the child and adult. In Pakistan, a strong complimentarity between women's and girls labour markets was found. Ray (2000) have taken the children in the age group of 10–17 years using the data for 1991. It needs to revisit the matter for the children 5–15 years with a fresh primary data. Bhalotra and Heady (2003) made a remarkable observation by using the Survey Data from rural Pakistan [Pakistan Integrated Household Survey (1991)] and Ghana, that children in land rich households are often more likely to be in work than the children of land-poor households. For Pakistan, they examined the gender aspect of wealth paradox, and concluded that school attendance rates of girls were higher in landless households. However, in the case of boys, the school attendance was found higher amongst land-owners. To revaluate this matter we have taken a survey and have used prima data. Barki and Shahnaz (2003) have also discussed the gender aspect of children activities using data from Labour Force Survey 1996-97. They have examined the four categories of children in the age group of 10-14 years using simultaneous logit model. However, the interest of the present study is to investigate gender aspect of children activities by using probit model. For the purpose, in the primary data, we have taken completion of secondary school level education as the target age-group, which extends to about 15 years.

The objective of this paper is to discuss the gender issue for children activities, i.e. to analyse how the gender of the children affect the schooling, part-time work, full-time work and home-care activity of children. The paper has four sections. Section two represents the definitions, data collection and methodology. In section three, empirical results are discussed. In final and fourth section, summary of the results is described.

2. DEFINITIONS, DATA COLLECTION, AND METHODOLOGY

Children are defined as the individuals in the age cohort of 5–15 years. In the economic literature economic activity of children is measured by working hours of children [see for instance, Ray (2000, 2001)] as a continuous variable. Another proxy is the wage rate of children. Some econometric models have used a binary variable to represent the economic activity of children, i.e. whether the child participate in economic activity or not. Before going to define economic activity of children, it is important for us from the policy point of view to evaluate whether it is child's work or the amount of work that affects human capital accumulation. If working hours had only a negligible effect on school participation, then school attendance rather than work would be the correct policy target (at least in terms of human capital formation). On the other hand, if working hours strongly affect human capital accumulation, then child labour also needs to be monitored. As the working hours, whether they are less than 2-3 hours daily or more than 2-3 hours affects the leisure of the children, so it seems better to define child labour on the basis of their labour force participation not working hours. We have defined child labour as the children involved in wage employment, household enterprises, household employment[3] or seasonal agricultural work (or being available for any of

[3]Household employment of children refers the situation where whole of the household including children works at piece rate and head of household receives wages.

them) without schooling irrespective of their wages or number of hours. Home-care children are defined as the children involved in the activity inside or outside their home without remuneration other than work at household enterprise and household employment, and children reported as doing nothing, or no-working and no-schooling.[4] They need some clarifications. In fact they are doing nothing and usually remain at home to care for the younger brothers and sisters, and home to free their parents to engage in economic activity. Cartwright (1999) called these children home-care children. Burki and Shahnaz (2003) called them children involved in home production. Home production refers to the activities and home chores that do not result in payment. These activities include custodial care, food preparation and cleaning activities, etc.

Data is collected by cluster sample technique and sample of the population is consisted of four thousand households from rural and urban areas of Pakistan. The survey contains the particulars of household members (children, head of household, parents of children), and household. Using the data set, we estimated the probability derivative for boys and girls separately by using a series of probit model. The household are assumed to use a sequential decision process, keeping the schooling of their children as a priority for the welfare of their children. The sequential choices making the welfare of the child are assumed: (i) schooling, (ii) schooling and work, (iii) work only, and (iv) neither school nor work. This leads to the following four choices, and choice probabilities, to be estimated for boys and girls separately. In the first regression, activities of boys (BP_1, BP_2, BP_3, BP_4) is the function of several explanatory variables. Where

BP_1 = Probability to go to school and not to work
BP_2 = Probability to go to school and to work
BP_3 = Probability not to go to school but to work
BP_4 = Probability neither to go to school nor to work

The probabilities for the four choices are determined as follows,

$$BP_1 = f(b_1X)$$
$$BP_2 = [1-f(b_1X)]\, f(b_2X)$$
$$BP_3 = [1-f(b_1X)]\,[1-f(b_2X)]\, f(b_3X)$$
$$BP_4 = [1-f(b_1X)]\,[1-f(b_2X)]\,[1-f(b_3X)]\, f(b_4X)$$

Where f represents the standard normal distribution function, and b_1, b_2, and b_3 are vectors of the model parameters. Four groups of explanatory variables (X_1–X_n) have been selected to distangle the determinants of children activities, i.e. child characteristics, head of household characteristics, parent characteristics, and household characteristics.

The second regression model is same, where activities of girls (GP_1, GP_2, GP_3, GP_4) is a function of same explanatory variables. The definitions of dependent and explanatory variables are presented in Table 1.

[4]Biggeri, *et al.* (2003) and Cigno, *et al.* (2002) have called them idle children. Cigno and Rosati (2002) categorised them as missing children and Chaudhari, *et al.* (1999) named them nowhere children.

Table 1

Definitions of Dependent and Explanatory Variables

Variables	Definition
Dependent Variables	
(For Boys)	
BP_1 (Boy goes to school only)	•1 if boys goes to school and not to work, 0 otherwise
BP_2 (Boy goes to school as well as to work)	•1 if boy goes to school and to work, 0 otherwise
BP_3 (Boy does not go to school but to Work)	•1if boy does not go to school but to work, 0 otherwise
BP_4 (Boy neither goes to school nor to work)	•1 if boy neither go to school nor to work, 0 otherwise
(For Girls)	
GP_1 (Girl goes to school only)	•1 if girl goes to school and not to work, 0 otherwise
GP_2 (Girl goes to school as well as to work)	•1 if girl goes to school and to work, 0 otherwise
GP_3 (Girl does not go to school but to Work)	•1if girl does not go to school but to work, 0 otherwise
GP_4 (Girl neither goes to school nor to work)	•1 if girl neither go to school nor to work, 0 otherwise
Independent Variables	
Child Characteristics	
BORD (Birth order of child)	•Birth order of child in his/her brothers and sisters
CAGE (Child's age)	•Child's age in completed years
CAGESQ (Child's age squared)	•Child's age squared
CEDU (Child's education)	•Child's education in completed years of education
Head-of-Household Characteristics	
HGEN (Head of household's gender)	•1 if head of the household is male, 0 otherwise
HEDU (Head of the household's education)	•Head of the household's completed years of education
HLIT (Head of household's literacy status)[5]	•1 if head of 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 Rs 000
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
FEMP (Father' employment)	•1 if father is employed, 0 otherwise
FY (Father's income)	•Father's income per month in Rs 000
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
MY (Mother's income)	•Mother's income per month in Rs 000
Household Characteristics	
ASST (Household's ownership of assets)	•1 if the household has ownership of assets, 0 otherwise
HHY (Household's income)	•Household's income per month in Rs 000
HHPCY (Per Capita Expenditure of Household)	•Household's per capita expenditure in Rs 00 per month
HPOVTY (Household poverty status)	•1 if household's per capita income per month is Rs 670 or below, 0 otherwise[6]
HHSIZ (Household family size)	•Number of household members
HHSSIZ (Household's small size)	•1 if the family size is small (5 or fewer members), 0 otherwise
NCHILD	•Number of children ages 15 or less than 15 years in the household
CHILD04	•Number of children ages 4 or less than 4 years in the household
CHILD515	•Number of children ages 5-15 years in the household
SIB16	•Number of siblings of children ages 16 or more than 16 years in the household
LOC (Locality of the household)	•1 if the household is urban, 0 otherwise

[5]Literacy status of the head of household, father and mother, is defined as the minimum of five years of formal schooling completed by the individual.

[6]Pakistan Planning Commission has adjusted Poverty Line for Pakistan at Rs 670 per capita per month [CRPRID (2002)]. Ray (2000) for his study has set poverty line at 50 percent of the Median non-child household income per adult equivalent of the sample.

3. RESULTS AND DISCUSSION

Though the objective of the study is to analyse the gender aspect of determinants of children activities by econometric model, but the qualitative results are also compiled. If the activities of children vary with the gender, it is possible that they have been differently affected by explanatory variables. The activities of boys and girls are shown in Table 2.

Table 2

Activities of Boys and Girls (5–15) Years

Activities	Boys	Girls	Overall
School-going Children	27.82	19.29	47.04
Children Combining School and Work	3.41	2.83	6.24
Child Labourers	9.29	3.43	12.72
No-School, No-Work/ Home-care Children	14.1	20.39	34.49

The gender bias in favour of boys is evident as 19.22 percent of girls are participating in school as compared to 27.82 percent of boys. The smallest proportion of the children, i.e. 6.24 percent is combining school and work and comparatively less proportion of girls is involved in this activity. As for as child labourers are concerned boys are more involved in this category as compared to girls. In the home-care activity more girls are engaged than boys.

Here we are going to summarise estimated gender differences in boys' and girls' time allocation among four ordered options. We have separately analysed the sample for boys and girls. The summary statistics and sequential probit results for boys are shown in Tables 3 and 4 while for girls they are expressed in Tables 4 and 5 (see Appendix A). The first stage results show the probability of going to school for boys and girls. The second stage estimation eliminates the school-going boys and girls from the sample. The probability to be determined for the remaining sample is that of combining school and work or part-time labour force participation of boys and girls separately. The third stage looks only at the boys and girls who are not in school and not combining school and work, but they work for wages or in household enterprises. So this stage estimates the probability of full-time labour force participation of boys and girls. Finally fourth stage estimation of model sees all the remaining boys and girls, that is boys and girls not going to school, not combining school with work, and not working but doing home-care. Some of the results of interest are discussed below.

3.1. Child Characteristics

There is extensive literature on differences in human capital investments based on gender discrimination. A number of studies [see for instance, Thomas (1994)] have shown that boys are favoured in the intra-household allocation of nutrients and they have better anthropometric outcomes. We have found in the first stage that the earlier-born boys (elder or low-birth order) in their brothers and sisters are more likely to go to school, and the later-born girls (younger or high birth-order) are more likely to attend school [see also, Emerson and Souza (2002) for Brazil]. The results explain that

households behave boys and girls differently in respect of their birth-order. The possible explanation for boys (the negative sign of birth-order (BORD) coefficient) may be that the first-enrolment of boys in schools is delayed. At the age of five, all the boys are not enrolled in schools, so the younger boys (high birth-order) have lesser probability to be in schools as compared to elder boys. As concerns the girls, positive sign of birth-order coefficient shows that younger girls in the household have higher probability to be in school as compared to elder girls. It seems that first-enrolment of girls is not delayed but the the fact is that there is higher drop-out rate of girls at higher grade of school. Furthermore the households have higher opportunity cost in sending elder girls to school instead of having them render household work and sibling-care [Hill and King (1993); Alderman, *et al.* (1996); Summers (1994)]. In the third stage, we have found that the earlier-born boys are more likely to work than later-born boys. This is consistent with the perception that elder boys are sent to the labour market because they command higher wages, and younger boys who cannot command high wages, are sent to school. This is true, apparently even though earlier-born children tend to have higher genetic endowments. For the girls, the earlier-borns are less likely to work as compared to latter-borns. The elder girls are not permitted to do paid work due to social norms like *purdah*, even though these girls may have higher wages. In the fourth stage results the earlier-born boys are less likely to do home-care while earlier-born girls are more likely to do this. It is corroborated by third stage results (for boys) where elder boys are more likely to go to labour market, and first and third stage results (for girls) where the elder girls are less likely to go to school and less likely to work. The result is consistent with the common practice in Pakistan where elder girls are kept out of school and expected to assist mothers with household chores and child-care.

The school participation of boys and girls (separately) is found positively associated with ages of boys and girls and it decreases at a decreasing rate by increase in ages. The boys are two-times more likely to go to school than girls by an incremental change in their age. It means the first-enrolment of girls is two-times delayed as compared to boys. The school participation is maximum at the age of 9.64 years for boys and 8.15 years for girls,[7] i.e. girls are dropped out of the school at an earlier age than boys. The possible explanation may be the imposition on movement of girls after reaching the age of puberty. In the second stage, part-time labour force participation of boys and girls is positively related to their ages and boys are more likely to do part-time work than girls by increase in their ages. In the third stage full-time labour force participation of boys and girls is also positively related to their ages. The increasing age has a greater impact on boys' labour force participation than on girls [see also, Ray (2000) for Pakistan]. This differential may be due to the fact that older girls in Pakistan are likely to spend time in unpaid domestic work, which we have not considered in child labour. The increasing-age affects the labour force participation of boys at an increasing rate but of girls at a decreasing rate though Ray (2000) has found a linear relationship between the boys' and girls' labour hours and their ages.

It is documented by a number of studies that as age increases there is lower probability for the boys to involve in household chores and higher probability for girls to

[7]The parameter estimate of CAGE (Child's age) for boys is 0.0897 and CAGESQ (Child's age squared) is –0.0046. For the girls the CAGE=0.0455 and CAGESQ= –0.0027.

do home-care signaling a "faminisation" of household chores and the inter-family specialisation of tasks [see Biggeri, *et al*. (2003)]. The forth stage results of our study have shown the same, that is an increase in age of the boys decreases the probability for them to do home-care at an increasing rate and an increase in the age of girls increases the probability to do home-care at an increasing rate.

The continuation of schooling is positively related to the current years of schooling of boys and girls but the relation is stronger for boys. It reflects a stark gender disparity in the continuation of schooling alternatively the girls are more likely to drop out from school than boys. The result is corroborated by the summary statistics, where average years of education of boys are 3.91 years and of girls and 3.04 years. In the second stage, the current years of education has again shown the similar effect for boys and girls on part-time labour force participation. An additional year of education enhances the probability of part-time work for both boys and girls but boys are more likely to join part-time work as compared to girls. By the assumption that an increase in schooling grade needs more financing and more children have to join part-time labour, the boys enjoy this advantage more than the girls. In the third stage, full-time labour force participation of boys and girls is negatively related to the current years of education. An incremental change in the completed years of education decreases the boy's full-time child labour double than girls. So from the policy perspective provision of schooling may decrease child labour more effectively for boys than girls. Alternatively there is less demand for girls' schooling in Pakistan. It concerns with old-age support for parents and marriage customs [see Rosenzweig and Schultz (1982); Kishore (1993)]. Constraints in demand for girls schooling may be a culturally unaccepted milieu of girls' schooling, including female teachers, appropriate sanitation facilities, and locational proximity [Hill and King (1993); Alderman, *et al*. (1996); Summers (1996)]. In the forth stage, current years of education negatively impacts the home-care activity of both boys and girls but the impact is stronger for boys. Precisely the results show that provision of schooling as an instrument to enhance school participation and decrease child labour and home-care would affect boys more effectively than girls.

3.2. Head-of-Household Characteristics

The parameters of head of the household are critical in determining the children activities. One group of households identified as vulnerable is the female-headed households, a category considered to be increasing in number and needing policy attention [Buvinic and Gupta (1993)]. However, the use of female-headed households as a marker for poverty and vulnerability has come under criticism [Varley (1996)]. Widows in this group are a particularly vulnerable group. Srinivasan and Dreze (1995) found that single widows as well as widow-headed households with unmarried children appear to have among the highest poverty incidence of all household types and are significantly poorer than counterpart male-headed households. Female-headed households are identified as indicators of family disintegration. Life is difficult for female-heads, not least because of prejudice, but social stigma. They have far more difficulty in maintaining their families because they have less access to market economy, when they do earn their wages as far lower. Folbre (1984) has called this the pauperisation of motherhood [see also, Woldfogel (1997)]. In the first stage, we have found that boys and girls (separately)

from the female-headed households are more likely to go to school. That is matriarchal households favour both boys and girls but they favour girls schooling slightly more than boys. The result is in fact surprising. The possible explanation may be that female-heads are good managers of households. They feel more insecure about their future and their children's future due to absence of male-heads so they stress more on schooling of their children (both male and female). The girl children from female-headed households are left vulnerable in marriage market again due to absence of male-head of household, so their mothers stress on their education to have a good spouse in future. Another possibility may be that female-heads can not inherit physical capital due to poverty so they desire for their children to have human capital in the form of education.

To see the impact of education of head of household on boys' and girls' activities, we have used two types of variables regarding education of head of household, i.e. continuous variable (number of completed years of education) and binary variables (whether the head of household is literate or illiterate). In the first stage, it is found that education of the head of household (as a continuous variable) enhances the prospects of the education of both boys and girls. It means that there exist complementarities between the education of head of household and both boy's and girls' (separately) schooling. In the third stage an incremental change in the education of head of household lowers the labour force participation of both boys and girls. The results further indicated an important notion that highly educated head of households are more prone for their girls' education and restrict girls' labour force participation more than boys. The phenomenon has an important policy perspective for elimination of gender differences in children activities, i.e. increase in adult education may increase girls' welfare more than boys. The literacy status of the head of household (as a binary variable) has also shown positive impact on boys' and girls' schooling but literate heads of households favour boys' schooling more as compared to girls. It means to make the adults literate (having at least five years of education) only is not enough to favour the girls schooling and ultimately to eliminate gender discrimination in child schooling but more years of education are required for adults for the purpose.[8] The literacy status of the head of household negatively affects the part-time and full-time labour force participation and home-care activity of boys, and full-time labour force participation and home-care of girls.

The employment status and income level of the head of household both impact schooling of boys and girls positively but the impact of both is stronger for boys. The results again show the lower demand for girls' schooling. In the third stage full-time labour of both boys and girls is negatively related to the income of the head of household and girls' labour is strongly related to it.

3.3. Parent Characteristics

The decision of children activities is fundamentally determined by the parent characteristics and their bargaining power within the household. Generally there exists a differential effect of mother's schooling and father's schooling on the acquisition of their children schooling. Why does parent's schooling matter in determining children' schooling? Parental schooling may be a proxy for a host of unobservable determinants,

[8]Summers (1994) has found similar results for the effect of primary education on fertility rates, i.e., achievements beyond primary education have larger influence on fertility rates than primary education alone.

such as parental preferences for education and assistance given by parents in school work. If parent's education matters, it is natural to ask which parent's education matters more. The conventional wisdom is that the mother's education is more important than the father's education in children' attainment, including schooling [see for arguments, Maitra (2003) for Bangladesh]. Why is mother's schooling more important than father's? One explanation rests on with the economists time allocation model. Time spent in child-care and time spent in labour market both contribute to high quality children. It raises the question of the role of non-market versus market inputs in children' educational attainments. If we assume that non-market inputs are more important, then the parent who engages in relatively greater non-market activity should exert a greater influence on children's schooling. Alternatively, if the contribution through market work is more important in determining children' education than the input through non-market, the spouse who is relatively more engaged in market activity should have the greater influence.[9]

The implication of the argument is that, for example, the mother spends relatively more time than father at home versus in the labour market, either her influence is expected to be greater or lower. We might expect variations in this influence across gender, (i) which face different relative prices of market versus non-market activity, and (ii) have differing elasticities of child rearing activity with respect to labour force activity. These two elements might lead us to expect a different effect of mother's versus father's schooling and employment on children' schooling by gender.

Behrman (1988) has argued that parents are generally averse to inequality among children, while there are evidences of "son preferences" among resource constraint parents [see for instance, Kishore (1993); Kingdon (2002)]. It is however difficult to have a direct measure of parental preferences and thus most existing evidences in this respect is of indirect nature. For instance, Kingdon (2002) used a variable relating to parental opinion about gender equality in education and finds that girls whose parents believed in gender equality attained significantly more education than other girls. Parental preferences may not always be aligned, for example, mother may have more empathy for daughters [see, Rosenweig and Evenson (1977) for rural India] and fathers for sons. Lillard and Willis (1994) found that in Malaysia the mother's education has a far larger effect on the daughter's education (than on sons) and the father's education seems to have greater impact on sons. Arguing that each parent's education may be taken as indicator of his/her individual preference, Kamphampati and Pal (2001) suggested that higher women's literacy encourages female education.

The first stage results of our study have shown that parent's education (separately of fathers and mothers) positively impacts (as a continuous variable) the boys and girls' schooling [see also, Ray (2000) for Pakistan; Kamphampati and Pal (2001) for India], but the impact of both father's and mother's education on boy's schooling is stronger than girls. The question arises, why do parents' education favours boys' schooling? A possible explanation is that the returns from education of boys are generally higher than for girls, and parents who care about the human capital of all children, direct human resources to the children with the highest marginal returns. Alternatively, it may be that the

[9]In the context of Pakistani and South Asian male-dominated societies, the argument is hard to prove as father's word has more weight than mother's despite her contribution to work.

opportunity cost of schooling is higher for girls than for boys due to the norm that household activities are normally performed by girls. Finally, it could be that in many families it is the role of male children to take care of the parents when they are old. In the situation both parents may prefer to ensure that their sons have higher human capital as compared to their daughters, whose human capital returns may soon be shifted to another family through marriage. What is interesting to note here is that in the case of the boys, father' years of education has a higher effect on school participation as compared to mother's year of education. On the other hand, for girls, mother' year of education has a larger effect on school participation as compared to father's years of education. Thus, the effect of parent educational level on school attendance of children is stronger for a given sex than cross-sexes.

The parent education as a binary variable, i.e., literacy status of the parents (whether the parents—separately, father and mother—are literate or illiterate), has shown a positive impact on both boys' and girls' school participation. The boys with literate fathers and mothers are 18 and 15 percent more likely to go to school respectively. The girls with literate fathers and mothers are 13 and 16 percent more likely to go to school. It is evident from the figures that literate parents are more particular about the education of children of their sex. It suggests, that, within the household father's literacy could lead to an advantage to boy's schooling and mother's literacy could lead to an advantage to the girl's schooling. It explains that educated women are better able to understand the ramifications of being educated. The result matches with a number of studies [see for instance, Thomas (1994) for child health], which shows that there exist intra-household gender bias in the allocation of resources with the mother favouring girls and the fathers favouring boys. In the policy context, female adult education may be devised to eliminate gender discrimination in child schooling.

In the third stage results, parent's education (as a continuous variable) have shown negative impact on child labour of boys and girls, however father's education has shown a greater impact on labour decision of boys than girls. On the other hand, mother's education has shown greater impact on the work decision of the girl than boy [see also, Emerson and Portela (2001) for Brazil]. Similarly, parents' education (as a binary variable) has also shown negative impact on both boys' and girls' full-time labour force participation. The boys from literate father have more probability not to work as compared to girls. From literate mothers the boys are more probable not to work as compared to girls.

In the parent characteristics, the first stage results have further shown that employment status of father and mother has a positive impact on boy's and girl's schooling, i.e. boys and girls separately from the employed parents (fathers and mothers separately) are more likely to go to school. The father's employment supports boy's schooling more than girl's schooling. The boy's schooling as well is more supported by mother's employment as compared to girl's schooling.[10] It is evident that employment impact of father and mother is stronger for boys as compared to girls. The mother's employment impact on girl's education is weaker as compared to boy's schooling. The

[10]It contradicts the general finding that mother's access to income-generating opportunities has a significant positive effect on the well-being of children, particularly female ones, indicating that parents' relative bargaining positions affect children's gender equity [Thomas (1990); Haddad and Haddinot (1995)].

possible explanation may be that, although the employment status of the mothers positively impact the girl's schooling, but the impact is partially weakened by the fact that when mothers work outside the household, daughters (especially elder daughters) are often expected to stay at home to look after younger siblings and do household chores. The third stage results of mother's employment supports this notion, as the girls from employed mothers are more likely to work [see also, Ray (2000) for Pakistan] though the result for mother's employment on boys' employment is insignificant.

There are empirical evidences in the literature showing different effects of mother's and father's resources on child activities. Thomas (1997) concluded that the share of the household budget spent on investments associated with human capital accumulation (health, education, and household services) increases when both a mother's and father's income increases, but the increase is well over four-times greater for a mother. Similarly, the share of the budget spent on leisure (as aggregate of recreation and ceremonial expenditures for birth-days, weddings, etc.) increases over three-times as much as when a mother's income increase relative to the income of father. Thomas (1997) further examined the differences in the effects of parental income on siblings. The results have shown that an increase in mother's income improved height-for-age and weight-for-height of both sons and daughters, but the effect on daughters was much greater. An increase in a father's income has a much smaller effect on the health measures for both sons and daughters but the effect was large for sons. In our study the income level of father has shown negative impact on both boys and girls' full-time labour force participation. Girls have more advantage of not going out for work by increase in their father's income as compared to the boys. On the other hand income level of mother has shown negative impact on both boys' and girls' part-time labour force participation. Here girls have more than two times advantage of not combining school with work by increase in their mother's income as compared to boys.

3.4. Household Characteristics

Household characteristics are important to analyse the gender aspect of the children activities. There prevail some complex interrelation between household resource constraint and parental preferences in intra-household allocation of resources. Quisumbing (1993) argued that families with different land constraints have significantly different pattern of schooling investments resulting in inequality among siblings. There exists credit constraints in the case of human capital investments. For a number of reasons (i.e. human capital does not have collateral value; lenders cannot coerce repayment on educational investments; returns to human capital are too risky, and parents cannot insure that their children will repay schooling investment) investments in human capital are likely to be credit constrained, particularly for poor households. On the other hand, for assets-rich household, the credit constraint for human capital investment is substituted by credit on assets. Generally children are engaged in household enterprise activities [Rosati and Rossi (2001)], whether it be a farm, a home-based manufacturing operation, or a retail enterprise. These productive assets would have mixed impacts on child labour. On the one hand, they may raise a child's opportunity cost of time in school because the child is productive in labour activities. On the other hand, adults in the household are also more productive, so the household can better afford allocating child

time to schooling activities. This explains why some studies have found that measures of farm capital stock lower child labour [Levy (1985)] while others find the opposite [Rosenzweig and Evenson (1977); Cockburn (2000)]. Bhalotra and Heady's (2003) results challenge the common presumption that child labour emerges from the poorest households. They found that girls (from rural Pakistan and Ghana) of land-rich households are more likely to be in work than girls of land-poor households. The first stage results of our study have shown that ownership of assets by the household has positive impact on the schooling of both boys and girls. The positive sign of coefficient for boys and girls schooling is due to the economic status of households due to ownership of assets. Furthermore, the girls from households having assets are more likely to go to school as compared to boys. It means the households with assets are more inclined towards girls schooling. The lower effect of assets of the household on boy's schooling as compared to girls is due to the positive impact of assets on boy's activities of combining school and work and negative impact of assets on girl's activity of combining school and work. The positive impact of ownership of assets on boys' part-time work may be explained as, more the assets a household has, the more is the probability for the boys to continue school and work against the girls because girls are more involved to household chores.

The negative impact of ownership of assets on girls' part-time work may be due to the fact that girls are more involved in household chores instead of household enterprises where they spend their part-time. As concerns the full-time work, boys and girls from households with ownership of assets are less likely to work and girls in such households are many times less likely to work as compared to boys. The home-care activity of both boys and girls is negatively related to the ownership of assets by the household. The girls are many times less likely to do home-care as compare to boys in such households.

Becker and Lewis (1965) argued that investment in the quality of children increases at higher levels of household income. There is also some evidence that the gender gap closes at higher levels of income, especially if households are resource constraint [Quisumbing (1993)]. We have found that household income and household per capita income raise the school participation and lower the labour force participation of both boys and girls. The increase in household income and household per capita income favours girls more than boys, i.e. girls are more likely to go to school and less likely to work as compared to boys by increase in household income and household per capita income. Household per capita income decreases the home-care activity of both boys and girls but boys get advantage over girls as they are less likely to do home-care as compared to boys. The results make it clear that gender disparities in children welfare are not only due to discriminatory attitude of the household but their inability to arrange the equity of their children' welfare.

Similarly the household poverty impacts the schooling of the boys and girls negatively [see also, Arif, *et al.* (1999)] and labour force participation positively. The poverty status of the household impacts the girls' schooling and full-time labour force participation more strongly. When a household falls into poverty (also for the decrease in household's income and household per capita income), the girls are more likely to drop out schooling and join labour force as compared to boys. It explains the inability of poor parents to pay for girls as much in school fees and materials [Hill and King (1993); Khan (1993)]. This confirms the earlier observations [see for instance, Basu (1999)], that South

Asian children, especially girls from poor households, drop out their schooling to enter the labour markets. It indicates that eradicating poverty can do a lot in reducing the gap between welfare of boys and girls. The girls also fare worse due to seclusion ethic, widely prevalent in poor communities of South Asia. From a long-term perspective, policies have to aggressively erode the pillars that support seclusion norms along with financial support to poor households. The lack of good and accessible schools in Pakistan, along with the consequent discount that parents place on the value of their children's education may also explain their behaviour [Ray (2000)].

Conceptually holding household wealth or parental human capital constant, larger households would have fewer resources per capita. Thus we might anticipate household size to be an alternative measure of poverty and it may affect the activities of boys and girls differently. This is not quite accurate, however. More adults per household would raise the earning potential of the household. The demographic information on number of adults and children in the household would be important for children activities. Similarly, school-age children may benefit from the presence of working-age siblings in the poor households. Nevertheless, it may be important to know such type of effect, but whether the child is boy or girl. We have included two types of explanatory variables regarding household size in the model to analyse the impact of household size on boys' and girls' activities. They are, (i) continuous variables, i.e. number of household members, and (ii) binary variable, i.e. whether the household size is small (having maximum of 5 members) or large. The family size has emerged as an important determinant of boys' and girls' activities. An incremental change in family size decreases the schooling probability for boys by 3.6 percent and for girls by 9.9 percent. The impact is stronger for girls than boys, that is, as the household size increases the girls are dropped out schooling earlier than boys. Similarly, if the family size is small (having maximum of 5 members) the girls are 14 percent more likely to go to school, though the result of this variable is insignificant for boys. On the other hand, the family size (as a continuous variable) impacts the labour force participation of boys and girls positively. The girls are three times more likely to join labour force as compared to boys by an incremental change in family size. It is corroborated by the first stage results. As concerns the home-care activity, the household size (as a binary variable) affects the boys and girls differently. The boys from the smaller households are more likely to do home-care while girls are less likely to do this.

The household composition affects the activities of boys and girls differently. Garg and Morduch (1998) suggested that children (irrespective of their gender) are better off on measured health indicators if they have sisters and no brothers. Dasgupta (1987) found that girls with older sisters suffer most. We have found that household composition exerts an impact on boys' and girls' activities. The impact is through the number of children in the household, their age, and composition. The number of children (up to the age of 15 years) in the household has shown a negative effect on schooling an positive effect on labour force participation of school-age boys and girls [Rosati and Rossi (2001) for Pakistan have found such type of results for schooling of girls only]. The effect is stronger for girls than boys. That is, larger the number of children in the household, it is more likely for girls than boys not to go to school but to labour market. Further, for the girls the number of children in the household have sequential effect, that is more the number of children in the household they are less likely to school, less likely to combine

school with work, more likely to work and also more likely to do home-care. As a policy proposal the fertility and population control policies in the country may contribute to the welfare of children generally and girls specifically. Similarly, the presence of school-age children in the household decreases the boys' and girls' probability for schooling and increases the probability of labour force participation. The girls face more disadvantage, as girls are less likely to go to school and less likely to work as compared to boys.

It is estimated that the presence of prime-age siblings (16 years or above) in the household positively impacts the schooling probability of both boys and girls. But it supports the boys' schooling more than girls. Such siblings decrease full-time work only for girls. So the presence of prime-age siblings in the household enhances girls welfare more than boys.

Locality of the household matters for both boys and girls activities. We have estimated that in the urban households, both the boys and girls are more likely to go to school than in rural households [see also, Ray (2000) for Pakistan]. The possible explanation may be the better availability of schooling facilities in urban areas as compared to rural areas and urban households have more paying capacity for their children as compared to rural ones. We are concerned with gender aspect of their effect, so boys from urban households are 8.6 percent more likely to go to school as compared to their rural counterparts. The girls from urban households are 18 percent more likely to go to school than their rural counterparts. It shows that rural-urban disparity is higher for girls' schooling than boys. Hazarika (2001) found that distance from primary school is a significant determinant of female primary school enrolment in rural Pakistan [see also, Alderman, *et al.* (1996)]. This has the policy implication that improving access to primary schools will reduce the present gender imbalance in school participation. The locality of the household affects full-time work of boys and girls differently. Being un urban household the household has shown negative impact on labour force participation of boys and girls. The boys from urban households are less likely to do work as compared to girls. In the forth stage, the rural boys and girls are more likely to do home-care than urban boys and girls, but the likelihood is much higher for girls. For the policy matter provision urban utilities may enhance children welfare and may provide more benefits to girls as compared to boys.

4. CONCLUSION

The model and estimation we presented above allows us to analyse the gender differences of children activities. To test how differently various parameters affect the activities of boys and girls, we estimated our model for boys and girls. The conclusion of the study is summarised as below.

- The first-enrolment of both boys and girls is delayed but girls' first enrolment is more delayed than boys. The provision of pre-schooling facilities may induce the first-enrolment earlier for both boys and girls.
- For the boys, after 9.64 years of age, increasing age lowers school participation and raises labour force participation but for girls after 8.15 years, increase in age lowers school participation and raises labour force participation (home-care also increases for girls by increasing-age). The compensation of opportunity cost of

schooling may reduce the school drop-out and child labour. But more compensation is required for girls.

- Girls are likely to drop out of the school earlier than boys, i.e. there exists a stark gender disparity in continuation of schooling. Provision of girls' schools may increase the continuation of girl's schooling. But generally provision of schooling facilities will reduce boys' child labour more than girls. So incentives for demand for girls' schooling are required.
- Education of head of household (as a continuous variable) enhances the prospects of education and lower labour force participation of both boys and girls but the variable supports the girl's welfare slightly more than boys. On the other hand literacy status (at least five years of education) of head of household (as a binary variable—whether the head of household has completed at least five years of education or not) supports the boys schooling more than girls. So only five years of adult education can not eliminate gender disparity in children education. More than five years of adult education on average is proposed for elimination of gender disparity in children education. It needs hectic adult literacy programs.
- The father's education negatively affects the boys' labour force participation stronger than girls and mother's education affects the girls stronger than boys. The adult education may increase children' welfare but specifically mother's education may decrease the gender disparity.
- The employment of father and mother supports the schooling of both boys and girls separately but father as well as mother's employment supports boys' schooling more than girls'.
- The girls are more likely to go to school than boys in the households having assets and they are many times less likely to work full-time than boys. The provision of collateral loaning to asset-less households may increase the children welfare and decrease the gender disparity in child welfare.
- The increase in household income and household per capita income come out to support the girls in school participation and lower the labour force participation, more as compared to boys. Income subsidies targeted at poorer families whose children are unlikely to attend school in the absence of policy interventions may be effective.
- Poverty status of the household discourages the schooling of both boys and girls but girls' schooling is severely affected by sliding of household into poverty. On the other hand poverty pushes the girls into full-time labour force early than boys. The provision of subsidised schools can do a lot to reduce child labour and gender disparity among children by breaking the link between poverty and child labour.
- Household size (number of household members) impacts the schooling of boys and girls negatively and full-time labour force participation positively, and girls are affected more than boys. Similarly presence of school-age children in the household decreases the boys and girls probability for schooling and girls are at more disadvantage. The fertility and population control may decrease gender disparity in children welfare.

- The presence of prime-age siblings in the household has shown positive impact on the schooling probability of both boys and girls, but it supports the boys' schooling more than girls
- Urban boys and girls are more likely to go to school than rural boys and girls but rural urban disparity is higher in girls' schooling. On the other hand rural boys and girls are more likely to do home-care than urban ones and likelihood is much higher for girls. The provision of basic utilities in rural areas may be used to enhance children welfare specifically of girls.

Appendix A

Table 3

Summary Statistics (Mean and Standard Deviation) for Boys (5–15 Years)

Variable	Boys going to school only	Boys going to school as well as work	Boys not going to school but work	Boys neither going to school nor work
		1. Child Characteristics		
BORD	2.08527	2.1051	2.4954	2.9675
	(1.0310)	(1.6824)	(1.5466)	(1.2141)
CAGE	9.1938	13.1255	10.9947	8.9725
	(2.7812)	(2.8841)	(2.1189)	(3.4895)
CAGESQ	92.2015	178.61	111.6567	75.9425
	(52.4562)	(57.0445)	(58.9625)	(67.4851)
CEDU	3.9105	6.3917	1.0572	0.6224
	(2.5788)	(2.4431)	(1.7624)	(1.3442)
		2. Head-of-Household Characteristics		
HGEN	0.9794	0.9246	0.9216	0.9729
	(0.0734)	(0.0446)	(0.0761)	(0.0746)
HEDU	6.9302	4.1343	1.8223	0.9843
	(6.1226)	(3.6144)	(1.4636)	(2.8163)
HLIT	0.3675	0.2247	0.0864	0.0711
	(0.5914)	(0.3964)	(0.6831)	(0.4126)
HEMP	0.9147	0.7926	0.6732	0.8024
	(0.2803)	(0.7621)	(0.2887)	(0.4265)
HY	4031.39	3260.65	1221.84	1926.25
	(7617.87)	(1734.92)	(824.62)	(1363.11)
		3. Parent Characteristics		
FEDU	4.9147	2.7243	0.8559	0.7266
	(6.1416)	(3.6197)	(2.6145)	(2.4619)
FLIT	0.6176	0.2171	0.1425	0.1266
	(0.5730)	(0.8698)	(0.6508)	(0.4691)
FEMP	0.9147	0.9337	0.7464	0.9253
	(0.2803)	(3.9862)	(1.8808)	(2.5619)
FY	5996.51	1861.74	1345.49	1862.03
	(7623.19)	(1245.34)	(653.94)	(845.27)
MEDU	3.4573	2.0134	0.4524	0.1956
	(6.6930)	(2.4919)	(0.8162)	(0.7345)
MLIT	0.2224	0.0639	0.0282	0.0806
	(0.6224)	(0.6522)	(0.2391)	(0.2265)
MEMP	0.1023	0.1727	0.1831	0.1210
	(0.2557)	(0.4610)	(0.6149)	(0.5721)
MY	1974.03	676.27	821.37	886.53
	(3015.41)	(876.38)	(724.62)	(773.52)
		4. Household Characteristics		
ASST	0.8759	0.8503	0.6275	0.5981
	(0.3309)	(0.4173)	(0.4761)	(0.6328)
HHY	9877.63	3772.37	2085.41	2196.70
	(4361.67)	(2843.51)	(1296.69)	(1764.82)
HHPCY	1720.62	888.67	417.92	345.45
	(2088.29)	(461.53)	(210.65)	(280.67)
HPOVTY	0.4092	0.7419	0.8725	0.6706
	(0.5284)	(0.4742)	(0.6193)	(0.5416)
HHSIZ	6.4031	7.3268	7.5496	7.4605
	(1.7832)	(1.6731)	(1.8857)	(2.3352)
HHSSIZ	0.3720	0.1447	0.3193	0.2353
	(0.4852)	(1.5671)	(0.5122)	(0.4592)
NCHILD	3.4263	3.6597	4.9408	4.7215
	(1.3737)	(1.7801)	(1.9430)	(1.8473)
CHILD04	0.4418	0.3813	0.5073	0.7452
	(0.6835)	(0.5283)	(0.6139)	(0.7174)
CHILD515	3.0166	3.2371	2.4542	2.8831
	(1.1792)	(1.4043)	(1.5763)	(0.7293)
SIB16	0.9491	1.2437	1.0226	0.7864
	(0.8941)	(1.4253)	(1.3741)	(1.6401)
LOC	0.7241	0.5173	0.6964	0.2937
	(0.6754)	(0.6361)	(0.5287)	(0.5103)
Sample Size	3911	484	1318	1946

Total sample size is 7659.

Note: The figures in normal font are Mean and figures in parenthesis are Standard Deviation.

Table 4

Sequential Probit Results for Boys (5–15 Years)

Variable	First Stage: P_1= probability that the boy goes to school only	Second Stage: P_2= probability that the boy goes to school as well as work	Third Stage: P_3= probability that the boy does not go to school but work	Fourth Stage: P_4= probability that the boy neither go to school nor work
Constant	–1.8696	0.1165	–0.4902	0.8617
	–10.2345	1.5323	–4.2063	14.3570
	(–3.03290)	(0.3027)	(–1.2973)	(2.2515)
		1. Child Characteristics		
BORD	**–0.0016**	**0.0095**	**–0.0085**	**0.0466**
	–0.9141	0.1249	–1.2983	0.7771
	(–1.4671)*	(0.4130)	(–1.2881)*	(1.6096)*
CAGE	**0.2409**	**0.0244**	**0.0953**	**–0.0943**
	1.3519	0.3213	0.7120	–1.5725
	(4.03975)**	(1.5638)*	(1.7937)**	(–2.3127)**
CAGESQ	**–0.1121**	**0.0010**	**0.0016**	**0.0031**
	–0.846	0.0144	0.4502	0.0525
	(–4.6908)**	(0.5631)	(1.6800)**	(1.4135)*
CEDU	**0.2869**	**0.0376**	**–0.0517**	**–0.0839**
	0.1569	0.4956	–0.3892	–1.3981
	(1.9046)**	(4.1090)**	(–4.1704)**	(–2.7808)*
		2. Head-of-Household Characteristics		
HGEN	**–0.1537**	**0.0267**	**0.0465**	**–0.0219**
	–1.2095	1.7382	1.1156	–1.7762
	(–2.4873)**	(0.4351)	(1.2869)*	(–1.6851)**
HEDU	0.1699	**–0.3088**	**–0.272**	**–0.2768**
	6.4017	–4.0610	–3.2561	–4.6130
	(1.5253)*	(–0.3408)	(–1.3669)*	(–0.4174)
HLIT	**0.2486**	**–0.6829**	**–0.1325**	**–0.0944**
	1.5289	1.3239	–1.0552	–1.0395
	(1.3245)*	(–2.3343)**	(–2.2756)**	(–1.8732)**
HEMP	**0.1121**	**0.0064**	**–0.0080**	**0.1351**
	0.6139	0.1657	–0.6021	2.2508
	(2.1083)*	(0.0268)	(–0.1205)	(1.9199)**
HY	**0.0193**	**–0.0003**	**0.0014**	**–0.004**
	0.1740	–0.4240	0.4779	–0.7616
	(1.6640)**	(–0.3496)	(1.6020)*	(–1.7081)**
		3. Parent Characteristics		
FEDU	**0.0737**	**0.2992**	**–0.2193**	**0.2719**
	6.3159	3.9337	–4.1927	4.5306
	(1.5182)*	(0.3301)	(–1.3602)*	(0.4100)
FLIT	**0.1832**	**–0.8421**	**–0.1934**	**–0.0138**
	1.1283	0.6347	–1.4127	–0.3295
	(2.2465)**	(–0.4327)	(–1.9325)**	(–0.6047)
FEMP	**0.0627**	**–0.0201**	**0.0128**	**0.0668**
	0.1535	–0.3047	0.5227	0.3428
	(2.3415)**	(–1.3961)*	(0.0016)	(0.0155)
FY	**–8.5949**	**0.0003**	**–0.0007**	**0.0004**
	–0.4705	0.4208	–1.6630	0.7972
	(–0.1661)	(0.3918)	(–1.9960)**	(1.7347)**
MEDU	**0.0477**	**–0.0098**	**–0.0291**	**0.0191**
	0.1517	–1.3812	–1.6873	0.3191
	(1.9874)**	(–2.1698)**	(–2.2169)**	(1.3265)*

Continued—

Table 4—(*Continued*)

MLIT	**0.1534**	**0.9762**	**–0.2680**	**0.8721**
	1.1147	0.3756	–1.7022	0.6726
	(1.7628)**	(0.8432)	(–1.6745)**	(0.0065)
MEMP	**0.0815**	**–0.0201**	**0.0500**	**0.0228**
	0.4462	–0.2655	1.6685	0.3806
	(1.9296)**	(–1.1961)	(0.7152)	(0.3751)
MY	**0.0001**	**–0.0007**	**2.5482**	**0.0001**
	0.6371	–0.1026	0.5109	0.3126
	(0.2846)	(–2.3177)**	(0.0908)	(0.4204)
		4. Household Characteristics		
ASST	**0.0631**	**0.0987**	**–0.0180**	**–0.0537**
	0.3459	1.2982	–1.2406	–0.8953
	(1.6273)*	(1.6425)*	(–1.4033)*	(–1.2952)*
HHY	**0.0971**	**–0.1435**	**–0.1137**	**0.2198**
	1.4318	–1.3174	–1.4903	0.9732
	(2.7496)**	(–1.3829)*	(–2.9372)**	(0.9216)
HHPCY	**0.0008**	**0.0006**	**–0.0003**	**–0.0004**
	0.4674	0.9174	–0.1104	–0.6880
	(1.8214)**	(1.0656)	(–1.4052)*	(–2.0683)**
HPOVTY	**–0.0916**	**–0.1993**	**0.0931**	**0.0021**
	–1.0628	–0.6928	1.3062	0.2774
	(–1.7539)**	(–1.9058)**	(1.6347)*	(0.0675)
HHSIZ	**–0.0362**	**–0.0545**	**0.0159**	**0.0205**
	0.1986	–0.7169	0.2486	0.3417
	(–1.8126)**	(–1.7884)**	(1.4146)*	(0.7543)
HHSSIZ	**0.0405**	**–0.1270**	**0.0116**	**0.1857**
	0.2219	–1.6701	0.4851	3.0953
	(0.4958)	(–2.0137)**	(0.2056)	(2.7137)**
NCHILD	**–0.0552**	**–0.0267**	**0.01877**	**0.0328**
	–0.3021	–0.3520	0.1754	0.5476
	(–1.6181)*	(–0.5473)	(1.6287)*	(1.2620)
CHILD04	**–0.0694**	**0.0563**	**–0.0468**	**–0.1300**
	–0.3799	0.7404	1.0961	–2.1658
	(–1.9733)**	(0.9732)	(–0.9168)	(–0.1635)
CHILD515	**–0.0618**	**0.1823**	**0.0764**	**0.1826**
	–0.5289	0.5931	1.5492	0.6812
	(–1.6339)*	(1.0072)	(1.3595)*	(0.6738)
SIB16	**0.1854**	**–0.1575**	**–0.6734**	**–0.9731**
	1.2536	–0.0793	–0.9267	–0.9070
	(2.6391)**	(–0.9347)	(–0.9545)	(–1.0310)
LOC	**0.0863**	**0.2431**	**–0.1248**	**0.0395**
	1.2564	0.7192	–1.4785	1.9294
	(1.5342)*	(0.6371)	(–1.8436)**	(3.4128)**
Log of Likelihood Function	–3274.4871	–335.2305	–941.94	–1224.5858
Number of Observation	3911	484	1318	1946
Percent Correct Prediction	0.8296	0.9360	0.9257	0.9475

Note: The figures in normal font are parameter estimates, bold figures are probability derivative, and figures in parenthesis are *t*-statistics.

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

Table 5

Summary Statistics (Mean and Standard Deviation) for Girls (5–15 Years)

Variable	Girls going to school only	Girls going to school as well as work	Girls not going to school but work	Girls neither going to school nor work
		1. Child Characteristics		
BORD	2.4770	2.9152	2.8296	1.9862
	(1.3023)	(1.8393)	(1.6562)	(1.9472)
CAGE	8.9082	10.5162	9.9081	9.3789
	(2.5910)	(2.5286)	(2.4845)	(2.9412)
CAGESQ	86.0091	125.7561	94.1986	93.6354
	(50.7757)	(45.7321)	(52.3062)	(54.1281)
CEDU	3.0412	5.9571	0.9780	0.4312
	(2.569)	(3.1576)	(1.0189)	(1.2694)
		2. Head-of-Household Characteristics		
HGEN	0.9808	0.9383	0.9495	0.9673
	(0.0957)	(0.1328)	(0.0950)	(0.0694)
HEDU	8.6146	2.3523	0.9472	1.0331
	(6.2448)	(2.9462)	(1.7895)	(0.6276)
HLIT	0.5293	0.0931	0.1167	0.1483
	(0.7382)	(0.4113)	(0.3094)	(0.5837)
HEMP	0.9541	0.6825	0.5294	0.7328
	(0.2101)	(0.3416)	(0.2253)	(0.4763)
HY	5646.78	1937.87	958.98	1435.97
	(11250.46)	(1034.42)	(894.69)	(924.41)
		3. Parent Characteristics		
FEDU	7.5963	1.9457	0.4182	0.8394
	(6.2688)	(4.8730)	(3.9629)	(2.7143)
FLIT	0.6937	0.19627	0.1275	0.1735
	(0.6547)	(0.7428)	(0.5428)	(0.5286)
FEMP	0.9541	0.9447	0.7834	0.9465
	(0.2101)	(2.9973)	(1.9851)	(2.7630)
FY	7851.37	1386.83	987.63	2054.87
	(11247.82)	(983.65)	(586.27)	(964.72)
MEDU	4.4954	1.9753	0.2749	0.1385
	(6.6647)	(3.9872)	(0.7849)	(0.7494)
MLIT	0.5276	0.1964	0.1187	0.1598
	(0.7548)	(0.5368)	(0.2865)	(0.2176)
MEMP	0.1649	0.1354	0.1975	0.1674
	(0.2291)	(0.5287)	(0.5934)	(0.5732)
MY	3127.06	372.85	543.87	482.86
	(5421.18)	(275.94)	(437.63)	(54.87)
		4. Household Characteristics		
ASST	0.8715	0.7553	0.5974	0.5287
	(0.3361)	(0.5387)	(0.3964)	(0.6539)
HHY	10684	2965.73	1684.87	1975.76
	(4872.87)	(1853.87)	(976.54)	(1165.76)
HHPCY	2114.61	653.65	376.65	432.86
	(3601.27)	(376.84)	(187.56)	(254.87)
HPOVTY	0.3386	0.8954	0.8156	0.7587
	(0.4854)	(0.5386)	(0.7436)	(0.6528)
HHSIZ	6.8807	7.9854	7.6743	7.8723
	(1.7623)	(1.9637)	(1.5479)	(1.9754)
HHSSIZ	0.3119	0.1865	0.1674	0.2476
	(0.4654)	(1.6385)	(0.5472)	(0.4376)
NCHILD	3.9541	3.7432	4.9659	4.6843
	(1.4362)	(1.6743)	(1.4765)	(1.8458)
CHILD04	0.4311	0.3965	0.4964	0.7356
	(0.6578)	(0.6423)	(0.1486)	(0.6587)
CHILD515	3.5504	2.7648	2.2374	2.3418
	(3.5504)	(1.5376)	(1.4765)	(0.1174)
SIB16	0.8654	1.0324	1.8643	0.7535
	(0.9876)	(1.2310)	(1.3876)	(1.2654)
LOC	0.7532	0.4976	0.5863	0.1875
	(0.6423)	(0.6321)	(0.5327)	(0.7424)
Sample size	2655	461	498	2926

Total sample size is 6540.

Note: The figures in normal font are Mean and figures in parenthesis are Standard Deviation.

Table 6

Sequential Probit Results for Girls (5–15 Years)

Variable	First Stage: P_1= probability that the girls goes to school only	Second Stage: P_2= probability that the girls goes to school as well as work	Third Stage: P_3= probability that the girls does not go to school but work	Fourth Stage: P_4= probability that the girls neither go to school nor work
Constant	–0.7515	–0.0625	–0.1679	–0.0417
	–5.8396	–3.4500	–1.7282	–1.3422
	(–1.4503)	(–1.1056)	(–0.2198)	(–0.8294)
		1. Child Characteristics		
BORD	**0.0019**	**–0.0002**	**0.0312**	**–0.0877**
	0.1492	–0.1615	0.7135	–0.7194
	(1.3580)*	(–0.0803)	(1.8315)**	(–2.2828)**
CAGE	**0.1207**	**0.0137**	**0.0508**	**–0.1049**
	0.9383	0.7554	1.3463	–0.8605
	(2.0494)**	(1.4555)*	(2.3072)**	(–2.0375)**
CAGESQ	**–0.0674**	**–0.0063**	**–0.0052**	**0.0073**
	–0.8462	–0.3484	–0.5409	0.0603
	(–3.2719)**	(–1.5063)*	(–1.9869)**	(2.8395)**
CEDU	**0.0803**	**0.0037**	**–0.0264**	**–0.0548**
	0.6243	0.2076	–0.7296	–0.4498
	(3.5587)**	(2.6293)**	(–0.1857)	(–2.9004)**
		2. Head-of-Household Characteristics		
HGEN	**–0.1824**	**–0.0021**	**0.0019**	**–0.0004**
	–0.5128	–0.7605	1.0256	–1.4421
	(–1.9735)**	(–0.0011)	(1.1439)	(–0.0012)
HEDU	**0.1842**	**0.0001**	**–0.1636**	**–0.2334**
	5.6279	0.2250	–1.6813	–1.9142
	(1.4683)*	(0.0747)	(–1.1383)*	(–0.1707)
HLIT	**0.2175**	**–0.4623**	**–0.1583**	**–0.0432**
	1.2306	–0.3784	–0.2583	2.5892
	(1.2963)*	(–0.3641)	(–1.5673)*	(–1.4807)*
HEMP	**0.0482**	**0.0246**	**–0.3451**	**0.3169**
	0.3746	0.6512	–3.5523	2.5982
	(1.9878)**	(0.4125)	(–2.4271)**	(2.4312)**
HY	**0.0018**	**–5.4050**	**0.0016**	**0.0011**
	–0.1444	–0.2979	0.5567	0.9468
	(1.2971)*	(–0.0699)	(1.5876)	(0.1451)
		3. Parent Characteristics		
FEDU	**0.0274**	**0.0003**	**–0.1362**	**0.2021**
	5.4896	0.0211	1.4026	1.6576
	(1.4568)*	(0.1487)	(–1.6154)*	(0.1478)
FLIT	**0.1386**	**–0.0876**	**–0.0854**	**–0.0143**
	1.2147	–0.2216	–0.0213	–0.6471
	(2.8739)**	(–0.9742)	(–1.9631)**	(–0.9874)
FEMP	**0.0543**	**–0.0367**	**0.0476**	**0.0054**
	0.5059	–0.9538	0.3522	0.3042
	(1.9643)**	(–1.0378)	(0.43865)	(0.0015)
FY	**0.0017**	**5.4892**	**–0.0002**	**–0.0011**
	0.2385	0.3025	–1.2473	–0.9040
	(1.8491)**	(0.6812)	(–1.4086)*	(–0.1385)
MEDU	**0.0396**	**0.0034**	**–0.0521**	**0.0167**
	0.0536	0.4474	.03366	0.1371
	(1.5156)*	(0.2532)	(–1.7310)**	(0.9398)

Continued—

Table 6—(*Continued*)

MLIT	**0.1639**	**–0.0086**	**–0.2364**	**0.0876**
	1.1213	–0.5279	–0.6498	0.6693
	(1.6286)*	(–0.8700)	(1.6310)*	(0.9284)
MEMP	**0.0610**	**0.0725**	**0.0795**	**–0.0334**
	0.4747	0.9642	1.8477	–0.2741
	(1.5718)*	(1.8578)	(1.3442)*	(–0.3053)
MY	**–0.0004**	**–0.0016**	**0.0003**	**–0.0001**
	–0.3686	–0.8909	0.7337	–0.8445
	(–0.9805)	(–3.2834)**	(2.2728)**	(–1.3480)*
		4. Household Characteristics		
ASST	**0.1961**	**–0.0178**	**–0.1343**	**–0.1501**
	1.5238	–0.9852	–1.3822	–1.2306
	(3.3957)**	(–2.7059)**	(–1.9373)**	(–2.4038)**
HHY	**0.0362**	**–0.2165**	**–0.0964**	**–0.8951**
	1.3082	–0.9562	–1.1776	–0.9321
	(1.4813)*	(–0.9431)	(–1.7321)**	(–0.4587)
HHPCY	**0.0004**	**–0.0007**	–0.0025	**–0.0002**
	0.3409	–0.4215	–0.1925	–1.2566
	(1.2781)*	(–2.7284)**	(–2.3059)**	(–1.1757)
HPOVTY	**–0.1995**	**–0.7654**	**0.2145**	**0.9535**
	–1.5942	–0.0291	1.5421	0.4251
	(–2.4564)**	(–0.7538)	(2.1398)**	(0.0075)
HHSIZ	**–0.0995**	**–0.0003**	**0.1491**	**0.0430**
	–0.7734	–0.1907	4.6227	0.3527
	(–1.3752)*	(–0.0953)	(2.2630)**	(0.6772)
HHSSIZ	**0.1407**	**–0.2436**	**0.2551**	**–0.2026**
	1.0938	–1.8607	2.6265	–1.6610
	(1.2865)**	(–0.6386)	(1.9038)**	(–1.5304)*
NCHILD	**–0.0346**	**–0.0107**	**0.0236**	**0.0454**
	–0.2694	0.5902	0.2438	0.3729
	(–1.5737)*	(–1.8168)**	(1.5130)*	(1.3249)*
CHILD04	**–0.0303**	**–0.0005**	**0.3373**	**0.0154**
	–0.2357	–1.3142	3.4717	0.1270
	(–0.3551)	(–0.0801)	(2.0646)**	(2.2065)**
CHILD515	**–0.0954**	**1.2765**	**0.0075**	**0.3135**
	–0.0764	1.0253	0.9164	0.0498
	(–1.9635)**	(1.0875)	(2.1789)**	(0.9675)
SIB16	**0.1765**	**–2.7468**	**–0.0153**	**0.0325**
	1.4728	–1.7781	–1.9443	0.5526
	(1.9432)**	(–0.0065)	(–1.9634)**	(1.0563)
LOC	**0.1823**	**0.0602**	**0.0384**	**–0.2961**
	1.0234	0.8265	0.1764	–1.2581
	(1.6295)*	(1.1267)	(1.9772)**	(–2.2467)**
Log of Likelihood Function	–2242.48	–345.52	–431.95	–2239.91
Number of Observation	2655	461	498	2926
R-Squared	0.6874	0.5433	0.6176	0.7578
Percent Correct Prediction	0.9125	0.9892	0.9125	0.8961

Note: The figures in normal font are parameter estimates, bold figures are marginal probability derivative, and figures in parenthesis are t-statistics.

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

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