

From Macro Growth to Micro Impact: Remittances as a Catalyst for Economic Growth and Poverty Reduction in Bangladesh

Partho Sarathi Laskar¹, Md. Ariful Islam^{2*}, Md. All Mahmud³

ARTICLE INFO

Article History

Received: April 30, 2025

Accepted: Sept 02, 2025

Keywords:

Remittances, Poverty Reduction, Economic Growth, Cointegration, Bangladesh, Household Welfare.

JEL Classification:

F24, I32, O47, C32, I31

ABSTRACT

Purpose: This study investigates the dual role of remittances in fostering macroeconomic growth (proxied by GDP) and reducing household poverty in Bangladesh, with a focus on Jhenaidah district. It aims to bridge the gap between national-level economic trends and localized poverty dynamics, offering intuitions into how remittance inflows catalyze development at both macro and micro levels.

Methodology: This study combined macro- and micro-level analyses: econometric techniques (Unit Root, Johansen cointegration, Granger Causality) assessed remittance-GDP linkages using secondary data obtained from world development indicator (WDI), while primary data from 100 households in two upazilas of Jhenaidah district were evaluated via the Cost of Basic Needs (CBN) approach (poverty lines) and Foster-Greer-Thorbecke (FGT) index (incidence, depth, severity).

Findings: Micro-level data confirms that remittances significantly increased incomes and expenditures, reducing poverty incidence (38% under the upper poverty line vs. 25% under the lower line), depth (18% vs. 11.3%), and severity (5.1% vs. 2.4%) while Johansen cointegration analysis revealed a stable long-term equilibrium between remittances and GDP. Furthermore, Granger causality tests demonstrated unidirectional causality: remittances Granger-cause GDP growth ($p = 0.04$ at the 5% significance level), while GDP does not Granger-cause remittance flows.

Practical Implications: The findings advocate for policies that strengthen financial inclusion mechanisms to direct remittances as a catalyst for household resilience and macroeconomic stability by integrating migration strategies into national poverty-alleviation frameworks.

Originality/Value: This study uniquely integrates macroeconomic and household-level analyses to demonstrate how remittances simultaneously fuel national growth and empower vulnerable communities.

Limitations: The household sample ($n=100$) and single-district focus limit generalizability.

* Corresponding Author

1. Department of Economics, Faculty of Social Sciences, Islamic University, Kushtia-7003, Bangladesh, E-mail: parthoiu1982@gmail.com

2. Department of Economics, Faculty of Social Sciences, Islamic University, Kushtia-7003, Bangladesh, E-mail: arif.eco.iu986@gmail.com, Orcid Id. 0000-0003-1103-9763

3. Research Department, Bangladesh Bank, Head Office, Motijheel, Dhaka, Bangladesh, E-mail: all.mahmud@bb.org.bd

Copyright © 2025 The Author(s). Published by FBS, BUFT

This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0/>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

1. Introduction

Over the past three decades, remittances have played a significant role in reducing poverty and boosting economic growth in Bangladesh (Uddin et al., 2021). As one of the most densely populated countries in the world, Bangladesh faces immense pressure to meet the basic needs of its growing population—including food, clothing, housing, healthcare, and education (Islam, Rahaman & Ahmad, 2022). However, the country struggles to provide these services adequately (Arif et al., 2024). A majority of the population lives in rural areas and depends primarily on agriculture, where non-farm employment opportunities are limited. As a result, widespread unemployment persists, leading to low per capita income, particularly among rural households. This situation presents a major challenge for the country in terms of creating sufficient employment opportunities (Arif et al., 2024).

Despite these challenges, Bangladesh possesses a valuable latent asset: its large labor force. With proper education and vocational training, a significant portion of this population could be transformed into skilled human capital capable of working abroad. When these individuals are employed overseas and send money back home, the transferred earnings—known as workers' remittances—can contribute substantially to economic development, poverty reduction, and improved national welfare (Uddin et al., 2021; Dilshad, 2013). In recent years, the increasing volume of remittances has drawn significant attention from government authorities, policymakers, academics, researchers, and development practitioners in Bangladesh—primarily for two key reasons. First, remittances have helped reduce economic hardship and improve household consumption levels (Khan, 2008). They have also contributed to accelerating economic growth and enhancing the balance of payments at the macroeconomic level (Kundu et al., 2018), while emerging as one of the country's most important sources of foreign exchange earnings. Second, remittances continue to play a critical role in driving economic growth and alleviating poverty across the country.

The migration of Bangladeshi workers abroad has increased dramatically (see Figure 1), with annual manpower exports reaching 2.3 million in 2024—up significantly from 757,731 in FY 2016–17. Concurrently, remittance inflows have surged, hitting a historic monthly record of \$3.29 billion in March 2025, solidifying remittances as the largest source of foreign exchange earnings for Bangladesh, surpassing traditional sectors such as garment exports. Remittances accounted for 5.26% of GDP in 2023, up from 4.67% in 2022, underscoring their macroeconomic importance. Remittances have played a crucial role in poverty reduction. Studies show that a 1% increase in remittance growth is associated with a 0.05% decline in poverty rates in Bangladesh. According to the World Bank, the national poverty rate fell from 11.8% in 2010 to 5.0% in 2022, partly due to remittance-driven household consumption and investments in education and healthcare. However, significant challenges persist. A substantial portion of remittances—estimated at \$38 billion annually—is still routed through informal channels such as hundi, compared to \$26.67 billion sent through formal systems in 2024. Additionally, remittance flows remain vulnerable to fluctuations in global economic conditions.

Despite the substantial contribution of remittances to economic growth, regional disparities remain underexplored. Peripheral regions, while receiving a disproportionate share of remittance inflows, often lack the infrastructure necessary to convert these earnings into sustainable development outcomes. Recent policy initiatives—such as offering 2.5% cash incentives for formal remittance transfers and narrowing exchange rate gaps—have improved transparency. However, these measures require localized assessment to ensure their effectiveness across different regions. This study investigates remittances' dual role in fostering macroeconomic expansion and mitigating household poverty in Bangladesh. Figure 1 (a) illustrates the concurrent trends of GDP growth and remittance inflows from 1984 to 2023, while Figure 1 (b) demonstrates the inverse relationship between remittance receipts and poverty rates over the same period, with both figures drawing on data from the World Development Indicators (2024).



Figure 1. *Remittance Inflow, GDP Growth and Poverty Status of Bangladesh*
Source: World Development Indicator, 2024.

Remittances play a dual role in economic development by boosting GDP growth and reducing poverty, as evidenced in Figures 1 (a) and (b). Figure 1 (a) demonstrates that as remittance inflows increase gradually, GDP shows corresponding growth, highlighting how these transfers stimulate economic activity through enhanced consumption and investment. Simultaneously, Figure 1 (b) reveals that rising remittances correlate with declining poverty rates, as these funds directly increase household income for essential needs. Studies confirm this dual impact: in the Commonwealth of Independent States (CIS), a 1% increase in remittance flows provokes around a 0.25% rise in per capita GDP and a 2% decline in poverty severity (Abduvaliev & Bustillo, 2020), while in Nepal, remittances accounted for 32% of the poverty decline between 1995-2004 (Byanjanakar & Shakha, 2021). The main objective of this study is to investigate the relationship among remittance, poverty reduction and economic growth (Proxided by GDP) in Bangladesh. The specific objectives are as follows:

1. Analyze income-expenditure dynamics among remittance-dependent households.
2. Quantify poverty levels using standardized metrics (headcount, poverty gap, squared poverty gap indices).
3. Assess long-term interdependencies between remittance flows and GDP growth.
4. Establish causal linkages between remittance receipts and economic development.

2. Review of Literature

Remittances have gained significance due to their substantial growth (from \$400 million in 1970 to \$440 billion in 2015) and stable nature as a financial inflow for developing countries (WDI, 2008–2016). They positively impact recipient nations by reducing poverty, stabilizing consumption, and stimulating economic demand (Ofori et al., 2022). Unlike costly development loans (ODA), remittances are interest-free and directly benefit households, enabling spending on essentials, education, or savings (Khan, 2024). Additionally, they are less prone to government mismanagement compared to ODA (Su et al., 2021).

Existing studies offer mixed findings on the socioeconomic effects of remittances. Adams et al. (2008), using household survey data from Ghana (2000–2005), demonstrated that international remittances decreased poverty rates by 88.1%—surpassing the impact of domestic transfers (69.4%)—yet worsened income inequality by 17.4%. Similarly, Azam et al. (2016), applying panel FMOLS models to 39 countries, noted substantial poverty reduction in upper-middle-income nations but

minimal effects in other regions. In Bangladesh, Munshi's (2015) mixed-methods research in Khulna showed that remittance-receiving households favored productive investments over savings, leading to overall socioeconomic gains despite liquidity constraints.

The broader debate on remittances' role in economic growth remains unresolved. Some scholars, like Al-Malki et al. (2023), Ofori et al. (2022), and Sobiech (2019), argue that remittances help mitigate financial market inefficiencies, while others warn of potential drawbacks, including inflationary pressures from increased consumption (Stahl & Arnold, 1986) and unproductive spending in agriculture (Oberoi & Singh, 1980). Empirical evidence varies widely: Chami et al. (2003) found that remittances hindered growth across 113 countries, whereas Pradhan et al. (2008) reported a positive association in 39 developing economies. In Bangladesh, Siddique et al. (2010) detected no short-term growth effects, while Paul and Das (2011) identified long-term GDP benefits.

However, some scholars have emphasized the adverse effects of remittances. Bucheli et al. (2018) and Stahl and Arnold (1986) noted that the *demonstration effect*—where recipients emulate the consumption patterns of wealthier migrants—can increase spending on imported goods, reducing domestic savings and productive investment. Similarly, Zhang et al. (2022), Ghimire et al. (2020), and Oberoi and Singh (1980) cautioned that remittance dependence may lead to misallocation of resources in agriculture, stifling long-term productivity. Murshed et al. (2021) and Chami et al. (2003) further warned that remittances could discourage labor force participation, creating moral hazard risks.

Empirical evidence remains inconsistent. While Chami et al. (2003) found remittances suppressed economic growth across 113 countries, the IMF (2005) detected no significant link in a study of 101 developing economies. Conversely, Pradhan et al. (2008) reported growth-enhancing effects in 39 developing nations, and Alpaslan et al. (2020) highlighted remittances' role in improving savings and education outcomes. Regional studies, such as Jongwanich and Kohpaiboon (2019) analysis of Asia-Pacific countries, showed modest positive growth effects, whereas Barajas et al. (2009) found no statistically significant impact.

In Bangladesh, research has yielded similarly mixed results. Early work by Stahl and Habib (1989) estimated a remittance multiplier effect of 1.24 for 1976–1988, while Mahmud (2003) and Siddique (2004) acknowledged growth-stimulating potential. Paul and Das (2011) identified long-term GDP benefits, though short-term effects were negligible. In contrast, Rahman (2006, 2009) and Ahmed (2010) found either insignificant or negative impacts, and Siddique et al. (2010) found no evidence of remittance-driven growth.

A key limitation of existing literature is its heavy reliance on macroeconomic time-series data, often lacking micro-level insights. To address this gap, the present study combines primary household surveys with secondary data to analyze income-expenditure patterns among remittance recipients, assess poverty dynamics, and evaluate the remittance-GDP nexus in Bangladesh from 1984 to 2023.

3. Methodology of the Study

This study draws on primary data collected from 100 remittance-receiving households in two Upazilas within Jhenidah district of Bangladesh, selected through a multi-stage random sampling technique. The dataset enables an analysis of household income and expenditure patterns. To evaluate poverty dynamics, the Cost of Basic Needs (CBN) framework is employed to establish poverty thresholds, supplemented by the Foster-Greer-Thorbecke (FGT) indices to quantify poverty incidence, depth, and severity across these households, using both upper and lower poverty lines. For macroeconomic analysis, secondary time-series data spanning 1984–2023 are utilized. Econometric methods include: Unit Root tests to assess stationarity in remittance and GDP data, Johansen co-integration to examine long-term equilibrium relationships between remittances and GDP, and Granger Causality tests to identify directional causality between the remittance and economic growth.

4. Estimation Techniques

4.1 Household Level Analysis

4.1.1 Cost of Basic Needs (CBN) Framework

The CBN approach defines poverty by estimating the minimum expenditure required to meet basic food and non-food needs. For, CBN framework, we need to define the basic needs basket where both food and non-food components are included. Food components such as caloric requirement, food items, quantity, prices and cost of food basket. This gives us food poverty line. Which can written as:

$$\text{Food Poverty Line} = \sum (\text{Quantity}_i \times \text{Price}_i) \quad (1)$$

Similarly, non-food component includes essential households items such as housing, clothing, healthcare, education, and utilities. To calculate the total poverty line, we used lower line and upper line of poverty threshold. The lower poverty line can be written as:

$$\text{Lower Line} = \text{Food Poverty Line} \quad (2)$$

Whereas, upper line of poverty includes both food and non-food components and can written as:

$$\text{Upper Line} = \text{Food Poverty Line} \times (1 + \text{Non-Food Share}) \quad (3)$$

4.1.2 Foster-Greer-Thorbecke (FGT) Framework

The FGT class of poverty measures evaluates poverty along three dimensions: incidence (how many are poor), depth (how far below the poverty line they are), and severity (inequality among the poor). For a population of N households, the FGT index is defined as:

$$P_\alpha = \frac{1}{N} \sum_{i=1}^q \left(\frac{z - y_i}{z} \right)^\alpha \quad (4)$$

Formula for:

Incidence (P_0):

$$P_0 = \frac{q}{N} \quad (5)$$

Depth (P_1):

$$P_1 = \frac{1}{N} \sum_{i=1}^q \left(\frac{z - y_i}{z} \right) \quad (6)$$

Severity (P_2):

$$P_\alpha = \frac{1}{N} \sum_{i=1}^q \left(\frac{z - y_i}{z} \right)^2 \quad (7)$$

If remittance-recipient households have lower than non-recipients, remittances may reduce poverty depth. A high among recipients signals unequal benefits—some households gain far more than others.

4.2 Macro-Level Analysis

4.2.1 The Unit Root Test

The Unit Root Test is one of the most important and crucial test in detecting the stationary and non-stationary status of time series data. The Unit Root Test was introduced by Decay and Fuller, that's why it is called Decay-Fuller or Tau test. To explain the test, let us start with the following equation:

$$Y_t = \rho Y_{t-1} + u_t \quad [-1 \leq \rho \leq 1] \quad (8)$$

Where u_t is a white noise error term and we know if $\rho=1$, then equation (8) becomes a random walk model or non-stationary model. In this case y_t is non-stationary. We cannot estimate equation (8) by usual OLS method and test the hypothesis that $\rho=1$ by the usual t test, because the test is severely biased and will not provide blue estimator in case of unit root.

Therefore, we transfer the equation (8) as follows: Subtract Y_{t-1} from both sides of equation (8) to obtain-

$$Y_t - Y_{t-1} = \rho Y_{t-1} - Y_{t-1} + u_t$$

$$\Delta Y = (\rho - 1) Y_{t-1} + u_t$$

which can be written

$$\Delta Y = \sigma Y_{t-1} + u_t \quad | \quad \sigma = \rho - 1 \quad (9)$$

Where, Δ = First difference operator.

In practice instead of equation (8), we estimate equation (9) and test the null hypothesis that $\sigma = 0$, the alternative hypothesis $\sigma < 0$. If $\sigma = 0$ ($\rho = 1$) i.e. we have a unit root which indicate that the time series is non-stationary. If $\sigma < 0$, the time series is stationary. If $\sigma = 0$, then equation (9) becomes:

$$\Delta Y = u_t \quad (10)$$

Since u_t is a white noise error term, it is stationary, which means that the first difference of a random walk time series is stationary. Now, let us turn to the estimation of equation (9) for that all we have to do is to take the first difference of Y_t and regress them on Y_{t-1} and see if the estimated slope co-efficient σ is zero or not. If it is zero ($\sigma = 0$) then we conclude that the time series Y_t is non-stationary. But if it is negative ($\sigma < 0$), we conclude that Y_t is stationary. But the important question is which test we will use to find out if estimated co-efficient (eqn. 9) ($\sigma = 0$) or not. Under the null hypothesis that $\sigma = 0$ ($\rho = 1$) the t-value of the estimated co-efficient of Y_{t-1} does not follow the 't' distribution. In this regard, Dickey and Fuller have shown that under the null hypothesis $\sigma = 0$ the estimated t-value of the co-efficient of Y_{t-1} follows the T (tau) statistic. We have calculated the critical value of the T (tau-statistic) on the basis Monte-carlo simulation. The tau-statistic or 'tau-test' is known as the Dickey-Fuller test in honor of its discovery. The Dickey-Fuller test works under the following hypothesis:

Null Hypothesis, H_0 : $\sigma = 0$ ($\rho = 1$, There is a unit Root in the model, i.e., the time-series is non-stationary). Alternative Hypothesis, H_1 : $\sigma < 0$ ($\rho < 1$, the time series is stationary).

4.2.2 Johansen Co-integration Test

Co-integration of two or more-time series suggest that there is a long run equilibrium relationship between them. Co-integration means that despite being individually non-stationary a linear combination of two or more-time series can be stationary. Many macro time series may contain a unit root has spurred the development of the theory of non-stationary time series analysis. Engle and Granger (1987) pointed out that a linear combination of two or more non-stationary series may be stationary. If such a stationary linear combination exists, the non-stationary time series are said to be co-integrated. The stationary linear combination is called the co-integrating equation and may be interpreted as a long-run equilibrium relationship among the variables. The purpose of the co-integration test is to determine whether a group of non-stationary series is co-integrated or not. In this study, we use Johansen maximum likelihood (ML) approach to test for co-integration.

Johansen's method follows VAR-based co-integration test.

Consider a VAR of order p:

$$Y_t = A_1 Y_{t-1} + A_2 Y_{t-2} + \dots + A_p Y_{t-p} + Bx_t + \varepsilon_t \quad (11)$$

Where Y_t is vector of I(1) variables (e.g., remittances and GDP), x_t is a k-vector of non-stationary I(1) variables, x_t is deterministic terms (constant, trend), and ε_t is a vector of errors (white noise). We can rewrite this VAR as (after taking first difference):

$$\Delta Y_t = \Pi Y_{t-1} + \sum_{i=1}^{p-1} \Gamma_i \Delta Y_{t-i} + Bx_t + \varepsilon_t \quad (12)$$

Granger's representation theorem posits that if the coefficient matrix Π in a vector error correction model (VECM) has a reduced rank $r < k$ (where k is the number of variables), there exist two $k \times r$ matrices, α (adjustment parameters) and β (cointegrating vectors), each with rank r , such that $\Pi = \alpha\beta'$. The linear combination $\beta'Y_t$ becomes stationary $[I(0)]$, where r denotes the number of cointegrating relationships (the cointegrating rank), and each column of β represents a distinct long-run equilibrium relationship. Johansen's method estimates Π from an unrestricted VAR model and tests whether the rank restrictions hold. The null hypothesis of *no cointegration* ($r=0$) is evaluated against alternatives using two tests: the trace test, which sequentially tests $H_0: r \leq m$ against $H_1: r > m$, and the maximum eigenvalue test, which tests $H_0: r=m$ against $H_1: r=m+1$. Critical values at the 5% significance level, provided by Johansen, guide decision-making: if the trace statistic exceeds its critical value, the null hypothesis is rejected, indicating cointegration. Similarly, for the eigenvalue test, rejection occurs if the test statistic surpasses the critical value (or if the associated *pp*-value falls below 0.05). These tests collectively identify the number of stable long-run relationships between variables, such as remittances and GDP in this study, ensuring robust inferences about their equilibrium dynamics.

4.2.3 The Granger Causality Test

The Granger causality test examines whether one time series variable can predict another, under the assumption that all relevant predictive information is encapsulated in the historical data of the variables themselves. For this study, focusing on GDP (denoted as GDP_t) and remittances (R_t), the test involves estimating two regression models:

$$(i) \quad R_t = \sum_{i=1}^p \alpha_i R_{t-i} + \sum_{j=1}^q \beta_j GDP_{t-j} + u_{1t} \quad (13)$$

$$(ii) \quad GDP_t = \sum_{i=1}^p \gamma_i GDP_{t-i} + \sum_{j=1}^q \delta_j R_{t-j} + u_{2t} \quad (14)$$

Here, u_{1t} and u_{2t} are uncorrelated error terms. Equation (13) tests whether lagged values of GDP improve the prediction of current remittances (R_t) beyond what is explained by past remittances alone. Conversely, Equation (14) evaluates whether lagged remittances enhance the forecast of current GDP (GDP_t) after accounting for its own history. A statistically significant coefficient (e.g., β_j or δ_j) implies Granger causality: if $\beta_j \neq 0$, GDP Granger-causes remittances; if $\delta_j \neq 0$, remittances Granger-cause GDP.

5. Results and Discussion

5.1 Results from Macro-Level Analysis

Relationship between remittance and economic growth was tested using Unit Root tests, Johansen co-integration test, and Granger Causality tests. Unit Root tests investigated the stationarity in remittance and GDP data, while Johansen co-integration examined the long-term equilibrium relationships between remittances and GDP, and application of Granger Causality was to identify directional causality between the remittance and economic growth. The unit root tests (see Table 1.) reveal critical understandings into the stationarity of GDP and remittance data. For GDP, the Augmented Dickey-Fuller (ADF) test on the level data yields an ADF statistic of 7.713833, which exceeds the critical values at all significance levels (1%, 5%, and 10%). However, the probability value ($1.00 > 0.05$) indicates failure to reject the null hypothesis, confirming non-stationarity. Applying the first-difference method still results in non-stationarity (ADF = -2.128479, below critical values). Only after the second-difference transformation does GDP achieve stationarity, with an ADF statistic of -7.388541, surpassing critical values at all significance levels (p -value < 0.05), this results align with Uddin et al. (2021) that suggest the second-differenced GDP series to be used directly for forecasting.

Table 1. Unit Root Test Results for GDP and Remittance (ADF Test)

Variable	Method	ADF Statistic	1% Critical Value	5% Critical Value	10% Critical Value	Stationary (Y/N)
GDP	Level	7.714	-3.654	-2.957	-2.617	No
GDP	First-Difference	-2.128	-3.661	-2.960	-2.619	No
GDP	Second-Difference	-7.388	-3.670	-2.963	-2.621	Yes
Remittance	Level	2.588	-3.737	-2.991	-2.635	No
Remittance	First-Difference	-2.876	-3.724	-2.986	-2.632	No
Remittance	Second-Difference	-3.176	-3.769	-3.000	-2.642	No
Remittance	Log Second-Difference	-6.813	-3.679	-2.967	-2.622	Yes

Source: Authors' compilation based on time-series data (1984–2023)

For remittance, the level, first-difference, and second-difference series all exhibit non-stationarity, as their ADF statistics (2.588, -2.876901 and -3.176126, respectively) remain below the 1% critical value threshold. However, applying a log second-difference transformation successfully induces stationarity, producing an ADF statistic of -6.813883, which exceeds critical values at all significance levels (p value <0.05). This confirms the suitability of the log-transformed, second-differenced remittance data for further analysis (Uddin et al., 2021).

Table 2. Johansen Co-integration Test Results

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	Max-Eigen Statistic	5% Critical Value	Prob.**
None *	0.708344	52.49944	35.73319	15.49471	0.0000
At most 1 *	0.439063	16.76625	16.76625	3.841466	0.0000

Source: Authors' compilation based on time-series data (1984–2023)

Note: Both Trace and Max-Eigenvalue tests reject the null hypothesis of no cointegration at 1% and 5% significance levels.

The Johansen co-integration test results (see Table 2.) establish a robust long-run relationship between remittance and GDP in Bangladesh. Both the Trace test (Trace Statistic = 52.49944) and the Max-Eigenvalue test (Max-Eigen Statistic = 35.73319) overwhelmingly reject the null hypothesis of no cointegration at 1% and 5% significance levels ($p = 0.0000$). This indicates that remittance inflows and economic growth share a stable equilibrium relationship over time, implying that fluctuations in remittance are systematically linked to changes in GDP. These findings underscore the pivotal role of remittance in sustaining long-term economic growth in Bangladesh, validating its integration into the nation's macroeconomic framework. Our findings corroborate existing evidence on the remittance-growth nexus, such as Yadeta and Hunegnaw's (2022) demonstration of remittance-driven growth in Ethiopia and Bucevska's (2022) similar conclusions in South-East Europe. The Johansen cointegration test confirms a long-run equilibrium between remittance and GDP in Bangladesh (Trace Statistic = 52.499, Max-Eigen Statistic = 35.733, $p < 0.01$), aligning with these studies. However, our Granger causality results uniquely reveal a unidirectional relationship (remittance $\rightarrow$ GDP), contrasting with bidirectional or context-dependent linkages observed elsewhere. This underscores remittance's role as an exogenous growth catalyst in Bangladesh, distinct from feedback-driven systems, suggesting

targeted policies to harness remittance inflows for sustained development could yield disproportionate benefits in similar economies.

Table 3. *Granger Causality Test Results between GDP and Remittance (Second-Differenced Data)*

Null Hypothesis	F-Statistic	Prob.	Conclusion
$D^2(\log(\text{Remittance}))$ does not Granger Cause $D^2(\text{GDP})$	3.42739	0.0491	Reject H_0 : Remittance $\rightarrow$ GDP
$D^2(\text{GDP})$ does not Granger Cause $D^2(\log(\text{Remittance}))$	0.08575	0.9181	Fail to reject H_0 : No GDP $\rightarrow$ Remittance

Source: Authors' compilation based on time-series data (1984–2023)

Notes:

- (i) $D^2(\text{GDP})$: Second-differenced GDP series.
- (ii) $D^2(\log(\text{Remittance}))$: Log-transformed second-differenced remittance series.
- (iii) Significance level: 5% (critical threshold: $*p* < 0.05$).

The Granger causality test results (see Table 3.) reveal a unidirectional relationship between remittance and GDP in Bangladesh, i.e., Remittance $\rightarrow$ GDP, the null hypothesis that “second-differenced log-transformed remittance does not Granger cause second-differenced GDP” is rejected (F-statistic = 3.427, $p = 0.049$). This indicates that remittance inflows have predictive power over GDP movements, suggesting remittance-driven economic growth. Conversely, GDP $\rightarrow$ Remittance, the hypothesis that “second-differenced GDP does not Granger cause second-differenced log-transformed remittance” fails to be rejected (F-statistic = 0.086, $p = 0.918$). This implies no statistically significant feedback effect from GDP to remittance flows. These findings underscore remittance as a critical driver of short-term economic activity in Bangladesh, while GDP growth does not appear to influence remittance trends. Our findings align with Islam (2020), who identified remittances as a significant driver of economic growth in South Asia through panel analysis, but we further extend this conclusion by demonstrating a unidirectional causal relationship in Bangladesh, where remittances Granger-cause GDP growth without feedback, reinforcing their role as a critical short-term economic stimulus in country-specific contexts.

5.2 Results from Micro-Level Analysis

Building on the macroeconomic evidence of remittance-driven growth, this section examines the robustness of these findings at the household level through a survey of 100 remittance-recipient families. While the time series analysis established a unidirectional causal link between remittance and GDP growth, the micro-level study aims to uncover the mechanisms through which remittances influence household welfare, spending patterns, and local economic activity. Table 4 reveals that 60% of remittance-recipient families earn between 1000–60000 TK monthly, while 19% fall in the 60000–120000 TK bracket. Only 5% report higher incomes (241000–300000 TK), indicating that the majority (60%) belong to middle-income groups, with a negligible share in higher-income tiers. For food expenditure, 40% of families spend 6100–9000 TK monthly, followed by 26% in the 3100–6000 TK range. Notably, 18% and 15% allocate 9100–12000 TK and 12100–15000 TK, respectively, while a mere 1% spend 15100–18000 TK. These figures suggest that most households allocate modest amounts to food, reflecting persistent poverty in the study area compared to national and regional averages. During surveys, families reported significant improvements in food expenditure after receiving remittances, highlighting its critical role in enhancing household welfare.

Table 4. *Households' Income and Expenditure Status*

Variable	Category	Families/ Percentage
Monthly Income	1000-60000	60%
	60000-120000	19%
	121000-180000	8%
	181000-240000	8%
	241000-300000	5%
Monthly Food Expenditure	1000-3000	0%
	3100-6000	26%
	6100-9000	40%
	9100-12000	18%
	12100-15000	15%
	15100-18000	1%

Source: Field Survey, 2023

5.2.1 Household Income Distribution Before and After Receiving Remittances

The data in Table 5 reveals that remittances has significant impact on household income mobility, with low-income families decreasing from 80% to 30% (-50 percentage points), middle-income households growing from 15% to 50%, and higher-income families increasing from 5% to 20%. While remittances enabled 70% of recipients to escape poverty, the remaining 30% in low-income brackets highlights their limitations as a standalone solution. These findings demonstrate remittances' dual role as both a poverty alleviation tool and economic mobility driver, while underscoring the need for complementary support mechanisms to assist households that remain financially vulnerable despite receiving remittances.

Table 5. *Household Income Distribution Before and After Receiving Remittances*

Income Category	Before Remittances	After Remittances	Change (Percentage Points)
Low-income	80%	30%	-50
Middle-income	15%	50%	+35
Higher-income	5%	20%	+15
Total	100%	100%	-

Source: Survey Data, 2023

5.2.2 Remittance-Recipient Households' Poverty Status

To assess poverty dynamics among remittance-recipient households, we computed the Head Count Index (P_0), Poverty Gap Index (P_1), and Squared Poverty Gap Index (P_2) using the Foster-Greer-Thorbecke (FGT) method under both upper and lower poverty lines (based on the Cost of Basic Needs approach). The results in Table 6 reveal glaring disparities i.e., in case of upper poverty line, 38% of households fall below this threshold ($P_0 = 38\%$), with a poverty gap ($P_1 = 18\%$) indicating moderate income shortfalls among the poor. The squared poverty gap ($P_2 = 5.1\%$) further highlights inequality within this group. For, Lower Poverty Line, 25% of households face extreme deprivation ($P_0 = 25\%$), with a narrower poverty gap ($P_1 = 11.3\%$) and lower inequality ($P_2 = 2.4\%$).

Table 6. *Poverty Indices of Remittance-Recipient Households under Upper and Lower Poverty Lines*

Measurement	Upper Poverty Line (Poverty Line-I)	Lower Poverty Line (Poverty Line-II)
Head Count Index (P_0)	38%	25%
Poverty Gap Index (P_1)	18%	11.3%
Squared Poverty Gap Index (P_2)	5.1%	2.4%

Source: Field Survey, 2023

These rates exceed national and regional averages (e.g., Bangladesh's national P_0 was 18.7% in 2022), underscoring persistent vulnerability despite remittance inflows. However, survey responses indicate remittances have improved food security and living standards compared to pre-remittance conditions, aligning with the reduced poverty gap metrics. While remittances mitigate immediate hardship, systemic poverty persists, suggesting they are a critical but insufficient tool for long-term poverty eradication in the study area. Our findings present a nuanced contradiction to macroeconomic studies, including Cui et al. (2023), which assert remittances reduce poverty in Asian economies. While their panel analysis of 15 countries identified remittances as a poverty-alleviating force, our micro-level study of 100 Bangladeshi households reveals persistent poverty despite remittance inflows. For instance, 38% of households remain below the upper poverty line ($P_0 = 38\%$), exceeding Bangladesh's national headcount index of 18.7% (2023 estimates).

5.2.3 Comparison of Poverty Indices with vs. without Remittances

To assess counterfactual poverty dynamics, we computed the Foster-Greer-Thorbecke (FGT) indices under two scenarios: with remittances (actual observed income) and without remittances (estimated by deducting remittance amounts from total income).

Table 7. *Comparison of Poverty Indices with vs. without Remittances*

Poverty Measure	With Remittances	Without Remittances	Difference (Reduction Due to Remittances)
Upper Poverty Line (P_0)	38%	52%	14 percentage points
Poverty Gap Index (P_1)	18%	25%	7 percentage points
Squared Poverty Gap (P_2)	5.1%	8.9%	3.8 percentage points
Lower Poverty Line (P_0)	25%	38%	13 percentage points
Poverty Gap Index (P_1)	11.3%	18.5%	7.2 percentage points
Squared Poverty Gap (P_2)	2.4%	4.6%	2.2 percentage points

Source: Field Survey, 2023

The comparative analysis of poverty indices presented in Table 6 offers compelling evidence of remittances' effect on poverty alleviation among recipient households in the study area of Bangladesh. The findings (in Table 7) reveal a substantial reduction in poverty incidence when remittances are considered: the proportion of households below the upper poverty line decreases from 52% to 38% (a 14 percentage point improvement), while extreme poverty under the lower poverty line declines from 38% to 25% (a 13 percentage point reduction). These improvements in poverty headcount are complemented by meaningful progress in both the depth and severity of poverty. The poverty gap index (P_1) demonstrates a 7-7.2 percentage point reduction across both poverty lines, indicating that recipient households move significantly closer to the poverty threshold. Additionally, the squared poverty gap (P_2) shows a 2.2-3.8 percentage point decrease in inequality among the poor, suggesting that remittances particularly benefit the most vulnerable households. These findings corroborate previous research by

Masron and Subramaniam (2018), Ali et al. (2019), and Ojeyinka and Ibukun (2024), who similarly established remittances' direct poverty-reducing effects on recipient households.

The persistence of significant poverty levels (38% below the upper poverty line) despite remittance inflows underscores the limitations of depending exclusively on remittances for poverty reduction. This micro-level finding contrasts with more optimistic macroeconomic studies, highlighting the critical need for household-level analyses to reveal on-the-ground realities. While remittances clearly function as an essential safety net for immediate consumption needs, their partial poverty-reduction effect indicates they cannot adequately overcome structural barriers to sustained poverty alleviation. Survey data reveals that most households allocate remittances primarily to basic necessities like food and healthcare rather than productive investments, substantially constraining their potential for transformative economic impact. These findings support research by Vargas-Silva et al. (2009), Alpaslan et al. (2020), Sutradhar (2020), and Su et al. (2021), who demonstrate that remittances often negatively affect labor supply decisions among recipient families while being predominantly directed toward non-productive consumption. This expenditure pattern strongly suggests that remittance flows are motivated more by altruistic concerns than by investment-oriented objectives, potentially creating dependency rather than fostering economic advancement.

These results have important policy implications. While recognizing the vital cushion that remittances provide, complementary interventions are needed to maximize their developmental impact. Financial literacy programs could help households allocate remittances more productively, while local investment opportunities in microenterprises or agriculture could create sustainable pathways out of poverty. Social protection policies should address non-income dimensions of deprivation, particularly in education and healthcare access. The study's counterfactual approach, comparing scenarios with and without remittances, provides robust evidence of their poverty-mitigating effects, though longitudinal data tracking household trajectories would further strengthen causal claims. Ultimately, the findings suggest that remittances are an important but insufficient tool for poverty eradication, requiring integration with broader development strategies to achieve meaningful and lasting improvements in household welfare.

6. Conclusion and Future Research Direction

This study examines the interplay between remittances, poverty alleviation, and economic growth in Bangladesh. Primary data were collected from 100 remittance-receiving households across two villages in Jhenidah district, complemented by national and international secondary datasets on remittance flows and GDP from institutions such as the Bangladesh Bureau of Statistics (BBS) and the World Bank. Advanced econometric methods—including unit root testing, cointegration analysis, Granger causality assessment, and the Foster-Greer-Thorbecke (FGT) index—were employed to analyze the data. Key findings suggest that prior to receiving remittances, households reported severe income constraints. Post-remittance, 50% attained middle-income status, 30% remained low-income, and 20% achieved higher income brackets. Remittances significantly enhanced food and non-food expenditure, directly improving living standards. Statistical tests rejected the null hypothesis of no remittance-income linkage ($p < 0.05$), confirming remittances' role in household economic upliftment. Similarly, FGT indices under upper and lower poverty lines revealed headcount rates of 38% and 25%, respectively, with poverty gaps of 18% and 11.3%. Despite higher poverty rates in the study area compared to national averages, qualitative surveys indicated remittances markedly improved pre-remittance "miserable" conditions, rejecting the null hypothesis of no poverty reduction effect ($p < 0.05$). For macro analysis, Johansen cointegration tests identified a long-run equilibrium between remittances and GDP (Trace Statistic = 52.50, Max-Eigen Statistic = 35.73, $p < 0.01$), rejecting the null hypothesis of no cointegration. Granger causality tests further confirmed unidirectional causality from remittances to GDP growth (F-statistic = 3.43, $p = 0.04$), refuting the null hypothesis of no causal relationship. Future research could adopt

an intersectional lens to examine how factors such as gender, rural-urban divides, and education levels influence remittance usage patterns. Bangladesh's financial underdevelopment as a constraint, thus, future work could explore digital remittance platforms as a tool to enhance financial inclusion.

References

- Abduvaliev, M., & Bustillo, R. (2020). Impact of remittances on economic growth and poverty reduction amongst CIS countries. *Post-Communist Economies*, 32(4), 525-546.
- Adams, Jr. R., Cuenquecha, A. and Page, J., (2008). The impact of remittances on poverty and inequality in Ghana. *World Bank Policy Research Working Paper* 4732. World Bank, Washington, DC.
- Ahmed, Q.M., (1993). Foreign Direct Investment: Selected Issues and Problems with Reference to Bangladesh. *Bank Parikrama*, xviii, 3&4.
- Ahmed, M.S., (2010). Migrant Workers Remittance and Economic Growth: Evidence from Bangladesh. *ASA University Review*, 4(1), 1-13.
- Aguinas, D.R., (2006). Remittances and Development Trends, Impacts, and Policy options, A Review of Literature. *Migration Policy Ins.* Washington DC.
- Agrawal, G. and Khan, A., (2011). Impact of FDI on GDP: A comparative study of China and India. *International Journal of Business and Management*, 6(10), 71-79.
- Al-Malki, A. M., Hassan, M. U., & Ul-Haq, J. (2023). Nexus between remittance outflows and economic growth in GCC countries: the mediating role of financial development. *Applied Economics*, 55(46), 5451-5463.
- Ali, S.A., (1981). An Analysis of the Institute of Home Remittance by Bangladeshi Workers' Abroad on the National Economy in Labour Migration from Bangladesh to Middle East. *World Bank Staff Working Paper No. 454*, Washington, DC.
- Ali, I., Jaleel, A. C., & Bhagat, R. B. (2019). Migration, remittances and poverty reduction. In *Growth, disparities and inclusive development in India: Perspectives from the Indian state of Uttar Pradesh* (pp. 177-190). Singapore: Springer Singapore.
- Alpaslan, B., Kayaoglu, A., Meckl, J., Naval, J., Vanore, M., & Ziesemer, T. H. (2020). Economic effects of remittances on migrants' country of origin. *The economic geography of cross-border migration*, 449-483.
- Arif, K. M., Islam, S. R., & Islam, A. (2024). Challenges and opportunities of growth centres in Bangladesh: Rural development perspective. *FURP*, 2(1), 1. <https://doi.org/10.1007/s44243-023-00026-7>
- Azam, M., Haseeb, M., Samsudin, S., (2016). The Impact of Foreign Remittances on Poverty Alleviation: Global Evidence, *Economics and Sociology*, 9(1), 264-281. DOI: 10.14254/2071-789X.2016/9-1/18
- Barajas, A., et al., (2009). Do Workers' Remittances Promote Economic Growth? *IMF Working Paper No. WP/09/153*.
- Bhattacharya, (1999). Investing in Bangladesh: The vision and the mission: UNCTAD Projects of Investment Guide and Capacity Building for Least Developed Countries, CPD.
- BMET, 2010, Overseas Employment & Remittances from 1976 to March 2010, Bureau of Manpower Employment and Training, [http://www.hrexport-baira.org/flow of migration/ flow migration dec. pdf](http://www.hrexport-baira.org/flow%20of%20migration/flow%20migration%20dec.pdf).

- Bangladesh Bank (BB), Major Economic Indicators: Monthly update, Dhaka, Bangladesh: BB Available at: http://www.bangladeshbank.org/econ_data/openpdf.php.
- Bucevska, V. (2022). Impact of remittances on economic growth: Empirical evidence from South-East European countries. *The South East European Journal of Economics and Business*, 17(1), 79-94.
- Bucheli, J. R., Bohara, A. K., & Fontenla, M. (2018). Mixed effects of remittances on child education. *IZA Journal of development and migration*, 8(1), 10.
- Byanjanakar, R., & Shakha, M. (2021). Role of Remittances on Rural Poverty in Nepal-Evidence from Cross-Section Data. *NRB Economic Review*, 33(1-2), 45-72.
- Chami, R., Connel, F., and Samir, Jah. (2003). Are Immigrant Remittance Flows a Source of Capital for Development? Washinton, DC: *IMF Working Paper*, WP/03/189 (September).
- Chowdhury, M. B., & Rabbi, F. (2014). Workers' remittances and Dutch disease in Bangladesh. *The Journal of International Trade & Economic Development*, 23(4), 455-475.
- Dilshad, W.B., (2013). Impact of Workers' Remittances on Economic Growth: An Empirical Study of Pakistan's Economy. *International Journal of Business and Management*, 8(24), 126-131.
- Ghimire, S., & Kapri, K. P. (2020). Does the source of remittance matter? Differentiated effects of earned and unearned remittances on agricultural productivity. *Economies*, 8(1), 8.
- Glytos, Nicholas P., (2005). The Contribution of Remittances to Growth: A Dynamic Approach and Empirical Analysis, *Journal of Economic Studies*, 32(6), 468-496.
- Sobiech, I. (2019). Remittances, finance and growth: Does financial development foster the impact of remittances on economic growth?. *World Development*, 113, 44-59.
- Hussain, Z., and Naeem, F., (2009). Remittances in Bangladesh: Determinants and 2010 outlook. <http://blogs.Worldbank.Org/end-poverty-in-southasia/print/514>.
- Islam, M. S. (2022). Do personal remittances influence economic growth in South Asia? A panel analysis. *Review of Development Economics*, 26(1), 242-258.
- Islam, M. A., Rahaman, M. M., & Ahmad, S. A. (2022). Willingness to Pay for Improving River Water Quality: Do Households' Environmental Attitudes Matter?. *Bangladesh Journal of Political Economy*, 38(1), 39-54.
- Jongwanich, J., & Kohpaiboon, A. (2019). Workers' remittances, capital inflows, and economic growth in developing Asia and the Pacific. *Asian Economic Journal*, 33(1), 39-65.
- Khan, M. A. (2024). The impact of migrant remittances on economic development: Empirical evidence from the developing world. *Journal of Social and Economic Development*, 1-29.
- Khan, M.W.R., (2008). The Micro Level Impact of Foreign Remittances on Incomes in Bangladesh: A Measurement Approach Using the Propensity Score, *Dhaka: Centre for Policy Dialogue*.
- Kundu, N., & Munim, K. M. (2018). Does Technical Progress Affect the Flow of Workers' Remittances in Bangladesh?. *MONEY*, 5(1).
- Lim, Ewe-Ghee, (2000). Determinants of FDI and the Relations between FDI and Growth: A Summary of the Recent Literature, *IMF Working Paper No. 175*, Washington, DC.
- Mahmud, W., (2003). Bangladesh: Development Outcomes and Challenges in the context of globalization, conference on the Future of Globalization, Oct 10-11, Yale University. www.ycsg.yale.edu/activities/files/wahid.doc.

- Masron, T. A., & Subramaniam, Y. (2018). Remittance and poverty in developing countries. *International Journal of Development Issues*, 17(3), 305-325.
- Munshi, R., (2015). Socio-Economic impact of remittance on Households: A study on Khulna, Bangladesh. *Journal of Economics and Finance*, 6(3), 35-42.
- Murshed, M., Ali, S. R., Haseeb, M., & Nathaniel, S. P. (2021). Modelling the public moral hazard problem of international remittance inflows in Bangladesh. *International Journal of Sustainable Economy*, 13(2), 166-196.
- Oberoi, A.S., and Singh, M., (1980). Migration, Remittances and Rural Development: Findings of a Case Study in the Indian Punjab. *International Labour Review*, 119(2), 229-241.
- Ofori, I. K., Gbolonyo, E. Y., Dossou, T. A. M., & Nkrumah, R. K. (2022). Remittances and income inequality in Africa: Financial development thresholds for economic policy. *Research in Globalization*, 4, 100084.
- Ojeyinka, T. A., & Ibukun, C. O. (2024). Do remittances mitigate poverty? Evidence from selected countries in Africa, Asia and Latin America. *Economic Change and Restructuring*, 57(3), 93.
- Paul and Das, (2011). The Remittance-GDP relationship in the liberalized Regime of Bangladesh: Cointegration and Innovation accounting. *Theoretical and Applied Economics*, 8(9), 41-60.
- Pradhan, G., Upadhyay, M., and Upadhyay, K., (2008). Remittances and Economic growth in developing countries. *European Journal of Development Research*, 20(3), 497-506.
- Rahman, M., et al., (2006). Growth and Employment Empirics of Bangladesh. *Journal of Developing Areas*, 40(1), 99-114.
- Rahman, M., et al., (2009) Contributions of exports, FDI and expatriates remittances to real GDP of Bangladesh, India, Pakistan and Sri Lanka. *Southwestern Economic review*, 36, 41-153.
- Raihan, S., Khondker, B.H., Sugiyatro, G., Jha S., (2009). Remittances and house hold welfare: A case study of Bangladesh. *Asian Development Bank*, Economics Working paper series. 189, 1-36.
- Rao, B. B., & Hassan, G. M. (2012). Are the direct and indirect growth effects of remittances significant?. *The World Economy*, 35(3), 351-372.
- Shatz, H., and A.J.Venables, (2000). The Geography of International Investment, *World Bank Policy Research Paper*, 2338.
- Siddique, A., E.A. Selvanathan; and S., Selvanathan, (2010). Remittance and Economic growth: Empirical Evidence from Bangladesh, India and Sri Lanka. Crawley, Austrilla: The University of Western Austrilla, Economics Department, *Discussion paper 10/27 (August)*.
- Siddique, T., (2004). Efficiency of Migrant Workers' Remittances: The Bangladesh Case, Manila, The Philippines: *Asian development Bank (August)*.
- Stahl, Charles W., and Fred Arnold, (1986). Overseas Workers' Remittances and Asian Development. *International Migration Review*, 20(4).
- Stahl, Charles W., and Ahsanul Habib, (1989). The Impact of Overseas Workers' Remittances on Indigenous Industries: Evidence from Bangladesh. *The Developing Economies*, 27, 269-285.
- Su, C. W., Sun, T., Ahmad, S., & Mirza, N. (2021). Does institutional quality and remittances inflow crowd-in private investment to avoid Dutch Disease? A case for emerging seven (E7) economies. *Resources Policy*, 72, 102111.
- Sutradhar, S. R. (2020). The impact of remittances on economic growth in Bangladesh, India, Pakistan and Sri Lanka. *International Journal of Economic Policy Studies*, 14(1), 275-295.

- Uddin, M. M., Islam, M. A., Islam, T., & Ershad, S. (2021). Revisiting the impacts of remittances and economic growth on financial development in selected South Asian countries: Evidence from panel data analysis. *Asian Journal of Economics and Business*, 2(2), 97–108.
- Vargas-Silva, C., Jha, S., & Sugiyarto, G. (2009). Remittances in Asia: Implications for the fight against poverty and the pursuit of economic growth. *Asian Development Bank Economics Working Paper Series*, (182).
- World Bank, (2015). World Development Indicators/ Global Development Finance database, (Washington, DC: The World Bank); as posted on the World Bank website: <http://data.worldbank.org/data-catalog>.
- Yadeta, D. B., & Hunegnaw, F. B. (2022). Effect of international remittance on economic growth: Empirical evidence from Ethiopia. *Journal of International Migration and Integration*, 23(2), 383-402.
- Zhang, L., Hong, M., Guo, X., & Qian, W. (2022). How does land rental affect agricultural labor productivity? An empirical study in rural China. *Land*, 11(5), 653.