Do remittance flows stabilize developing countries in the aftermath of sovereign defaults?*

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Abstract

Remittances are transfers of money by foreign workers to their home countries. These remittance flows have been considered a very important source of finance for many developing countries accounting between 5-40% of the recipient country's GDP. This paper empirically examines whether remittance flows stabilize developing countries in the aftermath of sovereign defaults. To this end, we conduct Dynamic System Generalised Method of Moments (GMM) estimation techniques by Arellano and Bover (1995) and Blundell and Bond (1998) taking into account annual data cutting across 81 countries from 1990-2010. We find that indeed remittances play a significant role in stabilizing a country which has defaulted on its sovereign debt. The findings of this study exhibit different results for different measures of default episodes. All in all our findings confirm yet another channel through which remittances can have a positive influence on recipient countries' economy since they support the hypothesis that the occurrence of a sovereign default spurs on an upsurge in remittances which play a stabilizing role.

Keywords: Remittances, Sovereign Defaults, Capital Flows, Generalised Methods of Moments.

JEL classification: C23, F34, H63.

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1 Introduction

International migration trends over the past three decades have shown that migrants have become substantively and more directly involved in different economic and social activities in their countries of origin. Migration and remittances that accrue from such movements of people are becoming an ever increasing and important aspect of the global economy. These migrants have been observed to have vested interest in their home countries and therefore send some money back home in form of remittances. As a result of growth in remittances, substantial attention has been focused on these cross border transfers from both private and public sectors. Owing to the fact that remittances are unilateral transfers, they do not create any future liabilities for instance debt servicing or profit transfers. Unlike other forms of capital inflows, remittances [1] have been growing rapidly worldwide, and today they represent a very sizeable component of the balance of payments of recipient countries as documented by IMF (2008). Factors purported to have triggered rapid growth include: increase in international migration, remittance fee reductions as well as convenience of transferring money through formal channels and better measurement and reporting of remittances in the balance of payments statistics.

Remittances by international migrants to their countries of origin constitute the largest source of external finance to developing countries after foreign direct investment (FDI) as illustrated by Ratha (2003). These remittance flows which are second to FDI flows are several times larger than remaining private capital inflows and official aid. Consequently, they are likely to serve as macroeconomic stabilizers because migrant workers are expected to increase the amounts transferred to help family members left behind compensate for the resulting drops in household income, whenever the economic activity in their country of origin slows down (World Bank 2006).

Remittances have also exhibited resilience as compared to other capital flows especially during economic downturns as was observed during the latest financial crisis. Between 2008 and 2009 remittances remained steady and dropped by just 5.2%. By contrast FDI in poor countries fell by a third during the crisis and portfolio inflows fell by more than half during the same period as cited by Ratha and Sirkeci (2010). The volatility dampening effect of remittances has also been observed to be larger in poorer countries where investment opportunities are limited and consumption needs are strong as depicted by Bugamelli and Paterno (2011).

[1] Remittance data documented in World Bank reports takes into account summation of both personal transfers and compensation of employees. This is because some countries are not in a position to distinguish between the two aforementioned variables.

Sovereign defaults [2] are a recurring feature of public finance which emanate from failure of government to meet contractual obligations associated with sovereign debt. A default typically occurs when the government is in a vulnerable situation owing to high debt service. This in turn results in a deterioration in economic fundamentals consequently leading to a negative change in creditor expectations and a sudden stop in capital flows follows. A number of studies suggest that a default is often associated with a decline in output growth (e.g. Panizza, Sturznegger and Zettelmeyer 2009). Generally, defaults are considered to be costly because they are associated with reputational costs, international trade exclusion costs, penalty costs and sometimes political costs to authorities. Although empirical evidence does not suggest that default necessarily closes off market access, it does point to an adverse effect on the government's cost of future borrowing (Borensztein and Panizza 2009). Thus it follows that sovereign defaults generally are usually just one component of a more general economic crisis.

Given that migration and remittances that accrue from such movements of people are becoming an ever increasing and important aspect of the global economy, it is important to examine the impact of such flows. This issue is an important topic of analysis given the significance of remittance flows towards developing economies and bearing in mind the relative stability of workers' remittances versus that of other inflows to developing countries. Remittances are perceived to provide additional macroeconomic benefits in terms of reduced volatility of output and consumption.

Our working hypothesis is that remittance flows, thanks to their size and cyclical properties, can help to smooth consumption and investments in the aftermath of a sovereign default and in effect contribute to economic stability. In this regard, the aim of this paper is to assess whether remittance flows stabilize developing countries in the aftermath of a sovereign default. We contribute to the literature in several ways because first, we conduct analysis for a large number of countries and a wide time-frame. Furthermore, this question has not yet been addressed since preponderance of literature on remittances has focussed on output growth, financial sector development, poverty, real exchange rate appreciation and current account reversals.

Our analysis covers 81 countries over the period 1990-2010. The results obtained utilizing Paris Club data suggest that there exists a broad tendency for countries to receive an upsurge of remittances (high remittances) inflows after default episodes which are regarded as "bad times" thus suggesting that remittance flows are par-

[2] It is worth noting that the term default covers any change in the original debt contract resulting in a loss of value to the creditor, e. g. debt rescheduling.

ticularly beneficial in the aftermath of a default. The results depicted by Paris Club Data are in line with our expectations because remittances heighten in the aftermath of sovereign default. We find that indeed the increment in remittances takes place at least two years after the occurrence of a sovereign default and thus plays a stabilizing role to the remittances recipient economy. To address biases due to reverse causality, we run regressions including lagging regressors one period by way of conducting Dynamic System Generalised Method of Moments (GMM) estimations. GMM estimation solves endogeneity concerns. We then implement fixed effects estimations taking into consideration both country and period fixed effects. Country fixed effects control for unobserved time-invariant country features. We base our conclusions on GMM estimations because GMM estimation results are more reliable and yield consistent results.

The rest of this paper is organized as follows: Section 2 is devoted to a critical review of the related literature regarding sovereign defaults and remittances. Section 3 describes the econometric methodology and data sources. The same section also provides a thorough descriptive analysis of remittances and sovereign defaults. Section 4 introduces our empirical specifications whose base results are presented in section 5. In section 5, the link between remittances and sovereign defaults is also investigated as well as the robustness of our findings. Section 6 concludes the paper.

2 Related Literature

A vast theoretical literature deals with the impact of remittances on recipient economies. Docquier and Rapoport (2006) acknowledge altruism, exchange, inheritance, strategic motive, insurance and investment theories of remittance determination. Empirical facts show that remittances increase most when home country experiences some sort of macroeconomic shock. Yang (2008) employs a global dataset on hurricanes to show that remittances increase to countries that experience these natural disasters. David (2010) uses multivariate dynamic panel analysis to examine the response of international financial flows to natural disasters and the results show that remittance inflows increase significantly in response to shocks to both climatic and geological disasters. Although a significant portion of remittance inflows are for altruistic reasons to support consumption and living standards of family members, some of the migrants are also motivated to remit in order to benefit from pecuniary gains and take advantage of incentives offered by recipient countries. Agarwal and Horowitz (2002) tested altruism versus risk sharing motives to remit and gave evidence supporting altruistic incentive while contrastingly, Lianos and Cavounidis

(2010) argue that remittances depend on both altruism and risk sharing motives. Chami, Fullenkamp, and Jahjah (2005) estimate a panel regression, and the results of the estimations reveal that the coefficients on the income gap variable are negative and highly significant which provides strong cross-country evidence that remittances are better described as compensatory transfers.

Remittance flows can be shock absorbers for the economy and play a role in reducing the country's vulnerability. More generally, remittances can improve creditworthiness and thereby facilitate access to international capital markets according to Avendano, Guillard and Nieto-Parra (2011). According to their proposition, remittances not only smooth out current account deficit but also augment international reserves which can be used to repay foreign debt. Bugamelli and Paterno (2009) suggest that remittances strengthen financial stability by reducing the probability of current account reversals. Using a large panel of emerging and developing economies, they find out that large, cheap, stable and low-cyclical flows of workers remittances reduce the probability of current account reversals in recipient countries. They use Instrumental Variables estimations to prove that the effect of remittances on current account reversals is of a causal nature. IMF (2005) hypothesizes that large, stable and low-cyclical inflows of remittances, which add up to the stock of international reserves can be used to repay foreign debt and might reduce the probability of financial crises in the face of worsening economic fundamentals. A significant and positive association is found between the level of remittances and credit ratings on sovereign debt. This therefore confirms empirical evidence that changes in remittance flows have a significant effect on credit ratings according to IMF (2005). World Bank documents that inclusion of remittances in credit worthiness assessments significantly improves credit ratings done by Fitch, Moody's and S&P.

Comparing remittances to other capital flows, Buch and Kuckulenz (2010) find out that remittances respond more to demographic variables while private capital flows respond more to macroeconomic conditions.

The finding that remittances facilitate financial development is confirmed in cross-country studies. Based on a dataset of 99 countries for the period 1975-2003, Aggarwal et al. (2006) find that remittances have a significant and positive impact on bank deposits and credit to GDP. This is done principally because remittances increase aggregate level of deposits and credits. This result is also corroborated in a separate analysis by Gupta et al. (2009) who examine the influence of remittances on financial development on a panel of 44 Sub-Saharan Africa (SSA) countries from 1975 through to 2004 and find the same evidence that remittances help in promoting financial development. The remittances-financial development link can be

bidirectional relationship because on one hand, as mentioned by Orozco and Fedewa (2006), money transmitted through financial system paves way for remittances recipients to obtain other financial products. As a result, remittances can increase domestic credit if banks extend credit to remittances recipients owing to the fact that remittances are perceived to be significant and stable. On the other hand, high financial development can increase remittance flows because better financial systems facilitate financial flows as highlighted by Aggarwal et al. (2011). Besides, well developed financial systems heighten remittance flows by reducing the cost of sending remittances.

Barajas et al. (2011) investigate the impact of workers' remittances on equilibrium exchange rates (ERER) in recipient economies. They use a small open economy model which shows that standard "Dutch Disease" results of appreciation are substantially weakened or even overturned depending on: share of consumption in tradables, degree of openness, factor mobility between domestic sectors, countercyclicality of remittances and the sensitivity of a country's risk premium to remittance flows. By way of performing panel cointegration techniques on a large set of countries, it is evident that ERER appreciation in response to sustained remittance flows tends to be quantitatively small.

Remittances tend to be stable or even counter-cyclical in response to political crisis, economic downturns or even natural disasters in the recipient country. With regard to business cycles, there is a tendency of remittances to move countercyclically with GDP in recipient countries. This is because migrant workers are expected to remit more during downturn of economic activities in their home countries and as such help their families to compensate for lost income due to adverse conditions like unemployment or other crisis-induced reasons. Sharp increases in remittance inflows after times of economic crisis for example Indonesia (1997), Ecuador (1999) and Argentina (2001) support this view that explains negative relationship between remittances and income. Sayan (2006) postulates that remittances reach peak of their own cycle within one year after a trough in the home country output. He suggests that the countercyclical nature of remittances enables these remitted funds to serve as a stabilizer that helps smooth out large fluctuations.

The stabilizing impact of remittances has also been examined by various researchers. The initial attempt to link remittances and macroeconomic stability appears in IMF (2005), which finds lower volatility of aggregate output, consumption and investment in countries with larger remittance inflows. Chami et al. (2012) empirically examine the influence of remittances on macroeconomic volatility using a cross sectional data of 70 countries and their findings reveal that countries with high remittances

to GDP ratios experience significantly lower macroeconomic volatility. Bugamelli and Paterno (2011) also perform a similar study and examine whether remittances reduce output volatility and they find evidence to the effect that indeed remittances have a stabilizing impact using a cross section of about 60 emerging and developing economies.

All the aforementioned review of literature deals with remittances and interactions with different macroeconomic variables. Focussing on defaults as in a recent study by Brandt and Jorra (2012), it is evident that foreign aid is not used as a punishment instrument for a defaulting country. In essence, the overall amount of foreign aid given to the defaulting country increases by 6.4% after a sovereign default occurrence. This study augers well with our research because similarly, remittances like foreign aid increase in the aftermath of a sovereign default.

Tomz and Wright (2007) provide a long run analysis of the relationship between default and economic performance and it is postulated that there exists a broad tendency for countries to default more often during periods of adverse economic conditions than during favourable conditions. It was noted that many inexcusable defaults occurred when political upheavals brought new coalitions to power that favored default for opportunistic or ideological reasons. The latter study is also pertinent to our research because it points out to the fact that sovereign defaults are often an indicator of worsening economic fundamentals.

This paper intends to establish the linkage between remittances and sovereign defaults. By analyzing the stabilizing impact of remittances after sovereign default, this paper not only examines an unexplored potential determinant of economic stability, but also this study investigates a new channel through which remittances can affect economic development.

3 Data and Descriptive Evidence

This section outlines sources and methods used to construct a database of sovereign default and remittances. We base our empirical analysis on an unbalanced panel of 81 developing countries with annual data from 1990 to 2010. Country coverage is dictated by data availability on main variables of interest in particular remittances and default. We further restrict the sample by excluding former communist countries, taking into account data from 1990-2007 to evaluate the impact of the global financial crisis, excluding outliers, and further still by using regional dummies as regressors. We measure remittances as a ratio to population thus remittances are therefore expressed in million USD per capita. We derive remittance series from

the World Bank Database (World Bank Indicators). Remittances in this case are defined as personal remittances that include personal transfers and compensation of employees. We use the sum of these two items because, according to IMF, some countries are not capable of distinguishing workers' remittances from compensation of employees.

We use official population series to convert total remittances to a per capita [3] series in order to compare remittance receipts given different country sizes. It is worth noting that gathering data on remittances is prone to measurement error since the data usually underestimates the true remittance flows because remittances data captured records funds that flow through official channels, yet there is still more funds remitted through private channels which go unrecorded.

To begin with, we examine visual data from defaulting countries by way of graphically illustrating pre and post default behaviour of remittances. See Figure (1). The graph shows five years of data whereby remittances data is normalized to one and then graphically represented two years before and two years after the year of default occurrence. The graphical representation shows that there is a tendency of remittances to increase after default episodes as depicted by the upward sloping line graphs after time zero which denotes the actual year of default. The data depicts remittances-default nexus pre and post default episode and shows that remittances pick up two years after the year of default occurrence.

Next, we examine these patterns to establish whether they hold up more systematically over a large sample of countries cutting across different continents. The graph also shows an average line graph depicting the average remittances trend of all the countries used in this study. The steep line graph represents Madagascar which experienced a huge leap in remittance inflows after experiencing sovereign default in 2004. The high margin of remittance inflows from 29 million USD in 2004 to 115 million USD in 2005 and a further increment to 175 million USD account for the steep uppermost graph in Figure 1. In chapter 5, the three outlier countries (Madagascar, Rwanda and Guinea) are excluded to assess the robustness of our findings.

[3] Dividing remittances by population to obtain per capita series allows neutralizing effects of variation in country sizes among our sample.

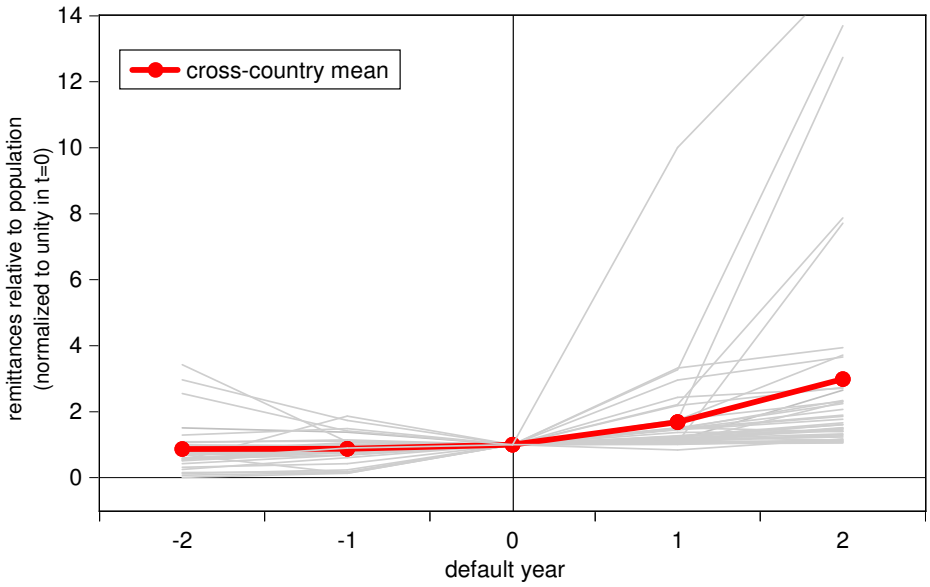

Figure 1: Remittance inflows pre and post default

Notes : Year of default is normalized to zero. The figure shows a window of plus and minus two years around a default. The flows have been normalized to one in the year of default. Mean in t=2 is 1.98 points higher than in t=0 which translates into approximately 1703 million USD increment in remittances.

Consistent with much of the literature on sovereign defaults according to Cruces and Trebesch (2013), and the practice of credit rating agencies as detailed out by Beers and Chambers (2006), it is often considered that a default has occurred when debt service is not paid on the due date (or within a specified grace period of time according to legal perspective), payments are not made within the time frame specified under a guarantee, or alternatively, absent an outright payment default. Sometimes credit rating agencies also consider a "technical" default an episode in which the sovereign makes a restructuring offer that contains less favorable terms than the original debt. It should be well noted that sovereign defaults do not necessarily imply total repudiation of outstanding debt. In most cases, default episodes are usually followed by a settlement between creditor and debtor although sometimes it may take the form of a debt exchange or debt restructuring. The new stream of payments normally involves a combination of lower principal, lower interest payments and longer maturities.

This study carries out regressions taking into account two default measures namely Paris Club (Paris Club website) and CT defaults (Cruces and Trebesch, 2013) as detailed out by Cruces and Trebesch. The former definition of sovereign default refers to the renegotiation of official external debt through the Paris Club. We fol-

low Fuentes and Saravia (2010), Martinez and Sandleris (2011) and Brand and Jorra (2012) in using information from the Paris Club to construct different indicators of sovereign defaults. Each default episode thus reflects either postponement or an outright reduction of a country's debt service obligations owed to other sovereigns. Paris Club's website is the most comprehensive data source on sovereign defaults in terms of coverage and detail. Essentially, it comprises more than 400 debt restructurings that took place between 1956 and 2010. For each restructuring deal, there is information regarding the amount of debt rescheduled and the type of treatment and as a result specifying degree of concessionality.

On the other hand, CT default episodes take into account distressed sovereign debt restructurings with external private creditors (foreign commercial banks as well as foreign bondholders). In this study, we consider both absolute values and dummies of both default measures in order to test for robustness. Sovereign defaults typically coincide with periods of economic hardship which renders the crisis-stricken countries more needy. In principal, we expect a positive sign coefficient basing the results on the premise that when countries default, migrants are meant to view it as a form of crisis or poor economic performance thus remit more funds to cater for the well being of their family members back in their home countries.

Another important variable of interest is population. Growth in population implies a corresponding increase in the number of citizens crossing borders for greener pastures into another country. As a consequence, an upsurge of remittances goes hand in hand with cross-border migration that is increasingly symptomatic of the demographic shifts. Data on population is obtained from Penn World Table 8.1. Population data undergoes log transformation for linearization purposes.

Exchange rate also matters because it is expected that remitters take into account the value of domestic currency when they remit. An appreciation of the domestic currency (remittance recipient country's currency) is likely to reduce the remittance proportion because it presents a form of extra cost for the remitter. The converse therefore holds true since depreciation of domestic currency appears cheaper to the migrants therefore leading to increased inward remittances. Data on exchange rates is represented as the value of local national currency in terms of USD for a period in national currency.

Human Capital Index measures countries' ability to maximize and leverage their human capital endowment. Human capital in terms of education, skills, knowledge, age and health determines access to economic opportunities. Individual human capital has been seen as a key determinant of migration probability and it has also been established that those with better education and skills have a comparative

advantage in destination labour markets and are more likely to migrate. When better educated people emigrate, they earn more abroad and the resultant effect is more remittance to their home countries because they can afford to send more money back home.

Political stability and absence of violence index portrays political stability and absence of violence as the name suggests. This estimate is obtained from World Governance Indicators and it gives the country's score on the aggregate indicator in units of a standard normal distribution. Better political structures allow for implementation of various strategies and that spurs on remittance flows.

Other variables of interest are GDP growth and GDP per capita. Poor countries are expected to receive relatively more remittances than rich countries thus GDP per capita is negatively related to remittances. On the other hand, GDP growth depicts the business cycle of the recipient country and could therefore be positively or negatively related to remittance inflows depending on the motive for remittance.

Natural disasters data is drawn from the Centre for Research on the Epidemiology of Disasters (CRED), Emergency Events Database (EM-DAT). We take into account the top 10 disasters with the largest number of casualties.[4] Migrants are presumed to be empathetic therefore they look for means of bailing out their relatives back home by remitting more whenever a huge disaster hits their home country.

Household consumption spending is mostly influenced by the amount of income available to the households. Since remittances are meant to be a form of income shock, they are expected to positively influence the consumption patterns of the recipient household since their ability to spend is increased. Previous studies also point out to the fact that remittances have a smoothing effect on consumption instability. Consumption instability is driven by a complex array of factors including economic shocks, the determinants of household elasticity with respect to shocks and the determinants of household consumption elasticity with respect to household income. Since remittances affect all the aforementioned factors, they are considered to play a pertinent role in stabilization of household consumption.

OECD Countries seem to be the ideal destination countries for most migrants from developing countries thus economic growth in OECD countries implies that migrants will be in a position to earn more and as a result remit more to their countries of origin. Since variations in remittances is somehow influenced by economic conditions of the migrants' host countries, the OECD growth rate is also included as an additional regressor. Economic conditions in migrants' host countries are likely to

[4]The sum of people affected and killed is used as an indicator of magnitude of a natural disaster. Therefore we consider ten of the highest magnitudes exhibited.

affect the volume of remittance flows that migrants are able to send.
We lag various control variables that may influence the inflow of remittances in order to address the problem of endogeneity. A comprehensive list of countries and descriptive statistics of all the variables used in this study are presented in the appendix.[5]

4 Econometric Framework

We empirically examine the relationship between remittances and defaults using the following model:

$$log\left(\frac{Rem_{i,t}}{Pop_{i,t}}\right) = \beta_0 D_{i,t-1} + \beta_1 X'_{i,t-1} + \varepsilon_{i,t},$$

where i refers to country and t refers to the time period from 1990 to 2010. However, data for the entire time period are not available for all countries therefore we only include countries if at least six years of data are available. Rem refers to remittances while Pop refers to population, therefore the log of the ratio of remittances to population is in this case our dependent variable. The matrix $X'_{i,t}$ is a matrix of control variables that literature has found to affect remittances and D is the indicator of default. β_1 is a vector which includes coefficients on the control variables. β_0 is the coefficient of primary interest and the error term is denoted as $\varepsilon_{i,t}$.
The matrix of standard control variables includes various other variables as follows: GDP growth is taken into account because it shows the business cycle of the recipient countries. Remittance trend of remitters could be quite ambiguous in the sense that remittances may be countercyclical or procyclical depending on the motive behind remittance flows. Remitters may want to remit more during economic downturn in their home countries as a form of lending a hand or still more willing to remit larger sums when the country is on a robust growth path taking advantage of investment opportunities. We lag values of default measures in order to capture the effect of delayed response of remittances in the aftermath of a sovereign default because remittances do not respond in real time thus a time lapse lasting approximately a year.
We also lag the natural logarithm of exchange rate to bring out the effect that exchange rate movements in the preceding year influence remittances in the current

[5]Comprehensive definition of variables, sources of data and descriptive statistics are presented in the Appendix.

period and also due to the fact that it is endogenous. We also lag the natural logarithm of GDP per capita as well as disaster dummies since these are considered part of the regressors which influence the magnitude of remittances. OECD growth rate, human capital index and political stability and absence of violence index are also potential candidates that impact on the flow of remittances. Growth in household consumption may also influence the magnitude of remittance flows into the recipient economy whereby higher household consumption may be associated with higher remittances.

The most outstanding problem is that the regressors are not strictly exogenous. We therefore follow Ebeke and Combes (2013) by including lagged variables as opposed to current realizations of most control variables.[6] This should mitigate endogeneity concerns. System GMM estimator allows for use of lagged differences and lagged levels of the explanatory variables as instruments as illustrated by Arellano and Bond (1991), Arellano and Bover (1995) and Blundell and Bond (1998). The GMM estimations generally control for endogeneity of remittances and other explanatory variables. In this case there is one specification test that checks the validity of the instruments. This is the standard Hansen test of over-identifying restrictions which is based on the assumption that model parameters are identified via a priori restrictions on the coefficients and hence tests the validity of over-identifying restrictions. The null hypothesis is that the over-identifying restrictions are valid.

If remittances increase when the recipient economy defaults, estimation of the remittance impact by (OLS) is biased. Moreover the OLS estimator is inconsistent since the lagged dependent variable is introduced besides country fixed-effects. However, we carry out both GMM and fixed effects estimations in deriving initial baseline results. [7]

5 Empirical Evidence on Stabilizing role of Remittances

5.1 Baseline Results

In order to address the issue of endogeneity in remittances data due to reverse causation, we initially conduct estimations lagging remittances per capita and other

[6] GMM estimations takes into account lagged endogenous variables which are not captured when fixed effects estimations are carried out.

[7] The main estimation method in this paper is Dynamic System GMM developed by Blundell and Bond (1998). Fixed effects estimator is inconsistent in the presence of regressors that satisfy contemporaneous but not strict exogeneity.

regressors a maximum of four periods when we perform dynamic system GMM estimations where we use lags of regressors as instruments.[8]

We follow Arellano and Bover (1995) and Blundell and Bond (1998) in carrying out GMM estimations. The main exogenous variables taken into consideration in this case include: OECD growth, political stability and disasters. Endogenous variables consist of human capital index, log of population, GDP growth, log of GDP per capita, household consumption growth and log of exchange rate. Table 2 contains estimation results from GMM estimations whereby the results derived from Paris Club yield the expected sign and is statistically significant thus supporting the hypothesis that remittances significantly increase in the aftermath of sovereign default and as such play a stabilizing role. A country suffering a default experiences, on average, an increase in per-capita remittances of 0.55%. Our GMM estimation results also display Hansen Test of overidentifying restrictions. According to the Hansen test of overidentifying restrictions, it is quite evident from the values obtained that the instruments are uncorrelated with the error term and that excluded instruments are correctly excluded from the estimated equation. Hansen J statistic does not reject the null hypothesis that our instruments are valid. This test thus confirms the validity of our instruments because it confirms that our instrument set is appropriate.

<< insert table 2 here >>

GMM approach is superior to fixed effects estimations because the OLS estimator is inconsistent therefore lagged dependent variable is introduced besides country effects. However, measurement error is known to beset the balance of payments statistics thus likely to bias our estimates. Biases might also occur because of common omitted variables driving the behaviour of remittances and sovereign defaults. As a result, measurement error seems to be a persistent problem that cannot be completely eliminated because even though GMM approach is used, they cannot correct for biases arising from measurement error since these would affect lags of the variables in the equation.

In our second approach, we examine the relationship between remittances and sovereign defaults by running fixed effects regressions. In this instance we ignore potential biases due to measurement error, omitted factors or reverse causation. We use fixed effects because there's high likelihood that unobserved characteristics of remittance recipient countries characteristics correlate with variables of interest.

[8]To address the problem of endogeneity as well as instrument proliferation raised by GMM estimator, our matrix of instruments takes into account a maximum of four lags.

However, in fixed effects regressions the variable $\Delta OECD$ is omitted because the model already takes into account period and country specific characters and therefore inclusion of $\Delta OECD$ leads to syntax error.

<< insert table 3 here >>

Table 3 represents fixed effects estimations assuming that remittances are exogenous and adequately measured. R^2 value which is more than 0.80 depicts that the model's explanatory power seems to be acceptable. We find that defaults have a positive sign when Paris Club data is used as a default measure. The results also depict that defaults are significant therefore when default occurs, then it is expected that the level of remittances will significantly rise. This finding of a positive coefficient when Paris Club data is used confirms our notion that increment in remittances emanate from sovereign defaults episodes and thus play a central role in dampening the negative effects of a default thus playing a stabilizing role. The coefficient on CT default has the correct sign but is not statistically significant. Regarding GDP growth, we find mixed evidence in favour of the hypothesis that migrants respond to GDP growth fluctuations in their home countries because apparently this entirely depends on the motive of remittance.

Paris Club data is deemed to be superior to other forms of default data owing to the fact that the case selection and data collection for the Paris Club dataset is straightforward, and includes all bilateral debt restructurings under the chairmanship of the Paris Club. On the flip side, CT criteria for default selection tend to be limited in scope because the main attention is drawn to five criteria which include: only distressed restructurings, only restructurings with foreign private creditors, no agreements on short-term debt, only public debt restructurings and only finalized deals. As a result, we rely on the results exhibited when using Paris Club data and therefore base our conclusions and recommendations on the same.

5.2 Further Robustness Exercises

To verify the robustness of the GMM results obtained thus far we conduct a number of additional estimations. Firstly, we exclude former communist countries because of the negative impact of totalitarian control of the economy which hindered free movement of capital thus inhibited remittance inflows. Secondly, we control for the global financial crisis effect by taking into account only data ranging from 1990-2007. Thirdly, to account for presence of outliers, we drop observations for Madagascar, Rwanda and Guinea. Fourthly, we introduce regional dummies to prove that remittances per capita is not significantly higher in one region of the world.
Taking into consideration the first robustness exercise, exclusion of former communist countries does not significantly alter our estimations results. Our results prove that indeed the stabilizing impact of remittances cuts across a wide range of developing countries. This is evidenced by the results shown on table 5.

<< insert table 5 here >>

Next we estimate the regression equation using data from 1990-2007 to analyze whether the global financial crisis affected our initial results. Significant variation of remittance flows seems plausible given the fact that our sample includes financial crisis period between 2008 and 2009. In like manner, estimates for 1990-2007 also yield estimation results similar to those encompassing the overall period. Though our coefficient of 1.75 is lower than the overall coefficient, it is nonetheless significant at the 5% level of significance. We find that our estimation results are robust in the sense that even during the global financial crisis period, remittance flows contributed to stability.

<< insert table 6 here >>

Excluding outliers does not change our results in any significant way. Table 7 shows that both significance and magnitude of remittances remain unchanged when we drop observations associated with the three outliers composed of observations for Madagascar, Rwanda and Guinea. Defaults continue to have a positive effect on remittances per capita as before. However, it is only Paris Club data in absolute terms that yields significant results. The coefficient on default dummy has the correct sign but it is not significant. Since the absolute value of default measurement is more accurate as compared to use of dummy variables, our estimation results still hold thus highly supporting the notion that remittances significantly increase in the aftermath of a sovereign default with respect to a wide range of developing countries. Dummy variables are deemed to be "artificial" variables and as such run the risk

of picking up specification errors from omitted variables. In light of the foregoing explanation highlighting the dummy variables setback, we base our conclusions on the results yielded by absolute value default measure when conducting this form of robustness check.[9] In the table below, the three outlier countries (Madagascar, Rwanda and Guinea) are excluded to assess the robustness of our findings.

<< insert table 7 here >>

Finally we rerun GMM estimations including regional dummies. To sum it up, inclusion of regional dummies paves way for us to prove that our results hold for all regions worldwide since the results depict that remittances per capita is not significantly higher in one region of the world. According to the estimates on table 8, it is evident that all countries included in the sample which represent different continental groups collectively contribute to the overall results.

<< insert table 8 here >>

[9]The fact that default dummy is not significant does not contrast our general conclusions. Similar results can be obtained by using fixed effects estimations. These results are available from the author upon request.

6 Conclusions

The role of remittances in a broader developmental context continue to be an interesting topic for many researchers. In this research, special focus is on behaviour of remittances in the aftermath of a sovereign default. To the best of our knowledge, we are the first ones who empirically investigate the validity of the assumption that sovereign defaults lead to an upsurge of remittance flows to defaulting countries. Using data from a wide range of developing countries and carrying out GMM estimations yield results which indicate that occurrence of a default triggers an upsurge of remittances to defaulting countries. This is mainly because migrants associate default episodes with periods of economic hardships in their countries of origin and therefore decide to remit more as a form of financial safety net for their relatives to dampen possible volatility in consumption patterns. This increase is statistically significant, leading us to conclude that indeed remittances play a stabilizing role in the aftermath of a sovereign default. Drawing inferences from our results, an increase of 0.55% in remittances per capita occurs in the aftermath of a sovereign default. Our findings are robust to different empirical model specifications and a variety of robustness checks. Consequently, our findings confirm yet another channel through which remittances play a stabilizing role to developing countries.

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Table 1: Summary statistics

Variables	Observations	Mean	Std. Dev.	Maximum	Minimum
$log(Rem/Pop)$	1701	2.8919	2.9188	9.5115	-4.3553
$ParisDefault$	1701	194.28	1704.9	37158	0.0000
$CTDefault$	1701	205.24	2509.9	60572	0.0000
$ParisDummy$	1701	0.1287	0.3350	1.0000	0.0000
$CTDummy$	1701	0.0400	0.1960	1.0000	0.0000
ΔGDP	1693	3.7476	8.0680	106.28	-66.120
$lnXr$	1701	3.4640	3.6044	9.8316	-26.204
$lnGDPpc$	1701	7.8020	1.6093	10.388	-3.6026
$disasters$	1701	0.3228	0.4677	1.0000	0.0000
HCI	1323	2.1734	0.5392	3.2762	1.1286
$PoliticalS$	1701	-0.4926	0.8479	1.2059	-3.1848
$\Delta cons$	1276	1.1315	113.30	290.16	-3984.2
$\Delta OECD$	1701	-0.0383	2.0101	6.5224	-3.7751
$AF\ dummy$	1701	0.4568	0.4983	1.0000	0.0000
$LAC\ dummy$	1701	0.2716	0.4449	1.0000	0.0000
$ME\ dummy$	1701	0.0494	0.2167	1.0000	0.0000
$AS\ dummy$	1701	0.0988	0.2984	1.0000	0.0000
$EU\ dummy$	1701	0.1235	0.3291	1.0000	0.0000

Table 2: Baseline Results (GMM)

	GMM Results			
Variables	*ParisDefault*	*ParisDummy*	*CTDefault*	*CTDummy*
Dependent Variable : $\log\left(\frac{Rem}{Pop}\right)$				
default/Pop	0.55		-0.07	
$(\times 10^{-2})$	$[2.73]^{***}$		$[-0.58]$	
default dummy		1.14		0.48
		$[2.13]^{**}$		[0.61]
lnXr	0.96	1.49	2.55	1.99
$(\times 10^{-2})$	[0.10]	[0.15]	[0.28]	[0.22]
ΔGDP	-0.76	-0.07	-0.88	-0.01
$(\times 10^{-2})$	$[-0.31]$	$[-0.03]$	$[-0.36]$	$[-0.51]$
lnGDPpc	-0.79	-0.48	-0.50	-0.53
	$[-2.83]^{***}$	$[-1.67]^{*}$	$[-1.67]^{*}$	$[-1.92]^{*}$
disasters	-0.20	-0.06	-0.10	-0.13
	$[-0.97]$	$[-0.26]$	$[-0.49]$	$[-0.60]$
$\Delta cons$	-2.36	-1.89	-0.31	-0.54
$(\times 10^{-4})$	$[-0.47]$	$[-0.39]$	$[-0.06]$	$[-0.10]$
HCI	1.82	1.39	1.25	1.26
	$[2.15]^{**}$	[1.63]	[1.39]	[1.38]
PoliticalS	0.24	0.19	0.21	0.24
	[1.33]	[1.14]	[1.12]	[1.34]
$\triangle OECD$	-0.63	-0.79	-0.83	-0.99
$(\times 10^{-2})$	$[-0.37]$	$[-0.46]$	$[-0.49]$	$[-0.58]$
No. of Countries	81	81	81	81
No. of Observations	1197	1197	1197	1197
No. of Instruments	59	59	59	59
Hansen test	0.259	0.890	0.317	0.260

Notes: Absolute values of z statistics are in brackets. The symbols *, ** and *** denote significance at 10%, 5% and 1% level respectively.

Table 3: Baseline Results (Fixed Effects)

	Fixed Effects Results			
Variables	*ParisDefault*	*ParisDummy*	*CTDefault*	*CTDummy*
Dependent Variable : $\log\left(\frac{Rem}{Pop}\right)$				
default/Pop ($\times 10^{-4}$)	4.21 [2.02]**		0.02 [0.36]	
default dummy ($\times 10^{-2}$)		0.37 [0.05]		-0.85 [−0.06]
lnXr	0.20 [2.32]**	0.20 [2.34]**	0.20 [2.34]**	0.20 [2.34]**
ΔGDP	0.02 [2.16]**	0.02 [2.27]**	0.02 [2.29]**	0.02 [2.30]**
lnGDPpc	-0.08 [−0.30]	-0.07 [−0.27]	-0.07 [−0.27]	-0.07 [−0.27]
disasters	-0.02 [−0.39]	-0.02 [−0.37]	-0.02 [−0.37]	-0.02 [−0.38]
Δ*cons* ($\times 10^{-2}$)	0.60 [1.31]	0.56 [1.23]	0.56 [1.21]	0.56 [1.22]
HCI	-4.18 [−8.20]***	-4.21 [−8.33]***	-4.20 [−8.53]***	-4.20 [−8.36]***
PoliticalS	-0.04 [−0.34]	-0.05 [−0.36]	-0.05 [−0.37]	-0.05 [−0.36]
No. of Countries	81	81	81	81
Adjusted R^2	0.84	0.84	0.84	0.84
No. of observations	904	904	904	904

Notes: Absolute values of t statistics are in brackets. The symbols *, ** and *** denote significance at 10%, 5% and 1% level respectively.

Table 4: Excluding transition countries (GMM)

	GMM Results			
Variables	*ParisDefault*	*ParisDummy*	*CTDefault*	*CTDummy*
Dependent Variable : $\log\left(\frac{Rem}{Pop}\right)$				
default/Pop	0.54		-0.08	
$(\times 10^{-2})$	$[3.22]^{***}$		$[-0.61]$	
default dummy		1.41		0.14
		$[2.49]^{*}$		[0.17]
lnXr	-8.31	-8.13	-9.01	-9.34
$(\times 10^{-2})$	$[-0.93]$	$[-0.84]$	$[-0.93]$	$[-0.99]$
ΔGDP	-3.26	-0.99	-1.94	-2.18
$(\times 10^{-2})$	$[-1.33]$	$[-0.44]$	$[-0.73]$	$[-0.85]$
lnGDPpc	-0.69	-0.35	-0.30	-0.33
	$[-1.73]^{*}$	$[-0.79]$	$[-0.65]$	$[-0.76]$
disasters	-0.35	-0.21	-0.22	-0.23
	$[-1.59]$	$[-0.85]$	$[-0.91]$	$[-0.90]$
$\Delta cons$	1.26	2.41	3.64	3.96
$(\times 10^{-4})$	[0.19]	[0.47]	[0.64]	[0.67]
HCI	0.96	0.65	-0.07	-0.10
	[0.87]	[0.55]	$[-0.05]$	$[-0.07]$
PoliticalS	0.30	0.19	0.32	0.34
	[1.64]	[1.14]	[1.64]	$[1.85]^{*}$
$\triangle OECD$	0.55	-0.37	-0.47	-0.76
$(\times 10^{-4})$	[0.33]	$[-0.27]$	$[-0.33]$	$[-0.52]$
No. of Countries	62	62	62	62
No. of Observations	912	912	912	912
No. of Instruments	55	55	55	55
Hansen test	0.889	0.896	0.836	0.260

Notes: Absolute values of z statistics are in brackets. The symbols *, ** and *** denote significance at 10%, 5% and 1% level respectively. In this regression, 19 former communist countries are excluded thus decreasing the sample size from 81 to 62 countries.

Table 5: Excluding transition countries (Fixed Effects)

	Fixed Effects Results			
Variables	*ParisDefault*	*ParisDummy*	*CTDefault*	*CTDummy*
default/Pop ($\times 10^{-4}$)	3.92 [1.86]*		-0.02 [−0.11]	
default dummy ($\times 10^{-2}$)		-7.20 [−0.88]		0.01 [0.07]
lnXr	0.07 [1.77]*	0.07 [1.86]*	0.07 [1.80]*	0.07 [1.81]*
ΔGDP	0.01 [0.64]	0.01 [0.81]	0.01 [0.75]	0.01 [0.74]
lnGDPpc	-1.03 [−3.97]***	-1.02 [−4.32]***	-1.02 [−4.17]***	-1.02 [−4.01]***
disasters	-0.08 [−1.27]	-0.07 [−1.24]	-0.07 [−1.24]	-0.07 [−1.25]
Δ*cons* ($\times 10^{-2}$)	0.11 [0.21]	0.06 [0.11]	0.06 [0.12]	0.06 [0.12]
HCI	-2.76 [−5.44]***	-2.80 [−5.53]***	-2.80 [−5.65]***	-2.79 [−5.62]***
PoliticalS	0.15 [1.03]	0.15 [1.01]	0.15 [1.01]	0.15 [1.00]
No. of Countries	62	62	62	62
Adjusted R^2	0.86	0.86	0.86	0.86
No. of Observations	699	699	699	699

Notes: Absolute values of t statistics are in brackets. The symbols *, ** and *** denote significance at 10%, 5% and 1% level respectively. In this regression, 19 former communist countries are excluded thus decreasing the sample size from 81 to 62 countries.

Table 6: Pre-crisis sample (GMM)

	GMM Results			
Variables	*ParisDefault*	*ParisDummy*	*CTDefault*	*CTDummy*
Dependent Variable : $\log\left(\frac{Rem}{Pop}\right)$				
default/Pop	0.53		-0.04	
$(\times 10^{-2})$	[2.50]**		[−0.29]	
default dummy		1.28		0.74
		[2.31]**		[0.90]
lnXr	1.18	2.11	2.48	1.55
$(\times 10^{-2})$	[0.13]	[0.22]	[0.30]	[0.18]
ΔGDP	-0.32	1.71	0.58	0.49
$(\times 10^{-2})$	[−0.11]	[0.63]	[0.21]	[0.18]
lnGDPpc	-1.10	-0.93	-0.93	-0.99
	[−2.78]***	[−2.29]**	[−2.41]**	[−2.55]**
disasters	-0.35	-0.19	-0.27	-0.32
	[−1.45]	[−0.69]	[−1.00]	[−1.19]
Δ*cons*	-5.64	-4.23	-1.35	-0.93
$(\times 10^{-4})$	[−0.71]	[−0.58]	[−0.17]	[−0.11]
HCI	2.43	2.45	2.10	2.13
	[2.06]**	[2.05]**	[1.79]*	[1.77]*
PoliticalS	0.34	0.26	0.31	0.34
	[1.42]	[1.05]	[1.23]	[1.42]
$\triangle OECD$	1.35	2.65	1.52	1.05
$(\times 10^{-2})$	[0.40]	[0.74]	[0.47]	[0.31]
No. of Countries	81	81	81	81
No. of Observations	1008	1008	1008	1008
No. of Instruments	49	49	49	49
Hansen test	0.521	0.793	0.304	0.232

Notes: Absolute values of z statistics are in brackets. The symbols *, ** and *** denote significance at 10%, 5% and 1% level respectively. This regression takes into account only data from 1990-2007 to evaluate the effect of the 2008-2009 global financial crisis.

Table 7: Excluding outliers (GMM)

	GMM Results excluding outliers			
Variables	*ParisDefault*	*ParisDummy*	*CTDefault*	*CTDummy*
Dependent Variable : $\log\left(\frac{Rem}{Pop}\right)$				
default/Pop	0.73		-0.06	
$(\times 10^{-2})$	$[1.92]^{*}$		$[-0.58]$	
default dummy		0.60		0.39
		[1.20]		[0.52]
lnXr	-3.07	-2.00	-0.49	-0.54
$(\times 10^{-2})$	$[-0.58]$	$[-0.37]$	$[-0.10]$	$[-0.11]$
ΔGDP	-1.08	-0.91	-1.61	-1.80
$(\times 10^{-2})$	$[-0.47]$	$[-0.43]$	$[-0.68]$	$[-0.76]$
lnGDPpc	-0.46	-0.42	-0.50	-0.51
	$[-1.81]^{*}$	$[-1.63]$	$[-1.94]^{*}$	$[-2.06]^{**}$
disasters	-0.25	-0.20	-0.21	-0.22
	$[-1.24]$	$[-0.93]$	$[-1.00]$	$[-1.05]$
$\Delta cons$	-1.10	-1.20	-0.26	-0.20
$(\times 10^{-4})$	$[-0.22]$	$[-0.26]$	$[-0.06]$	$[-0.04]$
HCI	1.40	1.39	1.47	1.44
	$[1.90]^{*}$	$[1.97]^{*}$	$[2.09]^{**}$	$[2.07]^{**}$
PoliticalS	0.02	0.02	0.04	0.05
	[0.13]	[0.17]	[0.29]	[0.38]
$\triangle OECD$	0.88	0.70	0.76	0.63
$(\times 10^{-2})$	[0.53]	[0.45]	[0.49]	[0.40]
No. of Countries	78	78	78	78
No. of Observations	1178	1178	1178	1178
No. of Instruments	63	63	63	63
Hansen test	0.654	0.688	0.496	0.473

Notes: Absolute values of z statistics are in brackets. The symbols *, ** and *** denote significance at 10%, 5% and 1% level respectively. In this case we exclude three outliers in our dataset which are Madagascar, Rwanda and Guinea.

Table 8: Including regional dummies (GMM)

	GMM Results with regional dummies			
Variables	*ParisDefault*	*ParisDummy*	*CTDefault*	*CTDummy*
Dependent Variable : $\log\left(\frac{Rem}{Pop}\right)$				
default/Pop ($\times 10^{-2}$)	0.60 [2.61]***		-0.07 [−0.57]	
default dummy		1.19 [2.28]**		0.43 [0.48]
lnXr ($\times 10^{-2}$)	-0.89 [−0.09]	-0.81 [−0.08]	-0.22 [−0.02]	-0.83 [−0.09]
ΔGDP ($\times 10^{-2}$)	-1.27 [−0.55]	-0.39 [−0.18]	-0.91 [−0.37]	-1.27 [−0.52]
lnGDPpc	-1.00 [−2.29]**	-0.54 [−1.37]	-0.46 [−1.09]	-0.51 [−1.24]
disasters	-0.19 [−0.94]	-0.06 [−0.27]	-0.11 [−0.51]	-0.13 [−0.59]
Δ*cons* ($\times 10^{-4}$)	-0.94 [−0.17]	-0.77 [−0.15]	0.92 [0.16]	0.77 [0.14]
HCI	2.20 [1.58]	1.65 [1.13]	1.30 [0.86]	1.31 [0.84]
PoliticalS	0.30 [1.43]	0.20 [1.08]	0.17 [0.88]	0.21 [1.09]
$\triangle OECD$ ($\times 10^{-2}$)	-0.69 [−0.40]	-0.87 [−0.50]	-0.95 [−0.56]	-1.09 [−0.62]
AF dummy	0.52 [0.46]	0.47 [0.37]	0.36 [0.29]	0.37 [0.29]
LAC dummy	0.52 [0.79]	0.34 [0.49]	0.19 [0.27]	0.23 [0.32]
AS dummy	0.35 [0.51]	0.25 [0.34]	0.13 [0.17]	0.18 [0.24]
ME dummy	0.91 [0.80]	0.65 [0.56]	0.52 [0.44]	0.57 [0.47]
No. of Countries	81	81	81	81
No. of Observations	1197	1197	1197	1197
No. of Instruments	63	63	63	63
Hansen test	0.311	0.829	0.375	0.331

Notes: Absolute values of z statistics are in brackets. The symbols *, ** and *** denote significance at 10%, 5% and 1% level respectively. The estimation results display various regional dummies categorized according to continents i.e Africa (AF), Latin America and Caribbean (LAC), Asia (AS) and Middle East (ME) in relation to Europe (EU).

A Country Coverage

Albania	Croatia	Jamaica	Rwanda
Angola	DR Congo	Jordan	Sao Tome and Principe
Antigua and Barbuda	Djibouti	Kenya	Senegal
Argentina	Dominica	Kyrgystan	Serbia
Belize	Dominican Republic	Liberia	Sierra Leone
Benin	Ecuador	Madagascar	Slovenia
Bolivia	Egypt	Malawi	South Africa
Bosnia and Herzegovina	El Salvador	Mali	Sri Lanka
Brazil	Equatorial Guinea	Mauritania	Tanzania
Bulgaria	Ethiopia	Mexico	Togo
Burkina Faso	Gabon	Moldova	Trinidad and Tobago
Burundi	Gambia	Mozambique	Uganda
Cambodia	Georgia	Niger	Ukraine
Cameroon	Ghana	Nigeria	Uruguay
Central African Republic	Grenada	Pakistan	Venezuela
Chad	Guatemala	Panama	Vietnam
Chile	Guinea	Paraguay	Yemen
Comoros	Guinea Bissau	Peru	Zambia
Congo	Honduras	Philippines	
Costa Rica	Indonesia	Poland	
Cote d'Ivoire	Iraq	Romania	

B Data Sources and Definitions

- *Rem* refers to remittance inflows from workers into the recipient economy and this data is obtained from the World Bank. The remittances inflows are denominated in million US $ which takes into account 2005 national prices converted into international dollars using purchasing power parity (PPP) rates.

- *Pop* is the population data contained in Penn World Table reports which represents population data by country from the World Bank and United Nations sources and is denominated in million of population.

- *ParisDefault* refers to default indicators as documented in Paris Club Website. Absolute default values are denoted in million USD. The bivariate variable in this case takes the notation *ParisDummy* whereby 1 is an indicator that renegotiations through the Paris Club took place and zero if otherwise.

- *CTDefault* is data compiled by Cruces and Trebesch which takes into account default episodes due to external debt renegotiation with foreign commercial banks and foreign bondholders. This data is obtained from Christoph Trebesch's website which encompasses haircut data and debt restructuring set running from 1970-2013. Default in absolute terms is measured in million USD. The dummy indicator *CTDummy* is 1 whenever a default befitting CT description occurs and zero if otherwise.

- *lnXr* connotes natural logarithm of exchange rate values. Exchange rate is expressed in terms of national currency vs USD and the data is obtained from Penn World Tables 8.1

- ΔGDP is growth in real GDP per capita and this data is taken from Penn World Tables 8.1. Real GDP is at constant 2005 national prices in million 2005 USD.

- *lnGDPpc* refers to natural logarithm of real GDP per capita and this is obtained from Penn World Tables. This is derived by dividing real GDP by population.

- *disasters* is bivariate whereby it is 1 if there is a natural disaster that is ranked among the top ten disasters with the largest number of casualties in a given remittance recipient country and zero if otherwise. This natural disasters data is obtained from CRED Emerging Events Database. CRED defines a disaster

as a natural situation or event which overwhelms local capacity, implying a request for external assistance (Noy, 2009; EM-DAT Glossary of terms).

- *HCI* refers to human capital index which measures countries' ability to maximize and leverage their human capital endowment and is derived from Penn World Tables.

- *PoliticalS* is an index which portrays political stability and absence of violence. This estimate is obtained from World Governance Indicators and gives the country's score on the aggregate indicator in units of a standard normal distribution, i.e. ranging from -2.5 to 2.5.

- $\Delta cons$ is the growth rate of household consumption. This data is derived from World Development Indicators database.

- $\Delta OECD$ measures the growth rate of OECD countries and the data is obtained from OECD website.

- *AF dummy* is a dummy variable which takes a value of 1 if a country is located within African Continent and zero otherwise.

- *LAC dummy* is a dummy variable which takes a value of 1 if a country is located within Latin America and Caribbean and zero otherwise.

- *EU dummy* is a dummy variable which takes a value of 1 if a country is located within Europe and zero otherwise.

- *ME dummy* is a dummy variable which takes a value of 1 if a country is located within Middle East and zero otherwise.

- *AS dummy* is a dummy variable which takes a value of 1 if a country is located within Asia and zero otherwise.

C Paris Club Default Episodes

1990	1991	1992	1993	1994	1995	1996
Bolivia	Argentina	Argentina	Albania	Bulgaria	Bolivia	Benin
Central Afr. Rep.	Benin	Bolivia	Benin	Cameroon	Cambodia	Burkina Faso
Congo	Bulgaria	Brazil	Burkina Faso	Central Afr. Rep.	Cameroon	Chad
El Salvador	Burkina Faso	Bulgaria	Costa Rica	Congo	Chad	Congo
Honduras	Costa Rica	Cameroon	Guatemala	Cote d'Ivoire	Croatia	Ghana
Jamaica	Cote d'Ivoire	Ecuador	Jamaica	Ecuador	Gabon	Honduras
Madagascar	Dominican Rep.	Equitorial Guinea	Mauritania	Equitorial Guinea	Guinea	Mali
Mozambique	Egypt	Ethiopia	Mozambique	Gabon	Guinea Bissau	Mozambique
Niger	Gabon	Guinea	Peru	Indonesia	Mauritania	Niger
Panama	Jamaica	Honduras	Vietnam	Jordan	Senegal	Peru
Poland	Nigeria	Jordan		Kenya	Togo	Sierra Leone
Senegal	Peru	Mali		Niger	Uganda	Yemen
Tanzania	Philippines	Sierra Leone		Philippines		Zambia
Togo	Poland	Tanzania		Senegal		
Trinidad and Tobago	Senegal	Togo		Sierra Leone		
Zambia		Uganda				
		Zambia				

2001	2002	2003	2004	2005	2006	2007
Bolivia	Burkina Faso	Benin	Burundi	Burundi	Cameroon	Central Afr. Rep.
Cameroon	Cote d'Ivoire	Ecuador	Congo	Dominican Rep.	Grenada	Gambia
Chad	DR Congo	Mali	Dominican Rep.	Honduras	Malawi	Sao Tome and Principe
Ethiopia	Ethiopia		Ethiopia	Indonesia	Moldova	Sierra Leone
Georgia	Ghana		Gabon	Kyrgyzstan		
Ghana	Indonesia		Georgia	Nigeria		
Guinea	Jordan		Ghana	Rwanda		
Guinea Bissau	Kyrgyzstan		Honduras	Sao Tome and Principe		
Madagascar	Mali		Iraq	Sri Lanka		
Malawi	Mauritania		Kenya	Zambia		
Mali	Rwanda		Madagascar			
Mozambique	Senegal		Niger			
Niger	Sierra Leone		Senegal			
Pakistan	Tanzania					
Serbia	Zambia					
Sierra Leone						
Ukraine						
Yemen						