

## **Parents’ Perception of Education and Choice of Childhood Activities: Evidence from Pakistan**

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We investigate parents’ perceptions of various educational systems and their impact on the decision to either send their children to school, or engage them in other childhood activities. Childhood activities are categorised as follows: secular schooling, religious (non-secular schooling), child labour, child labour combined with secular schooling, and leisure (inactivity). The paper uses the household survey data of 2,496 children, 963 households, and 40 villages in Pakistan. A Multinomial Probit Model analysed the impact of various socio-economic variables on the likelihood of choosing an activity for children. Results indicate that the following factors influence the parents’ decisions in selection of activities for their children: the parents’ level of education, mother’s relative authority in household decisions, degree of religiosity of the head of household, beliefs in tribal norms, household income, and proximity to the school. The findings provide insignificant evidence to support the “luxury axiom” hypothesis that children only work when their families are unable to meet their basic needs.

### **1. INTRODUCTION**

The choice between schooling and other childhood activities, such as work (child labour), religious education and staying inactive, are influenced by the trade-offs between future returns, cost of schooling, religious education and present earnings from child labour. Parents prefer to send their children to work at an early age if they believe that the child’s work experience will have greater payoffs compared to future earnings from formal schooling (Schultz, 1960; Rosenzweig and Wolpin, 1985; Becker, 1991; Dessy and Pallage, 2001; Cigno and Rosati, 2005; Edmonds, 2007; Dickson, and Harmon, 2011).

Furthermore, Weiner (1991) analysed that in India’s context, poor families are more likely to send their children to work than are rich families. The results showed that a ban on child labour positively influenced the distribution of income. Similarly, Baland and Robinson (2000) declared child labour a socially inefficient childhood activity, and suggested that banning it can potentially improve welfare of the whole society. Whereas Asadullah, et al. (2012) found that in the context of rural areas of Bangladesh, madrasah

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enrolment falls as household income increases. At the same time, households holding deeper religious beliefs and those living further away from a secular school, are more likely to send their children to madrasahs.

In countries where schooling for children is not compulsory, the ability and willingness of parents to send their children to school plays a decisive role. For parents, the importance of education may depend on the quality and expected returns from education, as well as compliance with the parents' expectations of the type of available education.<sup>1</sup>

Pakistan presents an interesting case where basic education is compulsory; however, sending children to school for education is not obligatory. Furthermore, critical analysis of the educational history and performance of Pakistan indicates that no government has given this sector the requisite attention. Education in Pakistan is thus suffering from a crisis of quantity, quality, and to some extent, relevance. Numerically, around seven million children from five to nine years of age remain out of the education system, with only 52 percent primary level students enrolled at secondary level, assuming that all of them want to further their education (Lynd, 2007). Hence, the participation rates in secular school education are very low, with high dropout rates and gender disparities when compared with other countries within the region, and countries of a similar economic background around the world. When one compares statistics for literacy rates for Pakistan, the situation is most discouraging and thought provoking.

With the abovementioned dynamics in mind, human capital formation largely depends on parents' attitudes towards schooling and alternate childhood activities. Their perceptions regarding secular versus religious schooling and child labour affect their decision. Gaps in current literature regarding the effect of parental attitudes towards secular versus religious education and its impact on childhood activities motivate this study, which examines the impact of a comprehensive set of child, household, and community attributes, including parental perception on the choice of childhood activities. In Pakistan's context, the presence of multiple educational systems and various alternative activities for school-aged children thwart the target of higher literacy rates and children enrolled in schools.

Understanding Pakistan's future human capital formation depends on understanding factors that affect parent's choices between schooling and other childhood activities. This paper focuses on evaluating child, household, and community level determinants of participation in various childhood activities. Previous studies of childhood activity determinants were based on household survey data categorising childhood activities mainly as education, work, and leisure, excluding other alternative activities (Ersado, 2005; Edmonds, 2007; Hou, 2009).

In compliance with the existing trends of childhood activities in Pakistan, we identify five childhood activity categories: secular schooling, religious (non-secular schooling), child labour, child labour combined with secular schooling and leisure (inactivity). Excluding any of these groups or merging them together does not adequately represent the situation. By considering these five childhood activities, we believe that we have come close to reality and our study contributes to the gap in current literature by exhausting the entire list of activities.

<sup>1</sup>Secular education is offered by public and private institutions, whereas, religious is offered by private institutions only.

Furthermore, this study also revisits the results of Andrabi, et al. (2006). Their study showed that in Pakistan's context, parents' justifications for sending their children for religious education, based on household characteristics such as religiosity, appear inadequate. In the same study, the authors found that most of the households enrol at least one child in a religious seminary or *madrassa*<sup>2</sup> for religious education and about 75 percent send their second or third child to a public or private school. Previous studies on child labour show that it has various forms. The common understanding of child labour is a child involved in the labour market, whereas a child working in the family business and/or in their home is usually not considered child labour. Edmonds (2008) found that only a minority of working children are engaged in the labour market.

To the best of our knowledge, previous studies were limited to include only paid child labour because of data limitations. This study uses a broader definition of child labour<sup>3</sup> by including unpaid child labour<sup>4</sup> in the category of child labour. Additionally, there are children who work while attending school. This study treats them in a separate category of childhood activities, and test hypotheses that the various forms of child labour have different scenarios, causes, consequences and solutions.

This paper comprises of five sections.

- (1) Introduction
- (2) Theoretical Background
- (3) Methodology
- (4) Results
- (5) Conclusion.

## 2. THEORETICAL BACKGROUND

Children between the ages of five and fourteen year of age, in countries such as Pakistan, are involved in various childhood activities. These activities range from going to school for secular education, going to religious schools or *Madrassas*, getting involved in the labour market (child labour), working in the family business, doing housework, and a combination of these activities. Parents generally decide the set of activities for their children. We assume that parental decisions are guided by the trade-off between the costs and benefits of child activity for the parents, for the whole family, and to some degree for the future of the child (Ahmed, et al. 2013). Sending children to school has a relatively high cost in the beginning. The immediate direct cost of schooling includes school fee, books, uniform, etc. An important consideration for the family is the opportunity cost involved in terms of lost income that the child could have earned when working as a paid child labourer, or working in the family business.

Future benefits to the child and family can be relatively large if schooling (secular or non-secular) gives access to a higher earning potential when the child has finished his/her school. The costs (direct and opportunity) and benefits (present and future) are expected to be different due to heterogeneity in child, household, and community factors. For example, the opportunity cost of a child's education is higher for an impoverished household compared to an affluent household. According to Hilson (2010), even though

<sup>2</sup>Religious school are locally called as *Madrassa*.

<sup>3</sup>See the basic distinctions in ILO child labour standards, Cigno and Rosati (2005).

<sup>4</sup>Children working in their own business or home instead of going to school.

parents value the importance of education for their children, their decision to educate their children might be constrained by the cost, or poor educational infrastructure. Consequently, they decide to send their children into the child labour market.

In Pakistan, school enrolment is also influenced by the type of educational system of the school; a school may allow multiple types of education (secular, religious, or combination) simultaneously (Andrabi, et al. 2006). Actually, the choice of childhood activity may depend on the economic position of the family, parents' formal education, their perception about system of education, future income expectation, and other socio-economic characteristics at the family and community levels.

### **2.1. Child Characteristics**

There is much literature dealing with the gender of a child and its effect on the activity chosen by parents (Alderman and King, 1998; Amin, et al. 2006; Aslam, 2009, 2003; Cigno, et al. 2002; Mahmood, 2011). Cultural norms, as well as return on education cost affects educational opportunities for girls. Since culturally they are destined to be homemakers, girls are limited to basic education, or only household chores instead of proper education. Hence, parents often believe that learning basic skills like reading and writing is enough for girls who are pulled out of school after the first two or three years (Huisman and Smits, 2009; Webbink, et al. 2012).

Girls are more involved in unpaid child labour such as household chores while boys work, either in the family business, or attend school and work concurrently. The age at start of school also plays an important role because an older child is more likely to drop out of school to be put to work. Our hypothesis is that older children might have to participate more in non-educational childhood activities, as the wage for a child increases with his age.

### **2.2. Household Characteristics**

Educated parents value the importance of education and send their children to school (Amin, et al. 2006; Antonovics and Goldberger, 2005; Tansel, 1997; Behrman, 1999; Walque, 2009; Dustmann, 2004; Ermisch and Francesconi, 2001; Handa, 1996; Mukherjee and Das, 2008; Dos Santos and Wolff, 2011). The established theories regarding household wealth reveal that children from a poor socioeconomic background are less likely to enroll in school. They tend to be in the work force more as compared to those from an affluent background (Basu and Tzannatos, 2003; Basu and Van, 1998; Bourdillon, 2006; Huisman and Smits, 2009; Goulart and Bedi, 2008; Suryahadi, et al. 2005). Children from the poorest families are more likely to stay inactive because of the difficulties that these households face in getting access to schooling as well as the child labour market.

Heads of households of a younger age may prefer secular education for their children as compared to older individuals, who show a preference for religious education. Along with other socio-economic factors, the parent's value and belief system also determines the level of investment in the education of a child or participation in other childhood activities. Religious values predominantly shape the decisions, particularly if the curriculum is not compatible with the parents' religious beliefs (Buchmann, 2000).

Furthermore, a child's ability to find gainful employment after completing his education is likely to play a role in the parent's decision. Therefore, parents' investment in the education of their children still depends on their hope of increasing future income potential.

An important dimension is maternal education, which may contribute to an increasing role of mothers in the decision making process which may be expected to improve children's well-being, health and school enrolment (Basu, et al. 2010; Emerson and Souza, 2007; Handa, 1994; Huisman and Smits 2009; Smits and Gündüz-Hosgör, 2006). Cultural norms also play an important role in determining the economic position of women and, subsequently, in their participation in a family's decision regarding their child's education (Webbink, et al. 2012). We hypothesise that educated mothers are likely to have relatively more authority in the decision making process, which may in turn, lead to a positive effect on a child's probability in going to school.

### 2.3. Community Characteristics

Previous studies on the subject underscored that parental decision on the choice of childhood activities also depends on community characteristics (Behrman and Birdsall, 1983; Brasington, 2002; Brasington and Haurin, 2005; Huisman and Smits, 2009; Webbink, et al. 2008). Studies indicate that, at the community level, availability of schools in the neighbourhoods, especially for girls, quality of education, level of development, and degree of urbanisation are relevant factors affecting parents' choice of childhood activities in urban and rural areas (Tansel, 2002; Alderman, et al. 2003; Stair, et al. 2006). In urban areas, generally, educational services are better in terms of quality, with less cultural restrictions that influence parents' decision to opt for school education.

## 3. METHODOLOGY

The decision to participate in childhood activities is simultaneous in nature. A simple analytical model presented by Edmonds (2007) is modified and used in this paper to analyse factors affecting this decision making process. In utility maximising household models, heterogeneity exists because of differences in child variables (school, age and gender), household variables (income, education level, age, and parents' perceptions of education), and community variables (school quality, proximity to school, expected future returns from the labour market).

The factors determining child's education and alternative activities consider an overlapping generation model<sup>5</sup> that consists of two periods. For simplicity, we model a household with one parent, one child, and two periods  $S^0$  and  $S^*$ . The household  $i$  utility representation is,

$$U = (S^0, S^*) \quad \dots \quad (1)$$

where,  $S^0$  is the current standard of living of the family for a given household, child, and community ( $hh$ ,  $ch$ , and  $com$ ) characteristics, in a given time.  $S^*$  represents future standard of living of the child and household subject to the activity decision in the original period  $S^0$ . The decision of the parents regarding their children's activities is

<sup>5</sup>See the work of Allais (1947), Samuelson (1958), Diamond (1965), Barro (1974), and Emerson and Knabb (2006).

influenced by *hh*, *ch*, and *com* variables. Edmonds (2007) considered four childhood activities: education, leisure and play, work outside the household and work inside the household. However, in the context of this study, we define five categories of ‘children time spending activities’ which include secular education ( $S_e$ ), religious education ( $R_e$ ), engagement in child labour ( $C_l$ ), combination of child labour and secular education ( $W_s$ ),<sup>6</sup> and inactivity<sup>7</sup> ( $S_{in}$ ). Parents are responsible for choosing one of these childhood activities. For simplification, the model can be formulated as,

$$S_s + R_s + C_l + W_s + S_{in} = 1 \quad \dots \quad (2)$$

Edmonds (2007) named the fifth category as leisure and play; in the context of this study, we label this “inactivity”, meaning that compared to the other four categories the children in this category are not involved in any productive activity. Superior knowledge and skills are developed if the child defers consumption of inactive time during the day and invests some of that time in acquiring education. Such an investment may lead to better outcomes (higher wage, higher social status etc.) in the future. Therefore, full time leisure is referred to as ‘inactivity’ in this study.

In some cases, children may be neglected because of their social and/or economic status. However, the ‘inactivity’ may not be the keenly chosen ‘activity’ by the parent and this may be the *ad hoc* choice that parents are forced to adopt due to poverty or other social constraints.

In another departure from the Edmonds model, we merge ‘wage’ and ‘non-wage’ child labour into one category. Utility maximisation strategy of the head-of-household (*hhh*) with given constraints in the period  $S^o$  will provide a relevant theoretical framework to fulfil the needs of this study. By adding one more category in the context of Pakistan “ $W_s$ ”, this model comprehensively captures the determinants of demand for secular education and alternative activities, with a given set of independent variables that describe household, child, and community characteristics.

The current standard of living of the *hh* in the time period  $S^o$  can be captured by a linear homogenous production function that depends on current consumption  $c$ , and input of the child’s time  $T$  to *hh*.

$$S^o = f(c, T) \quad \dots \quad (3)$$

The standard of living of the child and family in the next generation  $S^*$  will depend on the degree of human capital formation in the current period  $S^o$ . Human capital formation will depend on the amount of time spent in formal education versus alternative activities and is positively related to secular education. The welfare production function of child is specified as follows:

$$S^* = f(S_e) \quad \dots \quad (4)$$

When a child participates in secular education, in addition to direct costs, there are also opportunity costs and inherent time constraints. The opportunity cost of education is the remuneration that a child foregoes while attending either a secular school or a religious

<sup>6</sup>In Pakistan, when a child is enrolled in *Madrassa* for religious education, it is a full time enrolment thus he/she is not allowed to participate in any other type of activity. That is why  $(C_l + R_e)$  or  $(S_e + R_e)$  is not possible in this context.

<sup>7</sup>The ‘inactivity’ refers to idleness that means neither working nor attending any types of (secular and non-secular) school, excludes those engaged in any sort of regular intra-household services

school. The cost of education denoted by  $e$  ( $S_e + R_e$ ) is the forgone consumption in  $hh$  in the period  $S^0$ , which includes both the direct cost (such as school fee) and opportunity cost of education. In contrast, if the child is working, this will enhance household consumption by  $wC_l$  in the period  $S^0$ . With a given income  $Y$ , the consumption function of the household is given by,

$$c = Y + wC_l - e(S_e + R_e) \quad \dots \quad \dots \quad \dots \quad \dots \quad \dots \quad \dots \quad (5)$$

Where  $w$  is the wage rate for child labour. Substituting Equation (5) into (3), the household standard of living in the current time period  $S^0$  with the time input of the child is given by,

$$S^0 = f[\{Y + wC_l - e(S_e + R_e)\}, T] \quad \dots \quad \dots \quad \dots \quad \dots \quad \dots \quad (6)$$

In this situation, the head of the household will choose an activity set for their child depending on the marginal utility of each alternative activity. The utility maximisation equation of household head is given as,

$$MaxU(S^0; S^*)_0 = MaxU_{S_e, R_e, C_l, W_s, \sin[S^0\{Y + WC_l - e(S_e + R_e), T\}; S^*(S_e)] \quad \dots \quad (7)$$

Subject to:

$$S_e + R_e + C_l + W_s = S_{in} = 1 \quad \text{and} \quad S_e \geq 0; R_e \geq 0; C_l \geq 0; W_s \geq 0; S_{in} \geq 0$$

If a child goes to school:

$$S_e = 1 = \frac{\partial U}{\partial S^*} \frac{\partial S^*}{\partial S_e} \geq \varphi + \frac{\partial U}{\partial S^0} \frac{\partial S^0}{\partial C} e \quad \dots \quad \dots \quad \dots \quad \dots \quad \dots \quad (8)$$

In this case, the parent's marginal utility gained through human capital formation of their child from an additional year of secular school education is greater or equal to the parent's foregone utility as a result of schooling costs and marginal utility of time  $\varphi$  in other activities.

If a child participates in religious education:

$$R_e = 1 = \frac{\partial U}{\partial S^*} \frac{\partial S^*}{\partial R_e} \geq \varphi + \frac{\partial U}{\partial S^0} \frac{\partial S^0}{\partial C} e \quad \dots \quad \dots \quad \dots \quad \dots \quad \dots \quad (9)$$

If a child is engaged in child labour:

$$C_l = 1 = \frac{\partial U}{\partial S^0} \frac{\partial S^0}{\partial C_l} w \geq \varphi \quad \dots \quad \dots \quad \dots \quad \dots \quad \dots \quad (10)$$

If a child is working and attending secular school at the same time:

$$W_s = 1 = \frac{\partial U}{\partial S^*} \frac{\partial S^*}{\partial W_s} \geq \varphi + \frac{\partial U}{\partial S^0} \frac{\partial S^0}{\partial C} e \quad \dots \quad \dots \quad \dots \quad \dots \quad \dots \quad (11)$$

If a child is inactive:

$$S_{in} = 1 = \frac{\partial U}{\partial S^*} \frac{\partial S^*}{\partial S_{in}} \geq \varphi + \frac{\partial U}{\partial S^0} \frac{\partial S^0}{\partial C} e \quad \dots \quad \dots \quad \dots \quad \dots \quad \dots \quad (12)$$

Marginal utilities of schooling and alternative activities depend on a vector of different factors that can be separated into three groups: child, household, and community variables. The structural form of the equation is specified as,

$$H_{se, R_e, C_i, W_i, S_{in}} = f(hh, ch, com) \quad \dots \quad \dots \quad \dots \quad \dots \quad \dots \quad (13)$$

The empirical analyses are based on the childhood activity choice equation of household stated above.

### 3.1. Description of the Data and Variables

Field surveys were conducted in all four provinces of Pakistan (Baluchistan, Khyber Pakhtunkhwa (KPK), Punjab and Sindh). Within the KPK province, Federally Administered Tribal Areas (FATA) were not covered due to political insurgency at the time when the survey was conducted. A questionnaire was structured, tested in pilot areas and revised for improvements based on feedback.

The survey was conducted in 43 urban and rural settings from August to December 2009, by a team of 40 students from Baluchistan University of Information Technology, Engineering and Management Science (BUIITEMS), Quetta, Pakistan. Using a multistage stratified random sampling design, 963 heads-of-household were interviewed and data on 2,496 children was collected.

Provinces were taken as a natural stratification of the whole target population. This is appropriate and advantageous in respect to the precision of the results, as the four provinces are very heterogeneous in terms of socio-economic development. In the next stage, each province was divided into its main socio-political and geographical characteristics, i.e. northern, southern, upper, lower, highland, coastal, and covered with practically opened and definitely closed international borders, etc. to cover all types of heterogeneity in the data.

Hence, along with the population of each province other variables such as total geographical area, literacy rate and HDI were also taken into account. Information on population, geographical area, literacy rates and the HDI of each province were taken from the published national statistics of Pakistan.<sup>8</sup> Based on the aforementioned socio-economic factors, in the second stage of sampling, 43 areas from the four provinces were selected. Thus, oversampling was intentionally conducted with regards to the features of special interests (low literacy, less development, and geographical area). Therefore, the sampling is disproportionate in terms of the population of the country.

In the third sampling stage, stratification was conducted on the basis of household characteristics within these 43 areas, and resulted in 963 households with 2,496 children. Because of this disproportional multistage stratified random sampling technique, it is possible to gain a deep understanding of the problem of education and literacy in Pakistan.

Moreover, it is noteworthy that the data in this study is comparable to the national statistics in terms of broad patterns,<sup>9</sup> such as the participation rates of school-attending children aged 5 to 14 years of age in rural and urban areas (see Table 1). The difference between this survey and the national survey (PSLM) is around three average percentage points for overall school enrolment rates.

<sup>8</sup>See GoP (1998) and [http://en.wikipedia.org/wiki/Administrative\\_units\\_of\\_Pakistan](http://en.wikipedia.org/wiki/Administrative_units_of_Pakistan).

<sup>9</sup>See, PSLM 2008-09.

Table 1

## Comparison of School Participation Rate of Survey Data with PSLM Data

Categories		*SPR (%)	~SPR (%)
		Survey Data 2009	PSLM (2008-09)
Rural	Boys	69	68
	Girls	43	47
Urban	Boys	83	85
	Girls	76	81

\*School Participation Rates (SPR) for children age 5-14 years.

A detailed description of the selected household, child, and community variables used in this paper is given in Table 2. The selection of variables was based on relevant theory and comparison of post analysis estimation of Akaike Information Criterion (AIC) and Bayesian Information Criterion (BIC) values for alternative models. While comparing alternative models, special care was taken not to lose any important information.

Most of the independent variables are self-explanatory, while a few need further explanation. During the survey, parental perception regarding school education was measured by asking questions on the impact parental expectation from secular education could have on their child's future earnings. This is equivalent to testing hypothesis of Future Income Expectation (FIE) on the compatibility of secular school education with religious values Religious Compatibility Perception (RCP). In the survey, we asked parents "Do you think that acquiring secular school education will ensure greater future income for your child as compared to all other available alternative childhood activities?" to assess FIE. The RCP was a dummy variable with a 'Yes or No' response to a question "Do you think that secular school education is compatible with your religious values".

This paper measures the degree of religiosity of head-of-household, variable *degrel*, as an index number. The index for the degree of religiosity was constructed by collecting information on the regularity with which the head-of-household performs religious prayers, such as, *Namaz*,<sup>10</sup> and *Vedic Sandhya*.<sup>11</sup> Accordingly, the numbers are assigned from zero to five in each case for the head-of-household, respectively. For example, in case of a Muslim household-head who prays regularly with *jamath*,<sup>12</sup> prays daily regularly but not with *jamath*, prays daily but irregularly, prays only on Fridays and *Eid*,<sup>13</sup> prays only on *Eids*, and never prays, were assigned the numbers 5,4,3,2,1, and 0, respectively.

If the household head believes in Hinduism, the degree of religiosity is measured by the regularity of the prayer, *Vedic Sandhya*. The categories are: prays regularly in the Temple or *Minder*,<sup>14</sup> prays daily but at home, prays daily but irregularly, prays regularly on religious festivals, prays sometimes on religious festivals and never prays, were assigned the numbers 5,4,3,2,1, and 0, respectively.

<sup>10</sup>It means prayer, for Muslims it is obligatory to pray five times a day.

<sup>11</sup>Name of the prayer in Hindu religion, for Hindus it is mandatory to pray two times in a day.

<sup>12</sup>Pray in Mosque following the *Imam*.

<sup>13</sup>A religious festival of the Muslim.

<sup>14</sup>A place where the Hindus perform their religious prayers.

Social factors such as belief in tribal norms by the household head is measured by asking questions on the belief in tribal norms and a dummy variable is used for empirical analysis to distinguish those who believe in tribal norms and otherwise.

The variable (*btn*) is used to distinguish household-heads who believe in tribal norms from those who do not follow the tribal norms. Here, we were expecting the incidence of gender discrimination in households where the head-of-household has a belief in the tribal norms. The variable *resgap* is used to measure the average annual result gap of the nearest public and private schools in the community. For this purpose an average of previous year results for fifth, eighth and tenth standard of both types of the schools are taken to obtain their performance gap.

Table 2  
*Description of Variables Used in the Study*

	No.	Variables	Description	Std.			
				Mean	Dev.	Min.	Max.
Dept. Variable	1.	Child activity	Only school education (56.8%), Only religious education (14.3%), Only child labour (17.4%), School education and child labour (8.6%), and inactivity (2.9%)				
Household Variables	2.	Lndpcainc	Log value of daily per-capita household income	4.4	0.62	2.6	6.9
	3.	Hhhedu	Years of formal education successfully completed by the head-of- household	6.5	5.7	0	18
	4.	Medu	Years of formal education successfully completed by the mother of the child	2.9	4.2	0	16
	5.	Hhhage	Age of the head-of- household	45.0	8.9	31	84
	6.	FIE (categorical)	Future income expectation of the hhh will increase: Disagree (29.9%), Ambivalent (20.4%) and agree (49.7%)				
	7.	RCP (categorical)	Religious compatibility perception of the hhh; Dissonant (17.2%), Ambivalent (37.2%) and compatible (45.6%)				
	8.	Degreg	Degree of religiosity of head-of- household (0 to 5, 5 being the highest)	3.4	1.2	0	5
	9.	Dagr (dummy)	Occupation of the hhh; <i>dagr</i> =1 if the hhh's occupation is agriculture and 0 if otherwise	0.29	0.45	0	1
	10.	rmdecn (dummy)	Role of child's mother in decision making; 1 = if mother has a role in decision making, and 0 if otherwise	0.3	0.5	0	1
	11.	btn (dummy)	Household-head believes in tribal norms = 1, and 0 if otherwise	0.53	0.49	0	1
Child Variables	12.	nchhh 5 to 14	Number of children 5 to 14 years of age in the household	3.06	1.17	1	9
	13.	Chage	Age of the child (when considered for school)	10.1	2.6	5	14
Iables	14.	chgend (dummy)	Gender of the child; 1 = if child is a female, and 0 if otherwise	0.5	0.5	0	1
Community Variables	15.	Resgap	Average annual result gap between nearest public and private school	27.0	8.9	11.5	49.8
	16.	Avdisgirls	Average distance from nearest girls primary middle and high school (in km)	2.5	0.8	1	4.3
	17.	Avdisboys	Average distance from nearest boys primary middle and high school (in km)	2.5	0.9	1	4.0
	18.	Disdistcap	Distance from the district capital (in km)	46.6	47.0	5	225
	19.	rural (dummy)	Location of the area; 1 = for rural areas and 0 if otherwise	0.6	0.5	0	1

### 3.2. Regression Analysis

Multinomial probit (MNP) model is used to analyse the relationship of childhood activities (response variables) with the explanatory variables. There are two reasons for the choice of MNP from the family of models that can be used for the discrete choice model analysis. First, the decision of childhood activity is simultaneous; therefore, one needs a multinomial model to explain the determinants of childhood activity. Second, MNP does not impose the Independence of Irrelevant Alternatives (IIA) assumption (Greene, 2003).

The IIA property imposes the restriction that the relative odds of selecting between any two activities should not be dependent on the number of alternatives. However, in case of the choice of childhood activity, these are dependent, such as if there is a legal ban on child labour; the relative odds of choosing religious education, secular schooling, or inactivity will be changed. In the same way, a legal ban on religious education or other activity would also influence the relative odds of choosing alternatives.

These relationships were also confirmed by the results of a Hausman Specification test as childhood activity is a behavioural outcome and that behavioural phenomenon may sometimes violate IIA assumptions.

Arguably, we selected MNP as a benchmark methodology. The base line model takes the following form,

$$Y_{in} = \begin{cases} 1 & U_{in} \geq U_{jn}, j = 1, 2, \dots, j \\ 0 & \dots \dots \dots \dots \dots \end{cases} \quad (14)$$

$Y_{in}$  Implies choice observed, households ( $n = 1, 2, \dots, N$ ) choose the child activity  $i = 1, 2, 3, \dots, j$  which yield the greatest utility,  $U_{in}$  is unobservable random variable showing the utility perceived by the parents,  $U_{in} = \beta X_{in} + \epsilon_{in}$ ,  $X_{in}$  is a vector of (1 x k) factors (household, child and community) influencing the parents' decision of childhood activity options and  $i = 1, 2, 3, \dots, j$ ,  $\beta$  is a parameter variable to be estimated, and  $\epsilon_{in}$  is the error tem. The empirical form of the model is as follows,

$$P(Y_{ij} = j) = \frac{e^{\beta X_{in}}}{\sum_{j=1} e^{\beta X_{in}}} \quad \dots \quad (15)$$

or It can be expressed as,

$$pr(childactivity = j) = \int_{-\infty}^{\beta X_{i1}} \dots \int_{-\infty}^{\beta X_{j-1}} f(e_{i1} \dots e_{ij-1}) de_{i1} \dots e_{ij-1}$$

Where  $j = 1$  is attending secular school,  $j = 2$  is attending religious school,  $j = 3$  is child labour,  $j = 4$  is the combination of secular school attendance and child labour, and  $j = 5$  is inactivity.

Moreover, the MNP model coefficients express the amount of change in the z-score or probit index for each unit of change in the predictor. The sign of each coefficient describes the effect of each variable on participation in that activity relative to the base outcome category. The category of secular school attendance is considered as the base outcome with which the probabilities of estimated coefficients of the other child activities can be compared. The choice of omitted category does not change the basic results; it only changes the basis of reference for the interpretation of the results. The MNP estimates of the determinants of household choice of childhood activity are presented in the Table 3.

Table 3

*Multinomial Probit Model: Coefficient Estimates of Child's Activity Choices*

Covariates	Religious Education	Child Labour	Working and Schooling	Inactivity
Log value of daily per-capita household income (measured in Pak. rupee)	-0.063 (0.125)	-0.323** (0.123)	-0.514*** (0.133)	-1.008*** (0.223)
Years of school education successfully completed by head-of-household	-0.030 (0.018)	-0.092*** (0.020)	-0.111*** (0.019)	-0.140*** (0.043)
Years of school education successfully completed by mother of the child	-0.058* (0.030)	-0.065 (0.051)	-0.181*** (0.038)	-0.121 (0.093)
Age of head-of-household	0.016* (0.007)	0.011 (0.008)	0.027*** (0.008)	0.020 (0.011)
Perception regarding impact of secular schooling on future earnings of a child – FIE <sup>a</sup> (disagree vs. ambivalent)	-0.783*** (0.165)	-0.921*** (0.171)	-0.274 (0.190)	-1.529*** (0.273)
Perception regarding impact of secular schooling on future earnings of a child – FIE <sup>b</sup> (disagree vs. agree)	-2.247*** (0.214)	-2.838*** (0.273)	-1.203*** (0.239)	-2.478*** (0.383)
Perception on compatibility of secular school education with religious values – RCP <sup>c</sup> (dissonant vs ambivalent)	-0.860*** (0.163)	-0.080 (0.185)	-0.371 (0.210)	0.275 (0.253)
Perception on compatibility of secular school education with religious values – RCP <sup>d</sup> (dissonant vs compatible)	-2.406*** (0.244)	-0.446 (0.248)	0.073 (0.246)	0.178 (0.316)
Degree of religiosity of the head-of-household	0.271*** (0.070)	-0.116* (0.061)	-0.280*** (0.065)	0.053 (0.090)
Occupation of the HHH (dagr = 1 if the HHH's occupation is agriculture and 0 if otherwise)	-0.365* (0.159)	0.339* (0.152)	-0.058 (0.168)	0.082 (0.222)
Role of mother in <i>hh</i> decision making (rmdecn = 1 when mother has role in decision making and 0 if otherwise)	0.068 (0.207)	-1.733*** (0.340)	-0.605* (0.258)	-0.334 (0.492)
Household head's belief in tribal norms (btn = 1 if HHH believes in tribal norms and 0 if otherwise)	0.332* (0.173)	1.566*** (0.243)	0.577*** (0.191)	0.770* (0.360)
Child age	-0.037 (0.029)	0.425*** (0.034)	0.475*** (0.035)	-0.235*** (0.047)
Gender of child (chgend = 1 when child is female and 0 if otherwise )	0.773*** (0.139)	1.913*** (0.150)	-0.181 (0.159)	0.862*** (0.211)
Number of children 5 to 14 years of age in the household	-0.071 (0.052)	-0.157** (0.059)	-0.275*** (0.065)	0.027 (0.070)
Average annual performance gap between local public and private schools	-0.029 (0.023)	-0.041 (0.023)	0.064** (0.025)	0.023 (0.031)
Average distance from nearest primary, middle, and high school for boys	0.317 (0.210)	0.362 (0.224)	-0.237 (0.240)	-0.125 (0.288)
Average distance from nearest primary, middle, and high school for girls	0.517** (0.198)	0.583** (0.209)	-0.069 (0.221)	-0.534 (0.311)
Distance from nearby district capital	-0.007*** (0.002)	-0.006** (0.002)	-0.007** (0.003)	0.007** (0.002)
(Rural) dummy for location	0.321 (0.212)	0.326 (0.239)	0.779*** (0.250)	0.279 (0.335)

< 0.1\*, < 0.05\*\*, and < 0.01\*\*\*.

Note: The response variable "secular school attendance" is the base outcome category.

Numbers in parentheses are robust standard errors.

<sup>a</sup> Future Income Expectation (FIE), the results compare disagree versus ambivalent.

<sup>b</sup> Future Income Expectation (FIE), the results compare disagree versus agree.

<sup>c</sup> Religious Compatibility Perception (RCP), the results compare dissonant versus ambivalent.

<sup>d</sup> Religious Compatibility Perception (RCP), the results compare dissonant versus compatible.

## 4. RESULTS AND DISCUSSION

### 4.1. Estimates of Multinomial Probit

In this part of the analysis, the outcome measured is the probability of the chosen childhood activity and its relationship with household, child and community characteristics using the Multinomial Probit model. The MNP estimates of the determinants of household choice of childhood activity are presented in Table 3. The category of secular school attendance is the base outcome with which the probabilities of estimated coefficients of the other child activities are compared. The choice of omitted category does not change the basic results; it only changes the basis of reference for the interpretation of the results.

The MNP model coefficients express the amount of change in the z-score or probit index for each unit of change in the predictor. The sign of each coefficient describes the effect of each variable on participation in that activity relative to the base outcome of attending secular school. For example, the daily per capita income results show that income has a statistically significant negative impact on inactivity, working and attending school, and child labour compared to secular school attendance. Hence, with all other factors constant, an increase in the daily per capita income of the household reduces the probability of participation in these three activities compared to secular schooling.

The results also highlight that the head-of-household's duration of secular school education plays an important role in the probability of children attending secular school. *Ceteris paribus*, an increase in head-of-household education reduces the probability of participation in other than school going activities. Similarly, maternal education plays a statistically significant role in decreasing participation in religious education compared to secular. The significant and positive coefficients for the age of the head-of-household indicate that older parents are more likely to choose activities other than attending secular school. The head-of-household's age effect is not statistically significant with regard to only child labour and inactivity.

For FIE, the "disagree" response (among the three options of "disagree", "ambivalent", and "agree") is used as the reference category. In the first row of FIE perception, "disagree" is compared to "ambivalent", whereas in the second row of FIE "disagree" is compared with "agree". Statistically significant FIE results show that any positive change (from disagreement to agreement) in this perception reduces the probability of a child participating in alternatives to secular school attendance. A comparison of the coefficients for alternative childhood activities shows that these effects are greater for child labour, followed (in decreasing order of effect) by inactivity, religious education, attending secular school while working.

In the case of RCP, "dissonant" was selected as the reference category. The first row of RCP compares the results between "dissonant" and "ambivalent"; in the second row, a comparison of "dissonant" and "compatible" is shown. The RCP results show that the perception of consistency between secular schooling and faith reduce the probability of participation in religious education. The magnitude and significance of the levels of the estimated coefficients illustrate that the probability of choosing participation in religious education is linked with the perception that school education is dissonant with religious values.

This study shows that the active participation of mothers in household decision-making processes had a negative effect on the probability of selecting non-secular school activity options such as child labour, working and attending secular school and remaining inactive. Additionally, the probability of engaging in both types of child labour and remaining inactive also increases in households where the head strongly believes in tribal norms.

Multinomial probit estimates for the age of a child show that compared to secular school attendance, as the age of a child increases, so does the probability of being engaged in child labour, and combined work and school attendance. On the other hand, an increase in the child's age has a negative effect on the probability of choosing religious education or inactivity. The results on the gender of a child reveal that being a girl significantly increases the probability of being engaged in child labour, followed by inactivity and religious education, in comparison to secular school attendance.

The quality of secular education in public schools compared to private schools is measured by the gap of the average annual results of both types of schools in the community. The previous year's results for fifth, eighth, and tenth class from the nearest public and private schools were used for this calculation. The average annual results of private schools were higher than public schools. Therefore, an increase in the performance gap indicates a decline in the quality of education in public schools compared to private schools. Positive and statistically significant results show that an increase in the performance gap between public and private schools increased the probability of participation in working and attending school.

Furthermore, the study reveals that on average an increase in the distance from the nearest school for both girls and boys increases the probability of engaging in child labour and religious education when compared to secular schooling. The levels of significance of the results are higher for female children than their male counterparts. The effects of location on the selection of childhood activities are measured by two other community characteristics: distance from the nearest district capital and whether households are located in an urban or rural area. The results suggest that the increasing distance from the capital has a statistically significant negative effect on the probability of participating in religious education and combined work and schooling, and a significant positive effect on the probability of child labour, compared to secular school enrolments. The location of households in a rural setting shows a positive effect on all non-secular school attendance childhood activities, and statistically significant for combined work and schooling.

#### 4.2. Marginal Effects

The dependent variable is the probability of a chosen childhood activity and its relationship with household, child, and community characteristics using the marginal effects on childhood activity selection. Hence, Table 4 presents the results of the marginal effect of explanatory variables on the probability of the selected childhood activity. Our results show that, *ceteris paribus*, a one percent increase in daily per capita income of the head-of-household increases the probability of attending secular schooling and religious education by 3.5 and 2.1 percent respectively, while lowering the probability of 'working and secular schooling' and inactivity by close to three percent.

Table 4  
*Marginal Effects on the Probability of Selected Child's Activity  
 with Respect to Explanatory Variables*

Regressors	Secular School	Religious School	Child Labour	Working and Schooling	Inactivity
Log value of daily per-capita household income (measured in Pak. rupee)	0.035*** (0.011)	0.021* (0.010)	-0.004 (0.009)	-0.026*** (0.008)	-0.025*** (0.006)
Years of school education successfully completed by head-of-household	0.008*** (0.001)	0.003 (0.002)	-0.0031* (0.0016)	-0.005*** (0.001)	-0.003* (0.001)
Years of school education successfully completed by mother of the child	0.011*** (0.003)	0.0001 (0.003)	0.002 (0.005)	-0.011*** (0.003)	-0.002 (0.003)
Age of head-of-household	-0.002*** (0.0006)	0.001 (0.001)	-0.0005 (0.0006)	0.0015** (0.0005)	0.0003 (0.0003)
Perception regarding impact of secular schooling on future earnings of a child – FIE <sup>a</sup> (disagree vs. ambivalent)	0.125*** (0.025)	-0.058** (0.021)	-0.058*** (0.016)	0.028* (0.014)	-0.036*** (0.011)
Perception regarding impact of secular schooling on future earnings of a child – FIE <sup>b</sup> (disagree vs. agree)	0.341*** (0.034)	-0.155*** (0.026)	-0.162*** (0.022)	0.018 (0.020)	-0.042*** (0.012)
Perception on compatibility of secular school education with religious values – RCP <sup>c</sup> (dissonant vs. ambivalent)	0.085*** (0.023)	-0.129*** (0.026)	0.035** (0.013)	-0.0098 (0.012)	0.019*** (0.006)
Perception on compatibility of secular school education with religious values – RCP <sup>d</sup> (dissonant vs. compatible)	0.146*** (0.029)	-0.245*** (0.025)	0.013 (0.018)	0.055*** (0.018)	0.030*** (0.010)
Degree of religiosity of the head-of-household	0.001 (0.005)	0.034*** (0.006)	-0.012** (0.005)	-0.021*** (0.004)	0.0006 (0.002)
Occupation of the HHH (dgr = 1 if the HHH's occupation is agriculture and 0 if otherwise)	0.009 (0.013)	-0.048*** (0.013)	0.045*** (0.011)	-0.010 (0.011)	0.003 (0.006)
Role of mother in hh decision making (rmdec = 1 when mother has role in decision making and 0 if otherwise)	0.057*** (0.019)	0.075*** (0.020)	-0.144*** (0.030)	0.007 (0.020)	0.005 (0.013)
Household head's belief in tribal norms (btn = 1 if HHH believes in tribal norms and 0 if otherwise)	-0.074*** (0.014)	-0.034* (0.016)	0.112*** (0.020)	-0.010 (0.013)	0.005 (0.010)
Number of children 5 to 14 years of age in the household	0.015*** (0.005)	0.001 (0.004)	-0.004 (0.004)	0.015*** (0.004)	0.0035* (0.0018)
Child age	-0.020*** (0.002)	-0.021*** (0.002)	0.029*** (0.002)	0.024*** (0.002)	-0.011*** (0.001)
Gender of child (chgend = 1 when child is female and 0 if otherwise)	-0.079*** (0.011)	0.007 (0.010)	0.152*** (0.009)	-0.084*** (0.009)	0.003 (0.005)
Average annual performance gap between local public and private schools	0.00006 (0.002)	-0.003 (0.002)	-0.005*** (0.0017)	0.006*** (0.002)	0.001 (0.0008)
Average distance from nearest primary, middle, and high school for boys	-0.014 (0.019)	0.024 (0.017)	0.032* (0.016)	-0.032* (0.015)	-0.009 (0.008)
Average distance from nearest primary, middle, and high school for girls	-0.039* (0.017)	0.038* (0.016)	0.044** (0.016)	-0.028** (0.014)	-0.025*** (0.008)
Distance from nearby district capital	0.0006*** (0.0002)	-0.0004** (0.0002)	0.0002 (0.0001)	-0.0003 (0.0002)	0.0003*** (0.00006)
(Rural) dummy for location	-0.047** (0.018)	0.009 (0.018)	-0.006 (0.019)	0.044** (0.017)	0.004 (0.009)

\*, \*\* and \*\*\* denote statistical significance at < 0.1, < 0.05, and < 0.01 levels.

Note: Numbers in brackets are robust standard errors.

<sup>a</sup> Future Income Expectation (FIE), the results compare disagree versus ambivalent.

<sup>b</sup> Future Income Expectation (FIE), the results compare disagree versus agree.

<sup>c</sup> Religious Compatibility Perception (RCP), the results compare dissonant versus ambivalent.

<sup>d</sup> Religious Compatibility Perception (RCP), the results compare dissonant versus compatible.

Similarly, an increase in household income is associated with a greater increase in the probability of secular school education as compared to religious education.

The results suggest that the category of childhood inactivity is associated with poverty. There are also indications that, compared to “child labour,” the category of “combined work and secular schooling” decisions are related to the financial status of households who consider schooling a better option for their child’s future productivity. These findings support the broader definition of child labour used in this study, and there is little evidence to support the “luxury axiom” hypothesis that children only work when their families are unable to meet their basic needs (Basu and Van, 1998; Van de Walle and Gunewardena, 2001).

These results have important policy implications. For example, children from poorer segments of society are not able to participate in child labour markets. This is similar to Edmonds, et al. (2010) who found that the poverty elasticity of “inactivity” is greater than the poverty elasticity of market or domestic child labour in Indian households. Furthermore, results suggest that a consequence of poverty is ‘working and going to school’ instead of only working at an early age.

The Future Income Expectations (FIE) results show that an improvement in the perception of the head-of-household has an inverse relationship with activities such as child labour, joint work-secular schooling and inactivity. Our results also indicate that the perception that secular school education is compatible with religious values increases secular school education and decreases participation in religious education significantly. An increase in the degree of religiosity of the head-of-household is positively associated with an increase in the probability of educational activities, i.e. secular education and religious education enrolment, and negatively associated with child labour and work-schooling joint activity. These results are in line with the findings of Iannaccone (1998), who demonstrated a positive association between the degree of religiosity and human capital formation.

Regarding occupation of the head-of-household, our results show that being a farmer increases the probability of a child engaged in child labour by 4.5 percent while it decreases the probability of being enrolled in religious education by 4.8 percent. Additionally, our results confirm that social factors such as beliefs in tribal norms have an important influence on educational and non-educational childhood activities. We find that children belonging to a household where the head has strong beliefs in tribal norms attend educational activities relatively less and are more likely to be engaged in child labour.

Data collected for this study also provides an opportunity to analyse the role of mothers in the selection of childhood activities. Findings suggest that, *ceteris paribus*, if the mother of a child has a role in household decision-making, the probability of a child attending secular and religious education increases by 5.7 and 7.5 percent, respectively, compared to households where mothers do not have a significant role in decision-making. The role of mothers in household decision-making decreases the probability of a child’s participation in labour by 14.4 percent. These findings provide important evidence for the hypothesis that an increase in the bargaining power of women in households with male heads (MHHs) has positive effects on children’s education. These findings agree with the study by Handa (1996), which suggested that women place greater emphasis on sending their children to school.

With regard to a child's age before starting any of the activities, a negative and significant association was found between child age and the probability of attending secular school, religious education and inactivity. Furthermore, the results indicate that an increase in the age of a child is associated with an increase in the probability of child labour and "combined work and secular school attendance." Regarding gender, keeping other variables constant, girls have less probability of attending secular school and 'combined work and secular school attendance' compared to their male counterparts. In the case of child labour, girls have 15.2 percent higher probability of being engaged in child labour than their male counterparts. These results shed light on the issue that girls are engaged in non-wage child labour instead of education, especially in rural areas. Our results did not find evidence for madrasa enrolment, as shown by Andrabi et al. (2006) that most of the households enrol at least one child in a madrasa.

Proximity to schools is a necessary condition for the right to education. Results suggest that the further the distance to a secular school, the higher the likelihood for families to send their children for religious education and/or to child labour. For example, keeping other variables constant, a one-kilometre increase in the distance from a secular school increases the probability that a boy is engaged in child labour by 3.2 percent. Distance from a secular school plays a more important role for girls, and providing school facilities closer to girls can significantly reduce the incidence of child labour through increasing secular school enrolment.

## 5. CONCLUSION

The primary objective of this study is to assess the underlying determinants for parental decisions regarding children's childhood activities. Five childhood activity categories are taken into account: secular schooling, religious schooling, child labour, child labour combined with secular schooling, and inactivity. Our results indicate that affluent families send their children for secular and religious education, while the relatively poor send them to 'combined work and secular school' and children of the poorest are more likely to be inactive. This suggests that poverty is one of the primary reasons behind the decision of parents to allow their children to remain inactive and that extreme poverty causes their exclusion not only from school opportunities but also from the child labour market. While educated parents are more likely to send their children to secular and non-secular schools, younger household heads place greater importance on secular education.

Maternal education and mothers who have a say in household decisions have a significant role in increasing the chances of a child to go to a secular school. Results of the study also show that an improvement in the FIE of household heads increases secular school attendance and the improvement in RCP reduces enrolment in religious education. The degree of the religiosity of the head-of-household increases the probability of religious education enrolments and decreases the probability of child labour. As expected, the probability that a child is engaged in child labour increases if the father is engaged in agriculture and follows tribal norms.

Older children are less likely to participate in secular schooling, religious education and inactivity whereas the probability of choosing 'combined work and secular school attendance' as well as child labour increase with the age of child. For girls, an

increase in age decreases the probability of attending secular school and increases the probability of engaging in child labour, compared to their male counterparts. These results confirm the phenomena of high dropout rates from school and engagement in child labour, especially for girls, as they get older. Our results indicate that distance to the school, poverty, and low literacy rates among women have important impacts on the probability of sending children to secular school. As expected, the findings appear more important in the case of girls compared to their male counterparts.

In families where parents are uneducated, highly religious or poor, with a mother with no say in household decisions, a head of household following tribal norms, and living far away from developed cities, are most likely to send their male children for religious education or child labour and keep female children at home to learn household chores. However, these outcomes decrease with the increase in education levels of the family heads and participation of the mother in household decisions.

These results may suggest that creation of a proper, uniform, and effective system for basic education should be available and accessible to all, without any discrimination. Proximity of a school, particularly for girls, is important to motivate parents to send their children to school. Adult literacy programs for men and women will play an effective role in increasing the literacy rates of the next generation and will reduce the incidence of child labour.

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