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Research Article

The Impact of Remittances on Poverty Alleviation in Developing Countries

Shazia Khalid, Fatima Gulzar, Nadia Ameer
Department of Economic, Ghazi University, Dera Ghazi Khan, Pakistan.

ABSTRACT

This study examines the influence of remittances on poverty alleviation in developing countries. The data from eighteen developing countries is used for the years 2001 to 2020. For data analysis, panel unit root tests, Pedroni cointegration test and panel ARDL model are used. The study found that foreign remittances are negatively and significantly related to poverty eradication. Similarly, gross fixed capital formation, labor force participation rate, trade and human capital are negatively and significantly while the variable inflation rate positively and significantly related to the poverty in developing countries. Considering the study's outcomes, it is concluded that remittances are crucial in mitigating the poverty level in developing countries. Therefore, it is recommended that governments should provide migration-friendly measures, such as incentives for workers to travel overseas and remit funds legally rather than illegally. Low-income families would benefit from this, but it would also help the government increase its foreign reserve.

Keywords: Remittances, Poverty Alleviation, Panel ARDL, Developing, Countries.

INTRODUCTION

Remittances are income flows that result from people of any country travelling across borders for work. These inflows differ from other capital inflows since they are steady and unreturned (Kalim & Shahbaz, 2009; Shahbaz & Aamir, 2007). Remittances are crucial to fight against poverty in a country. Remittances are thought to expand the money supply and boost consumer and investment demand (Kalim & Shahbaz, 2009). Remittances can enhance the welfare of the poorest members of society from migrant workers since they enable beneficiaries to raise their consumption, improve education, and expand access to healthcare (Amuedo-Dorantes & Pozo, 2004). Remittances also alter recipient households' behavior and opportunity by influencing entrepreneurial choices and labor market involvement (Acosta *et al*., 2009).

At the macroeconomic level, remittances indirectly impact poverty by increasing an economy's gross domestic product, creating more job possibilities, and building up foreign exchange reserves (Khan, 2008). Remittance inflows support economic growth and combat poverty by boosting recipient countries' income, easing credit restrictions, speeding up investment, and advancing human development by funding improved healthcare and education (Jongwanich, 2007). Remittances are primarily used for consumption rather than productive investment in the economy. Due to this, the judicious distribution of this money determines its influence on improving productivity and economic growth (Catrinescu et al., 2009).

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Correspondence
Fatima Gulzar
Fgulzar@gudgk.edu.pk

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Due to this, the judicious distribution of this money determines its influence on improving productivity and economic growth (Catrinescu *et al*., 2009).

At the micro level, remittances boost the welfare of the recipient households by raising their income and spending. Remittances can influence inequality and poverty, depending on how they are dispersed. If remittances are skewed in favor of high-income households, inequality increases in a country (Easterly, 2007; Furman & Stiglitz, 1998). In contrast, remittance inflows can reduce household poverty by fostering human development by funding upgraded healthcare and educational facilities and, thus, making a significant economic contribution to the homes in need (Banga & Sahu, 2010). It is economically essential for workers to migrate geographically during both domestic and international migration. Additionally, marginal human output rises due to transient migration (Yuen, 2013). The migrant-sending communities' social, economic, and political processes have benefited from migration and remittances. The households who send migrants abroad in search of better employment opportunities earn much more money than they do at home (Rapoport & Docquier, 2006).

In developing countries, poverty remains a complex issue around the world. Many people in developing countries cannot access basic needs such as clean water, shelter, and food. Due to poverty, people lack access to healthcare and education for their children. However, remittances are crucial to fight against poverty in developing countries. Several studies analyzed the connection between remittances and poverty alleviation in developing countries. Poverty remains a critical issue and is still creating problems for the people of developing countries; therefore, it is imperative to re-examine the impact of remittances on poverty alleviation in developing countries. The study utilizes the new dataset of developing countries and will provide important implications to policymakers to design policies to fight against poverty.

LITERATURE REVIEW

Different studies analyzed the influence of remittances on poverty alleviation in developing countries; this section reviewed some of these studies. Kayani (2021) examined the effect of remittances on poverty in Kyrgyzstan by using the variables of remittances, poverty severity, capital formation, per capita GDP, savings, and unemployment over the years 2008–2019. The study showed a negative relation between remittances and poverty alleviation. Similarly, Ali *et al*. (2021) examined the effects of remittances on Pakistan's poverty from 1980 to 2018. The findings showed that remittances have a detrimental effect on poverty. The findings indicated that remittances are vital in reducing poverty in Pakistan. Another study by Abduvaliev & Bustillo (2020) explored the influence of remittances on the economy's growth and the elimination of poverty in the post-Soviet republics. According to the findings, increases in remittance flows cause an improved per capita GDP and a decrease in the severity of poverty. Remittances have significantly decreased poverty by raising income and regulating consumption levels.

Liu *et al*., (2020) explored the contribution of agriculture and international remittances to reducing poverty in Pakistan using data from 1980 through 2017. According to the study, international remittances were more successful in eradicating rural poverty than agriculture. Similarly, Musakwa & Odhiambo (2019) used time-series data from 1980 to 2017 to examine how remittances affected poverty in Botswana. The study found that remittance inflows lessen poverty in Botswana. The study concluded that by implementing policies and mechanisms encouraging remittance inflow, Botswana may greatly benefit from the spike in remittance inflows and play a substantial role in alleviating poverty. Another study in the case of Pakistan was conducted by Kousar *et al.* (2019), who investigated the effects of financial development and international remittances on poverty and income inequality. The findings demonstrated that remittances and financial development worsen Pakistan's poverty and income disparity. In the case of Asian developing countries, Yoshino et al., (2018) evaluated the effect of remittances on poverty mitigation using data from 1981 to 2014. The findings demonstrated that foreign remittances are negatively related to the poverty gap and poverty severity ratio. The findings also suggested that higher inflation rates positively influence poverty in Asian developing countries while per capita GDP and trade openness negatively influence it.

In the case of African countries, Shirazi *et al*., (2018) analyzed the effects of remittance on economic growth and poverty using data from 1992 to 2010. Their study showed that the financial development level was found to significantly improve remittance inflows and strengthen the influence of remittances on reducing poverty and improving economic growth. Similarly, Emmanuela *et al*., (2018) explored how economic growth affected poverty in Nigeria using data from 1980 to 2017. The results indicated that poverty was positively influenced by unemployment, mortality, corruption, and population growth rates, while poverty was positively correlated with economic growth. Akhtar et al. (2017) investigated the factors affecting Pakistan's poverty using data from 1974 to 2014. The outcomes displayed a negative link between

farm production and poverty and the ratio of agriculture to GDP. Human capital and domestic credit also severely impacted the amount of poverty. In contrast, military spending has a positive correlation with poverty rates. Faridi *et al*., (2015) examined the effect of infrastructure on eradicating poverty in Pakistan utilizing data from 1995 to 2013. The findings showed that Pakistan's social and physical infrastructure had a substantial inverse influence on poverty. In Pakistan, characteristics, including the rate of inflation, GDP, and labor force were found to be deterring elements of poverty, but the rate of fertility and literacy were found to be facilitating aspects.

Faridi & Mehmood (2015) examined the effects of remittances on poverty alleviation in Pakistan using data from 1972 to 2010. According to research, poverty was generally reduced through life expectancy, education spending, government spending, GDP, foreign aid, and private investment. Acharya & Roberto (2013) observed the effects of remittances on inequality and poverty in Nepal. The findings indicated that remittances benefit from lowering the incidence, depth, and severity of poverty. Chani *et al*., (2011) investigated how inflation and economic growth affected poverty in Pakistan using data from 1972 to 2008. The findings demonstrated that economic growth and investment had a detrimental influence on poverty. It was also discovered that trade openness had little impact on poverty and that inflation harmed it. Based on the findings, the authors suggested that governments develop measures to encourage economic growth, manage inflation, and increase investment levels in a nation to reduce Pakistan's poverty. Lastly, Ogun (2010) used a time series of data from 1970 to 2005 to examine the influence of infrastructure development on reducing poverty in Nigeria and showed massive investments in creating social infrastructure were necessary to eradicate poverty in Nigeria.

In the literature review, it has been observed that the level of poverty varies in countries depending on the socio-economic conditions of the people of those countries. It is also observed that remittances play a crucial role in mitigating poverty, especially in developing countries. However, literature review in developing countries is limited and needs special attention in research. So, this study uses a new panel dataset to explore the influence of remittances on poverty alleviation in developing countries.

DATA AND METHODOLOGY

Secondary sources of data are used in this investigation. The data from eighteen developing countries is used for empirical investigation. The panel dataset from the period of years 2001 to 2020 is used. The main source of data is World Development Indicators. The countries are selected based on data availability. The selected countries are Armenia, Sri Lanka, Bangladesh, Thailand, El Salvador, Costa Rica, Paraguay, Kazakhstan, Honduras, Pakistan, Nepal, Ecuador, Peru, Panama, Colombia, Kyrgyz Republic, Indonesia, Philippines. To explore the influence of remittances on poverty alleviation in developing countries, the following model is established:

$$PHR_{ij} = \beta_o + \beta_1 GFCF_{ij} + \beta_2 LFPR_{ij} + \beta_3 REM_{ij} + \beta_4 INF_{ij} + \beta_5 TR_{ij} + \beta_6 HC_{ij} + u_{ij}$$

Where;

PHR indicates poverty headcount ratio, GFCF represents gross fixed capital formation (percent of GDP), LFPR indicates labor force participation rate (percent of employed labor force to the total labor force, REM specifies remittances (percent of GDP), INF indicates inflation rate (consumer price index), TR means trade openness (trade as a percent of GDP), HC represents human capital (secondary school enrolment), and u indicates error term.

In this study, different econometric techniques are applied for data analysis. Firstly, unit root analysis is imperative to check the variables' stationary level. Various panel unit root tests, including the Levin, Lin, and Chu (LLC), Im Pesaran and Shin (IPS), and Augmented Dickey-Fuller Fisher (ADFF) tests, are used in this study. Secondly, Pedroni's test of Cointegration is exercised to investigate the long-run Cointegration between variables and the hypothesis of the Pedroni test is as follows:

H_o: There is no Cointegration among variables

H_1: There exists Cointegration among variables

Lastly, Panel ARDL is a crucial technique for economic analysis. Even though change may occur in stages in practical scenarios, it is possible for one variable to have an impact on the other. In these situations, the ARDL approach can be used to compare the long-run and short-run results. The following equation illustrates the lagged influence of one variable on another variable:

$$Y_p = f(X_{ip}, X_{ip-1}, X_{ip-2})$$

Where;

p, p-1 and p-2 are lags

The general ARDL equation is as follows:

$$y_p = \beta_o + \beta_1 y_{p-1} + \ldots\ldots + \beta\rho y_{p-m} + \alpha_o x_p + \alpha_1 x_{p-1} + \alpha x_{p-2} + \ldots\ldots + \alpha_q x_{p-n} + \mu_p$$

Where; m and n are number of years, u_p is error term, β_i represents coefficent of shor-run variable and a_i indicates coefficent of long-run variable.

DATA ANALYSIS

The descriptive statistics of variables is presented in Table 1. It is found that the mean value of poverty head count ratio in developing countries is 27.521, max value is 64.300, min value is 0.900, standard deviation is 14.589, skewness value is 0.273 which exhibits that the distribution is positively skewed, kurtosis value 2.514 exhibits the distribution is platykurtic. The mean value of gross fixed capital formation in developing countries is 23.208, max value is 46.833, min value is 12.521, standard deviation is 5.834, skewness value is 0.940 which exhibits that the distribution is positively skewed, kurtosis value 4.235 exhibits the distribution is leptokurtic. Table 5.1 provides analysis of the variables' descriptive statistics.

Table 1. Descriptive Statistics.

Variables	Mean	MAX	MIN	S.D.	Skew	Kurt	J-B	Prob.
PHR	27.521	64.300	0.900	14.589	0.273	2.514	8.021	0.018
GFCF	23.208	46.833	12.521	5.834	0.940	4.235	75.833	0.000
LFPR	64.674	93.172	48.800	8.462	0.788	4.380	65.844	0.000
REM	7.679	32.506	0.093	8.084	1.129	3.243	77.362	0.000
INF	5.268	37.678	-1.550	4.113	2.297	15.020	2483.621	0.000
TR	70.805	166.698	24.702	31.831	0.817	2.902	40.152	0.000
HC	67.824	99.842	28.118	17.431	-0.340	2.244	15.520	0.000

Source: Author's Calculations

Table 2 presents the outcomes of the correlation matrix. This analysis examines the degree of association between two variables, and the correlation coefficient shows the strength or weakness of the relationship. It is found that poverty is negatively correlated to GFCF (-0.116), LFPR (-0.050), remittances (-0.030) and human capital (-0.416) while positively associated with the inflation rate (0.118), and trade (0.073).

Table 2. Correlation Matrix.

Correlation	PHR	GFCF	LFPR	REM	INF	TR	HC
PHR	1.000						
GFCF	-0.116	1.000					
LFPR	-0.050	0.015	1.000				
REM	-0.030	0.124	-0.057	1.000			
INF	0.118	-0.001	-0.096	0.045	1.000		
TR	0.073	0.199	0.027	0.150	-0.046	1.000	
HC	-0.416	0.286	0.092	-0.195	-0.162	0.146	1.000

Source: Author's Calculations/

Panel unit root analysis is conducted using LLC, ADF Fisher and PP Fisher tests and outcomes are displayed in Table 3. The outcomes show that the variables labor force participation rate and inflation rate are integrated at order zero. In contrast, the variables poverty, GFCF, remittances, trade and human capital are integrated at 1st order. Hence, the mix order of integration suggests that the panel ARDL is a suitable method for long-run estimation of variables.

Table 3. Panel Unit Root Test

Variable	Individual and Intercept				Intercept and Trend				None			Results
	LLC Test	IPS Test	ADF-Fisher Chi-Square	PP-Fisher Chi-Square	LLC Test	IPS Test	ADF-Fisher Chi-Square	PP-Fisher Chi-Square	LLC Test	ADF-Fisher Chi-Square	PP-Fisher Chi-Square	
PHR	-4.47 0.000	0.021 0.509	36.400 0.450	52.910 0.034	4.585 1.000	5.137 1.000	13.639 1.000	26.77 0.868	-7.09 0.000	130.42 0.000	165.657 0.000	I(1)
GFCF	-3.05 0.001	-2.09 0.018	53.718 0.029	34.505 0.540	-0.26 0.398	1.132 0.871	36.116 0.463	14.55 0.999	0.987 0.838	15.713 0.999	14.378 1.000	I(1)
LFPR	-0.21 0.417	-1.44 0.045	54.099 0.027	79.702 0.000	-0.42 0.338	-1.91 0.028	64.636 0.002	89.49 0.000	-0.85 0.199	28.805 0.797	35.122 0.510	I(0)
REM	-1.79 0.036	-1.33 0.091	47.508 0.095	51.246 0.048	-3.15 0.001	-1.51 0.066	53.319 0.032	32.19 0.650	0.295 0.616	22.13 0.966	20.368 0.983	I(1)
INF	-2.99 0.001	-2.83 0.002	59.444 0.008	131.718 0.000	-5.15 0.000	-4.24 0.000	78.892 0.000	139.26 0.000	-4.13 0.000	52.63 0.036	91.802 0.000	I(0)
TR	-0.48 0.31	-0.08 0.470	37.055 0.420	35.473 0.494	-2.10 0.018	-0.80 0.211	42.972 0.197	40.62 0.274	-2.72 0.003	37.06 0.420	57.195 0.014	I(1)
HC	-0.93 0.177	2.390 0.992	21.603 0.972	37.696 0.392	-0.20 0.421	0.182 0.572	44.436 0.158	62.13 0.004	5.443 1.000	5.531 1.000	4.363 1.000	I(1)

Source: Author's Calculations.

Pedroni Test of Cointegration Analysis

Table 4 presents the Pedroni test of Cointegration. The outcomes show that Panel v-Statistic and Panel PP-Statistic within dimensions and Group rho-statistic and Group PP-Statistic between dimensions have probability values less than 5 percent, suggesting that the null hypothesis is rejected, and the alternative hypothesis is accepted that there is a long-run cointegration among variables. The Kao Residual cointegration test also has a p-value of less than 5 percent, suggesting the long-run cointegration between variables.

Table 4. Pedroni Residual Cointegration Test.

Within-Dimension		
Test	Statistic	Prob.
Panel v-Statistic	-2.2362	0.0127
Panel rho-Statistic	4.0376	1.0000
Panel PP-Statistic	-3.2700	0.0005
Panel ADF-Statistic	1.4761	0.9301
Between Dimension		
Group rho-Statistic	-5.7338	0.0152
Group PP-Statistic	-6.0238	0.0000
Group ADF-Statistic	1.5402	0.9382
Kao Residual Cointegration Test		
ADF	-2.5413	0.0055

Source: Author's Calculations.

Panel ARDL Analysis

This section presents the panel ARDL long-run estimates of the impact of remittances on poverty mitigation in developing countries. First, exploring the association between labor force participation and poverty, it is originated that labor force participation rate is negatively and significantly linked to poverty. The coefficient value of LFPR displays that as LFP upsurges by one unit, the poverty level declines by -1.3392 units. As LFP in a country upsurge, the income level of the people also increases, which in turn inversely impacts the poverty level. These outcomes are also matched by the studies of Nahar & Arshad (2017). Remittances are crucial to increasing the income level of the people and poverty alleviation. It is originated that remittances are negatively and significantly linked to poverty. The coefficient

value of REM exhibits that as remittances increase by one unit, -0.8455 units decline in the poverty level. Remittance inflows support economic growth and alleviate poverty by boosting recipient countries' income, easing credit restrictions, speeding up investment, and advancing human development by funding improved healthcare and education (Jongwanich, 2007). These outcomes are also matched by the studies of Peković (2017); Amjad (2017); Nahar & Arshad (2017); Faridi & Mehmood (2014); Fahrizal *et al*., (2021); Abduvaliev & Bustillo (2020); Tsaurai (2018). In contrast, the results show that the inflation rate is positively and significantly linked to poverty. The coefficient value of INF displays that as the inflation rate increases by one unit, the poverty level increases by 0.5731 units. An increase in the inflation rate declines people's purchasing power, so they cannot meet the basic needs of their lives due to the high inflation rate. These outcomes are also matched by the studies of Nahar & Arshad (2017); Faridi & Mehmood (2014). The variable trade openness is negatively and significantly linked to poverty. The coefficient value of TR exhibits that as trade rises by one unit, the poverty level declines by -0.2128 units. An increase in trade openness is important in providing low-priced items and also creates employment opportunities for the people so this leads to an increase in the purchasing power of the people and also boosts the level of income, this could help to decline the level of poverty in a country. These outcomes are also matched by the studies of Abduvaliev & Bustillo (2020); Tsaurai (2018); Kalim & Shahbaz (2009). Lastly, human capital is found to be negatively and significantly linked to poverty. The coefficient value of HC exhibits that as human capital increases by one unit -0.2062 units decline the poverty level. An increase in the education level can significantly influence the level of poverty because educated people have more skills and efficiency and they have higher income opportunities. This led to negatively influence level of poverty (Rebelo, 1991). These outcomes are also matched by the studies of Tsaurai (2018); Abduvaliev & Bustillo (2020).

Table 5. Panel ARDL Long-Run Estimates.

Dependent Variable: Poverty				
Variable	Coefficient	Std. Error	t-Statistic	Prob.*
Panel ARDL Long-Run Form				
GFCF	-0.0153	0.0894	-0.1714	0.8641
LFPR	-1.3392	0.1446	-9.2595	0.0000
REM	-0.8455	0.1117	-7.5694	0.0000
INF	0.5731	0.1472	3.8912	0.0001
TR	-0.2128	0.0382	-5.5659	0.0000
HC	-0.2062	0.0531	-3.8833	0.0001
Error Correction Form				
ECM(-1)	-0.1550	0.0610	-2.5407	0.0118
D(GFCF)	-0.1456	0.1871	-0.7781	0.4373
D(LFPR)	-0.0704	0.1565	-0.4499	0.6532
D(REM)	0.1110	0.4301	0.2581	0.7966
D(INF)	0.0705	0.0769	0.9164	0.3605
D(TR)	0.0124	0.0588	0.2123	0.8321
D(HCS)	-0.2672	0.1550	-1.7236	0.0862

Source: Author's Calculations.

The panel ARDL short-run estimates show that the ECM(-1) is negative and statistically significant, indicating the convergence toward equilibrium. The ECM(-1) value exhibits that 15.50 percent adjustment is taken place to the long-run equilibrium in case of short-run errors.

CONCLUSIONS AND RECOMMENDATIONS

This study analyses remittances' impact on poverty alleviation in developing countries. The data from eighteen developing countries is used for the empirical investigation to obtain this objective. The panel dataset from the period of years 2001 to 2020 is used. The main source of data is World Development Indicators. The panel unit root test outcomes show a mixed order of integration of variables. The Pedroni cointegration test suggests a long-run cointegration among variables. The study found that foreign remittances are crucial to eradicate poverty in developing countries. Similarly, gross fixed capital formation, labor force participation rate, trade and human capital discourage poverty while the variable inflation rate increases poverty in developing countries. Considering the study's outcomes,

it is concluded that remittances are crucial in mitigating the poverty level in developing countries. Based on the findings, the researcher suggests the following recommendations to enhance the level of remittances and mitigate the level of poverty in developing countries:

1. The governments of remittance-receiving countries could identify various potential policy tools for forming their respective countries' national remittance policies. They need to take action to increase remittances, especially through official channels. Remittances through financial channels will increase in volume if the cost of sending them is reduced.
2. Remittance spending needs to be carefully controlled by emerging nations' governments to increase productivity, boost economic growth, and lessen rural poverty.
3. The governments should create new policies for international money transfers that encourage senders to go via the right procedures and reward them for sending more money home. In addition to lowering transfer costs, the banking industry in developing nations needs technological advancements, and more crucially, there is a need for more banks in rural areas.
4. To reduce poverty, governments should provide migration-friendly and national development-friendly measures, such as incentives for workers to travel overseas and remit funds legally rather than illegally. Low-income families would benefit from this, but it would also help the government increase its foreign reserve.
5. Governments of developing countries should also focus on the formation of human capital. For this purpose, health and education expenditures must be increased because human capital formation can mitigate poverty.
6. The government should invest in those projects that increase the employment opportunities for the people so their income level may boost and can lead to reduced poverty.

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