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Keywords
migrant, impact, economic, growth, remittances, evidence, asia, south

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"The Impact of Migrant Remittances on Economic Growth: Evidence from South Asia"

REVIEW OF INTERNATIONAL ECONOMICS

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JEL Classifications: O11, F24, F41

REVIEW OF INTERNATIONAL ECONOMICS

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The Impact of Migrant Remittances on Economic Growth*

Arusha Cooray

RRH: REMITTANCES IN SOUTH ASIA

LRH: Arusha Cooray

Abstract

Incorporating migrant remittances among other variables into a growth model, and employing panel data over the 1970-2008 period, this study investigates the impact of migrant remittances on economic growth in South Asia. Migrant remittances are found to have a significant positive effect on economic growth. A significant positive interactive effect of remittances on economic growth is detected through education and financial sector development.

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Abbreviations: NRP, OLS, GMM, M2, REM, EX, FDI, G, GDP.

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1. Introduction

Remittance inflows into the developing economies have increased ten-fold from US $31,058 million to US$327,591 million over the 1990 to 2008 period, accounting for the second largest foreign exchange inflow next to foreign direct investment, and in some cases the largest (World Bank, 2010). Latin America is the largest remittance receiving region in the world, followed by South Asia. While much work has been undertaken on remittance receipts into Latin America (Mundaca, 2009; Woodruff and Zenteno, 2007; Orozco, 2000), there is little *empirical* work on remittance inflows into South Asia. Remittance receipts into South Asia have increased significantly over the 2000 to 2008 period. In Pakistan, remittances have increased from a little over US$1 billion in 2000 to US$6.4 billion in 2008; in Bangladesh, from US$1.9 to US$8.9 billion; in India from US$12.9 billion to US$49.5 billion; in Nepal, from US$111 million to US$2.7 billion; and in Sri Lanka, from US$1.2 billion to US$3.0 billion (World Bank, 2010). India is the largest remittance-receiving country in the world accounting for 73% of the flow into South Asia, with Bangladesh seventh and Pakistan eleventh (Maimbo et al. 2005, World Bank, 2010).

Remittances have been found to have a number of positive effects on the developing economies. They have served as insurance policies against risks associated with new production activities and reduced income inequality (Taylor, 1999), helped low income households to smoothen their consumption by reducing their vulnerability to adverse shocks (Yang and Choi, 2007), increased the propensity to save (Adams, 2002), reduced poverty (Adams and Page, 2005), and even helped build schools and clinics (see Martin et al., 2002; Orozco, 2000). Remittances have also been found to promote economic growth (Mundaca, 2009), promote financial sector development (Giuliano and Ruiz-Arranz, 2009; Aggarwal et al., 2006) and reduce output volatility (Chami et al., 2009).

Given the positive impact of remittance flows into the developing economies, and rise in migrant remittances into South Asia, the contribution of the present study is to investigate the impact of migrant remittances on economic growth in this region. The studies of Mundaca (2009), Giuliano and Ruiz-Arranz (2009) among others support the argument that remittances promote economic growth. Several studies also show that growth rates are higher in countries with a well developed financial sector (King and Levine, 1993; Cooray 2009), a high human capital stock (Mankiw et al., 1992), and well developed infrastructure. Studies further support the argument that remittances have contributed to financing education (Cox et al., 2003; Ranasinghe, 2007) and promoting financial sector development (Aggarwal et al., 2006). Therefore high-remittance receiving countries with comparatively better developed physical and human capital stocks, and financial systems, should be able to successfully channel remittance flows towards economic growth. Accordingly, this study also investigates the interactive effects of remittances on economic growth through human capital, financial sector development and the physical capital stock.

The paper is organized as follows. Section 2 briefly discusses region specific characteristics. Section 3 presents the empirical model. Section 4 details the data and methodology. Section 5 discusses the empirical results and Section 6 concludes.

2. Country Characteristics

A series of economic reforms were undertaken under the auspices of the IMF and the World Bank in Sri Lanka in the 1970s, Bangladesh and Pakistan in the 1980s, India, Nepal and Bhutan in the 1990s. In the years following liberalisation, the growth rates of these countries have accelerated, in particular, that of India. Labour migration was encouraged through the introduction of several measures.[1] Bangladesh for example, introduced a special savings

scheme in the form of Wage Earner Bonds to promote migrant savings. In Pakistan, local migrants remitting US$2,500 per annum are entitled to duty-free imports of up to US$700 per year, and non-resident Pakistanis (NRPs) remitting a minimum of US$10,000 through banking channels, are entitled to duty-free imports of up to US$1,200 from 2001. NRPs also have access to a merit-based quota system in all public professional colleges and universities, are able to participate in a lottery for land in public housing schemes at concessionary rates if they pay in foreign currency, and buy shares in privatized companies. Sri Lanka, offers migrants pre-departure loans to cover travel costs, migrants and their families are granted free life insurance, and can maintain non-resident foreign-currency accounts through which remittances can be transmitted. In India, certain states such as Kerala, have set up Human Resources Corporations to promote migration. Migrants are also permitted to transfer capital between their home country and destination country free of government regulations (Khatri, 2007). Evidence shows that in Nepal, migrant remittances have led a decline in poverty from 42% in 1995/96 to 31% in 2003/04 (Pant, 2008). The stock of migrants from South Asia stands currently at 12.2 million or 0.7% of the population compared to 215.8 million or 3.2% for the world (Ratha et al., 2011). Table 1 records remittance inflows as a % of GDP into the countries under study.

[INSERT Table 1 here]

Note that remittances as a % of GDP have steadily increased into all of the economies with the exception of Pakistan, which has experienced a decline in remittance receipts since 1980, and the Maldives. In Pakistan this can be attributed primarily to political and economic instability. The Maldives on the other hand, is a labour receiving rather than a labour sending country. Thus remittance inflows play an important role in contributing to the economic growth of all South Asian economies apart from the Maldives, which is primarily a net outflow country. Remittances have also contributed to strengthening balance of payments

deficits in all countries with the exception of the Maldives. In the Maldives, remittance outflows were 27% of the trade deficit in 2006 (de Mel and Jayaratne, 2009). Migrant remittances to GDP moreover, exceed overseas development aid and foreign direct investment to GDP into all South Asian nations with the exception of the Maldives. With the opening up of the economies in this region, the growth rates of these countries have accelerated. Accordingly, investigating the role of migrant remittances in South Asia's growth trajectory is particularly relevant.

3. The Model

The model is based on the Neo-Classical production function. The production function is specified as follows:

$$Y_{it} = A_{i0} e^{\delta t} Z_{it}^{\varphi_i} K_{it}^{\alpha} H_{it}^{\beta} L_{it}^{1-\alpha-\beta} e^{\varepsilon_{it}} \qquad (1)$$

where Y_{it} is aggregate output, A_{i0} the level of technology, K_{it} the stock of physical capital, H_{it} the stock of human capital and L_{it} the labour force of country *i* in period *t*. The parameter δ, captures the growth effects of omitted trended variables, Z_{it} represents the main variable of interest, the ratio of migrant remittances to GDP, and other control variables which contribute to the adoption of new technologies. The parameter φ_i, captures the growth effects of the variables in Z_{it}. The term, ε_{it}, is a random disturbance that captures the aggregate effect of all other factors. Dividing both side of (1) by L,

$$y_{it} = A_{i0} e^{\delta t}{}_{i} Z_{it}^{\varphi_i} k_{it}^{\alpha} h_{it}^{\beta} e^{\varepsilon_{it}} \qquad (2)$$

where *y* is output per capita, *k* is physical capital per capita and *h* is human capital per capita. Taking the natural logarithm transformation of (2) yields:

$$\ln y_{it} = \ln A_{i0} + \delta t + \varphi_i \ln Z_{it} + \alpha \ln k_{it} + \beta \ln h_{it} + \varepsilon_{it} \qquad (3)$$

Incorporating the components of Z_{it}, equation (3) can be specified as follows:

$$\ln y_{it} = a_{i0} + \delta t + \varphi_1 \ln[REM / GDP]_{it} + \varphi_2 \ln[EX / GDP]_{it} + \varphi_3 \ln[FDI / GDP]_{it} + \varphi_4 \ln[M2 / GDP]_{it} + \varphi_5 \ln[G / GDP]_{it} + \alpha \ln k_{it} + \beta \ln h_{it} + \varepsilon_{it} \quad (4)$$

where the Z includes the ratio of migrant remittances (REM) to GDP, and other standard control variables used in the growth literature including, the ratio of exports (EX) to GDP, the ratio of foreign direct investment (FDI) to GDP, the ratio of M2 (M2) to GDP and the ratio of government expenditure (G) to GDP.

4. Data and Methodology

4.1 Data

The data are annual and cover the 1970-2008 period for India, Sri Lanka, Pakistan, Bangladesh, Nepal and the Maldives.[2] The dependent variable in the study is the growth rate of output per capita. The main independent variable is the ratio of migrant remittances to GDP. These are formal remittances that are recorded in the National Accounts and are from the World Development Indicators. Remittances are defined as the addition of workers' remittances, compensation of employees and migrants' transfers. It is estimated that a large proportion of remittance flows are transmitted through informal channels. A limitation of the study therefore, is that it is only able to capture official flows that are transmitted through formal channels.[3] The capital stock is estimated using the perpetual inventory method.[4] Since the work of Mankiw et al. (1992) and Barro (1991), there has been a general consensus on the positive role played by human capital in economic growth. Thus, human capital is employed in the estimation, and is measured by the secondary enrolment ratio (Mankiw et al., 1992; Barro, 1991). Given the large literature on the positive association between financial sector development and economic growth, see King and Levine (1993), Cooray (2009) for example,

the ratio of M2 to GDP is used as a proxy for monetary policy and the level of financial sector development. It can alternatively be argued that a large money supply may reflect an irresponsible monetary authority or a low velocity of money.[5] The ratio of M2 to GDP is used to measure financial sector size and depth in the present study because: one, it is generally used in the literature as a proxy for financial sector development, and; two, financial deregulation in South Asia has contributed to a significant rise in deposit mobilization, leading to increases in the ratio of M2 to GDP.[6] Moreover, this region has not in general faced hyper-inflation or episodes of price instability suggesting any irresponsibility on the part of the monetary authorities. The ratio of government expenditure to GDP is used to capture fiscal policy (Barro, 1991; Cooray, 2009), as in developing nations, the government plays an important role in the distribution and allocation of resources. In addition to the ratio of migrant remittances to GDP, the degree of openness of the economies is also measured by the ratio of exports to GDP and the ratio of FDI to GDP. Balassa (1985), shows that exports can provide greater access to international markets and hence economic growth. Similarly, both exports and FDI can promote faster technological innovation and learning from abroad (Balasubramanyam et al., 1996). Evidence on the effects of FDI on economic growth however, has been mixed. The polity index of Marshell and Jaggers (2010) is also used to control for institutions as a further measure of robustness.[7] Table 2 presents summary statistics and sources for the data used in the study.

[INSERT Table 2 here]

4.2 Methodology

Several alternative methodologies are used to test the model. The preliminary estimation on the panel data is carried out using Ordinary Least Squares (OLS). The model is also tested using fixed effects, and the system General Method of Moments (GMM), to check the robustness of the results to the estimation method. The panel data model is expressed by equation (5):

$$\Delta y_{it} = \gamma y_{it-1} + X_{it}\beta + \mu_i + \eta_t + u_{it} \qquad (5)$$

where Δy_{it} is the first difference of output per capita for country i in period t. All control variables are captured by the vector X_{it}. μ_i is a country specific effect and η_t, a fixed time effect. u_{it} is a random error term that captures all other variables. All variables are converted into natural logarithms for the empirical estimation. Interactions terms are added to the above specification to investigate differential effects. Both fixed and random effects models were estimated. A Hausman test showed greater support for the fixed effects model, therefore results are reported for the fixed effects estimator.

The explanatory variables are not strictly exogenous in this model. An approach that allows controlling for the joint endogeneity of explanatory variables through the use of internal instruments is the Arellano-Bover (1995)-Blundell Bond (1998) system GMM estimator. Here the levels equation (6) is combined with a first difference equation (7). The equation in levels (6), is instrumented with lagged first differences of the variables, while the equation in first differences, (7), is instrumented with lagged levels of the variables.

$$y_{it} = \gamma y_{it-1} + X_{it}\beta + \mu_i + \eta_t + u_{it} \qquad (6)$$

$$y_{it} - y_{it-1} = \gamma(y_{it-1} - y_{it-2}) + \beta(X_{it} - X_{it-1}) + \eta_t + (u_{it} - u_{it-1}) \qquad (7)$$

The variable definitions are the same as above for equation (5), with lagged values of the variables now entering the equation. The GMM estimator is based on the assumption that the error terms are not serially correlated and that the explanatory variables are weakly exogenous or not correlated with future realizations of the error terms under which the following moment condition holds for the first difference estimator:

$E[y_{it-s}(u_{it} - u_{it-1})] = 0$; $E[\boldsymbol{X}_{it-s}(u_{it} - u_{it-1})] = 0$; where i = 1…..n, t = 3….T and s≥ 2.

and as mentioned above the levels equation is instrumented with lagged first differences of the variables which leads to the additional moments condition:

$E[\Delta y_{it-s}(\mu_i + u_{it})] = 0$; $E[\Delta \boldsymbol{X}_{it-s}(\mu_i + u_{it})] = 0$ for s =1.

Two diagnostic tests, the Sargan test for over-identifying restrictions under which the null hypothesis is that the instruments are not correlated with the residuals, and the Arellano-Bond test for second order correlation in the first differenced residuals are carried out.

5. Empirical Results

Estimation is initially carried out using OLS with the growth rate of output per capita as the dependent variable, see Table 3.

[INSERT Table 3 here]

Column (1) estimates the model with the initial level of income per capita, capital per capita and remittances as independent variables. Column (2) adds the enrolment ratio to the model, column (3) augments the model with the policy variables and column (4) augments the model with the other openness variables, the ratio of exports to GDP and ratio of FDI to GDP. Given that remittances can contribute to increases in physical capital (Ratha and Mohapatra, 2007), education (Cox et al., 2003; Martin et al., 2002; Ranasinghe, 2007), and financial sector development (Giuliano and Ruiz-Arranz, 2009; Aggarwal et al., 2006), column (5) estimates the model with interaction terms for h_{it} * [REMIT/GDP], k_{it} * [REMIT/GDP], and [M2/GDP] * [REMIT/GDP]. The results suggest that the main variable of interest, migrant remittances to GDP are positive and statistically significant in all columns. Column (1) for example, suggests

that a 1% increase in remittances leads to a 0.02% increase in the growth rate. A 1% increase in migrant remittances leads to a 0.012% increase in economic growth in column (4). The coefficients on capital per capita and the human capital variables are positive and statistically significant suggesting that both physical and human capital are important for economic growth in South Asia. Similarly, the coefficients on [M2/GDP] and [EXP/GDP] are positive and significant. The coefficient on [G/GDP] exerts a negative influence on economic growth and the coefficient on [FDI/GDP] is statistically significant in column (4). Interesting is the fact that the interaction terms on h_{it} * [REMIT/GDP] and [M2/GDP] * [REMIT/GDP] are positive and statistically significant suggesting that remittances act to increase economic growth through the enrolment ratio and financial sector development in South Asia. Although capital per capita is individually statistically significant, remittances do not significantly increase economic growth through capital per capita. There is only a very weak evidence of convergence among the economies. The initial level of income per capita is statistically significant only in column (1). Although negative, the coefficients in the other columns are not statistically significant. This is reasonable considering that India is growing at a much faster pace than the rest of South Asia.

[INSERT Table 4 here]

Next, fixed effects is used to estimate the model. The results are reported on Table 4. The coefficient on remittances is positive and significant in all columns, suggesting that remittances contribute significantly to economic growth. In column (5) for example, a 1% increase in migrant remittances contributes to a 0.15% increase in economic growth. The coefficients on capital per capita are positive and significant. The coefficients on the enrolment ratio, money supply and exports are positive and significant in all columns. Note once again that the interaction terms on the h_{it} * [REMIT/GDP] and [M2/GDP] * [REMIT/GDP] are positive and statistically significant, confirming the results obtained in

Table (3) above, that remittances contribute to an increase in growth through its interaction with enrolment and financial sector development.

[INSERT Table 5 here]

To correct for the potential problem of endogeneity, system GMM is used. Table 5 reports results. The results are consistent with those of Tables 3-4 above. The coefficients on the remittance variables are positive and significant in all columns. The coefficient on remittances in column (1) suggests that a 1% increase in migrant remittances contributes to a 0.02% increase in economic growth. The coefficients on capital per capita, the enrolment ratio, exports and money supply are positive and statistically significant. Government expenditure used as a proxy for fiscal policy, is negative and statistically significant in column (5). The coefficient on FDI is significant and positive in column (5). The statistical significance of the coefficients on FDI however, are not robust compared to those on the remittance variables. Note that all the interaction terms are positive and significant. However, the coefficients on h_{it} * [REMIT/GDP] and [M2/GDP] * [REMIT/GDP] are consistently statistically significant suggesting that remittances when interacted with the human capital stock and financial sector development lead to increases in economic growth. The lagged dependent variable is statistically significant reflecting a degree of persistence in the variables. The p values for the Sargan test for over-identifying restrictions where the null hypothesis is that the instruments are uncorrelated with the residuals, and the Arellano-Bond test for second order serial correlation in the first-differenced residuals, confirm that the moment conditions cannot be rejected.

[INSERT Table 6 here]

The robustness of the results is tested in several ways. Three different estimation procedures, OLS, fixed effects estimation and system GMM are used. The results are robust to the estimation procedure. Several additional control variables and interaction terms have been

added to the model to investigate the robustness of the main variable of interest. The model is in addition, estimated at a country disaggregated level, and the contribution of remittances to the growth rate of GDP per capita has been calculated, see Tables 7 and 8. Column (1) of Table (6), adds the polity index from the Polity IV database to the model to control for institutions (Catrinescu et al., 2009). The polity index is also interacted with migrant remittances. These variables are not statistically significant. The model was also estimated with the corruption index from Kaufmann et al. (2008) and an interaction term for [REMIT/GDP]*corruption (not reported).[8] The incorporation of the corruption variables led to a significant loss of observations in the model and although negative, were not statistically significant. As India is the region's largest recipient of migrant remittances, the results could be driven by remittances into India. Accordingly the model is re-estimated by excluding India from the estimation (see Table 6, column 2). The basic conclusions do not change. The baseline model uses data from 1970-2008. Given that migrant remittances have shown a marked increase into South Asia only from around the early 1990s (India after deregulation in 1991), the model is re-estimated for the time span covering 1992-2008 (Table 6, column 3). The basic conclusions that remittances significantly and positively affect economic growth and have a positive and significant effect on economic growth through education and financial sector development do not change.

Share of Contribution of Remittances to Growth in Output per Capita

This section evaluates the contribution of remittances to the growth of output per capita for the countries under study.

[INSERT Tables 7-8 here]

The model is estimated using OLS disaggregated by country, with capital per head, human capital per head and migrant remittances as independent variables. The Maldives is omitted from the estimation due to insufficient observations, see Table 7. Note that in the country disaggregated estimation, migrant remittances play a significant role in contributing to the growth rate of output per capita in all countries with the exception of Pakistan. Using the parameter values for remittances (φ_1) in Table 7, the contribution share of remittances is calculated by φ_1(ΔREMIT/REMIT). Table 8 reports results. The percentage contribution of migrant remittances to the growth rate of output per capita is calculated as the contribution share of remittances divided by the growth rate of output per capita expressed as a percentage. The contribution ratios suggest that migrant remittances play an important role in the growth rates of output per capita in all countries. In Bangladesh, remittances contribute to 38.48% of the growth in output per capita, India 1.44%, Nepal 7.36%, Pakistan 0.12% and Sri Lanka 5.54% over 1970-2009. Thus, it can be argued that migrant remittances play a significant role in the growth of output per capita in South Asia.

6. Conclusions

This paper extends the existing literature by identifying the contribution of migrant remittances to economic growth in South Asia. Migrant remittances are found to have a positive and significant effect on economic growth. The positive and significant coefficients on the interaction terms between h_{it} * [REMIT/GDP] and [M2/GDP] * [REMIT/GDP] suggest that remittances have a positive effect on economic growth when education levels and financial sector development are comparatively high. This is confirmed by Ranasinghe (2007) who shows that migrant receiving families spend 56% of their income on food and 18% on education helping them to reduce poverty in Sri Lanka. Similarly, Cox et al. (2003) show that remittances have a larger effect than other types of income on school retention in El

Salvador, and Martin et al. (2002) in a study of Mali, show that remittances have contributed to the establishment of schools. The view that remittances can promote growth in the developing economies by enhancing financial sector development is supported in the work of Giuliano and Ruiz-Arranz (2009), Aggarwal et al. (2006) among others. Evidence also shows that greater openness as measured by the volume of exports to GDP, contributes positively to economic growth. This is reasonable considering that increased openness could encourage increased transfers into remittance receiving countries and also increase the use of the formal sector for money transmission The evidence further shows that secondary school enrolment and capital per capita are important for financial sector development suggesting that the level of financial literacy of a society and investment in infrastructure are important pre-requisites for economic growth. Given that remittance flows into these countries are large in volume, the governments of these countries should introduce policies to increase financial literacy, establish bank branches in unbanked areas, and provide savings incentives to migrant workers to further increase remittances transmitted through formal channels and promote growth.

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Endnotes

1. See Khatri (2007) for a detailed discussion of measures taken and effects of labour migration in South Asia.
2. Bhutan is excluded from the study due to data constraints.
3. Evidence suggests that unrecorded flows may add a further 50% to recorded flows in South Asia (Pant, 2008).
4. The initial capital stock, K_0, for each country, *i*, is estimated following the method of Krüger (2003): $K_{i0} = I_{i0}\left(\frac{1+g}{g+\rho}\right)$

   Where I_{i0} is the amount of investment for country *i* in the initial period, *g* is the average rate of growth of investment over the subsequent 5 years and ρ=0.1 (a depreciation rate of 10%). The capital stock for subsequent years are calculated according to the equation:

   $$K_{it} = (1-\rho)K_{it-1} + I_{it}$$

5. I wish to thank a referee who pointed this out to me.
6. Some of these deregulatory measures included, increased access to credit, new instruments, institutions and markets, and the liberalization of bank interest rates.
7. The Polity Score (Marshell and Jaggers, 2010): http://www.systemicpeace.org/polity/polity4.htm). This index captures a regime authority spectrum on a 21-point scale ranging from -10 (hereditary monarchy) to +10 (consolidated democracy). The components of this index cover political participation and qualities of executive recruitment which are important for the promotion of democracy and consequently economic growth.
8. The corruption index is from Kaufmann et al. (2008). This indicator ranges from a value of -2.5 to +2.5 with higher values corresponding to better governance.

Table 1: Remittance Inflows into South Asia as % of GDP

Country	1980	1990	2000	2008
Bangladesh	1.87	2.58	4.17	11.23
India	1.20	1.50	2.80	4.11
Nepal	-	1.49	2.02	21.61
Maldives	-	-	0.35	0.24
Pakistan	8.64	5.01	4.91	4.26
Sri Lanka	3.76	4.98	7.13	7.23

Source: World Development Indicators

Table 2: Descriptive Statistics

Variable	Obs	Mean	Standard Deviation	Min	Max	Source
Per capita income (constant 2000 US$)	237	530.42	554.90	138	3418	World Development Indicators 2010
Per capita capital	206	1.22e+11	2.45e+11	2.90e+07	1.56e+12	Authors own calculation
Enrolment ratio secondary (% gross)	181	35.78	18.38	8.74	88.48	World Development Indicators 2010
M2 (% of GDP)	242	34.30	12.88	8	73	World Development Indicators 2010
Government expenditure (% of GDP)	227	11.17	4.92	3	28	World Development Indicators 2010
Migrant remittances (% of GDP)	187	3.86	3.77	0.18	23.82	World Development Indicators 2010
Exports (% of GDP)	252	25.77	27.35	3	166	World Development Indicators 2010
FDI (% of GDP)	211	0.74	0.96	-0.20	6.71	World Development Indicators 2010
Polity Index	229	0.67	7.30	-10	9	The Polity IV Database, Marshall and Jaggers 2010

Table 3: OLS Estimation

Independent Variables	(1)	(2)	(3)	(4)	(5)
y_{it-1}	-0.014	-0.004	-0.006	-0.011	-0.022
	(0.004)***	(0.008)	(0.009)	(0.014)	(0.015)
k_{it}	0.003	0.003	0.004	0.006	0.004
	(0.001)**	(0.001)**	(0.001)***	(0.003)*	(0.002)**
h_{it}	-	0.012	0.010	0.009	0.071
		(0.004)***	(0.004)**	(0.006)*	(0.014)***
$[M2/GDP]_{it}$	-	-	0.016	0.027	0.008
			(0.006)***	(0.009)***	(0.005)*
$[G/GDP]_{it}$	-	-	-0.005	-0.007	-0.012
			(0.006)	(0.006)	(0.006)**
$[REM/GDP]_{it}$	0.023	0.013	0.012	0.012	0.119
	(0.010)**	(0.006)**	(0.006)**	(0.006)**	(0.034)***
$[EX/GDP]_{it}$	-	-	-	0.007	0.016
				(0.004)*	(0.008)**
$[FDI/GDP]_{it}$	-	-	-	0.010	0.001
				(0.006)*	(0.001)
$h_{it}*[REM/GDP]_{it}$	-	-	-	-	0.037
					(0.007)***
$k_{it}*[REM/GDP]_{it}$	-	-	-	-	0.001
					(0.001)
$[M2/GDP]_{it}*$	-	-	-	-	0.002
$[REM/GDP]_{it}$					(0.001)**
Constant	0.021	0.039	-0.075	0.110	-0.288
	(0.016)*	(0.028)	(0.032)**	(0.054)**	(0.062)***
R^2	0.20	0.18	0.24	0.45	0.54
Observations	159	145	145	125	125

Note: Robust standard errors reported in parenthesis. *, **, *** Significant at the 10%, 5% and 1% levels.

Table 4: Fixed Effects Estimation

Independent Variables	(1)	(2)	(3)	(4)	(5)
y_{it-1}	-0.002	-0.002	-0.021	-0.017	-0.035
	(0.016)	(0.020)	(0.013)*	(0.019)	(0.021)*
k_{it}	0.024	0.021	0.004	0.020	0.007
	(0.004)***	(0.012)*	(0.002)*	(0.011)*	(0.004)*
h_{it}	-	0.010	0.009	0.022	0.025
		(0.005)**	(0.004)**	(0.012)**	(0.013)*
$[M2/GDP]_{it}$	-	-	0.013	0.013	0.004
			(0.006)**	(0.009)*	(0.002)**
$[G/GDP]_{it}$	-	-	-0.001	-0.005	-0.007
			(0.012)	(0.011)	(0.010)**
$[REM/GDP]_{it}$	0.016	0.013	0.010	0.008	0.145
	(0.007)**	(0.007)**	(0.004)***	(0.003)**	(0.062)**
$[EX/GDP]_{it}$	-	-	-	0.030	0.020
				(0.010)***	(0.009)**
$[FDI/GDP]_{it}$	-	-	-	0.0009	0.003
				(0.001)	(0.013)
$h_{it} *[REM/GDP]_{it}$	-	-	-	-	0.039
					(0.013)***
$k_{it} *[REM/GDP]_{it}$	-	-	-	-	0.001
					(0.001)
$[M2/GDP]_{it}*$ $[REM/GDP]_{it}$	-	-	-	-	0.003
					(0.001)***
Constant	-0.160	0.120	0.078	0.175	-0.214
	(0.091)	(0.138)	(0.158)	(0.119)	(0.246)
R^2	0.15	0.16	0.17	0.40	0.57
Hausman: p value	0.004	0.003	0.005	0.02	0.05
Observations	159	145	145	125	125

Note: Robust standard errors reported in parenthesis. *, **, *** Significant at the 10%, 5% and 1% levels.

Table 5: System GMM Estimation

Independent Variables	(1)	(2)	(3)	(4)	(5)
k_{it}	0.006	0.008	0.003	0.004	0.006
	(0.003)**	(0.004)**	(0.001)*	(0.002)**	(0.004)*
h_{it}	-	0.020	0.008	0.024	0.074
		(0.004)***	(0.004)**	(0.014)**	(0.019)***
$[M2/GDP]_{it}$	-	-	0.018	0.015	0.016
			(0.008)**	(0.008)**	(0.010)*
$[G/GDP]_{it}$	-	-	-0.004	-0.005	-0.013
			(0.005)	(0.005)	(0.008)*
$[REM/GDP]_{it}$	0.017	0.015	0.016	0.006	0.098
	(0.007)***	(0.007)**	(0.008)**	(0.003)**	(0.025)***
$[EX/GDP]_{it}$	-	-	-	0.010	0.008
				(0.004)***	(0.005)*
$[FDI/GDP]_{it}$	-	-	-	0.003	0.060
				(0.004)	(0.031)**
$h_{it}*[REM/GDP]_{it}$	-	-	-	-	0.042
					(0.009)***
$k_{it}*[REM/GDP]_{it}$	-	-	-	-	0.004
					(0.002)**
$[M2/GDP]_{it}*[REM/GDP]_{it}$	-	-	-	-	0.004
					(0.002)**
y_{it-1}	0.041	0.030	0.050	0.017	0.014
	(0.028)*	(0.018)*	(0.035)*	(0.009)*	(0.010)*
Constant	0.022	0.126	0.125	0.175	-0.320
	(0.023)	(0.036)***	(0.039)***	(0.119)	(0.107)***
Sargan Test: p value	0.54	0.60	0.34	0.80	0.96
Arellano-Bond Test: p value	0.27	0.23	0.21	0.31	0.41
Observations	159	145	145	125	124

Note: Standard errors reported in parenthesis. ***, **, *, significant at the 1%, 5% and 10% levels respectively. The difference equation is instrumented with the lagged levels, two periods, of the dependent variable and the levels equation with the difference lagged one period.

Table 6: Robustness Tests System GMM

Independent Variables	(1) Additional Control Variables	(2) Excluding India	(3) 1992-2008
k_{it}	0.002	0.070	0.014
	(0.001)*	(0.035)**	(0.002)***
h_{it}	0.057	0.060	0.088
	(0.024)***	(0.031)**	(0.022)***
$[M2/GDP]_{it}$	0.020	0.032	0.004
	(0.009)	(0.018)*	(0.002)**
$[G/GDP]_{it}$	-0.010	0.007	-0.015
	(0.083)	(0.006)	(0.012)
$[REM/GDP]_{it}$	0.061	0.183	0.234
	(0.025)***	(0.038)***	(0.058)***
$[EX/GDP]_{it}$	0.086	0.022	0.026
	(0.059)*	(0.011)**	(0.010)***
$[FDI/GDP]_{it}$	0.025	0.030	0.053
	(0.034)	(0.027)	(0.024)**
$h_{it} *[REM/GDP]_{it}$	0.038	0.012	0.066
	(0.017)**	(0.006)**	(0.011)***
$k_{it} *[REM/GDP]_{it}$	0.012	0.016	0.0005
	(0.014)	(0.019)	(0.001)
$[M2/GDP]_{it} *$	0.005	0.004	0.004
$[REM/GDP]_{it}$	(0.002)***	(0.002)**	(0.002)**
Polity Index $_{it}$	0.001	-	-
	(0.002)		
Polity Index $_{it} *$	0.004	-	-
$[REM/GDP]_{it}$	(0.005)		
y_{it-1}	0.116	0.049	0.009
	(0.047)***	(0.029)*	(0.006)*
Constant	-0.159	-0.113	-0.396
	(0.062)***	(0.047)***	(0.219)*
Sargan Test: p value	0.82	0.88	0.77
Arellano-Bond Test: p value	0.21	0.25	0.26
Observations	124	76	68

Note: Standard errors reported in parenthesis. ***, **, *, significant at the 1%, 5% and 10% levels respectively. The difference equation is instrumented with the lagged levels, two periods, of the dependent variable and the levels equation with the difference lagged one period.

Table 7: OLS Estimation

Country	Bangladesh	India	Nepal	Pakistan	Sri Lanka
k_{it}	0.009	0.485	0.286	0.473	0.047
	(0.014)	(0.219)**	(0.201)	(0.106)***	(0.035)
h_{it}	0.0003	0.006	0.002	0.002	0.002
	(0.003)	(0.002)***	(0.001)*	(0.001)*	(0.001)*
$[REM/GDP]_{it}$	0.015	0.016	0.008	0.005	0.006
	(0.005)***	(0.009)*	(0.004)**	(0.007)	(0.003)*
	0.576	0.302	0.517	0.487	0.073
Constant	(0.124)***	(0.146)**	(0.342)	(0.114)***	(0.467)
R^2	0.64	0.54	0.42	0.52	0.17

Table 8: Contribution Share of Remittances 1970-2009

Country	Bangladesh	India	Nepal	Pakistan	Sri Lanka
GDP per capita growth	2.42	3.47	1.63	2.53	3.66
Contribution share of Remittances	0.93	0.05	0.12	0.003	0.20
GDP per capita growth	100.00	100.00	100.00	100.00	100.00
% Contribution of Remittances	38.43	1.44	7.36	0.12	5.57

Note: Contribution share of Remittances = φ_1*(ΔREMIT/REMIT). φ_1 based on values obtained in Table 7.

% Contribution of Remittances = (Contribution Share of Remittances/Growth in GDP per Capita)*100