What Drives Remittances to Latin America? A Review of the Literature

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Abstract

Remittances are under the radar of the research community. Abundant empirical literature is available addressing different questions regarding these foreign inflows. Particularly, the work on the impact of remittances on economic growth and the factors driving them into developing nations has notoriously expanded for the region of Latin America. These two aspects of remittances, impact and sources, are actually related but the study and implication of such link has not been explicitly undertaken so far. To fill this gap, we review the most current literature on the forces driving remittances to Latin America in the search of evidence on the link between the causes and impact of these foreign transfers. Results from these studies indicate that the US economy is an important factor determining the level of remittances in the region.

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1. Introduction

Remittances, or the private transfers from immigrant workers to their families back home, have become one of the most important sources of foreign currency in Latin America, reaching US$57.3 billion in 2010 and exceeding foreign assistance to the region. This figure includes transfers sent through official venues and thus probably underestimating their real value. Latin America attracts 20 per cent of global remittances, and by the start of the year 2010, they had become one of the main sources of income stability and poverty alleviation in the region (Adams and Page, 2005; Acosta et al., 2006; Ratha, 2006).

The research community is actively exploring the nature of remittances and their impact on different socioeconomic indicators. Their work has led to robust results but also heated debates in some areas of investigation. While some studies claim that remittances are purely altruistic flows and thus negatively related to economic growth (Chami et al., 2005), others contest the altruistic assumption by considering remittances a key source of economic development (Ratha, 2003). Divergent views have arisen from the poor quality of data, but also the fact that several pressing questions on remittances are delved under a wide range of countries that differ in the demographics of the immigrant worker as well as the level of development.[1]

This paper cannot change the quality of the data, but it can refine the set of questions in two areas that make the discussion of remittances more informative. The first area explores the driving factors or motives to remit while the second area is concerned with their impact on the recipient countries, granting the possibility that source and impact factors are related.

This study serves as a significant complement to other reviews in the field of remittances. Adams (2011) examines the methodology and limitations of using micro-data, while Ruiz and Vargas-Silva (2010a) focus their attention on the empirical results without looking into the methodological structures. We expand the understanding of remittances by providing an exhaustive examination of the results and the methodological aspects of adopting macro-data and time series analysis to study remittances in the region of Latin America. We proceed as follows. The next section disaggregates the research questions in the field of international remittances into two branches: The driving forces and the impact of remittances. The third section examines the methodological approach and the theoretical background of the motives to remit.

Section fourth reviews the results and stylized facts drawn from previous empirical studies, providing invaluable insights into the remittance trends in Latin America. The last section offers important concluding remarks.

2. Research Questions on Remittances

Remittances have been flowing to the developing world for several decades now, but improving the quality of the information collected about these elusive funds has just recently begun. The advances made in the understanding of remittances are laudable given the still countless data limitations, but new econometric techniques have proven effective in addressing important questions in this field. For instance, Chami et al., (2008) offer a comprehensive analysis of remittances in a paper titled *Macroeconomic Consequences of Remittances.* Although interested in the impact of remittances on developing economies, the authors first attend issues related to the motives to remit. Using one of the most complete dataset in this type of studies, they report that remittances are primary compensatory in nature and thus negatively correlated with domestic output. Once they establish the driving factors, sections V through VII of the document develop a theoretical and empirical analysis on the impact of remittances on economic growth.

Similarly, in a paper entitled *Evaluating the Economic Impact of International Remittances on Developing Countries Using Household Surveys: A Literature Review*, Adams (2011) reviews the effect of remittances on poverty, inequality, health, and labour supply. However, section II 'examines some of the theoretical reasons for why migrants remit and how various empirical studies have tried to test these explanations' (p. 2). These studies implicitly argue that before delving into the impact of remittances on the recipient economy, one must recognize the nature and sources of remittances.

Figure 1 illustrates the two major branches of research in the field. One branch focuses on the factors affecting the size of remittances flowing into nations by addressing the question 'What drives remittances in the developing world?' A second branch explores remittances' impact on different economic domains, such as inflation, exchange rates, labour markets, economic growth, and poverty alleviation. Most empirical studies would focus on one or the other area of investigation, but we contend that an explicit identification of the links between the two branches of investigation can improve our understanding of remittances and their impact on recipient economies. For example, if immigrant workers' utility is affected by the wellbeing of their families left behind; then remittances would be negatively correlated with the home economic growth (branch Q1, Figure 1). However, models examining the impact of remittances on growth are inclined to anticipate a positive relationship (branch Q2, Figure 1).[2]

At the micro level, the decision on how much to remit is determined by the immigrant worker while the hours supplied to the labour market is determined by family members of the immigrant worker living in the home country. From this point of view, how much to send affects the level of remittances (Q1 in Figure 1), but the number of hours worked as a remittance recipient impacts the labour market of the home country (Q2 in Figure 1), leading to apparently independent Q1 and Q2 branches of investigation.

Chami et al., (2005) develop and test a model in which labor decisions are marred with moral hazard problem arising from remittances. This foreign income can buy leisure and thus affect labor supply and economic growth in the recipient country. Evidence supporting this premise would confirm the link between branches Q1 and Q2.

We reexamine the literature on remittances through a slightly different lens. Empirical results from branch Q1 might bring light to the level of association between causes and effects of remittances, shaping the findings in branch Q2. Now it becomes clear that Chami et al., (2008) and Adams (2011) are concerned with the impact of remittances on the macroeconomy of developing countries, but their studies are grounded on a previous investigation on the endogeneity of remittances. Endogenous remittances would have enormous implications on the treatment and methodological approach when testing the impact of remittances on economic growth. [3]

Empirically, the factors driving remittances have been explored through the analysis of the business cycle components (Ruiz and Vargas-Silva, 2010b; Borja, 2012), OLS and panel regressions in which GDP, interest rate, and exchange rate, are used as explanatory variables (Chami et al., 2008), and more directly, through national and regional surveys.

Surveys provide detailed information about the immigrant worker and his family's socioeconomic conditions back home, yet a single point of information about the demographics of a remittance recipient could be the source of *selection bias* problems (Adams, 2011).

The literature on remittances is currently quite extensive, thus reviewing it can be daunting if it is not pursued according to a narrow set of specific problems. We focus on studies examining branch Q1: What drives remittances in the developing world? More specifically, we review the results attending the Latin American region for several reasons. First, remittances into the region have grown exponentially over the past twenty years, representing one of the main sources of foreign currency and poverty alleviation for several countries. Second, most Latin American migrant workers travel to the US, while Asian and African migrants move to numerous host countries, not all of them members of the OECD. Third, views on land and livestock as heritage assets differ among Latin American, African, and Asian communities, which suggests heterogeneous motivations for remitting. Finally, the level of economic development and the relevance of remittances with respect to other sources of foreign income urge the need to study each region separately.

3. Factors Driving Remittances

3.1. Theory and Empirics

The interest in understanding the factors driving remittances has resulted in the development of an analytical framework harmonizing with five motives to remit (Rapoport and Docquier, 2005). Figure 1 lists them as altruism, self-interest, insurance, costs related to migration, and foreign labour demand. We briefly describe the theoretical framework for and the empirical approach to each motive.

Remittances are the result of utility-maximizing immigrant workers who attain value from the consumption and wellbeing of their family members back in their home countries. Considered as the altruistic motive, this factor has been well delivered and well received in the literature (Lucas and Stark, 1985; Chami et al., 2008). If altruism were the predominant motivation to remit, one would observe an inverse relationship between family income and the level of remittances. Family income is generally linked to the domestic economy through wages and value of assets; thus, remittances would be inversely correlated with the home country's output. For instance, an economic recession such as the one experienced by Argentina in 2001—an exchange rate crisis that led to unemployment rates of 25 per cent and poverty levels reaching 55 per cent—would compel remittances from Argentineans working abroad. Similarly, natural disasters such as Hurricane Mitch in 1998 that devastated the region of Central America would produce a response from family members working abroad.

The second motive to remit is the so-called self-interest or investment motive. Individuals' future consumption depends on current investment. If investment opportunities are restricted in the immigrant's host country, as is the case for many immigrants due to their legal status, language barriers, or market knowledge, then investment prospects in the home country become appealing (Vargas-Silva, 2009). In this case, the immigrant worker closely tracks expansionary economic periods in his country, ready to profit from investment opportunities. The self-interest motive predicts that remittances and the home country's business cycle move in tandem.[4]

The other two motives to remit, insurance and migration-related debt, have found fewer adherents, but some of the expected outcomes match the features observed among immigrant workers and their families back home. The insurance motive states that families reduce the risk of income loss by sending family members abroad. Thus, if the family loses income through an economic recession or a severe drought, then more remittances would be requested from the members working abroad. Remittances could be interpreted as a 'premium' paid to family back home as a way to increase inheritance shares (Amuedo-Dorantes and Pozo, 2006; Mohapatra et al., 2009; Davis et al., 2010). In this instance, remittances could increase during economic expansion to boost the value of the family assets, such as herds, housing, or land. They could also increase during difficult times to gain favouritism and a higher bequest in the future.

The fourth motive to remit is related to the costs of travel, whereby the immigrant accrued a debt to pay for journey expenses. Immigrant workers must thus send back a fixed amount of dollars regardless of home income fluctuations.

Finally, before maximizing utility and deciding how to distribute income, the immigrant worker must rely mostly on wages in order to remit.

Wages come from job availability and opportunities in the country hosting the foreign labour force. Therefore, the business cycle of the country sponsoring the immigrant labour must also be considered as a force driving remittances. This is particularly relevant for Latin America, where most of the population working abroad is hosted by the US economy alone. Figure 2 summarizes the possible relationships between the motives to remit and the business cycle of the home and host country.

Although theories on the forces driving remittance inflows are coherent, they lead to inconclusive results in terms of the relationship between the home country's business cycle and remittance inflows. This poses a challenge to those interested in empirically testing these theories. Specifically, analyses using macro-data are undermined by the fact that the altruism, self-interest, and insurance motives can coexist, leading to a possibly nullifying or weak effect on the relationship between remittances and the home country's business cycle (Vargas-Silva, 2009). A plausible solution is to work with micro-data, but Adams (2011) and others have indicated that micro-data studies are flawed with identification problems and other biases mainly because the intentions to remit might differ from the way remittances are ultimately used.

Before pursuing a quest into the innovative empirical approaches to assessing the motives to remit, it is necessary to address some methodological issues and data limitations.

3.2. Methodological Design and Data Limitations

Since remittances appeared on policy makers' radars, countries have attempted to improve the quality of the data collected and reported. From this effort, a stream of empirical studies addressing the factors driving remittances has surged, most of them applying time series analysis. This section reviews the standard methodological procedure used in time series analysis, hoping that it might serve as a guideline for further empirical research.

We anticipate that remittances would move countercyclically to the home country's economic conditions if the altruistic motive prevailed over the self-interest motive. We also anticipate a procyclical co-movement with the host country's economy, as this is the source of income that allows remitters to send money back home. Cyclical components and vector auto-regression (VAR) models are useful tools in testing these hypotheses.

A standard procedure in analysing remittances and their co-movements with the home and host country's business cycles consists of removing the trend or time-variant component of the series. After extracting the cyclical component of the series, the contemporaneous as well as the lag and lead correlations between remittances and the rest of the variables of interest, such as domestic GDP and host country GDP, are estimated. Subsequently, the VAR structures describe the dynamic co-movements among macroeconomic indicators while recognizing the endogenous problems generally found in the simultaneous analysis of numerous variables. Prior to estimating the VAR, any time series analysis entails several steps.

First, the series must be tested for stationarity. Most macroeconomic variables fail the stationarity tests at levels, but by first-differencing or using the cyclical components, the series can be incorporated in the VAR model and the test biases corrected. Second, macro data can endorse seasonal components. For instance, it has been observed that remittances to Latin America increase during the months of May (Mother's Day) and December (Christmas), calling for a seasonal adjustment. Third, the optimal lag number needs to be determined, representing the dynamic structure of the VAR. Fourth, the nature of macroeconomic variables such as remittances and GDP is to behave as *I(1)* or order-one processes, and VAR models raise the possibility of a linear combination of these *I(1)* processes into a stationary linear combination. A stationary linear combination calls for a case of cointegration (Engle and Granger, 1987); thus, a more appropriate alternative is to apply vector error correction models (VECM).

After the series are stationarised and tested for cointegration, the VAR or VECM, or a variation of these models, is estimated. This model becomes the supporting structure from which impulse response functions or variance-decomposition tables are derived. Both of these approaches have been widely used to assess the impact of home and host country's business cycles on remittances.

None of the methodological practices mentioned above has raised more concerns than the quality of data on remittances. The problem is that governments, central banks, and international organizations report remittances using different definitions and criteria.

Some countries register remittances and foreign assistance in the unilateral transfers account. Others might combine workers' remittances, employee compensations, and migrants' transfers into a single account in their balance of payment systems, leading to gross misspecifications in empirical studies.[5]

Most Latin American countries use the latest version of the IMF balance of payment manual; however, countries started applying the manual at different times, prompting potential biases in empirical studies covering several countries over long periods. In addition, information collected includes only 'official' data—international transfers using the formal financial sector—which could be seriously underestimated (Ratha, 2003). Most countries suffer from at least one of these data limitations, which have been gradually overcome as more data is collected and innovative econometric approaches tested. Empiricists working with time series analysis have taken on the challenge of studying the factors affecting remittances given the limitations mentioned above. The next section examines the main results of this extensive work.

4. What Drives Remittances to Latin America?

Figure 3 shows that remittances reached US$57.3 billion in 2010, six times the international aid value and more than half the foreign direct investment (FDI). The region contains several countries in which remittances exceed 20 per cent of GDP and more than double the FDI.[6] In addition, remittances in the region are a steady source of foreign income, providing enormous stability to the external sector of nations constantly exposed to international commodity price volatility and natural disasters (Yang, 2008; Mohapatra et al., 2009).

The questions naturally arising from Figure 3 are twofold: Are remittances stabilisers against domestic output fluctuations, and do they respond to US economic cycles? The examination of the relevant literature presented below is more comprehensive and exhaustive than earlier documents, providing detailed information on methodology and results. In the case of Latin America, several of these studies supply evidence of procyclical behaviour between remittances and the US business cycle, but the co-movement between remittances and the home country's business cycle is more debated.

4.1. Remittances to Latin America Using Time Series Analysis

Time series analysis has been widely used to investigate the relevance of altruism and self-interest motives for remitting. Sayan (2006), adopting data from twelve developing countries (two of them from Latin America), employs polynomial filters to extract the cyclical component of the series and investigates the co-movements between remittances and the home countries' GDP. He reports contemporaneous as well as one-year lag and on-year forward correlations, indicating that remittances respond countercyclically to domestic GDP and supporting the altruistic motive to remit. However, once the correlations are analysed by country, most economies show acyclical behaviour.[7]

Vargas-Silva and Huang (2006) examine the altruistic versus self-interest motive to remit as well as the impact of the US economy on remittances. They estimate a vector error correction model (VECM) to derive variance decomposition tables and impulse-response functions (IRFs) for a group of five Latin American nations as well as for Mexico alone. They report that the US business cycle is the most relevant factor driving remittances to these nations and find limited statistical evidence for the altruistic or self-interest motives to remit.

Roache and Gradzka (2007) expand on the analysis by adding more Latin American countries and more economic indicators into the study. By considering several econometric techniques —such as lag-correlations of data in first-difference, cointegrating tests, VECM, and IRFs— they find that only Brazil, El Salvador, and Peru show long-term positive relationships between remittances and the US economy. However, once the home country's GDP is incorporated in the VECM, the statistical relevance of this relation fades. The authors, however, warns about the likelihood of small-sample bias.

To overcome problems related to the number of observations, several studies have opted for country-case studies. Some countries in the region have improved the collection of remittance statistics earlier than others, facilitating the application of time series analysis by country-case. For instance, Vargas-Silva (2008) applies the Baxter-King filter and develops a structural vector autoregression model (SVAR) to derive variance decomposition structures and IRFs for Mexico. His results indicate that remittances behave counter-cyclically with Mexico's GDP, supporting the altruistic motive to remit.

Bora-Durdu and Sayan (2008) corroborate the results of Vargas-Silva (2008) for the case of Mexico by calibrating a two-sector model for a small open economy and generating IRFs. By applying a novel approach, Magnusson (2009) documents the business cycle properties of remittances and regional US output in states where Hispanic immigrant workers are highly concentrated, such as California, Texas, and New York. He explores the correlations between the cyclical component of remittances and US regional variables for the case of El Salvador and Mexico, providing evidence of procyclical co-movements. In a detailed analysis of series decomposition and correlations, Coronado (2009) traces the cyclical portion of remittances, US GDP, and domestic GDP for Mexico and El Salvador. His results detect a procyclical relation between Salvadoran remittances and US GDP but a countercyclical relation between Mexican remittances and US GDP. Moreover, remittances are countercyclical with domestic GDP, supplying evidence of altruistic behaviour.

After the US financial crisis of 2008, Ruiz and Vargas-Silva (2010b) tested for positive co-movements between Mexican remittances and the US economy. They introduced two macroeconomic variables to account for business cycle properties: the number of houses sold in the US and the number of houses started in the US. These 'housing' indicators are closely related to the US recession and the Hispanic labour force, offering a more accurate picture of the relationship between the US business cycle and the immigrant workers who remit to Latin America. Using a VAR model, the authors also incorporate the US and Mexican interest rate differential in an attempt to assess the self-interest motive. They find that Mexican remittances move in tandem with the US economy but find little statistical evidence of the altruistic or self-interest motives to remit.

The US financial crisis and the subsequent economic recession greatly affected the Central American countries. One of the transmission mechanisms by which the recession was felt throughout the region was remittances. Borja (2012) focuses her attention on the impact of the US recession on remittances in Central America by analysing the cyclical properties of the US GDP and US Hispanic unemployment rate, corroborating preliminary results in which the US business cycle affects Salvadoran remittances. In addition, Borja develops a VAR model and IRFs, reporting that these private transfers have become a relevant channel linking the US with the Central American economies.

The facts drawn from the empirical research using time series analysis are twofold: first, there is a procyclical relationship between the US economy and remittances to Latin America; second, the evidence in support of the altruistic or self-interest motives to remit is inconclusive. Perhaps the main limitation is the difficulty in differentiating the motives to remit when using remittance levels. Most of these studies recognise the possibility that altruistic, insurance, and self-interest motives are acting simultaneously and thus weakening the power of statistical tools. Overcoming this limitation requires using micro-data in which the intentions to remit are directly solicited or using panel data in which the number of observations are greatly expanded. The next sections are devoted to exploring these two alternatives.

4.2. Remittances to Latin America Using Panel Data Analysis

The endeavour to find evidence in favour of the altruistic or self-interest motives to remit using a broad set of countries can be found in Chami et al., (2005), Chami et al., (2008), Giuliano and Ruiz-Arranz (2008), and Ziesemer (2006). These studies have each compiled a sizeable dataset of countries and have applied panel data analysis to build on models that shed some light on the motives to remit. The dependent variable is generally defined as the ratio of remittances to GDP, the explanatory variables are the host and home GDP differential as an indicator of the altruistic motive, and the host and home interest rate differential as an indicator of the self-interest motive to remit. Chami et al., (2005) find that the income differential matters but that the interest differential parameter is small and statistically insignificant, offering cross-country evidence that remittances are the result of altruistic behaviour. Chami et al., (2008) increase the number of observations and run several regressions under fixed and random effects. The coefficients on the income gap are important while those on the interest rate differential remain irrelevant for most of the regressions, presenting supporting evidence of the altruistic motive.

In contrast, Giuliano and Ruiz-Arranz (2009) conclude that remittances respond to the investment motive as much as to the altruistic motive. They cover the period of 1975 to 2002 and analyse the cyclical component of the series, finding that two thirds of the countries under study show a positive correlation between domestic GDP and remittances. Nonetheless, this study uses average cross-country proxies, which could conceal specific national or regional features.

By applying panel data analysis, another line of research has investigated the effects of natural disasters on remittances. The assumption is the following: natural disasters such as hurricanes or droughts would reduce the income of the families in the affected country; a substantial increase in remittances during such periods would evidence altruism. Yang (2008) constructs an index of the level of damage caused by hurricanes per country and per year for a set of thirty-five nations, ten of them from Latin America. He runs panel data regressions in which the dependent variable ranges from economic damages as a ratio of GDP to human losses per occurrence, and remittances become the key explanatory variable. The econometric exercise indicates that remittances significantly increase after a hurricane but only in poor countries. Yang considers that poor countries have few or no efficient mechanisms to cope with income variations arising from these unforeseen events; thus, remittances serve as instruments to smooth consumption during these periods. Mohapatra et al., (2009) and David (2010) also delve into the impact of catastrophes on remittances using a broader concept of natural disasters. The panel regressions indicate that remittances do increase as a response to disasters, offering evidence of altruistic behaviour. [8]

In a provocative study, David (2010) estimates a panel-VAR model, which significantly reduces the problems arising from limited observations. Several impulse-response functions and forecast error variance decompositions are derived, illustrating the responses of remittances to natural disaster shocks. His results provide additional evidence on the altruistic motive to remit.

4.3. Remittances to Latin America Using Micro-Data

Micro-data, or survey-data, is rich in information about the demographics of the remitter and the recipients, but several challenges arise from this type of data. Adams (2011) offers information on the benefits and challenges of these models as well as the econometric practices, but he does not cover the empirical literature on the factors driving remittances. This paper provides the results of that branch of research. The main advantage of using micro-data is the possibility to discriminate among the different motives to remit. In a convincing analysis, Agarwal and Horowitz (2002) develop a creative way to recognise these motives. The assumption is that, if immigrant workers respond to altruism and their objective is to smooth the consumption of family members left behind, remittances would decline as the number of migrants in the household increases. If remittances are sent as a form of insurance to gain future inheritance, the presence of more migrants within the household should not affect the per-migrant remittance level. Using data from Guyana, a South American country with an estimated 50 per cent of its population residing abroad, they find that remittances tend to fall as the number of migrants increases within the household, granting additional evidence of the altruistic motive to remit.

De la Brière et al., (2002) find evidence of both altruistic and self-interest behaviour in the case of a rural region in the Dominican Republic. In their models, remittances serve as a form of insurance to smooth consumption against negative shocks in the home country, but they also serve as funding to enlarge family assets and future bequest. Empirically, the challenge is to differentiate between these two intentions to remit. A Tobit model is developed in which the key explicative variables to testing the altruistic motives are the household's income and the number of lost working days due to illness. On the other hand, the variables testing for the self-interest behaviour are the assets owned by the household and the number of heirs. The conclusion is that 'both insurance and investment objectives induce remittances, and the latter more strongly than the former' (De la Brière et al., 2002: 321).

By adopting a fresh view and using survey data drawn from the US-Mexico borders during five different periods, Amuedo-Dorantes and Pozo (2006) also find evidence of altruism and self-interest behaviour. The migrant worker, a risk-averse individual, would seek to increase remittances as a way to insure himself against personal income variability in the host country. The econometric model relies on the migrant's features in the US job market such as legal authorization to work, number of years working in the US, and networking. Their results provide evidence of self-interest behaviour. They also find that the size of the family in the home country matters, offering evidence of altruistic behaviour. Vargas-Silva (2009), using data on crime in Colombia as a proxy for 'investment climate', finds that crime and remittances are negatively correlated, evidencing self-interest behaviour among remitters. However, he also finds that being a victim of a crime and the size of the household are positively associated with remittances, suggesting altruistic motivations. In general, the size of the household in the home country tends to be significant across estimations, offering strong evidence of the altruistic motive.

Figure 4 offers a summary of the results of the papers discussed so far. Two key findings emerge concerning Latin America. Almost 80 per cent of the papers suggest a positive relationship between remittances and the US economy, thus verifying that the US business cycle is a factor driving remittances to the region. In addition, 64 per cent of the results point toward a countercyclical relationship between remittances and the domestic business cycle, supporting the altruistic nature of remittances. Only 18 per cent of the results suggest a procyclical relationship, evidence of a self-interest motive to remit. Finally 18 per cent of the papers report no statistical evidence of altruistic or self-interest behavior.

5. Conclusions

Understanding the factors affecting remittances in recipient nations is a relevant discussion within the research community and among policy makers in Latin America. Every year, Latin America receives billion of dollars in these foreign transfers, representing more than 20 per cent of the GDP and more than 100 per cent of total exports among numerous nations within the region. Remittances infuse enormous stability in the external sector and provide a mechanism for smoothing consumption and diversifying income among the poor. The objective of this paper was to provide a better understanding of the factors driving remittances by reviewing the recent empirical literature. It classified the research questions into two main branches: what drives remittances in the developing world and the impact of remittances on economic development. It explicitly recognized the possible links between causes and impact of remittances, and it delved into the econometrics and data limitations of studies using time series analysis and other methodological approaches. Finally, it offered an exhaustive examination of the most recent literature on the factors driving remittances in Latin America.

Understanding the cyclical characteristics of remittances and their relationships with the home and host country's output is a critical matter because remittances can be considered a blessing if they move counter-cyclically to the home country's GDP, as they smooth consumption and operate as a cushion against output variations. However, evidence of procyclical co-movements could become a curse, as remittances would infuse volatility into the domestic economy. In addition, finding evidence of pro or counter-cyclical behavior would require corrections of potential biases emerging in empirical assessments of the impact of remittances on recipient economies. The motives to remit are complex, and the examination of numerous empirical studies indicates that these motives might not be exclusive. Reviewing the specific case of Latin America suggests that the US economy affects the level of remittances in the region but the impact of the home business cycle on remittances is not definite. While more than 60 per cent of the results indicate a countercyclical relationship, providing evidence of the altruistic motive to remit, about 40 per cent of the results indicate procyclical or acyclical co-movements, suggesting self-interest behaviour or other motives to remit.

Notes

1. Chami et al., (2008) and the World Bank (2006), two extensive documents rich in information about causes and impact of remittances, emphasize on the potential effect of country and region differences on their empirical results.
2. Several policy briefings and multinational organization reports endorse the opinion that remittances have a positive impact on the economies of recipient nations (Orozco, 2003; Ratha, 2003; Carling, 2005).
3. Evidence of the endogeneity of remittances would imply that OLS or standard panel analysis in which remittances, GDP, investment, and other domestic variables are incorporated in a model would suffer from serious reverse causality and endogeneity bias. These studies must find adequate instrumental variables or use econometric techniques addressing these problems (Catrinescu, 2006; World Bank, 2006).
4. Investment does not necessarily consist of the acquisition of physical assets. Immigrants also invest in the education of siblings and other extended family members with the expectation that those educated members will assist them in their old age.
5. Chami et al., (2008) devote a chapter to describing the forms in which remittances are collected and compiled by various institutions and stress the biases resulting from the use of different concepts and sources.
6. For instance, in 2010 remittances in Central America totaled US$12 billion compared to the US$5.8 billion in FDI.
7. Numerous studies paved the way for an understanding of remittances and business cycle long before Sayan (2006), but we refer to Ruiz and Vargas-Silva (2010a) for earlier work. In addition, several empirical papers have analysed the cyclical nature of remittances and their relationship with host/home country business cycles focusing on other regions in the world (Sayan, 2004; Gupta, 2005; Lueth and Ruiz-Arranz, 2008).
8. Barajas et al., (2010) and Yang and Choi (2007) have investigated the value of remittances after natural disasters with similar results as those presented above but have focused on other regions in the developing world.

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Figures

Figure 1: Traditional Research Questions on Remittances

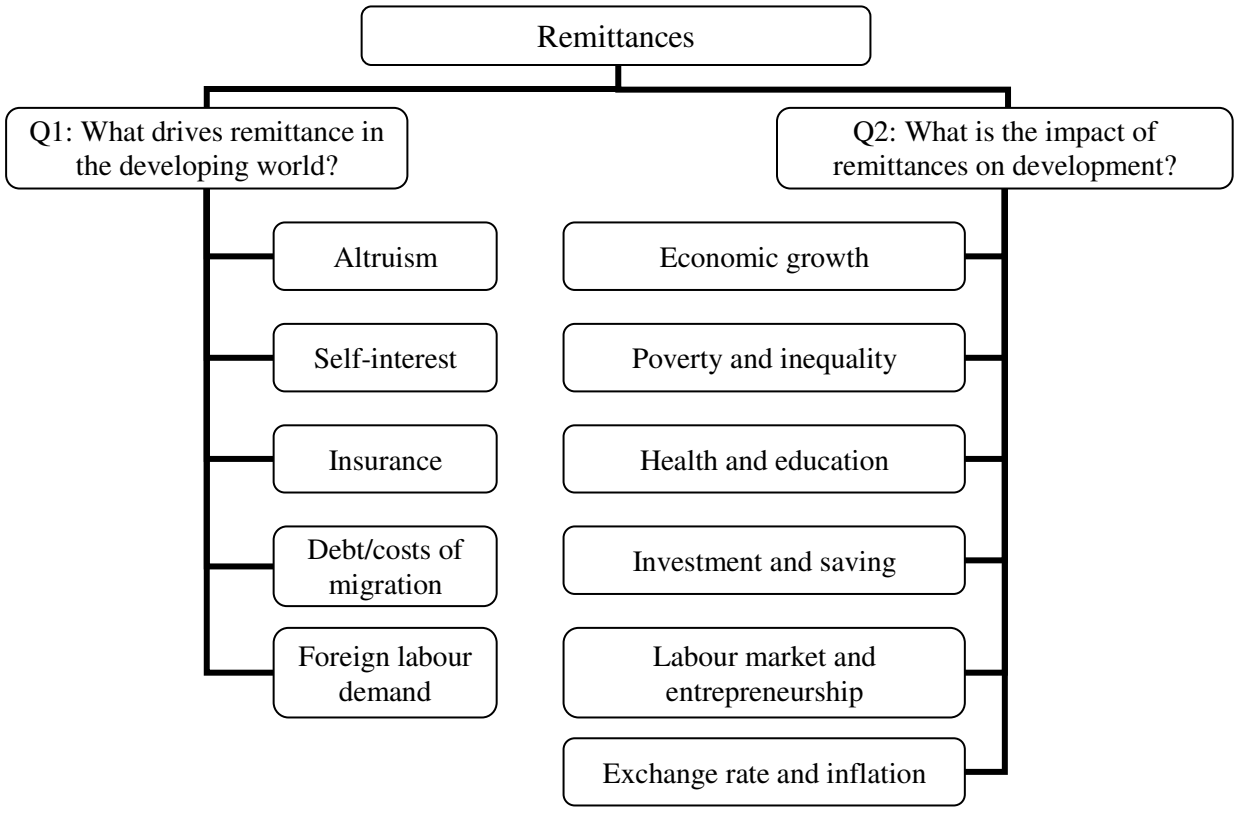


Figure 2: Motives to Remit and Business Cycle

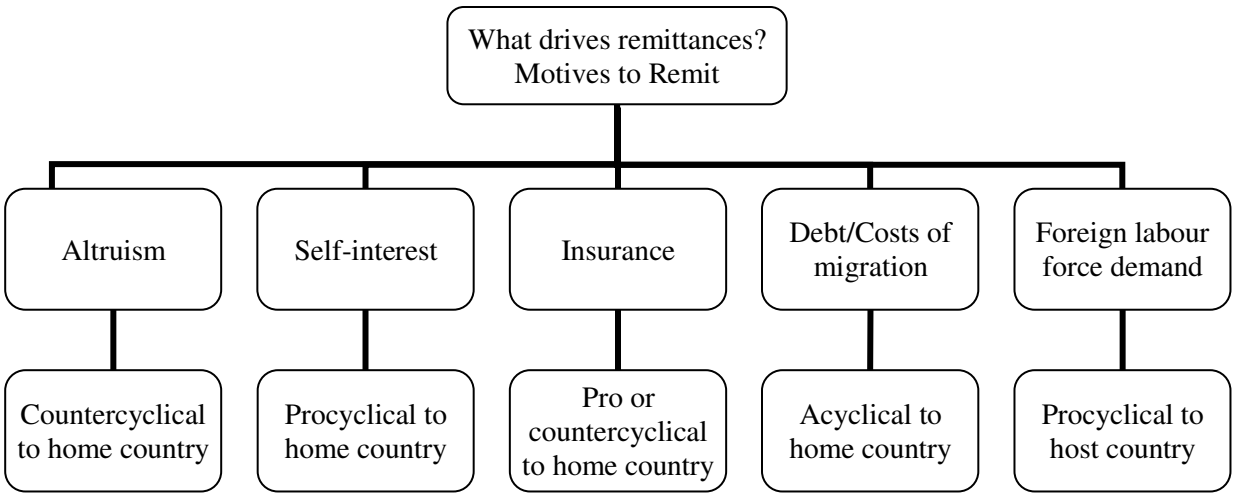
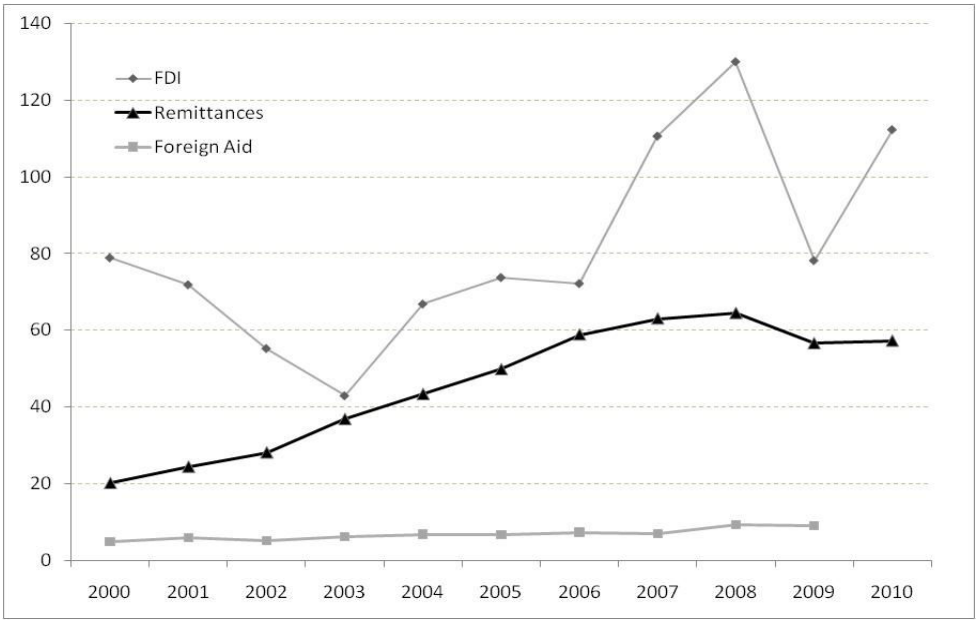


Figure 3: Ten Years of Capital Inflows in Latin America



Source: Author's own calculations. Data retrieved from the World Bank Development indicators.

Figure 4: Remittances and Home/Host Country Business Cycle in Latin America

Paper	Dataset	Econometric Tool	Results					
			A	B	C	D	E	F
Sayan (2006)	12 Countries, 2 Latin American countries Y, 1976-2003	Polynomial filters	X	X				
Vargas-Silva & Huang (2006)	5 Latin American Countries Q, 1981-2003	VECM, variance decomposition, granger causality test, & IRFs.		X				X
Roache & Gradzka (2007)	14 Latin America Countries Q, 1990-2007	Correlations, cointegration tests, VECM, dynamic state/space model, IRFs.					X	X
Vargas-Silva (2008)	Mexico Q, 1981-2006	Baxter-King filter, SVAR, variance decomposition, & IRFs.	X					
Bora-Durdu & Sayan (2008)	Mexico & Turkey Q, 1987-2004	Calibration of a small open economy model & IRFs.	X					
Magnusson (2009)	Mexico and El Salvador Q, 1995-1998	HP filter & distributed lag model.						X
Coronado (2009)	Mexico, El Salvador, & Turkey Q, 1960-2008	Cyclical components, unobserved components state-space model, the Beveridge-Nelson approach.	X			X		X
Ruiz & Vargas-Silva (2010)	Mexico M, 1998-2008	VAR and IRFs		X				X
Borja (2011)	El Salvador Q, 1991-2010	HP filter, VAR and IRFs						X
Chami et al. (2005)	113 countries, 23 from Latin American Y, 1970-1998	Cross-country, panel regression & fixed effects.	X					
Chami et al. (2008)	More than 100 countries Y, 1970-2005	Cross-country panel, pooled estimation, fixed & random effects.	X					
Giuliano & Ruiz-Arranz (2009)	100 countries Y, 1975-2002	Cyclical component, HP filters.	X		X			
Ziesemer (2006)	96 countries Y, 1960-2003	General Method of Moments (GMM).						X
Yang (2007)	35 countries, 10 from Latin America Y, 1970-2002	Cross-country panel regression with fixed effects.	X	X				
Mohapatra, Joseph, & Ratha (2009)	129 countries Y, 1970-2006	Cross-country, panel regression, & fixed effects.	X					
David (2010)	78 countries Y, 1970-2005	Cross-country panel regression with fixed effects & panel VAR models.	X					
Agarwal & Horowitz (2002)	The Guyana 1992-1993 Survey	Maximum Likelihood estimations.	X					
De la Brière et al. (2002)	Dominican Republic 1994-Survey	OLS, Tobit model, Censored Least Absolute Deviations (CLAD) estimators.	X		X			
Amuedo-Dorantes & Pozo (2006)	Surveys at the US-Mexico border, 5 different periods	Tobit model.	X		X			
Vargas-Silva (2009)	Colombia 2003-Survey	Probit model & IVs.	X		X			

Remittances are: A = countercyclical to the home country's business cycle; B = acyclical to the home country's business cycle; C = procyclical to the home country's business cycle; D = countercyclical to the US business cycle; E = acyclical to the US business cycle; and F = procyclical to the US business cycle. Y = Yearly data; Q = Quarterly data; and M = Monthly data. VAR = Vector Autoregression Model; VECM = Vector Error Correction Model; IRFs = Impulse-Response Functions; IV= Instrumental Variables. From the results above, 64 per cent indicate a countercyclical co-movement between remittances and the home country's economy, 18 per cent show acyclical or procyclical behavior. From the results providing evidence of the relationship between remittances and the US output, 78 per cent indicate a procyclical behavior, 11 per cent indicate acyclical or countercyclical co-movement.