

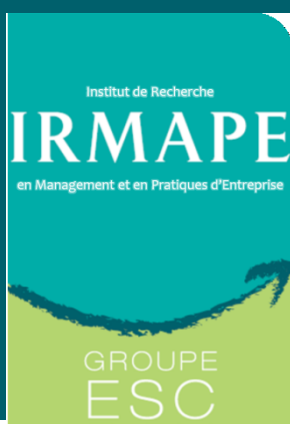
**Document
de travail
N°3**

Institut de Recherche en Management et en
Pratiques d'Entreprise

The Groupe ESC PAU Institute for Research in

**Business cycle
properties of state-
wise migrant
remittance inflows
to India**

Mars 2017



Business Cycle properties of state-wise migrant remittance inflows to India

Deisting Florent¹

Makhlouf Farid²

ABSTRACT

The existing literature on cycle properties of remittances concentrates on the nature of relationship between remittance fluctuations and GDP fluctuations in home countries. This paper examines the cycle properties of state-wise migrant remittance flows to India. By using the cross sectional data that includes 29 states of India, we find that relationship between remittances and GDP is ambiguous. However, results show also that remittances in most states are a cyclical except in Sikkim and Uttar Pradesh remittances are cyclical and in Delhi remittances are countercyclical. The economic policy vis-à-vis the remittances should take state specificities into consideration to optimize remittances effects.

JEL Classification: O11, F24, G24

Keywords: cycle properties of remittances, states-wise, India.

¹ ESC Pau, IRMAPE, Email : florent.deisting@esc-pau.fr

²ESC PAU, IRMAPE ; email : charlotte.sers@esc-pau.fr

1. INTRODUCTION

Remittances from abroad have become a very important component of the balance of the balance of payments for developing countries in recent years. For some countries they exceeded other types of capital flows. GDF (2012) shows that remittances to developing countries are higher than public aid flows and most private capital flows.

<INSERT FIGURE 1>

One can observe that remittances have risen rapidly in India these last two decades, making it the first beneficiaries of remittances in the world.

<INSERT GRAPHICS 2>

Transfers of funds to the India have multiplied by 30 between 1990 and 2012. The stability of remittances helped considerably to reduce the deficit in the current account during the 1990s and 2000s. They were also one of the most stable flows in the accounts of the Balance of payments of the India.

<INSERT GRAPHIC 3>

The debate on the impact of remittances of migrants on the economic development by the countries of origin is old. The Indian case is interesting,

because it is among the countries having the most of emigration in the world (Factbook 2011, World Bank), 3rd diaspora, and especially the India is the first country receiving remittances (GDF 2012).

Remittances are an important source of foreign currency for developing countries. By comparing the transfer of funds with other financial flows, it shows the importance of the first in terms of influx of foreign currency (see chart 1).

The India account more than 11 million emigrants and an annual net migration of-600 000 people. Mainly Indian emigrants are in Asia (72%), North America (15%) and Europe (10%). The Indian diaspora is considered to be the more widely dispersed (Rai and Reeves, 2009). These migration flows are correlated with the origin of remittances flows, even if we see that the gap between Asia and North America is less important (27% for North America and 58% for Asia).

If the cycles of remittances are positively correlated with those of economic activity in the country of origin, they could aggravate the amplitudes of economic cycles. On the other hand, a negative correlation could mitigate them by absorbing shock. Remittances cycles can also affect fluctuations of other macroeconomic variables, such as the exchange rate, the money supply in circulation and consumption. These influences are negative or are not going in the right direction; This can create difficulties for countries of origin including:

- inflationary;
- hardly predictable funds transfers
- complicate the implementation of certain economic policies;
- decreases in the share of remittances for investment.
- the worsening of the situation of households that depend on these transfers of funds. Beyond, they may also be the origin of behaviors annuitants on the part of the recipient households.

This paper analyzes the behavior of fund transfers to the India. The originality of this work lies in the fact that it takes into account the heterogeneity of the Indian

States. The main question in this work is the following: the behavior of Indian migrants in terms remittances it depends on the State of origin of the migrant? Indeed, the India contains 28 States that are heterogeneous in terms of development and economic growth.

The work is organized as follows: in section 2, we present the review of the literature on the behavior of remittances; in section 3 we will study the behavior of transfers of funds by State; finally we will conclude this work in section 4.

2. STATE OF THE ART: PROPERTIES OF REMITTANCES

The behavior of remittances can be accentuated by several factors such as the economic situation in both countries (origin and home), the exchange rate, inflation, cycles of affairs, the degree of economic integration (host country and origin), etc. Elbadawi and Rocha (1992) explain also how the level of transfers may be affected by the economic policies of the host country. Taking the example of Pakistan, Mazhar and Makhlouf (2011) have shown that remittances from Europe are more stable than those from the Middle East and North America. The stability of remittances could be due in part to the fact that the European economies are stable compared to other regions.

Thus, the economic situation and economic policies in host countries can play an important role in the determination of the nature and behavior of remittances (Mughal and Makhlouf, 2011). For example, the risk associated with the concentration of migrants in a given region is a threat to the stability of remittances. In hoc sensu, Stiglitz (2011) considers the transfer of funds as being a channel of economic crisis in the host country to the country of origin. Therefore the diversification of host countries can contribute to the stability of remittances.

The economic situation of the countries of origin also influences the transfer of funds (Swamy, 1981). In this context, Elbadawi and Rocha (1992) indicate that the variation of remittances is sensitive to periods of crises, natural disasters and political instability in the country of origin. Remittances can interact according to the shocks that occurred within these same countries. Kapur (2004) showed that economies experienced macroeconomic shocks are generally more transfers of funds.

For example, McNabb and El-Sakka (1999) exposed the idea that the general level of prices affects the transfer of funds. Certainly, *ceteris paribus*, a general increase in prices in the country of origin erodes the transfers of funds from purchasing power. In this case, they may increase to compensate for this loss.

Empirical studies on the cyclical properties of economic phenomena, including GDP, are extensively exploited particularly in developed countries (Verne, 2011). Fluctuations in economic variables constitute an area of research interest given the consequences they cause including on relevant economies. In the case of transfers of funds, the economic literature is still insufficient. On the other hand, international organizations such as the World Bank or the International Monetary Fund as well as some academics are beginning to focus on the cyclical transfers of Fund properties, however, the literature in this area is not enough rich (Sayan et al., 2010).

Some studies show that migrants tend to send more money to their countries of origin during periods of economic crisis, natural disasters and conflicts (Ratha, 2007). Yang (2003) in turn note that remittances to the Philippines have risen following the financial crisis of 1997, in this case they are considered contra-cyclical (Ratha, 2004; World Bank, 2006; Chami et al, 2005).

However, they can also increase when economic conditions are favourable in the countries of origin, mainly when such transfers are instead intended for investment. In this case, the transfer of funds are considered to be pro-cyclical,

they can also be acyclic. Sayan (2004) analyzed the correlation between remittances (from the Germany) cycles and cycles of the GDP of the Turkey. Cycles obtained using the Hodrick Prescott filter, demonstrate that transfers of funds are cyclical. The results on the cyclical properties are therefore different depending on the country of origin. Thus, Sayan (2006) who studied the cyclical properties of 12 countries of emigration (to lower middle income) for the period 1976-2003 using a polynomial filter observed different results depending on the country of origin. For example, for Morocco, the results show that remittances are pro-cyclical. However, in the case of Morocco, Bouhga-Habib (2006) indicates a negative relationship between agricultural production and the transfer of funds and concludes that these are counter-cyclical.

Comparing this source of income (remittances) compared with other financial flows (foreign direct investment, for example, IDE), Vargas-Silva (2008) points out, in the case of Mexico, remittances are contra-cyclical, however, FDI are pro-cyclical. However, the author admits that the results lack robustness. In a more recent study, Sayan et al. (2010) have concluded that the cyclical properties of remittances are impacted by the characteristics of the Mexico business cycles and those of the United States, using quarterly data, from 1980 to 2008. Similarly, Akkoyunlu and Kholodilin (2006) studied the interaction between remittances of Turkish migrants residing in Germany with the output of the Turkey and the Germany. They noted that remittances react positively to changes in GDP in the Germany, however, they are not sensitive to changes in GDP in the Turkey

Sayan and Tekin-Koru (2007) concluded that fund transfers are contra-cyclical in the case of the Mexico and pro-cyclical for the Turkey. In these studies, the cyclical properties of remittances are compared with those of the GDP of the countries of origin. Frankel (2009) noted that remittances are pro-cyclical, by using two types of regression: the first with bilateral data from 64 home and countries of origin in 2005 (cross section) and the second using the same sample of countries for the period 1979-2005 (panel data). Mandelman and Zlaté (2010)

using a DCEO model applied to the case of the Mexico and the United States observed that transfers of funds are cyclical. Chami et al. (2008), using a panel of countries, showed a negative relationship between remittances and the GDP of the host country. The nature of the interaction between the economy of origin and the host country can therefore play on the cyclical properties of remittances.

Overall, the determinants of remittances can be summarized as follows: income received by migrants; the income received by the recipient families; the level of education of the migrant and his family; the length of stay; the composition of the family of the migrant; the degree of altruism of the migrant; the strategic behavior of the migrant and his family; the exchange rate; the evolution of prices in home and origin countries; the rate of interest in home and origin countries; GDP in the host country and origin; the climate of business in the country of origin. Apart from these factors, there are other non-observable determinants as attachment to the country of origin, the sense of obligation to send money, the project of return which can play an important role in the behavior of remittances (MC et al., 2010). In addition, the political context may also influence the likelihood of send money (Arestoff et al., 2010). The nature of migration plays an important role in the determinants of remittances (Dustmann and Mestres, 2010). The duration of stay is negatively correlated with remittances. Lowell and De la Garza (2000) thus, show that an increase of 1% of the length of stay of migrants decreases by 2% the probability of transferring money. However, Aggarwal and Horowitz (2002) as well as Osaki (2003) found no relationship between the length of stay and the transfer of funds.

We note that there is no study that explores the behavior of fund transfers taking account the heterogeneities between the regions within the country of origin. In the section below, we will complete the review of literature on the behavior of fund transfers, by analyzing the Indian case.

3. EMPIRICAL ANALYSES

In this section, we estimate the cyclical properties of the transfer of funds taking into account the Indian States. Indeed, the India can be considered a set of heterogeneous States. For this purpose, the standard of living in the Indian States is different as it can cause different behavior with respect to remittances. The India consists of 28 States. Indian States differ from an economic perspective, with specific specializations of States (natural resources, agriculture, services, ICT). Also, there is the existence of a genuine cultural and religious mix (8 religions represented in India).

3.1 Data

To capture the economic conditions in each State, we will use the GDP. The GDP data are collected via the 'Planning Committee' (Commission) site. Data on remittances are collected via National Sample Survey Organization (NSSO). The variables are measured in volumes.

We used the GDP by State to pick up the macroeconomic conditions and the income of families. This income proxy variable is used in the macroeconomic determinants of remittances (Agunias, 2006; Hagen-Zanker and Siegel, 2007; Sirkeci, et al., 2012). Descriptive statistics are given in table 1 in the annex. The data also show that 90% of remittances are intended for 4 States (Kerala, Tamil Nadu, Andhra Pr and Punjab).

3.2. Model and results

Our econometric model can be written as follows:

$$Remit_i = \beta_0 + \beta_1 GDP_i + X\beta_3 + \varepsilon_i$$

where i is the State

X matrix dummy variables represent each State.

ε_i errors with average 0 and variances σ^2

Discussion:

The regression results are given in table 2 in the annex. They mainly show that remittances in most States are acyclic. However, in Sikkim and Uttar Pradesh remittances are cyclical and in Delhi is contra-cyclical. The empirical works that have used global remittances show that remittances are acyclic. For example, Mughal and Ahmed (2013), using the SVAR model found that the transfer of funds to the India are acyclic. Results confirm a part these results. It is true that, in most States, remittances are acyclic. However the transfer of funds to the Delhi is rather contra-cyclical. The latter represents a very small share of remittances. In Sikkim and Uttar Pradesh remittances are rather contra-cyclical. Those two States represent approximately 4.5% of global remittances.

Remittances can play a significant role in reducing the amplitude of business cycles in the. Behind the counter-cyclical nature of remittances, we can assume altruistic behavior of migrants. However, if remittances are pro cyclical, we can categorize them with other investment flows. Thus, remittances may increase during periods when families remained in the country need to spend advantage over their spending habits as in periods of family celebrations, religious, or at the back school. Therefore, they may have a seasonal pattern. This does not exclude certain shipments for reasons of investment in economic conditions. It should

however be noted that this relationship is not as automatic. Indeed, the two behaviors (altruistic and self-interest) may coexist.

If we reason in terms of demand and supply of remittances, we can assume that migrants' families back home asking for money to relatives living abroad. This particular application may depend on their income. Conversely, the supply of remittances is a function of the migrant income. If there is a specific economic crisis in the country of origin does not spread between the country of origin and host countries, the financial resources of the families of migrants tend to fall but not those migrants. Therefore, families require more assistance than usual to their relatives abroad. In this case, the demand for remittances will exceed supply. If migrants respond favorably to this request, the cycles of remittances will be counter-cyclical with economic activity. In the opposite case, a favorable economic situation in the origin country will lead to a decline in demand aid families. In this case, the apparent surplus of migrants remittances. Cycles of remittances will be pro-cyclical. The cyclical properties of remittances may be affected by the country of origin, the host and the degree of interdependence between the two countries.

4. CONCLUSION

Remittances of migrants include a complex phenomenon from the point of view of their behavior. They are not the result of a decision taken in an independent manner of the macroeconomic environment in the home and origin countries. We have just

See that even have within a single country of origin the behavior of different remittances by region of origin.

Shocks and hazards in the countries of origin can also affect the behavior of Indian migrants. The degree of economic dependence and economic integration between host countries and countries of origin can affect the cyclical properties of remittances. These can help the economies of the countries of origin to reduce the amplitude of the cycles of some economic variables, such as consumption, growth etc.

The behavior of transfers of funds can change over time and it is different depending on host and origin countries. Policies taken by the Indian authorities for its emigrants may not be homogeneous; they must take into account the specificities of States of origin. In other words, to control the phenomenon of remittances, policies must be specific to each host country and the local of origin. Bilateral policies can be effective compared to those taken in a unilateral manner. Studying the phenomenon of remittances, especially at the macro level, requires great caution. This does not call into question the study of cycles that can give a more comprehensive vision of such a phenomenon.

5. REFERENCES

- Acosta. P A., Lartey. E. K.K., Mandelman. F. S., (2009) "Remittances and the Dutch disease," *Journal of International Economics*, Elsevier, vol. 79(1), pages 102 116, September.
- Akkoyunlu.S., Kholodilin. K. A, (2006) "What Affects the Remittances of Turkish Workers: Turkish or German Output?" Discussion Papers of DIW Berlin 622, DIW Berlin, German Institute for Economic Research.
- World Bank (2006), *Global Economic Prospects: Economic Implications of Remittances and Migration*, Washington, DC.
- Bouhga-Hagbe. J., (2006), *Altruism and Workers' Remittances: Evidence from Selected Countries in the Middle East and Central Asia*. IMF Working Paper, WP/06/130.
- Barro. D., Benninger. T., Bitang A Tiati. T., Gruhl. S., Koukoui. O., Mihai. A., (2007) *Sous la direction de M. Jean-Jacques GABAS et M. Jean COUSSY. Atelier international se Science-Po : Banque Mondiale. Rapport sur les migrations.*
- Bourdet.Y., Falck. H., (2006) "Emigrants' Remittances and Dutch Disease in Cape Verde". *International Economic Journal*, Volume 20, Issue 3 September 2006 , pages 267 – 284
- Bradford. B., Boucher.S., (1995). "Migration, remittances, and in- equality: estimating the net effects of migration on income distribution". *Journal of Development Economics*, (55) p.307-331.

- Buch. C. M. ,Kuckulenz. A., Le Manchec. M-H., (2002) "Worker Remittances and Capital Flows." Kiel Working Papers 1130, Kiel Institute for the World Economy.
- Bugamelli. M., Paterno. F., (2005) "Do workers' remittances reduce the probability of current account reversals ?" Policy Research Working Paper Series 3766, The World Bank.
- Elbadawi. I. A., Rocha. R., (1992) "Determinants of Expatriate Workers' Remittances in North Africa and Europe." Working Paper WPS 1038, Country Economics Department, The World Bank, Washington, DC.
- El-Sakka. M. I. T., McNabb. R., (1999) "The Macroeconomic Determinants of Emigrant Remittances." World Development, Elsevier, vol. 27(8), pages 1493-1502.
- Faini. R., (2007) "Migrations et transferts de fonds. Impact sur les pays d'origine."
" Revue
d'économie du développement, 2007, vol. 21, issue 2, pages 153-182
- Ghosh. B., (2006) "Migrants' Remittances and Development: Myths, Rhetoric and Realities", International Organization for Migration (IOM), and The Hague Process on Refugees and Migration, Geneva.
- Grabel. I., (2008) "The Political Economy of Remittances: What Do We Know? What Do We Need to Know?" Political Economy Research Institute Working Paper series N° 184.

Green. W., (2005) "Econométrie" Pearson Education France ISBN:2-7440-7097-1.

Hagen-Zanker. J., Siegel. M., (2007) "The determinants of remittances: A review of the literature." MGSOG Working Paper 2007/3, Maastricht, the Netherlands

Kapur. D., (2004) "Remittances: The New Development Mantra?" UNITED NATIONS. No. 29, April 2004.

Krugman. P., Obstfeld. M., (2011) "Economie International" Edition Pearson Education ISBN: 978-2-7440-7327-4

Lucas. R., Stark. O., (1985) "Motivations to Remit : Evidence from Botswana." The Journal of Political Economy, 93, pp. 901-918.

Makhlouf. F., (2010) "Evaluation de la sensibilité des transferts de fonds vis-à-vis des économies des pays d'origine : cas du Maroc." Premier congrès annuel de l'AFEP : Crise de l'économie, crise de la science économique ? Jeudi 9 et vendredi 10 décembre 2010. Sciences Po Lille.

Mandelman., F. S., Zlate. A., (2010) "Immigration, remittances, and business cycles," Working Paper 2008-25, Federal Reserve Bank of Atlanta.

Mughal, M., Ahmed, J., (2013) "Remittances and Business Cycles: Comparison of South Asian Countries," Working Papers 2012-2013_4, CATT - UPPA - Université de Pau et des Pays de l'Adour, revised Jan 2013.

- Mughal. M., Makhoul. F., (2010) "Remittances as Development Strategy: Stepping Stones or Slippery Slope?" XXe Colloque fédérateur du CEDIMES / XXth Conference of the CEDIMES. Modèles de développement des pays émergents: caractéristiques, portée et défis Development Models of Emerging Countries: Characteristics, Scope and Challenges. 8-10 novembre / November 8-10, 2010 Québec (Canada).
- Ratha. D., (2003) "Workers' Remittances: An Important and Stable Source of External Development Finance." in *Global Development Finance*, Ch. 7, World Bank.
- Sayan. S., Tekin-Koru. A., (2007) "Business Cycles and Remittances: A Comparison of the Cases of Turkish Workers in Germany and Mexican Workers in the US." MPRA Paper 6030, University Library of Munich, Germany.
- Serdar. S., (2004) "Guest Workers' Remittances and Output Fluctuations in Host and Home Countries : The Case of Remittances from Turkish Workers in Germany." *Emerging Markets Finance and Trade*, M.E. Sharpe, Inc., vol. 40(6), pages 68-81, November.
- Sims, C.,(1980) "Macroeconomics and reality". *Econometrica*, 48,1,1980, p.1-48.
- Singer. D. A., (2008) "Migrant Remittances and Exchange Rate Regimes in the Developing World." Prepared for presentation at the Midwest Political Science Association annual meeting, April 3-6, 2008.
- Swamy. G., (1981) "International migrant workers' remittances: Issues and prospects." Sta Working Paper No. 481, The World Bank, Washington, DC.

Vargas-Silva. C., (2008) “Are remittances manna from heaven? A look at the business cycle properties of remittances.” *The North American Journal of Economics and Finance*, Elsevier, vol. 19(3), pages 290-303, December.

Ratha. D., (2007) “Leveraging Remittances for Development” Paper presented at the Second Plenary Meeting of the Leading Group on Solidarity Levies to Fund Development, Oslo, February 6-7, 2007; and at the Brainstorming session on Migration and Development organized by the Migration Policy Institute and the German Marshall Fund of the United States, Brussels, February 27, 2007. Euro Messo, 2006.

Verne. J.V., (2011) “ Les principales caractéristiques du cycle économique et de la croissance tendancielle au Liban”. *L'Actualité Economique*, VOL.87-N°2, Juin 2001.

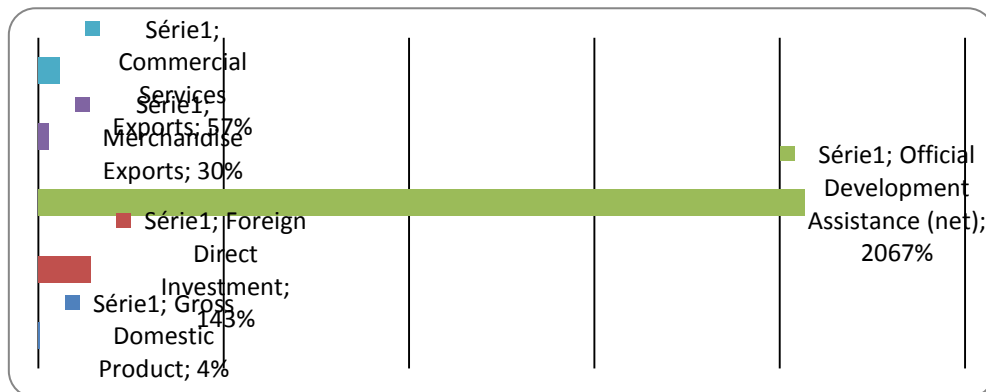
Wahba. S., (1991) “What Determines Workers’ Remittances?” *Finance and Development*, December, pp. 41–44.

Yang, D (2003 June). “Remittances and Human Capital Investment: Child Schooling and

Child Labor in the Origin Households of Overseas Filipino Workers,”
University of Michigan, mimeo.

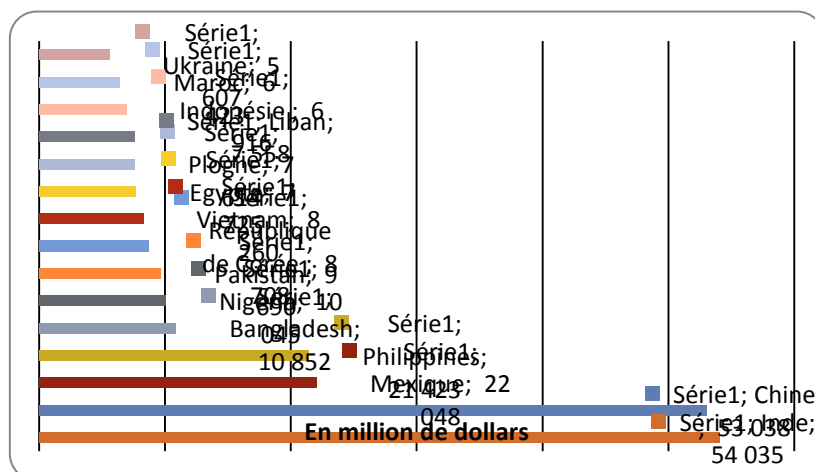
6. ANNEX

Graph 1: Remittances Inflows as a Share of Selected Financial Inflows and GDP, 2009



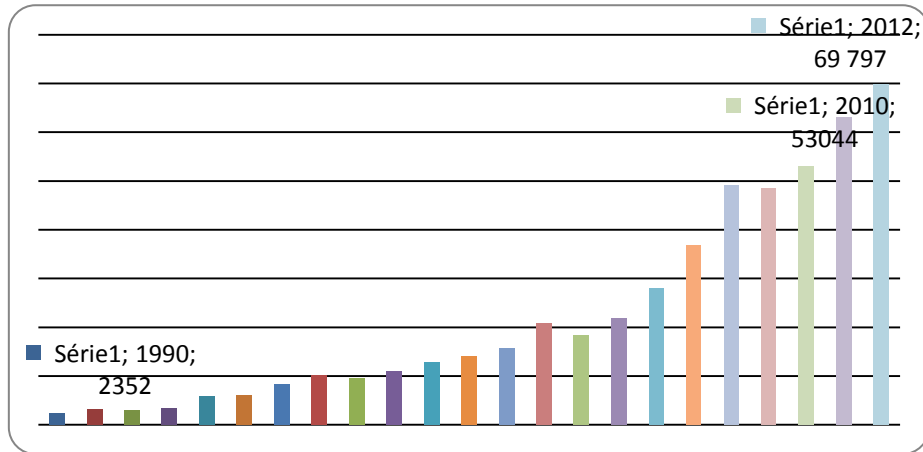
Source: International Trade Statistics, World Trade Organization, 2010

Figure 2: top15 remittance recipient developing countries in 2010



Source : Banque Mondiale (2013)

Figure 3 : Remittances to India (1990-2012)



Source : World Development Indicator

Table 1 : Descriptives Statistics

	Mean	Sd	25%	50%	75%
GDP	1.733178e+0	1.827313e+0	22453.75	119625.5	2.507898e+0
Remit	1.219520e+1	4.726563e+1	10108273.0	305714546.	3.738618e+1

Table 2: results cross sectional regression (dependant variable: remittances)					
Intercept	-15.39*** (3.815)	HimachalPr	1.699 1.986	Nagaland	-4.584 2.740
GDP	3.116*** (0.339)	J&K	2.787 1.936	Punjab	3.818 2.704
AndhraPr	-2.108 (2.883)	Jharkhand	-0.488 2.794	Rajasthan	1.697 2.802
ArunachalPr	-2.622 2.897	Karnataka	-0.438 2.837	Sikkim	6.621** 2.722
Assam	-4.082 2.673	Kerala	6.317 2.517	Tamil Nadu	2.778 1.671
Bihar	1.716 2.783	Madhya Pr	-2.457 2.772	Tripura	2.061 2.828
Chattisgarh	-2.779 2.741	Maharashtra	-2.108 2.883	Uttar Pradesh	-4.861* (2.640)
Goa	3.508 2.731	Manipur	-0.995 2.907	Uttarakhand	-0.227 2.797

	-0.108		-0.387	West Bengal	-0.564
Gujarat	2.850	Meghalaya	2.869		1.678
	-0.609		-2.053		-4.861*
Haryana	2.809	Mizoram	2.945	Delhi	2.640
() standard error					