

FOREIGN REMITTANCES AND INCLUSIVE GROWTH: A DYNAMIC PANEL DATA ANALYSIS USING GMM FOR SELECTED SOUTH ASIAN ECONOMIES

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Abstract

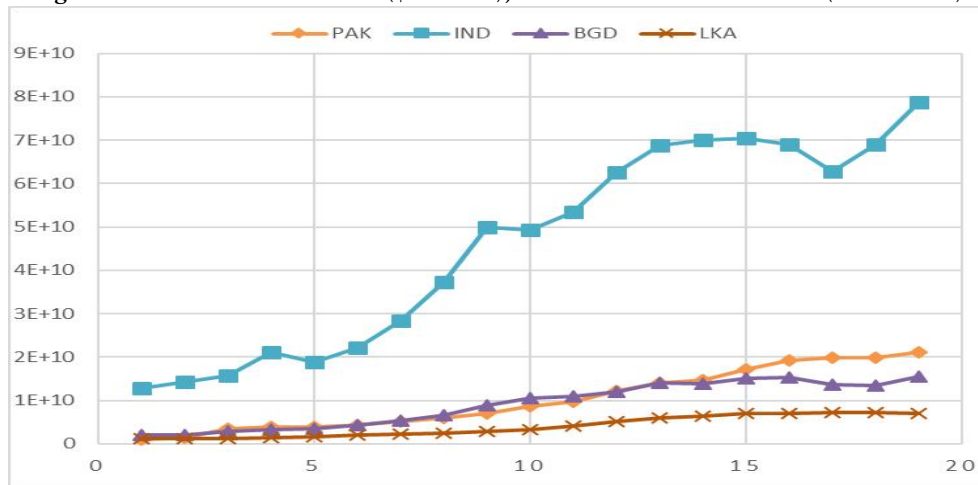
Remittances from abroad represent a central channel of exogenous financial flows to developing countries, often outpacing foreign direct investment. Despite its macroeconomic relevance, economic growth tends to reflect asymmetric patterns of distribution, making an analytical shift towards the concept of inclusive growth imperative. This research carefully assesses the role of foreign remittances in inclusive economic growth in four South Asian economies—Pakistan, Bangladesh, Sri Lanka, and India—over the period 1990-2019. Using a sound econometric model, the study combines Generalized Method of Moments (GMM) estimation, a method carefully crafted to eliminate endogeneity bias, heteroskedasticity, and omitted variable biases characteristic of panel data analysis. With the help of dynamic panel estimators, the study separates the causal channels through which remittances increase per capita income and the elasticity of employment, thus empirically validating the status of remittances as drivers of inclusive economic growth. The empirical estimates reveal the contradictory characteristics of remittances in terms of the ability to contribute to macroeconomic stability while subjecting recipient economies to exogenous volatility and distorting labor markets. This study strengthens existing academic literature by providing methodologically sound evidence on remittances as a cornerstone of sustainable and equitable economic growth. Future research should combine nonlinear modeling and structural equation methods to enhance the analytical detail of remittance-growth relationships.

INTRODUCTION

Economic growth is a primary marker of development but its dividends frequently fall unfairly among the populace, leading to nagging problems including unemployment, disparities in incomes, and poverty (Asian Development Bank, 2010).

Remittances, defined as financial transfers from migrants to their countries of origin, play a crucial role in economic stability and development (World Bank, 2019).

Fig 1: Remittance received in (\$billions), source World Bank Data (1990-2019)



These financial inflows contribute to economic expansion by augmenting household income, increasing consumption levels, and facilitating investments in education, healthcare, and entrepreneurial ventures (Adams & Page, 2005). Nevertheless, the extent to which remittances contribute to inclusive growth remains an area of academic debate.

Empirical research reflects both positive and conflicting views of the role played by remittances in promoting economic growth. Cooray (2012) claims that remittances have a large impact on economic growth, especially when combined with high levels of education and the development of financial institutions. Adams and Page (2005) argue that remittances alleviate poverty and income inequality through increasing financial security among poor households. On the other hand, Chami et al., (2003) advise that remittances could trigger a moral hazard problem, in which receiving households cut down their labor effort, thereby hampering long-term economic growth.

This study seeks to investigate the relationship between foreign remittances and inclusive growth in

selected South Asian economies—Pakistan, Bangladesh, Sri Lanka, and India—over the period 1990 to 2019. Employing the Generalized Method of Moments (GMM) estimation, this research aims to determine whether remittances contribute significantly to inclusive growth and employment creation, thereby fostering economic inclusivity. By addressing this research inquiry, the study enriches the existing body of literature by offering empirical insights into the role of remittances as a catalyst for sustainable and inclusive economic development in South Asia.

1. Methodology

Inclusive growth refers to sustained economic expansion accompanied by poverty eradication, income equality reduction, and employment generation (Anand et al., 2013; Ramos et al., 2013). Remittances enter a country through formal channels such as public and private banks, and informal channels including hand delivery, Hundi, and Hawala systems (Anaya, 2008; Suleri & Savage, 2006). While formal channels are regulated, informal transfers often evade financial tracking, making it challenging to quantify remittance inflows precisely.

Figure 2: The channel through which the amount of remittances is received by a home country.

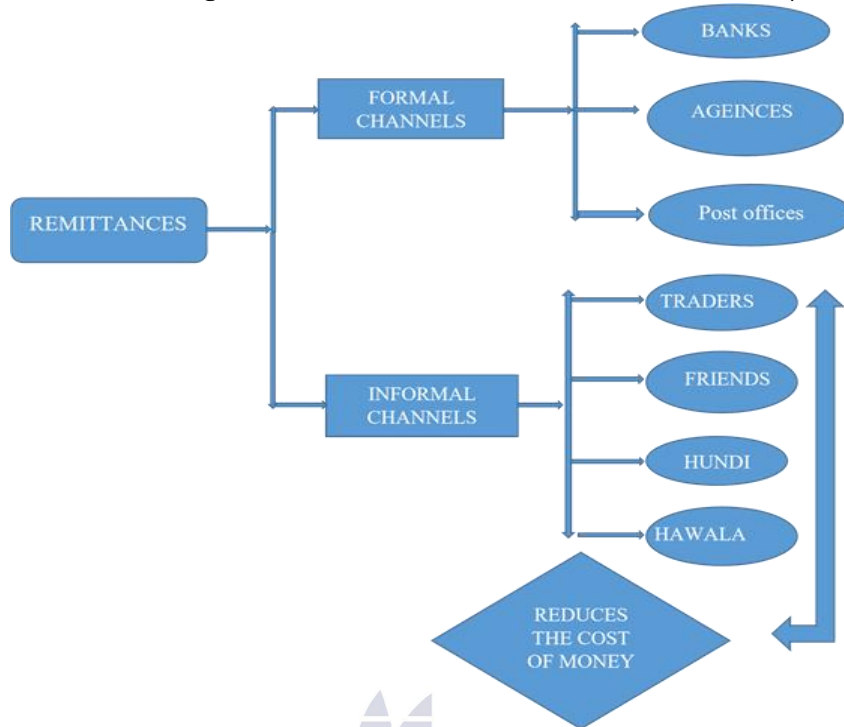
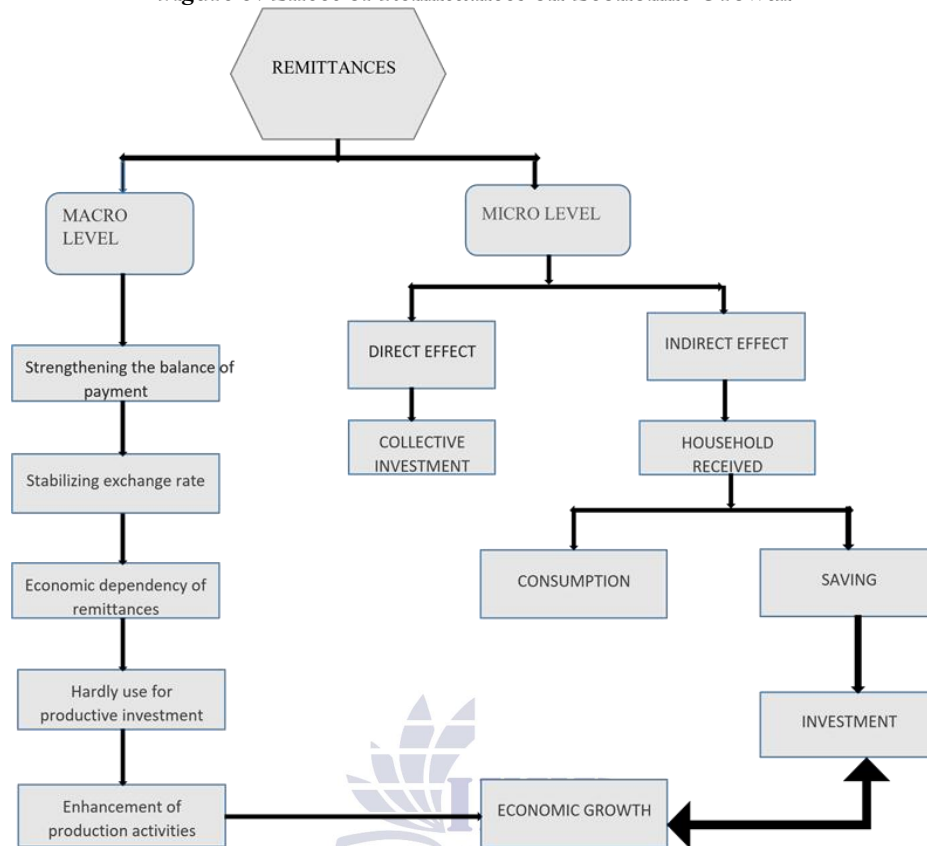


Figure 3: Effect of Remittances on Economic Growth



Remittances will be received by a household with a high marginal propensity to consume and simply may not be directed in significant quantities toward investment. They prefer consumption rather than investment even in the presence of credit constraints (Meyer *et al.*, 2017). Emigration and remittances reduce poverty in the origin communities. Remittances lead to increased investments in health, education, and small businesses. At the same time, the loss of skills associated with emigration can hamper the development and delivery of basic services in sending countries (Coppel *et al.*, 2001).

In conclusion, remittances through investment and consumption can achieve inclusive growth in two different ways. Firstly, it promotes inclusive growth by accelerating economic growth that is essential to reduce poverty by creating decent employment opportunities. Secondly, it led to inclusive growth by reducing poverty through the creation of productive employment. As the creation of employment along with sustained and long-run

economic growth are important indicators of inclusive growth.

Theoretical Framework and Model Specification

Inclusive growth encompasses sustained economic expansion alongside poverty reduction, employment generation, and equitable distribution of wealth (Anand *et al.*, 2013; Ramos *et al.*, 2013). While economic growth is a fundamental driver, inclusive growth emphasizes participation across all demographic segments. This section develops a comprehensive framework to integrate economic growth with key determinants of inclusivity.

Economic growth is influenced by multiple factors. Traditional economic models identify key variables that contribute to growth. To establish a theoretical foundation, this study adopts the neoclassical growth model of Solow (1956), which presents an aggregate growth function:

$$Y_{it} = A_t f(K_t, L_t) \quad (3.1)$$

In a Cobb-Douglas production function framework, this can be rewritten as:

$$Y_{it} = A_t F(K_t)^\alpha, (L_t)^\beta \quad (3.2)$$

Building on the endogenous growth theory, Romer (1986) and Lucas (1988) argue that human capital, rather than physical capital alone, plays a crucial role in long-term economic growth. The modified model incorporating human capital (H) is:

$$Y_{it} = A_t(t, h) F(K_{it})^\alpha, (L_{it})^\beta (H_{it})^\gamma \quad (3.3)$$

Further, Romer (1990) and Grossman & Helpman (1991) highlight that research and development (R&D) and trade openness enhance technological progress, leading to:

$$Y_{it} = A_t(t, h, r) F(K_{it})^\alpha, (L_{it})^\beta, (H_{it})^\gamma \quad (3.4)$$

$$Y_{it} = A_t(t, h, r, t) F(K_{it})^\alpha (L_{it})^\beta, (H_{it})^\gamma \quad (3.5)$$

Since foreign remittances also influence economic growth, this study extends the model to include remittance inflows:

$$Y_{it} = A_t(t, h, r, fr) F(K_{it})^\alpha (L_{it})^\beta, (H_{it})^\gamma$$

Where fr denotes foreign remittances.

For empirical estimation, the logarithmic transformation of equation (3.6) yields:

$$\log Y_{it} = \log A_t + \alpha \log K_{it} + \beta \log L_{it} + \gamma \log H_{it} + \varphi X_{it} + \log e_{it} \quad (3.7)$$

$$Y_{it} = \alpha_0 + \alpha_{kit} + \beta_{lit} + \varphi_{1xit} + e_{it}$$

Where Y_{it} , α_0 , kit , xit , and e_{it} are the logs of Y_{it} , α_0 , kit , xit , and e_{it} respectively.

5. Empirical Model Specification

To examine the impact of remittances on inclusive growth, we define the following models:

1. Economic Growth Model

$$Y_{it} = \alpha + \beta REM + \varphi xit + e_{it} \quad 3.9$$

Where Y_{it} represents GDP per capita, the primary component of inclusive growth, denotes foreign remittances, and includes Gross Fixed Capital Formation, Foreign Direct Investment, Exports, and Exchange Rate.

2. Employment Model

$$E_{it} = \alpha + \beta REM + \varphi xit + e_{it} \quad (3.10)$$

Where E_{it} is employment generation, another key determinant of inclusive growth.

3. Inclusive Growth Index Model

$$IG_{it} = \alpha + \beta REM + \varphi xit + e_{it} \quad (3.11)$$

Where IG_{it} represents an index incorporating both economic growth and employment indicators.

6. Estimation Strategy and Data

The study conducts panel data analysis on four South Asian countries (India, Pakistan, Sri Lanka,

and Bangladesh) from 1990-2019 using data derived from World Development Indicators. In order to reduce endogeneity, the Generalized Method of Moments (GMM) is employed through replication of the research study of Narcisse et al. (2020) and Zghidi et al. (2016). Hansen and Sargan tests confirm instruments for appropriate values to get precise estimations (Blundell & Bond, 1998; Kamran et al., 2020).

The GMM approach solves the problem of endogeneity in a cyclical manner by employing lagged levels of explanatory variables as internal instruments to enhance the robustness of the estimates (Bond et al., 2001). Incorporating the employment and remittance channels provides additional accuracy in the measurement of remittances' contribution to inclusive growth.

This more refined empirical model permits a critical analysis of the way remittances drive inclusive growth both through economic growth and job creation, ensuring a thorough understanding of their contribution to South Asian economies.

3. Results and Discussion

3.1 Empirical Findings of Model I

Findings suggest that gross fixed capital formation, exports, remittances, and foreign direct investment have significant contributions to economic growth, whereas exchange rate volatility has a negative impact on GDP per capita growth (Sutradhar, 2020; Pradhan, 2016). Sargan test validates the quality of the instrumental variables, with no presence of autocorrelation.

The empirical findings indicate that basic determinants of economic growth such as gross fixed capital formation, exports, remittances, exchange rate, and FDI are statistically significant. Also, the instruments employed are valid and there is no autocorrelation. FDI impact of these countries is statistically insignificant. Results suggested that a 1% increase in foreign direct investment will lead to an increase by 0.380% in economic growth. A 1% increase in GFCF growth results in a 0.466% increase in GDP per capita growth. Export earnings are a prominent source of international currency inflow in emerging countries. Coefficient value implies that a 1% increase in export growth increases

GDP per capita growth by 0.349%. The exchange rate is very critical in terms of international trade, as it plays an important role to determine the value of domestic currency. A 1% increase in the growth of the exchange rate reduces economic growth by 0.047%.

Table 1: Empirical Findings of Model I

Variables	Coefficients	prob
REM	0.312	0.000
FDI	0.380	0.001
EXP	0.349	0.002
GFCF	0.466	0.000
EXCH	0.047	0.000
Model Details		
Number of observations	119	
Number of countries	4	
Sargan p-value	0.06	
AR 1 p-value	0.001	
AR 2 p-value	0.132	

3.2 Empirical Findings of Model II

Employment generation is positively influenced by GDP per capita, remittances, and capital formation, whereas exchange rate fluctuations exhibit an inverse relationship with employment (Winters, 2012; Fosu, 2010). The elasticity of employment with respect to GDP per capita underscores the role of economic expansion in labor market improvements.

Table 2: Empirical findings of Model II

Variables	Coefficients	Prob
GDP per capita	0.009	0.000
REM	0.031	0.003
FDI	0.26	0.000
EXP	0.058	0.000
GFCF	0.513	0.014
EXCH	-0.128	0.000

Model Details

Number of observations	119
Number of countries	4
Sargan p-value	0.06
AR1 p-value	0.001
AR 2 p-value	0.13

Empirical results of our second model show that GDP Per capita is positively associated with employment and other main explanatory variables such as have positive and significantly associated where the exchange rate is inversely related to employment. Our first explanatory variable GDP per capita is positively and significantly related to employment. As a one percent increase in GDP rises the employment to population ratio by .24 percent.

3.3 Empirical Findings of Model III

Inclusive growth, measured through economic expansion and employment generation, is significantly influenced by remittances, capital formation, and foreign direct investment (Hur, 2014; Ncube & Brixiova, 2013). The findings highlight remittances as a stabilizing force in recipient economies, reducing poverty and fostering equitable development (Shera & Meyer, 2013).

Table 3: Empirical findings of Model III

Variables	Coefficients	Prob
REM	0.170	0.000
FDI	0.062	0.003
EXP	0.033	0.000
GFCF	0.0642	0.000
EXCH	0.027	0.002
Model Details		
Number of observations	119	
Number of countries	4	
Sargan p-value	0.07	
AR 1 p-value	0.001	
AR 2 p-value	0.16	

In this model, the dependent variable is the inclusive growth index which consists of two components that

are economic growth and employment while foreign remittances, gross fixed capital formation, exports, exchange rate, and FDI is our explanatory variables. The explanatory variable is FDI which is positively and significantly related to inclusive growth. This shows that FDI promotes inclusive growth. Furthermore, gross fixed capital formation promotes inclusive growth. It has a positive and significant relationship with our dependent variable.

2. Conclusion and Policy Recommendations

The study underscores remittances as a crucial determinant of inclusive growth in South Asian economies. The key objective of the study is to analyze the impact of foreign remittances on inclusive growth in four selected South Asian countries. More specifically, the economies need such type of a growth process that creates more jobs to reduce poverty and income inequality. Our results show that remittances significantly and positively affect the degree of inclusiveness by enhancing Economic Growth and employment in developing countries. Remittances contribute to economic growth through saving and investment in a domestic country. Furthermore, it reduces income inequality by creating employment opportunities. Policies should encourage formal remittance channels to enhance financial inclusivity and maximize developmental benefits. Governments should implement investment-friendly policies to channel remittance inflows into productive sectors, thereby fostering sustainable economic growth and employment generation.

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