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Abstract*

Migration between Mexico and the US has seen a sharp reversal. Since 2007 more Mexicans are returning home relative to those who are migrating to the United States. In light of recent research that finds that migrants have positive effects on their origin communities upon return, this paper studies the potential effects of return migration on financial inclusion. We find that municipalities with higher return migration rates are more likely to have more bank branches and fixed-term accounts per capita. Also, our results are suggestive of either negative or no effect of return migration on external financing. A better understanding of the overall effects of international migration on financial inclusion is important, as the positive effects of financial inclusion on economic development are well established.

JEL Classification: F22, G20, O16
Keywords: Return migration, financial inclusion, banking services, Latin America, Mexico

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1 Introduction

Mexico lags behind most Latin American countries and other middle-income economies in regard to financial inclusion, as defined by households' access to and use of financial services. In fact, while Mexico is classified as an upper-middle-income country, its financial inclusion indicators are more akin to lower-income economies (World Bank 2018). Studies on the effects of the financial system have found that improved access to formal banking is critical to promoting growth, sustaining business activity and employment, and reducing poverty and inequality (King and Levine 1993; Bruhn and Love 2014; Beck, Demirgüç-Kunt, and Levine 2007). From that perspective, improving Mexico's level of financial inclusion could be a unique opportunity to stimulate economic development.

Recent improvements in the level of financial inclusion have taken place following an inversion in Mexico's migration flow to the United States. For the first time in approximately one hundred years, net migration from Mexico to the United States turned negative as more people are moving back to their communities of origin than those who are migrating north. The twentieth century was characterized by circular migration, where mostly men would cross the border for work and return to their families in Mexico, often on an annual basis (Massey, Malone, and Durand 2002). However, the post-9/11 era saw expanded border and interior immigration enforcement in the US, which increased the costs and risks of migrating. This greatly reduced circular migration and extended the length of each migration experience (Parrado and Gutierrez 2016). In addition to the increase in immigration enforcement and deportations, immigrants in the US faced the collapse of the construction market in the late 2000s and the ensuing Great Recession (Escobar Latapí 2016). As a result, the number of return migrants are estimated to have tripled between 2005 and 2010 (Denier and Masferrer 2019). According to Mexico's Survey of Demographic Dynamics, a remarkable 45.7 percent of all Mexican migrants returned to Mexico in the 2009–2014 period. This trend caused the Mexican migrant population to the United States to decline from a peak at 12.8 million in 2007 to 11.3 million by 2017 (Passel and Cohn 2018).

Extant research on the impact of return migration in Mexico finds that migrants' stints abroad improve individual labor earnings (Reinhold and Thom 2013; Li 2018) and promote social well-being at home (Waddell and Fontenla 2015; Bucheli, Fontenla, and Waddell 2019).

These findings complement work in other countries showing that return migrants are more likely to return with savings and to start their own businesses (Dustmann and Kirchkamp 2002; Marchetta 2012; Wahba and Zenou 2012), as well as to diversify production at home (Bahar et al. 2019). However, this literature has paid little attention to the impact of return migration on financial inclusion. Given Mexico's ongoing work in this area, gaining a better understanding of how return migrants are affecting the access and use of the financial system is imperative.

In this paper, we examine how the recent surge in return migration has impacted financial inclusion in Mexico using municipality-level cross-sectional data on access to and use of financial services over the 2010-2015 period. We study access via the number of bank branches, micro-finance institution branches (MFIs), and ATMs per capita; and use of services through fixed-term, interest-bearing deposit accounts, credit cards, and debit cards per capita. We merge this information with data on return migration rates, expressed as the municipality share of households with a recently returned migrant. Using a control function approach, we analyze how the flow of thousands of return migrants—which more than doubled between 2000 and 2010—has contributed to municipalities' financial inclusion outcomes.

Our empirical strategy involves leveraging the enforcement of immigration laws in the United States as a source of plausible exogenous variation for return migration rates.[1] Intuitively, municipalities whose migrants were exposed to tougher enforcement policies at destination experienced a surge in return migration for reasons other than their level of financial inclusion. Besides its direct effect on deportations, the intensification in immigration enforcement may also increase "voluntary" return migration by lowering the net benefits of staying in the US—as migrants face an increased risk of deportation, diminished labor opportunities, and an overall more hostile environment. These effects may then change the decision to return for those who were planning to stay and shorten the time in the US for those that were planning to return.

Based on this identification strategy, we find that return migration has a strong and robust positive effect on the use of formal savings instruments, as captured by fixed-term accounts. These findings support existing research that observes that return migrants are likely to come back with savings accumulated abroad (Dustmann and Kirchkamp 2002; Kirdar 2009). We show that these individual-level effects may be large enough to be observed at the aggregate

[1] According to the 2010 Mexican census, approximately 90 percent of Mexicans who migrated internationally during the 2005–2010 period moved to the United States. See: https://www.inegi.org.mx/programas/ccpv/2010/. Last accessed July, 2020.

municipality level. Further, our analysis finds that return migration is associated with increases in the number of bank branches per capita. We take this as an indication that financial institutions may be responding to the rise in demand caused by the inflow of savings from abroad. This result is robust to various specifications and controls, but appears only after we allow a lapse of four years in the data—which may be explained by the time it takes for banks to react, plan, and build a physical branch. Lastly, our findings point at return migration rates being negatively associated with the availability of micro-finance institution branches. We attribute this result to the potential substitution of credit with repatriated capital, as has been observed in the remittances literature (Giuliano and Ruiz-Arranz 2009; Ambrosius and Cuecuecha 2013).

The results prove robust to different model specifications and an examination of their persistence through time. We find no evidence that the results on return migration change significantly with the inclusion of additional controls such as income per capita, unemployment rates, lagged dependent variables, and internal migration. In terms of heterogeneity in the results, we find that return migration may have a differential impact based on municipality- level characteristics, including proximity to the border and rurality.

This article adds to our understanding of how return migration affects communities of origin, especially in developing countries. While previous studies have focused on a variety of outcomes, including entrepreneurship, production, and social norms, our understanding of return migrants' use of the financial system upon return is limited. Given the sizable share of migrants who eventually go back to their countries of origin and their accumulation of resources abroad, improving our understanding of how they may contribute to financial inclusion is important. Quantifying the impact of return migration on financial inclusion contributes to a better understanding of the overall effects of international migration on the development of home countries.

2 Financial Inclusion and Return Migration

A strong and inclusive financial system is important for economic development and the distribution of income (e.g., King and Levine 1993; Bruhn and Love 2014; Beck, Demirgüç-Kunt, and Levine 2007). A well-functioning financial system allocates resources, mobilizes savings, manages risk, and provides payment services (Demirgüç-Kunt, Beck, and Honohan 2008). One strand of the literature on the barriers to financial development has focused on

national conditions that facilitate access to the banking system, highlighting the role of institutions, property rights, trade, and macroeconomic and political stability (Acemoglu and Johnson 2005; Chinn and Ito 2006; Allen et al. 2016; Shahbaz, Bhattacharya, and Mahalik 2017). A second focus of the literature has been on individual, demand-side factors that affect the use of the financial system, such as individuals' demo- graphic characteristics and socioeconomic conditions (e.g., Demirgüç-Kunt and Klapper 2012).

Scholars have given considerable attention to the role of international remittances on financial inclusion in developing countries.[2] This research consistently finds that remittances improve access to bank branches and use of saving accounts, but the effect on credit is not as clear. For instance, Demirgüç-Kunt et al. (2011) use municipality-level data from the 2000 Mexican census to explore the relationship between remittance reception and the breadth and depth of the banking sector. The authors find that a higher inflow of remittances increases the local number of bank branches, accounts per capita, and the amount of deposits to GDP; however, the results for access to bank credit are not always robust. Ambrosius and Cuecuecha (2016) argue that formal banking institutions respond to the reception of remittances with an increased availability of savings options, and that the lack of an effect in formal credits may be explained by the surge in informal borrowing. Further, remittances may reduce households' credit needs in general by relaxing their liquidity constraints (Anzoategui, Demirgüç-Kunt, and Martínez Pería 2014). Using data from Mexico, Ambrosius and Cuecuecha (2013) support this channel by finding that households that received remittances did not increase their debt burden when faced with a negative shock, while households without external income had to rely on credit to finance their emergencies. The consistency of these findings in a variety of contexts provides us with a framework to interpret our results below.

While existing literature has explored the effect of remittances on the financial sector, we are not aware of research on understanding the impact of return migration and financial inclusion. The study of this relationship is well-warranted as there are several potential channels through which return migration can directly affect financial inclusion in countries of origin. International migration can result in the accumulation of savings and experience rewarded in origin labor markets, as well as in the transmission of social norms, which in turn may change

[2] See, for example, Giuliano and Ruiz-Arranz (2009); Aggarwal et al. (2011); Demirgüç-Kunt et al. (2011); Ambrosius and Cuecuecha (2013); Anzoategui et al. (2014); Ambrosius and Cuecuecha (2016); Bhattacharya et al. (2018).

migrants' demand for financial services upon return. First, it is likely that temporary migrants—especially target earners—return with savings accumulated overseas (Galor and Stark 1990; Bauer and Sinning 2010; Dustmann and Mestres 2010). For example, Durand and Massey (2004) find that the main reasons Mexicans migrate to the United States is to generate enough savings that will allow them to start a business or acquire a home back in Mexico. It is possible these investments increase the demand for financial services such as electronic transfers, currency exchanges, safe storage of funds, and interest-bearing accounts.

Second, return migrants gain labor experience and skills overseas, which tend to be rewarded at home in the form of wage premiums (Reinhold and Thom 2013; Li 2018) or used by the migrants themselves to advance their entrepreneurial activities (Marchetta 2012; Wahba and Zenou 2012; Batista, Mcindoe-Calder, and Vicente 2017). For example, controlling for double-selection issues, Batista, Mcindoe-Calder, and Vicente (2017) finds that return migrants in Mozambique are significantly more likely to own a business than their comparable non-migrant counterparts. Admittedly, some of these businesses include street vendors and only offer informal jobs, but also generate income and require investments that can be supplied by the financial system. Further, Marchetta (2012) analyzes the Egypt Labor Market Panel Survey and finds that entrepreneurs with migration experience have significantly higher rates of business survival. The author attributes this effect to skills and financial savings accumulated abroad.

Finally, the experience abroad itself may increase the likelihood that individuals participate in the financial system upon return. For example, Mexican migrants are more likely to have access to and use financial services in the US than their non-migrant counterparts at home. Northwood and Rhine (2018) use the 2013 National Survey of Unbanked and Under- banked Households to analyze immigrants' financial integration, and find that 72.5 percent of Mexican migrants use the banking system in the US, against a reported participation rate in Mexico of 27 percent. It is likely that migrants accustomed to having access to financial services in the US may be more inclined to use the financial system in Mexico upon return. Altogether, the existing evidence points at a potential correlation between return migration and financial inclusion. In this study, we address this question to gain a better understanding of the role return migrants can play in the development of their communities of origin.

3 Data

We gather data from various sources to gauge how return migration rates affect the local availability of financial services. We use 2010–2015 information on access and use of financial services at the municipality level from the Mexican Banking and Stock Commission (*Comisión Nacional Bancaria y de Valores*, CNBV). In these data, we focus on indicators of financial inclusion at the municipality level that remain comparable throughout the study period, namely (i) the number of bank branches, (ii) micro-finance institutions (MFIs) branches, (iii) ATMs, (iv) fixed-term deposit accounts, (v) credit cards, and (vi) debit cards. We drop Mexico City from the analysis as it constitutes an outlier in the availability of financial services when compared to the rest of the country given that many firms and almost all public institutions conduct their financial transactions in the capital (Demirgüç-Kunt et al. 2011). We also drop municipalities in the top one percent of the financial inclusion indicators distribution to eliminate additional outliers.

Table (1) displays summary statistics for access to the financial services at the municipality level for 2010 and 2015. It shows all indicators increasing for the five-year period, with the rate of bank branches increasing by 20 percent, fixed-term deposit accounts by almost 12 percent, and that of credit cards by more than 65 percent.

[Table 1 around here]

For return migration rates, we use data from the National Population Council (*Consejo Nacional de Población*, CONAPO). This variable is estimated using the 2010 Mexican census, and it indicates the share of households within each municipality with at least one return migrant. A return migrant is defined as a Mexican national who lived abroad prior to 2005 and returned in time for the 2010 census. We rely on the geographic variation of return migration rates, illustrated in Figure (1), to estimate its relationship with several financial inclusion outcomes.

[Figure 1 around here]

Table (2) presents summary statistics for return migration and baseline model controls. To account for additional components of migratory flows, we control for the share of households

that have a migrant member living abroad, those that receive remittances, and the net rate of internal migration.[3] We include migration and remittances in our baseline specifications, and conduct checks to verify robustness to their exclusion.

We also gather data on local demographic and economic characteristics that could impact financial inclusion from the National Institute of Statistics and Geography (*Instituto Nacional de Estadística y Geografía*, INEGI) and the National Institute for Federalism and Municipal Development (*Instituto Nacional para el Federalismo y el Desarrollo Municipal*, INAFED). First, we include municipality information on lagged GDP growth rates and the social lag index. We transform the lagged GDP growth rates by its inverse hyperbolic sine as there are municipalities with zero and even negative growth. In addition, we merge data on the municipality-level total population and percent of indigenous population out of the total population, as captured by the share of individuals that speak an indigenous language.

Finally, we include information on structural factors likely affecting financial inclusion, including distance to Mexico City, an indicator of rural status, and a dummy for whether the municipality is located in a state that borders the US.

[Table 2 around here]

3.1 Where Are Return Migrants Resettling?

We are also interested in identifying the characteristics of municipalities in Mexico where migrants are resettling. Information collected through focused regional surveys indicates that over 90 percent of returners move back to their municipalities of birth or pre-migration places of residence.[4] In Table (3), we partition the sample of Mexican municipalities that meet our exclusion criteria by return migration tercile. This allows us to get a better sense of where

[3] The net rate of internal migration is defined as the increase or decrease in a municipality's population caused by internal migration, expressed as change per 1,000 population in a given year. It is estimated for each municipality as follows:

$$\frac{(Number\ of\ immigrants - Number\ of\ emigrants)}{Total\ population} \times 1000$$

[4] A survey conducted by Mexicans and Americans Working Together (MATT) in the state of Jalisco in 2013 found that approximately 54 percent of surveyed migrants returned to their place of birth, 33 percent to their pre-migration place of residence, and almost 5 percent to a locality where either relatives or acquaintances lived. Only less than ten percent returned to a place based on potential job opportunities. Working paper available at: https://ccis.ucsd.edu/_files/wp193.pdf. Last accessed July 2020.

returners are moving back. The first three rows indicate that the relocation of return migrants is concentrated in areas with a more active migratory network, as indicated by higher rates of migration and remittance reception. Approximately 7 percent of households in high-return migration municipalities and 1.2 percent in low-return migration municipalities have a relative living abroad. When looking at remittances, there is an even wider gap as the difference between the two types of municipalities is 11.7 percentage points.

Table (3) also shows that not all return migrants move back to or stay in a border state. In fact, 15.4 percent of medium-return migration municipalities are located along the border, with both high- and low-return municipalities exhibiting a lower representation in the border region. Next, we see that there is essentially no difference in the level of urbanization across return migration terciles, with approximately half of the municipalities in each group categorized as rural. In contrast, it seems that return migration intensity is correlated with the share of the population that identifies as indigenous, with an average indigenous population share of 32.8 percent in low-return migration municipalities and 12.2 percent in high-return migration municipalities.

Finally, the last two rows show that return migration is not concentrated in municipalities with the highest levels of income per capita or total population. Altogether, it appears that even when return migration is not random, it is not concentrated along the border, in urban areas, or even in the wealthier and most developed municipalities. Individuals are likely not choosing to return to municipalities based on their economic potential, but rather on personal ties.

[Table 3 around here]

4 Empirical Model

We gauge how return migration affects availability of financial services by estimating the following cross-section benchmark model by OLS:

$$Y_{m,r} = \alpha + \beta\, ReturnMigration_m + X_m\gamma + \theta_r + \varepsilon_m, \quad (1)$$

where $Y_{m,r}$ is our dependent variable, and it represents each of the financial inclusion outcomes listed above for municipality m in region r. These variables are expressed as the logarithm of the

rate per 10,000 adults. $ReturnMigration_m$ is our independent variable of interest, and it includes information on municipality-level return migration rates. The vector X_m includes economic, demographic, and other characteristics at the municipality level included in Table (2). Finally, region-specific fixed effects (θ_r) account for regional factors potentially affecting the availability of banking services, such as historical conditions and political processes.[5] We expand equation (1) with interactions between $ReturnMigration$ and individual regressors in X_m to explore the existence of heterogeneous effects across municipalities.

An important empirical concern we face is to the potentially endogenous nature of return migration. It is feasible that a more developed financial system induces migrants to return in the first place if a higher level of financial inclusion results in more opportunities to invest, borrow, and store wealth. These services could result essential to migrants who return home with savings and other financial instruments. Equation (1) begins to address this challenge by exploiting the timing of events, where our return migration variable is lagged by five years relative to the financial outcomes, as it is unlikely that past values of return migration are subject to the reverse causality problem.[6] In subsequent sections, we use an instrumental variables approach to further address these concerns.

5 Results

Table (4) displays OLS estimates obtained under different model for the indicators of access to financial services, namely bank branches, ATMs, and micro-finance institutions. Columns (1)–(3) present the results for the log rate of bank branches per 10,000 adults. The most complete specification, which accounts for socio-demographic characteristics and geographic factors, indicates that an increase in return migration equal to the national average (i.e., $\Delta x = \mu_x = 0.03$) would increase the rate of bank branches by 2.6 percent.[7] Alternatively, columns (4)–(6) suggest

[5] Mexico's National Institute of Statistics and Geography (INEGI), divides the 32 states into eight regions, clustered by similar physical, cultural, and economic characteristics, designed to facilitate the socioeconomic study of the country. The regions are Northwest: Baja California, Chihuahua, Durango, Sinaloa, and Sonora. Northeast: Coahuila, Nuevo Leon, and Tamaulipas. West: Colima, Jalisco, Michoacán, and Nayarit. East: Hidalgo, Puebla, Tlaxcala, and Veracruz. North-Central: Aguascalientes, Guanajuato, Queretaro, San Luis Potosi, and Zacatecas. South-Central: Mexico City, Estado de Mexico, and Morelos. Southwest: Chiapas, Guerrero, and Oaxaca. Southeast: Campeche, Quintana Roo, Tabasco, and Yucatan.

[6] We also show below that the estimated effects are robust to the use of different time intervals.

[7] Considering $\Delta x = \mu_x = 0.03$, we have $\Delta y = 100(\beta \times 0.03) = 2.6$ percent.

that a similar increase in return migration rates is associated with a decrease in the rate of micro-finance institution (MFI) branches per 10,000 adults of 0.7 percent. The last three columns show that although the effect on the availability of ATMs may be negative, it is not statistically significant.

When we look at the coefficients on migration and remittances, we notice that our initial analysis only finds a statistically significant positive relationship between migration and MFI branches, while remittances does not appear to explain the variation in access to financial services. In regard to other controls included in the model, the point estimates on social lag, population size, and rurality appear to be significantly correlated with all three outcomes.

Next, Table (5) presents the results for outcomes indicative of the use of financial services, that is, fixed-term deposit accounts, debit cards, and credit cards. Columns (1)–(3) show that the strongest effect of return migration on financial inclusion is through an increase in the demand for savings in the form of fixed-term accounts. The point estimates indicate that a one-percentage point increase in return migration rates lead to, at least, a 5 percent increase in the rate of fixed-term accounts per 10,000 adults. Interestingly, columns (4)–(9) suggest that this effect on savings is not accompanied by a surge in the per capita demand for credit cards and that the impact on the debit cards rate is actually negative. We also observe that migration and remittances appear to have similar, though smaller, effects than return migration on the use of banking services. We further inquire into the exogeneity of return migration in the following section.

The table also summarizes the coefficients on our control variables. On the one hand, the use of financial services is positively related to the size of the population and being close to the US-Mexico border, which could be driven by agglomeration economies in the financial sector—as more banks locate in larger and more economically active population centers. On the other hand, the level of social lag, the percentage of the population that is indigenous, and the distance to Mexico City are negatively related to the use of financial services. This is indicative of both a lower supply and demand of formal bank services in more distant, remote areas.

[Table 4 around here]

[Table 5 around here]

6 Potential Endogeneity

Although our OLS estimates exploit the timing of our dependent and independent variables to address potential reverse causality concerns, another plausible threat is that an omitted factor may affect both financial inclusion and return migration. In such a case, return migration would be correlated with the error term ε in equation (1) and our estimates would still be biased and inconsistent. We address these endogeneity concerns using a control function (CF) approach (Wooldridge 2015) that seeks to exogenize return migration with the use of an instrumental variable. The model in equation (1) now has two stages as follows:

$$ReturnMigration_{m,r} = \gamma_0 + Z_m\delta + X_m\Gamma + \theta_r + v_m \quad (2)$$

$$Y_{m,r} = \beta_0 + \beta_1\left(ReturnMigration_{m,s}\right) + X_m\beta + \theta_r + \rho\hat{v}_m + e_m \quad (3)$$

where Y represents the financial inclusion outcomes listed above, $ReturnMigration$ refers to the local return migration rate, and Z is our instrumental variable. The first-stage predicted residual $\hat{v}$ is included in equation (3) to obtain a new error term e that is uncorrelated with all right-hand side variables, effectively controlling for the endogeneity in return migration. Finally, we use equation (2) to rule out the existence of other omitted variables by conducting robustness tests where we sequentially control for factors that could cause both return migration and financial inclusion, such as income per capita, unemployment rates, lagged dependent variables, and the social lag index—which captures economic development.

6.1 US Immigration Enforcement as an Instrument

We instrument return migration rates with the level of immigration enforcement that mi- grants from each municipality were exposed to in the US. This strategy leverages the exogenous variation in forced and voluntary return migration caused by the local implementation of four enforcement measures: Employment verification (E-Verify) mandates, the Secure Communities program, and both the task-force and jail variations of the 287(g) agreements.[8] While up to 35

[8] E-Verify is a program in which individual employers verify job applicants' work authorization. Secure Communities is a program implemented by US Immigration and Customs Enforcement (ICE) to identify the immigration status of individuals arrested by local law enforcement agencies. Although its implementation was non-random, participation of individual jurisdictions was not optional. Under 287(g)-task force agreements, federal immigration

percent of the 1.4 million Mexicans that returned home during 2005–2010 are estimated to have been deported (Passel, Cohn, and Gonzalez-Barrera 2012) as a direct consequence of the enforcement intensification, the remaining migrants returned on their own volition, in part as a consequence of the increasingly hostile environment that the immigration enforcement measures created. The surge in US enforcement activities contributed directly to return migration through deportations and indirectly by lowering the net benefits of staying in the US. For instance, enforcement may increase migrants' location-specific deportation probabilities, diminish labor opportunities, and generate an overall hostile environment. These effects may then change the decision to return for those that were planning to stay and shorten the time in the US for those that were already planning to return. Regardless of the mechanism, it is likely that exposure to a higher level of enforcement in the US will have a positive effect on return migration to Mexican municipalities.

At the same time, we expect that our instrument satisfies the exclusion restriction—by being unrelated to the error term in the financial inclusion equation—for two reasons. First, immigration enforcement is determined outside Mexico and thus likely independent of the relative situation across thousands of municipalities in Mexico. Second, migrants do not necessarily re-relocate in more developed areas or large urban centers, which tend to have a higher degree of financial inclusion. Instead, the majority of returners go back to more rural and lower-income areas where they started their journeys (see Table (3)).

To capture the overall enforcement environment to which migrants were exposed in the US, we combine the four enforcement measures mentioned above into an index. We begin by estimating local enforcement intensity in the US over the 2005–2010 period by aggregating indicator variables that capture the activation of each program at the state level. Then, we estimate bilateral migration flows with data from 2.3 million consular identification cards issued to Mexican citizens residing in the United States. These IDs contain information on the holder's municipality of birth in Mexico and the state of residence in the United States. Finally, for each municipality m, we calculate a weighted average of exposure to US immigration enforcement by interacting the share of migrants π residing in each US-state s with the corresponding state's enforcement score:

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authorities deputize local law enforcement agencies to enforce immigration law, including screening the public and detaining suspects of immigration violations. In the 287(g)-jail program, deputized officers screen incarcerated populations for immigration status and honor ICE detainers.

$$EnforcementExposure_m = \sum_{s \in S}^{S} (\pi_s^m \times Enforcement_s), \ \sum_{s \in S}^{S} \pi_s^m = 1. \quad (4)$$

Equation (4) implies that variation in each municipality's exposure to enforcement comes from both the share of migrants going to each US state and the local level of enforcement they face at destination.

7 Control Function Results

Table (6) summarizes the first-stage estimates from equation (2) using US immigration enforcement as an instrument for return migration rates. In this model we also control for lagged levels of migration and economic development, as well as demographic and geographic characteristics. The coefficient on our immigration enforcement index indicates that there is a significant impact of exposure to enforcement in the US on municipalities' return migration rates, with an F-statistic that exceeds the Stock and Yogo (2005) threshold and allows us to reject the null of a weak instrument. As hypothesized, municipalities that are more affected by US enforcement efforts experience a larger flow of returners. The results also show that return migration is affected by migration and remittances ten years prior, which is expected as migration is a pre-condition for return migration. Importantly for our identification strategy, migrants' return to Mexico appears not to be driven by their municipalities of origin economic conditions, which are potentially correlated with financial inclusion. We find no evidence that return migration is impacted by lagged GDP growth rates or levels of social lag.

[Table 6 around here]

Table (7) presents the CF second-stage results with the most complete specification for access and use of financial services, and shows that our instrumental variable estimates concur with the OLS results in the previous section. In particular, the magnitudes of the CF estimates are somewhat larger relative to the OLS model across all specifications.

Columns (1)–(3) of Table (7) show the results for access to financial services. The first column estimates a 4.5 percent increase in the rate of bank branches per 10,000 people as a result of an increase in return migration equal to the national average. This result indicates that the

supply of financial services is positively impacted by return migration. However, the estimate in column (2) indicates a negative effect of return migration on micro-finance institutions. As accumulated savings are a substitute for credit, a higher share of return migrants would lower the need for MFIs, whose main service is the provision of credit. This is consistent with previous research that also finds negative or no effects of remittances on the provision of credit (Demirgüç-Kunt et al. 2011; Ambrosius and Cuecuecha 2013; Anzoategui, Demirgüç-Kunt, and Martínez Pería 2014; Ambrosius and Cuecuecha 2016)

Column (3) shows no significant effect of return migration rates on the numbers of ATMs per capita. These effects are likely the result of how the Mexican population, including return migrants, use bank services. The 2015 National Survey for Financial Inclusion[9] shows that throughout Mexico less than 8 percent of ATM users made a deposit, while 42 percent of bank users did it at a physical location. In terms of withdrawals, usage patterns were reversed with 97 percent of ATM users and less than half of bank branch users making withdrawals. Thus, consumers' preferences show that physical bank locations are preferred for deposits and ATMs to withdraw cash. Given that we estimate a positive effect of return migration on the availability of bank branches, but no impact on ATMs, it is likely that our results are driven by an increase in repatriated savings by return migrants as well as the response from banks to an increased demand for this type of services.

The results on the use of financial services further support returners' savings as the main driver of financial inclusion. Columns (4)–(6) in Table (7) present the CF estimates for the change in the use of fixed-term accounts, credit cards, and debit cards. In column (4) we find that a one-percentage point increase in return migration rates results in a 13 percent increase in the rate of fixed-term accounts; while columns (5) and (6) show no significant effect of return migration on the use of credit cards or debit cards.

Table (7) also reports the coefficient on the first-stage residual, $\hat{v}$. The coefficient is only significant for fixed-term accounts, which indicates that endogeneity is not a major concern for our estimates. In sum, these results highlight savings as the channel through which return migration affects the use of banking services.

[9] ENIF, *Encuesta Nacional de Inclusión Financiera 2015* (National Survey for Financial Inclusion 2015). Available at: https://www.cnbv.gob.mx/Inclusión/Paginas/Encuestas.aspx.

[Table 7 around here]

We also explore whether the estimated effects of return migration are unique to the selected period or if they are persistent through time, at least in the short-run. Figure (2) presents the CF estimates for the effect of return migration on access to financial services for each year between 2010 and 2015. For bank branches, we see a positive but not statistically significant effect for the first three years, and then it becomes significant in years four and five. This lag may be consistent with the fact that bank may need time to plan and build a physical branch. Regarding MFI branches, the effect of return migration is negative throughout the study period, which is indicative of a lower demand for credit–possibly triggered by the inflow of return migrant's repatriated savings. ATMs show a negative sign that is mostly not significant.

Figure (3) presents the results for the use of financial services through time. The first graph underscores our main result regarding the positive effect on the use of fixed-term accounts. The coefficients show that the effect of return migration increases in the first two years and stabilizes thereafter. On average, a one-percent increase in return migration rises the fixed-term accounts rate by approximately 13 percent. The second and third graphs also corroborate our results by showing a persistently non-significant effect on the use of credit cards and debit cards.

[Figure 2 around here]

[Figure 3 around here]

8 Robustness

In addition to the controls included in our main analysis, there are other factors that could be driving the estimated impact of return migration. To further test the consistency of the results, we sequentially add and drop controls to our previous model specification.

Table (8) displays the CF estimates for these additional specifications. Panel A includes municipality-specific log income per capita in 2010, and the results show that the effect of return migration on any of the financial inclusion outcomes remains essentially unchanged in terms of both magnitude and statistical significance. This indicates that although income per capita may

affect financial inclusion, it is not correlated with the effect of return migration. In a similar way, panel B shows that the estimates are robust to the inclusion of local levels of unemployment. The only estimate that changes its significance is the positive impact of return migration on the rate of credit cards in column (5), which becomes significant. Next, panel C shows that controlling for each dependent variable's lagged values yields somewhat more conservative estimates for return migration, although the effect on fixed-term accounts in column (4) remains economically and statistically significant.

We further verify whether the results are robust to controlling for potential omitted variables, such as internal movements of people into or out of municipalities, as this could change the denominator in the estimation of our outcomes in per capita terms, in addition to shifting the demand for financial services. At the same time, internal migration could be correlated with international migration if municipality characteristics act as pull factors for both types of migrants. Panel D adds the net rate of internal migration in 2010 to our specification to remove the impact of the net inflow of people moving to a given municipality. The results, however, show that the coefficients on internal migration are small and that the estimated effect on return migration remains unchanged, minimizing our concerns about potential omitted variable bias.

Finally, the specification in panel E drops remittances and migration to test whether they are collinear with return migration and uncorrelated with financial inclusion. The effect of return migration on bank branches, MFI branches, and debit cards remains consistent, while the estimates on ATMs, fixed-term accounts, and credit cards increase significantly. These results suggest that migration and remittances may mediate in the relationship between return migration and financial inclusion.

In sum, the effects of return migration presented in Table (7), especially on savings, are robust to the estimation of different model specifications. With the exception of panel D—which shows larger estimates when we drop variables that might be related to return migration, such as migration and remittances—all specifications show consistency in the impact of return migration.

[Table 8 around here]

9 Heterogeneous Impacts of Return Migration

Lastly, we inquire about potential heterogeneous effects of return migration on financial inclusion. To that end, we interact our key explanatory variable with municipality characteristics that likely affect the relationship between return migration and financial inclusion, such as geographic, demographic, and development factors.

Table (9) displays the results for different specifications that take into account these potential interactions. Panel A explores whether municipalities located in the country's northern border region—which is at the intersection between the United States' commercial interests and Mexico's outward-looking development—are affected differently than municipalities in other parts of the country. The results show that for a given level of return migration, municipalities along the border experienced a significantly larger improvement in the use of fixed-term accounts (column (4)) and debit cards (column (6)). Specifically, a one-percent increase in return migration in border municipalities leads to a 23 percent rise in the fixed- term accounts rate, while non-border municipalities experience a 13 percent increase. For debit cards, the effect is only significant for municipalities along the border, with a 5 percent increase in the use of this service.

Panel B explores whether the distance from each municipality to Mexico City affects the impact of return migration on financial inclusion. The 2014 economic census indicates that out of the 105 financial institutions across the country with more than 250 employees, 80 (or 76 percent) were located in Mexico City during 2013–2014.[10] This is in addition to the many domestic and foreign firms as well as government institutions that conduct their financial transactions in the capital. The existence of financial sector localization economies could help municipalities near Mexico City to increase their level of financial inclusion at a lower cost than those in more distant regions by facilitating access to technology, infrastructure, workers with necessary skills, and knowledge diffusion. Interestingly, however, the results in panel B indicate that there is no evidence of a mediation effect of distance to Mexico City on the relationship between return migration and financial inclusion.

Panel C accounts for the heterogeneous effect of economic development by interacting return migration with the social lag index (SLI). As indicated above, this composite index is a

[10] See https://www.inegi.org.mx/programas/ce/2014/.

standardized measure of economic development used by the Mexican government to measure the multiple dimensions of poverty, including deprivation in the access to education, health, housing, and asset ownership. Thus, an increase in the SLI, indicating a rise in a given municipality's deprivations, likely affects the financial inclusion effect of return migration. The result in columns (1) suggests that higher levels of social lag may negatively impact the effect of return migration on the supply of bank branches per capita. This could be explained by a combination of an increase in the municipality's population, as a consequence of return migration, and a null response from banks who are not interested in opening new branches in areas with lower levels of economic development. In terms of use of financial services, the only significant interaction effect is observed for the use of credit cards in column (5), which indicates that, for a given level of socioeconomic deprivations, higher rates of return migration have a positive effect on the use of credit cards. The effect of return migration on the use of fixed-term accounts, however, is still positive and does not seem to significantly depend on social lag.

Finally, panel D explores the differential effect of return migration by municipalities' rural status. The availability of basic services in rural areas continues to be a challenge in Mexico and financial services are no different. Panel D presents evidence of this pattern by showing that the financial inclusion effect of return migration is constrained by a municipality's rural status. This seems to be particularly relevant for the impact of return migration on the use of fixed-term accounts, which remains positive but more modest for rural municipalities than their urban counterparts.

[Table 9 around here]

10 Conclusion

Migration between Mexico and the US has seen a sharp reversal, where now more Mexicans are returning home than those who are migrating to the United States. Given recent research that finds that migrants have positive effects on their communities of origin upon return, we study the potential effects of return migration on financial inclusion.

In particular, we use an instrumental-variable, control function approach with data at the municipality level for the 2010–2015 period to study the impact of return migration on access via

the number of bank branches, micro-finance institution branches, and ATMs per capita; and use of services through fixed-term, interest-bearing deposit accounts, credit cards, and debit cards per capita. Our empirical strategy relies on municipalities' exposure to immigration enforcement in the United States as a plausible source of exogenous variation.

We find that return migration rates are strongly associated with increases in municipalities' savings per capita, as measured by the number of fixed-term accounts. This is consistent with individual-level studies that find that migrants return with accumulated savings from abroad. Our results suggest that these individual-level effects carry over into the aggregate level and that they persist through time in the short-run. We also find that higher levels of return migration are associated with increases in the number of bank branches per capita, which indicates that financial institutions may be responding to an increased demand of services. Finally, we find that return migration rates are negatively associated with the availability of micro-finance institutions. This is consistent with repatriated capital being a substitute for demand for credit.

Return migration, through its effect on financial inclusion, can be an important component of Mexico's overall economic development, as the financial system is critical in promoting economic growth, sustaining business activity and employment, and reducing poverty and inequality.

References

Acemoglu, Daron, and Simon Johnson. 2005. "Unbundling Institutions." *Journal of Political Economy* 113 (5): 949–95. https://doi.org/10.1086/432166.

Aggarwal, Reena, Asli Demirgüç-Kunt, and María Soledad Martínez Pería. 2011. "Do Remittances Promote Financial Development?" *Journal of Development Economics* 96 (2): 255–64. https://doi.org/10.1016/j.jdeveco.2010.10.005.

Allen, Franklin, Asli Demirgüç-Kunt, Leora Klapper, and Maria Soledad Martinez Peria. 2016. "The Foundations of Financial Inclusion: Understanding Ownership and Use of Formal Accounts." *Journal of Financial Intermediation* 27: 1–30. https://doi.org/10.1016/j.jfi.2015.12.003.

Ambrosius, Christian, and Alfredo Cuecuecha. 2013. "Are Remittances a Substitute for Credit? Carrying the Financial Burden of Health Shocks in National and Transnational Households." *World Development* 46: 143–52. https://doi.org/10.1016/j.worlddev.2013.01.032.

———. 2016. "Remittances and the Use of Formal and Informal Financial Services." *World Development* 77: 80–98. https://doi.org/10.1016/j.worlddev.2015.08.010.

Anzoategui, Diego, Asli Demirgüç-Kunt, and María Soledad Martínez Pería. 2014. "Remittances and Financial Inclusion: Evidence from El Salvador." *World Development* 54: 338–49. https://doi.org/10.1016/j.worlddev.2013.10.006.

Bahar, Dany, Cem Özgüel, Andreas Hauptmann, and Hillel Rapoport. 2019. "Migration and Post-Conflict Reconstruction: The Effect of Returning Refugees on Export Performance in the Former Yugoslavia." *IZA Discussion Paper Series* 12412.

Batista, Catia, Tara Mcindoe-Calder, and Pedro C Vicente. 2017. "Return Migration, Self-Selection and Entrepreneurship." *Oxford Bulletin of Economics and Statistics* 79 (5): 797–821. https://doi.org/https://doi.org/10.1111/obes.12176.

Bauer, Thomas K, and Mathias G Sinning. 2010. "The Savings Behavior of Temporary and Permanent Migrants in Germany." *Journal of Population Economics* 24 (2): 421–49. https://doi.org/10.1007/s00148-010-0306-z.

Beck, Thorsten, Asli Demirgüç-Kunt, and Ross Levine. 2007. "Finance, Inequality and the Poor." *Journal of Economic Growth* 12 (1): 27–49. https://doi.org/10.1007/s10887-007-

9010-6.

Bhattacharya, Mita, John Inekwe, and Sudharshan Reddy Paramati. 2018. "Remittances and Financial Development: Empirical Evidence from Heterogeneous Panel of Countries." *Applied Economics* 50 (38): 4099–4112. https://doi.org/10.1080/00036846.2018.1441513.

Bruhn, Miriam, and Inessa Love. 2014. "The Real Impact of Improved Access to Finance: Evidence from Mexico." *The Journal of Finance* 69 (3): 1347–76. https://doi.org/10.1111/jofi.12091.

Bucheli, Jose R., Matias Fontenla, and Benjamin James Waddell. 2019. "Return Migration and Violence." *World Development* 116: 113–24. https://doi.org/10.1016/j.worlddev.2018.12.010.

Chinn, Menzie D, and Hiro Ito. 2006. "What Matters for Financial Development? Capital Controls, Institutions, and Interactions." *Journal of Development Economics* 81 (1): 163–92. https://doi.org/10.1016/j.jdeveco.2005.05.010.

Demirgüç-Kunt, Asli, Thorsten Beck, and Patrick Honohan. 2008. *Finance for All? Policies and Pitfalls in Expanding Access*. Washington, D.C: World Bank.

Demirgüç-Kunt, Asli, and Leora Klapper. 2012. "Measuring Financial Inclusion: The Global Findex Database." *World Bank Policy Research Working Paper* No. 6025. https://doi.org/10.1596/1813-9450-6025.

Demirgüç-Kunt, Asli, Ernesto López Córdova, María Soledad Martínez Pería, and Christopher Woodruff. 2011. "Remittances and Banking Sector Breadth and Depth: Evidence from Mexico." *Journal of Development Economics* 95 (2): 229–41. https://doi.org/10.1016/j.jdeveco.2010.04.002.

Denier, Nicole, and Claudia Masferrer. 2019. "Returning to a New Mexican Labor Market? Regional Variation in the Economic Incorporation of Return Migrants from the US to Mexico." *Population Research and Policy Review*, 1–25.

Durand, Jorge, and Douglas S Massey. 2004. *Crossing the Border: Research from the Mexican Migration Project*. New York City: Russell Sage Foundation.

Dustmann, Christian, and Oliver Kirchkamp. 2002. "The Optimal Migration Duration and Activity Choice after Re-Migration." *Journal of Development Economics* 67 (2): 351–72. https://doi.org/10.1016/s0304-3878(01)00193-6.

Dustmann, Christian, and Josep Mestres. 2010. "Savings, Asset Holdings, and Temporary

Migration." *Annals of Economics and Statistics*, no. 97/98: 289–306. https://doi.org/10.2307/41219119.

Escobar Latapí, Agustín. 2016. "Chapter 10: Mexican Social Policy and Return Migration." In *Mexican Migration to the United States: Perspectives from Both Sides of the Border*, edited by Olivia Romo, Harriett D. and Mogollon-Lopez, 219–47. University of Texas Press.

Galor, Oded, and Oded Stark. 1990. "Migrants' Savings, the Probability of Return Migration and Migrants' Performance." *International Economic Review* 31 (2): 463–67. https://doi.org/10.2307/2526851.

Giuliano, Paola, and Marta Ruiz-Arranz. 2009. "Remittances, Financial Development, and Growth." *Journal of Development Economics* 90 (1): 144–52. https://doi.org/10.1016/j.jdeveco.2008.10.005.

King, Robert G, and Ross Levine. 1993. "Finance and Growth: Schumpeter Might Be Right." *The Quarterly Journal of Economics* 108 (3): 717–37.

Kirdar, Murat G. 2009. "Labor Market Outcomes, Savings Accumulation, and Return Migration." *Labour Economics* 16 (4): 418–28. https://doi.org/10.1016/j.labeco.2009.01.004.

Li, Shan. 2018. "Investment and Interruption: Effects of the US Experience on the Earnings of Return Migrants in Mexico." *Applied Economics* 50 (4): 426–40. https://doi.org/10.1080/00036846.2017.1324616.

Marchetta, Francesca. 2012. "Return Migration and the Survival of Entrepreneurial Activities in Egypt." *World Development* 40 (10): 1999–2013. https://doi.org/10.1016/j.worlddev.2012.05.009.

Massey, Douglas S, Nolan J Malone, and Jorge Durand. 2002. *Beyond Smoke and Mirrors: Mexican Immigration in an Era of Economic Integration*. New York City: Russell Sage Foundation. https://doi.org/10.2307/1556627.

Northwood, Joyce M, and Sherrie L W Rhine. 2018. "Use of Bank and Nonbank Financial Services: Financial Decision Making by Immigrants and Native Born." *Journal of Consumer Affairs* 52 (2): 317–48.

Parrado, Emilio A, and Edith Y Gutierrez. 2016. "The Changing Nature of Return Migration to Mexico, 1990--2010: Implications for Labor Market Incorporation and Development." *Sociology of Development* 2 (2): 93–118.

Passel, Jeffrey S., D'Vera Cohn, and Ana Gonzalez-Barrera. 2012. *Net Migration Form Mexico Falls to Zero—and Perhaps Less*. *Pew Research Center*. Washington, D.C.: Pew Research Center.

Passel, Jeffrey S, and D'Vera Cohn. 2018. *U.S. Unauthorized Immigrant Total Dips to Lowest Level in a Decade*. Washington, D.C.: Pew Research Center.

Reinhold, Steffen, and Kevin Thom. 2013. "Migration Experience and Earnings in the Mexican Labor Market." *Journal of Human Resources* 48 (3): 768–820. https://doi.org/10.3368/jhr.48.3.768.

Shahbaz, Muhammad, Mita Bhattacharya, and Mantu Kumar Mahalik. 2017. "Financial Development, Industrialization, the Role of Institutions and Government: A Comparative Analysis between India and China." *Applied Economics* 50 (17): 1952–77. https://doi.org/10.1080/00036846.2017.1383595.

Stock, James H, and Motohiro Yogo. 2005. "Testing for Weak Instruments in Linear IV Regression." In *Identification and Inference for Econometric Models*, edited by Donald W K Andrews and James H Stock, 80–108. Cambridge University Press. https://doi.org/10.1017/cbo9780511614491.006.

Waddell, Benjamin James, and Matías Fontenla. 2015. "The Mexican Dream? The Effect of Return Migrants on Hometown Development." *Social Science Journal* 52 (3): 386–96. https://doi.org/10.1016/j.soscij.2015.02.003.

Wahba, Jackline, and Yves Zenou. 2012. "Out of Sight, out of Mind: Migration, Entrepreneurship and Social Capital." *Regional Science and Urban Economics* 42 (5): 890–903. https://doi.org/10.1016/j.regsciurbeco.2012.04.007.

Wooldridge, Jeffrey M. 2015. "Control Function Methods in Applied Econometrics." *Journal of Human Resources* 50 (2): 420–45. https://doi.org/10.3368/jhr.50.2.420.

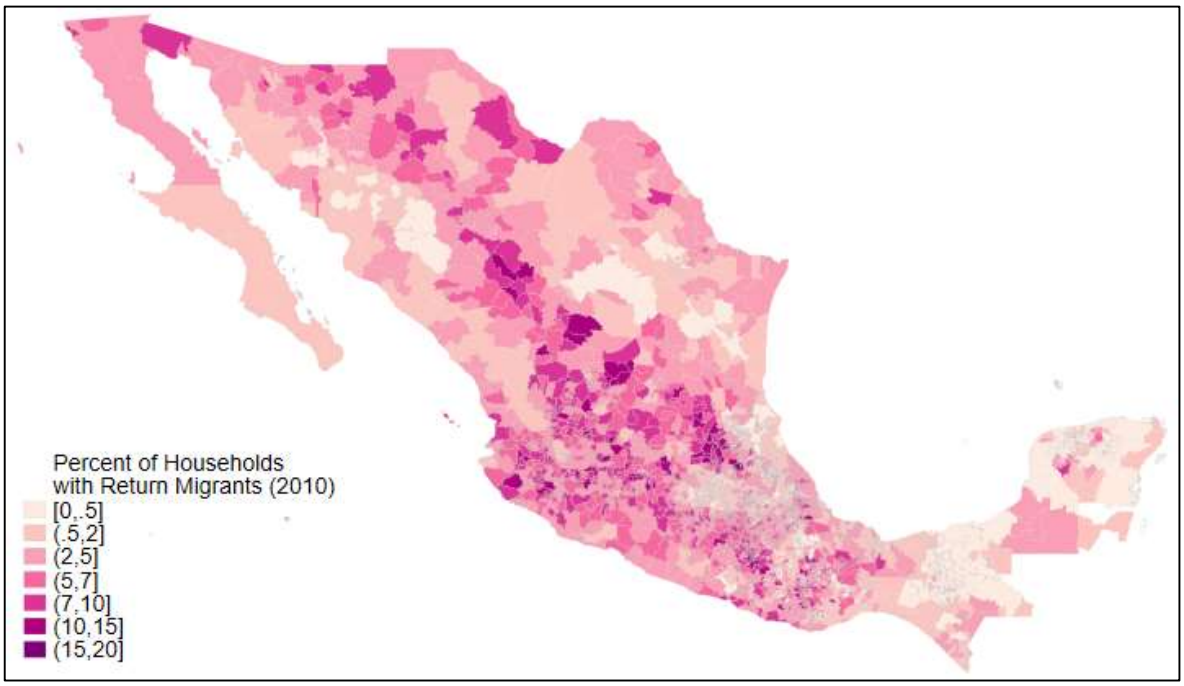
World Bank. 2018. *The Little Data Book on Financial Inclusion 2018*. Washington, D.C.: World Bank. http://hdl.handle.net/10986/29654.

Table 1: Descriptive Statistics for Financial Inclusion Indicators

	2010	2015
Bank branches	0.723	0.871
	(1.172)	(1.170)
Micro-finance institution branches	0.0434	0.0494
	(0.149)	(0.145)
ATMs	1.149	1.511
	(2.311)	(2.106)
Fixed-term deposit accounts	173.3	193.7
	(369.1)	(312.3)
Debit cards	1917.2	3133.1
	(4583.3)	(3877.1)
Credit cards	360.6	745.4
	(1055.8)	(865.3)
Observations	2302	2302

Source: Comisión Nacional Bancaria y de Valores, CNBV
Note: All means expressed in rates per 10,000 adults. The sample does not include Mexico City or municipalities in the top one percent of the financial inclusion distribution. Standard deviations in parentheses.

Figure 1: Return Migration by Municipality (2010)



Source: Consejo Nacional de Población, CONAPO

Table 2: Summary Statistics for Return Migration and Controls

	Mean	SD	Min.	Max.
Return migration (2010)	0.035	0.030	0.00	0.17
Migration (2010)	0.039	0.041	0.00	0.44
Remittances (2010)	0.065	0.072	0.00	0.49
Net rate of internal migration (2010)	-1.960	7.700	-71.70	52.83
GDP growth rate (%, 1999-2004)	0.009	0.044	-0.01	0.91
Unemployment rate (%, 2010)	0.041	0.033	0.00	0.37
Social lag index (2010)	0.038	0.989	-1.84	4.25
Indigenous pop. (%, 2010)	0.196	0.311	0.00	1.00
Rural municipality (1=yes)	0.483	0.500	0.00	1.00
Located in border state (1=yes)	0.113	0.317	0.00	1.00
Linear distance to Mexico City (100 km)	4.592	3.641	0.01	22.86
Income per capita PPP (2010)	9,199.936	4,711.619	1,766.73	43,927.43
Total population (2010)	38183.692	108,181.811	93.00	1,656,107.00

Source: Consejo Nacional de Población, CONAPO; *Instituto Nacional de Estadística y Geografía*, INEGI; *Instituto Nacional para el Federalismo y el Desarrollo Municipal*, INAFED

Note: Summary statistics obtained with all 2,302 municipalities in the sample. Return migration rates are calculated as the municipality-level share of households with a relative who migrated prior to 2005 and returned to Mexico by 2010. Migration is given by the share of households in a municipality with a household member living abroad in 2010. Remittances is estimated as the municipality share of households that received international remittances in 2010. See footnote 3 for the definition and calculation of internal migration. GDP growth rate is estimated with the non-agricultural municipality GDP. The social lag index, estimated by the Mexican government, is a standardized composite index that aggregates health, education, housing, and asset ownership indicators; larger values indicate a lower level of development.

Table 3: Characteristics in Low-, Medium-, and High-Return Migration Rate Municipalities

	Return Migration Tercile			
	Low	Medium	High	Pooled sample
Return migration (2010)	0.006	0.027	0.071	0.035
	(0.004)	(0.008)	(0.023)	(0.030)
Migration (2010)	0.012	0.032	0.071	0.039
	(0.018)	(0.026)	(0.048)	(0.041)
Remittances (2010)	0.014	0.049	0.131	0.065
	(0.019)	(0.040)	(0.078)	(0.072)
Located in border state (1=yes)	0.105	0.154	0.080	0.113
	(0.307)	(0.361)	(0.271)	(0.317)
Rural municipality (1=yes)	0.501	0.474	0.475	0.483
	(0.500)	(0.500)	(0.500)	(0.500)
Indigenous pop. (%, 2005)	0.328	0.151	0.122	0.201
	(0.376)	(0.273)	(0.259)	(0.320)
Income per capita PPP (2005)	8,574.54	9,286.56	8,538.56	8,799.50
	(5,527.01)	(4,809.20)	(4,239.37)	(4,898.18)
Total population (2005)	42,561.11	42,587.40	18,769.12	34,652.97
	(121,897.25)	(120,485.16)	(26,267.31)	(100,734.47)
Observations	770	766	766	2,302

Source: Consejo Nacional de Población, CONAPO; *Instituto Nacional de Estadística y Geografía*, INEGI; *Instituto Nacional para el Federalismo y el Desarrollo Municipal*, INAFED
Notes: The table indicates the average across municipalities within each tercile and across the entire sample. Standard deviations in parentheses. For a definition of return migration, migration, and remittances, the reader should refer to the note in Table (2). The three return migration categories—low, medium, high—were created by splitting the sample into return migration terciles.

Table 4: OLS Estimates of Return Migration (2010) on Access to Financial Services (20

	Bank branches			MFI branches			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Return migration (2010)	0.698	0.852*	0.855*	-0.267***	-0.241***	-0.259***	-0.484
	(0.5066)	(0.4540)	(0.4554)	(0.0867)	(0.0826)	(0.0824)	(0.5935)
Migration (2010)	0.119	-0.158	-0.194	0.143***	0.096*	0.124**	0.179
	(0.2930)	(0.2742)	(0.2774)	(0.0543)	(0.0533)	(0.0539)	(0.3281)
Remittances (2010)	-0.833***	0.134	0.201	-0.206***	-0.040	-0.036	-1.412***
	(0.2205)	(0.1981)	(0.2008)	(0.0311)	(0.0304)	(0.0323)	(0.2466)
Real GDP growth rate (IHS, 1999-2004)	-0.006	0.000	0.001	0.000	0.001	0.001	0.018
	(0.0115)	(0.0099)	(0.0098)	(0.0028)	(0.0025)	(0.0025)	(0.0142)
Social lag index (2010)	-0.171***	-0.109***	-0.099***	-0.027***	-0.016***	-0.018***	-0.322***
	(0.0132)	(0.0128)	(0.0129)	(0.0026)	(0.0026)	(0.0028)	(0.0155)
Population (log, 2010)		0.172***	0.177***		0.030***	0.028***	
		(0.0059)	(0.0063)		(0.0016)	(0.0016)	
Indigenous pop. (%, 2005)		-0.040	-0.053*		-0.007	-0.005	
		(0.0294)	(0.0295)		(0.0066)	(0.0067)	
Linear distance to Mexico City (100 km)			0.009			0.001	
			(0.0056)			(0.0017)	
Located in border state (1=yes)			-0.105			0.049***	
			(0.0726)			(0.0179)	
Rural municipality (1=yes)			0.065***			-0.019***	
			(0.0217)			(0.0058)	
Region FE	✓	✓	✓	✓	✓	✓	✓
N	2302	2302	2302	2302	2302	2302	2302
R^2	0.282	0.447	0.450	0.082	0.193	0.202	0.398

Note: Dependent variables expressed as the logarithm of the rate per 10,000 adults. Standard errors in parentheses are based on 1,000
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 5: OLS Estimates of Return Migration (2010) on Use of Financial Services (2015)

	Fixed-term accounts			Credit cards			Debit cards		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Return migration (2010)	5.642***	5.175***	5.116***	1.341	0.959	0.906	-1.474	-1.706*	-1.717*
	(2.1048)	(1.9832)	(1.9785)	(0.9785)	(0.8762)	(0.8746)	(1.1474)	(1.0273)	(1.0261)
Migration (2010)	3.619***	3.333**	2.866**	1.315*	1.214*	0.954	-0.409	-0.671	-0.757
	(1.3493)	(1.3038)	(1.3109)	(0.7053)	(0.6431)	(0.6491)	(0.7605)	(0.7351)	(0.7418)
Remittances (2010)	0.280	3.320***	3.431***	-1.706***	0.073	0.142	-1.423***	0.720*	0.667
	(0.9856)	(0.9605)	(0.9611)	(0.4228)	(0.3877)	(0.3914)	(0.4534)	(0.4267)	(0.4324)
Real GDP growth rate (IHS, 1999-2004)	-0.034	-0.018	-0.025	-0.045	-0.036	-0.040	0.000	0.012	0.009
	(0.0488)	(0.0428)	(0.0429)	(0.0292)	(0.0258)	(0.0258)	(0.0246)	(0.0217)	(0.0217)
Social lag index (2010)	-0.701***	-0.406***	-0.401***	-0.871***	-0.687***	-0.686***	-0.748***	-0.550***	-0.561***
	(0.0437)	(0.0482)	(0.0507)	(0.0254)	(0.0279)	(0.0291)	(0.0279)	(0.0280)	(0.0295)
Population (log, 2010)		0.556***	0.575***		0.327***	0.337***		0.391***	0.390***
		(0.0257)	(0.0274)		(0.0147)	(0.0152)		(0.0131)	(0.0137)
Indigenous pop. (%, 2005)		-0.652***	-0.644***		-0.442***	-0.435***		-0.405***	-0.388***
		(0.1471)	(0.1482)		(0.0865)	(0.0868)		(0.0773)	(0.0785)
Linear distance to Mexico City (100 km)			-0.054***			-0.033***			-0.024**
			(0.0178)			(0.0092)			(0.0104)
Located in border state (1=yes)			0.587**			0.410***			0.248**
			(0.2335)			(0.1231)			(0.1230)
Rural municipality (1=yes)			0.098			0.041			-0.043
			(0.0711)			(0.0300)			(0.0360)
Region FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
N	2302	2302	2302	2302	2302	2302	2302	2302	2302
R^2	0.278	0.422	0.425	0.553	0.671	0.674	0.498	0.651	0.652

Note: Dependent variables expressed as the logarithm of the rate per 10,000 adults. Standard errors in parentheses are based on 1,000 bootstrap replications.
$* p < 0.1, ** p < 0.05, *** p < 0.01$

Table 6: First-Stage Estimates of the Return Migration Equation

	(1)
U.S. interior enforcement (2005-2010)	0.029***
	(0.0072)
Migration (2000)	0.239***
	(0.0179)
Remittances (2000)	0.094***
	(0.0161)
Net rate of internal migration (2000)	0.000
	0.0000
Real GDP growth rate (IHS, 1999-2004)	0.000
	(0.0005)
Social lag index (2005)	0.000
	(0.0008)
Nearest neighbors' SLI (2005)	0.001*
	(0.0008)
Population (log, 2005)	0.000
	(0.0003)
Indigenous pop. (%, 2005)	-0.006***
	(0.0021)
Rural municipality (1=yes)	0.003***
	(0.0008)
Linear distance to Mexico City (100 km)	0.000
	(0.0003)
Located in border state (1=yes)	0.007**
	(0.0033)
Region FE	✓
Observations	2302
R2	0.618
First-stage IV F -statistic	16.444

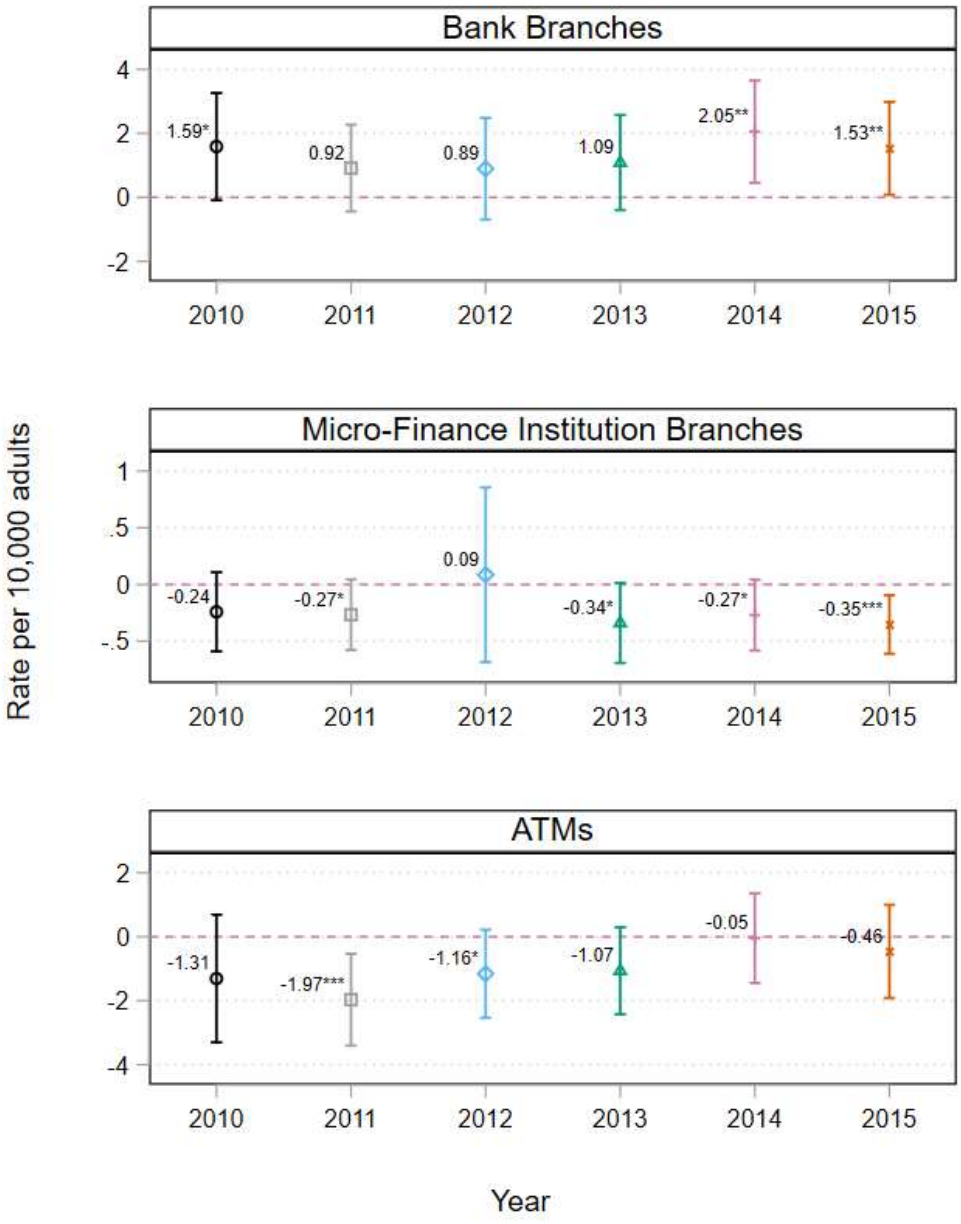
Note: Robust standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 7: Control Function Second-Stage Estimates: The Effect of Return Migration on Financial Services

	Access to financial services			Use of financial services		
	(1)	(2)	(3)	(4)	(5)	(6)
	Bank branches	MFI branches	ATMs	Fixed-term accounts	Credit cards	Debit cards
Return migration (2010)	1.531**	-0.353***	-0.459	13.622***	2.150	-0.484
	(0.6913)	(0.1312)	(0.7480)	(2.9318)	(1.3707)	(1.4607)
First-stage $\hat{v}$	-0.930	0.129	0.394	-11.702***	-1.712	-1.696
	(0.7070)	(0.1473)	(0.7450)	(2.8365)	(1.3655)	(1.4456)
Migration (2010)	-0.193	0.123**	-0.322	2.883**	0.957	-0.755
	(0.2665)	(0.0547)	(0.2852)	(1.2662)	(0.6682)	(0.7600)
Remittances (2010)	0.075	-0.019	-0.103	1.849*	-0.089	0.438
	(0.2273)	(0.0385)	(0.2495)	(1.0276)	(0.4477)	(0.4905)
Real GDP growth rate (IHS, 1999-2004)	0.000	0.001	0.026*	-0.034	-0.042	0.007
	(0.0100)	(0.0025)	(0.0133)	(0.0430)	(0.0263)	(0.0223)
Social lag index (2010)	-0.098***	-0.018***	-0.251***	-0.392***	-0.685***	-0.559***
	(0.0131)	(0.0029)	(0.0154)	(0.0494)	(0.0278)	(0.0288)
Population (log, 2010)	0.178***	0.028***	0.219***	0.587***	0.339***	0.392***
	(0.0065)	(0.0016)	(0.0079)	(0.0270)	(0.0156)	(0.0140)
Indigenous pop. (%, 2005)	-0.047	-0.006	0.005	-0.565***	-0.423***	-0.376***
	(0.0290)	(0.0066)	(0.0329)	(0.1459)	(0.0856)	(0.0770)
Linear distance to Mexico City (100 km)	0.010*	0.001	-0.003	-0.044**	-0.031***	-0.023**
	(0.0057)	(0.0017)	(0.0069)	(0.0187)	(0.0094)	(0.0107)
Located in border state (1=yes)	-0.109	0.050***	-0.006	0.526**	0.401***	0.239*
	(0.0726)	(0.0181)	(0.0988)	(0.2288)	(0.1296)	(0.1254)
Rural municipality (1=yes)	0.064***	-0.019***	0.049**	0.097	0.040	-0.043
	(0.0219)	(0.0058)	(0.0244)	(0.0712)	(0.0305)	(0.0348)
Region FE	✓	✓	✓	✓	✓	✓
Observations	2302	2302	2302	2302	2302	2302
R^2	0.450	0.202	0.554	0.430	0.674	0.652

Note: Dependent variables expressed as the logarithm of the rate per 10,000 adults. Standard errors in parentheses are based on 1,000 bootstrap replications. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

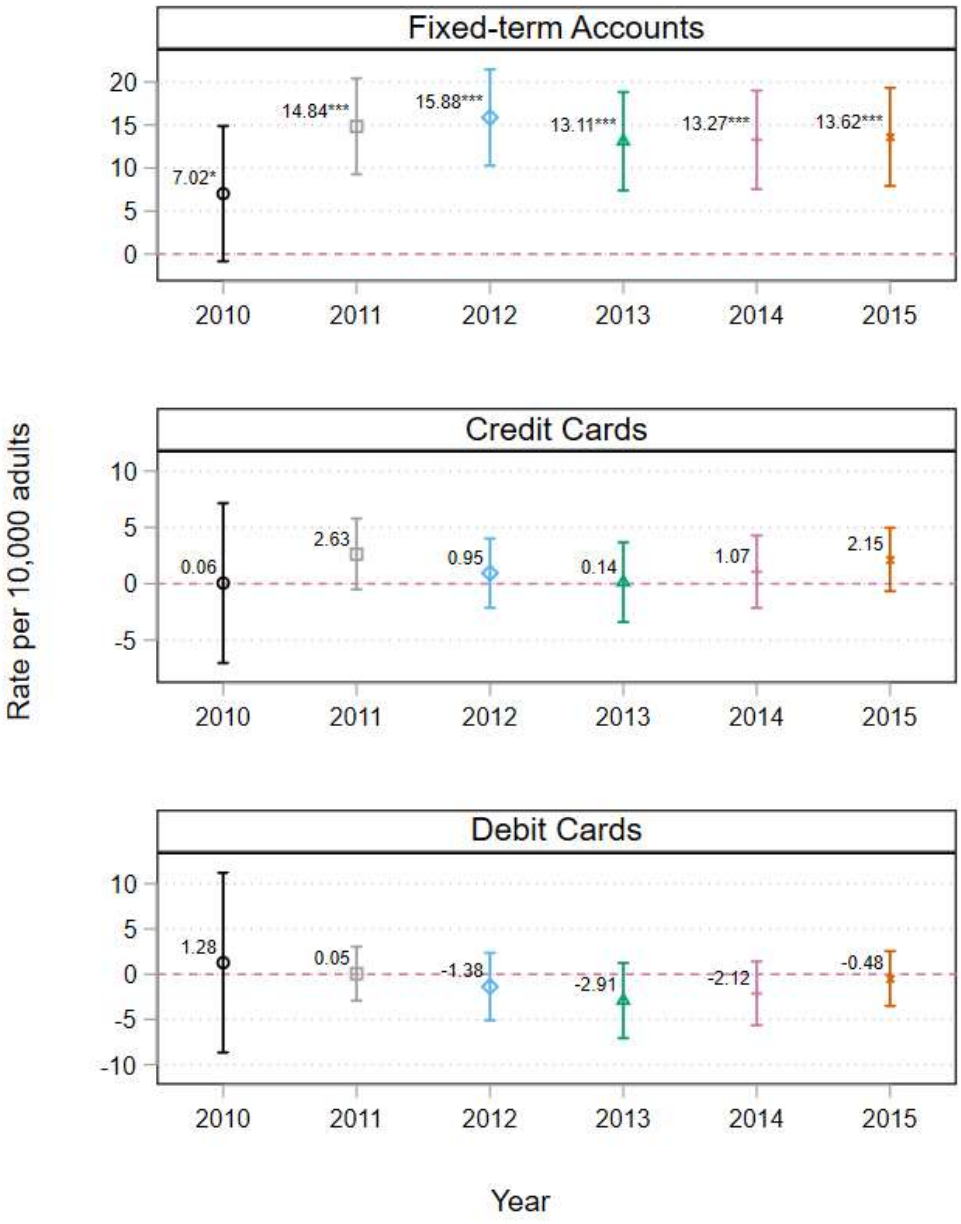
Figure 2: Persistence of Return Migration Effects on Access to Financial Services



Note: Figures show control function estimates. Confidence spikes denote 95 percent CIs.

* p < 0.1, ** p < 0.05, *** p < 0.01

Figure 3: Persistence of Return Migration Effect on Use of Financial Services



Note: Figures show control function estimates. Confidence spikes denote 95 percent CIs.

* p < 0.1, ** p < 0.05, *** p < 0.01

Table 8: Robustness Check: The Effect of Return Migration on Financial Inclusion

Panel A: Controlling for Log Income Per Capita

	(1) Bank branches	(2) MFI branches	(3) ATMs	(4) Fixed-term accounts	(5) Credit cards	(6) Debit cards
Return migration (2010)	1.439**	-0.352***	-0.548	13.439***	1.802	-0.671
	(0.6815)	(0.1314)	(0.7345)	(2.9249)	(1.3545)	(1.4545)
Income per capita (log, 2010)	0.265***	-0.002	0.258***	0.529***	1.007***	0.541***
	(0.0342)	(0.0078)	(0.0430)	(0.1399)	(0.0707)	(0.0800)
First-stage $\hat{v}$	-0.942	0.129	0.383	-11.725***	-1.756	-1.720
	(0.6929)	(0.1474)	(0.7264)	(2.8623)	(1.3136)	(1.4296)
R^2	0.463	0.202	0.561	0.434	0.708	0.661

Panel B: Controlling for Unemployment Rates

	(1) Bank branches	(2) MFI branches	(3) ATMs	(4) Fixed-term accounts	(5) Credit cards	(6) Debit cards
Return migration (2010)	1.508**	-0.313**	-0.302	13.856***	2.478*	-0.373
	(0.6968)	(0.1316)	(0.7531)	(2.9701)	(1.3843)	(1.4967)
Unemployment rate (%, 2010)	0.078	-0.138***	-0.535*	-0.802	-1.125**	-0.380
	(0.2495)	(0.0446)	(0.2945)	(1.0765)	(0.5294)	(0.5524)
First-stage $\hat{v}$	-0.918	0.107	0.311	-11.825***	-1.885	-1.755
	(0.7093)	(0.1475)	(0.7459)	(2.8510)	(1.3644)	(1.4576)
R^2	0.450	0.204	0.555	0.430	0.675	0.652

Panel C: Controlling for Lagged Dependent Variable

	(1) Bank branches	(2) MFI branches	(3) ATMs	(4) Fixed-term accounts	(5) Credit cards	(6) Debit cards
Return migration (2010)	0.447	-0.214*	0.077	11.338***	2.143*	-0.662
	(0.4984)	(0.1273)	(0.6487)	(2.7190)	(1.2990)	(1.2942)
Lagged dependent variable (2010)	0.683***	0.575***	0.409***	0.326***	0.112***	0.139***
	(0.0243)	(0.0542)	(0.0282)	(0.0129)	(0.0075)	(0.0053)
First-stage $\hat{v}$	0.315	0.115	0.341	-9.596***	-1.140	-0.957
	(0.4625)	(0.1302)	(0.6366)	(2.7387)	(1.2979)	(1.2572)
R^2	0.702	0.473	0.634	0.551	0.701	0.735

Panel D: Controlling for Internal Migration

	(1) Bank branches	(2) MFI branches	(3) ATMs	(4) Fixed-term accounts	(5) Credit cards	(6) Debit cards
Return migration (2010)	1.573**	-0.348***	-0.437	13.713***	2.154	-0.398
	(0.6996)	(0.1313)	(0.7539)	(2.9311)	(1.3697)	(1.4569)
Net rate of internal migration (2010)	-0.008***	-0.001***	-0.004**	-0.017***	-0.001	-0.016***
	(0.0013)	(0.0002)	(0.0017)	(0.0045)	(0.0024)	(0.0028)
First-stage $\hat{v}$	-0.961	0.125	0.378	-11.769***	-1.715	-1.759
	(0.7230)	(0.1480)	(0.7542)	(2.8365)	(1.3642)	(1.4593)
R^2	0.460	0.206	0.556	0.434	0.674	0.660

Panel E: Dropping Migration and Remittances

	(1) Bank branches	(2) MFI branches	(3) ATMs	(4) Fixed-term accounts	(5) Credit cards	(6) Debit cards
Return migration (2010)	1.497***	-0.261***	-1.055**	21.155***	2.991***	-0.281
	(0.4314)	(0.0877)	(0.4449)	(1.8540)	(0.9445)	(0.8867)
First-stage $\hat{v}$	-0.977	0.116	0.643	-15.272***	-1.887	-2.085
	(0.6192)	(0.1257)	(0.6475)	(2.5999)	(1.1935)	(1.2845)
N	2302	2302	2302	2302	2302	2302
R^2	0.450	0.202	0.554	0.426	0.674	0.652

Note: All specifications include a constant term, demographic and socioeconomic municipality-specific controls, and region fixed effects. Standard errors in parentheses are based on 1,000 bootstrap replications. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 9: Heterogeneous Effects of Return Migration on Financial Inclusion

Panel A: Interaction with Location in Border Region						
	(1)	(2)	(3)	(4)	(5)	(6)
	Bank branches	MFI branches	ATMs	Fixed-term accounts	Credit cards	Debit cards
Return migration (2010)	1.576**	-0.352***	-0.440	12.954***	2.321*	-0.838
	(0.6919)	(0.1328)	(0.7399)	(2.9523)	(1.3792)	(1.4701)
Border municipality × Ret. migration	-0.729	-0.009	-0.298	10.748**	-2.759	5.700**
	(1.1239)	(0.2178)	(2.1008)	(4.7400)	(2.3026)	(2.2286)
First-stage $\hat{v}$	-0.903	0.129	0.405	-12.100***	-1.61	-1.908
	(0.7117)	(0.1472)	(0.7453)	(2.8318)	(1.3677)	(1.449)
R^2	0.450	0.202	0.554	0.431	0.674	0.653
Panel B: Interaction with Distance to Mexico City						
	(1)	(2)	(3)	(4)	(5)	(6)
	Bank branches	MFI branches	ATMs	Fixed-term accounts	Credit cards	Debit cards
Return migration (2010)	1.922**	-0.260	-0.584	12.099***	2.414*	-1.537
	(0.7617)	(0.1606)	(0.8502)	(3.2029)	(1.4559)	(1.6022)
Distance to Mexico City × Ret. Migration	-0.106	-0.025	0.034	0.411	-0.071	0.284*
	(0.0949)	(0.0249)	(0.1301)	(0.3735)	(0.1668)	(0.1599)
First-stage $\hat{v}$	-0.854	0.147	0.370	-11.997***	-1.661	-1.900
	(0.7141)	(0.1466)	(0.7428)	(2.8503)	(1.3815)	(1.4602)
R^2	0.451	0.203	0.554	0.430	0.674	0.653
Panel C: Interaction with Social Lag Index						
	(1)	(2)	(3)	(4)	(5)	(6)
	Bank branches	MFI branches	ATMs	Fixed-term accounts	Credit cards	Debit cards
Return migration (2010)	1.303*	-0.362***	-0.445	13.684***	2.951**	-0.546
	(0.6872)	(0.1307)	(0.7405)	(2.9796)	(1.3477)	(1.4858)
Social lag × Ret. migration	-1.405***	-0.054	0.082	0.387	4.942***	-0.386
	(0.3575)	(0.0679)	(0.3892)	(1.4158)	(0.6713)	(0.7690)
First-stage $\hat{v}$	-0.716	0.137	0.381	-11.761***	-2.464*	-1.638
	(0.7133)	(0.1490)	(0.7506)	(2.8665)	(1.3277)	(1.4531)
R^2	0.454	0.203	0.554	0.430	0.682	0.652
Panel D: Interaction with Rural Status						
	(1)	(2)	(3)	(4)	(5)	(6)
	Bank branches	MFI branches	ATMs	Fixed-term accounts	Credit cards	Debit cards
Return migration (2010)	1.784**	-0.390**	-0.556	15.636***	1.743	0.654
	(0.7541)	(0.1521)	(0.8110)	(3.0233)	(1.3650)	(1.5642)
Rural municipality × Ret. Migration	-0.507	0.074	0.195	-4.031*	0.814	-2.276**
	(0.5645)	(0.1230)	(0.6307)	(2.1064)	(0.9668)	(1.0866)
First-stage $\hat{v}$	-0.913	0.126	0.387	-11.568***	-1.739	-1.621
	(0.7079)	(0.1479)	(0.7465)	(2.8298)	(1.3671)	(1.4404)
N	2302	2302	2302	2302	2302	2302
R^2	0.451	0.203	0.554	0.431	0.674	0.653

Note: In addition to a constant term, municipality-specific demographic and socioeconomic controls, and region fixed effects, all specifications control for migration and remittance reception rates. Standard errors in parentheses are based on 1,000 bootstrap replications. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$