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A Note on the Long-Run Relationship between Growth and Remittances Using a Time Series Approach

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ABSTRACT

This paper employs one of the longest time series data sets (1977-2015) from Bangladesh, India, Pakistan and the Philippines to study the relationship between migrant remittances and economic growth. We uncover a long-run positive significant relationship between remittances and growth only in Bangladesh and India. There is also evidence of Granger causality for remittances and growth in Bangladesh, Pakistan and the Philippines.

Keywords: *Remittances, Economic Growth, Time Series*

JEL Classification: *O11, O47*

INTRODUCTION

Remittances are an important source of capital inflows, increasing ten-fold over the past decade, and accounting for nearly half of GDP in various small developing economies.[1] These transfers will reach millions of households by the next decade, and the weight of its associated multiplier effects cannot be overstated. These payments are stable and a less pro-cyclical source of capital flows. This massive remittance growth in developing nations prompts economists to investigate the short and long-run impact of these payments on economic development.[2]

Country-level studies depend on household data for determining the impact of remittances on a microeconomic level. The relatively small amount of macroeconomic/empirical literature on remittances focuses on poverty, growth, inequality and volatility. The role of remittances in stimulating economic growth is still a debate.[3]

Adams Jr. and Page (2005) argue the link between international migration and remittances has a strong and statistically significant impact on lowering poverty in developing countries.[4] Adams Jr. and Page determine international migration and remittances are endogenous to poverty so the variation in poverty levels between developing countries determines the relative share of migrant workers abroad and the level of international remittances returned home. Ziesemer (2010) shows remittances positively affecting the level and growth rate of GDP per capita, the savings rate and public expenditures.

This paper evaluates the long-run relationship and causality between remittances and economic growth from 1977 to 2015 among the four largest suppliers of migrant workers:

[1] World remittances rose from US$1.5 billion to US$325 billion from 1975 to 2008 (World Bank 2016).

[2] Migrant remittances account for more than 33% of total remittances channeled to developing nations. Remittances are the second largest source of external funding in Pakistan (Qayuum et. al. 2008, Siddiqui and Kamal 2002). Indian remittances passed US$54 billion in 2010. Philippine remittances are more than 10% of its GDP (Ang 2007). Bangladesh has remittances exceeding US$10 billion, which is more than 10% of GDP.

[3] Most empirical work argues remittances and economic growth are positively related in developing countries. See Batu (2017), Nyamongo et al. (2017), Lim and Basnet (2017), Roth and Tiberti (2016), Annen, Batu, Kosempel (2016), Mamun and Nath (2010). However, Basnet and Upadhyaya (2014) and Barajas et al. (2009) find a negative relationship.

[4] The number of Filipinos working abroad in 2009 exceeded 10% of its population. Bangladesh has more than 6.7 million workers in at least 140 countries (Mamun and Nath 2010).

Bangladesh, India, Pakistan and the Philippines. We observe a long-run positive significant relationship between remittances and economic growth only in Bangladesh and India. However, we also observe unidirectional causality running from remittances to economic growth in Bangladesh, Pakistan and the Philippines.

Section two discusses the econometric methodology, section three summarizes the results, and section four provides a summary.

Econometric Methodology

We use an updated data set from 1977 to 2015 on remittances and GDP from the 2016 World Bank Development Indicators Database (2016) for data on in Bangladesh, India, Pakistan and the Philippines. GDP is calculated at year 2000 constant dollar prices, and remittances are calculated at current USA dollars. We use a logarithmic transformation of each variable to remove heteroscedasticity.

Our study has two objectives: to study the long-run relationship between migrant remittances and economic growth and verify, if any, the underlying causalities. We implement a four-stage procedure: (i) verify whether the data sets contain a unit root, (ii) determine any co-integrated relationships through Johansen's co-integration technique, (iii) estimate the long-run relationship across the variables using dynamic ordinary least squares (DOLS), and (iv) check the robustness of the model using fully modified ordinary least squares (FMOLS).

Results

We present the results in two simple tables[5]:

Table1. *Remittance-Economic Growth Estimation Results for Bangladesh, India, Pakistan and the Philippines*

Methods	Results For Bangladesh	Results for India	Results For Pakistan	Results for Philippines
Cointegration	Cointegrated	Cointegrated	Cointegrated	Cointegrated
DOLS	0.421120 (0.0107)	0.442821 (0.0000)	-0.183928 (0.1146)	0.063378 (0.3263)
FMOLS	0.306796 (0.0242)	0.357304 (0.0000)	-0.209386 (0.0558)	0.089720 (0.1599)

Figures in parenthesis indicate probability

[5] The descriptive statistics, unit root test results and Johansen co-integration test results are not reported here but are available upon request.

All the series are found to be first-difference stationary indicating the possibility of a long-run relationship across the variables. Next, using Johansen's co-integration test, we find the presence of a co-integrated relationship across Bangladesh, India, Pakistan and the Philippines. There is a significant positive long-run relationship between the variables for Bangladesh and India only as reported by DOLS estimates (Table 1). These findings are mostly robust across an alternative estimation method namely FMOLS (Table 2).

Table2. *Remittance-growth causality directions for Bangladesh, India, Pakistan and the Philippines*

Country	Causal direction
Bangladesh	Unidirectional: Remittance causes economic growth
India	No causal link
Pakistan	Unidirectional: Remittance causes economic growth
The Philippines	Unidirectional: Remittance causes economic growth

Our findings imply remittances are an important source of revenue in Bangladesh, Pakistan and the Philippines because (i) these economies are still heavily import dependent, (ii) migrant remittances constitute a significant portion of their GDP, (iii) these countries consistently suffer from a labor supply surplus of semi-skilled and unskilled labor, and (iv) the presence of political instability leads to macroeconomic volatility.[6] Finally, with respect to India, while remittances are seemingly important, they are not significant enough to affect their macro-economy.

Summary and Conclusion

This paper uses a large time series data set from Bangladesh, India, Pakistan and the Philippines to establish a long-run relationship between remittances and economic growth. Using DOLS and FMOLS techniques, we find a positive long-run relationship in Bangladesh and India but an insignificant relationship in the Philippines and Pakistan. We likewise find

[6] Despite this evidence, Bangladesh has experienced robust GDP growth of over 6% annually for the last decade. Remittances in Bangladesh range between 10% to 12% of GDP, and the long-run positive relationship and causal link can be attributed to the multiplier effect of an increase in investment and aggregate demand caused by (i) the greater proportion of consumption from remittance receiving households, and (ii) the reduction of liquidity constraints in the economy struggling with the import bill.

evidence of a unidirectional causal link running from remittances to economic growth across Bangladesh, Pakistan and the Philippines.

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