



The Impact of Foreign Remittances on child labor in Pakistan: A Time Series Analysis

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Abstract

The purpose of this research is to look into the relationship between remittances and child labor in Pakistan. The impact of foreign remittances on child labor was calculated using time series data from 1992 to 2021. Data from the World Development Indicator, the International Labor Organization (ILO), and the Pakistan Economic Surveys have been retrieved. Child labor is the dependent variable, while the independent variables are foreign remittances, poverty, literacy, and total fertility rate. To assess whether the data were stationary, the Unit Root Test was applied. The long-run relationship was investigated using the Johnson co-integration model, whereas the short-run relationship was determined using the Error Correction Model. According to the research, foreign remittances and literacy rates have a significant negative impact on child labor. Furthermore, changes in the values of poverty and fertility, as well as their lag values, were found to have a significant and positive effect on child labor.

Key Words: Remittances, Child Labor, Poverty, Literacy

JEL Codes: F24, F66, P40, I20

1 Introduction

Child Labor refers to the practice of employing children in jobs that take away their childhoods, prevent them from going to school, or otherwise put them in situations where they are exposed to physical, mental, social, or moral harm. Many international organizations view this practice as exploitative. Legislation prohibiting child labor is in place around the world (Carvalho,

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2005). Child artists, supervised training, certain categories of work such as those performed by Amish children, some forms of child labor common among indigenous American children, and others are all exempted from these laws (Acosta, 2006). Counting the number of children who work around the world is a difficult task. The majority of the world's working children live in poor countries. Until recently, some politicians defined "child labor" as any economic activity that negatively impacts the well-being of children. The impact of child labor on a child's well-being ultimately depends on what the youngster would do if they did not work. Depending on the circumstances, most working children engage in activities that are either damaging or beneficial to them. Prior to 1940, numerous youngsters between the ages of 5 and 14 worked all over Europe, the United States, and various European possessions. These children worked in agriculture, home-based assembly, factories, mining, and services such as newsiest. Some people worked 12-hour night shifts. With the increase in household income, Child labor rates decreases. Between 1960 and 2003, the global frequency of child labor fell from 25% to 10%.

According to the most recent global figures provided by UNICEF 2020, the total number of children participating in child labor has climbed up to 160 million worldwide. This signifies an increase of 8.4 million children over the course of the previous four years. At the beginning of the year 2020, there were roughly 63 million girls and 97 million boys who were working while they were still young. This accounts for nearly one out of every 10 children (UNICEF 2020).

Child labor is still predominant in developing nations with severe poverty and limited educational options (Bargain & Boutin, 2021). In 2019, Sub-Saharan Africa had the highest rates of child labor, with over half of the total children aged 05–14 are working in various African countries (Adams, 2009; Ebeke, 2010; Icesi & Gaduh, 2018). Agriculture is one of the largest proprietor of children. The majority of children work occurs in countryside areas and in the informal urban economy; adolescents are typically employed by their family. Child labor is generally caused by poverty and lack of educational opportunities (Bluffstone, 2020; Dimova & Epstein, 2014).

A major problem in Pakistan involves child labor. Rural areas, where it is more difficult to enforce age restrictions on

attendance at school and employment, are particularly susceptible to the use of child labor. Poor families who have access to land and other productive resources have higher rates of child labor than poor families who do not (Basu et al., 2010). Furthermore, child labor appears to rise during periods of economic growth in households with productive assets. A number of rationales have been advanced in the literature, including: First and foremost, child labor presents a lower risk of moral hazard, shirking, and theft than the use of hired hands. Second, labor markets may be overly inflexible and troublesome, particularly in rural areas and agricultural jobs, which are naturally erratic and ambiguous. Third, not all child labor is bad or harmful; in fact, some of it can help to develop good work habits.

In the 1990s, Pakistan's Human Rights Commission estimated that 11 million children, half of whom were under the age of ten, worked in the country. This figure was down from eight years old in 1994, when the median age at which a child entered the workforce was 7. An estimated one-fourth of the workforce in the country was made up of children. ILO research suggests that poverty is the most significant factor in child labor. In Pakistan, the average per capita income is approximately \$1900. Pakistan's middle class earns an average of \$5 per day. Every day, a typical Pakistani has to provide food for nine or ten people. In addition, the high inflation rate must be taken into account. When families are struggling to make ends meet, it appears that children are forced to work in order to support their family (Nasir et al., 2011).

Recent ILO estimates show that more than 200 million children around the world are working as child laborers, and that more than 8 million of them are doing dangerous work. A population of 3.8 million In Pakistan, children between the ages of 5 and 14 are actively engaged in the economy, and one-third of these children have never attended school at all (ILO, 2009). Education attainment in rural areas is lower than in urban areas, according to Pakistan's Social and Living Standard Measurement 2008-2009.

Remittances have a substantial effect on reducing the number of children working in agriculture sector (Duman, 2022). Remittances are payments made by migrants to their families back home in the form of goods or money. People with low incomes, poverty, or unemployment often migrate to other countries to

work and send their earnings back home, according to research. They depend on remittances from their families back home in developing countries. If international remittances have a positive impact on schooling, it will ultimately reduce child labor in developing countries (Edwards & Ureta, 2003). The easy method to include remittances in a family model is to take them as supplementary resource of income; a growing body of empirical evidence supports the positive effects that remittances have on households (Ulku, 2010; Yang et al., 2003). A primary education is considered to be a fundamental human right, and it is at the bottom of a pyramid. In many developing countries, remittances have become a major source of income. Remittances increase the household's disposable income and may ease the family's budgetary constraints (Bayot, 2007; Coon, 2016; Ebeke, 2010). There is more time for education as a result of less reliance on children to do the work of their families (Yang, 2008).

Remittances could either encourage spending or increase investment in education (Binci & Giannelli, 2021). Education attainment should not be a significant factor in the difference between households receiving remittances and those that do not receive these funds. Rather, if more money is invested in education, educational attainment should rise (Acosta, 2006; Alcaraz et al., 2012). Those who receive remittances have better educational outcomes than those who don't receive remittances. According to Cuadros-Menaca and Gasuh (2020) argued that remittances reduce child labor but not schooling in Colombia.

To attain the goal of progressive eradication of the worst types of child labor and bonded labor, the following solutions, among others, have been devised:

1. Strengthening the tripartite members' capacity to deal with the issue of child and bonded labor in the rural economy.
2. Strengthening rural communities' capabilities and raising awareness about child labor and bonded labor.
3. assisting central and local governments in refining their data collection and analytic abilities.
4. Improving information sharing and support through inter-agency cooperation, partnership, and education.

5. assisting ILO members in the development of a community-based child and bonded labor monitoring system.

1.1 Significance of Study

A significant number of children in Pakistan are coerced into working as child laborers in order to assist with the financial upkeep of their families. The majority of businesses in Pakistan employ youngsters aged 5-14 to work in their establishments. It is found that low-income families were more likely to engage in child labor and limit their children's schooling as a coping mechanism for adverse socioeconomic events (Fasih, 2007). For the majority of cases, child labor is displacing education, which has a long-term negative impact on the individual child, the family, and the society as a whole. An outright ban on child labor may not be sufficient to address the underlying causes of child labor's prevalence, and in fact may worsen the already precarious situation faced by children and their families. This study will help the policy makers to comprehend the issue in broader sense as ban on child labor may further limit the economic viability of the poorer families. This study will also pave the way for researchers as studying foreign remittance and child labor together generates interesting avenues for future research.

2 Literature Review

Several new studies have looked at how remittances can help to reduce child labor. The most recent study by Duman (2022) which analyzed the effects of foreign remittances on child labor in Turkey. The study found the positive impacts of remittances on reducing the child labor. Remittances may also improve household welfare and reducing the likelihood of household living below the poverty line. Furthermore, Binci and Giananaali (2018) also discussed the impacts of international remittances on child labor in Vietnam. The study found that remittances may rise the education and lessen the child labor. In addition to this study concluded that foreign remittances have larger impact than home remittances.

Coon (2016) discussed the effects of remittances on the prevalence of child labor in Bolivia. The study focused that impact of remittances in urban areas and rural area is different. In urban areas increase in remittances have the larger impact in reducing

the supply of child labor. While in rural areas a small increase in remittances is required. In an African context, Bargain and Boutin (2014) investigated the impact of remittance receipts on child labor. The study found that remittances, better predicted incomes, and a positive employment shock reduce the share of working children in households. Finally, among non-migrant households, the study discovered a negative but small influence. The study showed that encouraging and assisting poorer families to migrate can reduce child labor. Bluffstone (2014) investigated the link between child labor and better forest management on common land in Bolivia. The paper focused on the relationship between community-owned forests, a specific type of asset held by communities, and child labor. Education, flue wood, and fertility were all factors in child labor. The findings of the study suggest that flue wood is strongly connected with child labor, with more educated households employing fewer children. Fertility has also influenced child labor decisions. Similarly, greater education reduces fertility. Joseph and Plaza (2010) tried to find out the relationship between remittances and child labor in Ghana. Results showed that international remittance reduces child labor. However, domestic remittance receiving status does not have a substantial impact on child labor. The study concluded that faster the flow of international remittance needs to be fostered due to their direct impact on development outcomes and achievement of Millennium Development Goals.

Ebeke (2009) also examined the association between migrants, remittances and the frequency of child labor by using a large sample of developing countries. Child labor depended on migration and remittances. The result showed that international remittances reduced significantly the prevalence of child labor in developing countries.

Further Dimova et al. (2008) had been examined the child labor in the context of emigration and remittance. The researcher used Living Standards Measurement Survey data from World Bank. The study applied OLS and 3SLS model. Child labor supply depended on education, durable assist, emigration, remittance and non-farm business. The results indicated that higher level of education, migration, remittance and non-farm business decreases the child labor supply and durable assets increased the child labor supply. The study concluded that banning child labor, improving

credit markets and providing income support to households can decrease the child labor supply. In addition, Bayot (2007) had been investigated the effect of remittances on child labor in Mexico. Main focus of the study was on the assumption that a migrant's utility depends on his/her children welfare. The study concluded that government should enhance remittances to overcome child labor.

In the current study Remittance receipt and child labor in Pakistan are examined, which contributes to a small but essential corpus of research on Pakistani remittances. Remittances have been linked to child labor in other countries in most of the literature, but the relevance of this link in Pakistan is missing. The current study contributes to empirical literature by evaluating the potential effects of remittances that can be effective tool for reducing child labor in Pakistan.

3 Data and Methodology

3.1 Data Source

We collected the needed data from the secondary sources. These sources include International Labor Organization (ILO), economic surveys and World Bank (World Development Indicators). The study used time series analysis for the period of 1992-2021.

3.2 Model Specification

In the model Child labor is taken as dependent variable and remittances, poverty, fertility, literacy are independent variables.

The functional form of dependent variable is as under:

$$\text{CHILD} = f(\text{FR}, \text{NP}, \text{LET}, \text{TFR}) \quad (1)$$

The econometric model is

$$\text{CHILD} = \beta_1 + \beta_2\text{FR}_{ij} + \beta_3\text{NP}_{ij} + \beta_4\text{LET}_{ij} + \beta_5\text{TFR}_{ij} + \mu_{ij} \quad (2)$$

Table: 1

Variable Definitions

Variable	Definition
CHILD	Child Labor
FR	Foreign Remittances
NP	National Poverty
LET	Literacy
TFR	Total Fertility Rate

3.3 Econometric Technique

In the study following econometrics test are run to check the link between variables for the period of long run in Pakistan.

The study has used Augmented Ducky Fuller unit root test to examine whether a time series has a unit root test. In the next step we have applied Johnson Co-integration Test to find out long-run association between foreign remittances and child labor. Moreover, when the variable is found to be co-integrated, an Error-Correction Model (ECM) has been applied to find out the short run dynamics of the system.

Within an equilibrium model, co integration analysis can be used to assess the co-movement of a long-term asset price. To begin, co integration analysis calculates long-term equilibrium asset prices to establish a long-term link. Then, within an error correction model, correlations are computed. Prior to the co integration analysis, stochastic tendencies common to the various time series are discovered. If the co integration study shows that there is a co integration vector, we may assume that the tested series will not drift apart in the long run, and that any short-term drift will rebound to equilibrium values. The inclusion of a cointegration vector reduces the diversification benefits accessible to investors in the setting of the study. If no co integration is detected, on the other hand.

If the time series, are $I(1)$, regression can be performed on the differences between them. However, by taking the initial difference, the data's long-term link will be lost. This also entails the usage of variables in levels. The Error Correction Model has the advantage of capturing both short-run disequilibrium and long-run equilibrium adjustment between variables. The ECM term with a negative sign and a value between '0 and 1' shows that the model is approaching long-term equilibrium and shows the annual percentage adjustment.

4 Results and Discussion

4.1 Unit Root Test

Augmented Dickey Fuller (ADF) unit root tests are used to check Stationary properties of time series variables and their orders of integration.

Table:2
ADF Unit Root Test

Variables	AT First Difference	
	T statistic	Critical value
CHILD	-5.39526	0.0001
FERTILITY	-4.43124	0.0108
REMITT	-5.56596	0.0001
LITERACY	-9.24322	0.0000
POVERTY	-5.30487	0.0002

According to the above depiction of results shows variables that are non-stationary at the level but stationary at the first difference. Table 2 shows that all of the series were stationary and integrated of order one I based on the results of ADF tests (1). All variables are integrated of order one with intercept terms according to the ADF test. According to the ADF test, each series is first difference stationary. The presence of a unit root in any of the variables investigated by the ADF tests cannot be ruled out.

We used the Johnson Co Integration test to determine whether or not there is a long-run relationship between the variables in light of their unit-root features.

4.2 Co-Integration Test

As a necessary but not sufficient condition for co-integration, each of the variable has been examined whether it is stationary or its order to integration. To achieve this, unit root tests for stationary are applied and these include the Augmented Dickey-Fuller (ADF). Having confirmed the stationary of the variables at 1(1), we proceed to examine the presence of co integration among the variables. A co-integration relationship in the model means that poverty, foreign remittances, fertility rate, literacy rate share a common trend and long run equilibrium as recommended in theory.

In order to conduct a co integration test, Statistics such as trace and maximum eigen value have been employed. A 5% level of significance was used to reject the null hypothesis that there is no correlation between child labor and remittances. These four co-integrating relationships were found by conducting a trace test. Four co-integrating relationships between child labor and remittances are revealed by the maximum Eigen value statistics. According to this result, the cointegration test suggests a long-term relationship between the two variables under consideration.

Table:3
Result of Co-integration-Trace Test

Hypothesized No. of CE(s)	Eigenvalue	Trace-Statistic	Critical Value 0.05	Prob.**
None *	0.930023	153.1284	69.81889	0
At most 1 *	0.784116	78.66003	47.85613	0
At most 2 *	0.508026	35.73559	29.79707	0.0092
At most 3 *	0.371233	15.87438	15.49471	0.0438
At most 4	0.097826	2.882534	3.841466	0.0895

On the five percent relevance level, the Trace Test in Table four estimates the life of five co integrating equations. This co-integrating equation indicates that there are 5 linear combinations among the variables that force those indices to have a dating for the whole 30 years' period, notwithstanding capacity divergence from equilibrium levels over the long term. We also exhibit the consequences of the Maximum Eigen value Test in table above to verify the effects of Johansen's Trace analysis.

Table:4
Result of Co-integration-Maximum Eigen Value

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	Critical Value 0.05	Prob.**
None *	0.930023	74.46834	33.87687	0
At most 1 *	0.784116	42.92444	27.58434	0.0003
At most 2	0.508026	19.86121	21.13162	0.0745
At most 3	0.371233	12.99184	14.2646	0.0786
At most 4	0.097826	2.882534	3.841466	0.0895

The maximum eigen value test also reveals three co integration equations at 5%, as confirmed by the trace test. Over a 30-year sample period, these two tests confirm co integration relationships. We may assess how well the indices fit over a 30-year period by looking at the normalized co integration coefficients in the VECM. The null hypothesis of no co integrating equation is rejected at the 5% level based on the results obtained. As a result, the five factors are found to have a long-term association.

Table:5
Results of One Cointegrating Equation

Variable	Coefficient Value	Standard Error	t- Ratio
REMITT	-3.613269	-1.15938	3.11655
TFR	4.682013	-1.71158	-2.73549
POVERTY_H_C_R	0.736198	-0.17026	-4.32396
LITERACY	-0.44272	-0.07829	5.654886

The table of co-integration equation is showing the long run pairwise relationship between dependent and independent variables. The core variable of the study leaves an impact that is significant and negative on child labor. As far as literacy rate is concerned, it has a significant negative and effect on child labor. Opposite impacts can be shown while looking at the estimated values of coefficients of total fertility rate and poverty head count ratio.

In order to examine the short run results and nature of variations in the variables of the study, Error Correction Mechanism is used here. ECM also indicates the convergence and divergence of the variable towards the long-run equilibrium.

4.3 Error Correction Model

To test the relationship in short run, we used Error Correction Model. The results of the short-run dynamic of the model are presented in following table

Table:6
Results of Error Correction Model

Variable	Coefficient	Standard Error	t Statistic
D(CHILD_LABOR(-1))	0.135821	0.23215	0.58506
D(CHILD_LABOR(-2))	-0.093856	0.23776	-0.39476
TFR(-1)	-53.7240	14.8442	-3.6192
D(TFR(-1))	5.394417	10.4219	0.51760
D(TFR(-2))	-14.25647	10.3109	-1.38265
LITERCY(-1)	-50.30706	2.487030	-20.2277
D(LITERACY(-1))	-0.123993	0.31585	-0.39257
D(LITERACY (-2))	-2.335357	3.72846	-0.62636
POVERTY(-1)	-35.88833	2.21682	-16.1891
D(POVERTY(-1))	-0.074501	0.15231	-0.48915
D(POVERTY(-2))	0.124671	0.12767	0.97655
REMITT(-1)	21.73509	7.07108	3.07380
D(REMMIT(-1))	-0.431516	0.29191	-1.47824
D(REMMIT(-2))	0.208015	0.26342	0.78968
C	-1.797154	0.98294	-1.82835
ECM(-1)	-0.000108	0.00477	-0.02262

Short-term test was conducted using the Error Correction Model. This model uses two lags of error correction and two lags of the variables considered in the model. Results of model short-term dynamics and diagnostic tests are shown in table 5.2.4. As

one might expect from its negative sign, the error correction term (ECM (-1)) shows that there is a short-term relationship, and their variables are having convergence towards their long-run equilibriums. The short-run results show that literacy, poverty, fertility, and remittances all have an effect on child labor in different ways in every short-run.

5 Conclusion

Using children in any work that denies them their childhood, interferes with their ability to go to school regularly, or is dangerous or harmful in any way is considered child labor. A major problem in Pakistan involves child labor. Rural areas, where it is more difficult to enforce age restrictions on attendance at school and employment, are particularly susceptible to the use of child labor. In poor families, children are more likely to work. In Pakistan increase in international remittances reduces child labor. Migrants in Pakistan send remittances in the form of goods or cash. People with low incomes, poverty, or unemployment often migrate to other countries to work and send their earnings back home, according to research.

They depend on remittances from their families back home in developing countries. In many developing countries, remittances have become a major source of income. Many children in Pakistan are forced to work as child laborers in order to help support their families financially. The majority of Pakistani businesses employ children between the ages of 5 and 14 years old. There are those who help their parents with household chores, sell goods on the street, work on the farm, and others who work in both the formal and informal markets. In 2012, 22.3 percent of Pakistanis were living below the poverty line, according to the World Bank.

In Pakistan, the International Labor Organization (ILO) estimates that 3.8 million children between the ages of 5 and 14 participate in the workforce, and one-third of these children have never even attended school at all (ILO, 2020). Investigations into the connection between remittances and child labor in Pakistan are the focus of this study. A 28-year time series of data from the World Bank Indicator, the International Labor Organization (ILO), and the Pakistan Economic Survey was used to determine the effect of remittances from abroad on child labor in Pakistan. Remittances, poverty, literacy, and fertility are all considered

independent variables while child labor is a dependent variable. We used the Unit Root Test to determine whether the data was stationary, the Johnson Co integration Test to determine the long-term relationship, and the Error Correction Model to determine the short-term relationship. The results show that foreign remittances and literacy rate pointing the child labor towards opposite direction significantly. Changes in poverty rate and fertility rate have all been shown to have a significant and positive impact on child labor. Literacy has a significant impact on child labor, but it also has a negative effect.

6 Policy Implications

The results of the study showed that the foreign remittances, literacy are negatively related with child labor in Pakistan. Poverty and fertility has positively related with child labor. So here some suggestions for decreasing child labor and poverty that government take step to reduce the child labor.

Government should provide special policy programs to improve foreign remittances so that child labor can be reduced. Government grants and charities should increase that help to reduce poverty motive and facilitate poor families to educate their children. The more of the programs must be started in order to decrease the poverty and child labor collectively like Ehsaas Program. The primary education should be compulsory for all. This is also the most important Millennium development goal that has been achieve in Pakistan. Till 2020 it was about 96% (World Bank, 2020). It should be ensured that all children get enrolled and complete their primary education successfully. Electronic and print media should organize special literacy program to reduce child labor in Pakistan. Fertility rate should be controlled by providing the women awareness and education.

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