Remittances and Financial Sector Development.
Lessons from the Salvadoran Case[1]

Transferts des fonds des migrants et développement du secteur financier. Le cas d'El Salvador

Mots-clés : Transferts de fonds ; Banking ; Microfinance ; El Salvador

Abstract

The paper takes a closer look at the benefits and limitations of "banking" remittances in the case of El Salvador, where state-owned banks followed an active policy of reaching out to the diaspora. The first part analyzes the role of different financial institutions in the Salvadoran remittance market. The second part crosses financial data with remittance data across Salvadoran municipalities. Although coverage of the banking sector is limited to larger municipalities and those with better-than-average socioeconomic indicators, empirical results show that the banking sector is more developed in terms of per capita savings and number of accounts in remittance-intensive municipalities.

L'article discute les bénéfices et les limites de «bancariser» des transferts des fonds des migrants dans le cas d'El Salvador. La première partie analyse le rôle de différentes institutions financières dans le marché de transferts. La deuxième partie croise des données financières avec des informations sur les transferts des migrants au niveau des municipalités. Même si le secteur bancaire ne couvre que les municipalités les plus peuplées et avec des indicateurs socio-économiques au-dessus du moyen national, les résultats montrent que le système bancaire est plus développé en termes d'épargne et de numéros de comptes par habitants dans les municipalités qui reçoivent plus de transferts.

Keywords: Remittances, Banking, Microfinance, El Salvador

JEL Classification: G21, O16, F24

1. Introduction

El Salvador heavily depends on remittances, the money that migrants working abroad send home, usually to their families staying behind. With a share of 17% of GDP, almost five times the value of foreign direct investment and more than 16 times the value of official development assistance (2008, World Bank 2010), the country ranks among the world's top ten receivers of remittances in relative terms, with remittances being El Salvador's most important source of external revenue. The first important waves of out-migration from El Salvador, mainly to the US,

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took place in the 1980s when the country was suffering from a civil war, and increased strongly during the 1990s and the 2000s. Today, 1.6 million Salvadorans live in the US; of these, one million were born in El Salvador, representing 16% of the population of El Salvador's roughly six million (US Census 2008, cited from Pew Hispanics Center 2010). Salvadorans in the US are often referred to as the 15th political department (next to the 14 departments of El Salvador), expressing the social, political and economic importance of Salvadoran migrants for their home country. Remittances were also one of the main transmission channels of the US financial crisis to El Salvador. Many Salvadoran immigrants work in sectors that were strongly affected by the US recession in 2009, such as construction. However, the 8.5% decline in remittances in 2009, although strong, was less severe than was feared by some and recovered in 2010.

In contrast to a large number of works that have focused on the use of these flows by receiving households, my interest is to analyze the access of senders and receivers of remittances to financial services and the contribution of remittances to the liquidity of the banking sector. At both the sending and receiving end, access to financial institutions for migrants and their families is limited. In developing countries, access to banking services is often a privilege of higher and middle income groups from urban areas. The share of households in developing countries that own bank accounts can be as low as 5% (Tanzania), typically lying between 20 and 30% for most Latin American countries and is estimated at 25% in El Salvador, compared to shares between 90 and 100% for Western European households (Honohan 2008). Small and micro enterprises, often from the informal sector, as well as households with low and irregular income and populations from rural areas, typically remain excluded from access to credit, insurance or saving accounts due to high transaction costs for small sums and information asymmetries that prevent banks from distinguishing good borrowers from bad borrowers (Armendáriz de Aghion/Murdoch 2005, see also Beck/Torre 2007, Beck et al. 2008 and Conning/Udry 2005 specifically for rural financial markets). Also on the sending side, undocumented migrants face difficulties in getting access to financial institutions that require legal documents for opening bank accounts.[2] Many migrants have a cash-based household economy: They earn, consume and save in cash, and remittances are also mostly sent and received in cash, via Money Transfer Operators (MTO) or other (partly informal) transfer mechanisms. A study by the Federal Reserve Bank of Chicago showed that the demand for cash is considerably higher in areas that are populated predominantly by Latin American immigrants than the national average (Jankowski et al. 2007). Varsanyi (2007: 305) refers to concerns of police departments that have become alarmed at the number of undocumented residents of the city who store large amounts of cash at home and frequently become victims of robbery.

From the point of view of migrants and their families, access to banking services may improve the living conditions of migrant households by providing monetary saving options as alternatives to other asset accumulation strategies (cash saving or saving in fixed assets like land and cattle), and possibly by opening access to other financial services like credit and insurances that enhance their capabilities in the understanding of Sen (1999). Beyond this direct benefit to users, savings from remittances provide liquidity to the financial sector of the receiving countries that may reduce internal saving constraints and dependence on foreign capital inflows to finance local

[2] Mexican consulates hand out "Matrículas Consulares" as a "substitute" for official documents to undocumented migrants in the US, which are also accepted by many banks for opening accounts. See, for example, Varsanyi (2007).

investment. Furthermore, matching savings from remittances with a demand for credit elsewhere allows a more productive use of remittances. In this way, providing migrant savings to the financial sector potentially contributes to a more equal distribution of the benefits of remittances and allows households and enterprises to benefit from remittances via financial intermediation and access to credit even if they do not receive remittances themselves. "Banking" remittance receivers have become an important topic on the policy agenda (among others OECD 2009; Terry/Wilson 2005; World Bank 2006), next to other remittance policies like transfer cost reduction or public-private partnerships that promote the use of remittances for community-oriented projects[3].

A number of countries that have or had state-owned banking systems followed an explicit policy of providing banking services to migrants, at a time when money transfer operators did not yet have the global distributional networks that they have today and long before banking remittances became a topic on the policy agenda. Examples of such an "outreach" of national banks towards their diaspora are Moroccan banks in France or Turkish banks in Germany. In Latin America, El Salvador is one of the few countries that explicitly targeted migrants and had a presence of national banks in both the sending and the receiving country since the 1980s.

My research questions are: First, how have different kinds of financial institutions responded to the demand of remittance-receivers for financial services in the Salvadoran context? Second, to what degree did banking remittances through commercial banks improve access for receivers and increase the liquidity of the banking sector? I use both quantitative and qualitative methods to answer these questions and start the following section with a summary of the state of the art on remittances and its links to the financial sector. In section III I provide a description of the Salvadoran context and analyze the role of different financial institutions in remittance markets and their potential for providing financial access to remittance receivers. Next to traditional banks, institutions from the microfinance sector that are socially and geographically closer to remittance-receivers are also engaged in paying remittances in El Salvador. Section III is mainly based on interviews conducted in 2008 and 2009 with experts from financial and government institutions. In section IV and V I apply regression techniques to a cross-sectional dataset of 262 Salvadoran municipalities, where I cross financial sector data with remittance data in order to show benefits and limitations of banking remittances through commercial banks. Selection bias that arises from a large number of municipalities without presence of banks is controlled for by a Heckman two-step estimation procedure. I conclude with a summary of the main findings and open questions.

2. State-of-the Art: Links between Remittances and the Financial Sector

Whether and in what way remittances have been beneficial to economic development in receiving countries has been the subject of controversial debate. Much of this debate has focused on the question of how remittances are used, e.g. whether remittances are spent on "productive" investment or consumed (for recent works on remittances and household spending see for

[3] The Mexican 3*1 program is an example of this approach, where public entities at the regional, state and federal level top the spending of migrant associations with equal shares each (García Zamora 2005: 165-172). While this example is probably the best known and most studied, similar experiences of public-private cooperation can be found in other countries as well.

example Adams/Cuecuecha (2010), Amueda-Dorantes et al. (2006), Cox Edwards/Ureta (2003), Görlich et al. (2007), Hanson/Woodruff (2003), Massey/Parrado (1998), Woodruff/Zenteno (2007), Yang (2005) and Yang/Choi (2007)).

Here, I move away from the debate on the use of remittances, as remittances are private income and the allocation of income towards saving, consumption or investment reflects preferences of households. In this respect, remittances are not different from any other household income (Taylor 1999). Receiving remittances will not turn households into entrepreneurs nor is the consumption of remittances necessarily a bad thing, because the spending of remittances may generate investment elsewhere through multiplier effects (Durand et al. 1996; Glytsos 1993, 2005). Instead, this article focuses on the relations between remittances and the financial sector. This nexus has been approached from distinct perspectives in the literature. On a macro-level, several studies have shown that remittances contribute to the macroeconomic stability of receiving countries. Remittances do not follow the herd-like behavior of other private-sector flows like loans and portfolio investments that amplify the boom and bust-cycle of many emerging markets. Although some authors question that remittances are only driven by altruism but respond positively to investment conditions and political climate in the home country (Lueth/Ruíz-Arranz 2008), most studies have found that, contrary to other private-sector flows, remittances are counter-cyclical and provide a stabilizing element during periods of financial instability (Buch et al. 2002; Bugamelli/Paternò 2005; Sayan 2004). Even under the most recent financial crisis – which originated in the US as the most important remittance-sending country – remittances have proven to be more stable than other private capital flows, despite a decline in 2009 (Chami et al. 2009; Ratha/Mohapatra 2009). As such, they help buffer fluctuations in foreign exchange reserves and can also help to maintain regimes of fixed exchange rates (Singer 2010). Less beneficial though, strong currency inflows can have an appreciating effect on the local currency and harm the competitiveness of exporting sectors. This "dutch-disease" effect on exchange rates, usually associated with natural resource booms, has also been diagnosed for remittance-receiving countries (Acosta et al. 2007; Amueda-Dorantes/Pozo 2004b).

On a micro level, a different line of research has underlined that remittances function as a substitute for credit and insurance from formal financial institutions. Remittance-receivers that have a demand for finance – for example because of a loss of work, sickness or other sudden income shocks – are able to rely on an additional and relatively stable source of income, which is not available to non-receivers. The fact that a large part of remittances is spent on health and other "emergency" spending (Afsar et al. 2002; Amueda-Dorantes/Pozo 2004a; Amueda-Dorantes et al. 2006; Yang/Choi 2007) point to this insurance function of remittances. Woodruff/Zenteno (2007) and Giuliano/Ruíz-Arranz (2009) have argued that remittances also function as a substitute for a lack of access to productive credits and play an important role in financing investment of micro enterprises. In this respect, remittances compete with formal financial services, possibly reducing demand for credits and other financial products like insurance. Guliano/Ruíz-Arranz (2009) have therefore claimed that growth is lower in countries with developed financial markets, because remittances tend to finance more investment in countries with weakly developed financial markets where they substitute the lack of access to credit. Bettin/Zazarro (2011) have challenged this view, showing that remittances and financial development can be complements to each other, provided the banking system is sufficiently sound. This is because remittances not only substitute credits, but saving from remittances and their intermediation through the financial sector leads to a more efficient allocation of resources.

Recent research has asked whether and to what degree remittances improve access to financial services and therefore function as 'catalyst' for financial development. This issue has been treated, most of all, in policy papers and country studies (see for example Orozco 2004; Orozco/Fedewa 2006; Terry/Wilson 2005). However, despite a repeated call for "banking" migrants in policy circles and international organizations, the relationship between remittances and financial sector development has so far received relatively little attention in academia. Exceptions include Aggarwal et al. (2010), who find that remittances have contributed to deeper financial sectors measured in domestic savings and, albeit at a minor degree, to domestic credit relative to GDP in a cross-country panel of 99 developing countries. These results are also confirmed by Martínez Pería et al. (2008) for Latin America and by Gupta et al. (2009) for Sub-Saharan Africa. In a case study on Mexico, Demirgüç-Kunt et al. (2011) add further evidence to the overall picture of a positive impact of remittances on deposits (and partly to credits) on a micro level, and, additionally, also find a positive impact on the number of accounts per household. The mentioned studies' explanation for a positive impact of remittances on the financial sector is that, through remittances, banks operate as transfer providers and previously unbanked remittance-receivers "get to know each other". In some cases, remittances might be accepted by banks as a substitute for the otherwise lack of formal incomes, paving the way for further financial services. This point is also made by Cuecuecha/de la Rosa (2010), who underline that changes in remittances have, additionally to the direct effect on income, also an indirect effect on poverty rates by facilitating access to credit among receivers.

The present article adds to this latter line of research and extends it to a new country setting. El Salvador constitutes an interesting case study because of an explicit policy of reaching out to the Diaspora through state-owned banks in the past. In contrast to Demirgüç-Kunt et al. (2011) and Aggarwal et al. (2010), I point towards the limitations of banking remittances through commercial banks for low-income and geographically isolated groups and address selection bias that result from the concentration of banks in larger and more developed municipalities. In addition, I include a qualitative analysis of the financial markets in El Salvador, taking into account the experience of financial cooperatives and credit unions, which, in many cases, match the typical profile of remittance-receiving households better than commercial banks.

3. Remittances and Financial Development – The Salvadoran Case

The Salvadoran remittance market is strongly dominated by commercial banks on the paying side: About 74% of remittances today are channeled through the four major commercial banks (Centro de Estudios Monetarios Latinoamericanos (CEMLA) 2008), a share much higher than in other Latin American or Caribbean countries, and a result of the role of the state in promoting the internationalization of Salvadoran banks in the 1980s at a time when remittances were largely sent in foreign currency through informal channels. The opening of bank branches of the then-state-owned Salvadoran banks in the US was a deliberate strategy of the government to curb informal remittance flows, fight the rising black market in foreign currency and capture US dollars for the financial system. The government followed an active policy of "banking" migrants, dividing the US market among the four major state-owned banks, which opened branches in California (Banco Agrícola), Texas (Banco Salvadoreño), Washington D.C. (Banco de Comercio) and New York (Banco Cuscatlán) (Magaña 2006). Although El Salvador has been using the US Dollar as the official currency since 2001 and black markets in foreign currency have become obsolete, savings from remittances still contribute to macroeconomic stability by

providing a counter-cyclical source of external finance and partly compensate for the loss of exchange rates as an adjustment mechanism in the case of negative shocks that hit the remittance-receiving, not the sending country (a criterion not met by the US financial crisis in 2008).

With a share of 49% of private credit to GDP, El Salvador has a relatively low level of financial intermediation by global standards, less than the average of all middle- and low-income countries (77%) and also less than the average of Latin America (62%) (data for 2008, World Bank 2010). In light of the relatively low absolute size of financial intermediation in El Salvador, remittances are an important factor for providing liquidity to the banking sector. However, the dominant role of banks in remittance markets does not necessarily mean that money is saved at financial institutions; access to financial services is relatively limited in El Salvador, with only one in four Salvadoran households owning a bank account (Honohan 2008). In many cases, commercial banks cooperate with money transfer operators on the sending side, which means that remittances are mostly received and paid in cash. According to CEMLA (2008), only 15% of the transfers channeled through banks are directly paid on account.[4]

The unsatisfied demand for financial services among poor and geographically isolated households is partly met by different institutions from the heterogeneous microfinance sector, which embraces a diversity of institutions ranging from private financial institutions specialized towards small clients, to non-governmental organizations, credit unions and financial cooperatives.[5] Next to traditional banks, some commercial microfinance banks as well as financial cooperatives and credit unions in El Salvador pay remittances in cooperation with MTO. Most of these are channeled through one of the two main federations of microfinance institutions: FEDECACES, the Federation of Associations of Savings and Credit Cooperatives (*Federación de Asociaciones Cooperativas de Ahorro y Crédito de El Salvador*) and FEDECREDITO, a federation of credit unions and worker's banks (*Federación de Cajas de Crédito y de Bancos de los Trabajadores*). The two federations allow the transfer of funds between members and the channeling of remittances through the network. Both enter into negotiation with MTO and conclude agreements with the MTOs as a representative for all its member institutions. FEDECACES offers remittance services to its clients since 1998. At present, the federation has 32 affiliated cooperatives with 58 points of service covering all 14 departments of the country. Remittance receivers have the option to join one of the cooperatives by opening an account, where they can also receive their remittances directly, though this is not a requisite for receiving the money, and they can get access to other financial products like loans or insurance. El Salvador's largest microfinance-network (in terms of borrowers), FEDECREDITO, has channelled remittances since 2003/2004. The network contains 55 members with over 115 points of service in the whole country, which are all able to pay out remittances. Growth rates of remittances channeled through either of these two federations started from low values, but have increased strongly since they entered the remittance market, pointing to the high demand for these services and a still-uncovered potential that exists for linking remittances with micro-financial services. Between 2007 and 2009, the common market

[4] We do not know, however, whether remittances that are received in cash are then deposited in an account.

[5] I use the term microfinance for all financial institutions that cater to low-income groups. In Latin America, the term "microfinanzas" is used for institutions that only give credit, while the term "finanzas populares" is usually used when referring to deposit-taking institutions like cooperatives and credit unions.

share of FEDECACES and FEDECREDITO in remittance payments increased from 5.6% to 8.5% (data provided by institutions to the author).

The interest of financial intermediaries in remittance markets does not lie in the transfer as such; in most cases, financial intermediaries on the paying side cooperate with MTO and only receive a minor share of the transfer commission charged to clients. They see remittances primarily as an instrument for approaching new customers and providing additional financial services to remittance-receivers. As a representative of one of the major commercial banks stated:

"Our approach is 100% banking, the remittance business is a banking business, it is not a business of gaining from the transaction as such, the transaction does not leave absolutely anything ... but the more people we have whose transfers are directed to saving accounts, in this sense for the bank it is an instrument of very cheap funds that also allows placing credits at preferential rates" [6]

In spite of their institutional differences, non-traditional banking institutions also see their role in remittance markets not only as paying agent to an MTO, but as an instrument for the cross-selling of other financial services, as expressed by the director of the federation of cooperatives:

"Remittances are no business [...] it has to be a concept of financial inclusion with cross-selling products where one sees much more complex things and this can only be done by an entity that is not only dedicated to this [...] if they would just sell remittances, really they could not".[7]

Both traditional banks and microfinance institutions (MFI) use remittances as a tool for approaching new clients. However, the institutional responses of microfinance institutions, on the one hand, and traditional banks, on the other hand, differ. MFI are "closer" to receivers both socially and geographically. Graph 2 plots the distribution of service points of commercial banks against institutions from the microfinance sector, grouped by departments with high, middle and low poverty levels and high, middle and low shares of remittance-receiving households. Taking the number of service points as an indicator for their geographic coverage, institutions from the microfinance sector have a stronger presence in low-income and high-remittance departments. Their clients match the typical profile of remittance-receivers better than commercial banks. Their main challenges consist in technical and institutional upgrading in order to be able to offer remittance payments and in combining their regional focus on rural and low-income populations with access to global payment systems (for a general discussion and experiences of other countries see Orozco 2008; Orozco/Fedewa 2006; Orozco/Hamilton 2004; Sander 2008). Banks, on the other hand, in many cases have their own networks on both the receiving and the sending side and are therefore generally in a better position to offer specialized products such as account-to-account transfers or other targeted products to migrants and their families. Also, they can enter into direct negotiation with MTO as a single corporation and generate economies of scale

[6] Translated by the author from an interview in March 2008.

[7] Translated by the author from an interview in March 2008.

through larger distributional networks. However, other than in the case of MFI, their traditional focus lies on urban centers and on higher income groups. For them, entering remittance markets requires them to downscale their product portfolio and reach out to remittance-receivers, which are not part of their "typical" clientele.

[GRAPH ONE]

The following section takes a closer look at the downscaling of traditional banks towards remittance-receivers and asks to what degree they have been reaching out to remittance-receivers in El Salvador. The quantitative analysis focuses on the commercial sector only, which covers 75% of the remittance market on the paying side. Because data on cooperatives and credit unions is not covered by financial statistics, I am not able to include institutions from the microfinance sector in the regression analysis.

4. Testing the Outreach of Commercial Banks to Remittance Receivers: Methodological Approach

A difficulty in studying relations between remittances and the financial sector is the fact that there are hardly datasets available at the household level that include both data on migration and on financial sector usage. In El Salvador, data on the financial sector comes from the financial superintendence (*Superintendencia del Sistema Financiero*), which provides disaggregated quarterly information for the 262 municipalities of the country. My empirical strategy consists of aggregating socioeconomic census data from the household level to the municipal level and crossing these data with data from the financial superintendence. The basic regression model (which has been used similarly by Aggarwal et al. and Demirgüç-Kunt et al) is

$$FinSer_i = \beta_1 Rem_i + \beta_2 X_i + u_i ,$$

where *FinSer* stands for financial service indicators in municipality *i*, *Rem* refers to remittance intensity, *X* is a vector of covariates, β are the estimated regression coefficients and *u* stands for the usual error term.

FinSer refers alternatively to the total amount of savings or the total number of accounts per capita in observation i. All financial data are given as averages for the years 2007 to 2010 to smoothen statistical outliers and year-specific effects. Commercial banks are present in only 60 (23%) of all municipalities. In many cases, the outcome variable therefore takes a value of zero. Demirgüç-Kunt et al. (2011) deal with the absence of financial institutions in a large number of municipalities by choosing a tobit maximum likelihood estimation, which allows them to treat municipalities without bank presence as left-censored variable and to interpret their results across all municipalities, including those without bank presence. Different to them, I prefer the OLS regression on municipalities with bank presence only and interpret results conditional on financial sector presence, because the interpretation how remittances influence the number of accounts and total deposits is more meaningful when it is restricted to municipalities with a

financial sector. Even if a municipality receives high amounts of remittances, this will not necessarily lead to an opening of bank branches and an increase in accounts and deposits when the size of the population is small and municipalities are geographically isolated.

A simple OLS regression on a subset of municipalities with bank presence gives biased estimates, because municipalities with banks are systematically different from municipalities without banks. Following a Heckman selection model (Heckman 1979, also referred to as tobit type II selection model, see Amemiya 1984) selection bias is treated as an omitted variable that has to be estimated together with the other variables in the model. The estimation therefore proceeds in two steps. In a first step, municipality characteristics are regressed on a binary variable of bank presence using a probit model. The predictions from this first-step model are then included as additional predictors in a regression on the 60 municipalities with bank presence.

The explanatory variable of interest is *Rem*, which will be measured either as the average amount of remittances per capita (taken over the whole population including receivers and non-receivers) or the share of households receiving remittances. I run the regression with both data alternatively. In measuring the impact of remittances on the financial sector, I exploit regional variation of remittances between municipalities. Migration rates and remittances are usually not equally distributed across a country because of historical path dependency of migration and the importance of migration networks (Bauer/Zimmermann 1985: 5; Boyd 1989). The vector of control variables *Xi* is composed of several indicators that are expected to be correlated with the level of financial intermediation and access to financial services. The literature has shown that poverty and low income are the main determinants for a lack of access to finance in developing countries (cp. Beck/Demirgüç-Kunt 2008). I am not able to control for income directly, but I include poverty rates and education levels as proxies for income levels. I measure poverty by an integrated poverty index created for each municipality in a national poverty map. As a measure of the education level, I use the share of the population that received any further specialization (professional or university education) in addition to high school. Population density is also expected to be correlated with access to financial services because transaction costs for banks are higher in remote areas with low population density. I additionally control for the population size of the observations because centralized accounts tend to be in the most populated areas, mainly the capital. An alternative way of controlling for centralized accounts would be to include dummies for the capital, which, however, proved to be insignificant when also controlling for population size. Finally, I control for the share of persons working in agriculture because the literature has pointed out that rural financial markets are especially prone to market failures and often lack access to commercial finance (see Conning/Udry 2005 for a review of the literature on rural financial markets). At the municipal level, this data is separated for those working in either crop production or cattle-raising, the data used referring to the share of the population working in crop production only. Before settling on these final variables, I tried different kinds of specifications where I took different kinds of accounts (savings accounts, current accounts or total accounts) as outcome variables and measured remittances differently, either as total sums per household (persons) or as the average share of households (persons) receiving remittances in each municipality. I also experimented with different covariates, such as different kinds of poverty indicators, different kinds of education measurements and indicators on housing quality as a proxy for socioeconomic status and income. I tried different kinds of data transformations and excluded outliers from the model in terms of savings, which proved to be unnecessary as

long as I controlled for the size of the observations. (See table 1 for a list of variables, their sources and some descriptive statistics).

The chosen approach suffers from several shortcomings. First, I lose information on the household level by aggregating data. Second, data on remittance and other socioeconomic indicators rely on the census, which only took place in 2007 and 1992, while financial data has been collected on a municipal level since 2005 (and is used as average over 2007 to 2010 to match the years following the census). This prevents me from implementing a panel data design that would allow me to control for unobserved omitted variable bias. Third, financial information on the municipal level is only available for the number of accounts as well as for the amount of savings, while information on credits is only available for the 14 departments – too few to run a meaningful regression. Given the data, I am only able to show a correlation of remittances with savings and the number of accounts. Fourth, the financial superintendence only provides data for the commercial banking sector, while cooperatives and credit unions fall under different regulations and are therefore not covered by the data.

In spite of its limitations, this seems to be the best way of regressing remittances on financial sector indicators in El Salvador. The purpose of the present paper is to show how remittances and financial institutions are linked in the special case of El Salvador and point out deficiencies in terms of coverage and access. Therefore I make use of regression techniques in order to give a descriptive picture, while a more demanding causality test is difficult to realize with the data at hand. Also, I am not able to discuss the impact of remittances on the household level nor do I ask whether and to what degree having access to financial services allows for more efficient asset accumulation strategies and increases the well-being of households. This would require different kinds of information on the household level and much more detailed datasets. Here I limit myself to showing the degree to which banks have been reaching out to migrants and their families, not the indirect effects of this fact on the lives of receivers. The restriction of the quantitative analysis to the commercial sector is justified by its larger size and dominant role in remittance transfers, compared to institutions from the microfinance sector.

[TABLE ONE]

5. Empirical Results

Table 2 gives the fist-stage estimation results for the presence of banks in a municipality, using probit regression. The most important predictors for the presence of banks are the log of population size and density of population: Small municipalities and those with low population density had a lower probability of having a bank branch. The share of persons with a higher education and the share of female-headed households are positively correlated with banking presence. The share of remittance-receiving households and the unemployment rate are not individually significant, but improved the overall fit of the regression.

[TABLE TWO]

Predictions from this first step estimation are included as Inverse Mills Ratio (see Greene 2003: 784 for its calculation) in the second step estimation on the 60 municipalities with bank presence in 2010 (outputs I to IV). Table 3 shows the results of the final specification for two alternative outcome variables, the number of accounts as well as for the amount of savings per capita, and for two alternative remittance indicators, the share of households receiving remittances and per capita remittances. For comparison, results from the simple OLS regression on a subset of 60 municipalities with bank presence are also reported (Output V to VIII). In order to achieve a better fit, I converted the outcome variables into logs as well as the per capita amount of remittances received and the share of households receiving remittances.

In the second-stage estimation on municipalities with bank presence (Outputs I to IV in Table 3), the size of the municipality is correlated positively with financial indicators but not individually significant when controlling for selection bias. Population density enters negatively in the regression, but is also not statistically significant when controlling for selection bias. The share of agricultural activity has a negative sign and is significant in specification III and IV on the log of the number of accounts. This correlation is as expected, because households with a large share of agriculture are on average poorer and the financial sector tends to have an urban bias. Poverty and the share of households with higher education are significant in all specifications (I to IV).

The comparison of the regression that controls for selection bias (Outputs I to IV) with the (biased) regression on a subset without correcting for selection (Output V to VIII) shows important differences in size and significance of coefficients. When selection bias is not controlled for, coefficients for the variables population size and density (that were important predictors in the first-stage estimation on the presence of banks in a municipality, see Table 2) are larger and have high significance values, while average socioeconomic indices (poverty and education) are less important. In general, the two-step estimation procedure improved the overall fit of the model compared to a simple OLS regression without control for selection bias.

My primary interest is on the correlation between remittances and financial sector indicators. The estimations show an important correlation of remittances with the number of accounts as well as with the amount of savings. As specifications I,II, IV and V in table 2 show, both the log of the number of accounts as well as the log of the total amount of deposits per capita are significantly correlated with the log of remittances per capita and with the log of the share of remittance-receiving households, controlling for other municipality characteristics. This means that, interpreting the regression coefficients as elasticity measures and holding other covariates constant, a one percentage increase in average per capita remittances in a given municipality is associated with a change of approximately 1.5 percent of deposits and a roughly one percent increase in the number of accounts per person, and an increase of one percent of remittance-receiving households in the municipality is associated with an increase of approximately 2.1 percent of deposits and of roughly 1.3 percent in the number of accounts per person. This could partly be an income effect, since I am not able to control for income directly, but only for proxies that are expected to be correlated with average income of the municipality (average poverty rates and education levels at the municipal level). In the regression without control for selection bias (output V to VIII), the effect of remittances on financial sector indicators tends to be overestimated. As stated at the beginning, we do not know from this analysis how non-traditional financial institutions that are not covered by the data have responded to remittances.

Retransforming the log variables gives an idea of the importance of the estimated correlation on the original scale. Comparing municipalities at the highest quintile of remittance-receiving

households (a municipality where 14.7% of households receive remittances) with a municipality at the lowest quintile (a municipality where 7.2 % of households receive remittances), the predicted difference in per capita saving would be 645 USD. With an average per capita saving of 1450 USD in municipalities covered by the banking sector (averaged over 2007 to 2010), this is a positive difference of 44%. Although the estimate is quite high, such a strong correlation is not implausible considering the importance of remittances in El Salvador, which amounted to 17% of GDP and more than 40% of total credit to the private sector in 2008 (World Bank 2011). Given the strong correlation between remittances and deposits, the financial sector of El Salvador has indeed been "flooded" with remittances, as Rodrik/Hausmann (2004) say.

These correlations should however be interpreted with caution. As mentioned above, the model is not designed as a causality test and there is no observable counterfactual of the Salvadoran economy without remittances. Several sources of bias and reverse causation are theoretically possible: First, coefficients could be upward biased because of underreporting of remittances (and therefore an underestimation of the amount of per capita remittances). The amount of remittances as estimated from household surveys is usually much lower than those registered by Central Banks and often amount to only around 30% of those registered at Central Banks (see Tuirán et al. (2006) and Canales (2008) for a discussion with respect to the Mexican case). This is a general concern referring to income data, arising, among other, from a lack of confidence towards interviewers or fear of taxation (Hurst et al. 2010). This could partly explain the high coefficient on per capita remittances in column II and IV. Therefore, the estimations from column I and III (based on the share of households receiving remittances) are preferred over the estimations that rely on the amount of per capita remittances.

Second, a causal interpretation could be questioned when households receive remittances because the financial sector is more developed and not vice versa. This could be the case when a more developed financial sector makes the sending of remittances easier and cheaper. A more general concern about reverse causation would be a situation where more migrants come from financially developed municipalities, either because financial development reflects average incomes and migrants self-select from wealthier municipalities, or because migration is financed through bank credit. Although I am not able to reject these concerns of reverse causation with the available data, I consider them not to be very strong. Concerning the first concern, remittance data comes from household surveys that also include remittances that are sent through non-formal channels (friends, relatives, cash couriers, etc.) and also because municipalities without the presence of banks show large average sums of remittances. With respect to the second concern, many poor municipalities without the presence of banks show strong rates of out-migration, and there is no evident sign of self-selection from wealthier municipalities in the case of El Salvador: The share of remittance-receivers in a municipality and banking presence are not significantly correlated (see Table 1) and many of the poorest municipalities are not attended by commercial banks (compare Figures 1 and 2). Also, commercial banks are not a probable source for financing emigration, even less in the case of El Salvador where migration to the US is to a large degree undocumented. Exploring concerns about reverse causation further would require more detailed datasets, preferably panel data, including remittances together with financial data. Such data is rarely available. The point I make here is that remittances have been an important source of liquidity to the banking sector without intending to give a precise estimate of its causal impact.

[TABLE THREE]

Although 74% of remittances to El Salvador are paid through banks, only a part of these are directly paid on accounts, and 62% of the population lives in municipalities without the presence of commercial banks. This points to the fact that, even if El Salvador has followed a policy of banking migrants in the past and the access to financial institutions by migrants and their families might be better in El Salvador than in other Central or Latin American countries, a large amount of remittances are sent and received in cash and are held outside financial institutions. Banks are concentrated in those municipalities that have a minimum size and that show, on average, more favorable socioeconomic conditions. Graph 1 plots the log of the average amount of saving per capita against the average amount of remittances per capita, highlighting municipalities that lie above or below the median for four indicators: Education levels, poverty, population size and farming activity as a proxy for the importance of agricultural income (see table 1 for their definitions). The graph shows that a large number of municipalities that receive important amounts of remittances are not attended by the commercial banking sector. Only a few municipalities that lie above the median of education levels, size, poverty and agricultural activity are attended by banks, as indicated by the few black crosses along the estimated regression line from specification II in table 3 – even when they show a high intensity in remittances. This shows that the benefits of the downscaling approach are not equally distributed among the population; many municipalities are not attended by commercial banks – especially in those municipalities with high poverty rates, a high share of agriculture, low population density and small size, banks are rarely present. Many households have to travel far to reach the next bank branch (and sometimes also to receive remittances), which can be a risky undertaking in a country such as El Salvador that ranks among those with the highest homicide rates worldwide[8]. Even in municipalities where commercial banks have bank branches, they typically cater to high and middle income groups and do not focus on low-income households.

[GRAPH TWO]

The choice of the year for the outcome variable could be important for two reasons. First, the financial crisis in the US had an effect on remittances, which could be transmitted to the financial sector via reduced savings and/or credits after 2008. Secondly, today, almost all Salvadoran banks have been privatized and sold to international banking corporations. This has raised the concern by some that the internationalization of banks leads to a retreat of banks from attending migrants and their families. As one interviewee stated:

"… all banks had special credit lines for Salvadorans abroad. […]. But after the sale of banks, banks start to follow corporate rules that are not thought of by Salvadorans for Salvadorans, but

[8] According to UNODC (2010), El Salvador had a homicide rate of 52 per 100,000 inhabitants in 2008, more than, for example, the USA (5), Mexico (12) or South Africa (37).

by some good executive sitting there in New York, and a Colombian there who does not know. And they see it at a level of risk just like any other bank". [9]

This expresses the concern that international private banks would not stick to the "downscaling approach" of banks towards remittance-receivers. In order to see changes in time, I also estimated the regression with financial indicators from the first and last available years (2005 and 2010, see grey estimated regression lines added in graph 1), next to the averaged indicators over 2007 to 2010. A comparison of the slopes shows a declining tendency from 2005 to 2010. This could be due to the effects of the 2008 financial crisis that had a negative effect on remittances to El Salvador, or to the privatization of banks, or to both. However, from the available data it is difficult to assess the statistical significance of this decline and whether it reflects a longer-term tendency.

6. Conclusion

The growing research on migrant remittances has analyzed the impacts of these financial flows on receiving countries from manifold perspectives. Beyond its direct effect on families, the aim of this article was a discussion of its indirect economic effects via financial intermediation.

The regression results indicate that the banking system is more developed in terms of per capita savings and number of accounts in those municipalities that have a large number of remittance-receiving households. Salvadoran banks strongly cater to remittance-receivers, who have, on average, better access to bank accounts and higher monetary savings compared to non-receivers. These findings also underline that remittances are not only spent on daily consumption, but that receiving households do have a demand for monetary savings options and asset-building strategies. However, in spite of the reaching out of banks to remittance-receivers, existing inequalities have also been reproduced through the traditional banking sector. Poor and geographically isolated households are largely excluded from banking services and hardly benefit from banking remittances. In this context, institutions from the microfinance sector in El Salvador have also responded to a demand for remittance services among their clients and included remittance payments into their product portfolio. Challenges for the micro-finance sector in remittance markets differ from those of commercial banks: While commercial banks have to downscale their supply to reach low income households and those living in rural areas, the typical clients of pro-poor financial institutions match the socioeconomic profile of remittance-receivers better. Their challenge lies in linking their rural and low-income focus with access to global payment systems.

In many senses, El Salvador constitutes a special case, not only because of the high magnitude of remittances in relation to its financial sector, but also because reaching out to migrants has not been a purely market-led process and governments have played a decisive role in promoting the internationalization of Salvadoran banks in the past. It is an open question whether and under what conditions commercial banks also provide financial services to remittance-receivers under

[9] Translated by the author from an interview at the General Directorate within the Ministry of Foreign Affairs in March 2009.

pure market conditions and how governments can support links between remittances and financial services. Also, I do not know in what way increased bank saving from remittances has translated into an increase in credits and economic growth and I am not able to do quantitative tests of the response of microfinance institutions to remittances. Finally, the empirical test whether and to what degree access to financial services among remittance-receivers improves well-being and asset accumulation strategies among migrant households lies beyond the scope of the paper and is left for future research.

7. Literature

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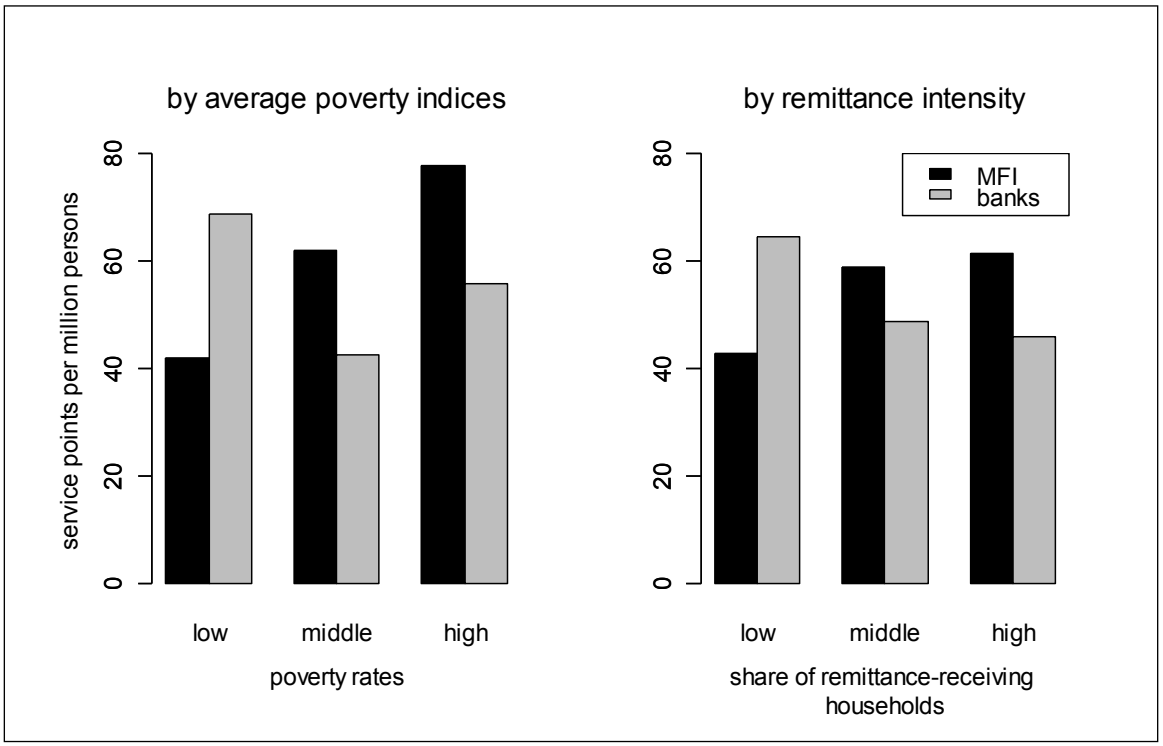
Graph 1: Geographical distribution of service points by poverty rates and remittance intensity: Banks vs. microfinance institutions



Grouping is based on the distribution of poverty rates (measured as poverty gap, see FISDL-FLACSO 2005) and remittance-receiving households in each of the 14 departments of El Salvador. The middle value refers to departments with values at the average 50% for each indicator; the low and high groups refer to departments with values at the lowest 25% and highest 25%. Data for the distribution of service points of banks per capita comes from the financial superintendence (SSF) and from Centro de Gestión de la Micro y Pequena Empresa (2008) for microfinance institutions.

Table 1: Overview and descriptive statistics of variables at municipal level

Variable	Description	Obs.	Mean	St. Dev.	Min	Max	Time Period	Source
number of accounts per capita	total number of accounts per 10,000 habitants	262 *[60][3]*	156 *[682]*	484 *[821]*	0 *[3]*	3,992 *[3,992]*	2007 - 2010 (mean)	SSF[1]
amount of deposits per capita	total amount of per capita deposits in US Dollars	262 *[60]*	332 *[1,452]*	1,397 *[2,642]*	0 *[0.3]*	13,952 *[13,952]*	2007 - 2010 (mean)	SSF
remittances per capita	monthly amount of remittances per capita, in US Dollars	262 *[60]*	7.9 *[9.0]*	6.3 *[5.3]*	0.1 *[1.7]*	37.4 *[22.3]*	2005	UNDP (2005)
share of remittance receivers	share of households receiving remittances	262 *[60]*	12.2 *[11.4]*	7.2 *[5.3]*	1.9 *[3.6]*	43.9 [*24.6]*	2007	Censo[2]
agricultural activity	share of households with income from crop production	262 *[60]*	29.1 *[17.4]*	19.2 *[13.9]*	0.3 *[0.4]*	78.0 *[53.9]*	2007	Censo
population density	number of persons per m^2	262 *[60]*	0.05 *[0.08]*	0.12 *[0.16]*	0 *[0]*	1.32 *[0.80]*	2007	Censo
education	share of persons that received further specialisation (professional or university) additional to high school	262 *[60]*	2.6 *[5.1]*	3.4 *[5.81]*	0.1 *[0.6]*	34.1 *[34.1]*	2007	Censo
unemployment rate	share of unemployed persons among the working population	262 *[60]*	12,1 *[11.9]*	7.9 *[4.0]*	0.7 *[5.4]*	65.4 *[31.7]*	2007	Censo
size	total number of inhabitants of the municipality	262 *[60]*	21,924 *[59,173]*	37,655 *[62,969]*	637 *[7,567]*	316,090 *[316,090]*	2007	Censo
poverty	integrated poverty index on municipal level, combining the poverty gap, housing conditions and educational characteristics	262 *[60]*	27.6 *[21.8]*	9.3 *[7.0]*	4.0 *[4.0]*	53.5 *[38.2]*	2005	FISDL/ FLACSO (2005)

[1]Superintendencia del Sistema Financiero de El Salvador, [2]Censo de Población y Vivienda de El Salvador 2007

[3]in brackets: Observations used in the second step regression

Table 1: Heckman First Step probit estimation on the presence of banks in municipality

	estimate	std. error
(Intercept)	-35.57***	5.42
population density	-9.3***	3.44
log of population size	2.92***	0.44
female headed households	11.48*	6.39
higher education	0.26**	0.13
unemployment rate	-0.02	0.04
log of share of households receiving remittances	0.77	0.5
residual deviance	*129*	
degrees of freedom	*255*	
Akaike Information Criteria	*143*	

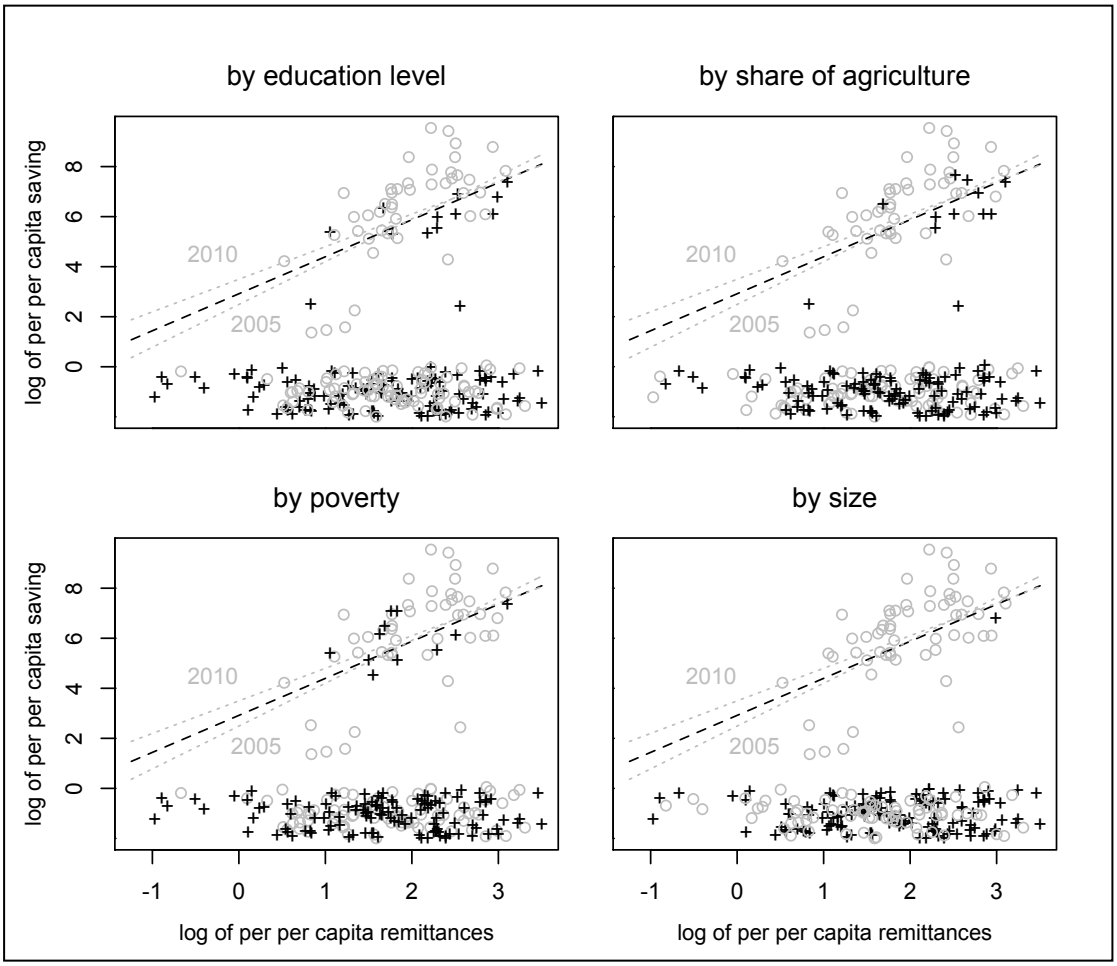
*Stars denote significance at 1%("***"), 5%("**") and 10% ("*")*

Table 2: Regression output (Second Step Heckman Selection Model and simple OLS)

	Heckman Sample Selection Model (2nd Step)				OLS on subset (without sample correction)			
	I	II	III	IV	V	VI	VII	VIII
	log of total deposits	log of total deposits	log of number of accounts	log of number of accounts	log of total deposits	log of total deposits	log of number of accounts	log of number of accounts
(Intercept)	-5.336	-1.176	-0.587	1.742	-11.325 **	-8.563 **	-8.451 **	-6.46 **
	[7.96]	*[6.97]*	*[6.2]*	*[5.41]*	*[4.542]*	*[4.173]*	*[3.408]*	*[3.136]*
log of share of households receiving remittances	2.081 ***		1.33 **		2.37 ***		1.709 ***	
	[0.72]		*[0.54]*		*[0.694]*		*[0.521]*	
log of per capita remittances		1.479 ***		1.003 ***		1.645 ***		1.187 ***
		[0.42]		*[0.31]*		*[0.434]*		*[0.326]*
population density	-3.766	-4.15 *	-2.517	-2.832	-4.708 **	-5.485 ***	-3.753 **	-4.314 ***
	[2.29]	*[2.3]*	*[1.8]*	*[1.8]*	*[2.117]*	*[2.088]*	*[1.588]*	*[1.569]*
Agriculture	-0.041	-0.036	-0.042 **	-0.04 **	-0.043	-0.035	-0.045 **	-0.039 **
	[0.03]	*[0.02]*	*[0.02]*	*[0.02]*	*[0.029]*	*[0.026]*	*[0.022]*	*[0.02]*
Poverty	0.096 **	0.093 **	0.073 **	0.072 **	0.094 *	0.087 *	0.07 *	0.065 *
	[0.05]	*[0.05]*	*[0.03]*	*[0.03]*	*[0.051]*	*[0.049]*	*[0.038]*	*[0.037]*
population size	0.471	0.296	0.25	0.158	0.939 **	0.92 **	0.865 ***	0.852 ***
	[0.63]	*[0.6]*	*[0.49]*	*[0.46]*	*[0.37]*	*[0.362]*	*[0.277]*	*[0.272]*
higher education	0.156 ***	0.106 *	0.089 **	0.056	0.169 ***	0.118 **	0.107 ***	0.07 *
	[0.05]	*[0.05]*	*[0.04]*	*[0.04]*	*[0.055]*	*[0.055]*	*[0.041]*	*[0.041]*
Inverse Mills Ratio	-0.775	-1.043	-1.017	-1.158 *				
	[0.85]	*[0.78]*	*[0.65]*	*[0.59]*				
R^2	*0.353*	*0.39*	*0.388*	*0.425*	*0.344*	*0.371*	*0.361*	*0.385*
adj. R^2	*0.266*	*0.307*	*0.305*	*0.347*	*0.27*	*0.3*	*0.288*	*0.315*
degrees of freedom	*246*	*246*	*246*	*246*	*53*	*53*	*53*	*53*

standard errors in brackets; stars denote significance at 1%("***"), 5%("**") and 10% ("*"). Using a Breusch-Pagan test, the Null-Hypothesis of homoscedastic standard errors could not be rejected in any of the specification (at a 5% value).

Graph 2: Regression of savings on remittances, with municipalities highlighted by socioeconomic indicators



Different shaped observations refer to observations above/below the median for each of the four indicators. Zero-values on the y-axis (log of per capita saving) have been jittered and values below "-1" on the x-axis (log of per capita remittances) have been cut off for better graphical representation. The black regression line (specification I in table 2) is based on the per capita saving stock averaged over 2007 to 2010, while the grey regression lines are based on per capita saving in 2005 and 2010, respectively