

The Macro-Economic Impact of Remittances in Latin America- Dutch Disease or Latin Cure?

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1. Remittances and Macroeconomic Flows - Introductory Remarks

The Report of the Inter-American Dialogue's Task Force on Remittances, *All in the Family: Latin America's Most Important International Financial Flow*, states that remittances constitute the most important source of new funds for the region. In 2005 the amount of remittances is estimated to have exceeded \$53 billion, some 2 ½ percent of regional GDP. This is a significant amount by any standard. It is equally remarkable that these remittances are largely concentrated in just a few countries. According to IDB and ECLAC data for 2005, when total remittances amounted to US\$53.6 billion (\$40 billion from the United States), most are destined for Mexico (\$20 billion), Brazil (estimated \$6.4 billion), Colombia (\$4.1 billion), Guatemala (\$3 billion), El Salvador(\$2.8 billion), Dominican Republic (\$2.7 billion), and Ecuador(\$2 billion). Remittances as a percentage of GDP were as high as 19 percent for Jamaica, 17.1 percent for El Salvador and 16.9 percent for Nicaragua.

Remittances are comparable in magnitude to private capital flows to the region. In recent years, remittances have even exceeded capital inflows. This large volume of remittances raises a number of important questions about their effect on economic outcomes in Latin America.

Most research has focused to a large extent on the microeconomic and banking/transfer aspects of remittances, with only a cursory discussion of the macroeconomic aspects of these flows. For example, the economic analysis of remittances has been covered very effectively in the recent past by H. Rapoport F. Docquier, in "The Economics of Migrant Remittances."² It differs from the current presentation, however, in that it discusses the implications of emigration and remittances on resource allocation and relative prices, but does not explore in detail the links of remittances and macroeconomic balances.

¹ This paper was written, during Mr. Loser's tenure as Senior Fellow at the Inter-American Dialogue, Adjunct Professor of Economics at George Washington University, and more recently member of Centennial Group Latin America. The IDB provided support at the early stages of the projects as part of their continued interest on the subject. The draft has benefited particularly from the authors' association with the Inter-American Dialogue, and his President Peter Hakim, as well as Mr. Loser's previous thirty year association with the International Monetary Fund. The authors want to thank Virginia Sopyla for the support work during her internship at the Dialogue. Of course, all assertions and all possible mistakes remain the sole responsibility of the authors.

² Rapoport, Hillel, and Docquier, Fredric-The Economics of Migrants' Remittances, in *Handbook on the Economics of Reciprocity, Giving and Altruism*, Varet, Kolm and Ythier, Editors.;North Holland (2003)

As scholars worldwide have begun to lend more importance to the macroeconomic impacts of remittances, the literature on this subject has grown.³ Some questions that this study seeks to address are how remittances impact (a) the external current account, (b) the exchange rate, (c) domestic interest rates, (d) domestic savings, (e) investment and (f) GDP growth?

A related concern is the possibility of the so-called Dutch disease, defined as the appreciation of the currency in response to new flows.⁴ The appreciation of the currency will have an adverse effect on other sectors of the economy, and will change their growth prospects. The effects and policy responses depend on whether the remittance flows are taken as short-term or long-term phenomena. If they are seen as a short-term phenomenon, fiscal and monetary policy intervention may become advisable. However, if, as is most likely, the flows are of a longer-term nature, the receiving country would need to accept that the remittances are there to stay and will have to make more fundamental and lasting macroeconomic adjustments.⁵ To the extent that recipients save in the financial system (which to date has been a small proportion of total flows) the monetary policy may need to change. Also, policies will depend on the extent that recipients spend domestically (e.g. construction) or externally (e.g. imports of goods and services), with different effects on the exchange rate.

The overall response of remittances to cyclical conditions is also important. These flows constitute voluntary and targeted flows that seek to improve the conditions of family members in the countries of origin.⁶ Flows may increase with improved economic conditions in the country of residence of remitting individuals, and also in response to deteriorating conditions in the country of origin. In the latter case, these flows will have a stabilizing effect at times of crisis.

This study is devoted mainly to the questions outlined above, and incorporates a review of the literature. Furthermore, it provides a set of conclusions and recommendations regarding the adjustment of domestic policies to these flows. The goal is to provide the best conditions for macroeconomic stability and economic growth in the recipient countries, while preserving the core objective of remittances, namely to benefit those individuals that receive these transfers and their families.

2. Conceptual issues and related review of the literature

³ See Durand, Kandel, Parado, and Massey, 1996 for a broad discussion of macroeconomic issues. See Buch and Kuckulenz, 2004 for links with capital flows. See Solimano, 2003, and Lowell, 2005, for links to remitting countries.

⁴ The term Dutch disease originated from the effect that gas findings in the North Sea had on the Dutch economy. It was found that the increase in the supply of exports would lead to an appreciation of the local currency, with an adverse effect on other exports or import competing items. The term is now used as a description of the same or equivalent (higher prices for commodities) effects in other economies.

⁵ Amuedo-Dorantes and Pozo, 2004 and Rajan and Subramanian, 2005 analyze this effect.

⁶ Global Economic Prospects 2006, World Bank; Guiliano and Ruiz-Arranz, 2005.

a) Remittances and the Macroeconomic Accounts

Remittances are incorporated into the national accounts of the receiving economy as a transfer from abroad. As such, they go directly into the expenditure path of the economy, and are oriented either toward consumption of goods and services (food, shelter, education), or otherwise savings and investment.

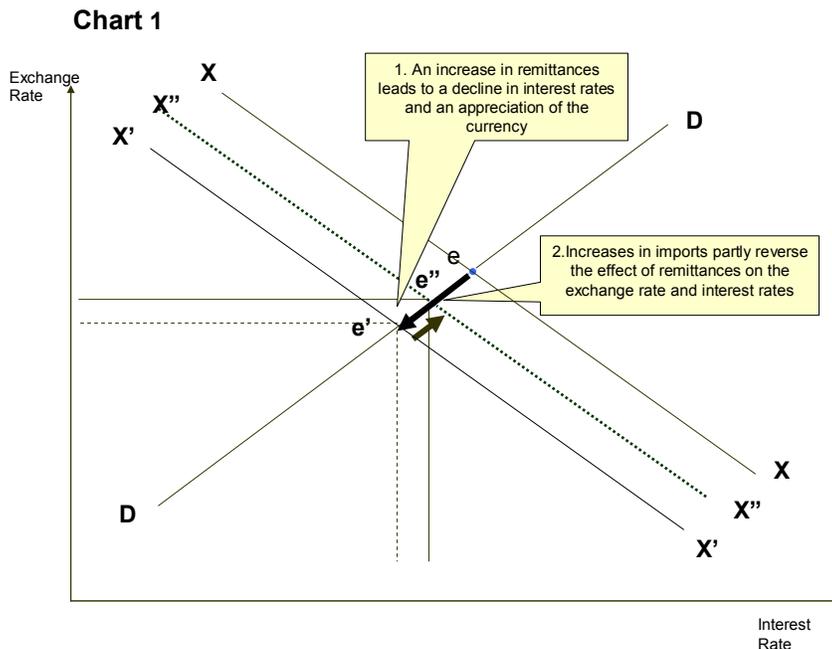
Leaving aside the complex issue of whether the emigrants would have provided greater value added residing in their country of origin, the money they remit plays a positive role in the economy. It contributes to national savings, except when the entire remitted amount is consumed. The savings take the form of direct investment, cash, or deposits into the financial system. Chart 4 provides an illustration of the contribution of remittances to domestic investment. On the assumption that the percentage of savings from remittances is equivalent to that from the overall economy (no hard macroeconomic data is available to prove a different assumption), the chart shows that remittances contribute an increasing proportion of resources for domestic investment, possibly substituting for some domestic savings, while foreign capital inflows have declined in importance.⁷

The key point to keep in mind is that remittances will have to be accommodated within the macroeconomic flows of the economy. In turn remittances will be reacting to underlying conditions in the economy. As remittances come into the receiving economy, expenditure and savings will tend to increase. The increase of expenditures, as illustrated below, will put pressure directly on some accounts within the balance of payments, as imports increase, and exports decline, because of increased domestic demand. This effect will take place directly through an increase in the demand for “tradable” goods (exports and imports), or through changes in relative prices. In simple terms, as domestic demand increases because of the purchasing power of remittances, domestic prices and wages will tend to rise, in practice resulting in a real appreciation of the local currency. This phenomenon, discussed below as “Dutch disease”, would result in a loss of competitiveness for some exports and import substitutes, and thus in an increase in imports and lower exports as well. In any circumstance, this will have an impact on the balance of payments (as illustrated in the next section).

Other macroeconomic effects would come about from the increased availability of resources for savings, which could be reflected as a result in more resources and lower interest rates, thus inducing higher investments. This is illustrated in chart 1, which shows the effect of an increase in remittances on the equilibrium in the external and the domestic market. The chart shows the curve X , which provides the balance between interest rates and the exchange rate, where depreciation is shown as an increase.

⁷ One possible simplification is to include all remittances as part of savings, thus underestimating the contribution of domestic savings. This assumes that remittances displace all other savings and do not contribute whatsoever to consumption, although it can be expected that there will be some substitution between domestic savings and remittances. The assumption used in this paper is more realistic, and still shows an increasing importance of these flows in financing investment.

Increased remittances are reflected by a shift downward to X' , as additional foreign exchange can be adjusted by an appreciation or lower interest rates and capital inflows. The equilibrium exchange rate appreciates and the interest rate declines, to attain equilibrium in the external and the domestic market (DD). Box 1 provides a description of the formal model on which the graphs are based, and that incorporates remittances to the macroeconomic accounts.



Remittances will respond to changes in economic conditions in the receiving country. An external shock that affects domestic income will tend to induce emigrants to send money to their families and thus offset in part the adverse effect on the external crisis, by providing a stabilizing impact that may act as a strong countercyclical mechanism. This has been the evidence in the region in recent years, particularly as remittances have become a significant portion of foreign receipts. Moreover, this countercyclical effect on remittances will tend to be magnified to the extent that an external shock results in a balance of payments crisis, and a more depreciated currency, that tends to induce greater remittance inflows because of increased opportunities for remitters. This is illustrated in Chart 2, which shows the combined effect of a balance of payments crisis, a domestic adjustment, and the reaction of remittances to deteriorating conditions in the receiving country. The external shock may require adjustments in the interest rate and exchange rate that may be further accentuated if the government needs to make further adjustments to deal with the decline in resources from abroad. In turn, the increase in remittances, may lead to some appreciation of the currency, but the end result will be that the currency depreciates after all movements have taken place. Interest rates, on the other hand will end up below the intermediate equilibrium, but the final outcome is uncertain.

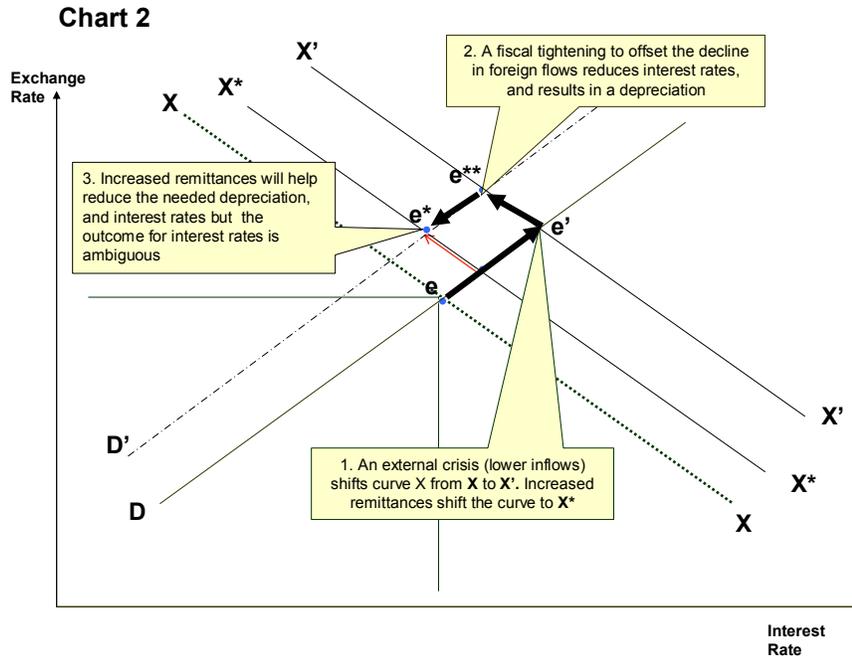
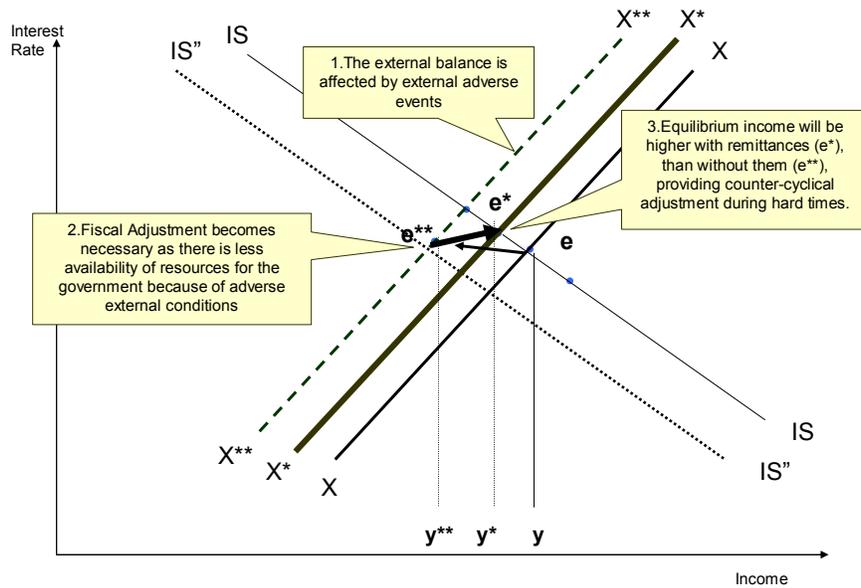


Chart 3 shows the traditional macro economic *IS* model, making explicit the external sector (*XX*), and leaving the monetary sector (*LM*) as an implicit adjustment mechanism typical of an open economy. The chart shows the moderating effect of an increase in remittances, in response to a negative external shock accompanied by a pro-cyclical (tightening) fiscal policy, to accommodate lower real income and capital inflows. This would be the typical case of a country with limited reserves and low access to countercyclical financing. Remittances are shown to allow for a higher level of expenditure, offsetting in part the effect of adverse external conditions. Of course, if remittances are adversely affected by external conditions, this positive effect would be partly offset as well. For example, remittances will tend to be reduced if income in the remitting country (say the US or Europe) declines, with adverse consequences on the income of the immigrants.

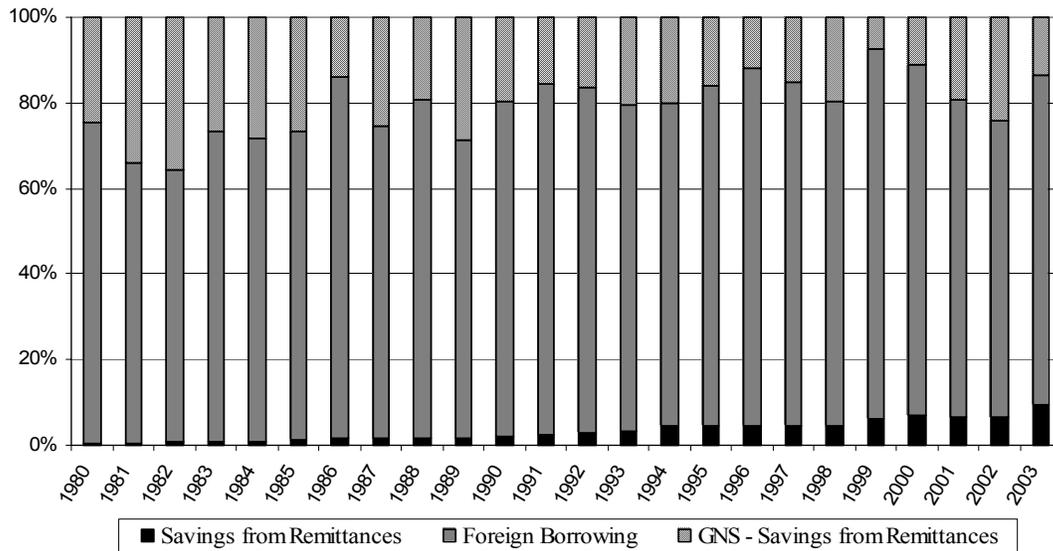
Chart 3



In the end, the results will depend on the overall behavior of the economy, and cannot be subject to broad generalizations. The next sections seek to explore some of these aspects, supported by the discussion of the more formal model in Box 1.⁸

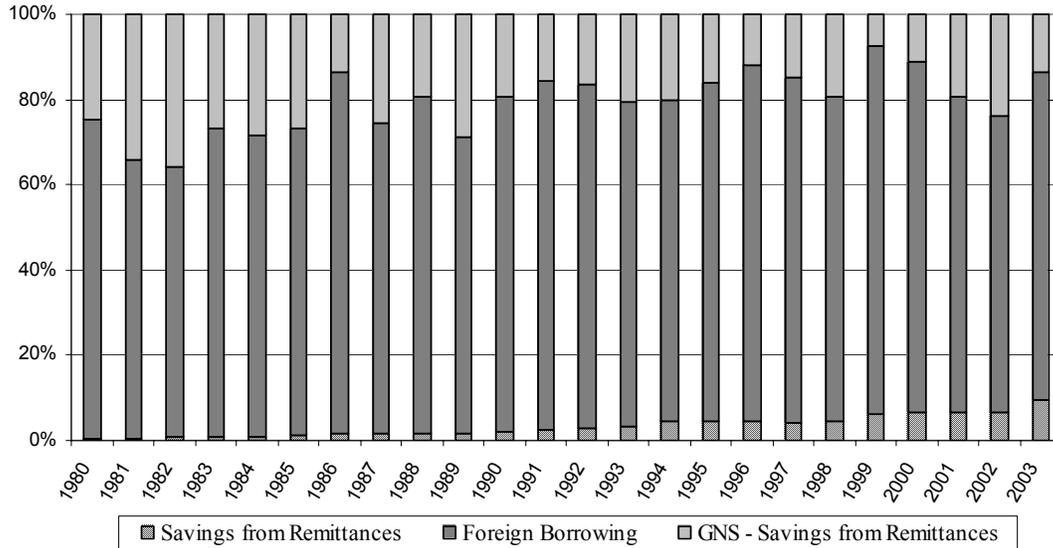
⁸ These illustrations present a look at the links between remittances and key macroeconomic variables. Even though the charts reflect different markets, they describe the same phenomena, based on stylized assumptions that simplify the discussion of the behavior of the domestic economy and foreign markets. However, they help understand the complex relations among variables and how they may end up showing up in “unexpected” results from a simple partial equilibrium point of view.

Chart 4
Financing of Investment
 (Simple average for 7 countries)



The literature on remittances shows contradictory results with regard to the behavior of remittances in response to changing conditions in the receiving country. Rajan and Subramanian found that remittances had no real impact on alleviating financing constraints throughout the 1990s in a broad range of countries (Rajan and Subramanian, 2005, p 20). By contrast, other studies have shown that remittances impact macroeconomic accounts by acting as a source of financing for countries that otherwise have fairly restricted options. In this regard, banks in several countries in Latin America, including Brazil, El Salvador and Mexico, have begun using the securitization of future remittance flows in order to raise inexpensive and long-term financing from international capital markets. For example, between 1994 and 2000, Mexico, El Salvador and Turkey were able to raise about \$2.3 billion through remittance securitization (World Bank, Global Economic Prospects, 2006, p 103). Ketkar and Ratha offer another example – in August 2001, Banco do Brasil issued \$300 million five-year bonds using as collateral future yen remittances from Brazilian workers in Japan (Ratha, 2003, p 161). Giuliano and Ruiz-Arranz show that remittances can help alleviate credit constraints and work as a substitute for development finance (Giuliano and Ruiz-Arranz, 2005). While it would be tempting to suggest, that the increase in remittances resulted in a decline in foreign financing, this may be an oversimplification. Foreign financing and investment have declined in recent years as a consequence of the increasing absorption of world savings by the US, and the perceived reduced (reduced perceived?) attractiveness of the region as a destination of private capital (chart 4).

Chart 4
Financing of Investment
 (Simple average for 7 countries)



An important but insufficiently developed issue is the impact of remittances on total investment and economic growth. Different researchers are not in agreement about whether or not remittances serve as an important source of investment capital. The basic principle is that either directly or through the process of intermediation and leverage, remittances will tend to increase investment, as shown above, thus increasing potential growth.

Durand notes that, in the case of Mexico, under the right circumstances (a high-paying US job, secure attachment to the US labor force, access to complementary resources in Mexico), the odds of productive investment of remittances rise substantially (Durand, Kandel, Parrado, Massey, 1996, p 261). Some studies indicate that remittances from the United States are accountable for about one fifth of the capital invested in micro-enterprises in urban Mexico (Ratha, 2003, p 162). A study conducted by Mishra found that a one percentage point increase in remittance inflows in 13 Caribbean countries increased private investment by 0.6 percentage point (all measured relative to GDP) (Global World Prospects 2006, World Bank, p 104).^{9 10}

⁹ Brown's regression analysis concluded that in addition to support family needs, Pacific islanders are motivated to remit for reasons of self-interest, especially for asset accumulation and investment in their home countries. As such, their remittances are vital as a major source of loanable funds for investment (Brown, 1997, p 623).

¹⁰Bouhga-Hagbe's study of Moroccan immigrants finds that "there is no evidence that portfolio diversification motives could be behind the remittances in the long-run" and that the price index for housing "does not show any specific pattern that could significantly tie real estate construction by Moroccans living abroad to some form of investment" (Bouhga-Hagbe, 2004, p 14) In his assessment of the growth impact of remittances in the Mediterranean countries of Greece, Morocco, Jordan, Portugal and Egypt, Glytsos warns that "the growth generating capacity of rising remittances is much smaller than the growth destroying capacity of falling remittances" (Glytsos, 2001, p 16). He establishes this by demonstrating that the elasticities of negative growth are much higher than the elasticities with respect to rising remittances. He suggests that strong negative growth occurs because remittance receivers become comfortable spending during long periods of stable remittance flows and do not save or invest much of money they receive in case of economic downturn.

Of course the process of investment and economic growth cannot be extricated from other developments, like domestic policies, and changes in the availability of foreign financing, which will affect the way remittances may contribute to investment. Thus it becomes extremely difficult to determine empirically the exact contribution of remittances to total investment, unless it is possible to assume that all other external factors remain unchanged.¹¹

Box 1: The Underlying Macroeconomic Model for Remittances

The basic macroeconomic identity of income and expenditure for a receiving country can be modified to include remittances, as follows:

$$Y = C_d + S_d + S_r + T + (X + R - M_d - M_r), \text{ (1) for income}$$

$$Y = C_d + C_r + I + G, \text{ (2) for expenditure}$$

$$(S_d + S_r - I) + (T - G) = (X + R - M_d - M_r), \text{ (3) for the domestic balance;}$$

Where Y is national income; C is consumption; S is saving; T is taxes; X is exports; R is remittances; M is imports; I is investment; and G is government expenditure. The subscripts d and r , refer to domestic and remittance related, e.g. C_r is consumption out of remittances. Remittances in this definition is defined as excluding emigrant expenses in the form of travel to the home country and *nostalgic* (home related) consumption, which would be accounted as increased exports of goods and services.

If for purposes of the argument, it is assumed that the public accounts are balanced, that is ($T = G$), the equation becomes

$$(S_d + S_r - I) = (X + R - M_d - M_r), \text{ (3')}, \text{ or}$$

$$(S_d + S_r) = (X + R - M_d - M_r) + I, \text{ (4)}$$

$$\text{and } (X + R - M_d - M_r) = -KI,$$

Where KI represents net capital inflows.

Equation (4) can be seen also as follows,

$$I - KI = S_d + S_r, \text{ }^1, \text{ where savings is equivalent to total investment less capital flows.}$$

These equations represent the macro-accounting of remittances.

¹¹ See among others, Global Economic Prospects, World Bank, 2006; Durand, Kandel, Parrado, and Massey, 1996; Ratha, 2003; Brown, 1997.

The link of remittances with key macroeconomic variables can be presented in a stylized fashion on the basis of the following set of equations:

The Foreign Exchange Balance is defined by the following relationship

$$XXB = 0 = f(ER, i, fd, R) \quad (1)$$

Where XXB is the external balance, ER is the exchange rate (local currency in terms of foreign currency), i is the domestic interest rate (assuming no change in foreign interest rates), fd is foreign demand conditions in the goods and capital markets, and R stands for remittances.

$$\text{Furthermore, } \frac{\partial XX}{\partial i} > 0; \frac{\partial XX}{\partial fd} > 0; \frac{\partial XX}{\partial R} > 0 \quad ^1$$

The Domestic Demand Balance is defined by

$$DDB = 0 = f(ER, i, D_{fp}, D_{mp}) \quad (2)$$

Where D_{fp} stands for domestic fiscal policy conditions and D_{mp} for monetary policy conditions and weaker policies are described as having a positive (expansionary) direction.

$$\frac{\partial DD}{\partial ER} > 0; \frac{\partial DD}{\partial i} > 0; \frac{\partial DD}{\partial D_{fp}} > 0; \frac{\partial DD}{\partial D_{mp}} > 0$$

b) Remittances and the Balance of payments

As noted, remittances constitute a voluntary and unilateral transfer of resources to the receiving country, and as such appear in the current account of the balance of payments, and national accounts (Box 1)

Remittances can be expected to cause a widening of the external trade account deficit (including services as travel), or a narrowing of the current account surplus. As remittances increase purchasing power in the receiving country they augment domestic demand. Bouhga-Hagbe found that in the case of Morocco, “remittances almost cover the trade deficit and have contributed to the recent surpluses of the external current account, as well as the overall BOP. The BOP surpluses have contributed to the strengthening of Morocco’s external position through the accumulation of reserves, which now cover the external public debt (Bouhga-Hagbe, 2004, p 10).¹² A related phenomenon, resulting in positive flows, is the nostalgic expenditure of emigrants described by Orozco.¹³ This

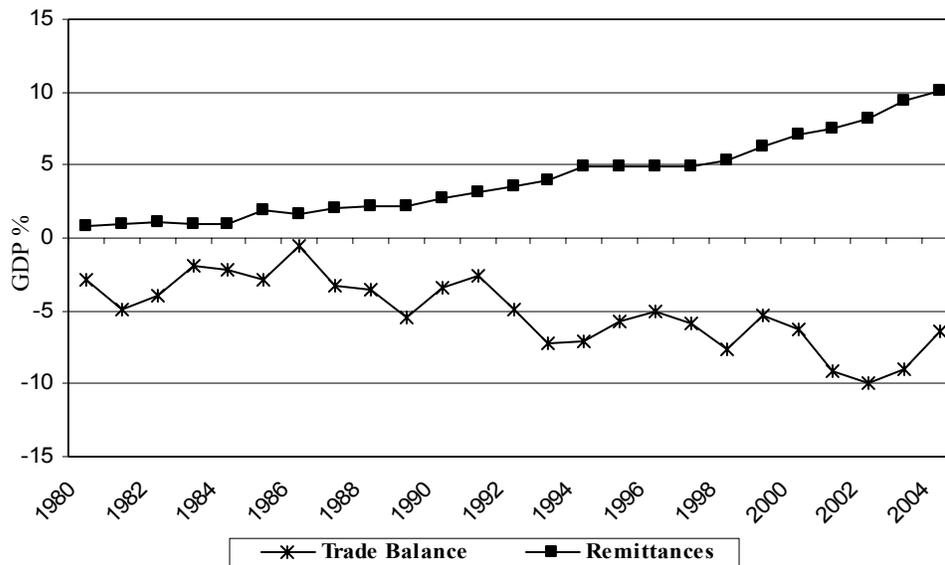
¹² El-Sakka and McNabb found that imports financed with remittances depend on the level of income in Egypt and on the relative price for imported goods and their domestic substitutes (El-Sakka and McNabb, 1999, p 1500).

¹³ Orozco and Lowell, 2005; Orozco, 2004

expenditure includes emigrant travel to the home country and consumption of home goods that increase exports from the home country.

Overall, the effect of the remittances plus the expenditure of emigrants on the receiving country's balance of payments in a first round will be positively offset by the increase in imports (and decrease in exports) as demand for both domestic and foreign goods rises.¹⁴ Chart 5 presents the trends (as a simple average) for remittances and the trade balance as a proportion of GDP for seven countries in the region where remittances are significant: Colombia, the Dominican Republic, Ecuador, El Salvador, Honduras, Jamaica and Mexico --. The chart shows that the trade deficit widens (or the surplus narrows) as remittances increase for the period under observation. While some observers may view the widening trade gap with concern, the net effect is positive both in terms of net receipts and in terms of economic activity and consumption, as discussed below.¹⁵

Chart 5
Trade Balance
(Simple average for 7 countries)



3. Remittances and the economic cycle

a) Countercyclical nature of remittances

Remittances have some similarities with private and official capital flows, to the extent that “variables such as economic growth, the level of economic development, and ...the rate of return on financial assets” impact the amount of money sent by a migrant,

¹⁴ Bouhga-Hagbe, 2004

¹⁵ Global Economic Prospects, 2006, World Bank

but remittances are affected by social considerations as well. (p 13) (Buch and Kuckulenz, 2004, 13).¹⁶

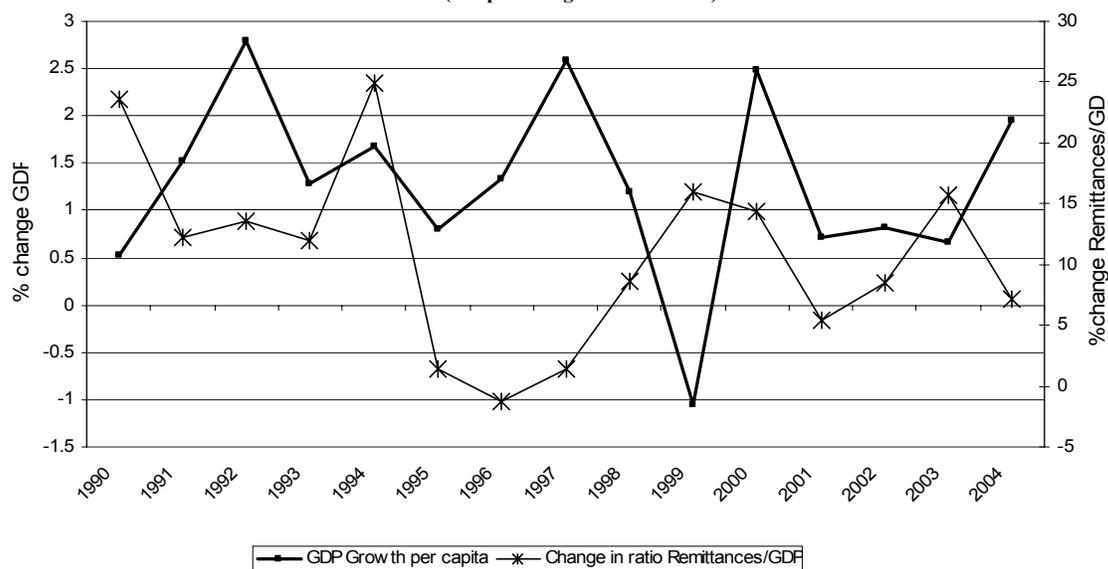
A significant difference with capital flows is that remittances provide a stable inflow of money into the receiving country. This is evidenced by the fact that the volatility of worker remittances in most countries studied is lower than the volatility of private capital inflows and it is generally lower than the volatility of official capital inflows (Buch and Kuckulenz, 2004). Because of this behavior, the presence of remittances is extremely important as a countercyclical mechanism.¹⁷ Latin America, like most other developing regions has been dependent on foreign financing and the vagaries of commodity prices for a long time. This has produced much volatility in the region's economic performance. Remittance flows tend to act counter-cyclically, that is, they increase at times of distress in the receiving countries, working effectively as an informal Stabilization Fund. Many researchers agree that the countercyclical nature of remittances exerts a stabilizing influence, and thus helps insulate vulnerable countries from economic shocks even those caused by natural disasters (Global Economic Prospects 2006, World Bank, p 99-100).

Chart 6 shows the countercyclical nature of remittances for the seven countries in the study. Specifically it shows that remittances as a proportion of GDP tend to increase whenever GDP growth in the receiving countries slackens. Of course, this correlation does not deal with all the complexities involved in slow-downs in economic activity, when we can witness the common effects of devaluations, adjustment policies, and adverse external conditions. Moreover, there is a high correlation between the rate of economic growth in the receiving countries and the US, thus blurring the positive impact on remittances of higher income in the US and the converse effect in the receiving countries. Even under these circumstances, empirical studies prove that remittances are countercyclical for the receiving country, thus helping stress their paramount importance in many Latin American economies.

¹⁶ The correlation coefficient between workers' remittances and official capital inflows in Latin America and the Caribbean is positive at 0.30. There is no significant correlation between workers' remittances and private capital inflows. There is a positive, but statistically insignificant correlation on a 0.05 level, between official capital inflows and private capital inflows for Latin America and the Caribbean (Buch and Kuckulenz, 2004, p 12)

¹⁷ See Global Economic Prospects, World Bank, 2006; Giuliano and Ruiz-Arranz, 2005.

Chart 6
Counter-cyclical Behavior of Remittances and GDP in recipient countries
(Simple average for 7 countries)



Giuliano and Ruiz-Arranz found that remittances are more countercyclical in countries with less developed financial systems (Giuliano and Ruiz-Arranz, 2005, p 27). Cartagena found that the percentage of remittances sent to El Salvador has a countercyclical relationship with the United States' GDP: a 1% increase in US GDP brings a 2.4% rise in remittances to El Salvador while a 1% contraction of El Salvador's GDP brings a 0.4% increase in remittances in real terms (Cartagena, 2004, p 27). Mishra (2005) found that a 1 percent decrease in real GDP was associated with a 3 percent increase in remittances after a two-year lag in 13 Caribbean countries during 1980-2000 (Global Economic Prospects 2006, World Bank, p 99-100). Chamon notes that the countercyclical nature of remittances helps sustain consumption as well as soothes the decline in output following economic shocks by creating domestic demand (Chamon, Samoa, p 8). This is true in the Dominican Republic, Haiti and Honduras, where "remittances flows continued to rise after natural disasters" and in reaction to the economic crisis in Mexico in 1995 (Global Economic Prospects 2006, World Bank, p 99-100).

Most researchers have found that remittances help smooth fluctuations in economic growth in migrants' countries of origin as remittance transfers continue at the normal rate or even increase during times of economic hardship (World Economic Outlook, 2005, p 82-83). Lowell's regression analysis of remittances sent from the US to Latin America and the Caribbean found that when economic performance is down in the receiving country, more money is remitted – even when economic performance is also down in the remitting country (Lowell, 2005). Bouhga-Hagbe concluded that the negative elasticity for GDP, as a proxy for real incomes in Morocco, is evidence that Moroccans living abroad take the well-being of their Morocco-based families into account when deciding how much to remit (Bouhga-Hagbe, 2004, p 14).

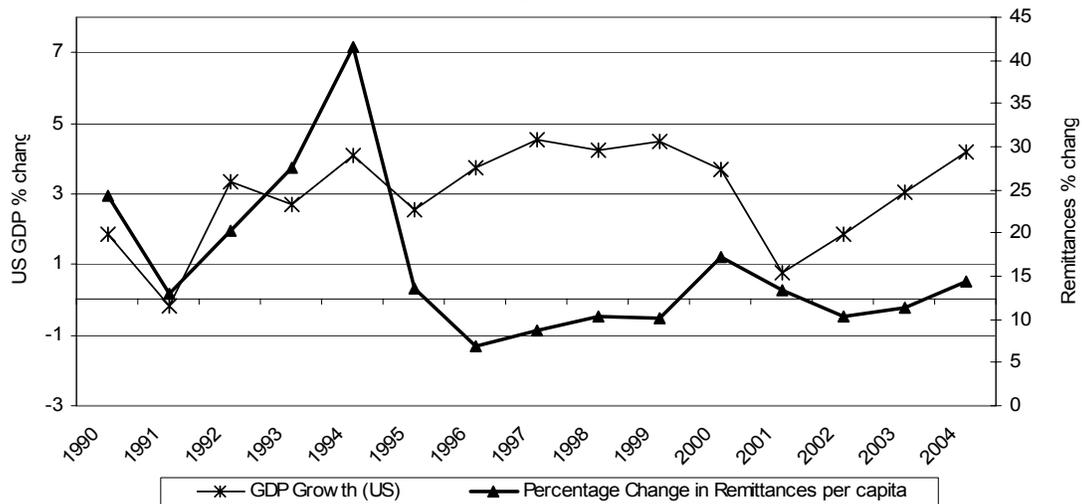
Similarly, Chamon's research of Samoans living overseas demonstrates the 'insurance' effect that remittances play. However, growth in the Samoan economy has a negative and statistically significant effect on remittance flows – "1 percent higher growth in Samoa would slow the growth in remittances by 1.7 percent" (Chamon, Samoa, p 7). This finding suggests that remitters are mostly motivated by helping their families meet consumption needs, but not interested in investing their savings in Samoa during times of economic growth. Our own econometric studies, based on limited observations, unfortunately do not provide a clear result in this regard (See section 6 below)

b) Remittances and Income Behavior in Remitting Country

Many researchers have found evidence that the level of economic activity in the host country has a direct impact on remittances flows. Samples of countries that have been studied in this light include Samoa, the Pacific islands, and El Salvador (World Economic Outlook, 2005, p 82), (Chamon, Samoa, p 7), (Brown 1997, p 623), (IMF, El Salvador, 1998, p 31). Solimano found that cross-country income per capita differentials between the remitting country and the migrants country of origin is the main determinant of remittance flows in Bolivia, Colombia, Ecuador, Peru and Venezuela (Solimano, 2003, p 28). Lowell's study found that in Latin America and the Caribbean, while per capita income is a major predictor of the volume of remittances sent by individuals, at the aggregate level, total per capita earnings are not significant (Lowell, 2005, p 69). Chart 7 provides an illustration of the positive link between growth in the remitting country (in this chart the US is used as a proxy), and the level of remittances to the countries in the study. In this regard the econometric studies confirm this behavior.¹⁸

¹⁸ El-Sakka and McNabb's study of remittances to Egypt found that "the elasticity of total remittances [sent to Egypt] with respect to changes in the lagged value of the average level of real income in [Saudi Arabia] is 0.27;" this positive correlation occurred both when real domestic income entered the model in its current and lagged form (El-Sakka and McNabb, 1999, p 1498). Lianos found the same statistical correlation in his study of remittances sent to Greece from Germany, Belgium and Sweden (Lianos, 1997, p 85). As a factor affecting earnings and economic growth, Lianos also found that the rate of unemployment should be considered as an issue affecting the flow of remittances, although it was not statistically significant in each example of his research (Lianos, 1997, p 86). Both Solimano and Lowell, likewise, found that US Latino unemployment rates are positively correlated with remittances, thereby demonstrating the counter-cyclical pattern of remittances (Solimano, 2003, p 28; Lowell, 2005, p 71). Manuel Orozco, in contrast, found that unemployment does not have a statistically significant impact on remittances from the United States to the Dominican Republic (Orozco, 2004, p 4)

Chart 7
US GDP and Remittances per capita
 (Simple average for 7 countries)



4. Remittances and relative prices

The key determinants of the level of remittances are the number of émigrés in the remitting countries, and the performance of their income over time. However, the impact of relative prices as a key determinant of remittance behavior is also important. While it would be possible to incorporate many price variables into the analysis of remittances, exchange rates, interest rates, and inflation are the most important ones to take into consideration. Most importantly, the effects have to be seen as two sided: the effect of changes of these variables on remittances, and the effect of remittances on the equilibrium value of these prices.

a) Exchange rate and Remittances

Exchange rates in Latin America and the Caribbean have had a history of volatility and, sometimes, unpredictability, and as such they have had a direct impact on the behavior of remitting individuals.¹⁹ In simple terms, remitters to some extent would be expected to see their transfers as providing a certain amount of purchasing power to recipients. In that sense, the amount of remittances in terms of foreign currency would be expected to increase when the currency in the remittance receiving country tends to appreciate (increase in value), and decline when the value of the currency falls (depreciates). The remittances could also increase when prices in the receiving country tend to grow faster than in the remitting country, under conditions of stable exchange rates. Fundamentally, this is equivalent of saying that the remittances would be directly

¹⁹ See Ameudo-Dorantes and Pozo, 2004; IMF, 1998; Rajan and Subramanian, 2005 for a discussion on nominal exchange rates. See IMF, World Economic Outlook, 2005; Orozco and Lowell, 2005; Lianos, 1997; and Orozco, 2004 for a discussion on the interaction between nominal exchange rates and remittances.

linked to the real (effective) exchange rate –the exchange rate adjusted for movements in relative prices for the receiving and remitting countries. As the real exchange rate depreciates for the receiving country so would remittances, and conversely for an appreciation.

While the notion of a given level of real support may seem reasonable in principle, it needs to be modified to take into account the effect of the exchange rate on the willingness to transfer a given amount in local currency for the receiving country. A depreciation of the currency in the receiving country would result in the opportunity to provide greater help to the receiving families, as the amount of foreign currency needed to provide a given support declines. Moreover, the lower value of the local currency can induce the purchase of real assets (houses, land, automobiles, etc) for investment and retirement purposes, for example. Accordingly, it would be likely that remittances in foreign currency would actually increase as the domestic currency value declines. Conversely if the currency appreciates, it becomes too expensive to send the same amount of local currency value and remitters may, instead, send goods from the remitting country. In more technical terms, the price elasticity with respect to the exchange rate could be high. Thus, the link of the exchange rate to remittances could go in either direction depending on the overall behavior of remitters. Within normal ranges of exchange rate fluctuation, the empirical results of this and other studies suggest that remittances would increase as the local currency depreciates, and the reverse when it appreciates (see charts 8-9).

Most research has found that the nominal exchange rate is a significant explanatory variable of migrant remittances. Lowell (2005) found this to be the case with remittances sent from the United States to Latin America and the Caribbean as did Lianos (1997) with remittances sent to Greece from immigrants living in Germany, Belgium and Sweden. Lianos found that Greek migrants adjust their remittances to exchange rate changes so that the same value in terms of drachmas is sent back home (Lianos, 1997, p 82).²⁰ In contrast, Orozco concluded that exchange rate fluctuations do not affect remittance transfers to the Dominican Republic (Orozco, 2004, p 4).

i) Dutch disease

²⁰ . A different issue relates to distortions in exchange rate systems, i.e. multiple exchange rate practices. Stapafora found that the impact of exchange rate policies and regulations is so large that the full removal of all distortions and restrictions is linked with an increase in remittances of 1-2 percentage points of GDP (World Economic Outlook, 2005, p 82). For this reason, he is not alone in suggesting that “in the presence of significant changes in remittance inflows, authorities may need to accept a greater degree of exchange rate flexibility than would otherwise be the case” (World Economic Outlook, 2005, p 84). El-Sakka and McNabb’s study of remittances to Egypt uncovered the idea that remittances are equally responsive to black market exchange rates as official exchange rates (they respond negatively to both) as well as to the differential between them (El-Sakka and McNabb, 1999, p 1499). In their study, the black market exchange rate was the dominant variable – which is not surprising because the official exchange rate in Egypt was pegged at unrealistic levels for the period covered in their study.

The term “Dutch disease” refers to the effect of either an unexpected find of new wealth (say a new oil deposit) or an increase in its value. As a consequence, the supply of foreign exchange would tend to increase, possibly on a permanent basis, and this would result in an appreciation of the currency (nominal or real) and/or a deterioration of the balance of trade, excluding the subject of the gain (say oil or copper). Because of the additional flows resulting from this event, the value of other export receipts may decline and that of imports increase. This phenomenon originating in the Netherlands in the 1970s in relation with new gas findings is well documented in the economic literature, and is being extended conceptually to remittances. An increase in remittances, relative to the size of the economy, could be expected to result in appreciation or strengthening of the currency in the receiving country, as suggested in chart 1 and illustrated in charts 8 and 9. For the seven countries in the study, and for El Salvador, respectively, where remittances have a heavier weight than in other countries. The latter charts show that there is a strong correlation between remittances per capita (in the receiving country) and the real exchange rate over time, with a clear appreciation of the currency.

Chart 8
Remittances per capita and Real Effective Exchange Rate
 (Simple average for 7 countries)

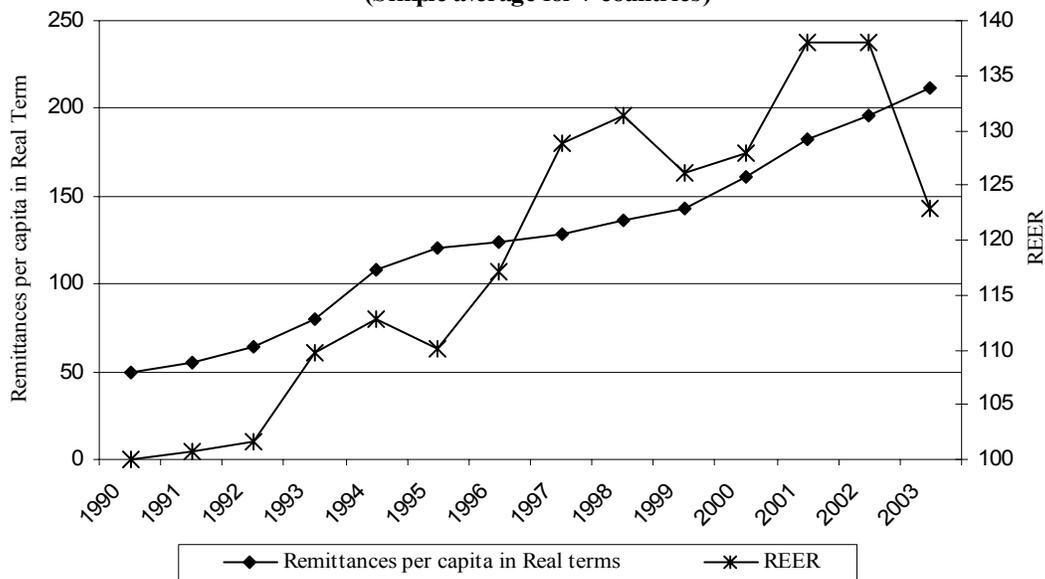
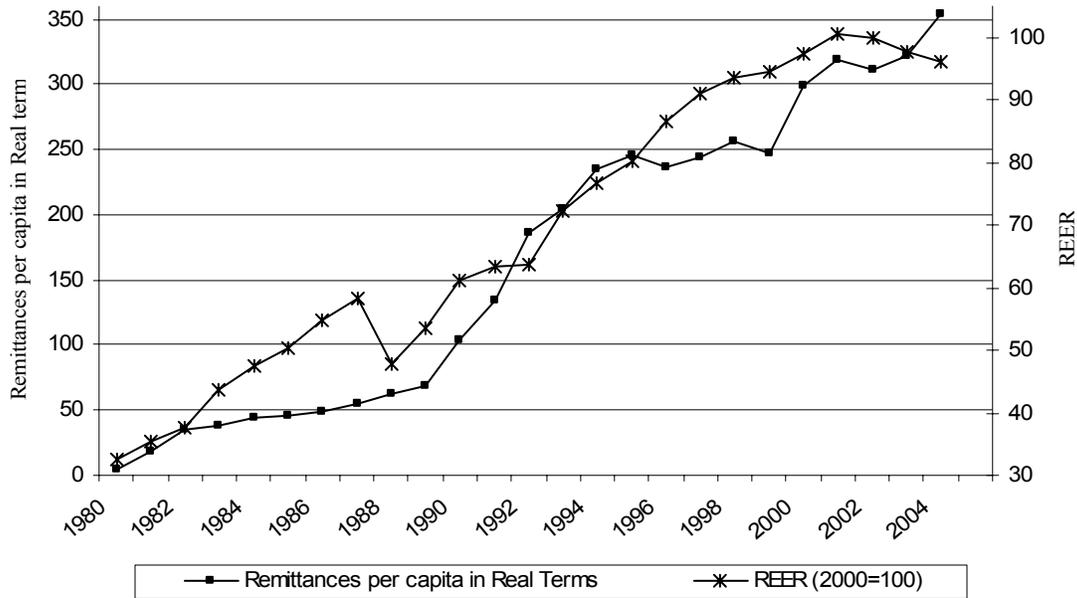


Chart 9

El salvador: Real Exchange Rate and Remittances per capita



b) The impact of the exchange rate on remittances

While it is possible to observe the correlation of remittances and the exchange rate for the countries under study, for most countries the impact of other factors may clearly overshadow the direct effect of remittances on the exchange rate. The behavior will depend on the spending pattern of the recipients. For example, to the extent that the receipts are spent on imported or traded goods, the effect on the exchange rate will be smaller, even though imports may increase. In addition, as individuals tend to save more, and not spend, this may have an effect on financial savings, with a corresponding decline in interest rates, and reduce capital inflows, which would partly offset the effect on the exchange rate.

The behavior of the exchange rate depends also on the impact of emigration on domestic output, which again would tend to offset the effect of remittances on the exchange rate. In addition to these considerations, it is important to include the behavior of other variables, such as domestic policies, international developments (like changes in risk assessments of emerging economies), and the relative importance of remittances in total economic activity and in the external sector. This suggests the need to deal with a more complex general equilibrium model, to determine the exact link between remittances and the exchange rate (see Box I).

Researchers have found that large remittance inflows can cause an appreciation of the real exchange rate and render the production of tradable goods less profitable. This is confirmed by the econometric results in this study (Section 6 below). Amuedo-Dorantes and Pozo found that when workers' remittances doubled, the real exchange rate

appreciated by about 22 percent in a selection of 13 Latin American and Caribbean countries (Amuedo-Dorantes and Pozo, 2004)²¹.

Rajan and Subramanian found that remittances do not lead to a loss of competitiveness because they seem to dry up if the exchange rate becomes overvalued. Therefore countries that have sound macroeconomic policies to keep the real exchange rate competitive are able to continually attract remittances (Rajan and Subramanian, 2005, p 21). Actually, this illustrates a different point- the effect of the exchange rate on remittances.

In summary, the possible relationship between the exchange rate and remittances is far from simple, and cannot be predicted without specific assumptions about the behavior of remitters, receiving families, and the rest of the economy. Box 1 further elaborates on the matter. However, it is clear that increased remittances tend to lead to an appreciation of the exchange rate. Exchange rate depreciations (caused by other factors) in turn tend to increase remittances and vice versa for appreciations.

c) Interest rates and remittances

There is a parallel between the effect of interest rates on remittances and that of exchange rates. An increase in the interest differential (interest rate in the receiving country less that of the host country) can be expected to accelerate flows, to the extent that the funds go into the financial system. However, these flows will be conditioned on the expected behavior of the exchange rate. As with any financial flow, remittances will depend on the real interest rate, or more accurately on the interest differential adjusted for exchange rate expectations.²² Then again, the behavior of remittances will depend on the degree of financial sophistication of the recipient family/community. To the extent that higher interest rates reflect higher inflationary expectations or increased country risk, remittances may not react positively to increased interest rates. Accordingly it is difficult to establish clearly how remittances will do *a priori* unless initial conditions are well defined.

Many studies show that the increase in interest rates abroad lowers the flow of remittances. Lowell found that an increase in the interest costs of lending in the remitting country lowers remittance flows. He suggests that this is consistent with the possibility that remitters and receiving households save or invest a portion of remittance flows for economic activity in the country of origin (Lowell, 2005, p 70). In contrast, Bouhga-Hagbe found that “an increase in the interest rate differential in favor of Morocco will not increase the long-run amount of deposits held in Morocco by Moroccans living abroad,”

²¹Illustrating the effect of the exchange rate on remittances, Chamon found that a 1 percent real depreciation in the Samoan tala causes an increase in remittances by 1.2 percent in tala terms (Chamon, Samoa, p 7). Also see Global Economic Prospects 2006, World Bank, p 104.

²² See Orozco and Lowell, 2005; Lianos, 1997; El-Sakka and McNabb, 1999.

suggesting that interest rate fluctuation does not impact remittances (Bouhga-Hagbe, 2004, p 14)²³.

A second issue related to interest rates has to do with their behavior in response to a higher level of remittances. In this regard if remittances are sufficiently large in terms of the size of the receiving economy, and remittance receivers have a higher propensity to save than other economic agents, it could be expected that interest rates in the economy would tend to go down, as savings may be growing more rapidly than otherwise. Of course, in such case the lower interest rates could have the effect of an increase in investment with a corresponding increase in growth potential.

Interestingly, the possible increase in savings because of remittances would have a dampening effect on the “Dutch disease” effect related to the exchange rate. As interest rates tend to decline, capital flows will slow down and this will induce a partial reversal of the exchange rate. Exchange rates tend to depreciate when domestic interests decline, thus reducing the effect of remittances on the exchange rate. Accordingly, it will not be easy to predict the magnitude of the effect of interest rates on remittances and vice versa. Again this argument, while true is only of relevance for countries where remittances are large.

d) Behavior of remittances and prices (Inflation)

Remittances tend to respond very strongly to prices, reflecting the need migrants feel to increase family support when prices rise and lending further evidence that remittances, to a large extent, are spent on consumption. Lianos found this to be true with remittances sent to Greece by migrants living in Germany, Belgium, and Sweden (Lianos, 1997, p 85). Durand found that the likelihood of Mexican migrants returning with savings is greater during periods of high inflation (Durand, Kandel, Parrado, Massy, 1996, p 260). Lowell found that CPI fluctuation is the biggest factor impacting remittance flows at the macro level (Lowell, 2005, p 69). In fact, his study found that a 1 percent increase in the CPI is associated with a threefold increase in remittance volume.²⁴²⁵

²³For the period studied in El-Sakka and McNabb’s research, the Egyptian interest rate was pegged, thus creating a widening difference between domestic and foreign interest rates. This difference caused a large restriction in the flow of remittances through official channels. The interest rate differential is an important variable explaining migrant remittance behavior to Greece from Germany, Belgium and Sweden, although the elasticity is rather small in absolute terms (Lianos, 1997, p 82).

²⁴ This evidence contrast with the studies that show that remittances tend to increase when the real exchange rate depreciates, namely when domestic prices lag the depreciation of the currency, and vice versa.

²⁵ El-Sakka and McNabb suggest that the data demonstrating an increase in remittances during times of inflation might be explained by two factors other than the need to support their families with increased flows. Perhaps migrants remitting to Egypt are more likely to send through official channels during times of high inflation so they can be assured of a safe delivery of funds to their families that may otherwise be at risk if sent through unofficial channels (El-Sakka and McNabb, 1999, p1499). They also suggest that migrants might remit more during periods of inflation to secure the “purchase of real assets, such as land and jewelry, the real value of which may be constant or actually rising in times of inflation” (El-Sakka and McNabb, 1999, p 1499).

Although Buch and Kuckulenz expected the impact of domestic inflation on remittances to be negative, they do not find a strong correlation between the two. They suggest that perhaps this occurs because “while an unstable macroeconomic environment creates incentives to migrate abroad, high inflation might also have a positive impact on remittances” because higher inflation creates greater uncertainty about future prices and leads to an acceleration of remittances to hedge against future inflation (Buch and Kuckulenz, 2004, p 9).

In the end, the reaction of remittances to inflation will depend also on the expectation about the exchange rate. If there is an expectation of a major depreciation, remitters will retain remittances abroad and conversely under the expectation of an appreciation. However, such behavior will again depend on the prospects for growth and the exchange rate. In that sense the expected REER would be the relevant variable to take into account.

5) Some general equilibrium considerations

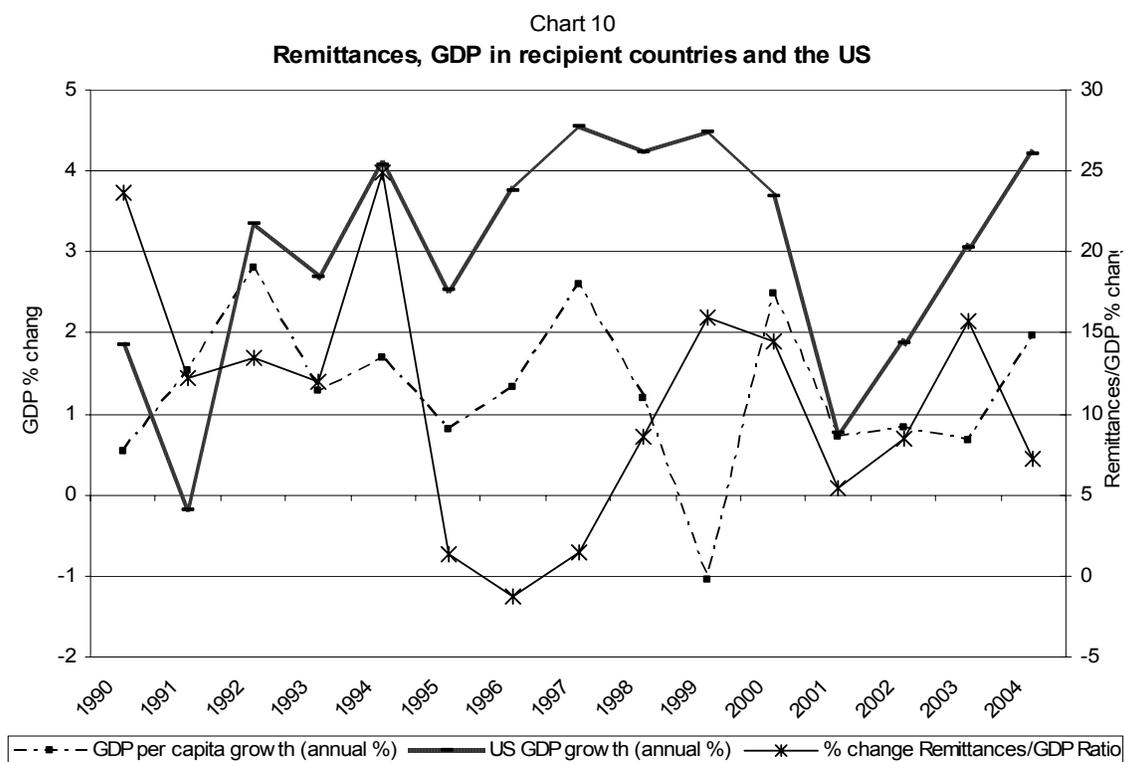
In the final analysis the general equilibrium outcome will be mixed, where increases in remittances will *tend to* lead to increases (appreciation) of the exchange rates and a decline in domestic interest rates. However, this will need to be seen in the context of other variables. If the increase in remittances is occurring on account of deteriorating economic conditions in the receiving country, with a decline in capital flows, the net effect will be far from clear. The outcome also will not be clear when the crisis is followed by a tightening of macroeconomic policies in the country. For example, a tightening of fiscal policy would result in a reduction in interest rates and a depreciation of the currency, while a tightening of monetary policy will tend to have the opposite effect, even though the combined effect will have a dampening impact on economic activity, and thus will have a direct effect on remittances, as discussed before.²⁶

The analysis of the possible impact of remittances becomes even more complicated if the adverse trends in domestic economic activity are the result of an economic slowdown abroad. To the extent that the slowdown in activity is felt both in the remitting and the receiving country, the final outcome would not be clear, as the depression of emigrant income in the host country undercuts the intention to increase real remittances to the receiving country. The close association between economic growth in the remitting and receiving economy can be observed in chart 10, which shows GDP growth rates in the US and in the seven countries in the study. The close correlation between the two tends to explain the inconclusive results about the behavior of remittances presented in section 6.

A related issue is the possible macroeconomic policy response to deal with the impact of remittances. The main concern of the authorities may be related to two aspects: the impact on competitiveness, and the possible impact on aggregate demand and

²⁶ The current discussion is presented as if the process of adjustment of different variables is concurrent and instantaneous. In reality, different markets will react at different speeds. The policy-making process, in turn, will be dependent on the political decisions made by governments, which are subject to constraints and that go well beyond the stylized model used for these discussions.

inflation. There is no evidence that policies have been tailored to deal with this issue, but as it is usually the case, the results will depend on whether the changes are of a temporary or permanent nature.



If it is perceived that the remittance flows are only temporary, monetary and fiscal policy could be adjusted to counteract the effect on the economy, and absorb some of the resources through sterilization operations, in order to release them at a later stage, when the flows are reverted. However, remittances have tended to become a permanent feature of many economies in Latin America and elsewhere. Thus, the authorities will need to allow the local economy to adjust to the increased flows, beyond any short term fluctuation.

If the monetary authorities wished to tighten liquidity to deal with the inflationary impact of remittances, the likely effect will be to increase interest rates and therefore increase the incentives for remittances and capital flows to come in. Such a solution may well be unsustainable over the long run, and most likely the exchange rate would be required to accommodate the increased flows. Alternatively, fiscal policy would help reduce the aggregate demand effect of increased remittances, and could help reduce interest rates. While the effect would be positive, fiscal actions should not focus on taxing remittances, as these would be discouraged, with adverse effects on the overall performance of the economy.

A summary of the possible *changes in macroeconomic performance in response to remittances and other variables* is presented in Chart 11. In turn, *the effects of various macroeconomic developments on remittances* are shown in Chart 12. Finally, Box 1

presents the basic elements of a stylized macroeconomic model that is the basis for the previous discussion.

Chart 11: EFFECT OF REMITTANCES ON MACROECONOMIC PERFORMANCE				
<u>Effect on variable</u> Macro Adjustment	output, expenditure	Exchange rate (in terms of local currency per unit of FE - depreciation is increase)	Interest Rate	Current Account, excluding remittances (increased deficit, smaller surplus (-))
1.Remittances	+	-	-	-
2.Fiscal Policy (Tightening)	-	+	-	+
3.Monetary Policy(Tightening)	-	-	+	-
4.Decline in income abroad	-	+	+	-
5.Increase in country risk	-	+	+	+
Net effect in crisis (1+2+3+4+5)	+/-	+/-	+/-	+/-
Secular change in remittances	+	-	-	-

Chart 12: EFFECT OF MACROECONOMIC VARIABLES ON REMITTANCES

<u>Impact on variable</u> Exogenous variable	Remittances	Output	Full Equilibrium effect on remittances
Output, expenditure	-	0	-
Exchange rate - depreciation (increase)	+ <u>1/</u>	+	+ <u>1/</u>
Interest Rate	+	-	+
Income Abroad	+	+	+/-

1/ Under conditions of a major depreciation, the amount of remittances could decline in the face of a depreciation

6) Macroeconomic Determinants of remittances: Statistical Analysis²⁷

a. The Variables

This section presents a preliminary analysis of the macroeconomic determinants of remittances for several Latin American and Caribbean countries. The countries sampled include Colombia, the Dominican Republic, El Salvador, and Mexico. We ran Ordinary least Squares (OLS) time series regressions of annual remittances in constant US Dollars.

For the dependent variable, Remittances were viewed as a proportion of GDP of the remittance receiving country, and then Remittances as a proportion of the U.S. stock of migrants from that country. The signs of the results were the same in both cases. The results included in this section are based on changes in remittances per migrant, so all results discussed here use Remittances over Migrant Stock as the dependent variable. Migrant Stock is a proxy variable, constructed from U.S. Census data and annual data on U.S. immigration from each of the sample countries²⁸.

The first model uses the log of independent variables *Home Country GDP*, *U.S. GDP*, *Real Effective Exchange Rate*, and a dummy variable for *Financial Crisis*. We used a second model that lagged *Home Country GDP* and substituted *Median U.S. Hispanic Household Income* for *U.S. GDP*.

Home Country GDP measures the effect of income movements in the home country on the amount remitters send. *Lagged Home Country GDP* measures the same, but controls for the countercyclical impact of remittances.

U.S. GDP is a proxy measure for how changes in remitters' U.S. income affects the amount they remit. As the remitters covered in this analysis are all "Hispanic" migrants, *Median Hispanic Income (MHI)* more closely maps the U.S. income of this group. *MHI* measures income of Hispanic households (migrant and U.S. nationals) in the U.S.

Real Effective Exchange Rate (REER) is an index that includes exchange rates and relative domestic and U.S. inflation rates to represent changes in the exchange rate relative to prices in the remitting and receiving countries. For purposes of this section the exchange rate is defined as units of foreign exchange per unit of domestic currency. Accordingly an increase entails an appreciation for purposes of this analysis. The REER

²⁷ This section was mainly the responsibility of Adam Minson of the IAD.

²⁸ The use of this variable assumes that all migrants from the countries under study, moved to the US, and that they are reflected adequately in census numbers. In fact, Census numbers adjust for possible underreporting of the undocumented population, but may still provide an underestimation of total migrant population. This is a simplifying assumption that is fairly accurate in the case of the Dominican Republic, El Salvador and Mexico. The assumption may not be as realistic in the case of Colombia, where many migrants either moved to Venezuela or Europe, and Ecuador, where emigration was directed to Europe.

is a more robust indicator than inflation or the nominal exchange rate, which when regressed together may produce high autocorrelation.

Financial Crisis is a dummy variable to control for the effects of major financial crises on the relationship between remittances and the above macroeconomic variables.

b. Empirical Results:

The results based on annual data show mixed results. The sign for the Real Effective Exchange Rate (REER) is always negative, indicating that remittances tend to increase when the exchange rate depreciates (declines), or that remitters choose to spend or invest more in the home country when the currency depreciates. However, the coefficients are only statistically significant in two cases. Coefficients for external income (Hispanic per capita income in the US) are significant in two cases, but with opposite signs. The expected correlation would be positive, as is the case in Mexico and Colombia. The opposite sign is difficult to interpret. The positive coefficient for lagged domestic GDP may be related to the use of lagged annual data, particularly as remittances may surge in the year of a crisis after observed rapid growth in the previous year. The outcome of these regressions is inconclusive and will certainly require additional analysis, possibly using quarterly or monthly data.

COLOMBIA

Explanatory Variables	Coefficient (t statistic)	P value
Median Hispanic Income	.341 (1.879)	.087
Real Effective Exchange Rate	-.622 (-3.335)	.007
Lagged Colombian GDP	.617 (2.914)	.014

Adjusted R² 0.85

DOMINICAN REPUBLIC

Explanatory Variables	Coefficient (t statistic)	P value
Median Hispanic Income	-.315 (-1.107)	.292
Real Effective Exchange Rate	-.323 (-.861)	.408
Lagged Dominican GDP	1.534 (2.723)	.020
Financial Crisis	-.348 (-1.157)	.272

Adjusted R² 0.83

EL SALVADOR

Explanatory Variables	Coefficient (t statistic)	P value
Median Hispanic Income	-.216 (-3.139)	.009
Real Effective Exchange Rate	-.633 (-3.243)	.007
Lagged Salvadoran GDP	1.685 (9.237)	.000

Adjusted R² 0.96

MEXICO

Explanatory Variables	Coefficient (t statistic)	P value
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Median Hispanic Income	.755 (3.272)	.007
Real Effective Exchange Rate	-.079 (-.345)	.736
Lagged Mexican GDP	.294 (1.438)	.178
Financial Crisis	.056 (.296)	.773
Adjusted R ²	0.75	

7) Remittances and Poverty Issues

A major area of analysis, which will not be discussed in this study, is the impact of remittances on poverty and on income distribution. Evidence on the income equalizing effect of remittances remains mixed. A few authors believe that remittances are oriented toward middle- and upper-income households. These researchers are concerned that remittances increase inequality because rich workers are better able to pay the high costs related with international travel and because remittances increase rural-urban inequality as they tend to finance investments in real estate or in enterprises in urban areas (Ratha, 2003, p 164-165). Actually, the evidence shows otherwise, as noted below. High income emigrants tend to send a smaller proportion of their income to their countries of origin, than lower income migrants.

On that basis, Ratha explains that there is evidence that remittances have an equalizing effect on the distribution of income among socioeconomic groups in Mexico (Ratha, 2003, p 164) and Adams and Page found that international remittances have a negative and statistically significant effect on three poverty measures used in their analysis (Adams and Page, 2003, p 10). They describe that “on average, ... a 10 percent increase in the share of remittances in GDP will lead to a 1.2 percent decline in the share of people living on less than \$1.00 per person per day. However, the more sensitive poverty measures – the poverty gap and squared poverty gap – suggest that international remittances will have a slightly larger impact on poverty reduction – a 10 percent increase in the share of remittances will lead to a 2.0 percent decline in the depth and/or severity of poverty in the developing world” (Adams and Page, 2003, p 10).

Most authors consider remittances more concentrated among low skill migrants and are mostly directed to the poorer segments of the population, where they came from. Buch and Kuckulenz find that “countries with a high share of female unemployment, a high age-dependency ratio, and low illiteracy rates, receive more remittances than comparable developing countries” suggesting that those living in the worst poverty are often the ones who migrant in search of income to cover a household’s basic needs (Buch and Kuckulenz, 2004, p 13).

The impact of remittances on poverty, though, is hard to isolate and test. As the World Bank explains - “To the extent that they increase consumption, remittances may increase per capita income levels and reduce poverty and income inequality, even if they do not directly impact growth” (Global Economic Prospects 2006, World Bank, p 104).

8. Concluding Remarks and Policy Prescriptions

Remittances have become a decisive element in the determination of the balance of payments, expenditure and economic growth for the countries of origin of emigrants to the USA, the EU, Japan and other countries, including within Latin America. The significance of these flows, some US\$53 billion for the Latin American economy, cannot be underestimated for those countries that are major recipients of these flows, like Mexico, most Central American and Caribbean countries, as well as Bolivia, Colombia, Ecuador and Peru.

The behavior of remitters has been well covered by the literature within and outside the region, with significant contributions by The Inter-American Dialogue, the IDB, and a number of other Academic and International Organizations. Among the different conclusions about how individuals act regarding these remittances, one of great policy significance is that these are voluntary transfers among individuals, and thus are better left alone, without compulsory official intervention to channel these flows to alternative uses. Public actions as well as that of financial intermediaries have helped increase competition, reduce costs, improve transparency, and allow for recipients to save in the financial system. Even efforts oriented at benefiting communities, as opposed to individuals, have been treated carefully by the authorities. Otherwise the reaction by individuals would have been swift- the remitters would have sought to send their money through alternative means that could be less efficient but not subject to government control. Alternative plans would most likely end up in a drying out of these flows, at least through open channels. The macroeconomic impact of remittances does not provide a major scope for intervention regarding the flows, although as these remitted amounts increase, they have a clear effect on the economic performance of the country.

This study can only be seen as a tentative effort to give a general perspective of the factors affecting the macroeconomic impact of remittances, and it does not answer many of the important issues that arise regarding possible policies. However, there are several issues that come out both from the study's own analysis and that of the literature.

- As remittances increase in importance in the economy, the balance of payments changes in structure. The balance of trade “deteriorates”, that is, the pace of export growth may decline and that of imports increase, in response to the higher inflows, although emigrants will also increase their travel and purchase of goods in the country of origin.
- While it is difficult with current information to determine the exact amount of remittances that is consumed and saved at home, it is clear that under reasonably conservative assumptions, savings from remittances have acquired an increasing importance in financing investment. This trend has not eliminated the typical volatility that has characterized external conditions in Latin America, but has reduced its magnitude, thus helping attain more sustainable economic growth.

- Conditions in the remitter's country of residence have a significant impact on the level of remittances. Higher economic growth in the country of residence, or among Hispanic workers more specifically in the US, will have a positive effect on remittances, and vice versa, when growth slackens.
- In parallel, remittances tend to be linked inversely with conditions in the countries of destination. In this sense, this study confirms, albeit on a preliminary basis, the countercyclical nature of these flows, thus reducing the possible fluctuations in income and expenditure so typical of economic performance in Latin America.
- The two trends sometimes offset each other, to the extent that income fluctuations in the home country are linked to those in the country of residence of the remitters. This is specifically the case with regard to the synchronized economic cycle between the US and Mexico, Central America and the Caribbean. However, the conditions in the country of destination tend to dominate the behavior of remittances.
- Remittances have a significant impact on the exchange rate in the medium term. At the same time remitters respond to changes in the exchange rate, as well as other price variables like interest rates. Thus, remitters tend to send more money (in terms of US dollars), when there is a devaluation of the currency in their countries. This signifies that they respond to spending and investment opportunities in their countries. However these effects can also be mixed with the effects on remittances of a domestic crisis that accompanies devaluation (Mexico, Dominican Republic).
- The evidence suggests that the exchange rate tends to appreciate in real terms (Dutch disease) over time as remittances increase. While this trend will have deleterious effects on other sectors of the economy, it appears to be inevitable given the stability of these flows. This point requires considerable additional analysis, in order to determine the exact magnitude of the of exchange rate appreciation. This paper incorporates a macroeconomic model that seeks to analyze the overall effect of remittances, and shows that the outcome can be ambiguous. Further empirical elaboration that goes beyond the scope of this paper is needed.

In light of these observations, the implications about remittances for policy makers can be summarized as follows:

- Remittances act as a powerful cyclical stabilizer. In order to allow that flows respond promptly in times of crisis, they should operate with only limited government intervention, to avoid possible disincentives to remit. By contrast, current efforts to enhance prudential regulations, so as to increase competition, transparency and reduce transfer risks, will go a long way in helping remitters reduce their transfer costs.

- While remittances may result in a strengthening (revaluation) of the exchange rate over time, the monetary authorities should not intervene beyond the necessary monetary management in the short term to counteract this trend. Tightening monetary policy in order to discourage inflows over the longer run, at a time when remitters want to add resources to their families on a long run basis, will result in higher than “necessary” interest rates and a slow-down in growth, beyond the necessary intervention to avoid excessive volatility in the foreign exchange market.
- Fiscal policy can play a role in offsetting the impact of higher remittances. However, the tighter fiscal policy should not be centered on taxing the remittances themselves, least they end up drying out because of the impact of taxation. Lower expenditures could in fact help in the process.
- While fiscal restraint is important for aggregate demand management, the government needs to be aware of the need to develop investment/financial schemes that may induce remitters to increase their resources destined toward investment, through matching programs and equivalent inducements.
- An observation that does not come out directly from this study is that in order to enhance the impact of remittances on savings, investment, and thus economic growth, governments will need to strengthen the incentives to “bank the unbanked”. In addition mechanisms will have to be developed to protect the savings of the recipients, in order to increase the long-term stability of the flows.
- As a final recommendation, remitters will react in the same way as local residents and foreign investors regarding poor macroeconomic policies—they will reduce local exposure if these policies persist. Thus, while reiterating the obvious, the authorities need to preserve macroeconomic stability to allow for these flows to continue having a positive effect on the economy.

These considerations should not be seen as final. Clearly, further efforts are needed to analyze the effect of remittances on the Latin American and developing economies in general. However, the observations coming from this study give a good indication of where to put the emphasis both with regard to future research and policy actions.

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