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Socio economic determinants of child labour in selected districts of Khyber Pakhtunkhwa, Pakistan

Nabeela Begum[1*], Javed Iqbal[2] & Hina[3]
[1]BS Student, Department of Economics, Abdul Wali Khan University Mardan.
[2]Assistant Professor, Department of Economics, Abdul Wali Khan University Mardan.
[3]BS Student, Department of Economics, Abdul Wali Khan University Mardan.

ABSTRACT

This study examines the determinants of child labour in Mardan and Nowshera districts of Khyber Pakhtunkhwa. Primary data on socioeconomic characteristics of children engaged and did not engage in child labour were obtained from Labour Education Organization Mardan. Age of the children and family size are positively and education is negatively and significantly associated with the probability of children participation in labour market. The probability of child labour is more with the household income although with a very low coefficient value which is contrary to our expectations and may ne indicative that child labour could be a major source of household income. This study suggests that subsidies may be provided to families for their children education. Family size is also positively related to the child labour, therefore steps may be taken towards encouraging small family sizes and thereby reducing the child labour.

Keywords
Child labour, Socio-economic Characteristics, Logit Model
JEL Classification
J10, J12

1. Introduction

Child labour is a serious issue faced by many developing countries including Pakistan. Children engaged in labour are deprived from their right to education. Labour work in such an age is harmful for their mental and physical development. Child labour is exploitative and results in poor standard of living, poor health, attention and education. Parents' lack of education and lack of awareness about the negative consequences of child labour could have long-term implications not only for their families but overall country's development is jeopardized (Kazmi, 2015). Nawaz and Shaheen (2017) reported that poverty, migration, education and family were the main factors for the child labour. Further, they found that children were exploited and harassed on regular basis at the workplace. In the developing

*Corresponding author: kpari2743@gmail.com

countries most families face challenges to have a very basic shelter; food and clothing and therefore almost all family members are forced to work including children. International Labour Organization (ILO) in its 2013 report highlight that around 168 million children were involved child labour worldwide. Furthermore, according to ILO, about 12 million children alone are employed in Pakistan in the year 2015.

Osment (2014) argued that many countries face the child labour problem because of the extreme poverty. Furthermore, child labour can have many consequences for entire families and could also causes issues such a slavery and abandoned labour. They also found that many countries have policies in place to eradicate the child labour although there has been a challenge in enforcing such policies in true spirit. This problem is more serious in developing countries where children are made to work to fulfil their basic needs and absence of the social security net further aggravates the problem. Gandapur et.al (2014) reported that Pakistani parents also face many economic problems and therefore children are engaged in labour at their school going age.

Generally, in developing countries where policies either do not exist or enforcement is weak, children are underpaid, and their working conditions are hazardous. They are engaged labour in unhygienic and unsafe working environments. Children are also generally exposed to hazardous work. Most children are employed in industrial related jobs or technical trade related jobs where they use sharp objects and physically exertive jobs that which could result in long term health related issues in future. Pakistan's per-capita income has been around $1900 which is quite low to support a larger average Pakistani family. There has been ever increasing inflation that also make the life of people miserable. According to Asian Development Bank, about 24.3 percent of Pakistan population lived below the national poverty line in 2015. Furthermore, Social Policy Development Centre (SPDC) reported that in 1999, 33% people lived under poverty which increased 38% in the next two years (Zaidi et. al., 2013). This study examines the socioeconomic and demographic status of the families whose children were engaged in child labour and otherwise. It is important to study such characteristics to have an understanding of the localised environment under which children are engaged in child labour and what steps can be taken to effectively deal with it.

2. Literature review

Child labour has been studied in many countries with different polices in places and under various socio-economic characteristics of the households. Siddiqi & Patrino (1995) noted that the child labour is a huge problem especially in developing countries. They found that child labour was more wide spread in rural areas where monitoring and enforcement was difficult. Children work for a variety of reasons among which poverty is the most important reason to meet family needs. Children contribute significantly to their families' income even though they are not paid as per their labour work. They found that

inaccessibility of schools in rural areas, lack of quality education and other socioeconomic problems contributed to the child labour. Social and cultural norms especially about the female education further increased the child labour. This study advocated the establishment of partnerships of governments with humanitarian organizations and the international community for remedying the problems of working children.

Bhalotra and Heady (2001) observed that land-rich families employed more children compared to land-poor families as land created more opportunities for family labour as well as there is more need for children to work. The majority of children works in developing countries are engaged in agricultural work, predominantly on farms operated by their families. Land is the most important resource of wealth in agrarian countries and it is typically distributed very unequally. They observed that child labour mainly existed in the poorest households. They suggested that this seeming paradox can be explained by failures of the markets for labour and land. Credit market improvement may help alleviating the child labour. They argued that after controlling for household consumption and other covariates, the wealth paradox persists for girls and boys in many countries. Beegle et.al (2005) explored the relationship between household income shocks and child labour using a panel data technique on the household survey in Tanzania. They found significant relationship between child labour and income shocks and borrowings.

Mahmood et.al (2005) studied the socio-economic determinants of child labour in the automobile workshops, and other engineering workshops in tehsil Samundri, Faisalabad, Pakistan. They interviewed randomly selected 120 respondents under the age of 15 years. Those who aged less than 14 years constituted one half the children interviewed, most had attained primary education, majority lived in rural areas, and had both parents alive but with low income. Majority of the respondents were not willing to work but family financial problems forced them to work. They suggested that more educational and more adult employment opportunities could help eradicate poverty and thus child labour. Edmonds (2007) noted child labour was influenced by the local labour markets, family conditions, the net return to schooling, and finally the poverty. The study emphasized the importance of the effectiveness of child labour policies, and understanding of the determinants of child labour.

Ahmad and Haider (2012) investigated the factors for child labour using cross-sectional data collected from 100 households and using a binary choice model. It was found that the education of the household, and their income negatively affected the child labour significantly. Furthermore, child age, and family size were found to be positively related with child labour although insignificantly. In this study they concluded that parental education was necessary for better future of children. The study suggested that government and private sector should provide education facilities to the poor people of Khyber Pakhtunkhwa province. The government also needs to establish skill development schools

or centres in rural areas as well as in urban areas so that those who cannot afford formal education can acquire technical skills. Zaidi et.al (2013) studied the basic demographic characteristics of those who worked as child labour and also examined the working conditions in which they worked. They collected cross sectional data through a survey which was conducted in district Rawalpindi from January-September 2008. The data were collected from 700 children aged between 4-18 years and their employers. The major reasons for the child labour were low family income and the existence of poverty. Pervez and Mukhtar (2014) noted most children were employed in fan manufacturing industries, ceramics industry and automobile workshops in the district Gujarat, Pakistan. They used the Logit and Probit models for estimating the factors responsible for child labour. Family income had a negative and statistically significant effect on the child labour while average family size was found to positively affecting it. They suggested that people need to be informed of the adverse effects of child labour and education should be made accessible and affordable.

3. Research methods

We begin this section with the explanation of factors that could be responsible for the existence of child labour. Various factors have been identified in the previous literature which are outlines as follows:

A majority of studies in developing countries indicated poverty was the major cause of child labour and that poorer families were more likely to send their children to work compared to non-poor families (Pervez & Mukhtar, 2014). Parent's profession is also found to be important factor determining the child labour. Where parents have been employed in white collar jobs, they were less likely to send their children to work in early ages. Parents' education plays a critical role in their children growth. Educated parents can make more rational decisions to decide about the future of their children. When the educational level of parents is higher, they are less likely to send their children to work. Generally, age, income and family size are correlated with the child labour. Lower is the family income, the higher are the chances of a child to be sent to the work at tender age. Furthermore, family size also plays a huge role in child labour because as the size of the family increases so are the needs and therefore that lack of income is made up with the child labour. Finally, cost of education is another major problem for poor household's family. Schools need to be affordable and accessible for all the households.

After identifying various factors responsible for child labour based on the previous literature, we develop our empirical model. The nature of problem is that whether a child is in labour force or otherwise. Therefore, the dependant variable is dummy variable and hence a binary choice variable could be used. Generally, logit model is used to empirically analyze such a problem. Below is presented a short introduction to the model that will be used in

this research. Choices of the households/children can be represented by a binary variable that takes the value 1 if a child is in labour force and takes the value 0 otherwise. An individual chooses a choice between being a part of child labour or not part of child labour and enjoying the childhood and going school. The choice problem of an individual is given as follows:

$$y = \begin{Bmatrix} 1 & child\ labour \\ 0 & othrwise \end{Bmatrix} \quad (1)$$

where *y* is a random variable and the probability function for *y* is

$$f(y) = p^y(1-p)^{1-y} \ \ where\ y = 0,1 \quad (2)$$

p is the probability that *y* takes the value 1. This discrete random variable has expected value $E(y) = p$.

In regression analysis, dependent variable has a fixed component and a random component and given as follows:

$$y = E(y) + e = p + e \quad (3)$$

$$E(y) = p = \beta_1 + \beta_2 x \quad (4)$$

$$y = E(y) + e = \beta_1 + \beta_2 x + e \quad (5)$$

The cumulative distribution function of the logit model is given as;

$$P_i = \frac{1}{1+e^{-(\beta_1+\beta_2 x)}} \quad (6)$$

Where x are the explanatory variables such as age (age of children), CE (child education), W (child age), FS (family size), PE (parent's education), FI (family income), HH (head of household), and FP (father profession). After substituting for the x, we get,

$$Pi = \frac{1}{1} + e^{-(\beta_0+\beta_1 1age+\ \beta_2 CE+\ \beta_3\ w+\ \beta_4\ FS+\ \beta_5\ PE+\ \beta_6 FIi+\ \beta_7\ HH+\ \beta_8 FP\ )} \quad (7)$$

Where, P_i is the probability of child labour being engaged in it. For ease of exposition, we can write the equation (6) as follows;

$$P_i = \frac{1}{1+e^{-Z_i}} = \frac{1}{1+\frac{1}{e^{Z_i}}} = \frac{1}{\frac{e^{Z_i}\ +\ 1}{e^{Z_i}}} = \frac{e^{Z_i}}{1+e^{Z_i}} \quad (8)$$

Where $Z_i = (\beta_1 + \beta_2 x)$. The probability of not working as a child labour is given as follows;

$$1 - P_i = 1 - \frac{e^{Z_i}}{1+e^{Z_i}} = \frac{1+e^{Z_i}-e^{Z_i}}{1+e^{Z_i}} = \frac{1}{1+e^{Z_i}} \quad (9)$$

Using equation (8) & (9) we can write the odd of someone work compared to not working as follows:

$$\frac{pi}{1-pi} = \frac{1+e^{Zi}}{1+e^{-Zi}} = e^{Zi} \quad (10)$$

$$\frac{pi}{1-pi} = e^{\beta_0+\beta_1 1age+\ \beta_2 CE+\ \beta_3\ w+\ \beta_4\ FS+\ \beta_5\ PE+\ \beta_6 FIi+\ \beta_7\ HH+\ \beta_8 FP+\ ui} \quad (11)$$

Now $pi/1-pi$ is simply the odd ratio of the incidence of child labour implying that the ratio of the probability that family send their child for working compared to those families who will not. Taking log on the above equation, we get the following model;

$$L = ln[Pi/1-Pi] = \ln(e^{\beta_0+\beta_1 1age+\beta_2 CE+\beta_3 w+\beta_4 FS+\beta_5 PE+\beta_6 FIi+\beta_7 HH+\beta_8 FP}) \quad (12)$$

$$L = \ln\left[\frac{Pi}{1}-Pi\right] = \beta_0+\beta_1 1age+\beta_2 CE+\beta_3 w+\beta_4 FS+ \beta_5 PE+\beta_6 FIi+\beta_7 HH+\beta_8 FP \quad (13)$$

Equation (13) is the logit model that we will estimate to analyse the effect of various socio-economic factors on the child labour choice of being engaged in child labour or otherwise. The model is not only linear in explanatory variables but also linear in parameters.

The data for this study were obtained from the Labour Education Organization (LEO) Mardan, Khyber Pakhtunkhwa. LEO collected the data through a questionnaire both in Mardan and Nowshera districts. A total of 300 respondents were selected from this data based on completeness of the data and other inaccuracies. In this sample, about 154 of them were working children in the age group of 5-14 years at different work places of Mardan and Nowshera City. These children were involved in different economic activities such as tailoring, workshops, and in hotels.

4. Results and discussion

4.1. Descriptive analysis

The descriptive analysis for all the variables included in this research work is presented in table 1. The minimum age of child in the sample who was working was 5 years & the maximum age of child was 14 years with average age of 11.51 years. It can also be seen in the table that that average years of education was 4.28 years. It implies that the children were taken out from schools by the parents at the very early age. There can be multiple factors that could have made the parents to withdraw their children from schools such as household income, affordability and accessibility of schooling, poor performance of the children, strict and less caring teachers and many others. Hopelessness of the parents to get higher earnings or employment from the schooling of their children. Education of parents is generally believed to be a factor determining the child labour participation as well. In our sample, parental education on average was 5.8 years with maximum of 16 years of education. Family size could also play a role as the bigger the sizes of the family, the more are the needs of the families. The average family size was about 6 members with a maximum family size 14. The household income was generally low and the average income was just Rs. 11,350. Majority of the income was earned from the activities such as van driving, sewing, garbage and waste collection, fruit and vegetable selling, working abroad, meat shop, and mechanics. The child income has been low so that main reason for child labour

may not be income but to learn business skills, and hands on experience and technical skills so that in future they could earn the livelihood for themselves.

Table 1: Descriptive statistics

Variables	Frequency	Minimum	Maximum	Mean
Age (years)	300	5	14	11.51
Education of the child (years)	300	0	9	4.28
Parent education (years)	300	0	16	5.80
Family size (numbers)	300	3	14	6.12
Total household income (Rs. /month)	300	2500	50000	11351.67
Child income (Rs. /month)	300	0	400	58.30

Source: Survey data

Table 2 shows that majority (83%) of the children were aged more than 10 years old. Also, about half of them had primary education compared to the other half who had secondary education level. Similarly, we had the sample such that about half of them were in child labour. The sample was split almost in half too with 54% female and 46% male children. There is a variation in urban and rural areas such that 73% of respondents lived in rural areas while 27% in urban areas. Majority of them (58%) had their own house while 42% lived in rented houses. Finally, most of the working children were employed on daily wages and 64.4% had their daily income less than 100 rupees.

Table 2: Characteristics of the respondents

Categories	Frequency	Percentage (%)	Cumulative%
Child Age			
< 10 age of child	51	17	17
> 10 age of child	249	83	100
Child Education			
< 5 years(primary)	174	58	58
> 5 years(secondary)	126	42	100
Working status			
In child labour	153	51	51
outside child labour	147	49	100
Child status			
1 (Male)	140	46.67	46.67
0 (Female)	160	53.33	100
Neighborhoods status			
Urban	81	27	27
Rural	219	73	100
Child income Rs. /day			
0 to 100	228	75.98	75.98
100 to 200	34	11.32	87.3
200 to 300	26	8.66	95.96
300 to 400	12	4	99.96
Family Size (#)			
< 4	10	3.33	3.33
4-7	232	77.33	80.66
8-10	54	18	98.66
> 10	7	1.33	99.99
Income of HH Rs. /Month			
< 15,000	234	77.98	77.98

15,000 to30,000	57	18.99	96.97
> 30,000	9	3	99.97
Parental Education			
< 5 (primary)	94	31.34	31.34
5 to 8 (Middle)	98	32.67	64.01
8 to 10 (Matrix)	54	18	82.01
10 to 12 (intermediate)	32	10.67	92.68
12 to 14 (Bachelor)	13	4.33	97.01
16 (Master)	9	3	100
Assets (property)			
Own House	176	58.67	58.67
Rent House	124	41.33	100

Source: Survey data

Table 3 exhibits a relationship between the child labour status and the neighbourhoods that the children lived in (rural versus urban). Out of the total 219 children who lived in rural areas, about 117 (53%) of them were engaged in child labour compared to 102 (47%) of them who were not in child labour. Similarly, among the urban children, about 28% were found to be engaged in child labour. The reason for few children working in urban areas could be that the parents had better jobs in urban areas, better educated and more opportunities for children to go to school. The table also indicated that majority of the children who were in child employment came from rural areas (84%) compared to the urban areas (16%). The difference between the child labour based on the neighbourhood status was found to be statistically significant.

Table 3: Relationship between the child labour and neighbourhood status

		Neighbourhood		**Total**	**Chi square value**
		Rural	**Urban**		
Outside of child labour	Count	102	58	160	
	% within child labour status	63.8%	36.2%	100.0%	14.88***
	% within neighbourhood	46.6%	71.6%	53.3%	
In child labour	Count	117	23	140	
	% within child labour status	83.6%	16.4%	100.0%	
	% within neighbourhood	53.4%	28.4%	46.7%	
Total	Count	219	81	300	
	% within child labour status	73.0%	27.0%	100.0%	
	% within neighbourhood	100.0%	100.0%	100.0%	

Source: Survey data

Table 4 shows the relationship between the child labour status and child age. Out of the total 249 children whose age was more than 10 years, about 55% of them were in child labour compared to the 45% who were not. Similarly, children aged less than 10 years, about 4 % were found in child employment compared to the other 96% who were not engaged in child labour. The table shows that the majority of children in child labour were those who aged greater than 10 years. The difference between child labour status based on child labour age was found to be significant.

Table 4: Relationship between child labour and child age

		Child labour age		Total	Chi square value
		> 10 years	**< 10 years**		
Outside of child labour	Count	111	49	160	45.10***
	% within child labour status	69.4%	30.6%	100.0%	
	% within child age	44.6%	96.1%	53.3%	
In child labour	Count	138	2	140	
	% within child labour status	98.6%	1.4%	100.0%	
	% within child age	55.4%	3.9%	46.7%	
Total	Count	249	51	300	
	% within child labour status	83.0%	17.0%	100.0%	
	% within child age	100.0%	100.0%	100.0%	

Source: Survey data

Table 5 exhibits the relationship between child labour status and children education. About 126 children who got more than 5 years of education, about 15% were in child labour compared to the remaining 85% who were not in child labour. Similarly, about 70% who had less than 5 years of education were in child labour.

Table 5: Relationship between child labour and child education

		Child labour education		Total	Chi square value
		>5 years	**<5 years**		
Outside of child labour	Count	107	53	160	87.08***
	% within child status	66.9%	33.1%	100.0%	
	% within child education	84.9%	30.5%	53.3%	
In child labour	Count	19	121	140	
	% within child status	13.6%	86.4%	100.0%	
	% within child education	15.1%	69.5%	46.7%	
Total	Count	126	174	300	
	% within child status	42.0%	58.0%	100.0%	
	% within child education	100.0%	100.0%	100.0%	

Source: Survey data

Table 6 indicates the relationship between child labour status and household head of the children. Out of the total children, about 19, 277 and 4 had their mother, father and other as their household head. Comparing the categories based on household head, all 19 (100%) were in child labour when the mother was household head, 44% in child labour compared 56% for the household having father as a household head. This difference could be explained due to the fact that where mothers were household head, they might have severe financial problems due to mothers being widow.

Table 6: Relationship between child labour and household head

		Relationship with household head			Total	Chi square value
		Mother	**Father**	**Other**		
Outside of child labour	Count	0	156	4	160	26.20^{***}
	% within child status	.0%	97.5%	2.5%	100.0%	
	% within relationship with HH	.0%	56.3%	100.0%	53.3%	
In child labour	Count	19	121	0	140	
	% within child status	13.6%	86.4%	.0%	100.0%	
	% within relationship with HH	100.0%	43.7%	.0%	46.7%	
Total	Count	19	277	4	300	
	% within child status	6.3%	92.3%	1.3%	100.0%	
	% within relationship with HH	100.0%	100.0%	100.0%	100.0%	

Source: Survey data

Table 7 shows the relationship between child labour status and parent's education. It is generally believed that parents education plays a huge role in determining the child labour status. It can be seen that where the parent's education was high, then the lower percentage was engaged in child labour compared to the other categories. The chi square value is 35.16 which shows that the child labour status is significantly different for the various categories of the parents' education.

Table 7: Relationship between child labour and parent's education

		Parent's education (years)			Total	Chi square value
		<5	5-10	10 -16		
Outside of child labour	Count	30	86	44	160	35.16^{***}
	% within child status	18.8%	53.8%	27.5%	100.0%	
	% within education	31.9%	56.6%	81.5%	53.3%	
In child labour	Count	64	66	10	140	
	% within child status	45.7%	47.1%	7.1%	100.0%	
	% within education	68.1%	43.4%	18.5%	46.7%	
Total	Count	94	152	54	300	
	% within child status	31.3%	50.7%	18.0%	100.0%	
	% within education	100.0%	100.0%	100.0%	100.0%	

Source: Survey data

Table 8 indicates a relationship between the family size and child labour status. A large number of family sizes could lead to more child labour. It shows that as the family size grew up, so was the child labour. Also, the difference in child labour status based on the size of family was statistically significant as well.

Table 8: Relationship between child status & Family size

		Family size (Numbers)			Total	Chi square value
		Up to 5	6-10	> 10		
Outside of child labour		74	86	0	160	12.64***
	% within child status	46.2%	53.8%	.0%	100.0%	
	% within family size	64.3%	47.5%	.0%	53.3%	
In child labour		41	95	4	140	
	% within child status	29.3%	67.9%	2.9%	100.0%	
	% within family size	35.7%	52.5%	100.0%	46.7%	
Total	Count	115	181	4	300	
	% within child status	38.3%	60.3%	1.3%	100.0%	
	% within family status	100.0%	100.0%	100.0%	100.0%	

Source: Survey data

The table 9 exhibits a relationship between child status and total income of house hold income groups. The table shows that as household income grew up, the child labour fell down. It is indicated that a higher percentage (58%) of children were in labour force for those households whose family income was less than Rs. 15,000. It can be concluded that a higher number of children are in child labour due to low level of household income. Our results are in conformity with that of Kondylis and Manacorda (2012) who also found that less educated parents who did not have suitable jobs, and therefore were in poverty, engaged their children in child labour. Similar, results were found in the studies of Abrar and Ghouri (2010), Mahmood et.al (2005) and Khan and Ejaz (2003) and Ray (1999).

Table 9: Relationship between child labour and household income

		Household income (Rs.)			Total	Chi square value
		<15,000	15,000 - 30,000	>30,000		
Outside of child labour	Count	100	50	10	160	50.92***
	% within child status	62.5%	31.2%	6.2%	100.0%	
	% within total income	42.6%	90.9%	100.0%	53.3%	
In child labour	Count	135	5	0	140	
	% within child status	96.4%	3.6%	.0%	100.0%	
	% within total income	57.4%	9.1%	.0%	46.7%	
Total	Count	235	55	10	300	
	% within child status	78.3%	18.3%	3.3%	100.0%	
	% within total income	100.0%	100.0%	100.0%	100.0%	

Source: Survey data

Table 10 shows the relationship between child labour status and the residence status of the households. Living in rental houses indicates an additional expense and an indicative of low level of income. It is shown that about 89% children lived in rental house or had no assets compared to 17% children who owned a house. Although, the difference was not found to be statistically significant.

Table10: Relationship between child labour and residential status

		Assets		Total	Chi square value
		Rent house	Own house		
Outside of child labour	Count	14	146	160	
	% within child status	8.8%	91.2%	100.0%	
	% within assets	11.3%	83.0%	53.3%	1.501
In child labour	Count	110	30	140	
	% within child status	78.6%	21.4%	100.0%	
	% within assets	88.7%	17.0%	46.7%	
Total	Count	124	176	300	
	% within child status	41.3%	58.7%	100.0%	
	% within assets	100.0%	100.0%	100.0%	

Source: Survey data

The discussions in the preceding paragraphs indicate that there are many socioeconomic factors that are responsible for the child labour. They were discussed in isolation from the others factors through bi-variate statistics. The following section presents the results together in a more formal econometrics model.

4.2. Child labour determinants

The estimated results from the Logit model are presented in table 11. Age of the children has been found to be positive and significantly relating with the log of the odds of the participation compared to not participation. As the children were growing up, they tended to be more involved in child labour. This is in conformity with the results found in like Kondylis and Manacorda (2012) where they also found a positive relation of child labour and child age. As expected, the relationship between child labour and child education is negative. Those children who went to school, they had a lower probability of working compared to those who did not attend school. Similarly, parent's education was also found to negatively affect the participation in child labour albeit insignificantly. Similar relationship was also found in (Mahmood et al., 2005; Bhalotra & Tzannato 2003).

The relationship between family size and child labour is found to be positive although insignificant. Generally, as the family size increases, so as the expenditures and need for more income. Therefore, it is expected that more children from such families are engaged

in child labour. A positive relationship between family size and child labour was also found in Kondylis and Manacorda (2012). The probability of child labour was more with the household income although with a very low coefficient value which is contrary to our expectations.

Table 11: Logit model estimation

	Coefficient	Standard error	Wald	Sig.	Exp(b)
Age	2.661	.555	22.961	.000	14.306
Child education	-4.112	.855	23.160	.000	.016
Parent education	-.202	.686	.087	.768	.817
Family size	.269	.311	.750	.387	1.309
Total income household	.000	.000	5.665	.017	1.000
Constant	-10.569	3.971	7.085	.008	.000
R^2	0.95				
Log-likelihood	43.63				

5. Conclusions

The major objective of this study was to find out the socioeconomic determinants of child labour in Mardan and Nowshera districts of the Khyber Pakhtunkhwa. We used both descriptive and econometrics techniques to analyze the effect of various factors on children participation in child labour. Age of the children was found to be positive and significantly relating with the probability of participation. The relationship between child labour and child education was found to be negative. Furthermore, parent's education was also found to negatively affect the participation in child labour albeit insignificantly. The relationship between family size and child labour was found to be positive although insignificant. The probability of child labour was more with the household income although with a very low coefficient value which is contrary to our expectations.

As it was found that the age was positively related to the participation in child labour, it is pertinent that families are monitored and provided financial support especially for education. As the age increases, the cost of education also generally increases. Therefore, targeted subsidies may provide to the families to encourage them to send their children to school. Education of both the children and their parents were found to be significant determinants of the child labour. It had a negative effect on the child labour participation. Therefore, it is important that the education of not only the children but also their parents may be improved. Family size was also positively related to the child labour. The growth in families has been a major problem in Pakistan as there are usually a few members who contribute to the income while the rest are dependents. Steps may be taken towards encouraging small family sizes and thereby reducing the child labour.

References

Abrar, N., & Ghouri, A. M. (2010). Comprehensive study of socio economic dimensions of child labour in new vegetable and fruit market Karachi. *Interdisciplinary Journal of Contemporary Research in Business*, *2*(7), p182.

Ahmed, S. S., & Haider, W. (2012). Determinants of child labour in Khyber Pakhtunkhwa: An Econometric Analysis. *Research Journal Social Sciences 4(2) ,53–67.*

Bhalotra, S. R., & Heady, C. (2001). Child farm labour: theory and evidence. *Development Economics Discussion Papers Series-Suntory and Toyota International Centre for Economics and Related Disciplines*, (24).

Bhalotra, S. R., & Tzannatos, Z. (2003). Child labour: What have we learnt? World Bank, Social Protection. Retrieved from The World Bank, 1818 H Street, N.W., Washington, D.C. 20433 USA. Visit the Social Protection website at http://www.worldbank.org/sp.

Beegle, K., Dehejia, R. H., & Gatti, R. (2005). Child labour and agricultural shocks. *Journal of Development economics*, *81*(1), 80-96.

Edmonds, E. V. (2007). Child labour. Handbook of development economics. 4: 3607-3709.

Gandapur, S. B., Shahab, P., & Ehsan Qureshi, M. (2014). Analysis of various forms of child labour in D. I. Khan city, KPK, Pakistan. *Asian journal of management sciences & education*, *3*(3), 132-140.

Khan, A., & Ejaz, R. (2003). The determinants of child labour a case study of Pakpattan and Faisalabad (Pakistan). *Department of Economics PhD thesis, Bahauddin Zakariya University, Multan*.

Kondylis, F., & Manacorda, M. (2012). School proximity and child labour evidence from rural Tanzania. *Journal of Human Resources*, *47*(1), 32-63.

Kazmi, S. M. A. (2015). *How Does Socio-economic Factors Force Children Into Child Labour?: A Case Study of Sahiwal District, Punjab, Pakistan*. Sustainable Development Policy Institute.

Mahmood, S., Maann, A. A., Tabasam, N., & Niazi, S. K. (2005). Socio-economic determinants of child labour in automobile and engineering workshops. Journal of Agriculture & Social Sciences, 1, 64-65.

Nawaz, I., & Shaheen, A. (2017). Situation analysis of child labour in commercial areas of Islamabad City. *International Journal of Academic Research in Business and Social Sciences*, *7*(2), 79-98.

Osment, L. (2014). Child labour; the effect on child, causes and remedies to the revolving menace. Unpublished LUP Student Papers, Lund University Libraries, UTVK01 20132, Department of Human Geography. http://lup.lub.lu.se/student-papers/record/4275652

Pervez, S., & Mukhtar, Z. (2014). Determinants of child labour: a case study of automobiles workshops, fan industry and ceramics industry in Gujarat. J. Asian Dev. Stud, *3*(3), 56-63.

Ray, R. (1999). *How child labour and child schooling interact with adult labour*. The World Bank.

Siddiqi, F., & Patrinos, H. A. (1995). *Child labour: issues, causes and interventions*. Education and Social Policy Department, Human Resources Development and Operations Policy, the World Bank.

Zaidi, N., Javed, N., & Khan, M. S. (2013). Child labour in Pakistan-A tip of an iceberg. *Journal of Postgraduate Medical Institute (Peshawar-Pakistan)*, *27*(3).