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The Macroeconomic Determinants of Remittances Received in Four Regions

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Abstract

This paper will analyze the macroeconomic determinants of remittances received for four regions: (1) East Asia and Pacific (EAP), (2) Latin America and Caribbean (LAC), (3) Sub-Saharan Africa (SSA), and (4) South Asia (SA). In order to better capture developing countries in these regions, high-income countries are excluded from all regions (Table 1). The macroeconomic determinants in each region will be found using multiple regression analysis and yearly remittance data from 1970 through 2016. Past findings have identified a wide variety of significant macroeconomic variables that influence remittances received by the home country.

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I. Introduction

Understanding what factors influence the amount of remittances received is of interest due to the economic and societal benefits that are connected to remittances, which are a sum of money transferred by a migrant worker back to his or her home country. Past research indicates that remittances can reduce poverty, increase standards of living, and decrease unemployment (Azam, Shahbaz, Kyophilavong, & Abbas, 2016; Ratha, 2013). Migrant remittances sent back to their home countries have been linked to an increase in human development in terms of education, health, and gender equality (Ratha, 2013). The potential benefits linked to remittances received are of particular importance to developing countries, where poverty is pervasive, standards of living are low, and unemployment is high. Remittances have the potential to positively impact the living standards for individual households, communities, and even states through the additional source of income they provide. Understanding what factors influence the quantity of remittances received enables policy to be implemented that does not reduce the flow of remittances. Developing countries can therefore maximize the economic benefits of remittances if these factors are understood. Additionally, factors that influence remittances can reveal who is dependent on migrant labor and underlying reasons for this dependency. Determining the macroeconomic factors that influence remittances received by home countries of migrants has been a question of increasing interest as remittances around the world continually increase in quantity and importance for developing countries.

Although it is important to consider the full economic context of the home countries receiving remittances when making cross-country comparisons, remittances have been categorized as a "stable and important source of funds" for developing economies (World Bank Group, 2017). In some cases, remittances account for a greater share of GDP than international aid (Ratha, 2013). Remittances to a home country can also increase the creditworthiness of the home country (Ratha, 2013). This has led to countries that receive a greater amount of remittances being able to attain a lower level of risk, creating more opportunities for borrowing, and hence, additional economic stimulation (The World Bank, 2013).

In quantitative terms, total migrant remittances to developing countries in 2009 amounted to US $316 billion (The World Bank, 2013). By 2012, this amount had increased to approximately US $401 billion (The World Bank, 2013). The total amount of remittances

received by developing countries was estimated to have a growth rate of 5.3% in 2012 and was projected to continue this positive growth each year through 2015 (The World Bank, 2013). Economies that received some of the largest shares of remittances in 2012 include India, which received $70 billion; Mexico, $24 billion; and the Philippines, $24 billion (Ratha, 2013). Remittances can also account for a significant share of GDP in smaller, underdeveloped countries. In 2011, remittances accounted for 31% of Liberia's GDP; 23% of Moldova's GDP; and 18% of Kosovo's GDP (Ratha, 2013).

For the purposes of this paper, remittances will be defined as a sum of money sent by nonresident households to resident households. This includes compensation of employees and personal transfers, which include all exchanges between resident and nonresident households (The World Bank, 2017).

This paper will analyze the macroeconomic determinants of remittances received for four regions: (1) East Asia and Pacific (EAP), (2) Latin America and Caribbean (LAC), (3) Sub-Saharan Africa (SSA), and (4) South Asia (SA). In order to better capture developing countries in these regions, high-income countries are excluded from all regions (Table 1). The macroeconomic determinants in each region will be found using multiple regression analysis and yearly remittance data from 1970 through 2016. Past findings have identified a wide variety of significant macroeconomic variables that influence remittances received by the home country. These variables include the number of migrants and the earnings of migrants, which have been found to both have a positive influence (Swamy, 1981). Inflation rates in the home country have been found to have a negative relationship with remittances received (Abbas, Masood, & Sakhawat, 2017). This is most likely due to continual changes in the inflation rate signaling an unstable economy (Elbadawi & Rocha, 1992; Abbas, Masood, & Sakhawat, 2017). The following analysis will add to the growing body of research by determining if the macroeconomic variables identified at the state level are also statistically significant at the regional level. The findings will support or detract from policy recommendations that are intended to be conducive to migrants sending remittances to their home country. The findings will also reveal which segments of the population would benefit most from creating favorable conditions for remittances to be received.

II. Literature Review

The seminal theoretical work by Lucas and Stark (1985) assert three potential motivations that explain remittance behavior. The first approach is pure altruism, which theorizes that the migrant's utility is maximized when the utility of the home unit is maximized. The home unit's utility is increased by consumption, with remittances increasing potential consumption. The next approach is pure self-interest,

which entails three primary motives to remit. These motives include the migrant's (1) desire to inherit, (2) to invest in assets in the home country, such as land or houses, and (3) intent to return home. Due to pure altruism or pure self-interest insufficiently explaining remittance behavior alone, especially in terms of fluctuation and duration of remittances, a third approach is offered called tempered altruism or enlightened self-interest. This approach explains that remittances are part of a mutually beneficial arrangement between the migrant and home unit. Investment or risk are the two primary factors that influence this arrangement. A migrant being sent to work in a separate economy can diversify a family's income and thereby, reduce the risks associated with economic shocks or unemployment in the home country, especially in rural areas. Investment refers to the resources used to educate a family member that migrates; the remittances are a form of repayment.

The work of Lucas and Stark (1985) serves as the theoretical foundation for microeconomic and macroeconomic approaches to analyzing remittance behavior (El-Sakka & McNabb, 1999). The microeconomic approach uses the household or individual as the unit of analysis to study the influences of remittance behavior, while the macroeconomic approach uses aggregate variables of both the home and host countries to analyze the variables that influence the flow of remittances.

The first empirical work to analyze remittances at the macroeconomic level was done by Swamy (1981). This research used annual data from 1960-1979 that was retrieved from the balance-of-payments data issued by the International Monetary Fund (IMF) to complete a multiple regression analysis. The number of migrant workers and per-capita earnings of migrants were both statistically significant variables in determining the amount of remittances received by the home country; both had a positive correlation (Swamy, 1981). El-Sakka and McNabb (1999) used annual data from 1967-1991 that was retrieved from the Central Bank of Egypt's *Economic Review* and the IMF. Also using multiple regression analysis, this research found that interest rate differentials, which is the difference between home and host country interest rates, is a statistically significant, negative determinant (El-Sakka & McNabb, 1999). Black market premium differentials, which is the difference between the exchange rates offered through official channels and the black market, is also a statistically significant, negative determinant (El-Sakka & McNabb, 1999).

A separate approach used monthly data from 1970-1997 that was retrieved from the IMF's balance-of-payments data to create a panel estimation model for nine countries (Higgins, Hysenbegasi, & Pozo, 2004). Real home country income per-capita, host country unemployment, and level of uncertainty in exchange rates were all factors found to influence

remittances; the former had a positive correlation while the latter two had a negative correlation (Higgins, Hysenbegasi, & Pozo, 2004).

A recent regression analysis using a generalized method of moments has expanded the scope of macroeconomic determinants to include economic and noneconomic variables. The noneconomic variables include the financial liberalization of home countries, which measures the ability of the population to use credit and the deregulation of the financial market, is found to have a negative effect (Abbas, Masood, & Sakhawat, 2017). This indicates that the more accessible credit is in a home country, the less remittances will be sent back to a home country. The level of democracy of home countries was also a significant noneconomic variable, with higher levels of democracy leading to more remittances received (Abbas, Masood, & Sakhawat, 2017). Overlapping with past research, the inflation rate of home countries was found to be an economic determinant that had a negative effect (Abbas, Masood, & Sakhawat, 2017; Elbadawi & Rocha, 1992). This research was conducted using annual time series data from 1972-2012, which was retrieved from past empirical research and the International Country Risk Guide (Abbas, Masood, & Sakhawat, 2017).

This paper will extend the analysis of Swamy (1981) and El-Sakka and McNabb (1999) through a multiple regression analysis of the macroeconomic determinants of remittances received in four regions: East Asia & Pacific; Latin America & Caribbean; Sub-Saharan Africa; and South Asia. This work replicates previous literature by using annual data from the IMF's balance-of-payments data to measure remittances received. This work differs from previous literature in that the macroeconomic variables will be regional aggregates, not aggregates of individual countries. In addition, host country variables could not be incorporated into this research since no region has one specific host country. One final difference is the use of two variables that have not been identified to be statistically significant in past research: (1) the percent of rural population and (2) the percentage of population aged 0-14. These two variables were chosen based off of the motives to remit outlined by Lucas and Stark (1985). Using these four variables, this research seeks to identify the macroeconomic determinants of remittances received in home regions.

III. Data and Methodology

The data for each region originates from World Bank staff estimates based on the International Monetary Fund (IMF) balance-of-payments data. The data series for personal remittances received (current USD) in each region were compiled by The World Bank to produce annual data series. The data series for Sub-Saharan Africa and Latin America & Caribbean each contains 47 observations and ranges from 1970 through 2016. Due to gaps in the dataset, East Asia & Pacific and South Asia have a different number of ob-

servations. The data series for East Asia & Pacific contains 46 observations, while South Asia's data series contains 42 observations. These missing observations lead to slightly different ranges for East Asia & Pacific and South Asia; East Asia & Pacific ranges from 1971 through 2016, while South Asia ranges from 1975 through 2016. The frequency for each region will be yearly due to The World Bank not offering a more precise frequency. The limited number of observations that result from annual data over this short time period will be one limitation throughout this analysis, as quarterly or monthly data would yield more reliable results.

The data series for each region was compiled into a single Excel file and transformed from nominal to real USD in order to control for inflation. This transformation will allow observations from each series to be accurately compared over time. Using the inflation rate for each region, the GDP deflator values were calculated for each year by rearranging the equation used to solve for inflation. Due to the limitations of the dataset, the base period for the LAC, SSA, and SA regions were in 1970, while the base period for the EAP region was 1981; the base periods were automatically given a GDP deflator value of 100. The nominal values for each year were divided by the corresponding GDP deflator and then multiplied by 100; this process was repeated for all four regions. The series were then plotted in levels in billions of dollars (Figure 1). It is important to note that the values for the East Asia & Pacific region cannot strictly be compared to other regions since the base period for inflation differs from the other regions.

The maximum value for remittances received in all regions was found after 2005. The maximum value for East Asia & Pacific is $20 billion in 2015; for Latin America & Caribbean, $1.46 billion in 2007; for Sub-Saharan Africa, $1.06 billion in 2011; and for South Asia, $3.33 billion in 2012. The data series for East Asia & Pacific exhibits a relatively flat, positive slope until 1993, where the values begin to steeply increase over time. The data series for Latin America & Caribbean has a slightly positive slope until 2008, where there is a slight depression until 2016 when it begins to increase again. The data series for Sub-Saharan Africa shows a relatively flat slope through 2003, followed by an increase through 2007, where the data series becomes relatively flat again. South Asia's data series steeply increases through 1981. After gradually declining through 1992, the series dramatically increases in value through 2012, followed by decreasing values through 2016. None of the data series exhibit linear behavior due to none of the series changing at a constant rate over time, which is a characteristic necessary to estimate a regression.

To induce linear behavior, the data will be transformed into logarithmic values (Figure 2). Stationarity must also be exhibited by each data series in

order to determine that the estimated linear regressions are not spurious. Characteristics of stationarity include a data series that is constant in mean and variance, not autocorrelated, and void of a unit root. The two tests that will be used to determine stationarity are the Augmented Dickey-Fuller (ADF) and Kwiatkowski-Phillips-Schmidt-Shin (KPSS) tests. The ADF test determines whether the data series contains a unit root, while the KPSS test checks for stationarity. If a data series does not exhibit stationarity in levels through both tests, then the first order differences will be computed in Eviews to try to create a series that exhibits stationarity. Once in first order differences, the ADF and KPSS tests will be repeated on the data series. If the data series exhibits stationarity in levels for both tests, then it is classified as integrated of order zero I(0); if stationarity is exhibited by both tests only in first order differences, then the data series is classified as integrated of order one I(1). These tests will be repeated on the data series for each region through Eviews.

Once the data series exhibits stationary in levels or first order differences, a regression can be estimated using the independent variables that were hypothesized to explain remittances received in each region, which is the dependent variable. Following past research, these additional independent variables will examine the economic conditions of the home country, such as income per capita and the inflation rate of the home country. Other independent variables include the percentage of the population aged 0-14 and the percentage of the population that is considered rural. The estimated equation for each region can be represented by:

log(Remittances received) = log(Income per capita) + log(Percentage of population aged 0-14) + log(Percentage rural population) – log(Inflation rate)

Income per capita in the home country is expected to have a positive sign based off of a self-interested motive. Higher income per capita indicates more assets to be inherited from a migrant's family, which increases remittances sent home as a way for the migrant to increase their status in the household. The percentage of population aged 0-14 is expected to have a positive sign since a higher number of children, and hence dependents, would increase the demand for remittances sent back home from family abroad. The percentage of population that lives in a rural area is expected to have a positive sign since family's that live in more remote locations are more likely to diversify their income to decrease their risk. The inflation rate in home countries is expected to have a negative sign since an increase in the inflation rate indicates an unstable economy and hence decreases the desire for migrants to send remittances back to their home country.

IV. Findings

The data was first transformed from nominal to real values using corresponding GDP deflator values

in order to control for the effects of inflation. This process was repeated for the data series from each region (Figure 1). The logarithmic values were computed for each series to attempt to linearize the non-linear behavior exhibited by each series (Figure 2).

Before a regression analysis can be performed, the series must first exhibit stationarity to ensure the regression results are not spurious. The two tests used to determine stationarity are the Augmented Dickey-Fuller (ADF) and Kwiatkowski-Phillips-Schmidt-Shin (KPSS) tests; both of these tests must indicate the series is stationary. All four series corresponding to each region are classified as I(1) due to stationarity only being exhibited by both the ADF and KPSS tests in first order differences (Table 2). Each series for remittances received must now be interpreted as the rate of change in remittances received; all independent variables must also be interpreted as the rate of change for that variable.

The estimation process involves estimating coefficients of independent variables through the ordinary least squares method. Variables considered not statistically significant are removed from the estimated equation and then the estimation process is repeated until the regression contains only variables that are at the acceptable level of statistical significance. The definitions of the four independent variables included at the beginning of each estimation process can be found in Table 3.

The estimated regression equation for East Asia & Pacific (EAP) is represented by:

%D Remittances received= 0.2441 + 2.269(%D Income per capita) + 42.77(%D Percentage of rural population)

All else being held constant, a 1% increase in national income per capita in the EAP region would result in a 2.3% increase in the rate of remittances received; the coefficient for change in national income per capita is highly significant with a degree of confidence greater than 95%. If there were a 1% increase in the percentage of rural population, there would be a 43% increase in the rate of remittances received. The coefficient for this variable is highly significant with a degree of confidence greater than 95%. The adjusted R-squared value for this estimated equation is 30%, which indicates that the explanatory variables account for roughly one third of the variability in the rate of remittances received in the EAP region.

The estimated regression equation for Latin American & Caribbean (LAC) is represented by:

%D Remittances received= 0.1034 + 15.14(%D Percentage of population aged 0-14)

This estimated equation indicates that a 1% increase in the percentage of population aged 0-14 will lead to

a 15% increase in the rate of remittances received in the LAC region. This regression coefficient is considered statistically significant due to the margin of error being less than 5%. The adjusted R-squared value for this model indicates that only 9% of the variability in the dependent variable can be explained by the change in percentage of population aged 0-14. This a low explanatory value, indicating the estimated equation is not reliable in estimating the expected change in remittances received in the LAC region.

The estimated regression equation for Sub-Saharan Africa (SSA) is represented by:

%D Remittances received= 0.0114 + 1.404(%D Income per capita)

This estimated equation indicates a 1% increase in national income per capita in the SSA region would result in a 1.4% increase in the rate of remittances received in this region. This coefficient is highly significant with a margin of error less than 1%. The explanatory value of this estimated equation is also low with an adjusted R-squared value of 19.6%. This value indicates that approximately one-fifth of the behavior of the dependent variable can be explained by this model.

The estimated regression equation for South Asia (SA) is represented by:

%D Remittances received= 0.0213 – 0.1907(%D Inflation rate)

If there is a 1% increase in the inflation rate in the SA region, there will be 0.2% decrease in the rate of remittances received. This coefficient is highly significant with a degree of confidence greater than 95%. The adjusted R-squared value for this estimated equation is 7.7%, which indicates that the change in inflation rate can only account for 7.7% of the variability in the rate of remittances received in the SA region. For further results of the estimated regressions for each region, reference the Tabulation of Regression Results.

Only two regions had the same independent variable identified. The percent change in income per capita was found to be statistically significant in the East Asia & Pacific region and Sub-Saharan Africa region. Percent change in income per capita exhibited the same positive sign in both regions with a magnitude of 2.27 in East Asia & Pacific and 1.40 in Sub-Saharan Africa. Variables that relate to different segments of the population were identified in East Asia & Pacific and Latin America & Caribbean, although the variables found in each region refer to different segments of the population. The variable identified in East Asia & Pacific relates to the rural population, while the variable in Latin America & Caribbean relates to only those aged 0-14. The coefficients identified for these variables were both positive and large in magni-

tude compared to all other identified variables across the four regions. Percent change in the rural population had a magnitude of 42.8 in East Asia & Pacific, while percent change in the population aged 0-14 had a magnitude of 15.1. South Asia was the only region that identified the percent change in the inflation rate to be statistically significant.

The residuals of each estimated regression must be analyzed in order to verify the estimated equation is consistent, unbiased, and efficient in its results and estimated parameters. The estimated regression is considered to have these three desirable characteristics if the residuals are homoscedastic, void of autocorrelation, and normally distributed. These characteristics are analyzed using White's test, the Durbin-Watson statistic, and Jarque-Bera's test, respectively. The values found for each region's corresponding residual diagnostics can be found in the Tabulation of Regression Results. The residuals for East Asia & Pacific, Latin America & Caribbean, and Sub-Saharan Africa estimated regressions are considered homoscedastic, inconclusive of autocorrelation, and not normally distributed. The residuals not being normally distributed these three regions indicates the results cannot be considered reliable since they may be inconsistent, biased, and inefficient. The residuals for South Asia's estimated regression are homoscedastic, inconclusive of autocorrelation, and normally distributed. This indicates that the model for South Asia has the most well-behaved residuals, meaning the findings from this equation can be considered robust and reliable.

V. Conclusion

To analyze the macroeconomic determinants of remittances received in four regions, annual remittance data obtained from the IMF balance-of-payments data was used to measure remittances received. Use of annual remittance data is consistent with the research of Swamy (1981) and El-Sakka and McNabb (1999). The data for each region was transformed into real remittances received and then into logarithmic values to linearize non-linear behavior. Due to each series not exhibiting stationarity in levels, the series were transformed into first order differences to induce stationarity. Following the work of Swamy (1981) and El-Sakka and McNabb (1999), a regression analysis was employed to estimate the statistically significant macroeconomic determinants in each region.

In East Asia & Pacific, income per capita and percentage of rural population were found to be statistically significant at the .05 and .01 levels respectively. Both variables indicated a positive influence on remittances received. In Latin America & Caribbean, percentage of population aged 0-14 was found to be a statistically significant variable at the .05 level; this variable had a positive sign. In Sub-Saharan Africa, income per capita was found to be highly significant at the .01 level. Consistent with the model for the East Asia & Pacific region, income per capita had a posi-

tive sign in Latin America & Caribbean. In South Asia, the inflation rate was the only variable identified for the final estimation equation; it was significant at the .01 level. Inflation rate had a negative sign, indicating that an increase in inflation rates decreases the rate of remittances received.

Percent change in income per capita was an identified variable in both East Asia & Pacific and Sub-Saharan Africa. Since the coefficients identified were both positive and of similar magnitude, the percent change in income per capita in both regions influences remittances received in a similar way. Variables that refer to different segments of the population were identified in East Asia & Pacific and Latin America & Caribbean, indicating that particular segments of the population in both regions positively influence the amount of remittances received. This is the proportion of the rural population in East Asia and Pacific and the proportion of the population aged 0-14 in Latin America & Caribbean. South Asia had no similarities with other regions in the variables that were identified. The residuals for South Asia's model exhibited characteristics that indicate the findings are reliable and robust. The estimated equations for the other three regions cannot be considered reliable or robust due to the residuals of each estimated equation not being normally distributed.

The identification of an inverse relationship between remittances received and inflation rates is consistent with the work of Abbas, Masood, and Sakhawat (2017). Finding national income per capita of the home country to be a statistically significant and positive variable in two regions is consistent with past research, specifically the self-interest hypothesis advanced by Lucas and Stark (1985) (Higgins, Hysenbegasi, & Pozo, 2004). Due to the limited independent variables offered by the dataset, other variables that were not identified in the macroeconomic literature of remittances were incorporated to increase the number of explanatory variables in the regression. These additional variables were the (1) percent of rural population and (2) percentage of population aged 0-14.

Due to the limitations of the dataset used in this analysis, other key variables such as number of migrant works from each region and per capita earnings of migrants could not be incorporated. Levels of unemployment also could not be included due to observations only being measured every five years instead of annually. Using a dataset that incorporates these three variables would increase the consistency of this type of research since these have been variables broadly identified over time to influence remittances received (Swamy, 1981). Monthly observations instead of annual would significantly increase the sample size and potentially increase the robustness of this regional analysis. Further research could conduct a panel study of regions to create a single model that is generalizable to all regions.

The findings from this analysis suggest that a region-specific approach should be taken when implementing policies that relate to migrant remittances, since different independent variables were identified in each region. Policy in South Asia should focus on stabilizing inflation rates to deter remittance flows from being reduced since fluctuations in the inflation rate over time indicate an unstable economy, and thus deter migrants from remitting to their home countries (Abbas, Masood, & Sakhawat, 2017). Measures that increase income per capita in East Asia & Pacific and Sub-Saharan Africa should be implemented in order to increase the amount of remittances being received in these two regions. An increase in income per capita can be attributed to better economic conditions in the home country, which may further motivate a migrant worker to return to their home country. Having increased motivation to return home may lead a migrant to invest in assets, such as a home or land, or to continually send money back to their family to maintain their status while they are temporarily gone. This type of policy may lend to the creation of a virtuous cycle that eventually reduces migrant workers, and thus remittances received, due to the expansion of the home region's economy. In Latin America & Caribbean, the large increase in remittances received when the population aged 0-14 increases indicates that families increase their dependence on migrant labor when the household size increases. Policies that do not restrict access or deter remittances, such as taxation of remittances, will benefit those with children aged 0-14 in Latin America & Caribbean. The same approach should be employed in East Asia & Pacific due to reliance of the rural population on remittances received. Analyzing the macroeconomic determinants of remittances can help countries identify modes of increasing remittances from migrant workers and aid in understanding which segments of the population benefit most from remittances being sent back home.

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Appendix

Figure 1: Plot of real remittances received in levels for each region

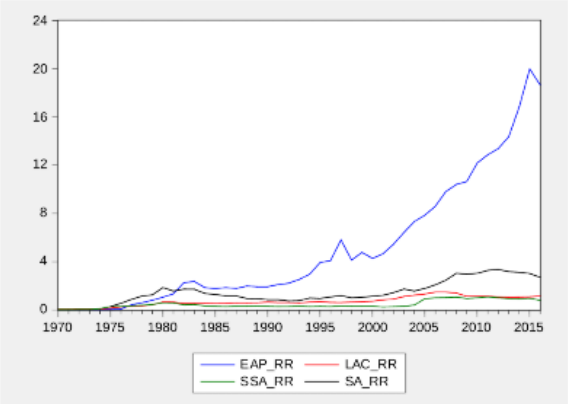

Figure 2: Plot of logarithmic values of real remittances received in each region

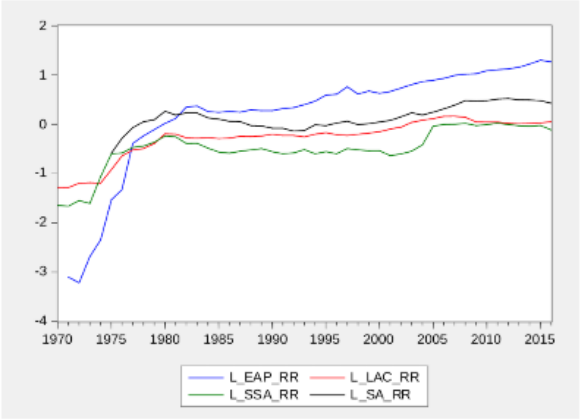

Table 1: Countries included in each region

Region	Countries included					
East Asia & Pacific	American Samoa	Kiribati	Marshall Islands	Myanmar	Samoa	Tonga
	Cambodia	Korea, Dem.	Micronesia, Fed.	Nauru	Solomon Islands	Tuvalu
	China	People's Rep.	Sts.	Papua New Guinea	Thailand	Vanuatu
	Fiji	Lao PDR	Mongolia	Philippines	Timor-Leste	Vietnam
	Indonesia	Malaysia				
Latin America & Caribbean	Argentina	Costa Rica	Ecuador	Haiti	Panama	St. Vincent and the
	Belize	Cuba	El Salvador	Honduras	Paraguay	Grenadines
	Bolivia	Dominica	Grenada	Jamaica	Peru	Suriname
	Brazil	Dominican	Guatemala	Mexico	St. Lucia	Venezuela, RB
	Colombia	Republic	Guyana	Nicaragua		
Sub-Saharan Africa	Angola	Chad	Eritrea	Lesotho	Namibia	South Africa
	Benin	Comoros	Ethiopia	Liberia	Niger	South Sudan
	Botswana	Congo, Dem.	Gabon	Madagascar	Nigeria	Sudan
	Burkina Faso	Rep.	Gambia, The	Malawi	Rwanda	Swaziland
	Burundi	Congo, Rep.	Ghana	Mali	São Tomé and	Tanzania
	Cabo Verde	Côte d'Ivoire	Guinea	Mauritania	Principe	Togo
	Cameroon	Equatorial	Guinea-Bissau	Mauritius	Senegal	Uganda
	Central African	Guinea	Kenya	Mozambique	Sierra Leone	Zambia
	Republic				Somalia	Zimbabwe
South Asia	Afghanistan	India	Pakistan			
	Bangladesh	Maldives	Sri Lanka			
	Bhutan	Nepal				

Table 2:

	Levels: Constant				F.O.D.: Constant			
Augmented Dickey-Fuller test statistic	t-statistic				t-statistic			
	EAP	**LAC**	**SSA**	**SA**	**EAP**	**LAC**	**SSA**	**SA**
	-4.826	**-1.670**	**-2.861**	**-3.267**	**-4.805**	**-3.901**	**-4.702**	**-5.201**
Test critical values: 1% level	-3.5847	-3.6055	-3.5811	-3.6009	-3.5885	-3.5847	-3.5847	-3.6055
5% level	-2.9281	-2.9369	-2.9266	-2.9350	-2.9297	-2.9281	-2.9281	-2.9369
10% level	-2.6022	-2.6068	-2.6014	-2.6058	-2.6030	-2.6022	-2.6022	-2.6068
Kwiatkowski-Phillips-Schmidt-Shin test statistic	t-statistic				t-statistic			
	EAP	**LAC**	**SSA**	**SA**	**EAP**	**LAC**	**SSA**	**SA**
	0.6905	**0.7038**	**0.5763**	**0.5511**	**0.4191**	**0.3379**	**0.2097**	**0.1738**
Test critical values: 1% level	0.7390	0.7390	0.7390	0.7390	0.7390	**0.7390**	0.7390	0.7390
5% level	0.4630	0.4630	0.4630	0.4630	0.4630	**0.4630**	0.4630	0.4630
10% level	0.3470	0.3470	0.3470	0.3470	0.3470	**0.3470**	0.3470	0.3470

Table 3:

Independent Variable	Meaning of Variable
%Δ Percentage of rural population	Percent change in the proportion of the rural population
%Δ Income per capita	Percent change in the home region's income per capita
%Δ Population aged 0-14	Percent change in the percentage of the population aged 0-14
%Δ Inflation rate	Percent change in the inflation rate as captured by the GDP deflator

Tabulation of Regression Results

East Asia & Pacific Sample: 1972-2015

Dependent variable: %Δ Real Remittances Received, *N=44*

Constant	*0.2441***
	(4.096)
%Δ Income per capita	*2.269***
	(2.529)
%Δ Percent rural population	*42.77****
	(4.365)
Adj. R-Squared	*0.3037*
S.E. of Regression	*0.1707*
F-Statistic	*10.38****
Residual diagnostic tests	
Durbin-Watson statistic	*1.398*
Normality	*49.00****
Heteroscedasticity	*6.970****

Latin America & Caribbean Sample: 1971-2016

Dependent variable: %Δ Real Remittances Received, *N=46*

Constant	*0.1034****
	(3.090)
%Δ Percent aged 0-14	*15.14***
	(2.327)
Adj. R-Squared	*0.0893*
S.E. of Regression	*0.0690*
F-Statistic	*5.417***
Residual diagnostic tests	
Durbin-Watson statistic	*1.195*
Normality	*29.81****
Heteroscedasticity	*3.777***

Significance at the 1% level (***), 5% (**), and 10% (*) levels
(T-values in parentheses)

Tabulation of Regression Results

Sub-Saharan Africa Sample: 1972-2015

Dependent variable: %Δ Real Remittances Received, *N=44*

Constant	*0.0114*
	(0.5870)
%Δ Income per capita	*1.404****
	(3.384)
Adj. R-Squared	*0.1955*
S.E. of Regression	*0.1189*
F-Statistic	*11.45****
Residual diagnostic tests	
Durbin-Watson statistic	*1.787*
Normality	*76.71****
Heteroscedasticity	*2.465**

South Asia Sample: 1976-2016

Dependent variable: %Δ Real Remittances Received, *N=41*

Constant	*0.0213**
	(1.761)
%Δ GDP Deflator	*-0.1907***
	(-2.087)
Adj. R-Squared	*0.0774*
S.E. of Regression	*0.0769*
F-Statistic	*4.354***
Residual diagnostic tests	
Durbin-Watson statistic	*1.141*
Normality	*3.168*
Heteroscedasticity	*3.795***

Significance at the 1% level (***), 5% (**), and 10% (*) levels
(T-values in parentheses)