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REMITTANCES AND FINANCIAL INCLUSION:

EVIDENCE FROM EL SALVADOR

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Abstract:

This paper investigates the impact of remittances on financial inclusion. Using household-level survey data for El Salvador, we examine whether remittances affect households' use of savings and credit instruments from formal financial institutions. We find that although remittances have a positive impact on financial inclusion by promoting the use of deposit accounts, they do not have a significant and robust effect on the demand for and use of credit from formal institutions. If anything, by relaxing credit constraints, remittances might reduce the need for external financing from financial institutions, while at the same time increasing the demand for savings instruments.

JEL classification: F37, G21, O16

Keywords: remittances, financial inclusion

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I. Introduction

Remittances have become a significant source of external financing for developing countries. They reached US\$401 billion in 2012, more than three times the amount of official development assistance and over one half of the private capital flows received by developing countries in that year. Remittances are especially significant for small developing countries neighboring large rich economies. For example, remittances account for approximately 16.4 percent of GDP in the case of El Salvador and they represent the second most important source of external flows after exports.

There is an extensive literature on the effects of remittances on growth, investment in microenterprises, poverty, inequality, health, and education¹. However, the literature has so far ignored the impact of international remittances on financial inclusion - households' access to and use of financial services. This question is important because there is a growing body of research showing that promoting financial inclusion can have significant beneficial effects for households. Based on a randomized evaluation of a microcredit program in India, Banerjee et al. (2010) find that access to microcredit leads to greater investment in business durables, increases the number of businesses started, and improves the profitability of existing ones. Karlan and Zinman (2010) conduct a field experiment in which a finance company randomly liberalized screening criteria on consumer loans in South Africa and find significant positive effects of access to credit on

¹ For a thorough review of the literature on the economics of remittances see Rapoport and Docquier (2006). Studies investigating the macroeconomic effects of remittances include: Giuliano and Ruiz-Arranz (2009), Mundaca (2009), and Chami and Fullenkamp (2012). This last study argues that the potential effect of remittances on economic growth is ambiguous. Massey and Parrado (1998), Woodruff and Zenteno (2001 and 2007), Dustmann and Kirchkamp (2002), Mesnard (2004), Yang (2006), and Woodruff (2007) examine the impact of remittances on investments in microenterprises. The literature on the effects of remittances on poverty includes: Adams (2004 and 2006), Adams and Page (2005), Taylor et al. (2005), Yang and Martinez (2005), and Acosta et al. (2007). Studies on the impact of remittances on inequality include Adams (1992), Taylor and Wyatt (1996), and McKenzie and Rapoport (2007). Kanaiaupuni and Donato (1999), Hildebrandt and McKenzie (2005), Lopez Cordova et al. (2005), and Amuedo-Dorantes et al. (2007) analyze the effects of remittances on health and mortality, while Cox-Edwards and Ureta (2003), Hanson and Woodruff (2003), Lopez Cordova et al. (2005), Yang (2008), and Acosta et al. (2007) investigate the impact on education.

consumption, economic self-sufficiency (measured by employment status and income), and some aspects of mental health and outlook.² Studies on the impact of accessing and using savings products also find positive effects. In particular, the literature has found that providing individuals access to savings instruments increases savings (Aportela, 1999, Ashraf et al., 2010a³), female empowerment (Ashraf et al. 2010b), productive investment (Dupas and Robinson, 2009), and consumption (Dupas and Robinson, 2009 and Ashraf et al. 2010b).

Using household-level survey data for El Salvador for the period 1995-2001, this study investigates the impact of remittances on financial inclusion. In particular, we focus on whether remittances promote the use of deposit accounts and credit by examining the effect of remittances on the likelihood that households have a deposit account, apply for loans, and receive loans from formal financial institutions (commercial and saving banks, credit unions, credit cooperatives, etc).

There are several ways in which remittances could potentially affect financial inclusion. First, remittances might increase the demand for savings instruments. The fixed costs of sending remittances make the flows lumpy, providing households with excess cash for some period of time. This might potentially increase their demands for deposit accounts, since financial institutions offer households a safe place to store this temporary excess cash. Second, remittances might increase household's likelihood of obtaining a loan. Processing remittances flows provides financial institutions with information on the income of recipient households. This information might make financial institutions better willing and able to extend loans to otherwise opaque borrowers. On the other hand, since remittances might help relax households'

² Other studies that find that microcredit increases consumption or income include Pitt and Khandker (1998) and Khandker (2005). However, Roodman and Morduch (2009) are unable to reproduce those results.

³ Ashraf et al. (2010a) show that giving migrants from El Salvador access to bank accounts that allow them to have control over the funds they remit results in an increase in savings.

financing constraints (Giuliano and Ruiz-Arranz, 2009, Chami and Fullenkamp, 2012), the demand for credit might fall as remittances increase.

We conduct estimations of the likelihood of using deposit and credit services, allowing for municipality-, or household-level fixed effects to control for factors other than remittances that might affect financial inclusion at the household level.⁴ Also, to deal with the potential endogeneity of remittances, we conduct three different set of instrumental variables regressions, using economic conditions in migration recipient US states, municipality measures of the importance of remittances , and lagged values of remittances, respectively, as instruments.

Our estimations consistently show that households that receive remittances are more likely to have a deposit account at a financial institution. Our most conservative estimates indicate that receiving remittances increases the likelihood of having an account by at least 11 percentage points and an additional colon per household member in remittances raises this probability by 8 percentage points. These effects are sizeable given that on average only 19 percent of households have an account. However, remittance-recipient households are not more prone to request or receive a loan. This suggests that though remittances might have the potential to encourage the use of savings instruments, they do not necessarily foster the demand for and use of credit, perhaps because they help to relax credit constraints.

Our paper is related to studies that examine the impact of remittances on the development of the domestic financial system.⁵ Aggarwal et al. (2011) use balance of payments data on remittances and analyze how these flows affect bank credit and deposit amounts for 109 developing countries over the period 1975-2007. They find strong evidence indicating that

⁴ El Salvador is divided into 262 municipalities.

⁵ This question is important given the literature has shown that financial development can have a significant impact on economic growth and poverty reduction (King and Levine, 1993; Beck et al., 2000; and Beck et al., 2004).

remittances promote financial development as measured by the ratio of bank deposits and of bank credit to GDP. Gupta et al. (2009) use a similar methodology as Aggarwal et al. (2011) and find analogous results for a sample of Sub-Saharan African countries. Focusing exclusively on Mexico and using municipality-level data, Demirgüç-Kunt et al. (2011) find that municipalities where a higher proportion of households receive remittances have a higher number of bank branches and accounts per capita, and larger shares of deposits to GDP.

Although these papers find evidence of a positive impact of remittance flows on financial depth, they provide little information regarding the effect of remittances on financial inclusion. Financial inclusion is not the same as financial depth. Financial depth might be high and financial inclusion might be low if large amount of credits are assigned to few households. For example, the fact that larger inflows of remittances increase financial depth at the country or at the municipality level does not necessarily mean that those households that receive remittances are more likely to be financially included. In particular, the increase in credit at the macro level due to higher remittances flows might only be channeled to non-remittance recipient households, keeping poorer remittance recipient households out of the financial system. Similarly, deposits might increase in the economy even if remittance recipients themselves do not open accounts, as the remittances flowing into the economy are spent and end up in the deposit accounts of non-remittance recipients.

Our paper is also complementary to a literature that addresses the impact of remittances on economic development and their interaction with the financial sector. In particular, Giuliano and Ruiz-Arranz (2009) use balance of payments data and find evidence indicating that remittances constitute an alternative way of financing investment, especially in shallow financial systems. Hence, the authors suggest that instead of boosting credit markets, remittances act as a

direct source of funds to financially constrained households. This paper directly tests the mentioned hypothesis by analyzing the effect of remittances on credit demand.

Our paper contributes to the study of the impact of remittances on the financial sector in several ways. First, to our knowledge, this is the first paper to analyze the impact of remittances on financial inclusion directly. Second, unlike the previous literature that focuses only on the banking system, this paper also considers other formal financial institutions in El Salvador such as cooperatives, credit unions, and financieras. Third, by looking at whether households apply for loans, this study is able to examine the impact of remittances on the demand for credit and not purely on credit outcomes. This is useful because it can allow us to begin to assess to what extent remittances might relax credit constraints. Fourth, by using survey as opposed to balance of payments data, this study can circumvent some of the limitations of the previous studies. In particular, the survey data used in this study has the potential to capture remittances flows received through formal and informal channels, minimizing concerns about measurement error in remittances.⁶ Also, because we use household-level panel data we are able to control for unobserved household characteristics that can affect both remittances and financial inclusion, reducing concerns about endogeneity. Finally, our study offers evidence on the impact of remittances on financial inclusion for a new country - El Salvador – for which remittances represent a very significant share of GDP.

The rest of the paper is organized as follows. Section II characterizes the Salvadoran financial system during our period of study. Section III describes the data and the empirical methodology we employ. Section IV presents the results of our estimations. Section V concludes.

⁶ This is a significant concern in the study by Aggarwal et al. (2011) that uses balance of payment data on remittances.

II. The Salvadoran financial system during the late 1990s

El Salvador's financial system witnessed a number of reforms during the 1990s. In the late 1980s, during the final years of the civil war, the system became largely insolvent. Trying to overcome that situation, in 1989, the Salvadoran government adopted a reform plan with the aim of increasing competition and efficiency. In this process, several laws were passed allowing the privatization of banks, removing restrictions on foreign bank entry, and establishing new supervision rules. As a consequence of these reforms and due to good macroeconomic performance, there was a considerable increase in the depth and the size of the financial system (see Fuentes 2001). As shown in Table 1, from 1991 to 2001, the ratio of bank and non-bank credit to the private sector expressed as a share of GDP increased from 23 percent to 39 percent, while the ratio of demand and term deposits to GDP rose from 24 percent to 36 percent. The number of banks and non-bank institutions did not change significantly during the period: there were 14 institutions that were allowed to collect deposits in 2001, only one more than in 1991.

The Salvadoran financial sector became one of the deepest in Central America⁷ by the end of the 1990s (see Figure 1). However, despite the financial reforms undertaken during this decade, financial inclusion remained low in El Salvador. Based on a survey of rural households, conducted by FUSADES (Salvadoran Foundation for Economic and Social Development), 8.7 percent of households had a deposit account as of 1995 and 6.8 percent had a loan from a formal financial institution.

III. Data and empirical methodology

⁷ Central America in this case includes the following countries: Guatemala, Honduras, El Salvador, Nicaragua, and Costa Rica.

The household-level data we use in this study come from the *National Rural Household Survey* carried out by FUSADES in 1996, 1998, 2000, and 2002. All the information gathered by each survey refers to the previous calendar year. The survey uses a questionnaire adapted from the World Bank's Living Standards Measurement Survey and covers a stratified, nationally representative, random sample of rural households. The four waves contain information for about 937 households dispersed across the 14 departments that make up El Salvador. Within our sample, 719 households are present in more than 1 wave and 451 households have data for the four waves, allowing us to construct a panel.

The survey includes data on demographic characteristics, education, employment, economic activities, wealth, and income of households. With respect to migration, the survey has information on the number of members per household that have migrated to other countries, on whether the individuals that migrated sent remittances in a given year, and on the amount sent.

The survey also contains information on households' use of financial services offered by formal financial institutions (i.e., commercial banks, cooperatives, credit unions, and other financial institutions), development institutions (i.e., NGOs), and informal sources (i.e. stores, friends, employers). In this study, we focus on formal financial institutions in order to analyze the impact of remittances on access to financial services such as loans, savings, and checking accounts. Table 2 shows the summary statistics and descriptions of the variables we employ in our analysis.

Our empirical analysis of the impact of remittances on financial inclusion is based on the literature analyzing the determinants of households' use of financial services. Theoretically, Zeller (1995) shows that access to credit and savings increases households' utility by allowing for consumption smoothing. It also shows that the demand for savings and credit is a function of

household income. Empirically, studies such as Kochar (1997), Pal (2002) and Barslund and Tarp (2008) study the factors driving the demand for formal and informal loans, while Kiiza and Pederson (2002) focus on the use of deposit accounts. Overall, these studies highlight the role of household size, education, age, and gender composition as key determinants of the demand for financial services. These variables are intended to capture household income as well as the ability to understand the benefits of using financial products.⁸

Given the literature discussed above, in order to investigate the impact of remittances on financial inclusion, we estimate the following model:

$$Financial\ inclusion_{it} = \alpha + \beta_1 Remittances_{it} + \beta_2 Education_{it} + \beta_3 Age_{it} + \beta_4 Number\ of\ adults_{it} + \beta_5 Share\ of\ dependents_{it} + \beta_6 Share\ of\ females_{it} + \varepsilon_{it} \quad (1)$$

Where i denotes households, t denotes time. *Financial inclusion* refers to three different alternative dependent dummy variables indicating: (i) whether the household has a deposit account at a formal financial institution; (ii) whether any member of the household has applied for a loan from a financial institution; and (iii) whether the household has received a loan from a financial institution. Considering the whole sample, on average, 19 percent of the households have a deposit account, whereas 7 percent of households asked for a loan from a formal financial institution, and 6 percent received a loan.

Depending on the specification, *Remittances* refers either to a dummy variable indicating whether the household received remittances from abroad in a given year or to the real amount of remittances per household member that a household received in a given year. In the survey, information on remittances sent is reported for each member of the household living abroad. For

⁸ Given the potential for reverse causality going from the use of financial services to income, we include the determinants of income in equation (1), rather than include income directly. We thank an anonymous referee for this suggestion.

those households with more than one migrant, we compute the total amount of remittances by summing the remittances sent by all the members residing overseas. We then divide this sum by the number of household members to get the per household member data. The remittances dummy variable equals one when the sum of remittances flows to a household is different from zero in a given year. On average, 20 percent of households received remittances in our sample and the average annual real amount of remittances received per household member is 340 colones or 39 dollars (in 1995 prices). Ex-ante, as discussed in the introduction, we expect remittances to increase the use of deposit accounts. On the other hand, the impact of remittances on credit demand and use is a priori ambiguous.

Education denotes the average number of years of education completed by adult household members. We consider as adult members individuals that are 18 years old or older. This variable is included as a determinant of the household's earnings (following Mincer, 1974) and can also capture the extent to which households can understand the features and usefulness of saving and credit instruments. Ex-ante, we expect education to be positively related to the use of financial services. Taking the whole sample, the adults' average number of years of education completed is 3.51.

Age refers to the average age of the adults in the household and is intended to capture the potential experience of the household, a major determinant of household's earnings (Mincer, 1974). We expect this variable to be positively correlated with remittances. In our sample, the average age of adults in the household is 40.

The *number of adults* in the household is a measure of household size and proxy for household income potential. Hence, we expect this variable to be positively correlated with the use of financial products. The mean number of adults is 3.

The *share of dependents* refers to the ratio of household members below 18 years of age. We assume that individuals below 18 years of age are less likely to work and, hence, households that have a higher percentage of dependents will have lower incomes, less ability to save but, potentially, a greater need for financing for things like education and health. The share of dependents averages 0.49 in our sample.

Finally, the *share of female adults* is likely to be negatively correlated with household income because generally female earn less than men⁹ and from that perspective we expect this variable to also be negatively correlated with the use of financial services. On the other hand, to the extent that females are more risk averse than men it is possible that they save more than men and borrow less¹⁰, in which case we would expect the share of females to be positively correlated with the use of deposits and negatively correlated with credit. In our sample, the share of female adults averages 0.5.

An important concern regarding the interpretation of the results of equation 1 is that estimates could be affected by endogeneity as a result of omitted factors or reverse causation. Our estimates could be biased if there are some omitted variables that affect both the likelihood that a household receives remittances and the probability that the household has a deposit account, applies for a loan, or has credit outstanding. We address this concern by running fixed effect estimations either at the municipality or household level.

There are at least two reasons why reverse causation could also be a problem. First, financial inclusion might reduce the costs of sending and receiving remittances and, hence, might

⁹ For seminal studies on the male-female earnings gap see, among others, Mincer and Polacheck (1974) and Goldin and Polacheck (1987).

¹⁰ Analyzing student attitudes to student debt, Davies and Lea (1995) find that men are more likely to be in debt than women. Using both historical data and experiments, Griskevicius et al. (2012) examined how sex ratio influences saving, borrowing, and spending in the United States. They find that male-biased sex ratios decreased men's desire to save for the future and increased their willingness to incur debt for immediate expenditures.

make migrants more prone to send and households to receive remittances. Recent data on the costs of sending remittances to El Salvador collected by The World Bank does not suggest that the costs are lower for migrants using deposit taking financial institutions as opposed to money transfer operators.¹¹ Hence, a priori it is not clear that financial inclusion leads to lower costs of remittances. Second, financial institutions could finance migration, and, consequently, increase the remittance flow towards households with access to credit. We think formal financial institutions are not likely to finance migrants since these are typically poor individuals with no collateral.

Even though we see less merit in the concerns about reverse causation, we nonetheless run three sets of instrumental variables regressions to deal with potential biases. In our first and preferred set, we use municipality-level weighted average measures of economic conditions in US states where Salvadoran migrants reside as instruments.¹² In particular, we focus on real GDP per capita and household median income in US states during 1995, 1997, 1999, and 2001. For each municipality in El Salvador, we identify the main US destinations for Salvadoran migrants using data on migration patterns for Salvadorans from the North American Integration and Development Center (NAID).¹³ We then construct, for each Salvadoran municipality, a weighted average of economic conditions in US states where migrants from that municipality reside. We weight every state in the US according to the share of migrants from that municipality

¹¹ See data on the cost of sending remittances from the US to El Salvador from 2008 (the closest year to our sample period for which data is available) at <http://remittanceprices.worldbank.org>.

¹² We follow McKenzie and Rapoport (2007), who in their study of the impact of migration on income inequality in Mexico, use economic conditions in the US as one of their instruments for migration from Mexico. A similar approach is pursued by Yang (2008), Amuedo-Dorantes and Pozo (2010) and Orrenius, Zavodny, Cañas, and Coronado (2010).

¹³ The mentioned database is available at <http://gis.ats.ucla.edu/naid/>. The NAID gathered information on the main destinations in the US of Salvadoran migrants during the last five years. We assume that migration patterns during the last five years are similar to those at the time of our household surveys. In the case of Mexico, Hildebrandt and McKenzie (2005) show that the historic migration rates are a strong predictor of current migration rates.

in El Salvador that reside in each US state. Hence, for every municipality j and year t the instruments are constructed as follows:

$$\text{Real GDP per capita in US states}_{jt} = \sum_i^I w_{ji} \text{RealGDPpc}_{it}$$

$$\text{Household median income in US states}_{jt} = \sum_i^I w_{ji} \text{Household median Income}_{it}$$

where: i represents every US state, RealGDPpc_{it} and $\text{Household median income}_{it}$ are the real GDP per capita and real household median income in US state i at year t , respectively. w_{ji} is the share of migrants from municipality j in El Salvador (out of the total migrants from that municipality) residing in state i in the US. The basic intuition for why we use these variables as instruments is that we think that economic conditions in US states will affect the ability of migrants to send remittances back to their communities in El Salvador, but these variables are unlikely to directly influence the use of financial services by households back in El Salvador. We consider the possibility that US economic conditions can affect household's income in El Salvador via channels other than remittances but find that US real GDP per capita and household median income across US states are not significantly correlated with Salvadoran households' non-remittances income. The correlation between non-remittances household income in El Salvador and the median household income in the US is 0.01 and has a p-value of 0.58. The correlation between non-remittances household income in El Salvador and the real GDP per capita across US states is -0.02, with a p-value of 0.37.

Our second set of instrumental variable estimations consider the municipality percentage of households that receive remittances and the annual average amount received per municipality

as instruments for whether a household receives remittances.¹⁴ The intuition here is that there are network effects¹⁵ that will make some municipalities more prone to migration and to receiving remittances (i.e., those municipalities from which individuals have migrated in the past and which have formed a network of migrants in the destination country) and that this will affect the likelihood that a given household receives remittances. But, at the same time, we do not expect these municipality-level variables to affect the household's use of financial products, especially after including municipality-level fixed effects.

Finally, we conduct estimations where we use lagged values of regressors to instrument for the current values of the remittances. These estimations involve a smaller number of observations, since we focus on households that are present in at least 3 surveys and, hence, have at least 2 lagged values of remittances that we can use as instruments.

IV. Results

Table 3 presents the estimation results for the likelihood of having a deposit account, receiving a loan, and applying for a loan.¹⁶ The table shows two sets of estimations: including the remittances dummy variable (Panel A) and, separately, the annual real amount of remittances per household member (Panel B). For each measure of remittances, we conduct different estimations, depending on whether we include fixed effects and, if so, at what level of aggregation. Results in columns (1), (4) and (7) of each panel do not include any fixed effects, those in columns (2), (5) and (8) control for municipality fixed effects, and those in columns (3), (6) and (9) allow for household fixed effects. We believe that estimations including municipality

¹⁴ A similar approach is pursued by Stephenson (2011).

¹⁵ For a discussion of the importance of networks of migrants see Munshi (2003).

¹⁶ We estimate a linear probability model to avoid the incidental parameters problem associated with probit estimations.

and households effects help mitigate concerns about biases resulting from omitted variables driving the association between remittances and the use of deposits and loans.

Columns (1)-(3) in both panels show the estimation results for the impact of remittances on the likelihood that a household has a deposit account. The results indicate that in all model specifications both the remittances dummy and the annual amount of remittances per household member are statistically significant and positive. Furthermore, both variables have economically large effects. Based on column (3), we find that receiving remittances increases the probability that the household will have a deposit account by 11 percentage points. Furthermore, an additional dollar per household member in annual remittances raises the likelihood of having an account by close to 9 percentage points. These effects are sizeable considering that in the sample 19 percent of households have deposit accounts.

As expected, *Adults average education* and *average age of adults* have a positive and significant impact on the likelihood that the household owns a bank account across specifications. On the other hand, the number of adults and the percentage of female members are primarily significant once we include household fixed effects.

The results for the likelihood of receiving a loan from a formal financial institution are shown in columns (4)-(6) in both panels. In contrast with the previous results, the remittances variables are generally not significant. These results could be driven by the fact that there are potentially two opposing effects of remittances on credit: (1) remittances can be used as an informal type of collateral or as a means to provide information on households' income that might make financial institutions more willing to provide credit; and (2) remittances may help relax households' credit constraints and, hence, could reduce their demand for credit. Thus, these

two effects may well be counteracting each other, causing remittances to be generally insignificant.

We find evidence in indicating that *Adults average education* has a positive and significant influence on the probability of receiving a loan. This result holds in all model specifications, except the one that includes household fixed effects. The share of female adults tends to have negative effect on the likelihood of receiving a loan. On the other hand, the higher share of dependents (i.e., members below 18 years of age), the higher the likelihood of receiving a loan.

Columns (7)-(9) in both panels of Table 3 show that remittances tend to reduce the demand for credit from financial institutions. This is consistent with the notion that remittances might help relax households' credit constraints, lowering their demand for loans. However, the coefficients on the remittances dummy and on the annual amount of remittances received are not significant. *Adults average education* and *the share of dependents* typically have a positive and significant effect on the likelihood that the household requested a loan. On the other hand, the percentage of female adults has a negative impact on this probability.

Even though estimations in Table 3 try to address concerns about endogeneity by including fixed effects to control for omitted variables, as mentioned above, these results could still be biased due to reverse causation (i.e., the use of banking services driving the likelihood that a household receives remittances). The presence of financial institutions may cause higher remittance flows, either because financial inclusion allows people to finance migration, and hence increases migration flows and remittances, or because financial inclusion is associated with lower costs of receiving remittances and, hence, a greater propensity to do so. Neither of these seems to be a first order concern. Financial institutions in El Salvador are an unlikely

source of credit to finance migration. While access to financial services might facilitate receipt of remittances, the primary channel is from migration to financial inclusion.¹⁷ Nevertheless, to try to assuage concerns about endogeneity, we run 3 sets of instrumental variables (IV) regressions. First, we use as instruments municipality-level weighted averages of economic conditions in US states where Salvadoran migrants reside. In particular, we focus on the real GDP per capita and the median household income across the US states that are destinations for El Salvador migrants. Second, we consider the municipality percentage of households that receive remittances and the annual average amount received per household member at the municipality as instruments for whether a household receives remittances. Finally, we report estimations where we use lagged values of remittances as instruments for the current value of this variable.

For all IV estimations, we report results focusing on the remittances dummy variable as opposed to the remittances amount per household member for two reasons. First, we want to reduce the number of tables we report and we have found that the results are qualitatively the same regardless of which remittances variable we focus on. Second, we expect the remittances amount per household variable to be more prone to measurement error which could lead to estimation biases. In other words, we expect households to adequately report whether they receive remittances or not, but we anticipate more measurement error when it comes to questions about remittances amounts. Nevertheless, all IV results using the remittance amount variable are available upon request.

Table 4, Panel A presents the results of the first stage estimations where the likelihood of receiving remittances is instrumented with the weighted average of real GDP per capita and/or

¹⁷ We checked this by running a regression where we replace the remittance dummy for a dummy which equals one for households with at least a member that is residing overseas. The results are nearly identical when we include the dummy for whether the household has a migrant member in place of the dummy for whether it receives remittances. Thus, the effect on the use of deposit accounts appears to be driven by migration, which causes remittance flows. These results are available upon request.

the real median household income for US states where Salvadoran migrants reside. We use these instruments separately and jointly. In this table, the size of the Cragg-Donald F-statistics exceeds the Stock and Yogo (2005) critical values, indicating that we do not have a weak instruments problem.

We find that GDP per capita in US states has a positive effect on the likelihood that the household receives remittances (Table 4. Panel A columns (1), (4) and (7)) when this variable is included on its own. Furthermore, the median household income across US states has a positive impact on the likelihood that the household receives remittances (Table 4 Panel A columns (2), (5), and (8)). Table 4 Panel B show the second stage estimations where we instrument the likelihood of receiving remittances. We use the municipality level weighted GDP per capita for US states where migrants reside and the corresponding median household income individually and jointly as instruments. Because the instruments are defined at the municipality level, we control for municipality fixed effects to isolate the effect of the instruments from other omitted municipality characteristics. The overidentification tests reported in both panels suggest that economic conditions in US states where Salvadoran migrants reside are valid instruments (i.e., we cannot reject exogeneity of the other instrument conditional on one instrument being exogenous).

We find that our main results are robust to controlling for the potential endogeneity of remittances. Namely, while remittances have a positive effect on the likelihood that a household has a deposit account, it does have a statistically robust impact on the likelihood of applying for and receiving a loan.

In Table 5, we present results from IV estimations using the percentage of household that receive remittances and the annual average amount received per household member at the

municipality level as instrument for whether a household receive remittances. Panel A show first-stage estimations and Panel B show the second stage results. The Craig-Donald tests in Panel A allow us to reject the null that the proposed instruments are weak. The second stage overidentification tests reported in panel B indicate that our second stage is overidentified. Consistent with results reported so far, Table 5, panel B results indicate that remittances have a positive impact on the likelihood that the household has a deposit account but have no effect on the loan variables.

Finally, in Table 6 we show IV results where we use first and second lagged values of remittances to instrument for this variable. In this estimations, we focus only on households that appear in at least 3 of the four surveys included in our dataset, hence the number of observations is smaller. Panel A, first stage results indicate that lagged values of remittances are good predictors of future values of this variable. At the same time, Panel B second stage results are consistent with previous findings that remittances are positively correlated with the likelihood that the household has a deposit account but are not correlated with loan outcomes for the household.

V. Conclusions

As the importance of remittances for developing countries has grown, a sizeable literature has flourished examining the impact of remittances on various aspects of countries' development. An issue which has received little attention is the effect of remittances on financial inclusion. This issue is important given the growing evidence that financial inclusion has many beneficial effects for households.

This study examined the impact of remittances on financial inclusion using data from a four-wave rural household survey for El Salvador. In particular, we analyzed the impact of remittances on the likelihood that households use financial services such as deposit accounts and loans. Overall, we find that remittances have a positive impact on financial inclusion by promoting the use of deposit accounts. These results hold controlling for unobserved household characteristics and using instrumental variables regressions to correct for the potential endogeneity of remittances. On the other hand, remittances do not have a significant effect on credit from formal financing institutions. Hence, we conjecture that by relaxing credit constraints, remittances might reduce the need for external financing by financial institutions, while at the same time increasing the demand for savings instruments.

There are a number of potential avenues for future research. First, it would be interesting to analyze the extent to which remittance recipients that have accounts, actively use these accounts to save and manage their daily transactions. Second, it would be important to go deeper into the reasons why those that receive remittances do not seem to have a higher demand for credit. In particular, it would be useful to analyze whether indeed this is due to the fact that remittances relax credit constraints or because the credit products offered to remittance recipients are not considered adequate by this population. We leave these research questions for future work.

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Table 1: Financial system indicators for El Salvador

Year	Credit to private sector to GDP (%)	Demand and term deposits to GDP (%)	Number of institutions
1991	23.4	23.8	13
1992	27.5	25.7	13
1993	27.7	28.4	13
1994	30.9	31.1	17
1995	34.8	29.9	21
1996	36.9	31.3	21
1997	40.3	32.6	18
1998	41.9	33.2	17
1999	43.8	34.4	16
2000	41.4	34.0	15
2001	39.0	36.0	14

Source: Central Bank of El Salvador and Financial System Superintendency of El Salvador.

Table 2: Variable description and summary statistics

Variable	Description	Obs.	Mean	Sd.
Deposit account	Dummy variable. Equals one if the household has a checking or savings account in a formal financial organization.	2503	0.19	0.39
Loan received	Dummy variable. Equals one if the household received a loan from a formal financial institution in a given year.	2708	0.06	0.25
Loan requested	Dummy variable. Equals one if the household requested a loan from a formal financial institution in given year.	2717	0.07	0.26
Remittances dummy	Dummy variable. Equals one if the household received remittances from overseas in a given year.	2741	0.20	0.40
Remittances amount	Value of annual remittances per household member in real terms (thousands of colones).	2708	0.34	1.03
Adults average education	Average number of years of education of adults.	2742	3.51	2.73
Share of female adults	Percentage of female adults in the household.	2748	0.50	0.18
Number of adult members	Number of adult members in the household.	2730	3.17	1.40
Average age of adults	Average age of adults in the household	2699	40.09	10.29
Share of dependents	Percentage of household members below 18 years of age.	2281	0.49	0.17
Real GDP pc in US remittance-source states	Weighted average of real GDP per capita in US states where Salvadoran migrants reside. For every municipality j and year t the weighted GDP per capita is constructed as follows: $\sum_i^I w_{ji} RealGDPpc_{it}$, where i represents US states and w_{ji} is the percentage of migrants from municipality j that lives in US state i .	2578	33.90	2.92
Real median household income in US remittance-source states	Weighted real median income in US states where Salvadoran migrants reside. For every municipality j and year t the weighted household income is constructed as follows: $\sum_i^I w_{ji} Median HH income_{it}$, where i represents US states and w_{ji} is the percentage of migrants from municipality j that lives in US state i .	2578	40.55	2.57
% of households receiving remittances per municipality	Percentage of household that receive remittances from overseas in a given year per municipality.	2621	0.20	0.24
Municipality avg. per HH member annual real amount of remittances.	This variable shows the average by municipality and year of the per household member annual real amount of remittances (in thousands).	2621	0.45	0.82

Table 3. Estimations for the likelihood that the household has a deposit account, has or requested a loan from a financial institution.

This table shows the results from the estimations of a linear probability model. In both Panel A and B, the dependent variables are Deposit account in columns (1)-(3), Loan received in columns (4)-(6), and Loan requested in columns (7)-(9). All dependent and independent variables are defined in Table 2. In Panel A, the variable *Remittances* is dummy for whether the household receives remittances from overseas, whereas in Panel B *Remittances* is the annual amounts per household member received in remittances from overseas. Robust t-statistics are shown in brackets. *, **, *** denote significance at 10, 5 and 1 percent, respectively.

Panel A. Remittances: dummy for whether the household receives remittances from overseas in a given year									
	Deposit account			Loan received			Loan requested		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Remittances	0.120 [4.96]***	0.108 [3.97]***	0.111 [3.30]***	0.009 [0.65]	0.002 [0.14]	-0.003 [-0.16]	0.005 [0.36]	-0.000 [-0.03]	-0.003 [-0.13]
Adults avg. education	0.045 [12.53]***	0.044 [10.24]***	0.021 [2.58]***	0.009 [3.62]***	0.009 [3.16]***	0.004 [0.73]	0.009 [3.53]***	0.007 [2.64]***	0.005 [0.92]
Share of female adults	0.070 [1.44]	0.093 [1.63]	0.180 [2.52]**	-0.112 [-3.77]***	-0.066 [-2.08]**	-0.046 [-0.88]	-0.119 [-3.90]***	-0.067 [-2.06]**	-0.048 [-0.93]
Number of adult members	-0.000 [-0.00]	0.003 [0.42]	0.035 [2.72]***	0.007 [1.60]	0.010 [1.92]*	0.019 [2.19]**	0.006 [1.16]	0.010 [1.78]*	0.018 [2.08]**
Average age of adults	0.004 [4.41]***	0.004 [3.55]***	0.006 [3.56]***	-0.001 [-1.36]	-0.000 [-0.40]	-0.001 [-0.53]	-0.001 [-1.56]	-0.001 [-0.88]	-0.001 [-0.68]
Share of dependents	-0.022 [-0.39]	-0.049 [-0.75]	-0.084 [-0.79]	0.072 [1.92]*	0.072 [1.81]*	0.197 [2.38]**	0.053 [1.33]	0.053 [1.28]	0.186 [2.18]**
Constant	-0.189 [-2.82]***	-0.183 [-2.32]**	-0.311 [-2.62]***	0.062 [1.42]	0.016 [0.32]	-0.053 [-0.58]	0.093 [1.97]**	0.052 [0.97]	-0.033 [-0.36]
Observations	2025	1924	1954	2200	2099	1964	2207	2106	1970
Adj-R ²	0.110	0.159	0.059	0.015	0.056	0.033	0.014	0.059	0.004
Municipalities fixed effects	No	Yes	No	No	Yes	No	No	Yes	No
Household fixed effects	No	No	Yes	No	No	Yes	No	No	Yes

Panel B. Remittances: annual amount of remittances per HH member received from overseas (in real terms)									
	Deposit account			Loan received			Loan requested		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Remittances	0.078 [6.80]***	0.079 [6.07]***	0.091 [6.05]***	0.001 [0.13]	0.001 [0.12]	-0.006 [-0.87]	-0.001 [-0.24]	-0.002 [-0.36]	-0.009 [-1.35]
Adults avg. education	0.044 [12.16]***	0.042 [9.83]***	0.020 [2.55]**	0.009 [3.66]***	0.009 [3.21]***	0.004 [0.70]	0.009 [3.56]***	0.008 [2.72]***	0.005 [0.92]
Share of female adults	0.033 [0.69]	0.047 [0.85]	0.132 [1.91]*	-0.109 [-3.60]***	-0.065 [-1.97]**	-0.024 [-0.45]	-0.115 [-3.71]***	-0.064 [-1.91]*	-0.022 [-0.42]
Number of adult members	0.004 [0.56]	0.007 [0.90]	0.038 [2.98]***	0.007 [1.59]	0.010 [1.95]*	0.019 [2.18]**	0.006 [1.13]	0.010 [1.80]*	0.018 [2.03]**
Average age of adults	0.004 [4.41]***	0.004 [3.60]***	0.006 [3.57]***	-0.001 [-1.25]	-0.000 [-0.40]	-0.001 [-0.48]	-0.001 [-1.47]	-0.001 [-0.88]	-0.001 [-0.59]
Share of dependents	-0.000 [-0.00]	-0.017 [-0.27]	-0.083 [-0.81]	0.071 [1.90]*	0.072 [1.82]*	0.197 [2.37]**	0.052 [1.29]	0.052 [1.26]	0.185 [2.16]**
Constant	-0.186 [-2.82]***	-0.183 [-2.36]**	-0.298 [-2.55]**	0.059 [1.35]	0.015 [0.28]	-0.066 [-0.72]	0.091 [1.91]*	0.050 [0.93]	-0.048 [-0.52]
Observations	2009	1909	1936	2183	2083	1946	2190	2090	1952
Adj-R ²	0.125	0.175	0.003	0.015	0.056	0.061	0.014	0.059	0.004
Municipalities fixed effects	No	Yes	No	No	Yes	No	No	Yes	No
Household fixed effects	No	No	Yes	No	No	Yes	No	No	Yes

Table 4: Estimations instrumenting remittances with economic conditions in US states

This table shows the results of regressions instrumenting the likelihood of receiving remittances in a given year. We show the first stage regressions in Panel A and the second stage in Panel B. The instruments used are *Real GDP per capita in US states* in columns (1), (3), (4), (6), (7) and (9) and *Real median household income in US states* in columns (2), (3), (5), (6), (8) and (9), both defined in Table 2. Columns (1)-(3) are the regressions for the likelihood that the household has a deposit account. Columns (4)-(6) are the regressions for the likelihood of receiving a loan, while columns (7)-(9) show the regressions for the likelihood of applying for a loan. All independent variables are defined in Table 2. Municipality fixed effects are estimated but not reported. Robust t-statistics are shown in brackets. *, **, and *** denote significance at 10, 5 and 1 percent, respectively.

Panel A. First Stage Regressions.									
Dependent Variable: dummy for whether household receives remittances from overseas									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Real GDP pc in US states	0.022 [6.53]***		-0.013 [-0.48]	0.019 [6.17]***		-0.014 [-0.52]	0.020 [6.24]***		-0.016 [-0.59]
Real median HH income in US states		0.024 [6.76]***	0.038 [1.30]		0.021 [6.38]***	0.036 [1.27]		0.021 [6.45]***	0.038 [1.35]
Adults avg. education	0.010 [2.56]**	0.010 [2.52]**	0.010 [2.50]**	0.012 [3.10]***	0.012 [3.06]***	0.012 [3.05]***	0.011 [2.88]***	0.011 [2.84]***	0.011 [2.82]***
Share of female adults	0.326 [5.57]***	0.325 [5.57]***	0.325 [5.57]***	0.306 [5.50]***	0.306 [5.50]***	0.305 [5.50]***	0.301 [5.40]***	0.300 [5.39]***	0.300 [5.39]***
Number of adult members	0.005 [0.66]	0.005 [0.68]	0.005 [0.71]	0.004 [0.65]	0.004 [0.66]	0.005 [0.69]	0.004 [0.56]	0.004 [0.58]	0.004 [0.61]
Average age of adults	0.007 [5.87]***	0.007 [5.88]***	0.007 [5.88]***	0.007 [6.45]***	0.007 [6.45]***	0.007 [6.46]***	0.007 [6.36]***	0.007 [6.37]***	0.007 [6.37]***
Share of dependents	-0.017 [-0.26]	-0.015 [-0.23]	-0.014 [-0.22]	-0.060 [-0.96]	-0.058 [-0.94]	-0.057 [-0.93]	-0.063 [-1.03]	-0.062 [-1.00]	-0.060 [-0.98]
Constant	-1.039 [-7.83]***	-1.260 [-8.05]***	-1.375 [-4.94]***	-0.930 [-7.40]***	-1.129 [-7.61]***	-1.256 [-4.58]***	-0.922 [-7.37]***	-1.124 [-7.59]***	-1.269 [-4.63]***
Observations	1895	1895	1895	2065	2065	2065	2072	2072	2072
R ²	0.287	0.288	0.288	0.273	0.274	0.274	0.272	0.273	0.273
Cragg-Donald weak inst. F-stat	42.68	45.68	23.30	38.03	40.65	20.90	38.88	41.63	21.45
Panel B. Second Stage Regressions.									
	Deposit account			Loan received			Loan requested		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Remittances	1.131 [5.46]***	1.131 [5.58]***	1.131 [5.59]***	0.054 [0.49]	0.043 [0.40]	0.036 [0.34]	0.059 [0.54]	0.051 [0.47]	0.045 [0.42]
Adults avg. education	0.033 [5.33]***	0.033 [5.35]***	0.033 [5.35]***	0.008 [2.65]***	0.008 [2.70]***	0.008 [2.73]***	0.007 [2.16]**	0.007 [2.20]**	0.007 [2.22]**
Share of female adults	-0.267 [-2.52]**	-0.267 [-2.54]**	-0.267 [-2.55]**	-0.077 [-1.64]	-0.074 [-1.57]	-0.071 [-1.51]	-0.081 [-1.71]*	-0.078 [-1.66]*	-0.076 [-1.61]
Number of adult members	-0.006 [-0.55]	-0.006 [-0.55]	-0.006 [-0.55]	0.010 [1.92]*	0.010 [1.93]*	0.010 [1.94]*	0.009 [1.78]*	0.009 [1.79]*	0.010 [1.80]*
Average age of adults	-0.004 [-1.67]*	-0.004 [-1.69]*	-0.004 [-1.69]*	-0.001 [-0.59]	-0.001 [-0.52]	-0.001 [-0.47]	-0.001 [-0.97]	-0.001 [-0.93]	-0.001 [-0.88]
Share of dependents	-0.023 [-0.25]	-0.023 [-0.25]	-0.023 [-0.25]	0.075 [1.88]*	0.074 [1.88]*	0.074 [1.87]*	0.056 [1.34]	0.056 [1.34]	0.055 [1.33]
Observations	1895	1895	1895	2065	2065	2065	2072	2072	2072
Log likelihood	-1305	-1305	-1305	36.26	38.25	39.36	-34.86	-33.11	-31.94
Over-identification test chi ²	-	-	1.50e-05	-	-	0.406	-	-	0.239
Over-identification test p-value	-	-	0.997	-	-	0.524	-	-	0.625

Table 5: Estimations instrumenting remittances using percentage of households that receive remittances and the annual average amount received per municipality

This table shows the results of the regressions instrumenting the likelihood of receiving remittances in given year with our second set of instruments. We show the first stage regressions in Panel A and the second stage in Panel B. The instruments used are *% of households receiving remittances per municipality* (columns (1), (3), (4), (6), (7) and (9)) and *Annual avg. amount received per municipality* (columns (2), (3), (5), (6), (8) and (9)), both defined in Table 2. Columns (1)-(3) are the regressions for the likelihood that the household has a deposit account. Columns (4)-(6) are the regressions for the likelihood of receiving a loan, while columns (7)-(9) show the regressions for the likelihood of applying for a loan. All independent variables are defined in Table 2. Municipality fixed effects are estimated but not reported. Robust t-statistics are shown in brackets. *, **, and *** denote significance at 10, 5 and 1 percent, respectively.

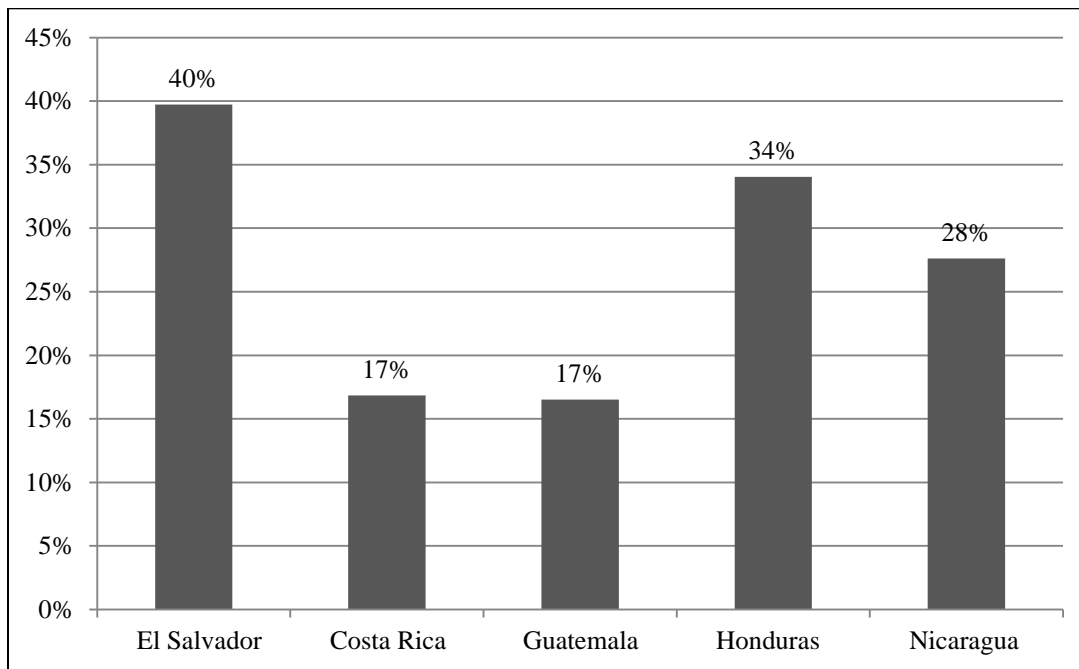
Panel A. First Stage Regressions.									
Dependent Variable: dummy for whether household receives remittances from overseas									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
% of HH receiving remittances per municipality	0.972 [18.98]***		1.019 [15.89]***	0.957 [19.51]***		1.006 [16.55]***	0.960 [19.57]***		1.008 [16.58]***
Annual avg. amount received per municipality		0.138 [7.48]***	-0.022 [-1.18]		0.134 [8.09]***	-0.022 [-1.28]		0.134 [8.11]***	-0.022 [-1.27]
Adults avg. education	0.007 [1.95]*	0.009 [2.22]**	0.007 [1.96]**	0.008 [2.38]**	0.010 [2.81]***	0.008 [2.40]**	0.007 [2.19]**	0.010 [2.62]***	0.007 [2.20]**
Share of female adults	0.240 [4.39]***	0.300 [5.28]***	0.241 [4.40]***	0.229 [4.44]***	0.276 [5.10]***	0.231 [4.47]***	0.224 [4.33]***	0.271 [5.00]***	0.225 [4.36]***
Number of adult members	0.002 [0.28]	0.006 [0.93]	0.002 [0.25]	0.005 [0.73]	0.009 [1.29]	0.004 [0.68]	0.004 [0.68]	0.008 [1.22]	0.004 [0.62]
Average age of adults	0.006 [5.65]***	0.007 [5.86]***	0.006 [5.67]***	0.006 [6.25]***	0.007 [6.46]***	0.006 [6.28]***	0.006 [6.21]***	0.007 [6.41]***	0.006 [6.23]***
Share of dependents	-0.024 [-0.42]	-0.035 [-0.56]	-0.026 [-0.44]	-0.052 [-0.94]	-0.061 [-1.01]	-0.053 [-0.96]	-0.054 [-0.98]	-0.064 [-1.07]	-0.056 [-1.01]
Constant	-0.371 [-5.19]***	-0.317 [-4.03]***	-0.371 [-5.19]***	-0.371 [-5.43]***	-0.314 [-4.19]***	-0.372 [-5.44]***	-0.360 [-5.30]***	-0.301 [-4.05]***	-0.360 [-5.31]***
Observations	1924	1924	1924	2099	2099	2099	2106	2106	2106
R ²	0.394	0.301	0.395	0.384	0.292	0.385	0.383	0.290	0.384
Cragg-Donald weak inst. F-stat	360.1	55.98	181.6	380.7	65.39	192.9	382.8	65.75	193.9
Panel B. Second Stage Regressions.									
	Deposit account			Loan received			Loan requested		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Remittances	0.247 [4.45]***	0.359 [3.34]***	0.242 [4.39]***	-0.003 [-0.08]	0.044 [0.76]	-0.005 [-0.15]	-0.012 [-0.34]	0.039 [0.66]	-0.015 [-0.40]
Adults avg. education	0.042 [10.25]***	0.041 [9.52]***	0.042 [10.28]***	0.009 [3.33]***	0.008 [3.02]***	0.009 [3.34]***	0.008 [2.81]***	0.007 [2.52]**	0.008 [2.82]***
Share of female adults	0.047 [0.83]	0.010 [0.15]	0.049 [0.86]	-0.065 [-2.00]**	-0.079 [-2.26]**	-0.064 [-1.97]**	-0.063 [-1.92]*	-0.079 [-2.22]**	-0.063 [-1.89]*
Number of adult members	0.002 [0.30]	0.002 [0.20]	0.002 [0.31]	0.010 [2.01]**	0.010 [1.95]*	0.010 [2.01]**	0.010 [1.88]*	0.009 [1.82]*	0.010 [1.88]*
Average age of adults	0.003 [2.61]***	0.002 [1.59]	0.003 [2.65]***	-0.000 [-0.34]	-0.001 [-0.73]	-0.000 [-0.31]	-0.001 [-0.75]	-0.001 [-1.14]	-0.001 [-0.73]
Share of dependents	-0.041 [-0.66]	-0.035 [-0.55]	-0.042 [-0.66]	0.071 [1.89]*	0.075 [1.96]**	0.071 [1.88]*	0.052 [1.31]	0.056 [1.40]	0.052 [1.30]
Observations	1924	1924	1924	2099	2099	2099	2106	2106	2106
Log likelihood	-646.8	-687.6	-645.5	47.14	43.52	47.09	-23.03	-25.85	-23.15
Over-identification test chi ²	-	-	1.725	-	-	1.126	-	-	1.317
Over-identification test p-value	-	-	0.189	-	-	0.289	-	-	0.251

Table 6: Estimations instrumenting remittances using lagged values of remittances

This table shows the results of the regressions instrumenting the likelihood of receiving remittances in given year with our third set of instruments. We show the first stage regressions in Panel A and the second stage in Panel B. We use two lags of the variable *Remittances* (dummy for whether household receives remittances from overseas in a given year) as instruments. Column (1) shows the results of the regression for the likelihood that the household has a deposit account. Column (2) presents the regressions for the likelihood of receiving a loan, while column (3) shows the regressions for the likelihood of applying for a loan. All independent variables are defined in Table 2. Municipality fixed effects are estimated but not reported. Robust t-statistics are shown in brackets. *, **, and *** denote significance at 10, 5 and 1 percent, respectively

Panel A. First Stage Regressions			
	Dependent variable. Remittances: dummy for whether household receives remittances from overseas in a given year.		
	(1)	(2)	(3)
Remittances (t-1)	0.357 [6.64]***	0.355 [6.56]***	0.357 [6.64]***
Remittances (t-2)	0.212 [3.45]***	0.215 [3.45]***	0.212 [3.45]***
Adults avg. education	0.006 [0.84]	0.007 [0.97]	0.006 [0.84]
Share of female adults	0.282 [2.96]***	0.292 [3.08]***	0.282 [2.96]***
Number of adult members	0.003 [0.22]	0.006 [0.43]	0.003 [0.22]
Average age of adults	0.005 [2.59]***	0.005 [2.69]***	0.005 [2.59]***
Share of dependents	-0.097 [-0.84]	-0.093 [-0.81]	-0.097 [-0.84]
Constant	-0.158 [-1.03]	-0.188 [-1.22]	-0.158 [-1.03]
Observations	749	746	749
R-squared	0.458	0.461	0.458
Cragg-Donald Weak Instruments F-Stat	36.06	35.12	36.06
Panel B. Second Stage Regressions			
	Deposit account	Loan received	Loan requested
	(1)	(2)	(3)
Remittances	0.279 [2.54]**	-0.067 [-1.29]	-0.078 [-1.51]
Adults avg. education	0.046 [6.11]***	0.018 [3.52]***	0.015 [2.84]***
Share of female adults	0.089 [0.89]	-0.054 [-0.85]	-0.033 [-0.52]
Number of adult members	0.004 [0.29]	0.003 [0.31]	0.002 [0.18]
Average age of adults	-0.002 [-0.68]	-0.001 [-0.68]	-0.001 [-0.84]
Share of dependents	0.002 [0.01]	0.072 [1.03]	0.026 [0.35]
Observations	749	746	749
Log likelihood	-327.3	38.73	-2.190
Over-identification test chi ²	0.0408	0.671	1.043
Over-identification test p-value	0.840	0.413	0.307

Figure 1: Private credit to GDP in Central America (average 1995-2001)



Source: Central American Executive Secretariat of the Monetary Council and Central Bank of El Salvador.