Dynamic Linkages Between Remittances and Financial Development in India: An Empirical Analysis Through ARDL Estimation

Karan Anand and Ratnam Mishra

University School of Management and Entrepreneurship (USME), Delhi Technological University, Delhi.

DOI: https://doi.org/10.47772/IJRISS.2026.100500490

Received: 09 May 2026; Accepted: 14 May 2026; Published: 05 June 2026

ABSTRACT

Remittances are the largest source of external finances for emerging economies, and therefore form a major place in the migration development nexus and debates. Our study looks into the impact of financial development on the inflow of personal remittances in the context of India. As only a few studies earlier have looked into country specific effects, our contribution to the literature is manifold. Our primary goal is to assess whether remittances are interconnected with financial development that may leads to the overall development of the economy and people in several ways. To measure the impact if financial development on remittances, we employ the Financial Development Index as calculated by IMF and personal remittance data provided by World Bank for the period 1986 to 2021, taking GDP Growth, Inflation and FDI as control variables. The study uses Auto Regressive Distributive Lag (ARDL) model to cointegration to examine the relationship between personal remittances and financial development. Our results reveal that, in the short run, financial development does not exhibit a significant relationship with remittances but does show a long-run significant impact on the inflow of personal remittances to India, leading to inclusive growth and financial inclusion.

KEYWORDS: Financial Development, India, Migration, Remittances, ARDL, Co-integration.

INTRODUCTION

Remittances are the transfer of money from migrants in the host country to their relatives in the country of origin. As one of the largest and most stable sources of external finance, they surpass official development assistance and often are greater than foreign direct investment in magnitude. Under the 2009 IMF framework in the Balance of Payment and International Investment Position Manual, Sixth Edition (BPM6), remittances are defined as "Household income from foreign economies arising mainly from the temporary or permanent movement of people to those economies". This means that remittances are not only limited to wages sent by migrant workers, but they also include current transfers of cash or kind between resident and non-resident households, regardless of source of income, family relationship, or purpose of transfer. Over the last few decades, remittances have attracted the attention of all stakeholders, including academicians and researchers, for their potential to address economic issues in developing countries. Global remittance volumes (including those to high-income countries) exceeded US $ 800 billion in 2024, reflecting a long-term upward trend (World Bank estimates, 2024). Official flow of remittances to low and medium-income countries (LMIC) has grown significantly and currently stands at US $ 685 billion up from US $ 647 billion in 2023 (Ratha, 2024). Its interplay with growth, financial development and other macroeconomic parameters provides us with a framework to establish an oblique relationship in the Indian context. Remittance provides a steady stream of income to families, thereby lifting millions of people out of poverty as it enables access to education, healthcare, and better living conditions contributing towards poverty reduction (Cui et al.,2023). As women are the primary recipients of remittances, its role in improving their social status cannot be ignored thereby contributing towards gender equality (Kunz and Maisenbacher, 2021). Similarly, remittances improve access to medical services and medication (Valatheeswaran & Khan, 2020). Remittance-receiving households have low child mortality (Deonanan & Ramkissoon, 2024). The inflows are often used to support entrepreneurial ventures leading job creation in developing countries thus contributing towards decent work and economic growth (Alhassan, 2023). Apart from these, remittances reduce income inequalities, support infrastructure development and promote

stability and peace in conflict-affected areas. The transformative potential of remittances requires financial system enablement so that the inflows can be channelized for their optimum utilisation. Therefore, the study explores the role of financial development on remittances inflow in context of India, highlighting its significance and implications on economy and society.

DYNAMICS BETWEEN REMITTANCES AND FINANCIAL DEVELOPMENT

The flow of remittances is shaped by a combination of economic, financial, and institutional factors, including income differentials between origin and destination countries, labour migration patterns, employment conditions in host economies, exchange rate fluctuations, inflation, financial sector development etc. At the same time, remittances themselves have been increasingly recognized as catalysts for financial development, as they contribute to higher savings mobilization, increased bank deposits, credit expansion, and deeper participation in formal financial systems. Within the developing world, India presents a particularly important case for examining the nexus between remittances and financial development, given its position as the largest remittance-receiving country globally. India's substantial remittance inflows, supported by a large and geographically diverse migrant workforce, have become an important contributor to household income, foreign exchange reserves, and domestic financial activity.

The financial system plays an indispensable role in the economic broadening of LMIC countries. It works as an intermediary between savers and borrowers. Similarly, for remittances, a developed financial system helps in increasing its flow over time. Gradually, as remittances become lumpy, it induces the need among the family members of the remitter to avail themselves of financial services to keep their funds safe and help them to earn. This leads to increased access to credit and banking services (Azizi, 2020). By offering banking services such as deposit accounts and lending, banks play a role in bringing the unbanked population into contact with the formal financial system. Because of this, it is sometimes discussed whether remittance and financial development are substitutes or complements of each other. If both are substitutes, remittance inflow leads to consumption and investment expenditure in countries that are financially underdeveloped. On the other hand, for measuring complementarity between remittances and financial development, the latter translates into promoting the former for countries where the financial system is developed. Mallela et.al., (2023) discuss the effects of remittance and financial development on each other and find that for countries where the financial development is high, remittance complements financial development as compared to the countries where there is low financial development, it acts as a substitute. In the current scenario, the financial development with regard to the banking infrastructure and maturity in terms of debt and equity markets is high in India as compared to many other developing nations. Therefore, our study tests the hypothesis that financial development in India leads to increased remittance inflows.

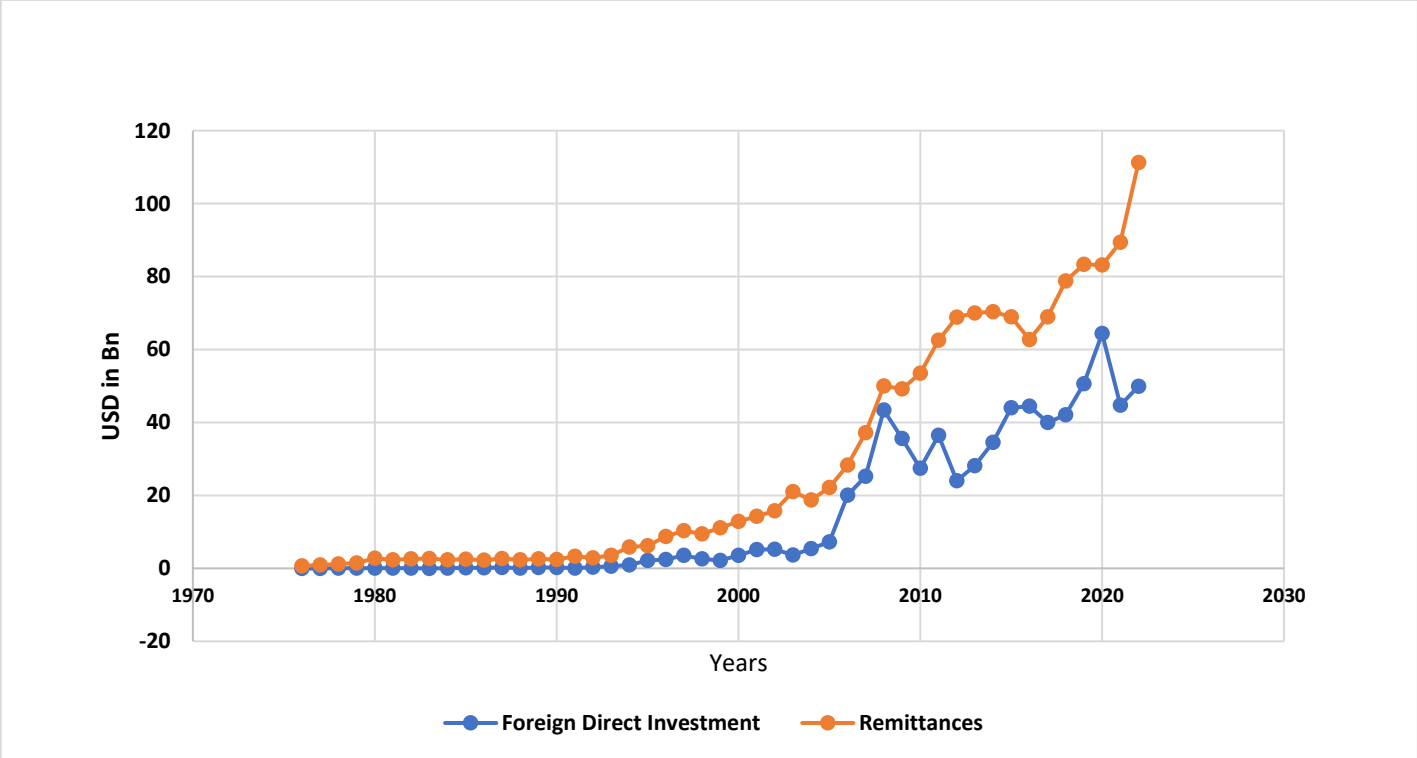
Financial institutions play a key role as intermediaries in sending and receiving remittances. Therefore, they potentially lead to higher capital accumulation in long run. Also, in countries where the financial intermediaries are developed, the likelihood of a household obtaining loans through formal channels increases. While it has been seen that remittance leads to the expansion of the financial sector, the causality in the opposite direction also holds true (Bhattacharya et al., 2018). Greater financial development leads to larger measured remittances. One of the reasons for this is that greater remittance inflow is accounted for when it flows through formal channels (World Bank, 2006). Secondly, financial development lowers the cost of transmitting remittances. This leads to increased measured flow of remittances (Aggarwal et al., 2011). Furthermore, the developmental impact of remittance inflow gets magnified when they are intermediated through the banking sector. It has been commonly argued that countries with a developed financial sector provide households with tools for asset accumulation and risk management. The remitters benefit from this because the financial institutions help them channelise their savings attained through remittances. Thus, we see that the financial development interplay comes into beckoning.

This study not only supplements the existing literature, in-fact it tries to understand their respective elasticities that may lead to faster achievement of the targeted goals. Our study of literature reveals that the effects of financial development on remittances are not straightforward. Some of the work on remittances tends to suggest that the remittances are compensatory and thus counter-cyclical. They do not necessarily serve only as capital for the economic development of the country but also act as a response to the financial emergencies

faced by the family members of the remitter (Ambrosius & Cuecuecha, 2013). It makes the family members less reliant on availing credit in case of an emergency and sometimes helps the family back in the home country to make investments in entrepreneurial ventures. Chami et al. (2005) posit that remittances are sent to avoid voids created in a poor economy or due to sheer bad luck in terms of failed investments. Therefore, the authors highlight the negative relationship of economic growth and remittances. Other studies have also shown that remittances are not only consumed but also invested. They tend to promote financial development as it supplements the aggregate level of deposits and credits (Aggarwal et al, 2011). However, several studies have also emphasized on the causal relationship between financial development and remittance inflow (Bettin et al., 2012; Fromentin, 2018; Giuliano et al.,2009)

India currently has the largest share of inward remittances across the globe. As per World Bank Data (2025 e), India received a total of USD 135.4 billion of inward remittances sent by migrants living outside the country. At current levels, this is around 3% of the GDP (nominal), which is larger than the total FDI (Foreign Direct Investment) and foreign aid that India receives. This increase can be attributed to two primary reasons: firstly, the rise of immigration from developing to developed countries, primarily US and Europe, and secondly, the shift in the type of migrants from semi-skilled to highly skilled who started taking high-end jobs in foreign countries (Pande, 2018). The below figure (Figure 1) gives a time series trend of the inward flow of remittance vis-à-vis FDI from 1976 -2022, thereby showing how remittance inflow far exceeds FDI during this period. As of 2025, the total remittance received in US Dollars is USD 135.4 billion for remittances against USD 81.04 billion for FDI. Thus, remittance, as it stands today, is higher than the FDI flow in the case of India. Thus, it is evident that remittances are a significant source of foreign exchange in the case of India.

Figure 1: Time series trend of Remittance Flow vis-à-vis FDI received



Source: Compiled from World Bank Economic Indicators data *(https://databank.worldbank.org/source/world-development-indicators)*

This study is able to capture only official movements that remittances flowing through prescribed channels. The remittance data through money transfer operators (MTOs) and other informal channels like friends, relatives and hawala operators, etc. have not been systematically recorded and therefore unavailable for this study. This underreporting and unavailability of major remittance data ends up in estimation errors (Freund & Spatafora, 2008). To assess the potential bias from excluding informal remittances, we conducted a sensitivity analysis using estimates of informal remittance flows from the World Bank's Remittance Prices Worldwide

database and the KNOMAD Working Paper series. These estimates suggest that informal remittances to India may account for an additional 15-25% of officially recorded flows. While data limitations prevent direct inclusion of informal flows in the ARDL model, we note that the correlation between the measurement error in remittances and financial development is likely negative: regions with less developed financial systems rely more heavily on informal channels. This would bias the coefficient on financial development toward zero, implying that our estimate of 0.33 may be a conservative lower bound of the true effect. The estimation of this unrecorded data is outside the scope of this paper.

LITERATURE REVIEW AND THEORETICAL FOUNDATION

Studies show that financial development has a significant positive impact on remittances inflow to India (Deheri, 2022; Bindu et al., 2022). A theoretical framework that explains the linkages between these two parameters can be constructed by interlinking three theories viz. New Economics of Labour Migration (NELM), Financial Intermediation Theory and Endogenous Growth Theory, which collectively explain the influence of financial development on remittances. Empirical studies further support this interaction between remittances and financial development (Giuliano & Ruiz-Arranz, 2009; Bhattacharya et al., 2018). 'New Economics of Labour Migration' theory explains that remittances are a household-level strategy that helps mitigate risk when the home country offers insufficient employment opportunities; therefore, families send their members abroad to diversify their income sources (Cazachevici et al., 2020). 'Financial Intermediation Theory' explains that financial institutions like banks, insurance companies, pension funds etc., enhance economic opportunities by acting as a bridge between the savers and the borrowers, improving overall liquidity and the capacity of lending (Allen and Santomero, 1997). Azizi (2020) posits that a 10% increase in the remittance to GDP ratio leads to 1.7% domestic credit for developing countries. A sustained remittances inflow also leads to innovation and development of specialised financial products suited for the migrant population and families back in the home country, which leads to further broadening of the economy (Liaqat et al., 2024). Endogenous Growth Theory explains how remittances lead to the accumulation of human capital and increased entrepreneurship activity that further leads to sustained expansion of the financial sector and also overall economic growth (Saydaliyev et al., 2022). This leads to a continuous cycle where improved human capital leads to higher income that turns additional savings into investments, stimulating financial development (Alhassan et al., 2025).

Therefore, collectively, we may conclude that financial development and remittances are closely interrelated through several important channels. Firstly, households that are financially constrained often send family members abroad to diversify their sources of income and reduce economic risk, making remittances an important source of external finance. The presence of efficient financial institutions and MTO's facilitate the cross-border fund transfers. As the financial sector develops and the banking infrastructure becomes more robust, it makes remittance transfers easier, safer and less costly, encouraging the migrant workers to use formal channels for money transfer. The remittances received through formal channels have a higher likelihood of being saved and invested, thereby contributing towards the expansion of the money supply and increased financial intermediation in the economy. This process supports business development, employment and long-term economic growth, and strengthens financial institutions, creating a reinforcing cycle between remittance flow and financial development.

The impact of financial development and its role in augmenting remittances has been widely studied in literature in various contexts using different approaches. Azizi, S. (2020) assessed the correlation between remittances and financial development data for 124 developing countries for the time between 1995 and 2015 and concluded that there is an explicitly positive influence of remittances on financial development. Remittances are received in blocks, thereby raising the need for the recipient to have financial products that can allow for safe storage even in cases where these funds are not received through banks. It alleviates the financial constraints for small businesses in the home country (Yavuz & Bahadir, 2022). Bettin et al. (2012) investigate the extent to which the financial development in the home country influences the decision of the migrant to send money home. They concur with the fact that financial development in the home country of the migrant affects the trust level among migrants toward the safety of their savings from an investment perspective. In addition, it entails lowering the cost of transferring money, thereby further inducing the migrant to remit more. Bangake and Eggoh's (2020) study shows that remittance and financial development share a nonlinear relationship with each other. Based on

a sample of 60 developing countries from 1985 to 2015, the study shows that when the financial development level is less than 28 percent, it fails to play any significant role in remittance inflow. While beyond the threshold, the impact is positive. Das and McFarlane's (2022) study shows similar results from the sample data from 1980 to 2017 in Jamaica. Initially, remittances have a negative relationship with financial development, while after reaching a particular threshold, their impact reverts to positive. Conversely, it has also been noticed that where the management of remittances is poor, it has a negative impact on the financial development as well (Aggarwal et al., 2011).

Fromentin, V. (2018) employed the dynamic panel data method to inspect the relationship between financial development and remittances. Their model is based on panel data from 39 countries with a high remittance-to-GDP ratio. Their findings show that the financial development impact on remittances is positive for countries with high levels of remittance ratio to GDP and none for countries with low ratios. Also, they concur with their study that remittance positively impacts the expansion and deepening of the financial sector. Giuliano et al., (2009) suggest basis of their analysis on data from 100 remittance-receiving countries, the relationship between financial development and remittances may initially seem ambiguous. Well-developed financial markets may lower the cost of doing transactions and thus direct remittances toward high-yielding projects. At the same time, they become a substitute for non-existent or inefficient credit markets, helping the local population bypass the high lending costs. However, they concur that financial development and remittances promote economic growth.

Alberola and Salvado (2006) observe from their study that initially, small money transmitting operators (MTOs) are more prevalent in developing countries with migrants and their families, for their reach is greater than that of formal banking channels. Also, migrants have more trust initially on MTOs. The cause elicited from the study is related to the distribution system of the banks that seems to be ill-suited for their outreach in rural areas. But with time, MTOs start charging monopolistic rents, and banks start challenging their dominant position by offering savings and credit, which help them overcome their competitive disadvantages. Other researchers have inquired into the impact of financial development on remittances in a specific country or group of countries. For example, Coulibaly, D. (2015) inquires the linkages between financial development and remittances in Sub-Saharan Africa. The study shows that financial development positively impacts remittances only in Gambia, while remittances negatively affect financial development in four countries (Niger, Sierra Leone, Senegal and Sudan). The author has used Granger causality to test the relationship between the two. Bindi et al., (2022) study the relationship between remittances and financial development and find a positive relationship between the two. More so as per their study on BRICs they find that 1 per cent increase in remittances lead to 4.5% increase in bank deposits as a percentage of GDP.

Pandikasala et al. (2022) posit that the large flow of remittances to India is caused by the receptivity of the economy, trade and investment openness, and positive mindset coupled with increased mobility. Hence, the study suggests that policies towards the development of the financial sector will positively impact the remittance inflow. We also have an alternating approach about financial development. Demirgüc-Kunt et al., (2010) study the association between remittances and banking depth and breath for Mexico. It needs a mention here that United States and Mexico is the largest and most popular remittances corridor worldwide (KNOMAD, World Bank 2021). Their study on municipality-level data tells us that cities that were connected to the rail network were better off sending workers abroad for work. While the authors compared the rail network from 1920 to 1998, they could see that more connected cities saw larger inflow of remittances that led to broader and deeper penetration of banking sector in those municipalities.

Brown et al. (2013) use the household survey data for Azerbaijan and Kyrgyzstan to study the relationship of migrant remittances and financial development. They employ the probit model on each country's household data and find a negative relationship between the two variables. The study argues that high transfer costs and complex procedural requirements in the CIS countries for opening a bank account act as a deterrent to using banking services for remittances. Cooray (2012), in their study, looked into the impact of remittance on financial sector size and ownership of the government. In developing economies, the government has to play a major role in providing financial services access to the rural population. Thus, the role of government in setting up banks become increasingly important. They model their results on annual data for 98 African, Asian, and Latin American countries from 1990-2007. The study reflects a positive relationship between government ownership and financial sector development.

Despite several studies and different considerations, there is no consensus about a typical or general effect of financial development on remittances or vice versa. Mughal and Ahmed (2014) find that the behaviour of remittance depends on the importance associated with its flow to the host economy. This study further adds that the difference in these studies can be interpreted by the methodologies that they have employed, the diversity of regions and countries that they have considered, and the data used. This paper tends to contribute to the existing literature by examining the causal relationship between financial development and remittance inflows to India. To the best of our knowledge, such country-specific inquiry taking into account the endogeneity and heterogeneity (to account for country-specific factors and common trends and shocks) has not been undertaken earlier.

Apart from these alternating findings, what we see lacking in our review of the literature is that most of the studies are done for groups of countries or regions. India-specific studies are very limited, as we could identify. Further, the models developed in various studies have used proxies of financial development to assess their impact on remittances that may give spurious results. This study explores the effects of financial sector development on remittance inflow by using the Financial Development Index developed by IMF, which uses comprehensive financial development indicators to give an indexed value that is used in this study. Our objective to undertake this study is to find whether there is any comprehensible role between financial development indicators and remittances from an Indian perspective.

RESEARCH METHODOLOGY

This is a quantitative study used to examine the dynamic relationship between remittances inflow and financial development in the Indian context using secondary data from reliable and relevant sources viz., World Bank and International Monetary Fund. The use of the Autoregressive Distributed Lag (ARDL) model is methodologically optimal, as it accommodates mixed-order stationarity, a realistic condition for the macroeconomic indicators used in the study. Existing studies, including those by Khan (2025), Deheri (2022), and Poonam et al. (2024) confirm the utility of the application of the said model as the ARDL estimator maintains efficiency even with a small sample size.

DESCRIPTION OF VARIABLES

The data used in the study is for the years 1986 to 2021 taken from the International Monetary Fund (IMF) and World Bank Data sources. The reason to select the dataset for the mentioned years is that it shows consistency from 1986 onwards, and financial development index data is available up to 2021 only which is a limitation of the study. We acknowledge that our sample period ends in 2021, thereby excluding the post-COVID-19 surge in remittances (2022-2025). To assess whether our findings are robust to this exclusion, we conducted a supplementary analysis using the World Bank's personal remittances data through 2023 and the IMF's Financial Development Index data through 2021, estimating the model separately for the 1986-2015 and 2016-2021 sub-periods. The coefficients on financial development were stable across these sub-periods (0.31 and 0.35 respectively, both significant at $p<0.01$), suggesting that the estimated relationship is not driven by the exclusion of recent years. However, readers should exercise caution when extrapolating the findings to the post-2021 period, as the structural relationship could change with the rapid digitalization of remittance channels. Remittance[1] is taken as a dependent variable and defined as the sum of workers' remittances (payments sent back to home countries by workers living abroad for more than a year), labour income, or compensation of employees (worker payments who lived abroad for less than a year) and migrant's transfers (IMF, 2013). However, it must be emphasized here that these records include only the official data on remittances shared by the respective countries.

The independent variable is Financial Development Index (FinDev), and the control variables include Gross Domestic Product (GDP) Growth, Foreign Direct Investment (FDI), and GDP Deflator (ref. Table 1). The Financial Development Index (FinDev), as calculated by the IMF, is a composite index that aggregates the financial institution index and the financial market index. The data here is compiled using bank credit given to

[1] BPM6 (2009) defines remittances as cross-border household income and transfers linked mainly to people living or working abroad, measured through personal transfers and employee compensation rather than only "workers' remittances."

the private sector as a per cent of GDP, mutual funds and pension funds' assets to GDP, bank and ATM Branches per 100,000 adults, stock market turnover ratio, and stock market capitalisation to GDP etc. Foreign Direct Investment (FDI) is a cross-border investment in which an individual or an entity invests in a business enterprise located in another country. Methodologically using FDI as a control variable helps us improve the model by addressing the endogeneity [2] concerns because it constitutes a major source of external finance that may independently influence financial sector deepening and correlate with remittance inflows (Bhattacharya et al., 2018). Gross Domestic Product (GDP) Growth measures the percentage change in the value of final goods and services produced within the borders of a country for a defined period, typically a quarter or a year. GDP Deflator measures inflation by tracking the price change of goods and services produced in an economy over a time period. The GDP deflator is considered a more comprehensive tool to measure inflation as it accounts for the changes in government consumption, international trade, and household consumption apart from the change in prices of a basket of goods and services.

Table 1: Variables description

Abbreviation	Name	Type of Variable	Variable Description	Source
Rem	Remittances to India	Dependent	Foreign remittances sent by migrants in Billion USD	World Bank Open Data
Fin Dev	Financial Development Index	Independent	Relative ranking index of the depth, access and efficiency of their financial institutions and financial markets	International Financial Statistics, IMF
FDI	Foreign Direct Investment	Control	Net inflow of investment to acquire a lasting management interest in a business operating in another country	World Bank Open Data
Gw	Home Country (India) GDP growth	Control	Growth Rate in percent	World Bank Open Data
Gd	GDP Deflator	Control	Ratio of a India's GDP at market prices in current dollars to its GDP at market prices in constant dollars	World Bank Open Data

Source: Author's compilation from World Bank Economic Indicators data (*https://databank.worldbank.org/source/world-development-indicators*)

We recognize that remittance flows are also influenced by exchange rate volatility, migrant stock, and institutional quality. However, data limitations constrain our ability to include these variables. Exchange rate data for the Indian rupee prior to 1993 (when a managed float was adopted) are not directly comparable to the post-1993 period. Migrant stock data from UN DESA are available only at five-year intervals (1985, 1990, 1995, etc.), and interpolation would introduce measurement error. Institutional quality indices (e.g., Worldwide Governance Indicators) are only available from 1996 onward, which would shorten our sample period and reduce statistical power. Future research should explore these variables using alternative data sources or higher-frequency data.

DESCRIPTIVE STATISTICS AND CORRELATION MATRIX

While selecting the above variables, we provide the summary statistics for all the variables in Table 2. It may be observed that the mean and standard deviation for remittances (Rem) and foreign direct investment (FDI) is relatively high. FDI and GDP Growth (Gw) are negatively skewed. The positive coefficient of the variables

[2] Endogeneity is an econometric and statistical condition where an explanatory (independent) variable is correlated with the error term in a regression model. Its existence may result in biased and inconsistent coefficient estimates.

follows a leptokurtic distribution with a high peak and taller tails compared to a normal distribution. The summary statistic results of the variables selected are given below in Table 2.

Table 2: Descriptive statistics of the data set under consideration.

Test Name	Remittance (Rem)	Financial Development Index (Fin Dev)	Foreign Direct Investment (FDI)	GDP Growth (Gw)	GDP Deflator (Gd)
Mean	33.434	0.410	18.087	5.979	6.756
Median	19.874	0.431	5.319	6.149	6.992
Maximum	89.373	0.539	64.362	9.689	13.751
Minimum	2.239	0.202	0.073	-5.777	2.279
Std. Dev.	30.305	0.081	19.452	2.824	2.819
Skewness	0.4811	-0.990	0.646	-2.062	0.147
Kurtosis	1.618	0.482	2.009	9.446	2.324
Jarque-Berra	4.253	5.46	3.979	87.84	0.814
Probability	0.119	0.065	0.136	8.404	0.665

Source: Author's estimation Word Bank and IMF data sources. *(https://databank.worldbank.org/source/world-development-indicators)*

Table 3 Correlation matrix.

	REM	*Fin Dev*	*FDI*	*Gw*	*Gd*
REM	1				
Fin Dev	0.696114***	1			
FDI	0.949623***	0.69047***	1		
Gw	-0.04369	-0.00623	-0.16829	1	
Gd	-0.39634	-0.40284	-0.36318	-0.06861	1

The asterisk signs ***, **, * represent the level of significance at 1%, 5% and 10% respectively

Source: Author's estimation Word Bank and IMF data sources. *(https://databank.worldbank.org/source/world-development-indicators)*

In Table 3, we report the correlation among the variables. Correlation analysis serves as an initial diagnostic tool to identify excessively strong linear associations between independent variables that may bias coefficient estimates and inflate standard errors (Gujarati, 2012). A high pairwise significant coefficient is found between remittance and financial development, FDI and financial development, and FDI and remittances. A low negative correlation is found between GDP growth and remittances, financial development, and FDI, and similarly with GDP deflator and other variables. The results indicate that the correlation coefficients remain below the conventional threshold of high multicollinearity, suggesting that the explanatory variables are sufficiently distinct to be included simultaneously in the regression framework. We also test for any presence, any probable relationship of the variables, and the error term.

RESEARCH METHOD

The study seeks (i) to examine the long-run relationship between financial development and remittances, (ii) to estimate the short-run dynamics of this relationship, and (iii) to assess the role of control variables in shaping

financial development. In line with the theoretical expectations, the study hypothesizes that H1: financial development exerts a positive and significant impact on remittances, while H2: macroeconomic variables such as FDI, economic growth, and inflation significantly influence financial development. We employ the Auto Regressive Distributive Lag (ARDL) bound testing approach to co-integration following Pesaran & Shin (1995) and Pesaran (2001) to examine the relationship between financial development and remittances in the context of India. Unlike the bivariate and multivariate co-integration techniques which are used mostly for large samples, the ARDL model is applicable for small sample sizes as well. This testing model allows for testing even in cases where order of integration of variables is at level 0 and 1 i.e. I(0) and I(1)[3], while traditionally, we would follow Johannsen's Method, which requires all variables to be of I(1) order. Further, this model is also free from the endogeneity issue that arises when we use the lag of the dependent variable as an instrument. Data for evaluation has been expressed in a standardized form (expressed in z statistics). The need for the same has been felt as the data on remittances and FDI are as actuals in USD billion, while GDP growth rate and GDP Deflator are in percentages.

We check for cointegration among variables using Equation 1 mentioned below.

$$\Delta\, LnRem_t = \beta_0 + \sum_{i=1}^{n} \beta_i \Delta Ln\, Rem_{t-i} + \sum_{j=1}^{n} \beta_j \Delta\, LnGw_{t-j} - \sum_{k=1}^{n} \beta_k \Delta\, LnGd_{t-k} + \sum_{l=1}^{n} \beta_l \Delta Ln\, Fin\, Dev_{t-l} + \sum_{m=1}^{n} \beta_m \Delta\, LnFDI_{t-m} + \alpha 1\, LnGw_{t-1} + \alpha 2\, LnGd_{t-1} + \alpha 3\, LnFinDev_{t-1} + \alpha 4\, LnFDI_{t-1} + \varepsilon \quad \textbf{(Eqn.1)}$$

In the above equation, 'Rem' stands for inward remittances to India, which is our dependent variable. The 'Fin Dev' stands for Financial Development Index, which is the independent variable. 'Gw' stands for GDP growth rate, 'Gd' for GDP deflator and 'FDI' for foreign direct investment to India (FDI) which are the control variables of the study. The variable choice have been selected based on the extensive literature review undertaken in section 2 of the article.

EMPIRICAL RESULTS AND DISCUSSION

Having specified the empirical model and conducted preliminary diagnostic assessments, including correlation analysis to examine the possibility of multicollinearity among the explanatory variables, the next step is to assess the time-series properties of the data prior to model estimation

STATIONARITY TESTS

The data is first tested for stationarity using the Augmented Dickey – Fuller (ADF) unit root test. The null hypothesis for all these tests is that the series contains a unit root. We use the Augmented Dickey - Fuller Test to test unit root. The choice of the test is validated under non-linear errors proposed by Paparoditis & Politis (2018), suggesting its fitment in the methodology. Analysing the test results of Augmented Dickey-Fuller (Dickey & Fuller, 1981) reveals that the selected variables are stationary at different orders of integration, i.e., I(0) and I(1). GDP Growth is stationary at the level while remittances, GDP deflator, Financial Development Index, and FDI are stationary at 1st difference. In this condition, in order to assess the presence of a long-run relationship among the selected variables, the methodology suggests the application of the ARDL bounds testing approach to co-integration following Pesaran and Shin (1995). We estimate the equation to check if the co-integration exists among variables (refer Table 4). The unit root test results on the residual series are significant at 5%; thus, we accept the results and move to the long-run bound test.

[3] Order of integration in the ARDL (Autoregressive Distributed Lag) model refers to the number of times a variable must be differenced to make it stationary. The bounds testing approach developed by **Pesaran, Shin, and Smith (2001)** was designed specifically to handle models where regressors are a mix of I(0) and I(1). This mixed order is exactly why ARDL is an appropriate model where macroeconomic indicators are used.

Table 4: Test Results of ADF Unit Root Test

Augmented Dickey-Fuller(ADF) Unit Root Tests (Intercept)					
Variable and Specifications	**Level**		**First Difference**		**Order of Integration**
	Statistics	**Prob Value**	**Statistics**	**Prob Value**	
Remittances (Rem)	1.308	0.998	-4.131	0.002	I(1)
GDP Growth (Gw)	-5.757	0.000			I(0)
GDP Deflator (Gd)	-2.242	0.195	-7.149	0.000	I(1)
Financial Development Index (FinDev)	-2.308	0.175	-6.056	0.000	I(1)
FDI	-0.806	0.804	-6.02	0.000	I(1)

*Source: Authors' collation with EViews 12

ARDL BOUND TEST FOR COINTEGRATION

Having confirmed that the order of integration of the selected variables is dissimilar, ARDL bound testing approach to cointegration is used to study the long-term relationship among the variables. We estimate the ARDL model of the form (4,4,0,4,4), and the lag selection is based on the Akaike info criterion (AIC) to avoid endogeneity. The automatic AIC-based lag selection gives a balancing fit against overfitting while accommodating mixed I(0)/ I(1) series common in remittance-financial development studies (Kripfganz and Schneider, 2023). The ARDL method of co-integration involves two steps. The first step is testing of significance of the lagged levels of variables by comparing the "F–statistic" of "Wald -bound test" with Pesaran critical value at α=5% and k = the number of independent variables in the model. If the results present, the existence of a long run relationship between the variables, we involve the second step which is the long-run and short run relationship between the variables. The value of the F statistic associated with the mode is 6.060, which is higher than the upper bound critical value of 1 percent level of significance, which is 4.37 in the case of 1 bound. Thus, we can safely reject the null hypothesis and say that a long-term relationship exists between the variables. The estimated lagged error correction term is significant at 1 percent. Test results are shared in Table 5.

Table 5: Long run estimates of the equation.

F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
		Asymptotic: n=1000		
F-statistic	6.060892	10%	2.2	3.09
k	4	5%	2.56	3.49
		2.5%	2.88	3.87
		1%	3.29	4.37

*Source: Authors calculation using EViews 12

We further estimate the long-run coefficients and find the effect of the same to be significant. The test results show that a per cent change in remittances has 0.30 per cent change in GDP growth. Inflation's coefficient is positive and has a 0.11% elasticity to remittances. Thus, we may say that moderate inflation is a sign of a growing economy. Similarly, the financial development shows a positive change of 0.33%. Finally, the FDI bears a unit change relationship with remittances. Test results are shared in Table 6.

Table 6: Long Run Coefficients

Levels Equation				
Case II : Restricted Constant and No Trend				
Variable	Coefficient	Std Error	t-Statistic	Prob
Gw	0.306060	0.110441	2.771249	0.0182
Gd	0.112693	0.059846	1.883032	0.0864
Fin Dev	0.336600	0.150529	2.236119	0.0470
FDI	0.994018	0.035272	28.18156	0.0000
C	0.228369	0.055575	4.109205	0.0017

*Source: Author's calculation using EViews 12

Table 6a: Short-run Error Correction Model Results

ECM Regression			
Restricted Constant and NO Trend			
Variable	Coefficient	t-Statistic	Prob. Value
Rem (-1)	-0.1486	-0.9181	0.3782
Rem (-2)	-0.3374	-2.0886	0.0608
Rem (-3)	-0.2606	-1.8909	0.0852
Fin Dev	0.249	2.4933	0.0299
Fin Dev (-1)	-0.3346	-3.2182	0.0082
Fin Dev (-2)	-0.332	-2.6291	0.0234
Fin Dev (-3)	-0.4893	-3.2078	0.0083
FDI	0.2536	3.7449	0.0032
FDI (-1)	-0.5042	-6.1091	0.0001
FDI (-2)	-0.5365	-5.0304	0.0004
FDI (-3)	-0.3838	-4.174	0.0016
Gw	0.0696	3.6624	0.0037
Gw (-1)	-0.2003	-6.1097	0.0001
Gw (-2)	-0.1372	-4.722	0.0006
Gw (-3)	-0.1286	-4.1617	0.0016
CointEq (-1)*	-0.8374	-7272	0.0000

The asterisk signs ***, **, * represent the level of significance at 1%, 5% and 10% respectively

*Source: Author's calculation using EViews 12

The ECM results (shared in Table 6a) reveal short-run dynamics among the variables. Financial development, FDI, and GDP growth exhibit positive effects on the dependent variable, but their lagged coefficients are negative and statistically significant, indicating short-run adjustments following initial gains. Furthermore, the error correction term is negative and highly significant (−0.8374), confirming long-run cointegration and indicating that approximately 83.7% of disequilibrium is corrected within one period.

Empirical Results: We run the Breusch-Pagan-Godfrey Test for homoskedasticity on the time series data to find whether the variables selected are free from any relation with the error term. As expected, the test results concur with our hypothesis that the error term is free from any explanatory variable. The test results are presented in Table 7.

Table 7: Heteroscedasticity Analysis

Heteroskedasticity Test: Breusch-Pagan-Godfrey
Null hypothesis: Homoskedasticity

F-statistic	0.639933	Prob. F(20,11)	0.8142
Obs*R-squared	17.20925	Prob. Chi-Square(20)	0.6393
Scaled explained SS	2.553496	Prob. Chi-Square(20)	1.0000

*Source: Author's calculation using EViews 12

Panel Causality test: As part of the model, we further test the causality between series and their reverse causal relationship. The application of panel Granger causality helps us assess the significance of the series and allows us to test the direction and existence of causality amongst variables. Following Sheikh et. al., (2020) panel Granger Causality validates the directional flows beyond cointegration addressing endogeneity in India's time series. The test results show evidence of causality between financial development and remittance. The linkage, as expected, is positive since economies with greater financial development increase competition among intermediaries, thereby decreasing transfer costs. Also, developed financial intermediaries lead to a greater confidence level among remitters to invest in their home countries, leading to a large remittance flow. The results are in tandem with the number of studies (for example, Aggarwal et al., 2011 and Acosta et al., 2009) indicating the possibility of financial development leading to large remittance inflows. Test results of the Granger Causality Test are reported in Table 8.

Table 8: Granger Causality Test Results

Pairwise Granger Causality Tests
Sample observations 1986-2021
Lags: 1

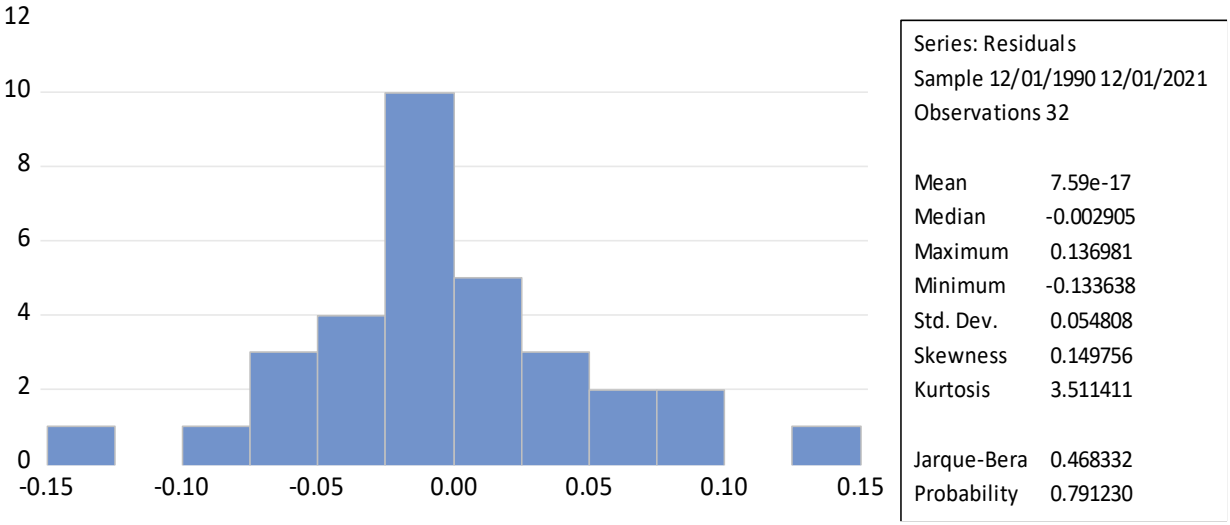
Null Hypothesis	F statisics	Prob Values
Financial Development Index does not Granger Cause Remittance	4.384	0.0442**
Remittance does not Granger Cause Financial Development Index	0.955	0.335
FDI does not Granger Cause Remittances	0.983	0.328
Remittances does not Granger Cause FDI	10.75	0.002*
GDP Deflator does not Granger Cause Remittance	0.703	0.407
Remittance does not Granger Cause GDP Deflator	0.886	0.353
GDP Growth does not Granger Cause Remittances	0.335	0.566
Remittances does not Granger Cause GDP Growth	0.130	0.7199
FDI does not Granger Cause Financial Development Index	1.457	0.236
Financial Development Index does not Granger Cause FDI	0.325	0.572
GDP Deflator does not Granger Cause Financial Development Index	4.980	0.032
Financial Development Index does not Granger Cause GDP Deflator	1.460	0.235
GDP Growth does not Granger Cause Financial Development Index	0.175	0.677
Financial Development Index does not Granger Cause GDP Growth	0.315	0.578
GDP Deflator does not Granger Cause FDI	1.358	0.252
FDI does not Granger Cause GDP Deflator	0.021	0.885
GDP Growth does not Granger Cause FDI	10.302	0.003*
FDI does not Granger Cause GDP Growth	0.056	0.813
GDP Growth does not Granger Cause GDP Deflator	0.358	0.553
GDP Deflator does not Granger Cause GDP Growth	0.407	0.527

*Source: Author's calculation using EViews 12

* Significance at 1%, ** Significance at 5%

Normality Test: This test determines whether the data set used is well modelled and whether the random variables used are normally distributed. The findings show that our data is empirically distributed and bell-shaped, similar to a normal curve. The test findings are shown in Figure 2 along with test statistics.

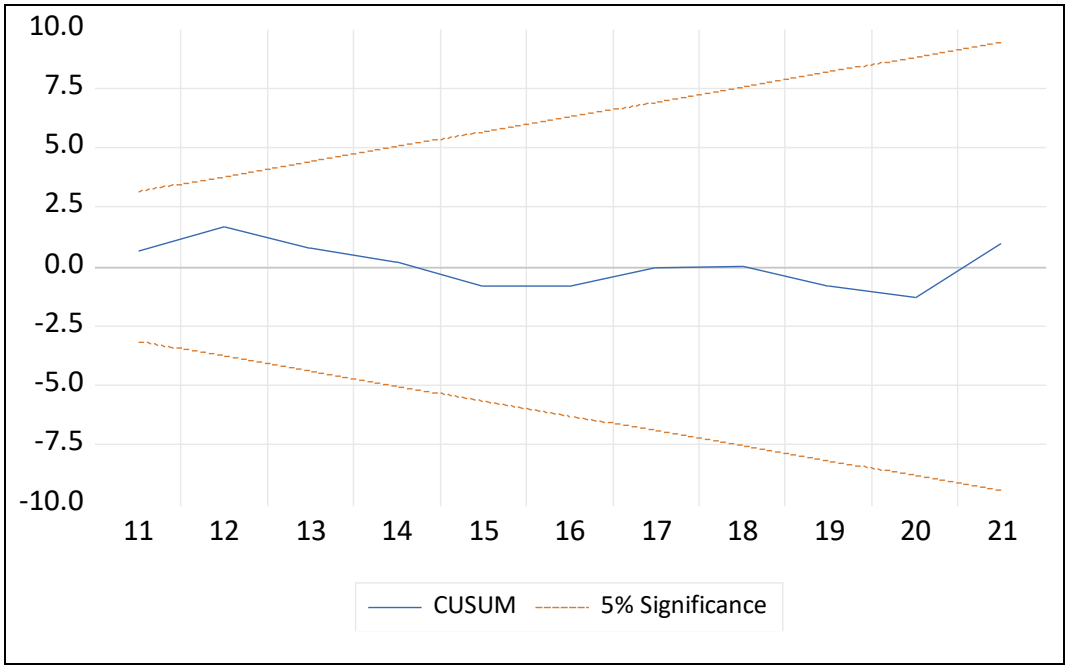
Figure 2: Normality Test on the data set.



*Source: Author's calculation using EViews 12

Further, we check the stability of the ARDL cointegrating model by performing the CUSUM Test. The test is used to monitor small variations in the process mean. The time plots of the cumulative sum of the recursive residual of the model presented in Figure 3 lie within 95 percent acceptance regions. This indicates that the ARDL cointegrating model is stable.

Figure 3: CUSUM Test Results on the data set.



*Source: Author's calculation using EViews 12

CONCLUSION

The present literature broadly recognizes the role of financial development on remittances. Granger causality establishes a bi-directional relationship between remittances and financial development. It exhibits a hybrid nature with regard to macroeconomic indicators of developing countries. A similar relationship between

remittances and financial development can also be seen in studies undertaken on this subject for Latin American countries, Egypt, Jordan, and Mexico. Studies have shown that remittances have increased the formal banking services, thereby strengthened the domestic financial sector and improved financial inclusion (Fajnzylber & Lopez, 2008; Giuliano et al., 2009). One of the key initiatives that has been driven by the Mexican government is the 3x1 Program for Migrants (Meseguer & Aparicio, 2018). Through this initiative, the Mexican government provides a matching fund that targets collective remittances sent by migrant-hometown associations (HTAs) in the United States. Similar initiatives, if undertaken by the Indian government, may lead to a further increase in inward remittances. Further, the literature study has shown that until a particular threshold, remittances are used mainly for consumption, after which we see that its role as an investment purpose gets amplified. Specifically for a country like India, they exhibit a counter-cyclical nature when the macro indicators are low, but as these indicators advance, we see that remittances grow in tandem, and after this point, the increase becomes congruous to the development indicators. The study successfully integrates the cumulative impact of financial development, GDP growth, inflation, and FDI on remittances. It suggests that efficient financial institutions channel remittances towards savings and investments. Their access and depth are essential determinants motivating the remitter to remit more to their host country. Thus, the authors suggest that India should focus on strategic, skill-linked and diaspora-oriented policies. Therefore, more work is required towards aligning vocational training with global demands and also designing programs that link remittance credit or housing subsidy programs to education, health and small business enterprises. Implement a national migration policy framework, sign bilateral and multilateral mobility agreements that secure rights, fair wages, and longer-term residence for Indian workers. Encourage formal channel-linked incentives to shift the value through the formal system. The study shows that an increase in remittances leads to growth in the liquid assets and the volumes of bank deposits. A positive extension of this impact is that credit availability grows. As remittance flows become more stable and significant, they are used as collateral to ask for credit in the home country.

Based on the study, we may recommend that as the financial sector is becoming more developed and mature, we may focus on reducing the transaction channel cost of inward remittances. We need to explore, integrate and adopt latest technologies like block chain technology and artificial intelligence in remittance industry to achieve the objective of reduced transaction costs of remittance flow and overall financial development. This will not only help with host of benefits already elicited in the literature but also act as a foreign exchange stabiliser for inclusive growth. Further, as we scale up skills of the workforce we may yield larger flows that will support investments. Therefore, we make a policy recommendation to the effect that enhancing financial development would offer better mediums of investment, which in turn ensures an uninterrupted inflow of remittances. Additionally, we can infer from the study that low-skilled migrants may be more vulnerable to economic shocks in the host country. Thus, focus of the government and other stakeholders on human capital development is paramount for positively affecting development indicators with remittances as an underlying.

REFERENCES

1. Abel, G. J. (2022). Gender and migration data. *KNOMAD paper*, *44*.
2. Acosta, P.A., Baerg, N.G., Mandelman, F.S., 2009. Financial development, remittances, and real exchange rate appreciation. Economic Review Number 1. Federal Reserve Bank of Atlanta, 1–12.
3. Aggarwal, R., & Peria, M. S. M. (2006). *Do workers' remittances promote financial development?* (Vol. 3957). World Bank Publications. https://doi.org/10.1596/1813-9450-3957
4. Aggarwal, R., Demirgüç-Kunt, A., & Peria, M. S. M. (2011). Do remittances promote financial development?. *Journal of development economics*, *96*(2), 255-264.
5. Alberola E and Salvado R (2006) "Banks, Remittances and Financial Deepening in Receiving Countries: A Model" Documentors de Trabajo No, 0621, Banco de Espana. http://dx.doi.org/10.2139/ssrn.927390
6. Alhassan, U. (2023). E-government and the impact of remittances on new business creation in developing countries. Economic Change and Restructuring, 56(1), https://doi.org/10.1007/s10644-022-09418-z

7. Ambrosius, C., & Cuecuecha, A. (2013). Are remittances a substitute for credit? Carrying the financial burden of health shocks in national and transnational households. *World Development*, *46*, 143-152. https://doi.org/10.1016/j.worlddev.2013.01.032
8. Azizi, S. (2020). Impacts of remittances on financial development. *Journal of Economic Studies*, *47*(3), 467-477. https://doi.org/10.1108/JES-01-2019-0045
9. Bangake, C., & Eggoh, J. (2020). Financial development thresholds and the remittances-growth Nexus. *Journal of Quantitative Economics*, *18*(2), 425-445. https://doi.org/10.1007/s40953-019-00188-6
10. Bettin, G., Lucchetti, R., & Zazzaro, A. (2012). Financial development and remittances: Micro-econometric evidence. *Economics Letters*, *115*(2), 184-186. https://doi.org/10.1016/j.econlet.2011.12.026
11. Bhattacharya, M., Inekwe, J., & Paramati, S. R. (2018). Remittances and financial development: empirical evidence from heterogeneous panel of countries. *Applied Economics*, *50*(38), 4099-4112. tps://doi.org/10.1080/00036846.2018.1441513
12. Bindu, S., Sridharan, P., Swain, R. K., & Das, C. P. (2022). Causal linkage between remittances and financial development: Evidence from the BRICS (Brazil, Russia, India, China, and South Africa). *Journal of East-West Business*, *28*(2), 117-149. https://doi.org/10.1080/10669868.2021.1976348
13. Brown, R. P., Carmignani, F., & Fayad, G. (2013). Migrants' remittances and financial development: Macro-and micro-level evidence of a perverse relationship. *The World Economy*, *36*(5), 636-660. https://doi.org/10.1111/twec.12016
14. Chami, R., Fullenkamp, C., & Jahjah, S. (2005). Are immigrant remittance flows a source of capital for development? *IMF Staff papers*, *52*(1), 55-81. https://doi.org/10.2307/30035948
15. Cooray, A. (2012). Migrant remittances, financial sector development and the government ownership of banks: Evidence from a group of non-OECD economies. *Journal of International Financial Markets, Institutions and Money*, *22*(4), 936-957. https://doi.org/10.1016/j.intfin.2012.05.006
16. Coulibaly, D., & Gnimassoun, B. (2024). Emigration and External Imbalances in Sub-Saharan Africa: Do Migrants' Skills Matter?. *Journal of African Economies*, *33*(3), 322-341. https://doi.org/10.1093/jae/ejad008
17. Cui, X., Umair, M., Ibragimove Gayratovich, G. A. N. I. J. O. N., & Dilanchiev, A. (2023). DO remittances mitigate poverty? An empirical evidence from 15 selected Asian economies. The Singapore Economic Review, 68(04), 1447-1468. https://doi.org/10.1142/S0217590823440034
18. Das, A., & McFarlane, A. (2022). Non-linear relationship between remittances and financial development in Jamaica. *International Migration*, *60*(3), 242-260. https://doi.org/10.1111/imig.12911
19. Deheri, A. (2022). The nexus between remittance inflows and financial development in India: substitutes or complements? *The Indian Economic Journal*, *70*(4), 597-614. https://doi.org/10.1177/00194662221118313
20. Demirgüç-Kunt, A., Córdova, E. L., Pería, M. S. M., & Woodruff, C. (2011). Remittances and banking sector breadth and depth: Evidence from Mexico. *Journal of Development Economics*, *95*(2), 229-241. https://doi.org/10.1016/j.jdeveco.2010.04.002
21. Deonanan, R., & Ramkissoon, B. (2024). How Do Remittances Affect Child Mortality at Different Levels of Mortality? Estimating Unconditional Quantile Treatment Effects on Three Leading Causes of Child Mortality. *SAGE Open*, *14*(2), 21582440241262764. https://doi.org/10.1177/21582440241262
22. Dickey, D. A., & Fuller, W. A. (1981). Likelihood ratio statistics for autoregressive time series with a unit root. *Econometrica: journal of the Econometric Society*, 1057-1072. https://doi.org/10.2307/1912517
23. Efobi, U., Asongu, S., Okafor, C., Tchamyou, V., & Tanankem, B. (2019). Remittances, finance and industrialisation in Africa. *Journal of Multinational Financial Management*, *49*, 54-66. https://doi.org/10.1016/j.mulfin.2019.02.002

24. Fajnzylber, P., & Lopez, J. H. (Eds.). (2008). *Remittances and development: lessons from Latin America*. World Bank Publications. eISBN: 978-0-8213-6871-8
25. Freund, C., & Spatafora, N. (2008). Remittances, transaction costs, and informality. *Journal of development economics*, *86*(2), 356-366. https://doi.org/10.1016/j.jdeveco.2007.09.002
26. Fromentin, V. (2018). Remittances and financial development in Latin America and the Caribbean countries: A dynamic approach. Review of Development Economics, 22(2), 808-826. https://doi.org/10.1111/rode.12368
27. Giuliano, P., & Ruiz-Arranz, M. (2009). Remittances, financial development, and growth. *Journal of development economics*, *90*(1), 144-152. https://doi.org/10.1016/j.jdeveco.2008.10.005
28. Gujarati, D. N. (2012). Basic Econometrics 4th ed.
29. Hysa, E., & Rehman, N. U. (2023, August). Economic Growth Through Financial Development: Empirical Evidences from. In *Crisis after the Crisis: Economic Development in the New Normal: 2021 International Conference of Economic Scientific Research-Theoretical, Empirical and Practical Approaches (ESPERA)* (p. 49). Springer Nature. https://doi.org/10.1007/978-3-031-30996-0_4
30. IMF (2013). International Monetary Fund. Statistics Department. *Balance of Payments Statistics Yearbook 2013*. International Monetary Fund. https://data.imf.org/Datasets/FDI
31. Khan, I. (2025). Facilitators and barriers to financial development in a developing economy. *Quality & Quantity*, 1-21. https://doi.org/10.1007/s11135-025-02502-2
32. Kripfganz, S., & Schneider, D. C. (2023). ARDL: Estimating autoregressive distributed lag and equilibrium correction models. *The Stata Journal*, *23*(4), 983-1019. https://doi.org/10.1177/1536867X231212434
33. Kunz, R., & Maisenbacher, J. (2021). Gender and remittances. In C. Mora & N. Piper (Eds.), *The Palgrave handbook of gender and migration* (pp. 321–338). Springer International Publishing. https://doi.org/10.1007/978-3-030-63347-9_20
34. Mallela, K., Singh, S. K., & Srivastava, A. (2023). Remittances, financial development, and income inequality: A panel quantile regression approach. *International Economics*, *175*, 171-186. https://doi.org/10.1016/j.inteco.2023.07.003
35. Meseguer, C., & Aparicio, F. J. (2012). Migration and distributive politics: the political economy of Mexico's 3× 1 Program. *Latin American Politics and Society*, *54*(4), 147-178. https://doi:10.1111/j.1548-2456.2012.00176.x
36. Mughal, M. Y., & Ahmed, J. (2014). Remittances and business cycles: Comparison of south Asian countries. *International Economic Journal*, *28*(4), 513-541. https://doi.org/10.1080/10168737.2014.920895
37. Pande, A. (2018). India's experience with remittances: a critical analysis. *The Round Table*, *107*(1), 33-43. https://doi.org/10.1080/00358533.2018.1424078
38. Pandikasala, J., Vyas, I., & Mani, N. (2022). Do financial development drive remittances? Empirical evidence from India. *Journal of Public Affairs*, *22*(1), e2269. https://doi.org/10.1002/pa.2269
39. Paparoditis, E., & Politis, D. N. (2018). The asymptotic size and power of the augmented Dickey–Fuller test for a unit root. *Econometric Reviews*, *37*(9), 955-973. https://doi.org/10.1080/00927872.2016.1178887
40. Pesaran, M. H., & Shin, Y. (1995). *An autoregressive distributed lag modelling approach to cointegration analysis* (Vol. 9514, pp. 371-413). Cambridge, UK: Department of Applied Economics, University of Cambridge.
41. Pesaran, M. H., Shin, Y., & Smith, R. J. (2001). Bounds testing approaches to the analysis of level relationships. *Journal of applied econometrics*, *16*(3), 289-326. **https://doi.org/10.1002/jae.616**
42. Poonam, Ravinder, & Saini, V. P. (2024). Understanding the Role of Exports and FDI in Remittances-Growth Nexus in Globalised India. *The Indian Economic Journal*, 00194662241262506. https://doi.org/10.1177/00194662241262
43. Ratha, D. (2023). Resilient Remittances Dilip Ratha.
44. Saptono, P. B., Mahmud, G., & Lei, L. F. (2022). Do international remittances promote poverty alleviation? Evidence from low-and middle-income countries. *IZA Journal of Development and Migration*, *13*(1). https://doi.org/10.2478/izajodm-2022-0006
45. Sheikh, U. A., Tabash, M. I., & Asad, M. (2020). Global financial crisis in effecting asymmetrical co-integration between exchange rate and stock indexes of South Asian region: Application of panel data

NARDL and ARDL modelling approach with asymmetrical granger causility. *Cogent Business & Management*, *7*(1), 1843309. https://doi.org/10.1080/23311975.2020.1843309

46. Valatheeswaran, C., & Khan, M. I. (2020). Remittances, health expenditure and demand for healthcare services. In *India Migration Report 2020* (pp. 55-71). Routledge India.
47. World Bank, 2006. Global economic prospects: economic implications of remittances and migration. Washington, D.C.
48. Yavuz, R. I., & Bahadir, B. (2022). Remittances, ethnic diversity, and entrepreneurship in developing countries. *Small Business Economics*, *58*(4), 1931-1952. https://doi.org/10.1007/s11187-021-00490-9