Journal of Business Insight and Innovation
Volume 5 Issue 10, 2026
ISSN-p: 3006-2284, ISSN-e: 3006-0982
https://insightfuljournals.com/

IMPACT OF WORKERS' REMITTANCES ON ECONOMIC GROWTH IN SOUTH ASIA: A MEDIATED MODERATION APPROACH

Rashid Hussain [1], Prof. Dr. Abou Bakar [2], Dr. Kalsoom Akhtar [3]

DOI: https://doi.org/10.63544/jbii.v5i10/291

Affiliations:

[1] PhD Scholar, Institute of Business, Management and Administrative Sciences, The Islamia University of Bahawalpur, Pakistan
Email: rashidhosain@yahoo.com

[2] Professor, Institute of Business, Management and Administrative Sciences, The Islamia University of Bahawalpur, Pakistan
Email: Abou.bakar@iub.edu.pk

[3] Lecturer, Institute of Business, Management and Administrative Sciences, The Islamia University of Bahawalpur, Pakistan
Email: kalsoom.akhtar@iub.edu.pk

Corresponding Author's Email:

[1] rashidhosain@yahoo.com

Copyright:

Author/s

License:

open access

Article History:
Received: 01.10.2026
Revised: 11.10.2026
Accepted: 21.10.2026
Published: 31.10.2026

Abstract

It is still unknown how employee remittances impact the growth of South Asian economies, despite being a substantial source of outside funding. The present investigation makes advantage of the mediated moderation approach to analyze the impact of worker remittances on the economic growth of seven South Asian nations. It begins by examining the direct effects of remittances on economic growth, the indirect effects through financial development, and the contribution of human capital to strengthening the connection between growth and remittances. The empirical analysis is based on 182 country-year observations and annual panel data from 2000 to 2025. Growth was gauged by growth in GDP, workers' remittances by personal remittances received, financial development by domestic lending to the private sector, and human capital by the literacy rate. The study also adjusted for gross fixed capital formation, inflation, foreign direct investment, trade openness and exchange rate. Empirical analysis comprised descriptive statistics, panel unit root tests, multicollinearity diagnostics, fixed effects and random effects estimation and Hausman specification tests. The fixed effects model was used to estimate the mediation equation, while the random effects model was used to estimate the main growth model. The results show that workers' remittances have a positive but statistically insignificant direct impact on economic growth. Financial development also has a negligible direct impact on the main growth model. Remittances and human capital do, however, have a positive and statistically significant correlation, suggesting that the growth impact of remittances is strengthened by rising literacy. The findings indicate that the influencing factors of economic growth are gross fixed capital formation, foreign direct investment and the openness of the economy, where the effect of economic openness is negative and significant. The findings reveal that while trade openness has a negative and significant influence on foreign direct investment and gross fixed capital formation, economic growth has a positive and significant impact. The mediation results also suggest that remittances and literacy have a positive and significant relationship with financial development. The study overall finds that remittances' growth impacts in South Asia may be limited, as they require supportive factors like the depth of the financial sector, macroeconomic stability, human capital, and productive investment. Policies that support formal remittance channels, financial inclusion, literacy, profitable investment, and export competitiveness are recommended in this paper.

Keywords: Workers' Remittances, Economic Growth, Financial Development, Human Capital, South Asia, Mediated Moderation, Panel Data

1. Introduction

The expansion of productive capacity, the increase of income levels and the capacity of the nation to offer improved employment, infrastructure, health, education and social services constitute among the most crucial objectives of every economy, of which is economic growth. Growth in development economics is not limited to just a growth in national income, but rather a process by which the economy becomes more productive, stable and capable of raising the standard of living of its people. The word growth indicates an increase; in an economy in a macroeconomic context, growth typically represents an increase in real output

Journal of Business Insight and Innovation
Volume 5 Issue 10, 2026
ISSN-p: 3006-2284, ISSN-e: 3006-0982
https://insightfuljournals.com/

over time. It is therefore considered a central goal of economic policy, particularly for developing and emerging countries where poverty, unemployment, weak productive capacity, and external financial constraints remain major challenges (Barro, 1991; Solow, 1956).

South Asian economies have passed through different phases of growth, structural transformation, and external-sector pressures. Countries such as India, Pakistan, Bangladesh, Sri Lanka, and Nepal have large labor forces, strong migration networks, and a long history of outward migration to the Middle East, Europe, North America, and other developed regions. The macroeconomic issues that these economies are experiencing are similar: exchange-rate pressure, inflation, fiscal constraints, unemployment, poverty, and reliance on external inflows. In this context, remittances become a key macro-economic flow that can help improve the stability of the balance of payments and foreign exchange reserves and provide extra purchasing power to the recipient economies.

As concerned the inflow of capital that migrants workers send home from overseas is referred to as remittances. A key process in the flow of resources from industrialized countries to the poor countries is worker remittances or transfers (Russell, 1992). It is generally accepted that remittances are a share of foreign and/or other region-based wages received by migrants. Meeting the needs of the families that the immigrants leave behind is the main purpose of remittances. It's the key indicator of the country's economy. Remittances are considered to be the primary foreign exchange earner in underdeveloped countries.

Remittances take a unique place in the development process since they are distinct from foreign aid, flows of portfolio investments and foreign direct investment. The amount of FDI is typically based on investor confidence; market size, political stability, and investor expectations of returns on investment, whereas the amount of official development assistance is typically based on donor priorities and international policy conditions. Remittances, in contrast, are usually motivated by family obligations, altruism, inheritance motives, repayment of migration costs, and household risk-sharing arrangements (Lucas & Stark, 1985). This household-based character makes remittances relatively stable and sometimes counter-cyclical, particularly when migrants send additional support during economic downturns, natural disasters, health crises, or household emergencies.

While FDI (Foreign Direct Investment) is the first effective source of foreign capital in emerging nations, as remittances believe rank second. Remittances play multiple roles for developing economies as a source of development funding and act as insurance in developing nations, therefore the majority of them rely on them. An estimated $685 billion would be sent to underdeveloped countries that also consider LMICs in 2024, surpassing the sum FDI and also exceeding official development assistance (ODA). Although this increase varies by region, it is anticipated to occur at a rate of 2.3%. The forecasting of World Bank is that there is vigorous increase in remittances inflow to developing countries by US$ 685 billion in 2024. The primary purpose of remittances in developing nations is to support family needs, but they can also be used for savings, credit mobilization, and various forms of investment. Food, clothes, housing, healthcare, and education account for 90% of global remittances in underdeveloped nations (IFAD, 2009). The beneficial effects of remittances are primarily observed at the micro level since they involve resource transfers within families or communities. The household budget of the receiving households is directly impacted by these remittances, which they can either save or consume for necessities such as durable and non-durable products (Munir, 2010).

This study is motivated by mixed findings in the literature on remittance-growth. Some research indicates that remittances act as a policy to stimulate growth by easing credit constraints on households, increasing consumption, education and investment. Findings from other studies, however, are weak or insignificant, suggesting that remittances could be saved for consumption or that they might lead to macroeconomic vulnerabilities or dependency (Barajas et al., 2009). The results of these mixed effects indicate that the remittances-growth relationship is conditional and potentially influenced by financial development, human capital and overall macroeconomic conditions at home.

Journal of Business Insight and Innovation
Volume 5 Issue 10, 2026
ISSN-p: 3006-2284, ISSN-e: 3006-0982
https://insightfuljournals.com/

Table 1

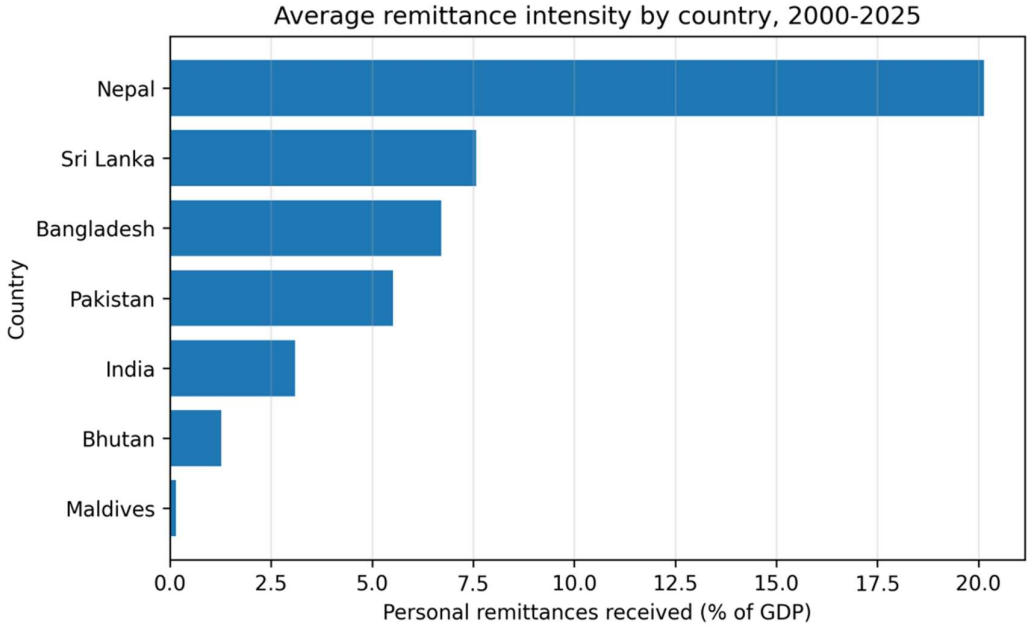
Remittances Share in GDP of Selected South Asian Economies

Country	Remittances share in GDP
Nepal	26.3
Pakistan	7.9
Sri Lanka	7.1
Bangladesh	5.21
India	3.4
South Asia	4.1

Source: World Bank Indicator (2024)

Figure 1

Average Remittance Intensity by Country, 2000-2025



Note. Country averages are calculated over the full sample period. Source: The author's computation based on the research data set.

Table 2

Average Remittance and Growth Indicators by Country

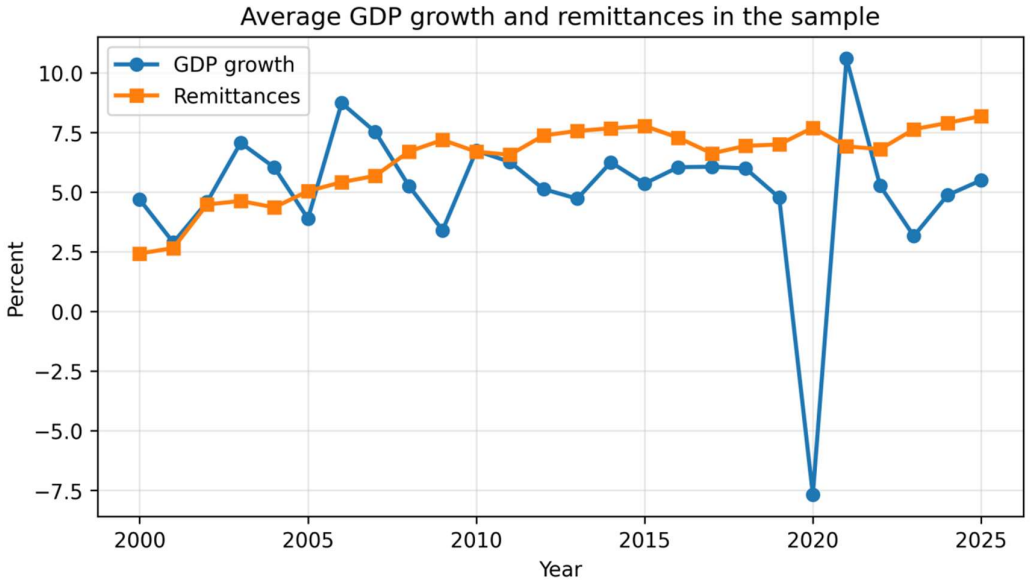
Country	Remittances (% of GDP)	GDP growth (%)	Financial development	Trade (% of GDP)
Nepal	20.14	4.19	58.16	45.04
Sri Lanka	7.57	3.99	37.67	53.95
Bangladesh	6.70	5.87	35.68	34.82
Pakistan	5.52	3.96	16.76	28.40
India	3.09	6.25	41.94	43.29
Bhutan	1.27	5.93	40.15	86.51
Maldives	0.15	5.61	34.57	182.24

Note. Values are country averages for 2000-2025.

Journal of Business Insight and Innovation
Volume 5 Issue 10, 2026
ISSN-p: 3006-2284, ISSN-e: 3006-0982
https://insightfuljournals.com/

Figure 2

Average GDP Growth and Remittance Inflows in the Sample



Note. GDP growth and remittances are measured in percent. Source: Author's calculation based on the study data set.

Figure 2 presents the average pattern of GDP growth and remittance inflows. The figure is not intended to establish causality; rather, it provides a descriptive background for the empirical model. The econometric analysis later controls for financial development, human capital, investment, inflation, FDI, trade openness, and exchange rate to estimate the conditional relationship more rigorously.

1.1 Objective of the Study

The research is aimed at understanding the outcome of remittances on economic growth and to offer appropriate recommendations for enhancing their allocation and productive utilization. The major goal is to investigate how worker remittances and economic growth are related, with an emphasis on figuring out how much remittance inflows support the growth and progress of South Asian economies.

1.2 Research Questions

The main sorted questions which need to be answered by this study are as under:

1. Do the workers' remittances significantly impact the economic growth in the selected south Asian economies?
2. How might government policies strengthen the beneficial effects of remittances inflow on economic expansion in selected South Asian economies?

2. Literature Review

The current study attempts to examine the mediated moderating effect of workers' remittances on the economic growth of a few South Asian economies. Financial development is thought of as the mediator, and human capital is thought of as a moderator (literacy rate). Importance of workers' remittances as external finance source in developing economies, especially in South Asia, where foreign labour migration is a significant source of income and foreign currency to the households. Remittances are private financial transfers, but their economic effects do not just impact household welfare and consumption. They can defuse liquidity restraints, boost savings and investment, promote entrepreneurship, fund education and health spending, and boost aggregate demand. Remittances can, via these channels, positively impact economic growth. However, the growth impact of remittances is not assured because it depends on how recipient households use them and how domestic financial and economic institutions turn them into productive activity. Empirical studies of the link of workers' remittances to economic growth have thus far yielded mixed results.

Journal of Business Insight and Innovation
Volume 5 Issue 10, 2026
ISSN-p: 3006-2284, ISSN-e: 3006-0982
https://insightfuljournals.com/

Proof of the effects of remittances inflows on economic performance in South Asia generally supports a positive correlation. In a similar study, Using panel data for Bangladesh, India, Pakistan, and Sri Lanka, Mostafa and Wadud (2024) established a significant long-term connection between remittances and economic growth and observed that remittance have a positive impact on GDP in the short and long run. They conclude that remittances' inflow growth-accelerating effect becomes more relevant in the case where the remittance inflows are channeled to productive economic activities. In the same manner, Mostafiz and Kang (2025) analyzed the remittances and GDP per capita of Bangladesh, India, Pakistan and Nepal in the years 1996-2023, and they concluded that remittances had a positive relationship with GDP per capita that was statistically significant. Additionally, their research showed feedback effects between remittance inflows and economic activity levels, suggesting that remittances and economic advancement may eventually support one another. Remittances have a growth-promoting effect, according to recent regional data. The real GDP per capita has a positive and statistically significant relationship with remittance inflows, indicating a steady long-term link, according to the findings of the study by Hamal et al. (2025) on the impacts of remittances on the real GDP per capita in the SAARC countries (2000-2024). Similarly, after adjusting for endogeneity concerns, Abbas et al. (2025) discovered the beneficial effect of remittance inflows on economic growth in South Asian nations. Their comparative analysis also indicated that the growth impact of remittances is relatively more pronounced in the South Asian economies as compared to a wider sample of developing economies. In addition, the past few years have provided evidence to support this argument in each country. Based on Pakistan's experience, Rahman et al. (2026) found that remittances have a positive impact on economic growth in the long run. Empirical literature doesn't give a completely consistent answer. Akter et al. (2024) studying Bangladesh, India and Pakistan reported that a positive relationship between economic growth and the remittance inflows was not observed for all three countries in their preferred fixed-effects specification. They found that an increase in remittances inflow can be counterproductive with respect to productive economic outcomes if these resources are largely devoted to consumption and not savings and investment. Similarly, Shah (2024) has found that remittance shocks could have asymmetric impacts on economic activity in India, which implies that a rise in remittance inflows does not always lead to the same macroeconomic impacts as a fall in remittance inflows. Using a Panel VAR framework, Zaarour et al. (2025) concluded that, overall, remittance inflows bolster economic growth and investments, but the nature and strength of the transmission channels depends on broader economic conditions. The conflicting results imply that there may be more to the relationship between growth and remittances than just evaluating their direct impact on economic expansion.

The variability of these results may be due partly to the stage of development of the domestic financial system. Financial development is the institutional structure that facilitates the conversion of remittance inflows into savings, credit, investment and productive economic activity. Remittances via formal financial institutions may contribute to bank deposit growth, financial inclusion, improve linkages between households and financial institutions and contribute to the liquidity supply to the private sector. Remittances can thus help in financial deepening as well as enhance the financial institutions' ability to direct funds to productive industries. Where financial systems are not well developed or remittances are mainly conveyed through informal channels, the potential for remittances to boost broader economic activity may be limited. Recent studies show that there is a significant connection between remittances and financial development. While the nature and extent of the remittance effects on financial development has been mixed, Pal and Mahalik (2024) showed that remittances do affect financial development in developing regions, though the impact is unevenly distributed across regions and dependent on institutional and economic conditions. Their results show that high institutional quality enhances the role of remittances in financial development and that remittance inflows are not enough to ensure better financial intermediation. Instead, it is the capacity of domestic institutions to mobilize and allocate these resources efficiently that is crucial to their developmental contribution. This is particularly important for South Asian economies because there is a great deal of potential to improve formal financial inclusion and turn remittances into a means of long-term economic development, business investment, credit formation, and savings. From the relationship between remittances, financial development and economic growth, it could be argued that financial development might be one of the transmission

Journal of Business Insight and Innovation
Volume 5 Issue 10, 2026
ISSN-p: 3006-2284, ISSN-e: 3006-0982
https://insightfuljournals.com/

channels. A good financial system enhances the mobilization of savings, lowers transactions costs, makes credit more available and helps to allocate financial resources to more productive investment opportunities. Remittances thus have a potential to affect economic growth not only directly, via household consumption and investments, but also indirectly, by providing financial support for productive capital formation via financial development. According to this thesis, financial development might act as a mediator between remittance flows and economic growth rather than being viewed as a stand-alone exogenous phenomenon.

While the role of financial development is gradually gaining in importance in the literature, the available literature has largely focused on financial development as an explanatory variable or as a moderating variable between the remittance–growth relationship. There has been comparatively little research on its potential use as a mediating mechanism. The findings of Pal and Mahalik (2024) indicate that remittances can affect financial development, and Afridi et al. (2024) and Li et al. (2026) show that financial development can have a strong impact on the economic outcome of remittance inflows. All of these findings provide a strong theoretical framework for examining whether remittance inflows promote financial development and whether financial development in turn promotes economic growth. According to the current study, financial development has a significant role in mediating the relationship between worker remittances and economic growth in South Asian economies. Also, the amount of human capital in recipient economies may influence the level of productive economic use of remittances. Education, knowledge, skills, and health translate into an increase in people's ability to see investment opportunities, engage in entrepreneurial activity, implement new technologies, and better manage their finances. As a result, from the perspective of human capital in different nations, remittances of the same magnitude may have different economic effects. Weak and strong human-capital bases will be associated with different ways of using remittance resources: weak human-capital economies will have higher rates of remittance use for immediate consumption, while strong human-capital economies will have higher rates of remittance use for productive investments. This conditional relationship is strongly supported by recent empirical evidence. After analysing remittance inflows in 113 developing economies, Azizi et al. (2024) came to the conclusion that while remittance inflows have a positive impact on economic growth in nations with relatively high levels of human capital, they have no such positive impact in nations with low levels. Additionally, they discovered that in nations with highly developed human capital capacity, remittances promote physical capital investment. The evidence indicates that human capital serves as an absorptive capacity and helps recipient economies to convert remittance inflows into productive investment and long-term growth.

Human capital is especially pertinent in South Asia. Abbas et al. (2025) found a positive and statistically significant remittance-human capital interaction in the South Asian economies. Their results suggest that education, health, skills, and training can increase the productive use of remittance income and boost its role in economic growth. Similarly, Dash and Gupta (2024) discovered significant short and long term relationship between remittances and human development in South Asian economies, and Nasrin et al. (2024) concluded that personal remittances significantly and positively impact human development in seven South Asian countries. Khan (2025) also observed that migrant remittances are a positive factor for economic growth and that they are also associated with positive impacts on education and health outcomes in developing economies. The two are found to have a positive and reinforcing relationship: remittances can help develop human capital, and a larger human capital stock can increase remittances' ability to be invested in profitable ventures and promote sustainable economic growth.

According to earlier research, the impact of remittances on growth is complex and cannot be fully explained by remittances alone. Three major gaps need to be filled. First, after years of research, it is still unclear how remittances directly affect economic growth in terms of nation, time, and estimating technique. Secondly, while financial development has become a pivotal element of the remittation–growth connection, relatively less research has been conducted to determine if it functions as a specific mediator in the remittance–growth relationship. Third, although increasingly there is evidence that human capital can improve the economic impact of remittances, little research combine this moderating effect with the financial-development transmission channel in a single empirical model. The current study overcomes these shortcomings by

Journal of Business Insight and Innovation
Volume 5 Issue 10, 2026
ISSN-p: 3006-2284, ISSN-e: 3006-0982
https://insightfuljournals.com/

providing an integrated mediated moderation framework for seven South Asian economies from 2000 to 2025. In contrast to previous literature, which focuses on whether workers' remittances affect economic growth, the study explores the mechanisms through which they impact economic growth, including through financial development, as well as if the impact of workers' remittances changes with the level of human capital. The study comprehensively analyzes the remittance–growth link as a direct link, a mediation link via financial development and a moderation link by human capital. This is especially true for South Asian economies where the developmental implications of large remittance inflows may be influenced not only by the size of the flows, but also on the capacity of domestic financial institutions to tap into remittance flows and the capacity of the human capital to convert the inflows into productive and sustainable economic outcomes.

3. Data and Methodology

3.1 The Data

The data set consists of selected South Asian economies and is annual-panel data from 2000 to 2025. The sample size is comprised of 7 countries and the data is presented in country-year format for studying the effect of workers' remittances on economic growth. The panel data are helpful in this context since they enable the analysis to account for differences between countries as well as differences in time (Baltagi, 2005; Hsiao, 2003).

Table 3

Description and Definition of variables

Variable	Full name	Unit of measurement	Source of Data
GDP	GDP GROWTH	GDP growth (annual %)	WDI
RIM	REMITTANCES	Personal remittances, received (% of GDP)	WDI
FD	DOMESTIC CREDIT TO PRIVATE SECTOR	Domestic credit to private sector (% of GDP)	WDI
HCAP	Human Capital	Literacy rate, adult total (% of people ages 15 and above)	WDI
(RIM×HCAP)	INTERACTION TERM	Centered RIM × centered literacy	
GFCF	GROSS FIXED CAPITAL FORMATION	Gross fixed capital formation (annual % growth)	WDI
INF	INFLATION	Inflation, GDP deflator (annual %)	WDI
FDI	FOREIGN DIRECT INVESTMENT	Foreign direct investment, net inflows (% of GDP)	WDI
TRADE	TRADE	Trade (% of GDP)	WDI
ER	EXCHANGE RATE	Official exchange rate (LCU per US$, period average)	WDI

World Bank. (2026). World Development Indicators. https://databank.worldbank.org/source/world-development-indicators (Accessed May 10, 2026).

3.2 Estimation Techniques

The estimating techniques used to look into how worker remittances impact economic growth in particular South Asian economies are described in this section. Panel data analysis, which combines cross-sectional and time-series dimensions and can account for unobserved country-specific variation, is relevant since the study employs country-wise annual panel data (Baltagi, 2005; Hsiao, 2003; Wooldridge, 2010).

Preliminary diagnostic tests, such as descriptive statistics, correlation analysis, panel unit root testing, and multicollinearity testing. The Hausman specification test is then used to determine which model is more appropriate between fixed effects and random effects (Hausman, 1978; Wooldridge, 2010).

Journal of Business Insight and Innovation
Volume 5 Issue 10, 2026
ISSN-p: 3006-2284, ISSN-e: 3006-0982
https://insightfuljournals.com/

3.3 Model Specification

This study's primary goal is to use a mediated moderation approach to examine how workers' remittances affect economic growth. Financial development is introduced as a mediating variable since financial systems can use remittances to provide deposits, credit, and investment possibilities (Giuliano & Ruiz-Arranz, 2009; Levine, 1997). Human capital is also added as a moderating factor as the effectiveness of remittances in increasing productivity can be limited by the knowledge, skills and education of households and workers (Becker, 1964; Lucas, 1988).

The empirical model of the study is specified as follows:

$$GDPit = \beta_0 + \beta_1\ cRIMit + \beta_2\ FDit + \beta_3\ cHCAPit + \beta_4\ (cRIM \times cHCAP)it + \beta_5\ GFCFit + \beta_6\ INFit + \beta_7\ FDIit + \beta_8\ TRADEit + \beta_9\ ERit + \mu i + \varepsilon it$$

Where GDP represents economic growth, cRIM represents centered workers' remittances, FD represents financial development, cHCAP represents centered human capital, cRIM x cHCAP represents the interaction between workers' remittances and human capital, GFCF represents gross fixed capital formation, INF represents inflation, FDI represents foreign direct investment, TRADE represents trade openness, ER represents exchange rate, μi represents country-specific effects and εit represents the error term. To lessen unnecessary multicollinearity and enhance interpretability, centred variables should be used in interaction models (Aiken & West, 1991; Cohen et al., 2003).

3.4 Random Effects Model

The random effects model is used when individual country-specific effects are assumed to be randomly distributed and uncorrelated with the explanatory factors. The model is appropriate for panel data as long as there are no persistent correlations between the independent variables and the unobserved country effects (Baltagi, 2005; Wooldridge, 2010). Unlike the fixed effects model, the random effects model uses variation both within and between countries to get accurate estimates when the model's assumptions are met. (Gujarati & Porter, 2009; Hsiao, 2003).

The random effects model used in this study was chosen after the Hausman specification test, which contrasts the two kinds of effects.

3.5 Variance Inflation Factor

The variance inflation factor test is used to identify multicollinearity among explanatory variables. High correlations between the independent variables lead to multicollinearity, which can result in significant standard errors and unreliable estimated coefficient values (Gujarati & Porter, 2009; O'Brien, 2007). In practical research, VIF levels below 5 are deemed acceptable, however values much higher than 5 indicate a high level of multicollinearity. (Hair et al., 2019; O'Brien, 2007).

Prior to calculating the interaction term, workers' remittances and human capital are mean centered. There is a common practice for moderation models of mean centering the original variables to minimize the multicollinearity of the original variables and the interaction term (Aiken & West, 1991; Cohen et al., 2003).

The centered variables are generated as follows:

cRIM = RIM - mean(RIM)
cHCAP = HCAP - mean(HCAP)
cRIM_HCAP = cRIM x cHCAP

After generating the centered interaction term, the VIF test is applied again. If VIF values are within the acceptable range, the final model can be interpreted without serious multicollinearity concerns (Gujarati & Porter, 2009; O'Brien, 2007).

3.6 Panel Unit Root Test

The stationarity qualities of the variables are assessed using the panel unit root test. Because non-stationary variables may produce misleading regression analysis results, stationarity is essential. The Fisher-type panel unit root tests, which are based on the enhanced Dickey-Fuller procedures, are used in this work. Panel data applications tests are known as Fisher-type tests (Choi, 2001; Maddala & Wu, 1999).

Journal of Business Insight and Innovation
Volume 5 Issue 10, 2026
ISSN-p: 3006-2284, ISSN-e: 3006-0982
https://insightfuljournals.com/

The Fisher-type unit root test assumes that at least one panel is immobile and that all panels are unit root. There is proof of stationarity if the probability value is significant (less than the selected significance level) (Choi, 2001; Maddala & Wu, 1999).

3.7 Hausman Specification Test

To decide between fixed effects and random effects models, the Hausman specification test is used. According to Baltagi (2005), Hausman (1978), and Wooldridge (2010), the random effects model posits that there is no correlation between country-specific effects and explanatory factors, but the fixed effects model permits such correlations.

The null hypothesis of the Hausman test states that the random effects model is appropriate, but the alternative hypothesis supports the fixed effects model. If the p-value is greater than 0.05, random effects are preferred and the null hypothesis is not rejected. If the p-value is less than 0.05, fixed effects are preferred and the null hypothesis is rejected. (Hausman, 1978; Wooldridge, 2010).

In this study, the Hausman test validates the adoption of the random effects model. As a result, the random effects estimator is chosen as the last estimating method for examining the connection between economic growth and worker remittances.

3.8 Mediation Equation

In order to examine the impact of workers' remittances on financial development, the mediation equation is approximated independently given the usage of financial development as the mediator. Mediation analysis establishes whether the independent variable's impact on the dependent variable is direct (mediates) or indirect (channels) (Baron & Kenny, 1986; Preacher & Hayes, 2008). According to this study, remittances might theoretically move through the financial system by increasing deposits, increasing credit availability, and then directing funds toward investments that promote growth (Giuliano & Ruiz-Arranz, 2009; Levine, 1997).

The mediation equation is specified as follows:

$$FDit = \alpha_0 + \alpha_1 RIMit + \alpha_2 GFCFit + \alpha_3 INFit + \alpha_4 FDIit + \alpha_5 TRADEit + \alpha_6 ERit + \alpha_7 HCAPit + \mu i + \varepsilon it$$

Domestic credit to the private sector as a proportion of GDP is used in this study to gauge financial progress. The claim that remittance inflows aid in the growth of financial institutions and credit markets would be supported by a positive correlation between remittances and financial development. (Giuliano & Ruiz-Arranz, 2009; King & Levine, 1993).

4. Results and Discussion

4.1 Descriptive Statistics

Table 4

Descriptive Statistics of the Study Variables

Variable	Obs.	Mean	Std. dev.	Minimum	Maximum
GDP growth (gdp)	182	5.115	5.350	-32.909	37.508
Inflation (inf)	182	7.538	7.874	-3.365	68.010
Foreign direct investment (fdi)	182	2.003	3.145	-0.639	16.783
Gross fixed capital formation (gfcf)	182	8.808	18.780	-55.414	91.815
Exchange rate (er)	182	83.879	65.991	11.770	476.081
Workers' remittances (rim)	182	6.350	6.892	0.077	28.162
Human capital/literacy (hcap)	182	70.600	16.904	45.408	99.287
Trade openness (trade)	182	67.751	53.104	21.460	259.888
Financial development (fd)	182	37.846	18.036	3.858	103.651

Note. The table reports descriptive statistics for the final variables used in the empirical model. Values are based on 182 country-year observations.

Descriptive statistics give an overview of variables used in analysis as regards distribution and variation. The table displays the number of observations, mean, standard deviation, minimum, and maximum values. The results indicate that there are 182 country-year data observations in the data set. The mean is 5.115, the minimum is -32.909 and the maximum is 37.508 for GDP growth. This variation shows that the

Journal of Business Insight and Innovation
Volume 5 Issue 10, 2026
ISSN-p: 3006-2284, ISSN-e: 3006-0982
https://insightfuljournals.com/

countries chosen in the South Asian region did not only go through a contraction period but also a period of strong economic growth.

The mean value of workers' remittances is 6.350, which indicates that workers' remittances are an important macroeconomic variable in the sample. The average value of human capital is 70.600 (literacy rate), whereas the average value of financial development is 37.846. The standard deviation of trade openness is high, indicating that there were significant variations between countries and years in the degree of openness of the external sector. Exchange rate also varies widely, corresponding to different values of currencies and macroeconomic conditions in the selected countries.

4.2 Panel Unit Root Test

Table 5

Fisher-Type ADF Panel Unit Root Test

Variable	Inverse chi-squared statistic	p-value	Decision at 5%
Gdp	87.1335	.0000	Stationary
Rim	22.3573	.0716	Not stationary at 5%; weak at 10%
Fd	11.9327	.6117	Not stationary
Hcap	8.9842	.8321	Not stationary
Gfcf	43.4088	.0001	Stationary
Inf	70.2753	.0000	Stationary
Fdi	26.5587	.0220	Stationary
Trade	37.8389	.0005	Stationary
Er	1.1082	1.0000	Not stationary

Note. H0 = all panels contain unit roots. A p-value below .05 indicates rejection of the null hypothesis and supports stationarity at level.

The Fisher-type augmented Dickey-Fuller panel unit root test was used to assess stationarity prior to developing the panel regression model. The alternative hypothesis for this test is that at least one panel is stationary, while the null hypothesis is that all panels contain unit roots. Testing for stationarity is crucial since it is necessary for regression; otherwise, the results could be deceptive. Panel data analysis frequently uses Fisher-type tests, in which test statistics are computed at the national level and then merged to produce a national test of stationarity (Baltagi, 2005; Wooldridge, 2010). Table 5 illustrates that GDP growth; gross fixed capital formation, inflation, foreign direct investment and trade openness remain stable at level. For workers' remittances, the inverse chi-squared statistic is utilized, and it is not rejected at 10 percent level of significance, but the same is not true for financial development, human capital and exchange rate. Thus, the findings show that the variables have mixed stationarity. The results must be regarded with caution as the main model is estimated using panel data techniques and the dependent variable is GDP growth and diagnostic and specification tests are added to support the main model.

4.3 Multicollinearity Test for the Main Growth Model

Table 6

Variance Inflation Factor Results for the Main Growth Model

Variable	VIF	1/VIF
Trade	4.71	0.212536
Fdi	3.15	0.317399
c_rim	2.91	0.343299
c_hcap	2.41	0.415421
c_rim_hcap	2.34	0.427497
Gfcf	2.28	0.438297
Er	1.91	0.523750
Fd	1.80	0.555663
Inf	1.09	0.913552
Mean VIF	2.51	

Journal of Business Insight and Innovation
Volume 5 Issue 10, 2026
ISSN-p: 3006-2284, ISSN-e: 3006-0982
https://insightfuljournals.com/

Note. The interaction term is based on mean-centered remittances and mean-centered human capital. VIF values below 5 show that the final model's multicollinearity is not a significant problem.

Multicollinearity was examined using the variance inflation factor (VIF). significant correlation between the explanatory variables is known as multicollinearity, and it can result in unstable coefficient estimates and significant standard errors. Workers' remittances and human capital were mean-centered before the interaction term was created since the study includes an interaction term between the two. A common suggestion for using moderation analysis is to moderate, who helps to minimize the non-essential multicollinearity in the original variables and the interaction term (Gujarati & Porter, 2009; Hair et al., 2010).

The VIF results reported in Table 6 show that all values are below 5. The highest VIF is 4.71 for trade openness, while the mean VIF is 2.51. These results indicate that multicollinearity is not a serious problem in the final growth model. Therefore, the estimated coefficients can be interpreted without major concern regarding excessive correlation among the explanatory variables.

4.4 Fixed Effects, Random Effects, and Model Selection for the Main Growth Model

To choose the best panel estimation method for the primary growth model, both fixed effects and random effects models were estimated. Unobserved time-invariant country-specific traits that might be connected with the explanatory variables are taken into account by the fixed effects model.

Table 7

Model Selection Results for the Main Growth Model

Test	Statistic	p-value	Decision
Hausman test	chi-square(9) = 12.34	.1946	Random effects model preferred
Fixed effects model	F(9, 166) = 5.09	.0000	Model jointly significant
Random effects model	Wald chi-square(9) = 39.15	.0000	Model jointly significant

Note. H0 of the Hausman test = random effects model is appropriate. Since p > .05, the random effects model is selected.

The random effects model assumes that country-specific effects are randomly distributed and uncorrelated with the explanatory factors. Because the two approaches are based on different hypotheses, the Hausman specification test was employed to choose between them (Hausman, 1978; Wooldridge, 2010). With a jointly significant fixed effects model and a within R-squared of .2164, the explanatory factors collectively explain changes in GDP growth within countries across time. However, Table 7's Hausman test result shows a probability value of .1946 and a 12.34 chi-square value. The null hypothesis that the random effects model is acceptable cannot be rejected because the p-value is higher than .05. Therefore, the random effects model is the best model for interpretation. The panel model selection rationale, which favours random effects when there are non-systematic coefficient differences between fixed and random effects, is consistent with this choice.

4.5 Main Random Effects Regression Results

The primary growth model's final random effects results are shown in Table 8. GDP growth is the dependent variable. Remittances from centered workers, financial development, centered human capital, the relationship between centered remittances and centered human capital, gross fixed capital formation, inflation, foreign direct investment, trade openness, and exchange rates are among the explanatory variables. The Wald chi-square statistic shows that the model is statistically significant at the 1 percent level. This implies that differences in economic growth across the chosen South Asian nations are jointly explained by the explanatory variables.

Journal of Business Insight and Innovation
Volume 5 Issue 10, 2026
ISSN-p: 3006-2284, ISSN-e: 3006-0982
https://insightfuljournals.com/

Table 8

Final Random Effects Regression Results for the Main Growth Model

Variable	B	SE	z	p	95% CI
c_rim	0.0434	0.0912	0.48	.634	[-0.1353, 0.2221]
Fd	-0.0015	0.0274	-0.05	.957	[-0.0552, 0.0522]
c_hcap	-0.0129	0.0338	-0.38	.704	[-0.0791, 0.0534]
c_rim_hcap	0.0134**	0.0064	2.10	.036	[0.0009, 0.0258]
Gfcf	0.1508***	0.0296	5.09	< .001	[0.0928, 0.2088]
Inf	-0.0743	0.0489	-1.52	.129	[-0.1702, 0.0216]
Fdi	0.6154***	0.2078	2.96	.003	[0.2081, 1.0227]
Trade	-0.0401***	0.0150	-2.67	.008	[-0.0696, -0.0107]
Er	-0.0094	0.0077	-1.22	.224	[-0.0245, 0.0057]
Constant	6.9472***	1.7238	4.03	< .001	[3.5685, 10.3259]

Note. Dependent variable = GDP growth. c_rim = centered workers' remittances; c_hcap = centered human capital; c_rim_hcap = centered remittances multiplied by centered human capital. ** p < .05. *** p < .01.

4.6 Discussion of Main Empirical Results

The findings demonstrate that human capital and remittances have a significant and favourable influence on GDP growth. This finding suggests that remittances have a bigger influence on economic growth at higher levels of human capital. Both foreign direct investment and investment (gross fixed capital creation) are positive and significant, suggesting that both have a favourable effect on growth. Trade may have slowed growth throughout the sample period due to import dependence, trade imbalances, or export competitiveness, as indicated by the considerable and negative trade openness. For the final random effects model, the inflation and exchange rate indicators are negative but not statistically significant. Economic growth is positively impacted by worker remittances. Household income, consumption, savings, investment, and financial services—all of which support economic growth—are all positively impacted by remittances. Remittances can support growth and development in developing economies by lowering household budgetary limitations and freeing up funds to invest in small-scale business enterprises, health care, and education (Adams & Page, 2005; Ratha, 2003).

But the fact that the coefficient is negligible indicates that, when other macroeconomic variables are accounted for Remittances have little direct effect on GDP development in the chosen South Asian nations. This outcome is consistent with the findings of Barajas et al. (2009), who have proposed that the direct relationship between remittances and economic growth is often weak and not always statistically significant. Similarly, Chami et al. (2005) had suggested that if remittance-receiving households do not invest in remittances but instead use them for consumption, remittances might be more akin to compensation income than productive investment.

The negligible direct influence on the economy may be owing to the fact that remittances are spent on household consumption, housing, education, and repayment of loans in the context of South Asia. This does not negate the importance of remittances. Rather, it has been discovered to show how their growth affects the media in which they are used. Hence, the positive and significant interaction term in this study is significant as it reveals that the impact of remittances is larger when the human capital is higher.

Financial development's effect on economic growth is not statistically significant. This should not be interpreted as definitive evidence that financial development can impede economic growth because the coefficient is not significant. Instead, there was no statistically significant correlation between GDP growth and financial development. This may occur as a result of ineffective translation into inclusive financial access, company investment, and productive lending.

Theoretically, financial development should promote economic growth through improving savings mobilisation, loan distribution, transaction cost reduction, and investment facilitation (Levine, 2005). However, the empirical literature clearly shows that the relationship between finance and growth is not always

Journal of Business Insight and Innovation
Volume 5 Issue 10, 2026
ISSN-p: 3006-2284, ISSN-e: 3006-0982
https://insightfuljournals.com/

linear and consistently positive. However, Arcand et al. (2015) suggested that financial deepening can be less or even inversely related with growth beyond a certain level. Likewise, Demetriades and Hussein (1996) discovered that the finance-growth link varies in sign and magnitude among countries.

The trivial coefficient could be a symptom of financial systems' structural inefficiencies across South Asian countries, access differences in credit, financial inclusion, non-performing loans, or credit use for consumption and not investment. Thus, the importance of a country's financial development is still a topic of interest, but its direct impact on growth is related to the efficiency, stability and inclusiveness of the financial system.

Despite being negative, the literacy rate's coefficient of human capital is not statistically significant. Since this is not statistically significant, the idea that human capital is a barrier to progress is not well supported. In contrast to the literacy rate, which only assesses basic reading and writing abilities and may not fully capture the level of education, technical skills, labour productivity, or employability, the surprising sign may be the result of measurement constraints. According to economic theory, a rise in human capital will boost economic growth since educated individuals are more inventive, creative, and capable of embracing new technology, among other things. According to Mankiw et al. (1992), the augmented Solow model also shows that human capital accumulation is crucial to comprehending the growth variety among nations. However, Pritchett (2001) discovered that indications of education do not always result in rapid development, especially when education quality is insufficient and/or the labour market is unable to efficiently absorb educated workers. According to Krueger and Lindahl (2001), measurement problems may potentially weaken the correlation between economic growth and education. In the case of South Asian nations, the extremely low human capital coefficient is justified. Remittances may have an indirect effect on productivity; it will require time, high-quality education, employment prospects, and complementary institutions to have a direct effect on GDP growth. The favorable and significant remittances-human capital relationship supports this interpretation.

The interaction between the centered workers' remittances and the centered human capital is positive and statistically significant at the 5 percent level. This is one of the most significant results of the research. The positive sign means that people's capital enhances the link between remittances and economic growth. That is, the economic growth promoting effect of remittances is more likely to occur with an increase in the literacy of the population and the human capital.

This finding is consistent with the mediated moderation hypothesis of the study. While, in some cases, remittances will not produce any significant growth effect, in others it will have a more productive impact when households and economies have the ability to make good use of the inflows. The economic returns for literate households are likely to be higher for remittances to be invested in skills, small businesses, savings, and productive assets. They may also be more likely to be connected to formal sources of finance and to invest their remittance money in improving their economic situation in the long run. This result is in line with the wider absorptive-capacity literature. Borensztein et al. (1998) suggested that the growth impact of foreign capital is shaped by the host countries' human capital. Likewise, Giuliano and Ruiz-Arranz (2009) demonstrated that remittances can boost growth under specific conditions of the financial sector. The significant interaction implies that human capital is a condition with respect to which remittances are more growth-enhancing.

At the one percent significance level, the gross fixed capital formation coefficient is both positive and statistically significant. This outcome is well in line with the theory of the economy. It suggests a positive effect of capital formation on the GDP growth of the selected South Asian economies. Capital involved in capital formation is the investment which is made in the machines, equipment, infrastructure, buildings, etc., which increases the productive capacity.

Neoclassical growth theory is based on the positive correlation between capital accumulation and growth. Solow (1956) emphasized that one of the primary drivers of output growth is capital accumulation, and Mankiw et al. (1992) showed that variations in physical and human capital can account for growth disparities between nations. Infrastructure and productive capital investment is particularly crucial in

Journal of Business Insight and Innovation
Volume 5 Issue 10, 2026
ISSN-p: 3006-2284, ISSN-e: 3006-0982
https://insightfuljournals.com/

developing economies, as it helps to lower production expenses, increase industrial capacity and generate jobs. This study shows that gross fixed capital formation has a high significance score, suggesting that one of the key drivers of growth in the South Asian region is domestic investments. The result also reinforces the proposal that remittances can make a greater impact on growth if they are directed toward productive investment as opposed to consumption only. Hence, policies that can shift remittance inflows towards saving and investment, as well as into entrepreneurship, can enhance remittance growth's effect on growth.

Impact of inflation on economic growth is negative. The negative sign is consistent with economic theory, which states that excessive inflation reduces purchasing power, increases uncertainty, discourages investment, and weakens economic performance. The population's purchasing power and the cost of financing may be impacted by this increase in inflation, which could have an effect on decisions about consumption and investment. Fischer (1993) provided evidence for the negative relationship between inflation and growth, stating that macroeconomic instability, such as excessive inflation, has a detrimental effect on growth performance. Additionally, Barro (1995) found that inflation and long-term economic growth were negatively correlated. Because it affects impoverished households more severely and creates uncertainty in trade, investment, and currency rate markets, inflation can be especially harmful in emerging nations.

The impact of foreign direct investment on GDP growth is both positive and substantial. This result implies that the economies of the chosen South Asian nations have benefited from FDI inflows. Capital inflows, technology transfer, employment effects, human resource management skills, export expansion, and productivity improvement are just a few of the ways that FDI can support growth. This result is consistent with the findings of Borensztein et al. (1998), who contend that foreign direct investment (FDI) can stimulate economic growth in a host nation by supplying productivity and technological advancements, particularly in cases when the host economy is absorptive. Alfaro et al. (2004) further contended that local financial markets have an impact on FDI's growth as, if they are developed, they allow foreign capital to be allocated to profitable ventures. In the context of South Asia, FDI can contribute to growth by enhancing the industrial capacity, infrastructure and external competitiveness of the countries. This study has resulted in a positive and significant coefficient; this implies that foreign investment is complementary in the growth process. However, whether FDI is directed toward speculative or low-value-added industries or productive industries will determine its long-term effects. Thus, policy should be oriented to the attraction of quality FDI for industrial development and technology transfer and job creation.

Trade openness is negatively related to the dependent variable and significant. This is a finding that goes against the conventional theory of trade-driven growth which posits that openness of trade facilitates growth through specialization, competition, technology transfer and access to larger markets. But in the case of developing and import-dependent countries, the negative sign may be economically acceptable.

In South Asian countries, trade openness can hurt growth when imports are growing more rapidly than exports; when domestic industries in the country are underdeveloped; and when reliance on intermediate and capital goods imports is high. As a result, the more open the economy, the more trade imbalances, foreign exchange pressures, and sensitivity to external shocks can ensue. Kim et al. (2011) revealed that a nonlinear relation between trade openness and development may exist; that is, trade does not always pay off at every level of development. Additionally, trade openness can influence in different ways as a result of the level of economic development and structural capacity, as found by Zahonogo (2016).

Thus, it is not correct to say that the negative trade coefficient indicates in all cases the harmful nature of trade. Rather, it suggests that the benefits of openness depend on trade composition, industrial policy, export competitiveness, and domestic productive capacity. Trade openness could help the growth of South Asian economies, but only as long as there is export diversification, value addition, and an improvement in domestic industries.

In the final random effects model, the "exchange rate" coefficient is negative but not statistically significant. Although the negative sign has economic relevance and is consistent with the macroeconomic structure of many developing economies, the coefficient is not statistically significant. Exchange rate

Journal of Business Insight and Innovation
Volume 5 Issue 10, 2026
ISSN-p: 3006-2284, ISSN-e: 3006-0982
https://insightfuljournals.com/

fluctuations affect economic growth in various ways, such as the prices of imports and inflation, competitiveness in export markets, external debt burden, remittance value, and investor confidence.

In an economy that uses the exchange rate in terms of domestic currency per unit of U.S. currency, a rise in the exchange rate typically is a fall in the value of the domestic currency. In theory, in an export oriented economy, the depreciation of currency can improve the competitiveness of export products, while in an import dependent economy, the effect can be to make the imported fuel, machinery, raw materials, food, and intermediate products more costly. If production relies heavily on imported inputs, depreciation can raise production costs and can even decrease the growth of production. This channel is especially significant for the economies of South Asia, where external financing requirements, industrial inputs, and energy imports are significant determinants of economic performance.

An alternative interpretation of the negative exchange rate coefficient is the inflation channel. If depreciation increases the cost of imported goods, it could cause cost-push inflation and raise the cost of these imports. Faster inflation erodes the purchasing power of households and causes investors uncertainty. When firms start to encounter increasing prices and higher import costs, they may decrease investment, postpone production decisions, or push up prices to consumers. This reduces the growth process. Fisher (1993) and Barro (1995) demonstrated that the state of macroeconomic instability, such as the inflationary pressure, can adversely influence the economic growth. A negative exchange rate-growth relationship makes sense economically since a decline in the exchange rate could cause inflation.

Outside debt and balance-of-payments pressures are another very important channel. It is a well-known fact that many developing economies borrow in foreign currencies. When the domestic currency depreciates, the local currency value of foreign debt payments increases. This puts strain on the foreign exchange reserves as well as the government's budget. Ability to service debt can help to lower investment in infrastructure, education and development programmes, which can have a negative effect on long-term growth. Instability in exchange rates can also deter foreign investors as it can lead to the risk of uncertain returns. Aghion et al. (2009) have shown that currency volatility may inhibit productivity gains, particularly in less developed financial markets. In this study, the insignificant p-value indicates that the negative exchange rate effect is not statistically significant after controlling for remittances, financial development, human capital, investment, inflation, FDI and trade openness. This can be due to indirect transmission via channels of inflation, trade and investment. It could also be due to the different exchange rate policies, import dependency, export composition and reaction to monetary policy adopted in different countries. Thus, it should be mentioned in the final model that the result is statistically insignificant but still economically relevant.

The empirical indicators of the final model of the random effects and their relationship with economic theory and the previous empirical studies. This table is intended to illustrate both the theoretical consistency of the estimated coefficients and the justification of unexpected signs. All things considered, the results are consistent with economic theory. While the indicators of inflation and the exchange rate are negative, the interaction term between gross fixed capital formation and foreign direct investment is positive and considerable. The importance of imports and export competitiveness in developing economies justifies the negative and substantial coefficient of trade openness.

The study's theoretical framework is somewhat supported by the primary growth outcomes. Remittances from workers have a positive but negligible direct impact on GDP growth, indicating that in the chosen South Asian economies, remittances by themselves do not produce a large direct economic effect. Nonetheless, there is a positive and significant connection between human capital and remittances, suggesting that human capital enhances the relationship between growth and remittances. This result validates the study's suggested regulated relationship. These control variables also give valuable insights. Gross fixed capital formation and foreign direct investments are positive and significant, thus supporting the relevance of domestic investment and foreign capital inflows for economic growth. The inflation and exchange rate are in the negative direction, and consistent with the theory of macroeconomics, but not statistically significant.

Journal of Business Insight and Innovation
Volume 5 Issue 10, 2026
ISSN-p: 3006-2284, ISSN-e: 3006-0982
https://insightfuljournals.com/

Trade openness is negative and significant; indicating that trade openness does not necessarily lead to growth in the absence of export capacity and the product competitiveness.

5. Mediation Equation Results

The mediation equation's findings are presented in the next part to examine if worker remittances have an effect on the financial development of the chosen South Asian economies. In this instance, the study's mediated moderation theory views financial development as playing a mediating role in the connection between remittance inflows and economic growth. Therefore, it's crucial to determine whether remittances have a major influence on financial development before looking at the entire relationship between growth and remittances. This is in accordance with mediation analysis theory, which suggests that before considering the indirect pathway, evidence of a meaningful effect of the independent variable on the proposed mediator must be provided (Baron & Kenny, 1986; Hayes, 2018).

Financial development is the dependent variable in the mediation equation. With gross fixed capital formation, inflation, foreign direct investment, trade openness, currency rates, and literacy serving as control variables, workers' remittances serve as the main explanatory variable. This equation does not attempt to measure economic growth per se; it looks to see if remittances are associated with the growth of financial institutions and credit markets. This is important since GDP will be the dependent variable in the primary growth model and financial development will be the dependent variable in the mediation equation.

5.1 Multicollinearity Diagnostic for the Mediation Equation

The variance inflation factor test was conducted to check for the presence of multicollinearity among the explanatory variables prior to estimating the mediation equation.

Table 9

Variance Inflation Factor Results for the Mediation Equation

Variable	VIF	1/VIF
Trade openness	4.43	0.2257
Foreign direct investment	2.61	0.3828
Literacy	2.17	0.4609
Gross fixed capital formation	2.13	0.4686
Exchange rate	1.84	0.5424
Workers' remittances	1.28	0.7792
Inflation	1.06	0.9408
Mean VIF	2.22	

Note. VIF = variance inflation factor. Values below 5 indicate that serious multicollinearity is not present in the mediation equation.

As seen below, all the values of VIF are less than 5, which is the accepted value. The largest VIF is 4.43 corresponding to trade openness and the average VIF is 2.22. The findings demonstrate that the mediation equation does not have a significant multicollinearity issue.

Consequently, there is no need to worry about serious multicollinearity when adding the explanatory variables to the model. This strengthens the reliability of the estimated coefficients in the financial development equation (Gujarati & Porter, 2009; Hair et al., 2010).

5.2 Hausman Specification Test for the Mediation Equation

After confirming that multicollinearity was not a serious issue, the Hausman specification test was applied to select the appropriate panel estimation technique for the mediation equation.

Table 10

Hausman Test Results for the Mediation Equation

Test statistic	Result
Chi-square statistic	17.38
Degrees of freedom	7
Probability value	.0151
Decision	Fixed effects model selected

Journal of Business Insight and Innovation
Volume 5 Issue 10, 2026
ISSN-p: 3006-2284, ISSN-e: 3006-0982
https://insightfuljournals.com/

Note. The null hypothesis states that the random effects model is appropriate. Since p = .0151, the null hypothesis is rejected and fixed effects is preferred.

Fixed effects and random effects estimators are compared using the Hausman test. The alternative hypothesis backs the fixed effects model, while the null hypothesis asserts that the random effects model is suitable. The fixed effects model is favoured and the null hypothesis is rejected if the probability value is less than .05 (Hausman, 1978; Wooldridge, 2010).

Table 10's Hausman test findings reveal a probability value of .0151 and a chi-square value of 17.38. The null hypothesis is rejected because the probability value is less than .05. For estimating the mediation equation, the fixed effects model is therefore thought to be more suitable than the random effects model. This finding suggests a systematic relationship between the explanatory variables in the financial development equation and unobserved country-specific characteristics. As a result, the fixed effects results serve as the foundation for interpreting the mediation equation.

5.3 Fixed Effects Results for the Mediation Equation

Table 11

Fixed Effects Results for the Mediation Equation

Variable	B	SE	t	p	95% CI
Workers' remittances	1.608	0.299	5.39	< .001	[1.019, 2.198]
Gross fixed capital formation	-0.085	0.077	-1.09	.276	[-0.238, 0.068]
Inflation	-0.011	0.111	-0.10	.921	[-0.230, 0.208]
Foreign direct investment	0.963	0.650	1.48	.140	[-0.320, 2.247]
Trade openness	0.019	0.072	0.26	.793	[-0.124, 0.162]
Exchange rate	0.010	0.019	0.52	.602	[-0.027, 0.047]
Literacy	0.766	0.128	5.96	< .001	[0.512, 1.019]
Constant	-29.633	10.055	-2.95	.004	[-49.483, -9.782]

Note. Dependent variable = financial development. Number of observations = 182. Number of groups = 7. Within R^2 = .4373. F(7, 168) = 18.65, p < .001. The fixed effects model was selected based on the Hausman specification test.

5.4 Interpretation of the Mediation Equation

To investigate the impact of workers' remittances on financial development, the fixed effects model was evaluated. The F-statistic of 18.65 and probability value of .0000 demonstrate the model's overall statistical significance. This suggests that substantial diversity in financial development can be explained by the explanatory variables taken together. The model explains around 43.73% of the within-country variation in financial development, according to the within R-square value of .4373. At the 1 percent level, the worker remittance coefficient is statistically significant and positive (B = 1.608, p <.001). This finding suggests that, when all other factors are held constant, a rise in worker remittances is linked to an increase in financial development. By boosting bank deposits, savings, liquidity, and the usage of formal financial services, remittance inflows may aid in the growth of financial institutions and credit markets, according to the positive coefficient. This result is in line with the literature on remittance finance, which contends that when remittances are made via official financial channels and taken up by the banking system, they can promote financial development. (Giuliano & Ruiz-Arranz, 2009). It is also consistent with the broader finance-growth view that financial systems support development by mobilizing savings, allocating credit, and improving the efficiency of investment (King & Levine, 1993; Levine, 2005).

The positive and significant coefficient of workers' remittances confirms the first stage of the mediation mechanism. In other words, the result provides empirical support for the pathway from workers' remittances to financial development. This means that remittance inflows do not only function as household income; they may also contribute to the formal financial system when recipients use banks, savings accounts, credit markets, and other financial services. In the context of South Asian economies, where remittances represent an important external source of finance, this result is particularly meaningful because it shows that remittances can help deepen the financial sector.

Journal of Business Insight and Innovation
Volume 5 Issue 10, 2026
ISSN-p: 3006-2284, ISSN-e: 3006-0982
https://insightfuljournals.com/

At the 1 percent level, the literacy coefficient is likewise positive and statistically significant (B = 0.766, p <.001). This finding suggests that greater financial development is linked to higher literacy. Because literate people are more likely to comprehend financial information, access banking services, save formally, and make better investment decisions, the study implies that human capital is crucial for enhancing the usage of financial services. This result is consistent with human capital theory, which argues that education, knowledge, and skills improve productivity and economic decision-making (Becker, 1964; Lucas, 1988). Therefore, literacy strengthens the economic environment in which remittances can be used more productively.

Gross fixed capital formation has a negative but statistically insignificant coefficient (B = -0.085, p = .276). This means that, in the mediation equation, capital formation does not have a statistically strong effect on financial development. Although investment is theoretically expected to increase demand for financial services, the insignificant result suggests that the effect is not strong enough in this sample after controlling for country-specific effects and other macroeconomic variables.

Additionally, the coefficient for inflation is negative and statistically insignificant (B = -0.011, p =.921). The negative sign is in line with the hypothesis that inflation could impede financial development by lowering purchasing power, deterring saves, and generating uncertainty. However, in this fixed effects mediation model, the negligible p-value indicates that inflation has no statistically significant impact on financial progress. The coefficient for foreign direct investment is positive but not statistically significant (B = 0.963, p =.140). Through capital inflows, corporate expansion, and the demand for financial services, the positive sign implies that FDI may be linked to gains in financial development. The effect is not statistically supported in the current mediation equation, though, as indicated by the negligible result. Similar to this, trade openness exhibits a positive but statistically insignificant coefficient (B = 0.019, p =.793), indicating that there is little direct correlation between trade integration and financial development in this model. The exchange rate coefficient is positive but statistically insignificant (B = 0.010, p = .602). This indicates that exchange rate movements do not have a statistically significant effect on financial development in the mediation equation. Although exchange rate changes may influence the domestic value of remittance inflows, import costs, and financial confidence, the results do not provide sufficient evidence that exchange rate variations directly explain financial development in the selected South Asian economies.

All things considered, the mediation equation offers compelling proof that worker remittances significantly and favourably impact financial development. This validates the relationship between remittances and the mediating variable, which is the first path of the mediation structure. The outcome implies that by boosting financial activity, promoting the use of official banking channels, and enhancing the availability of funds in the financial system, remittance inflows can support the growth of the financial sector. However, this result should be interpreted carefully. The mediation equation confirms only the first stage of mediation. To establish complete mediation, the main growth equation must also show whether financial development has a significant effect on economic growth after controlling for workers' remittances and other macroeconomic variables (Baron & Kenny, 1986; Hayes, 2018). Financial development has a negative but statistically insignificant impact in the primary growth model. Therefore, the evidence supports the remittances-to-financial-development pathway, but it does not provide strong evidence that financial development fully transmits the effect of remittances to GDP growth in the selected South Asian economies.

This finding is important for the thesis because it shows that remittances can improve financial development, but the financial sector may not yet be sufficiently efficient, inclusive, or productive to convert this improvement into higher GDP growth. In other words, the first stage of mediation is supported, while the full mediating role of financial development is not strongly supported by the main growth equation. The stronger empirical evidence in this study is found for the moderating role of human capital, as the interaction between remittances and literacy is positive and significant in the main growth model.

5.5 Integrated Discussion of Main and Mediation Results

The remittance-growth relationship in South Asia is better understood when the primary growth equation and the mediation equation are interpreted together. Remittances from workers have a positive but

Journal of Business Insight and Innovation
Volume 5 Issue 10, 2026
ISSN-p: 3006-2284, ISSN-e: 3006-0982
https://insightfuljournals.com/

negligible direct impact on GDP growth, according to the main random effects model. This implies that remittances might not be enough on their own to produce significant effects on aggregate growth. Nonetheless, the mediation equation demonstrates that worker remittances significantly and favourably impact financial progress. This indicates that even if the financial development variable in the final growth equation does not exhibit a statistically significant direct effect on GDP growth, remittances nonetheless contribute to the financial system. The facilitated moderation concept is thus partially supported by the findings. The first stage of mediation is supported because remittances significantly improve financial development. However, complete mediation through financial development is not strongly supported because financial development is insignificant in the GDP growth equation. This implies that the financial system in the selected South Asian economies may receive benefits from remittance inflows, but these benefits may not automatically translate into higher growth unless financial institutions allocate remittance-based liquidity toward productive credit, entrepreneurship, and investment. The most compelling evidence relates to human capital's moderating function. Human capital enhances the growth benefit of remittances, as seen by the positive and strong connection between workers' remittances and literacy. Simultaneously, the mediation equation demonstrates that financial development is positively and significantly impacted by literacy. When combined, these results imply that literacy and education enhance both involvement in formal financial institutions and the efficient use of remittances. Therefore, a crucial prerequisite for remittances to become more growth-enhancing is human capital. The results suggest that South Asian economies shouldn't rely solely on the amount of remittance inflows from a policy standpoint. Policies should instead concentrate on enhancing the channels via which remittances are utilized. This includes strengthening formal banking channels, improving financial inclusion, expanding access to credit for small businesses, and increasing literacy and financial awareness among remittance-receiving households. If remittances are used mainly for consumption, their direct growth effect may remain weak. However, if they are combined with human capital development and efficient financial intermediation, their contribution to long-run economic growth can become stronger.

6. Conclusion and Policy Recommendations

This study aimed to investigate the mediated moderating effect of worker remittances on economic growth in a subset of South Asian economies. This analysis was undertaken on the basis of the panel data of seven countries of South Asia for a period of 26 years from 2000 to 2025. The main growth model was run with economic growth as the dependent variable and workers' remittances as the main explanatory variable. Human capital, as determined by the literacy rate, was examined as the moderator between the other variables, and financial development was examined as the mediator. To reflect the wider macroeconomic environment, gross fixed capital formation, inflation, foreign direct investment, trade openness and exchange rate were used as control variables.

It was found that there were significant differences across the selected South Asian countries regarding economic growth, remittances receipts, financial development, literacy, trade openness, FDI inflows, inflation, exchange rate and capital formation. This variation is an additional evidence of the appropriateness of using panel data analysis as the data includes both country and time variations. The unit root test was mixed stationary among the variables and variance inflation factor test did not reveal serious multicollinearity between variables in the final growth model after mean centering workers' remittances and literacy before forming the interaction term. The random effects model is the appropriate estimating technique, according to the Hausman specification test for the primary growth model. Remittances from employees had a positive but statistically negligible direct impact on GDP growth, according to the final random effects calculations. This implies that remittances can have a favorable effect on economic growth even when the direct effect of remittances was not statistically significant in the absence of other macroeconomic factors. This suggests unequivocally that remittances do not always result in economic growth unless they are made productive and available for financing, investment possibilities, and the development of human capital.

Financial development had a negative but not statistically significant effect on economic growth in the main model. Because the results are not statistically significant, they cannot be considered conclusive evidence that financial development impedes growth. Instead, during the study period, there was no clear and

Journal of Business Insight and Innovation
Volume 5 Issue 10, 2026
ISSN-p: 3006-2284, ISSN-e: 3006-0982
https://insightfuljournals.com/

persistent positive association between financial development and economic growth in the economies of the selected South Asian countries. Weaknesses in the financial sector, unequal access to credit, inefficient use of financial resources, a lack of financial inclusion, and/or the use of loans for consumption rather than profitable investments could all be contributing factors. The literacy rate was also a negative but not statistically significant direct effect on GDP growth; that is, human capital was not measured. This finding does not impugn the significance of human capital, since literacy is a basic measure that could not necessarily represent education quality, technical skills, labor productivity or employment absorption. Therefore, measurement and structural limitations in the South Asian labor market may be the cause of literacy's negligible direct impact. The role of human capital in growth may be stronger in combination with other economic determinants like remittances, financial development, entrepreneurship and productive investment.

The positive and statistically significant relationship between workers' remittances and human capital was the main growth model's most noteworthy discovery. This result is consistent with the moderating role of human capital in the link between growth and remittances. It implies that the contribution of remittances to economic growth is positively correlated with higher levels of education and human capital. Higher educated and conscious households that receive remittances are more likely to save, invest, educate, start a business, and use their money for other worthwhile projects. Hence, human capital enhances the potential of remittance-receiving economies to redirect the remittance inflows into growth-enhancing activities.

GDP growth is positively and significantly impacted by gross fixed capital formation, as the investigation also showed. This emphasises how important domestic investments and capital accumulation are to the process of economic development. Investing in buildings, machinery, infrastructure, equipment, and other productive assets boosts the economy's potential for production and contributes to the creation of jobs. Similar to GDP growth, foreign direct investment was also found to have a positive and statistically significant impact on economic growth. This suggests that foreign capital inflows can have a positive impact on economic growth by promoting managerial skills, technology transfer, job creation, and productivity enhancement.

Economic growth was negatively and significantly related to trade openness. While trade openness is generally believed to foster growth via market access, competition, specialization and technology transfer, it is possible to understand the negative result in the light of the nature of the South Asian economies. Increased trade openness can lead to trade deficits, dependence on foreign trade, and foreign exchange pressure if imports are greater than exports or if domestic industries are relatively weak and less competitive. Hence, the gains to be reaped from trade openness are reliant on export competitiveness, value addition, industrial capacity and trade policy effectiveness.

There was a negative but statistically-unimportant effect of inflation and exchange rate on GDP growth. All the minus signs suggest that macroeconomic instability can affect growth by reducing the purchasing power, so avoiding investment, raising production costs and causing uncertainty. The study does not however make any strong assertion of the independent impact of inflation or exchange rate on the growth of GDP, as both these variables were statistically insignificant. Rather, these variables are still relevant controls since they are indicators of the macroeconomic stability and external-sector conditions of the remittance-growth nexus.

The financial development equation was estimated separately with financial development as the dependent variable. The fixed effects model was supported by the Hausman test for the mediation equation. Remittances from employees had a favourable and statistically significant impact on financial development, according to the fixed effects results. This result confirms that this is the initial stage of the mediation process. It implies that financial growth is positively impacted by remittance inflows, as seen by the financialisation of specific activities including bank deposits, savings, liquidity, and credit market operations. The positive and statistically significant influence of literacy on financial development indicates that human capital contributes to financial awareness, which in turn enhances the usage of banking and financial services.

The overall findings support partially the mediated moderation model. The direct effect of workers' remittances on economic growth was favorable albeit not statistically significant, but the remittance-human

Journal of Business Insight and Innovation
Volume 5 Issue 10, 2026
ISSN-p: 3006-2284, ISSN-e: 3006-0982
https://insightfuljournals.com/

capital interaction was positive and significant. In the mediation model, remittances have significant positive effects on financial development, while the latter did not have any significant direct effect on GDP growth. Based on this analysis, it can be concluded that the expansion of remittances has consequences for South Asian economies, but those implications rely on complementing elements including human capital development, productive investment, effective financial intermediation and macroeconomic stability.

The study's conclusion is that workers' remittances shouldn't be the only source of income or consumption for households. They should be viewed as a possible developmental resource that, with proper policies, can facilitate growth of the financial sector, investments, entrepreneurship and long-term growth of the sector. South Asian economies could benefit more from remittances by enhancing human capital, increasing financial inclusion, lowering the cost of remittance transfer, encouraging savings and investment products for migrants, and directing remittance inflows towards productive sectors.

Ethical Approval

This study is based entirely on secondary data obtained from published sources, including peer-reviewed journals, industry reports, and regulatory documents. No human participants were involved in the research. Therefore, formal Institutional Review Board (IRB) approval was not required. However, all ethical considerations were strictly followed, including proper citation of sources and adherence to academic integrity.

Authors' Contributions

All the authors have read and approved the final manuscript.

Conflict of Interest Statement

The author/s declare that there is no conflict of interest regarding the publication of this article.

Funding Statement

The author/s did not receive financial support from any funding agency or external organization for the research, authorship, or publication of this article.

Data Availability

The datasets generated and analysed during the current study are available from the corresponding author upon reasonable request. The authors are committed to transparency and will provide detailed methodological information and analysis protocols upon request.

References

Acosta, P. A., Lartey, E. K. K., & Mandelman, F. S. (2009). Remittances and the Dutch disease. *Journal of International Economics, 79*(1), 102-116. https://doi.org/10.1016/j.jinteco.2009.06.007

Adams, R. H., Jr., & Page, J. (2005). Do international migration and remittances reduce poverty in developing countries? *World Development, 33*(10), 1645-1669. https://doi.org/10.1016/j.worlddev.2005.05.004

Aggarwal, R., Demirguc-Kunt, A., & Martinez Peria, M. S. (2011). Do remittances promote financial development? *Journal of Development Economics, 96*(2), 255-264. https://doi.org/10.1016/j.jdeveco.2010.10.005

Aghion, P., Bacchetta, P., Ranciere, R., & Rogoff, K. (2009). Exchange rate volatility and productivity growth: The role of financial development. *Journal of Monetary Economics, 56*(4), 494-513. https://doi.org/10.1016/j.jmoneco.2009.03.015

Aiken, L. S., & West, S. G. (1991). *Multiple regression: Testing and interpreting interactions*. Sage.

Alfaro, L., Chanda, A., Kalemli-Ozcan, S., & Sayek, S. (2004). FDI and economic growth: The role of local financial markets. *Journal of International Economics, 64*(1), 89-112. https://doi.org/10.1016/S0022-1996(03)00081-3

Arcand, J. L., Berkes, E., & Panizza, U. (2015). Too much finance? *Journal of Economic Growth, 20*(2), 105-148. https://doi.org/10.1007/s10887-015-9115-2

Baltagi, B. H. (2005). *Econometric analysis of panel data* (3rd ed.). John Wiley & Sons.

Barajas, A., Chami, R., Fullenkamp, C., Gapen, M., & Montiel, P. (2009). *Do workers' remittances promote economic growth?* IMF Working Paper No. 09/153. International Monetary Fund.

Journal of Business Insight and Innovation
Volume 5 Issue 10, 2026
ISSN-p: 3006-2284, ISSN-e: 3006-0982
https://insightfuljournals.com/

Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51*(6), 1173-1182. https://doi.org/10.1037/0022-3514.51.6.1173

Barro, R. J. (1991). Economic growth in a cross section of countries. *The Quarterly Journal of Economics, 106*(2), 407-443. https://doi.org/10.2307/2937943

Barro, R. J. (1995). Inflation and economic growth. *Bank of England Quarterly Bulletin, 35*(2), 166-176.

Beck, T., Levine, R., & Loayza, N. (2000). Finance and the sources of growth. *Journal of Financial Economics, 58*(1-2), 261-300. https://doi.org/10.1016/S0304-405X(00)00072-6

Becker, G. S. (1964). *Human capital: A theoretical and empirical analysis, with special reference to education*. University of Chicago Press.

Benhabib, J., & Spiegel, M. M. (1994). The role of human capital in economic development: Evidence from aggregate cross-country data. *Journal of Monetary Economics, 34*(2), 143-173. https://doi.org/10.1016/0304-3932(94)90047-7

Bettin, G., & Zazzaro, A. (2012). Remittances and financial development: Substitutes or complements in economic growth? *Bulletin of Economic Research, 64*(4), 509-536. https://doi.org/10.1111/j.1467-8586.2011.00398.x

Borensztein, E., De Gregorio, J., & Lee, J. W. (1998). How does foreign direct investment affect economic growth? *Journal of International Economics, 45*(1), 115-135. https://doi.org/10.1016/S0022-1996(97)00033-0

Brambor, T., Clark, W. R., & Golder, M. (2006). Understanding interaction models: Improving empirical analyses. *Political Analysis, 14*(1), 63-82. https://doi.org/10.1093/pan/mpi014

Brida, J. G., Cortes-Jimenez, I., & Pulina, M. (2013). The role of physical and human capital in tourism and economic growth: A dynamic model. *Tourism Economics, 19*(5), 1021-1039. https://doi.org/10.5367/te.2013.0237

Catrinescu, N., Leon-Ledesma, M., Piracha, M., & Quillin, B. (2009). Remittances, institutions, and economic growth. *World Development, 37*(1), 81-92. https://doi.org/10.1016/j.worlddev.2008.02.004

Chami, R., Fullenkamp, C., & Jahjah, S. (2005). Are immigrant remittance flows a source of capital for development? *IMF Staff Papers, 52*(1), 55-81.

Choi, I. (2001). Unit root tests for panel data. *Journal of International Money and Finance, 20*(2), 249-272. https://doi.org/10.1016/S0261-5606(00)00048-6

Cohen, J., Cohen, P., West, S. G., & Aiken, L. S. (2003). *Applied multiple regression/correlation analysis for the behavioral sciences* (3rd ed.). Lawrence Erlbaum Associates.

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

Demetriades, P. O., & Hussein, K. A. (1996). Does financial development cause economic growth? *Time-series evidence from 16 countries. Journal of Development Economics, 51*(2), 387-411. https://doi.org/10.1016/S0304-3878(96)00421-X

Dollar, D., & Kraay, A. (2004). Trade, growth, and poverty. *The Economic Journal, 114*(493), F22-F49. https://doi.org/10.1111/j.0013-0133.2004.00186.x

Fayissa, B., & Nsiah, C. (2010). The impact of remittances on economic growth and development in Africa. *The American Economist, 55*(2), 92-103. https://doi.org/10.1177/056943451005500210

Fischer, S. (1993). The role of macroeconomic factors in growth. *Journal of Monetary Economics, 32*(3), 485-512. https://doi.org/10.1016/0304-3932(93)90027-D

Frankel, J. A., & Romer, D. H. (1999). Does trade cause growth? *American Economic Review, 89*(3), 379-399. https://doi.org/10.1257/aer.89.3.379

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

Gujarati, D. N., & Porter, D. C. (2009). *Basic econometrics* (5th ed.). McGraw-Hill.

Journal of Business Insight and Innovation
Volume 5 Issue 10, 2026
ISSN-p: 3006-2284, ISSN-e: 3006-0982
https://insightfuljournals.com/

Guo, Q., Chen, J., Xiao, H., & Mouneer, S. (2022). Foreign inflows, commercial law, and dutch disease: Evidence from developing economies. *Frontiers in Environmental Science, 10*, Article 945453. https://doi.org/10.3389/fenvs.2022.945453 (Retracted article)

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate data analysis* (7th ed.). Pearson.

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2019). *Multivariate data analysis* (8th ed.). Cengage.

Hamal, J. B., Sharma, D. R., Aryal, N. P., & Maharjan, P. N. (2025). Remittances and economic growth: Empirical insights from a panel of SAARC countries. *The International Research Journal of Management Science, 10*(1), 265-276. https://doi.org/10.3126/irjms.v10i1.87312

Hausman, J. A. (1978). Specification tests in econometrics. *Econometrica, 46*(6), 1251-1271. https://doi.org/10.2307/1913827

Hayes, A. F. (2018). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach* (2nd ed.). Guilford Press.

Hien, N. P., Hong Vinh, C. T., Phuong Mai, V. T., & Kim Xuyen, L. T. (2020). Remittances, real exchange rate and the Dutch disease in Asian developing countries. *The Quarterly Review of Economics and Finance, 77*, 131-143. https://doi.org/10.1016/j.qref.2019.10.006

Hsiao, C. (2003). *Analysis of panel data* (2nd ed.). Cambridge University Press.

Islam, S. B., & Mondal, L. (2023). *An empirical analysis on remittances and financial development in Latin American countries*. arXiv. https://arxiv.org/abs/2309.08855

Jawaid, S. T., & Raza, S. A. (2012). Workers' remittances and economic growth in China and Korea: An empirical analysis. *Journal of Chinese Economic and Foreign Trade Studies, 5*(3), 185-193. https://doi.org/10.1108/17544401211263946

Jongwanich, J. (2007). *Workers' remittances, economic growth and poverty in developing Asia and the Pacific countries.* United Nations Economic and Social Commission for Asia and the Pacific Working Paper WP/07/01.

Kim, D. H., Lin, S. C., & Suen, Y. B. (2011). Nonlinearity between trade openness and economic development. *Review of Development Economics, 15*(2), 279-292. https://doi.org/10.1111/j.1467-9361.2011.00608.x

King, R. G., & Levine, R. (1993). Finance and growth: Schumpeter might be right. *The Quarterly Journal of Economics, 108*(3), 717-737. https://doi.org/10.2307/2118406

Krueger, A. B., & Lindahl, M. (2001). Education for growth: Why and for whom? *Journal of Economic Literature, 39*(4), 1101-1136. https://doi.org/10.1257/jel.39.4.1101

Lartey, E. K. K., Mandelman, F. S., & Acosta, P. A. (2012). Remittances, exchange rate regimes and the Dutch disease: A panel data analysis. *Review of International Economics, 20*(2), 377-395. https://doi.org/10.1111/j.1467-9396.2012.01028.x

Levine, R. (1997). Financial development and economic growth: Views and agenda. *Journal of Economic Literature, 35*(2), 688-726.

Levine, R. (2005). Finance and growth: Theory and evidence. In P. Aghion & S. N. Durlauf (Eds.), *Handbook of economic growth* (Vol. 1A, pp. 865-934). Elsevier. https://doi.org/10.1016/S1574-0684(05)01012-9

Levine, R., Loayza, N., & Beck, T. (2000). Financial intermediation and growth: Causality and causes. *Journal of Monetary Economics, 46*(1), 31-77. https://doi.org/10.1016/S0304-3932(00)00017-9

Lucas, R. E. (1988). On the mechanics of economic development. *Journal of Monetary Economics, 22*(1), 3-42. https://doi.org/10.1016/0304-3932(88)90168-7

Lucas, R. E. B., & Stark, O. (1985). Motivations to remit: Evidence from Botswana. *Journal of Political Economy, 93*(5), 901-918.

Maddala, G. S., & Wu, S. (1999). A comparative study of unit root tests with panel data and a new simple test. *Oxford Bulletin of Economics and Statistics, 61*(S1), 631-652. https://doi.org/10.1111/1468-0084.0610s1631

Journal of Business Insight and Innovation
Volume 5 Issue 10, 2026
ISSN-p: 3006-2284, ISSN-e: 3006-0982
https://insightfuljournals.com/

Mankiw, N. G., Romer, D., & Weil, D. N. (1992). A contribution to the empirics of economic growth. *The Quarterly Journal of Economics, 107*(2), 407-437. https://doi.org/10.2307/2118477

Meyer, D., & Shera, A. (2017). The impact of remittances on economic growth: An econometric model. *EconomiA, 18*(2), 147-155. https://doi.org/10.1016/j.econ.2016.06.001

Mundaca, B. G. (2009). Remittances, financial market development, and economic growth: The case of Latin America and the Caribbean. *Review of Development Economics, 13*(2), 288-303. https://doi.org/10.1111/j.1467-9361.2008.00487.x

O'Brien, R. M. (2007). A caution regarding rules of thumb for variance inflation factors. *Quality & Quantity, 41*(5), 673-690. https://doi.org/10.1007/s11135-006-9018-6

Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods, 40*(3), 879-891. https://doi.org/10.3758/BRM.40.3.879

Pritchett, L. (2001). Where has all the education gone? *The World Bank Economic Review, 15*(3), 367-391. https://doi.org/10.1093/wber/15.3.367

Rajan, R. G., & Subramanian, A. (2011). Aid, Dutch disease, and manufacturing growth. *Journal of Development Economics, 94*(1), 106-118. https://doi.org/10.1016/j.jdeveco.2009.12.004

Rao, B. B., & Hassan, G. M. (2011). A panel data analysis of the growth effects of remittances. *Economic Modelling, 28*(1-2), 701-709. https://doi.org/10.1016/j.econmod.2010.05.011

Ratha, D. (2003). Workers' remittances: An important and stable source of external development finance. In *Global development finance 2003* (pp. 157-175). World Bank.

Rodrik, D. (2008). The real exchange rate and economic growth. *Brookings Papers on Economic Activity, 2008*(2), 365-412. https://doi.org/10.1353/eca.0.0020

Romer, P. M. (1990). Endogenous technological change. *Journal of Political Economy, 98*(5, Part 2), S71-S102. https://doi.org/10.1086/261725

Russell, S. S. (1992). Migrant remittances and development. *International Migration, 30*(3-4), 267-287.

Schumpeter, J. A. (1934). *The theory of economic development*. Harvard University Press.

Siddique, A., Selvanathan, E. A., & Selvanathan, S. (2012). Remittances and economic growth: Empirical evidence from Bangladesh, India and Sri Lanka. *Journal of Development Studies, 48*(8), 1045-1062. https://doi.org/10.1080/00220388.2012.663904

Solow, R. M. (1956). A contribution to the theory of economic growth. *The Quarterly Journal of Economics, 70*(1), 65-94. https://doi.org/10.2307/1884513

Stark, O., & Bloom, D. E. (1985). The new economics of labor migration. *The American Economic Review, 75*(2), 173-178.

Su, Y., & Liu, Z. (2016). The impact of foreign direct investment and human capital on economic growth: Evidence from Chinese cities. *China Economic Review, 37*, 97-109. https://doi.org/10.1016/j.chieco.2015.12.007

Wooldridge, J. M. (2010). *Econometric analysis of cross section and panel data* (2nd ed.). MIT Press.

World Bank. (2026). *World Development Indicators*. World Bank DataBank. Retrieved May 10, 2026, from https://databank.worldbank.org/source/world-development-indicators

Xu, Y., & Li, A. (2020). The relationship between innovative human capital and interprovincial economic growth based on panel data model and spatial econometrics. *Journal of Computational and Applied Mathematics, 365*, Article 112381. https://doi.org/10.1016/j.cam.2019.112381

Zahonogo, P. (2016). Trade and economic growth in developing countries: Evidence from sub-Saharan Africa. *Journal of African Trade, 3*(1-2), 41-56. https://doi.org/10.1016/j.joat.2017.02.001