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Malik Muhammad, Nasim Shah Shirazi, Zafar Kayani

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## Parental education and child labour: evidence from Pakistan

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Malik Muhammad\*

IIIE,  
International Islamic University,  
Islamabad, Pakistan  
Email: malikmuhammad@iiu.edu.pk  
\*Corresponding author

Nasim Shah Shirazi

CIS,  
Hamad bin Khalifa University,  
Doha, Qatar  
Email: nshirazi@hbku.edu.qa

Zafar Kayani

Department of Economics,  
Trent University,  
Ontario, Canada  
Email: zafarkayani@trentu.ca

**Abstract:** Child labour deprives children of their right to education, resulting in a lack of skills, human capital, and a reduction in future earnings. This study provides a better understanding of child labour by examining its relationship with socio-economic factors. Using PSLM 2019–2020 data, logit estimates show that an increase in the parental level of education reduces the chance of child labour. The well-being measured by the wealth index shows that children from wealthy households are less likely to work. Furthermore, the fathers' employment substitutes, while mothers' employment complements children's work. Girls are less likely to involve in child labour than boys. However, this may be interpreted carefully as girls are primarily engaged in household chores that are not reported. Finally, children from rural areas are more likely to do work than children from urban areas. Similarly, children from Balochistan have a greater chance of child labour than Sindh, Punjab, and KPK.

**Keywords:** child labour; parental education; logit model; Pakistan.

**JEL codes:** J21, I20, C13.

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**Biographical notes:** Malik Muhammad is an Assistant Professor at International Institute of Islamic Economics (IIIE), International Islamic University Islamabad (IIUI), Pakistan. He has designed, and taught courses at the graduate and post-graduate levels in economics, at different national universities. He has more than 25 publications. His main area of interest is household economics and applied econometrics.

Nasim Shah Shirazi is a Professor at the College of Islamic Studies (CIS), Hamad Bin Khalifa University, Doha. He also worked as a Lead Economist and Acting Manager, Islamic Economics and Finance Research Division, IRTI, Islamic Development Bank. Previously, he worked as the Dean, Director Research and Director General, International Institute of Islamic Economics (IIIE), International Islamic University Islamabad (IIUI), Pakistan. With more than 80 publications, he is well respected for his research in development economics, public finance, and Islamic Social Finance.

Zafar Kayani is an Associate Professor at Trent University, Ontario, Canada. His major areas of research interest in the areas of applied macroeconomics and financial economics. He is also an Associate Editor of *International Journal of Education Economic and Development*.

## 1 Introduction

Child labour is defined as “the exploitation of children via any type of work that deprives children of their childhood, interferes with their ability to attend regular school, and is mentally, physically, socially, or morally harmful.” The meaning of child labour varies based on who the child is and how long they work. For example, according to Statistical Information and Monitoring Programme on Child Labor (SIMPOC), a child is involved in child labour if an economically active child under 12 years works one or more hours per week, and economically active child 14 years or under who works at least 14 hours or more per week in activities that are ‘hazardous by nature or circumstance’, and a child 17 years and under who works in an ‘unconditional worst form of child labour’ (Edmonds, 2008). According to UNICEF, a child is involved in child labour if they are 5 to 11 years old and participates in the market for at least one hour and 28 hours of household chores per week, and if a child is 12 to 14 years old and participates in the market for at least 14 hours and 42 hours of household chores per week. In Pakistan, economically active child of age 5 to 14 year is considered child labourers (Federal Bureau of Statistics of Pakistan, 2001).

The SDGs target 8.7 of UN requires the member states to “take immediate and effective measures to eradicate forced labor, end modern slavery and human trafficking and secure the prohibition and elimination of the worst forms of child labor, including recruitment and use of child soldiers, and by 2025 end child labor in all its forms.” To achieve this target, the government of Pakistan has sanctioned ILO core Conventions related to child labour, including the minimum age convention, 1973 (No. 138) and the worst forms of child labour convention, 1999 (No. 182). Further, the government of Pakistan has also established several legislations regarding the provisions, banning, and regulating the working conditions of child workers. ‘The Factories Act of 1934’ is one of them, which provides awareness and knowledge to labourers which helps them to start

doing their work according to standard pay packages and thus meet their basic needs by their salaries rather than involving children in the labour market. In addition, the constitution explicitly defines all the matters linked to protecting life or independence, restrictions on bondage, forced labour, union and association rights. “No child under the age of 14 years shall be engaged in any factory or mine or any other hazardous employment” is clearly defined in Article 11 of the constitution. Realising the importance of education in controlling child labour, Article 25-A was included in the constitution under the 18th constitutional amendments which requires the state to provide compulsory and free education to every child aged 5 to 16 years. According to Article 11 (3), no child under the age of 14 shall be employed in any industry, mine, or other hazardous employment. Under Article 37(e), the state shall provide for securing just and humane conditions of work to ensure that women and children are not forced to work in inappropriate settings for their age or gender.

Despite the above constitutional measures taken by the government, about 3.3 million children aged 5 to 14 are involved in child labour in Pakistan and also have the world’s second-highest number of out-of-school children, with an estimated 22.8 million children aged 5 to 16 not attending school (International Labor Organization/UNICEF, 2021). Poverty and a low level of education are the main causes of child labour in Pakistan. The per capita income of Pakistan is only \$1,192 and the average year of schooling is 5.2 years which is far below the average of developed nations (UNDP, 2020). The situation is more worse for the parents than children (Muhammad and Jamil, 2020). Due to poor financial position, the poor are excluded from participating in some income-generating activities in the societies, resulting in excluding them from the opportunities of capability formation (Muhammad and Syed, 2019). This lowers the quality of human capital for both parents and children generation and reduces their income. Poverty combined with low parental education compels the children to start working at an early age to financially support their families. This causes children to be underdeveloped and less productive, resulting in a decline in future family income. On the other hand, educated parents can better understand the value and long-term benefits of education and devote more time to their children’s education rather than involve them in child labour.

Besides, the culture of a society also plays a vital role in child labour. Working at an early age is assumed to be beneficial in the development of children’s capabilities and learning potentials which are seen as socially important attributes. Many families from different cultures in Pakistan want their children to get skilled labour at an early age which is considered useful to earn for family livelihood (Zafar et al., 2016). It is culturally believed that sending a child to the labour market is better than getting an education (Naz et al., 2019). Moreover, a joint family system is common in Pakistan, where dependent members are usually larger and require more hands to work to support them. In such families, children are involved in the labour market to support their families. Further, traditionally in rural areas of Pakistan, poor families are working in the fields of the rich people where these families need the help of many hands at the time of harvest and reaping. Thus, children are socially and culturally responsible for working in the fields and other areas. Children also work alongside their families as bonded workers, where child labour services are offered in exchange for a loan. This type of forced child labour happens mainly in Pakistan’s brick, carpet, and coal industries. The inherited lower status of some castes in Pakistan also places societal constraints on traditional work

assignments. The children of these castes are discouraged from the beginning to attempt to come out of clutches of deprivation and are likely to involve in child labour.

In this paper we will investigate the factors affecting child labour in Pakistan. Specifically, we will explore the role of parental education, parental participation in the job market, and their material well-being on child labour. Further, we will also find out how the number of children and regional differences influences child labour in Pakistan.

## **2 Literature review**

There are ample studies which investigate the factors responsible for child labour. Studies, including Martin (2013), and Bourdillon and Carothers (2019), among many others, identify poverty as a key factor causing child labour. Edmonds (2003) demonstrates that due to poverty majority of the children in Nepal and Vietnam work to assist their parents on family farms. Bourdillon and Carothers (2019) consider financial crises responsible for child labour. Besides poverty and income, parental education, parental participation in the labour market, family size, and the gender of the household head have also been highlighted as factors affecting child labour by Christenson and Juarez (1987), Brizzio de la Hoz (1996), and Yokying and Floro (2020). Badmus and Akinyosoye (2008) find negative relationship between child labour and parental education. Owoyomi (2018) concludes that free education policy in Lagos State does not reduce child labour; instead, it is the parental level of education that largely influences child labour. Kurosaki et al. (2006) find that the mother's education is more essential than the father's education in child labour decisions in rural India.

Fawole (2003) document that child labour in Nigeria is due to the massive unemployment of the parents. Adegun (2013) indicates that unemployed parents push their children to get involved in street hawking to financially support their families. However, on the other hand, Bhalotra (2003) and Francavilla and Gianelli (2007) find that children with employed mothers work more since children accompany their mothers at their work. Arabsheibani (2016) reveals that boys are more likely than girls to engage in child labour due to biological traits and societal acceptance. Fafchamps and Wahba (2006) document that children in urban regions have greater opportunities to attend school and have fewer opportunities to do work than children in rural regions.

## **3 Theoretical framework and model specification**

We assume that household members make rational decisions in choosing between leisure and work to maximise household utility subject to budget and time constraints. Households modify their budget and time constraints according to costs and return related to these alternative choices and then compare the level of utilities achieved from these two alternatives. A child will choose to work if the utility obtained from doing work is greater than that from not doing work.

Many factors influence a child's decision to work. Among these, poverty has been considered as one of the key factors. Children belong to poor financial backgrounds have a smaller chance to attend school and are more likely to do work. Parents send their children to work to reduce the risk of their consumption falling below the subsistence level (Canagarajah and Nielsen, 2001). However, income is usually underreported in the

survey data due to the omission of some income sources, and recall errors as time length involve in reporting of income (Cabral et al., 2021). Education can be used as an alternative proxy to assess one's income and overall socioeconomic status as the level of income, health, and other economic outcomes are associated with the level of education (Solon et al., 1994).<sup>1</sup> The more educated parents earn more labour income and as a result, they would desire their child to attain the same achievement (Basu and Tzannatos, 2003) rather involve them in work at their early age.

The living standard and material well-being of a household can also be assessed by wealth. A poor household requires only the fulfilment of basic needs like food, clothing, and shelter for their material well-being. Access to electricity makes life more comfortable. Refrigerator saves the time of daily shopping. Fans, air conditioners, ovens, washing machines, iron make life easy. Phones, computers, social networks, and media make the world like a global village. The housing quality, reflected through the material used in its construction, is also an important part of material well-being. Further positions of commercial and agricultural land, livestock, bike, car, bus, etc. reflect the material soundness of a household. These assets can be used as collateral or sold rather than involving children in the labour market in case households need money.

Parental participation in the labour market and earning activity can also influence a child's decision to work. The link between child labour and parental work is the net outcome of substitution, income, and added worker effects. Devoting more time to work by parents reduces children's need to work is called the substitution effect. In the income effect, the increase in parental income induces parents and their children to work less. According to the added worker effect, family members working in family enterprises or farms enhance family income. Therefore, as parental employment in these enterprises and farms increases, children's employment in labour work increases. The added or complementary worker impact is most likely observed in informal employment when children are permitted to work as family employees without contracts or fear of inspection and penalties. Informal employment pays less, and the workers who work in it are generally from the low-income group (Dasgupta et al., 2015).

Based on the above discussion, our general model is:

$$CL_i = f(FE_i, ME_i, HW_i, FW_i, MW_i) \quad (1)$$

where  $CL$  is child labour,  $FE$ ,  $ME$ ,  $HW$ ,  $FW$ , and  $MW$  are father education, mother education, household wealth, father working status, and mother working status, respectively of an  $i^{\text{th}}$  child.

Moreover, tasks assigned to children are divided based on gender, as boys and girls have different work experiences due to their societal roles. For example, boys choose to work in sectors like mining and fishing and girls select to work in the garment industry and in the home. Gender discrimination also impacts the occupations where boys and girls are involved in. These include:

- 1 exclusion of women from employment in some sectors
- 2 paying less to girls than boys for doing the same job
- 3 valuing girls less than boys in some cultures
- 4 investing less in daughters' education than sons'.

Family size, especially the number of children, is another factor influencing child labour. With the increase in the number of children, it becomes difficult for parents to afford their schooling and other expenditures; therefore, they engage them in the labour market. Due to credit market imperfection in developing countries, most of the parents cannot smooth their consumption. Therefore, extra resources required for a new child are met by child labour in poor families. Moreover, the chance of child labour increases with the increase in age of a child because with the increase in age the chance to enrol in school declines and opt for work as an alternative choice.

Finally, differences exist in child labour based on regions the children live in. In rural areas, children accept their parental occupations, especially in agricultural countries, at an early age (Parikh and Sadoulet, 2005). Child labour is common at harvesting time in rural areas. In urban areas, parents are more likely to educate their children instead of involving them in child labour. Similarly, differences in child labour also exist across the provinces as economic conditions, cultures, and availability of job opportunities vary across the provinces.

**Table 1** Variables' type and description

<i>Variable</i>	<i>Type</i>	<i>Description</i>
Child labour	Categorical	Child labour = 1 if a child does work, = 0 otherwise
Father education	Categorical	Primary = 1 if father education is primary, = 0 otherwise Middle = 1 if father education is middle, = 0 otherwise Matric = 1 if father education is matric, = 0 otherwise Intermediate = 1 if father education is intermediate, = 0 otherwise Bachelor and above = 1 if father education is bachelor and above, = 0 otherwise Never attend school is the base category
Mother education	Categorical	Primary = 1 if mother education is primary, = 0 otherwise Middle = 1 if mother education is middle, = 0 otherwise Matric = 1 if mother education is matric, = 0 otherwise Intermediate = 1 if mother education is intermediate, = 0 otherwise Bachelor and above = 1 if mother education is bachelor and above, = 0 otherwise Never attend school is the base category
Father working	Categorical	Father working = 1 if father works, = 0 otherwise
Mother working	Categorical	Mother working = 1 if mother works, = 0 otherwise
Gender	Categorical	Gender = 1 if girl, = 0 otherwise
Age of a child	Categorical	Age <sub>11</sub> = 1 if a child is 11 year old, = 0 otherwise Age <sub>12</sub> = 1 if a child is 12 year old, = 0 otherwise Age <sub>13</sub> = 1 if a child is 13 year old, = 0 otherwise Age <sub>14</sub> = 1 if a child is 14 year old, = 0 otherwise A child 10 years old is the base category

**Table 1** Variables' type and description (continued)

<i>Variable</i>	<i>Type</i>	<i>Description</i>
Number of children	Continuous	Total number of children of age 14 and below in household
Household wealth	Index	The wealth index is constructed through principal component analysis using possession of agriculture and non-agriculture land, property or plot; livestock, chicken and poultry; commercial building; residential building, and shop; 35 durables; access to water, and electricity; four types of house characteristics (material of floor, number of sleeping rooms, facility of toilet, quality of wall material); the source of cooking fuel; and source of communication.
Region	Categorical	RE = 1 if a child belongs to urban region, = 0 otherwise
Province	Categorical	PP = 1 if a child belongs to Punjab, = 0 otherwise PS = 1 if a child belongs to Sindh, = 0 otherwise PB = 1 if a child belongs to Balochistan, = 0 otherwise KPK is the base category

Based on the above discussion, equation (1) can be written as:

$$CL_i = f(FE_i, ME_i, HW_i, FW_i, MW_i, NC_i, GC_i, GE_i, AG_i, RE_i, PR_i, PP_i, PS_i, PB_i) \quad (2)$$

where  $GE$  and  $AG$  are gender and age of an  $i^{\text{th}}$  child,  $NC$  stands for the number of children of a household where the  $i^{\text{th}}$  child lives,  $RE$ ,  $PP$ ,  $PS$ , and  $PB$  are dummy variables used for urban, Punjab, Sindh, and Balochistan, respectively. Rural regions and province KPK are used as base categories. In stochastic form, equation (2) can be written as under:

$$CL_i = \beta_0 + \beta_1 FE_i + \beta_2 ME_i + \beta_3 HW_i + \beta_4 FW_i + \beta_5 MW_i + \beta_6 GE_i + \beta_7 AG_i + \beta_8 NC_i + \beta_9 RE_i + \beta_{10} PP_i + \beta_{11} PS_i + \beta_{10} PB_i + \mu_i \quad (3)$$

As our dependent variable is categorical and takes values '1' and '0', therefore we will use the logit model for estimation. The logit form of equation (3) is:

$$\ln\left(\frac{P_i}{1-P_i}\right) = \beta_0 + \beta_1 FE_i + \beta_2 ME_i + \beta_3 HW_i + \beta_4 FW_i + \beta_5 MW_i + \beta_6 GE_i + \beta_7 AG_i + \beta_8 NC_i + \beta_9 RE_i + \beta_{10} PP_i + \beta_{11} PS_i + \beta_{10} PB_i + \mu_i \quad (4)$$

where  $P_i$  is the probability of a child to work.

A complete description of variables is given in Table 1.

#### 4 Data

We utilise the Pakistan Social and Living Standards Measurement Survey (PSLM-2019-20) data for the analysis. It covers all the country's regions and includes data on all variables required for our analysis. The total number of children between 10 to 14 years in our sample is 83,535. However, after adjusting for all variables according to



their definitions used in our model the sample size reduced to 83492.<sup>2</sup> The frequency distribution and summary statistics of all the variables are summarised in Table 2.

**Table 2** Frequency distribution and summary statistics

Categorical variables (frequency distributions)					
Variable	Categories	Frequency	Variable	Categories	Frequency
Child labour	Non-working	79,824	Gender	Male	45,304
	Working	3,689		Female	38,231
Age of a child	10 years	20,395	Mother	Non-working	69,092
	11 years	13,149		Working	14,436
	12 years	19,392	Father	Non-working	4,586
	13 years	14,666		Working	78,933
	14 years	15,933	Province	KPK	17,228
Region	Rural	59,767		Punjab	39,423
	Urban	23,768	Sindh	17,090	
Father education	Never attend school	36,510		Balochistan	9,794
	Primary	14,711	Mother education	Never attend school	60,411
	Middle	9,012		Primary	8,655
	Matric	12,277		Middle	4,166
	Intermediate	4,991		Matric	5,578
	Bachelor and above	6,034		Intermediate	2,335
				Bachelor and above	2,390
Continuous variables (summary statistics)					
Variable	N	Mean	SD	Minimum	Maximum
No. of children	83,535	3.8	1.8	1	23
Wealth	83,535	14.9	8.1	0	100

The percentage distribution of working children across different categories of independent variables is presented in Table 3.

Table 3 reveals that the proportion of working boys (6.06%) is higher than girls (2.48%) and proportional of total working children is higher in rural (5.385%) than urban regions (1.99%). Similarly, with the increase in age proportions of working children increase and with the increase in parental education, the proportion of working children declines. For example, in the 'never attend school' category of fathers, the percentage of working children is 7.56% which declines to 1.21% for fathers with 'bachelor and above' education. Data also reveal that proportion of 'working children' is higher for 'working mother' (13.33%) than 'non-working mother' (2.55%), while the same proportion is smaller for 'working father' (4.41%) than 'non-working father' (4.47%). Finally, the data also depicts that the proportion of working children is higher in Balochistan (7.73%), followed by Sindh (5.41%), Punjab (4.08%), and KPK (2.32%).

**Table 3** Percentage of working out of total children

<i>Variable</i>	<i>Categories</i>	<i>Percentage of children</i>	<i>Variable</i>	<i>Categories</i>	<i>Percentage of children</i>
Gender	Boys	6.06	Mother	Non-working	2.55
	Girls	2.48		Working	13.33
Region	Rural	5.38	Father	Non-working	4.47
	Urban	1.99		Working	4.41
Age of a child	10 years	2.16	Province	KPK	2.32
	11 years	2.37		Punjab	4.08
	12 years	4.08		Sindh	5.41
	13 years	5.53		Balochistan	7.73
	14 years	8.37			
Father education	Never attend school	7.56	Mother education	Never attend school	5.75
	Primary	3.8		Primary	1.76
	Middle	1.8		Middle	0.82
	Matric	1.21		Matric	0.38
	Intermediate	0.64		Intermediate	0.21
	Bachelor and above	0.51		Bachelor and above	0.17

## 5 Results and discussion

The study aims to predict parental education and other socioeconomic factors in determining child labour in Pakistan. Therefore, the logit estimates and marginal effects of equation (4) for overall Pakistan data are presented in Table 4.

Findings for parental education are in line with our prediction showing that the probability of child to work decreases with the increase in parental education, as evident from the negative values of the coefficients of both father and mother levels of education. Furthermore, the probability of a child's work decreases when a parent's level of education increases, as indicated by the increase in magnitudes of levels of education of both father and mother. It is because more educated parent pays more attention to their children's education (Breen and Goldthorpe, 1997); know the worth of its possible rewards, and make efforts to prevent their children from engaging in child labour (Grootaert, 1999; Ray, 2000). Similar results are found by Grootaert (1999), Ray (2000), and Drusilla et al. (2002).

The findings also depict that a child who belongs to a wealthy household is less likely to do work. A higher level of wealth indicates that the household's basic needs are already fulfilled; therefore, extra income can be spent on children's education instead of involving them in child labour. Results also show that a child's probability of working decreases by 0.86% if his/her father is working compared with a child whose father is not working. This shows that child labour and fathers' employment are substitutes. An increase in income of working father makes him economically strong and can afford the

school expense of children rather than allow them to do work. On the other hand, mothers' participations increase the chances of their children to do work. This is in line with the findings of Dayioglu (2008), DeGraff and Levison (2009), and Self (2011). It is because the majority of the mothers, who are already economically poor, do lower rank work in agriculture and other informal sectors. Rewards to female workers in these sectors are insufficient to reduce poverty; therefore, children complement mothers in their work. Our findings imply that increasing female labour force participation as an anti-poverty policy without focusing on job quality might have a negative impact on children by increasing their need to work.

**Table 4** Logistic regression (dependent variable: child labour)

<i>N</i> = 83,492		<i>Pseudo R</i> <sup>2</sup> = 0.235		<i>LRchi</i> 2(23) = 7,098		<i>Prob</i> > <i>chi</i> 2 = 0.000	
<i>Variables</i>	<i>Categories</i>	<i>Logit</i>	<i>SE</i>	<i>Marginal effects</i>	<i>SE</i>		
Father education	Primary	−0.4186*	0.0509	−0.0162*	0.0018		
	Middle	−0.8786*	0.0867	−0.0290*	0.0022		
	Matric	−1.1101*	0.0897	−0.0338*	0.0020		
	Intermediate	−1.5286*	0.1834	−0.0405*	0.0026		
	Bachelor and above	−1.3182*	0.1896	−0.0374*	0.0032		
Mother education	Primary	−0.3975*	0.0900	−0.0133*	0.0026		
	Middle	−0.7764*	0.1796	−0.0227*	0.0039		
	Matric	−1.2569*	0.2254	−0.0311*	0.0033		
	Intermediate	−1.4912*	0.4548	−0.0341*	0.0053		
	Bachelor and above	−1.7863*	0.5121	−0.0371*	0.0046		
Wealth household	Wealth of household	−0.2295*	0.0132	−0.0084*	0.0005		
Working father	Yes	−0.2197*	0.0788	−0.0086*	0.0033		
Working mother	Yes	1.6143*	0.0393	0.0789*	0.0024		
Gender	Female	−1.0756*	0.0409	−0.0366*	0.0013		
Age of a child	Age <sub>11</sub>	0.2865*	0.0777	0.0058*	0.0016		
	Age <sub>12</sub>	0.8153*	0.0630	0.0207*	0.0016		
	Age <sub>13</sub>	1.2719*	0.0636	0.0392*	0.0021		
	Age <sub>14</sub>	1.8140*	0.0599	0.0701*	0.0023		
No. of children	No. of children	0.0581*	0.0098	0.0021*	0.0004		
Region	Urban	−0.1147**	0.0567	−0.0041**	0.0020		
Province	Punjab	0.5937*	0.0609	0.0170*	0.0016		
	Sindh	0.7838*	0.0666	0.0242*	0.0020		
	Balochistan	1.2261*	0.0677	0.0451*	0.0026		
	Constant	−4.7005*	0.1140	0.0442*	0.0007		

Note: \**p* < 0.01, \*\**p* < 0.05, \**p* < 0.1.

Results also suggest that girls are less likely to involve in child labour, and being a girl reduces the chance of child labour by 3.66%. However, these results should be interpreted in caution as most girls are usually involved in household chores that are not reported in work. This might have underestimated the girls' involvement in child labour.

Nevertheless, our results are consistent with Emerson and Souza (2007), Basu et al. (2010), and Webbink et al. (2012). Our results also demonstrate a positive association between the age of a child and child labour. The probabilities of children aged 11, 12, 13, and 14 years to work are higher by 0.58%, 2.07%, 3.92%, and 7.01%, respectively, compared to the child with age 10 years. Our results are similar to the findings of Blunch and Verner (2000) and Dumas and Lambert (2008).

Consistent with the findings of Burney and Irfan (1991), the number of children reveals a positive impact on child labour. Results depict that increase in one more child increases the probability of a child to work by 0.21%. A household with more children requires more expense to fulfil its basic needs. Poor households normally have more children and cannot manage their expenses properly, forcing them to send their children to work for better economic conditions. Our results support the resource dilution hypothesis and child quality-quantity trade-off hypothesis of Becker (1960), which says that with parents' limited resources, the increase in number of children dilute the amount of money, time, and patience they receive from their parents. Thus investment in children's education is reduced, and their chance to do work increases.

Unsurprisingly our findings portray that children living in rural areas have more chances to do work. Our results support the findings of Grootaert (1998) and Diallo (2001). Differences in economic activity, socio-cultural environment, educational infrastructure, and distance to the nearest school might contribute to differences in child labour on a regional basis. In urban regions, road and transportation infrastructure is better, and governmental influence is substantially stronger; therefore, parents may be under more pressure to take their children to school rather than child labour (Webbink et al., 2012). Similarly, the chance of a child to do work also varies across the provinces. A child who belongs to Balochistan has more chances to participate in child labour, followed by Sindh, Punjab, and KPK.

## 6 Conclusions and policy recommendations

The study's main objective was to investigate determinants of child labour with a special focus on parental education in Pakistan. Utilising PSLM 2019-20 survey data, the study found that parental education revealed a nonlinear impact on child labour, showing that the probability of a child doing work reduced more when the parent attained a high level of education. Material well-being, the wealth index, showed a negative impact on child labour, indicating that children from wealthier households were less likely to do work. We also found that fathers' working substituted while mothers' working reinforced and complemented child labour. Results also depicted that being a girl reduced the probability of doing work. Partially, it might be because the majority of girls are engaged in household chores, which are not reported in our data. We also found that increase in the number of children increased the probability of child labour, and belonging to urban regions reduced the probability of a child to do work. Based on our findings, we recommend the following policies to cope with the problem of child labour:

- Education is the basic right of every child and under constitutional law, it is the responsibility of the state to provide education to a child aged between 5 to 16 years. Further, under the law, no child under the age of 14 shall be employed in any industry. These laws should be enforced by the government in their true spirits.

- Government should focus on public awareness and provide affordable access to adult educational facilities to educate illiterate parents regarding the harmful consequences of substituting child education with child labour. Parents could be less willing to send their children to work if they were more aware of the negative impacts of child labour on their children's physical and mental development.
- To eradicate child labour, measures should be taken to reduce poverty in the long run. However, in the short run, the government should provide incentive-based educational opportunities that might encourage child enrolment and reduce child labour without economically hurting their families.
- Government should provide opportunities to females in high-paid formal sectors jobs and provide them with the required skill. This will increase rewards for their labour work and will help in reducing child labour.
- Finally, the problem of child labour is more severe in rural areas. Therefore, the government should allocate a reasonable share of budget for the development of these areas and create well-paid jobs in rural areas like urban areas.

## References

- Adegun, O.A. (2013) 'Practices of child labour among parents in Ekiti state, Nigeria: implication for school administrators', *Journal of Education and Practices*, Vol. 4, No. 11, pp.1–7.
- Arabsheibani, G.R. (2016) 'Child labour in Indonesia: Supply-side determinants', *Economics and Finance in Indonesia*, Vol. 62, No. 3, pp.162–179.
- Badmus, M.A. and Akinyosoye, V. (2008) 'Child labour and schooling in rural areas of Nigeria', *International Journal of Agricultural Economics & Rural Development*, Vol. 1, No. 2, pp.48–55.
- Basu, K. and Tzannatos, Z. (2003) 'The global child labour problem: what do we know and what can we do?', *The World Bank Economic Review*, Vol. 17, No. 2, pp.147–173.
- Basu, K., Das, S. and Dutta, B. (2010) 'Child labour and household wealth: theory and empirical evidence of an inverted-U', *Journal of Development Economics*, Vol. 91, No. 1, pp.8–14.
- Becker, G. (1960) 'An economic analysis of fertility', in National Bureau of Economic Research (Ed.): *Demographic and Economic Change in Developed Countries*, pp.209–240, Princeton University Press, Princeton, NJ.
- Bhalotra, S. (2003) *Child Labour in Asia and Africa*, background research paper for the EFA Monitoring Report.
- Blunch, N.H. and Verner, D. (2000) *Revisiting the Link between Poverty and Child Labour: The Ghanaian Experience Policy Research Working Paper No. 2488*, The World Bank, Washington DC.
- Bourdillon, M. and Carothers, R. (2019) 'Policy on children's work and labor', *Children & Society*, Vol. 33, No. 4, pp.387–395.
- Breen, R. and Goldthorpe, J.H. (1997) 'Explaining educational differentials: towards a formal rational action theory', *Ration. Soc.*, Vol. 9, No. 3, pp.275–305.
- Brizzio de la Hoz, A. (1996) 'El trabajo infantil en México: una realidad a superar', in Brizzio de la Hoz, A. (Comp.): *El trabajo infantil en México*, UNICEF, Xalapa, Veracruz, México.
- Burney, N.A. and Irfan, M. (1991) 'Parental characteristics, supply of schools, and child school-enrolment in Pakistan', *The Pakistan Development Review*, Vol. 30, No. 1, pp.21–62.

- Cabral, A.C.G., Gemmell, N. and Alinaghi, N. (2021) 'Are survey-based self-employment income underreporting estimates biased? New evidence from matched register and survey data', *Int. Tax Public Finance*, Vol. 28, No. 2, pp.284–322.
- Canagarajah, S. and Nielsen, H.S. (2001) 'Child labour in Africa: a comparative study', *The ANNALS of the American Academy of Political and Social Science*, Vol. 575, No. 1, pp.71–91.
- Christenson, B.A. and Juarez, F. (1987) *Household Economy and the Labor Force Participation of Male and Female Children in Mexico*, CEDDU-El Colegio de México, Mexico, DF.
- Dasgupta, S., Bhula-or, R. and Fakthong, T. (2015) *Earnings Differentials between Formal and Informal Employment in Thailand*, ILO Working Papers 994896403402676, International Labour Organization.
- Dayioglu, M. (2008) 'Mother's and children's employment in Turkey', *Journal of Developing Areas*, Vol. 42, No. 1, pp.95–115.
- DeGraff, D.S. and Levison, D. (2009) 'Children's work and mothers' work – what is the connection?', *World Development*, Vol. 37, No. 9, pp.1569–1587.
- Diallo, Y. (2001) *Les déterminants du travail des enfants en Côte d'Ivoire*, Document de travail No. 55, Centre d'Économie du Développement, Université Montesquieu-Bordeaux IV, France.
- Drusilla, K.B., Alan, V.D. and Robert, M.S. (2002) *The Determinants of Child Labor: Theory and Evidence*, Discussion Paper No. 486.
- Dumas, C. and Lambert, S. (2008) *Le travail des enfants: Quelles Politiques pour quels résultats*, Collection CEPREMA Edition rue d'ULM, Presses de l'École Normale Supérieure, Paris.
- Edmonds, E.V. (2003) *Child Labor in South Asia*, OECD Social, Employment and Migration, Working Papers, DELSA/ELSA/WD/SEM, No. 5, OECD, Paris.
- Edmonds, E.V. (2008) 'Child labour', in Schultz, T. and Strauss, J. (Eds.): *Handbook of Development Economics*, Elsevier, Amsterdam, Vol. 4, pp.3607–3709.
- Emerson, P.M. and Souza, A.P. (2007) 'Child labor, school attendance, and intrahousehold gender bias in Brazil', *The World Bank Economic Review*, Vol. 21, No. 2, pp.301–316.
- Fafchamps, M. and Wahba, J. (2006) 'Child labour, urban proximity, and household composition', *Journal of Development Economics*, Vol. 79, No. 2, pp.374–397.
- Fawole, O.A. (2003) 'Intervention for violence prevention among female workers in motor parks in South-Western Nigeria: a review of effectiveness', *African Journal of Reproduction Health*, Vol. 7, No. 11, pp.71–82.
- Federal Bureau of Statistics of Pakistan (2001) *Summary Results of Child Labour Survey in Pakistan (1996)*, Geneva, ILO.
- Francavilla, F. and Gianelli, G.C. (2007) *The Relationship between Child Labour and Mother's Work: The Case of India*, IZA Discussion Paper Series, No. 3099.
- Grootaert, C. (1998) *Child Labour in Cote d'Ivoire: Incidence and Determinants*, Policy Research Working Papers No. 1905 The World Bank, Washington, DC.
- Grootaert, C. (1999) *Child Labor in Cote d'Ivoire in the Policy Analysis of Child Labor: A Comparative Study*, Grootaert, C. and Patrinos, H.A. (Eds.), St. Martin's Press, New York, pp.23–62.
- International Labor Organization/UNICEF (2021) *Child Labour: Global Estimates 2020, Trends and the Road Forward*, UNICEF/ILO Joint Publication [online] <https://data.unicef.org/resources/child-labour-2020-global-estimates-trends-and-the-road-forward/> (accessed 23 October 2021).
- Kurosaki, T., Ito, S., Fuwa, N., Kubo, K. and Sawada, Y. (2006) 'Child labor and school enrollment in rural India: whose education matters?', *The Developing Economies*, Vol. 44, No. 4, pp.440–464.
- Martin, M. (2013) 'Child labor: parameters, developmental implications, causes and consequences', *Contemporary Social Science*, Vol. 8, No. 2, pp.156–165.
- Muhammad, M. and Jamil, M. (2020) 'Intergenerational mobility in educational attainments', *Pakistan Development Review*, Vol. 52, No. 2, pp.179–198.

- Muhammad, M. and Syed, S.H. (2019) 'Transmission mechanism of intergenerational mobility in socio-economic status', *Forman Journal of Economic Studies*, Vol. 15, pp.227–245.
- Muhammad, M., Shirazi, S.N. and Khan, Z. (2022) 'Intergenerational mobility in educational attainments: a comparative analysis at provincial level of Pakistan', *International Journal of Education Economics and Development*, Vol. 13, No. 1, pp.38–57.
- Naz, A., Khan, H., Khan, T., Khan, Q. and Khan, W. (2019) 'Social and cultural determinants of child labor in Pakistan', *Clinical Social Work and Health Intervention*, Vol. 10, No. 2, pp.80–92.
- Owoyomi, A.V. (2018) 'Parental educational status and child labour: implication for sustainable child development in Lagos Metropolis, Nigeria', *International Journal of Social Sciences & Educational Studies*, Vol. 4, No. 5, p.9.
- Parikh, A. and Sadoulet, E. (2005) *The Effect of Parents' Occupation on Child Labor and School Attendance in Brazil*, Working Paper No. 1000 (UC Berkeley).
- Ray, R. (2000) 'Analysis of child labour in Peru and Pakistan: a comparative study', *Journal of Population Economics*, Vol. 13, No. 1, pp.3–19.
- Self, S. (2011) 'Market and non-market child labour in rural India: the role of the mother's participation in the labour force', *Oxford Development Studies*, Vol. 39, No. 3, pp.315–338.
- Solon, G., Barsky, R. and Parker, J.A. (1994) 'Measuring the cyclicalities of real wages: how important is composition bias?', *The Quarterly Journal of Economics*, Vol. 109, No. 1, pp.1–25.
- UNDP (2020) *Human Development Report*.
- Webbink, E., Smits, J. and De Jong, E. (2012) 'Hidden child labour: determinants of housework and family business work of children in 16 developing countries', *World Development*, Vol. 40, No. 3, pp.631–642.
- Yokying, P. and Floro, M.S. (2020) 'Parents' labour force participation and children's involvement in work activities: evidence from Thailand', *Oxford Development Studies*, Vol. 48, No. 3, pp.287–303.
- Zafar, Z., Sarwar, I. and Haider, S.I. (2016) 'Socio-economic and political causes of child labor: the case of Pakistan', *Global Political Review*, Vol. 1, No. 1, pp.32–43.

## Notes

- 1 Educated parents are more useful in child enhancing activities that help them attain a high level of education (Muhammad et al., 2022), understand the importance and returns to education in the future, and pay more attention to the education of their children (Breen and Goldthorpe, 1997) rather involve them in child labour.
- 2 Ideally we would have taken data for children between 5 to 14 years but in PSLM survey the question about 'work' is asked from individuals with age 10 years and above.