



Amina Iqbal¹, Sameah Saeed², Hafiz Shabir Ahmad³

Abstract

Since few decades ago, the issue of child labor has detained the global attention. This study highlights the supply side determinants of child labor in case of Punjab, Pakistan. A total of 6023 individuals were taken from eight district of the Punjab Pakistan as study sample. Data for this study consisted of secondary data which were obtained from multiple indicator cluster survey (MICS 2014) of Punjab. Discriminant analysis was used to capture the determinants of child labor in Punjab, Pakistan. Majority of the children were male, having age 12 years, belonging to rural area from district Faisalabad. Results show that large family size with rural area background, having much teen age children were major significant factor force poor household to send their children for work. Also family head age, family head sex and major type of household income source were the factors that pushed the children into work that is often damaging to their development.

Keywords: child labor, family, Punjab

1. Introduction

Child labor has serious consequences that stay with the individual and with society for longer than the years of childhood. Young workers not only face dangerous working conditions, they face long-term physical, intellectual and emotional stress. They face an adulthood of unemployment and illiteracy. Child labor is a serious and widespread problem in many parts of the developing world. As an issue child labor came to an age in 1990s and emerged due to two factors: the rising interest in human rights, specifically children rights and related to this, the movement for fair labor standards in the global economy. During the past two decades, this issue has received a dramatic attention by governments, civil society, media and international community.

At the beginning of the 21st century, 317 million young children in the world are working for the survival of themselves and their families Fodella, A. (2016). Every state and every region of the world has been affected by this issue. While the number of working children remains large but there is still ground for hope. The largest numbers of children in the world who are out of school, are concentrated in Indian subcontinent (India, Pakistan and Bangladesh) and also accounts for almost half of all child labor world-wide. Children from poor families in Pakistan, like in many of developing countries, tend to work at early age, and typically have lowest educational level and suffer other social disadvantages. According to the Haworth, N., & Hughes, S. (2012). Estimates of Ray, R. (2000). 3.3 million (8.3 percent of the total children) out of 40 million children (in the 5-14 years of age group) are economically active on full time basis in various occupations of formal and informal sectors in Pakistan.

In the year 2000, the International Labor Organization (ILO) estimated that there were over 200 million child laborers worldwide. Of these 200 million, 180 million are suspected to be engaged in the worst forms of child labor, which can be summarized as, 'those activities . . . [that are] inexcusable under any circumstance and must be eliminated without delay'. That is to say, approximately 90 per cent of working children are engaged in labor that is, by nature, detrimental to their psychological and physical well-being. These include,

- Labor that is performed by a child who is under the specified minimum age for that type of work,
- Hazardous work and,
- Children engaged in types of child labor to be abolished.

The elimination of the worst forms of child labor has come to be recognized as crucial for sustainable social and economic development. 115 countries had ratified the Worst Forms of Child Labor. The convention recognizes that those forms of child work defined as hazardous to a child's well-being or unconditionally at odds with a child's basic human rights should be absolutely prohibited by any person under the age of 18. Children remain economically active in virtually all economic sectors: in industry, agriculture, the informal sector and in the household. The term 'economic activity' refers to the broad nature of children's work. It includes all productive activities, household or market-oriented, undertaken by a child in a paid or unpaid capacity. These general forms of economic activity will be referred to as child labor, to be distinguished from the unconditional worst forms for abolition defined as slavery, trafficking, bondage, forced recruitment in armed conflict, other forms of forced labor as well as various illicit activities.

Most of the research has concentrated on the role of economic growth in reducing the economic dependence of households and firms on children. At the household level, parents send their children to work out of economic necessity. The supply of children to the labor market, in turn, perpetuates a cycle of poverty in two ways,

- By interfering with the accumulation of human capital, child labor reduces the adulthood labor market productivity of child workers, thereby discouraging economic growth and development.
- By depressing adult wages, child labor results in households becoming more reliant on children as income earning assets.

Among the major international agents in the field, in particular the ILO, UNICEF, and the World Bank, a consensus has been reached to focus efforts to curb the worst forms of child labor because it violates the basic human rights of children and deprives them from education, better health and other leisure of life. It not only affects their physical, psychological and spiritual life, but it is also harmful for economic growth of the country.

However, this effect is seen only for children involved in market work and not on household farms, as the minimum age laws did not affect work on household farms.

¹ Lecturer, Department of Statistics, the University of Faisalabad (TUF), Pakistan, amnkhan99@gmail.com

² Lecturer, Department of Statistics, the University of Faisalabad (TUF), Pakistan, sameahsaeed4019@gmail.com

³ Lecturer, Department of Statistics, the University of Faisalabad (TUF), Pakistan, hafizshabirahmad786@gmail.com

Therefore, the current literature focuses on late 19th and early 20th century USA. In most cases the analysis exploits differences in minimum age laws over the various states in the US and also on the change in minimum age specifies over the years to try to identify the impact of legislation on child labor.

According to Hawkins, D., & Ghaziri, M. E. (2022). Among the 40 million children aged 5-14 years, 3.3 million, i.e. 8.3 percent are economically active in Pakistan. Of them 2.4 million (73 percent of child labor force) child laborers are boys and 0.9 million (27 percent of child labor force) are girls. The urban child population is 11.7 million that is 28 percent of the total child population. Urban child labor is one-eighth of rural child labor.

Poverty is one of the major causes of child labor. In the urban areas of Pakistan 22.4 percent of the population lives below the poverty line as compared to 36.3 percent in rural areas the average income of the households in urban areas is higher as compared to their rural counterparts. The income distribution in urban areas is more unequal than rural areas. The socio-physical infrastructure is better in urban areas. The largest urban center of Pakistan, Karachi is growing at the rate of 3.8 percent annually with the present human population of 11.8 million. About 45 percent of the population of the city lives in Katchi Abides and squatter settlements and 35 percent lives below the poverty line. An urban child is more likely to be in school than its rural counterpart. Gross Primary Enrolment Rate is 97 percent in urban areas and 63 percent in rural areas of Pakistan. For boys it is 95 and 75 percent and for girls 92 and 50 percent for urban and rural areas respectively. This means that not only the enrolment rate is higher in urban areas but also the gender disparity in urban areas is less as compared to rural areas.

2. Literature Review

Zarif, A. (2020). conducted a study over a sample size of 130 respondents including the children, parents, teachers and employers and results concluded that due to a large size of family and low level of income the children had to work and contribute their earnings and therefore were deprived from going to school at an early age.

Ali, M., Arif, M., & Shah, A. A. (2021). Determinants of child labor on automobiles workshops in Sargodha (Pakistan).published in international journal of humanities and social sciences. Researcher tries to find the determinants of child labor working on automobiles workshops in Sargodha city. He used primary data for this purpose and took a sample of 200 respondents and find that poverty, illiteracy, unemployment and parent's low education are the major determinants of this social evil.

Yaseen, Z. H. M. I. G. (2022). conducted a study on Causes of child labor and discrimination of wages in different sectors: a case study of urban Multan, Pakistan, published in International research journal of Finance and Economics. Researcher tries to find the main reasons of child labor in Multan city. For this purpose he used primary data and took a random sample of 200 children. He used Chi-square and Gamma test to measure the extent. He concluded that large family size, low income and low level of parent's education and unemployed adults in family are the main reasons of child labor.

Awan, A. G., & Malik, A. (2020). concluded that the mother's lack of education generally and in women's headed families especially the supply side determinant of the child labor. Low family income level of parents was pushing them to send their children to such hard work which really hampered their normal physical growth and mental development. The study results indicated that the parents of laboring children were either unemployed or were having a low paid unsecured job.

Azhom, A. M. (2021). Have tries to find the determinants of child labor. They use primary data having a sample of 100 children from shadman market Lahore. Study design was descriptive and cross sectional. They estimated that in south Asia out of total thirty million children aged 5 to 14 twenty in point six million are laborers. Their result shows that family size and poverty have positive relation with child labor and family income have negative relationship with child labor. It is suggested that anti child labor laws must enforced strictly by government.

3. Research Methodology

"The study of the direction and implications of empirical research or if the suitability of the techniques employed" (Oxford English Dictionary, 2nd edition)

In this chapter the methodology i.e. the techniques of selection of samples and the collection of data are being discussed. In short "all the steps which are taken in the selection of sample and collection of data to carry out a statistical survey are included in methodology' thus we discuss our methodology as:

3.1. Universe or population

The universe is defined as "the aggregate or objects whether totality of the individual members animate or intimate, concrete or abstract, some characteristics or interests". The population of this study is all the children under the age of 18 years living in the Pakistan.

3.2. Target population

The target population is defined as "The population about which we have to draw inference on the basis of sample information". The target population of this survey comprises all the children under the age of 18 year from 8 districts of Punjab.

3.3. Sample

A sample is a smaller representation of a larger whole. The basic requirement for a sample is that it must be representative and also adequate. It will represent the characteristics of population and enable us to draw conclusions about the characteristics of the population. Sample for this study is selected from different district of the Punjab.

3.4. Sample size

Our sample size is n=6023 collected from Multiple Indicator Cluster Survey (MICS) Punjab 2014. The sample was selected form the individuals from the age between 5 to 17 years.

3.5. Sampling area

The sampling area is the different eight district of the Punjab.

3.6. Data type

The secondary data of Multiple Indicator Cluster Survey (MICS) Punjab 2014 is used for this research study which we get from MICS site.

3.7. Data management

SPSS 15 is used to analyze this research.

3.8. Testing of Hypothesis

Testing of hypothesis is a very important phase of statistical inference. It is a procedure, which enables us to decide us on the basis of information obtained from the sample data whether to accept or reject a statement or an assumption about the value of a population parameter. Such a statement or assumption, which may or may not be true, is called “Statistical Hypothesis”. We accept the hypothesis as being true, when it is supported by the sample data. We reject the hypothesis, when the sample data fails to support it.

In this section the data collected are analyzed, relationship between different attributes and different variables is studied; conclusions are drawn about the association and different attributes and different variables.

3.9. Discriminant Analysis

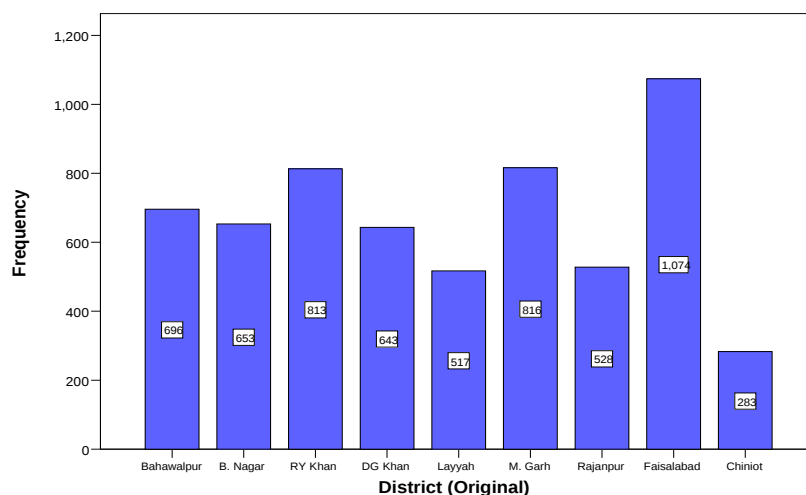
Discriminant Function Analysis (DA) undertakes the same task as multiple linear regressions by predicting an outcome. However, multiple linear regressions is limited to cases where the dependent variable on the Y axis is an interval variable so that the combination of predictors will, through the regression equation, produce estimated mean population numerical Y values for given values of weighted combinations of X values. But many interesting variables are categorical, such as political party voting intention, migrant/non-migrant status, making a profit or not, holding a particular credit card, owning, renting or paying a mortgage for a house, employed/unemployed, satisfied versus dissatisfied employees, which customers are likely to buy a product or not buy, whether a person is a credit risk or not, etc Hayes, T. L., & Kanan, C. (2020).

Discriminant analysis is used when:

- (i) The dependent is categorical with the predictor independent variables at interval level such as age, income, attitudes, perceptions, and years of education, although dummy variables can be used as predictors as in multiple regression. Logistic regression independent variables can be of any level of measurement.
- (ii) There are more than two dichotomous variable categories, unlike logistic regression, which is limited to a dichotomous dependent variable.

4. Results and Discussion

Figure 2: Distribution of District



The figure illustrates the distribution of children who do child labor according to their district. It clearly shows that the high amounts of children were belonging to district Faisalabad and the low amounts were belonging to district Chiniot.

Household Size: Households without child labor have a slightly larger average number of members compared to those with child labor. **Children's Age:** The average age of children in households with child labor is significantly lower (10.45 years) than in households without it (12.98 years). **Head of Household Age:** The average age of the head of household is younger in families with child labor compared to those without. This data could be useful for understanding the demographics and potential socioeconomic factors associated with child labor. If you need any specific analyses or visualizations based on this data, let me know!

4.1. Discriminant Analysis

Discriminant analysis is a kind of regression equation where we check the overall significance with the help of F-statistic.

Ho: Predictors do not differentiate between those who do child labor or not.

H1: Predictors differentiated between those who do child labor or not.

Table 1: Group Statistics

Child Labor		Mean	Std. Deviation	Valid N (list wise)
No	Number of HH members	7.2038	3.00421	1153
	Total children aged 1-17 years	3.6427	2.13413	1153
	Child's age	12.9757	3.10232	1153
	Age	48.3929	11.82266	1153
Yes	Number of HH members	7.0854	2.79315	4870
	Total children aged 1-17 years	3.4838	1.85732	4870
	Child's age	10.4542	3.70179	4870
	Age	46.4511	11.80000	4870
Total	Number of HH members	7.1081	2.83490	6023
	Total children aged 1-17 years	3.5142	1.91424	6023
	Child's age	10.9369	3.72894	6023
	Age	46.8228	11.82806	6023

Table 2: Eigenvalues

Function	Eigenvalue	% of Variance	Cumulative %	Canonical Correlation
1	.127a	100.0	100.0	.336

The eigenvalue of 0.127 signifies the amount of variance captured by the function. In this case, it indicates a low level of variance explained by the canonical variate. A higher eigenvalue would typically suggest a stronger relationship between the variable sets. While the analysis has identified a function that accounts for all the variance, the low eigenvalue and moderate canonical correlation suggest that the relationship between the two sets of variables may not be particularly strong or meaningful. Further analysis or additional functions might be needed to explore more complex relationships or to improve the explanatory power of the model.

Table 3: Wilks' Lambda

Test of Function(s)	Wilks' Lambda	Chi-square	df	Sig.
1	.887	719.055	8	.000

Wilk's lambda tests the significance of the Eigen value for each discriminant function. There is only one discriminant function and Sig. = 0.000 < Alpha (0.05) so we reject Ho. i.e. there exists the discrimination.

Table 4: Canonical Discriminant Function Coefficients & Standardized Coefficients

Predictor	Corr. Coefficient	Standardize Coefficients
Area (Original)	.463	.539
District (Original)	.145	.195
Number of HH members	.046	-.259
Total children aged 1-17 years	.092	.379
Child's age	.775	.863
Household head Age	.182	.089
Major type of income source	.144	.094
Household head Sex	.068	.018

Table 5: Classification Results

Child Labor			Predicted Group Membership		Total
			No	Yes	No
Original	Count	No	827	326	1153
		Yes	1633	3237	4870
	%	No	71.7	28.3	100.0
		Yes	33.5	66.5	100.0

The standardized coefficients indicate the relative importance of each predictor in predicting the categories of dependent variable. So, we see that child age is most important factor than area and area is more important than total children age 1-17 years and total children age 1-17 year is more important than number of household member which in turn is more important than district while household age, major type of income and household sex has least importance in the discriminant function. 66.5% of original grouped cases correctly classified. The discriminant function correctly classified 67.5% of all the cases. The discriminant function was slightly better at predicting those who children don't work (71.7%) than predicting those who children work (66.5%).

5. Conclusion

The study suggested that large family size belongs to rural area, having much teen age children force the poor parents to send their children for work. Furthermore, family head age, family head sex and major type of household income source have effect, to some extent, on children work.

References

- Ali, M., Arif, M., & Shah, A. A. (2021). Complementary feeding practices and associated factors among children aged 6–23 months in Pakistan. *PLoS One*, 16(2), e0247602.
- Awan, A. G., & Malik, A. (2020). Impact of female education on poverty reduction: An Evidence from Pakistan. *Global Journal of Management, Social Sciences and Humanities*, 6(2), 220-236.
- Azhom, A. M. (2021). Realizing a Child Friendly City as Protection towards Children in Indonesia. *Constitutionale*, 2(2), 89-102.
- Cluster Survey (MICS) Punjab 2014). Determinants of Maternal Health in Punjab: Evidence from Multiple Indicator Cluster Surveys 2011-2014-2018. *Journal of Development and Social Sciences*, 5(2), 185-196.
- Fodella, A. (2016). Freedom from child labour as a human right: The role of the UN system in implementing ILO child labour standards. In *Child Labour in a Globalized World* (pp. 203-227). Routledge.
- Hawkins, D., & Ghaziri, M. E. (2022). Violence in health care: Trends and disparities, bureau of labor statistics survey data of occupational injuries and illnesses, 2011–2017. *Workplace Health & Safety*, 70(3), 136-147.
- Haworth, N., & Hughes, S. (2012). The International Labour Organization. *Handbook of Institutional Approaches to International Business*, 204-218.
- Hayes, T. L., & Kanan, C. (2020). Lifelong machine learning with deep streaming linear discriminant analysis. In *Proceedings of the IEEE/CVF conference on computer vision and pattern recognition workshops* (pp. 220-221).
- Ray, R. (2000). Analysis of child labour in Peru and Pakistan: A comparative study. *Journal of population economics*, 13, 3-19.
- Yaseen, Z. H. M. I. G. (2022). Rural Women's Participation in Income-Generating Activities: An Analysis in Multan Pakistan. *Rural Women*, 7(2), 67-74.
- Zarif, A. (2020). Children affected by armed conflict: a critical perspective on discourses, representations and deriving practices. *Childhood and Children's Rights Between Research and Activism: Honouring the Work of Manfred Liebel*, 207-224.