The Effect of Remittances on Economic Expansion and Poverty Reduction: Evidence from Pakistan

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ABSTRACT

This study investigates the impact of remittances on economic growth and poverty reduction in Pakistan. The research aims to empirically examine the relationship between remittances, economic expansion and poverty reduction. Using data from 1980 to 2021, sourced from the World Bank, the study employs the Augmented Dickey-Fuller test to assess the stationarity of variables. The results indicate that all variables are stationary, supporting the use of the Autoregressive Distributed Lag (ARDL) approach for analysis. The ARDL bound test confirms a long-term relationship between the variables. In the context of economic growth, the study finds that remittances have a positive and significant impact, with a 1% increase in remittances associated with a 0.26% rise in GDP. However, the study observes a negative impact of foreign direct investment on GDP. In terms of poverty reduction, the results suggest that remittances have a negative and insignificant effect on poverty, with a 1% increase in remittances associated with a 0.53% decrease in poverty. Granger causality tests reveal a unidirectional causation from remittances to economic growth and a bidirectional causation between remittances and poverty. The findings underscore the importance of remittances in influencing economic growth and poverty reduction in Pakistan. Recommendations include policies to enhance the positive impact of remittances on both economic growth and poverty alleviation. The study's implications extend to policy recommendations, emphasizing the potential benefits of remittances in fostering economic growth and poverty reduction. Policymakers are encouraged to consider the positive impact of remittances when formulating strategies for sustainable development. Additionally, the research contributes to the existing literature by providing insights into the nuanced relationships among remittances, economic growth, and poverty alleviation in the context of Pakistan.

Keywords: Remittances; Economic Growth; Poverty Reduction; Pakistan; ARDL; Granger Causality; Sustainable Development

1. INTRODUCTION

Remittances, often defined as the transfer of money or resources by individuals working abroad to their home countries, constitute a significant component of international financial flows. In the context of Pakistan, remittances primarily refer to the funds sent by Pakistani expatriates living and working overseas to their families and communities back home. These remittances can take various forms, including cash transfers, bank deposits, or in-kind contributions (Kousar et al., 2019).

Remittances is defined as "the sum of workers' remittances, compensation of employees, and migrants' transfers (Filipović et al., 2022). The broad definition of remittance encompasses not only cash transfers but also non-monetary resources, such as goods and services sent by migrants to support their families (Mubeen et al., 2016). According to Murata (2018) remittances are often distinguished from other forms of financial inflows, such as foreign aid or foreign direct investment, by their personal and familial nature, as they represent the earnings of individual migrants rather than official transfers between governments or corporations.

From a socioeconomic perspective, remittances represent a crucial link between migration and development, as they have direct implications for the welfare and well-being of recipient households and communities. Remittances serve as a source of income for families left behind by migrants, enabling them to meet their basic needs, access essential services such as education and healthcare, and invest in income-generating activities (Antman, 2013). Therefore, remittances are often seen as a form of social protection and poverty alleviation, particularly in countries with high levels of emigration and economic hardship (Akeel, 2023).

Remittances, or financial transfers from overseas Pakistani to their home countries have evolved as an important component of international finance, strengthening economic linkages between sending and receiving countries. As millions of people relocate in search of better economic prospects, the influence of remittances on both individual households and national economies has grown in importance and attention. In the context of Pakistan, where remittances play a significant role in the economy, understanding their impact on economic expansion and poverty reduction is of paramount importance. Remittances contribute to Gross Domestic Product (GDP) which stabilize the balance of payments and stimulate domestic demand, thereby fueling economic growth. Moreover, remittances have been shown to reduce poverty levels and improve household welfare by providing a steady source of income for millions of families across the country (Zaman et al., 2021). Therefore, the scope of its study has an intrinsic value for researchers.

Iqbal et al., (2018) postulated that an increase in remittances (in terms of GDP) leads to the increase in the per capita income in the economy. This increase in the per capita GDP could be primarily due to the increase in the consumption of the low-income recipients. The flows of remittances are increasing rapidly in developing and developed countries (Zaman et al., 2021). In comparison with other developing nations, Pakistan is renowned for its high levels of migration and remittances from its employees. It is contended that this high level of migration is the result of poor economic states of the nation in light of the fact that the nation is contending with such a vast array of problems, such as unemployment, lack of education, inflation, poverty, and bombardment. The average Pakistani citizen is leaving their country in search of employment and to improve their prospects for essential luxuries. It is also argued that due to the erratic employment situation, people are relocating to other nations in order to provide their children everyday comfort by finding employment, and that this brain drain problem is a result of this unemployment in home-country (Kamran et al., 2014).

Mughal et al., (2023) reported that an international inbound remittance market in Pakistan has increased at 2.8% during 2022 to reach US$ 29.87 billion in 2023. Over the forecast period (2023-2028), market size is expected to record a CAGR (Compounded Annual Growth Rate) of 2.2%, increasing from US$ 29.06 billion in 2022 to reach US$ 33.36 billion by 2028. Remittances are the monetary transfers done by international migrants to their families in their origin countries. They distinguish themselves from other forms of capital inflow, such as direct investment, loans, and grants (Abbas et al., 2021).

Investing and consuming more is a sign of economic development since remittances reduce poverty, improve health care and education. Yang et al., (2020) found that the main way to eliminate poverty and alleviate financial difficulties faced by migrant families in their home countries is through workers' remittances, these remittances have a beneficial effect on reducing the gap in income and wealth disparity within migrant nations.

The goal of this study is to determine how remittances affect Pakistan's economic growth and efforts to combat poverty? The stated literature only considers worker's remittances and economic growth as variables, leading to existing gaps in research. This existing gap is due to the absence of new variables to assess their impact. A positive correlation is established between two variables (remittances and economic growth) only. Additionally, various versions are employed to analyze empirical data from different countries and sample periods in order to investigate the effect. Rahman (2014) identifies how remittances affect economic growth. In this new study, we aim to address the research gap by incorporating remittances with other macroeconomic variables using the ARDL approach to figure out how it would affect Pakistan's economic growth. The existing literature provides limited insights into how remittance-inflows interact with various economic indicators, including GDP (Gross Domestic Products), GFCF (Gross fixed capital formation), FDI (Foreign direct investment), and trade openness, hindering a holistic understanding of their collective influence on long-term development. This research aims to address this knowledge gap, offering a detailed examination of the relationships between remittances, economic indicators, and poverty, thereby contributing valuable insights for policymakers and scholars invested in optimizing the impact of remittances on Pakistan's economic well-being. Therefore, the objectives are:

1. To find out how remittances affect economic growth and reduce poverty.
2. To empirically examine the extended connection between remittances, economic expansion, and the reduction of poverty.

2. LITERATURE REVIEW

The phenomenon of remittances and its economic implications have garnered substantial attention within academic, economic, and policy-oriented discourse. Jawaid and Raza (2016) investigated the impact of worker remittances and their volatility on economic growth in Asia, and they used long-term series data from 1975 to 2009. The research findings revealed a significant positive long-term correlation between remittances and economic expansion in India, Sri Lanka and Nepal. However, in the case of Pakistan, the results indicated a substantial and negative long-term correlation based on the co-integration test. One limitation of this study was its exclusive focus on the South Asian region, limiting the generalizability of the findings to other contexts.

Abduvaliev and Bustillo (2020) employed a panel data set on economic growth and poverty metrics (including poverty headcount, poverty gap, and poverty severity) across ten selected former post-Soviet republics within the Commonwealth of Independent States (CIS). The researcher discovered that a 1.0% increase in remittance flows leads to an approximate 0.25% rise in per capita GDP and a 2.0% decrease in poverty severity on average. The analysis suggests that remittances have significantly reduced poverty by boosting income and stabilizing consumption. Kousar et al. (2019) examined the impact of financial development and foreign remittances on poverty in Pakistan. The study used the ARDL-Bounds testing approach for robust inferences. The results show that in the short-term period, remittances increase poverty and income inequality, which is further translated into its long-term impact. The results confirmed the

inverted U-shaped relationship between per capita income and income inequality. In contrast, the second-order coefficient of per capita income substantially declines poverty incidence in a country. In the long-run, the results disappear and become a U-shaped relationship between income inequality and the country's per capita income. The researcher also observed that education decreases income inequality in the short-term and long-term period. However, it increases poverty in the long-run. The unemployment rate substantially damaged the pro-poor growth scenario, as a high unemployment rate increases both the poverty rates and income inequality, which made people experiencing poverty suffer more than the non-poor in a country. Subsequently, it was concluded that holistic financial development positively impacts poverty reduction in the long-run.

Ahmad et al. (2016) researched the influence of worker remittances on Pakistan's economic growth. The study analyzed the data from 1980 to 2010, using GDP as the dependent variable, and the independent variables are worker remittances, exports, gross domestic product and foreign direct investment. The study employed the Ordinary Least Square (OLS) method and discovered substantial benefits of worker remittances on economic development, indicating a strong relationship between the two. However, the study should have considered other variables, such as investment, education, health, and livelihood standards, which are essential to understanding worker remittances' full implications.

Hayat et al. (2013) investigated the impact of foreign remittances on the economic growth of Pakistan. The ARDL is used to identify the long-term relationship between the variables. GDP is the dependent variable, while foreign remittances, FDI, inflation and exchange rate are independent variables. Results indicate that foreign remittances positively and significantly affect Pakistan's GDP, while inflation and exchange rates negatively affect economic growth. Foreign direct investment has a positive but insignificant relation with Pakistan's GDP. It concludes that Pakistan needs a stable and visionary government to enhance foreign capital inflow and boost investment and economic growth.

Dilshad (2013) conducted an empirical investigation of the effects of remittances on economic growth. The study utilized time series analysis from 1991 to 2012, employing a regression model to assess the correlation. The findings indicated a significant positive association between remittances and economic growth. Using the Co-integration technique, Rahman (2014) revealed a significant positive correlation between worker remittances and economic growth. However, the study did not include other macroeconomic variables that could influence economic growth. Tahir et al. (2015) noted that the study had limitations, including potential data limitations and a lack of comprehensive analysis of external factors that could impact economic growth in Pakistan.

Ahmad et al. (2016) found that foreign remittances and foreign direct investment (FDI) were influential in developing Pakistan's economy. The study also suggested that policymakers should focus on enhancing the inflow of remittances and FDI to achieve sustainable long-term economic growth. Mubeen et al. (2016) investigated the significance of international remittances on Pakistan's financial progress. Secondary data from 1980 to 2011 was used, and multiple regression analysis of the relationship between the variables was examined. The findings showed that foreign direct investment (FDI), agricultural growth, and worker remittances had a beneficial impact on GDP. FDI also had a small but positive impact on financial development. However, the study revealed that foreign remittances led to declining domestic savings and investment, limiting financial innovation and economic expansion.

Similarly, Meyer and Shera (2017) studied how remittances affected economic growth. The panel data collection covered 1999 to 2013 and included data from six countries with high remittance reception. The study examined the link between remittances and economic growth using multiple regression analysis. The findings showed that in most countries, remittances comprised more than 10% of GDP and served as the primary source of income from foreign currencies.

However, the study solely focused on the impact of remittances on economic growth. It did not consider other potential channels of influence, such as poverty reduction, income inequality, and human capital formation. The topic of foreign remittances as a source of economic growth is the sole focus of our study. We have gathered various researches that explicitly gave us a thorough overview of past studies. The critical probing of economic growth, poverty alleviation, and re-evaluating their relationship to other variables such as foreign remittances, GDP, and FDI is manifested.

2.1 Theoretical Framework of the Study

The Neoclassical Growth Theory is adapted by the researchers within the framework of the effect of remittances on economic expansion and poverty reduction. According to Neoclassical Growth Theory, economic growth is primarily driven by factors such as capital accumulation, technological progress, and labor productivity (Sredojević et al., 2016). Remittances can be seen as a form of external capital inflow which can contribute to investment and capital accumulation in recipient countries like Pakistan (Tahir et al., 2015). Therefore, increased investment can lead to higher economic growth rates, job creation, and ultimately cause poverty reduction.

A significant aspect of Neoclassical Growth Theory is that increased capital accumulation is essential for sustained economic growth. So, remittances can be a sustainable source to contribute in capital formation by financing investment in physical infrastructure, such as housing, businesses, and infrastructure projects. In Pakistan, increased consumer spending fueled by remittance-influx may lead to higher levels of imports as well as increased exports in sectors catering to domestic and international demand. Finally, this economic theory provides a framework for understanding the complex relationship between remittances, economic expansion, and poverty reduction in Pakistan. Empirical research that applies this theoretical perspective can help policymakers design more effective strategies to harness the developmental potential of remittances for the benefit of the country's economy and society.

2.2 Framework of the Study

This research attempts to determine the sources and irregularities of Pakistan's economic development and consequently play a key role in mitigating poverty. The capital influx assimilated in form of GDP (Gross Domestic Product) inherently derived from the economic growth caused by the perpetual spurt of remittances, FDI, GFCF, and trade collectively devises the research framework as shown in Figure 1 and Figure 2. It highlights the poverty framework and following influencing variables.

- **Gross Domestic Product (GDP)**
  The value of all goods and services generated inside a country's domestic boundaries during a certain year is added together to determine the GDP of that country.

- **Remittances**

   Remittances are the non-commercial transfers of money made by expatriates, diasporas, or anyone with ties to another country's culture for the purpose of supporting a household.

- **Gross Fixed Capital Formation (GFCF)**

   The sum of resident producers' fixed asset investments during a specific time period is known as gross fixed capital formation. Assets from production processes that are consistently and continuously used in other production processes for at least a year are known as fixed assets.
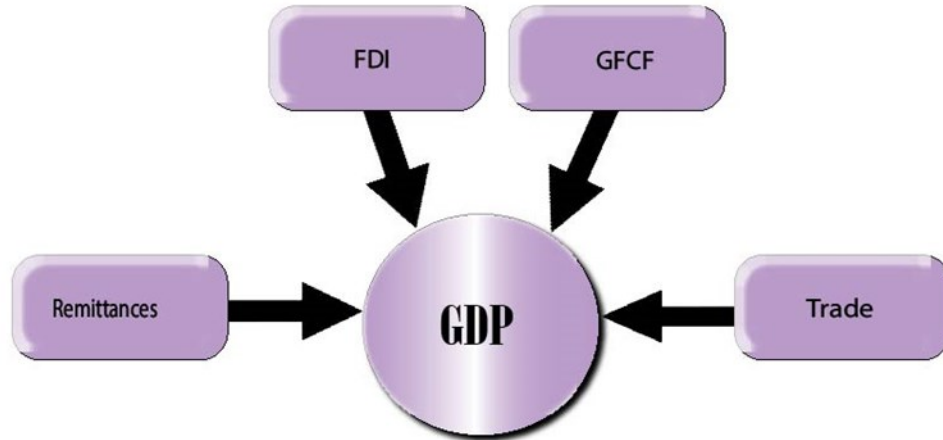
Figure 1. Gross Domestic Product Framework

- **Foreign Direct Investment (FDI)**

   A party from one country invests in a business or organization in another with the hopes of establishing a long-term partnership.

- **Trade**

   The act of purchasing, selling, or exchanging commodities or services between people, companies, and nations is known as trade.
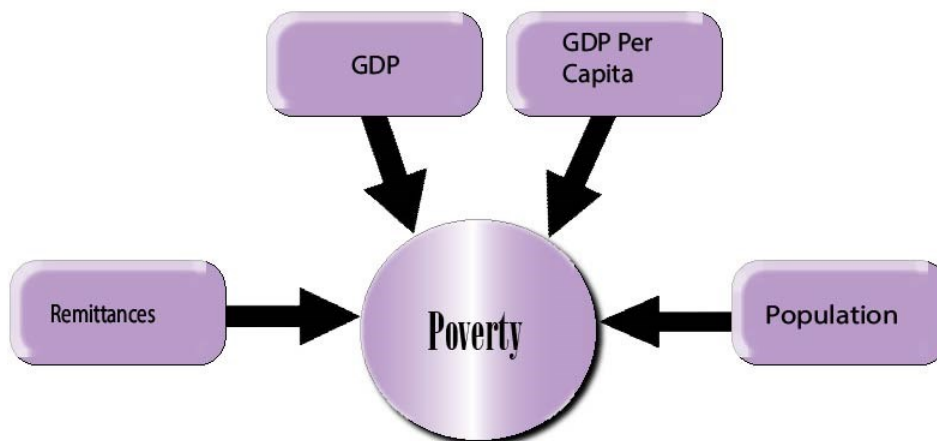
Figure 2. Poverty Framework

- **Poverty**

  Poverty is defined as a state in which individuals or groups lack the resources and fail to provide even the bare minimal necessities of life. They are prone to poor living standard. The "poverty head count ratio" is the proportion of the population that lives in poverty. In this study, the data has been collected by the researcher on poverty head-count ratio during the time period of 1980-2020 from Macro trends.

- **Population**

  A population is a whole set of people, whether that set is a country or a group of people that share some traits. The World Bank's time series data has been collected for the years 1980 to 2021.

3. METHODOLOGY

Theoretical as well as empirical literature predicts that remittances contribute not only in the growth process of recipient country but also play an important role in reducing poverty. This study intends to explore the effect of remittances on real GDP and poverty in Pakistan, we specify following two independent models to deal with remittances, growth and poverty.

3.1 Remittances and Growth

We specify an empirical to explore the impact of remittances on economic growth. The model is shown in equation 1

$$lGDP_t = \alpha_0 + \beta_1 lREM_t + \beta_2 lGFCF_t + \beta_3 lFDI_t + \beta_4 lOP_t + \varepsilon_t \quad \text{(Eq 1)}$$

Where LGDP (Log of Gross Domestic Product), LREM (Log of Remittances), LGFCF (Log of Gross Fixed Capital Formation), LFDI (Log of Foreign Direct Investment), LOP (Log of Trade Openness) are noted in the equation.

Previous studies suggest that remittances effect the economic growth positively through reducing the current account deficit, external borrowing and availability of foreign exchange (Iqbal et al., 2018). The impact of human capital, investment and trade openness on output is assumed to be positive. We used similar to the model suggested by Ravallion and Chen (1997) to explore the impact of remittances on poverty. The model is written in equation 2.

$$lP_t = \alpha + \beta_1 lGDP_t + \beta_2 lGDP\_per\_capita_t + \beta_3 lPOP_t + \beta_4 lREM_t + \varepsilon_t \quad \text{(Eq 2)}$$

Where LP (Log of Poverty Head Count Ratio LGDP), LGDP per capita (Log of Gross Domestic Product Per Capita), LPOP (Log of Population), and LREM (Log of Remittances) are noted in the equation. The expected signs of β1, β2, and β3 are negative, positive and positive/negative respectively.

To estimate both models in equation (1) and (2), Autoregressive Distributed Lag (ARDL) method developed by Pesaran et al. (2001) has been used. This technique is more appropriate for small sample size and can be implemented irrespective of whether the underlying variables are I (0) or I (1). In this approach long-term and short-term parameters of the model are estimated simultaneously.

ARDL formulation is drawn in equation 3

$$\Delta Y = \beta 1 + \beta 2 Y t - 1 + \beta 3 Z t - 1 + \sum_{i=1}^{k} \beta 4 \Delta Y t - 1 + \sum_{i=1}^{k} \beta 5 \Delta Z t - 1 + \in \quad \text{(Eq 3)}$$

Where Y is dependent variables, Z is the vector of explanatory variables included in the regression equation 1 and 2. Bounds testing procedure develop by Pesaran et al (2001) is used to test the presence of long run relationship among the variable in equation (3). The test based on F test for co-integration analysis. The null hypothesis is that the coefficients β2 and β3 are jointly equal to zero. In other words, the null hypothesis states that there is no long-term relationship between the variables in equation (3). The computed F-statistics is compared with the critical value bounds of the F-statistic. If computed F-statistic higher than the upper bound of the critical value of F-statistic, the null hypothesis would be rejected and vice versa.

Study aims to focus on Pakistani population, encompassing economies with varying levels of dependence on remittances. Nations with a significant share of remittances in their GDP are specifically targeted for in-depth analysis. The study aims to capture the nuances of remittance trends across a spectrum of economic conditions. It examines how overseas remittances affected Pakistan's economic expansion and elimination of poverty. Data from the WDI (World Bank Indicator) time's series from 1980 to 2021 is used for the analysis. The following are the two separate models that address remittances, economic growth, and poverty with dependent variables for the models as GDP and poverty for the time-series (1980 to 2021) study. The explanatory variables include GDP, remittances, GFCF, FDI, trade openness, GDP per capita, and Population. The variables are scrutinized to assess and draw inferences regarding the significance and insignificance of their relationship with economic expansion and remittances sent home by expatriates and foreign settlers.

3.2 Data Collection

Using data from 1980 to 2021, sourced from the World Bank, the study employs the ARDL (Augmented Dickey-Fuller test) to assess the stationarity of variables.

4. RESULTS AND DISCUSSION

The stationarity of the variables and long-term impacts are discussed in this section as econometric issues. The Augmented Dickey-Fuller test is used to analyze the data's stationarity as shown in equation 4 to determine the descriptive analysis of GDP.

$$lGDP_t = \alpha_0 + \beta_1 lREM_t + \beta_2 lGFCF_t + \beta_3 lFDI_t + \beta_4 lOP_t + \varepsilon_t \quad \text{(Eq 4)}$$

Descriptive statistic shown in Table 1 indicated that an average Gross Domestic Product (GDP) grows 4.74 percent annually. It is a very moderate growth rate of growth. In 1980 the growth rate was very high 10.2 percent but in 2020 it was very low i.e. -1.27 percent due to lockdown because of COVID-19. The value of standard deviation of GDP is 2.218189 which shows the dispersion from mean value. On average Gross Fixed Capita Formation (GFCF) grows 15.8 percent annually. In 1993 the growth rate was very high i.e. 19.1 percent but in 2011 it was low i.e. 12.52 percent.

The value of standard deviation of GFCF is 1.710881 which shows the dispersion from mean value. On average remittances grows 5.25 percent annually. In 1983 the growth rate was very high i.e. 10.2 percent but in 2000 it was very low i.e. 1.31 percent. The value of standard deviation of remittances is 2.317735 which shows the dispersion from mean value. On average foreign direct investment (FDI) grows 0.87 percent annually. The value of standard deviation of FDI is 0.776188. On average trade grows 37 percent annually. In 1989 the growth rate was very high i.e. 97.7 percent but in 2016 it was low i.e. 24.7 percent. The value of standard deviation of trade is 14.56105 which shows the dispersion from mean value.

Table 1. Descriptive Statistics

Variable	Mean	Median	S. D
GDP	4.745724	4.8396	2.218189
GFCF	15.8205	16.23262	1.710881
Remittances	5.25864	5.102886	2.317735
FDI	0.879513	0.646792	0.776188
Trade openness	37.03449	33.16201	14.56105

Table 2 show the descriptive analysis and determine the poverty as an average poverty grows 31.8 percent annually. In 2020 the poverty rate was very high i.e., 37.2 percent and in 1981 it was as low as 26.4 percent. The value of standard deviation of poverty is 2.807894 which shows the dispersion from mean value. On average Gross Domestic Product (GDP) grows 4.74 percent annually. In 1980, the growth rate was very high i.e., 10.2 percent but in 2020 it was very low i.e., -1.27 percent due to lockdown in COVID-19 scenario. The value of standard deviation of GDP is 2.218189 which shows the dispersion from mean value. On average GDP per capita grows 2.04 percent annually. An average remittance grows 5.25 percent annually. The value of standard deviation of remittances is 2.317735 which shows the dispersion from mean value.

$$lP_t = \alpha + \beta_1 lGDP_t + \beta_2 lGDP\_per\_capita_t + \beta_3 lPOP_t + \beta_4 lREM_t + \varepsilon_t \text{ (Eq 5)}$$

Table 2. Descriptive Statistics (Variable Statistics)

Variable	Mean	Median	S. D
Poverty	31.8335	31.9568	2.807894
GDP	4.7457	4.8396	2.218189
GDP per capita	2.0465	1.872129	1.989536
Population	2.6073	2.592221	0.832913
Remittances	5.2586	5.102886	2.317735

The Augmented Dickey-Fuller (ADF) Unit Root Test is displayed in the Table 3. The findings demonstrate that every variable is stationary at the level of significance. GDP is a dependent variable which is integrated at level difference I (0). Since the probability value is less than 0.05 and less than 0.0023, GDP is significant at a threshold of significance of 5%. Remittances is one of the independent variables which is integrated at first difference I (1). The probability value is 0.0000 which is less than 0.05, and it indicates that payments are considerable at a level of 5%. GFCF is one of the independent variables which is integrated at first difference I (1). The probability value of 0.0000 (less than 0.05) shows that GFCF is significant at a 5% level of significance. FDI is one of the independent variables which is integrated at first difference I (1). The probability value is 0.0000 (less than 0.05) implying that FDI is significant at a 5% level of significance. Trade is one of the independent variables which is integrated at first difference I (1). The probability value is 0.0000 (less than 0.05) and suggests a significance level of 5% for the deal.

Table 3. Unit Root Test

Variables	Test Statistics	Probability	Order of Integration
LGDP	-4.152745	0.0023	I(0)
LRemittances	-5.499871	0.0000	I(1)
LGross Fixed Capital Formation	-5.790371	0.0000	I(1)
LForeign Direct Investment	-5.816148	0.0000	I(1)
LTrade openness	-6.918147	0.0000	I(1)

The ARDL bound test results is shown in the Table 4 obtained results indicate that by comparing the F-statistic with the previously provided bounds. There is a long-term link between the variables if the F-statistic value is greater than the upper bound critical value. Conversely, if the F-statistic value is lower than the upper bound critical value, there is no long-term association. Given the findings, it is possible to draw the conclusion that the variables have a long-term association since the estimated F-statistic value of 7.048077 surpasses the upper bound critical value of 3.49 at a 5% level of significance.

Table 4. ARDL Bound Test

F-Statistic	7.048077	
Significance	Lower Bound	Upper Bound
10 %	2.2	3.09
5 %	2.56	3.49
2.5 %	2.88	3.87
1 %	3.29	4.37

Table 5 provided illustrates the long-term coefficients estimated through an ARDL approach to co-integration. The results show that remittances favor and significantly influence economic growth. According to the coefficients, a 1% increase in remittances is projected to raise GDP by 0.26%. On the other hand, the influence of GFCF is positive but not statistically significant. According to the findings, an increase of 1% in GFCF resulted in an increase of 0.42% in economic growth. As opposed to, the coefficient for FDI exhibits a negative and significant effect. It shows that a 1% increase in FDI will result in a 0.16% decline in GDP. However, it is important to note that this finding contradicts the generally observed positive relationship between FDI and GDP, as an increase in FDI usually corresponds to an increase in GDP. Lastly,

trade openness demonstrates a negative and insignificant effect. The results show that economic growth is reduced by 0.03% for every 1% rise in trade openness.

Table 5. ARDL Long Run Results

Variables	Coefficients	Std. Error	t-statistic	Probability
LRemittances	0.266620	0.127609	2.089345	0.0456
LGross Fixed Capital Formation	0.426244	0.680236	0.626613	0.5358
LForeign Direct Investment	-0.165728	0.091266	-1.815867	0.0797
LTrade openness	-0.039949	0.266783	-0.149744	0.8820

Unit Root Test are displayed in the table 6 and the findings demonstrate that every variable is stationary at the level of significance. A dependent variable integrated at level difference I (0) is poverty. Since the probability value is less than 0.05 and less than 0.0007, poverty is significant at a level of significance of 5%. One of the independent variables integrated at level difference I (0) is the gross domestic product (GDP). Since the probability value is less than 0.05 and less than 0.0023, GDP is significant at a threshold of significance of 5%. One of the independent variables integrated at level difference I (0) is GDP per capita. Assuming a 5% level of significance, the probability value of 0.0003, which is less than 0.05, indicates that GDP per capita is significant. One of the independent variables that is integrated at the first difference, I (1), is the population. Since the probability value is less than 0.05 and less than 0.0035, the population is significant at a level of significance of 5%. Remittances is one of the independent variables which is integrated at first difference I(1). The probability value is 0.0000 (less than 0.05) implying that remittances are significant at a 5% level of significance.

Table 6. Unit Root

Variables	Test Statistics	Probability	Order of Integration
LPoverty	-4.568450	0.0007	I(0)
LGDP	-4.152745	0.0023	I(0)
LGDP per capita	-4.826456	0.0003	I(0)
LPopulation	-4.003042	0.0035	I(1)
LRemittances	-5.499871	0.0000	I(1)

ARDL bound test result is displayed in the Table 7 determined by comparing the F-statistic to the values of the bounds provided earlier. If the F-statistic value is higher than the upper bound critical value, there is a long-term association between the variables and vice versa if it is lower. The calculated F-statistic value of 4.069031 is more than the upper bound critical value, which is 3.49 at the 5% level of significance, demonstrating the long-term relationship between the variables.

Table 7. ARDL Bound Test

F-Statistic	4.069031

Significance	Lower Bound	Upper Bound
10 %	2.2	3.09
5 %	2.56	3.49

2.5 %	2.88	3.87
1 %	3.29	4.37

Table 8 shows the estimated long-term coefficients using an ARDL approach to co-integration. The examined results of GDP show a negative and statistically insignificant effect on Poverty. The coefficients of remittances show that 1 % increase in GDP will decrease poverty by 0.39%. GDP per capita also show a negative and insignificant effect. The results of GDP per capita show that a 1% rise in GDP per capita resulted in a 0.26 percent reduction in poverty. The coefficient population has positive and significant effect. According to the population coefficient, a 1% increase in population will result in a 0.48% rise in poverty. Remittances show a negative and insignificant effect. The results of remittances demonstrate that a 1% increase in remittances causes a decrease in poverty of 0.53%.

Table 8 ARDL (Long Run Results)

Variables	Coefficients	Std. Error	t-statistic	Prob.
LGDP	-0.395389	0.543391	-1.588925	0.1122
LGDP per capita	-0.267223	0.498911	-1.411933	0.5233
LPopulation	0.480198	0.338436	1.344481	0.0275
LRemittances	-0.534868	0.065554	-1.447225	0.1468

Granger Causality Test shows in the Table 9 that null hypothesis since no causation exists when the p value is larger than 0.05. When the LGDP p value is less than 0.05, the null hypothesis is rejected and the alternative hypothesis that the LGDP causes the LGFCF is accepted. When the p value for Remittances is less than 0.05, the null hypothesis is rejected, and the alternative hypothesis—that LREM causes LGDP is accepted. LGDP demonstrates that we accept the null hypothesis since no causation exists as the p value is larger than 0.05. As the p value is larger than 0.05 in both outcomes, which indicates that there is no causation, Trade and LGDP demonstrate that we accept the null hypothesis. If the LFDI p value is less than 0.05, the null hypothesis is rejected, and the alternative hypothesis— that LFDI causes LGDP is accepted. LGDP demonstrates that we accept the null hypothesis since no causation exists as the p value is larger than 0.05.

$$lGDP_t = \alpha_0 + \beta_1 lREM_t + \beta_2 lGFCF_t + \beta_3 lFDI_t + \beta_4 lOP_t + \varepsilon_t$$

Table 9. Granger Causality Test

Null Hypothesis:	Obs	F-Statistic	Prob.
LGDP is not Caused by LGFCF.	38	1.13284	0.3343
LGDP is not Granger Cause by LGFCF		7.77170	0.0017
LGDP is not Caused by LREM.	38	2.10118	0.0314
LREM is not Granger Caused by LGDP.		0.98313	0.3848
LGDP is not Caused by LTRADE.	38	0.33233	0.7196
LGDP is not Granger Caused by LTRADE		1.01306	0.3741
LGDP is not Granger Caused by LFDI	38	4.62365	0.0170
LGDP is not Granger Caused by LFDI		1.16895	0.3232

Table 10 shows that if the LPoverty p value is less than 0.05, the null hypothesis is rejected, and the alternative hypothesis that LPOV does cause LGDP is accepted. If the p value for LGDP_per_capita is less than 0.05, the null hypothesis is rejected and the alternative hypothesis that LGDP per capita causes LPOV is accepted. LPOV demonstrates that we accept the null hypothesis since no causation exists when the p value is larger than 0.05. Population and LPoverty demonstrate that the null hypothesis is accepted since no causal relationship exists and both outcomes have p values larger than 0.05. LRemittances demonstrates that we accept the null hypothesis since no causation exists when the p value is larger than 0.05. If the LPoverty p value is less than 0.05, the null hypothesis is rejected and the alternative hypothesis that LPOV does induce LREM is accepted.

$$lP_t = \alpha + \beta_1 lGDP_t + \beta_2 lGDP\_per\_capita_t + \beta_3 lPOP_t + \beta_4 lREM_t + \varepsilon_t$$

Table 10. Results Of the Granger Causality Test

Null Hypothesis	Obs	F-Statistic	Prob.
The LPOV is not caused by LGDP.	38	2.38472	0.1078
LGDP is not Granger Caused by LPOV.		2.52253	0.0956
LPOV is not Granger Caused by LGDP_PER_CAPITA	23	9.82201	0.0013
LGDP_PER_CAPITA is not Granger Caused by LPOV		0.26264	0.7719
LPOP is not Granger Caused by LPOV	38	0.25537	0.7761
LPOV is not Granger Caused by LPOP		0.73772	0.4857
LREM is not Granger Caused by LPOV	38	2.05899	0.1432
LPOV is not Granger Caused by LREM		4.70813	0.0157

4.1 Discussion

The objectives of this study were to explore the relationship between remittances, economic growth, and poverty reduction in Pakistan. By conducting a thorough analysis, the study aimed to provide insights into impact of remittances on both macroeconomic indicators and household welfare, thereby contributing to existing literature on migration, development, and poverty alleviation. Remittances have emerged as a significant source of external finance for developing countries, including Pakistan. The influx of remittances has the potential to influence economic growth and poverty dynamics in recipient countries. Therefore, understanding the impact of remittances on these variables is crucial for policymakers aiming to design effective development strategies. The findings revealed a significant positive association between remittances and both economic growth and poverty alleviation in the country. This discussion will delve into the implications of these findings, their alignment with prior research, and the broader implications for policy and practice.

Previous studies have provided valuable insights into the relationship between remittances, economic growth, and poverty reduction. Research by Mubeen et al., (2016) and Najifa and Asif (2023) found a positive association between remittances and economic growth in Bangladesh, attributing this effect to increased household consumption and investment. Similarly, Tahir et al., (2015) highlighted the role of remittances in improving the living standards and reducing poverty in Pakistan. Moreover, recent studies

have reinforced this perspective, providing further evidence of the positive impact of remittances on economic growth.

Nadeem et al., (2019) conducted in Pakistan found that remittances significantly and positively affect on GDP growth, particularly in sectors such as construction and services. This finding underscores the role of remittances as a source of investment and consumption, stimulating economic activity and fostering growth in recipient countries. Javid et al., (2012) examined the channels through which remittances affect economic growth in Pakistan and identified both direct and indirect pathways. The direct effect involves increased household consumption and investment spurred by remittance inflows, while the indirect effect operates through the financial sector, where remittances contribute to higher savings and investment rates. This comprehensive analysis highlights the multifaceted nature of the relationship between remittances and economic growth, emphasizing the need for nuanced policy interventions to maximize their developmental impact.

The second objective of this study is to investigate the impact of remittances on poverty alleviation in Pakistan, aiming to contribute to the understanding of how remittance inflows affect household welfare and socio-economic inequality. Remittances play a crucial role in poverty alleviation by providing direct financial support to recipient households, enabling them to meet basic needs such as food, shelter, and healthcare. However, the extent to which remittances contribute to poverty reduction varies depending on factors such as the size of remittance inflows, household characteristics, and the broader economic context. This objective seeks to deepen our understanding of the relationship between remittances and poverty alleviation in Pakistan, a country where a significant proportion of the population lives below the poverty line. Recent research has shed light on the positive impact of remittances on poverty alleviation in Pakistan.

Rehman et al., (2023) found that remittance-receiving households are less likely to be in poverty compared to non-recipient households, indicating the poverty-reducing effect of remittance inflows. Moreover, the study observed that remittances contribute to improvements in education and healthcare outcomes among recipient households, further enhancing their socio-economic well-being.

Akeel (2023) explored the role of remittances in reducing income inequality in Pakistan and found evidence of a redistributive effect. The study revealed that remittance inflows contribute to narrowing the income gap between remittance-receiving households and non-recipient households, thereby promoting greater socio-economic inclusivity. This finding underscores the potential of remittances not only to alleviate poverty at the household level but also to mitigate broader socio-economic disparities within society.

Additionally, recent studies have highlighted the importance of financial inclusion initiatives in maximizing the poverty-alleviating impact of remittances. For example, a study by Kousar et al., (2019) emphasized the role of mobile banking and digital financial services in enhancing the accessibility and efficiency of remittance transfers, ensuring that remittance benefits reach the intended recipients promptly and securely. Such technological innovations have the potential to amplify the poverty-reducing effects of remittances by facilitating financial inclusion and empowering recipient households to make informed financial decisions.

This study has provided valuable insights into the relationship between remittances, economic growth, and poverty reduction in Pakistan. By addressing the objectives, this study contributes to the understanding of the role of remittances in shaping socio-economic outcomes in developing countries. The

positive association between remittances and economic growth, as well as their significant impact on poverty alleviation, underscores the importance of policies that support and harness the potential of remittance inflows for sustainable development. The policymakers must heed the implications of this study and prioritize initiatives aimed at maximizing the developmental impact of remittance inflows. Enhancing the efficacy and accessibility of remittance transfer mechanisms, promoting financial inclusion, and fostering a facilitating environment for investment are paramount. By harnessing the potential of remittances effectively, policymakers can not only accelerate economic growth but also advance progress towards poverty alleviation and sustainable development goals.

5. CONCLUSION AND RECOMMENDATIONS

The study mainly focused on the importance of remittances inflow and its implication for economic growth and poverty reduction. By using the ARDL approach we analyzed the impact of remittances inflow on economic growth and poverty. It is found that remittances affect economic growth positively and significantly. Findings show that remittances substantially influence and have a statistically significant impact on poverty reduction and growth in Pakistan. The findings of this study infer that international labor migration has potential benefits for poor people in developing countries like Pakistan in the long run. When utilized appropriately and efficiently, remittances also have the potential to assist in tackling challenges such as brain drain and excessive migration, while also contributing to the achievement of sustainable development. It is suggested that to improve the accuracy and transparency of data related to remittances, GDP, and other economic variables, collaborative efforts between government agencies, financial institutions, and international organizations can contribute to more reliable and comprehensive datasets.

Furthermore, the research recommends promoting financial inclusion initiatives to ensure that remittance recipients have access to formal banking and financial services. As a result of unfriendly policies, some remittances are still transferred through hundis (illegal way of money transfer), so Pakistan should implement policies that encourage and provide incentives for the entry of remittances through appropriate channels. Moreover, government can help in leveraging remittances for productive investments, fostering economic growth at the grassroot level. Socio-economically, investing in educational and skill development programs that empower individuals to contribute meaningfully to the society is a great leap forward. A skilled workforce can attract higher levels of foreign investment and contribute to the overall economic development of the country. The government may encourage remittance recipients to invest their money in local businesses and infrastructure projects. This will help create jobs, stimulate economic growth, and increase the country's tax revenue.

Inclusively, the government should formulate a policy that enhances the amount of remittances by reducing the transaction cost of transferring the remittances through formal channels. Remittances may be a priority for Pakistan because they contribute to economic growth and significantly reduce poverty. Remittances serve as a crucial contributor to foreign exchange and play a vital role in solving the nation's balance of payments issue. In the long run, the remittance inflow can lead to sustainable growth, welfare improvement, and the upgradation of poor households as the impact of remittance expands over time. Therefore, we can accelerate economic growth and nurture a better future by assessing the situation and adopting the right policies.

6. FUTURE IMPLICATIONS

As the technological advancements continue, exploring the impact of innovative remittance channels, such as block chain-based platforms and digital currencies is crucial. Assessing the implications of these technologies on the speed, cost, and accessibility of remittance transfers can guide regulatory frameworks and industry practices. Future research can delve deeper into dynamic economic modeling to understand the evolving relationship between remittances and key economic variables. Longitudinal studies and predictive modeling can provide insights into how changes in remittance patterns influence economic stability over time. Future studies should assess the impact of global crises such as pandemics or economic recessions on remittance trends. Understanding how remittance-dependent economies navigate and recover from such crises can guide in preparing responsive strategies. Addressing these future implications requires a multidisciplinary approach, involving researchers, policymakers, financial institutions, and international organizations. By proactively addressing these areas, stakeholders can contribute to the sustainable utilization of remittances for economic development and poverty reduction.

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