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Financial inclusion in Mexico: Socio-demographic predictors increasing barriers

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Abstract

Financial inclusion is a fundamental pillar of development. Access to financial products and services broadens economic opportunities for individuals and firms and helps governments design and deliver transfers more effectively. For policymakers, increasing financial inclusion is a tool to accelerate growth, reduce inequality, and boost productivity for small and medium-sized enterprises. This paper aims to contribute to the literature on the sociodemographic characteristics that increase the barriers to financial inclusion in Mexico and to discuss their policy implications.

1. Introduction

The term financial inclusion has been gaining more relevance in recent decades, especially among those responsible for public policies and decision-making making, because every time, there is greater recognition at the international level of the social and private benefits obtained, which facilitates access to financial services leading to poverty reduction. Although there is no universal definition, for the paper, it is the availability and use of formal financial services under appropriate regulation that guarantees consumer protection schemes and promotes financial education to improve the financial skills of all segments of the population. According to the National Banking and Securities Commission (CNBV), despite the progress made in recent years on financial infrastructure, more than savings, credit, insurance, and savings for withdrawal and payments is needed to achieve the objective of comprehensive financial inclusion. For example, to reduce the use of cash and create a complete ecosystem of digital payments, it is necessary to expand the network of access points (branches, ATMs, correspondents), together with the number of businesses that accept card payments credit and debit, as well as other means of payment. In addition, it is necessary to promote more excellent financial education, with the aim that users of financial products make proper use of them and the information on the benefits, risks and obligations of the various products and services they can access.

Therefore, to generate statistical information that continues to support the diagnosis and follow-up that the country keeps in a matter of financial inclusion, the National Institute of Statistics and Geography (INEGI), in agreement with the National Banking Commission (CNBV), carried out the third National Survey of Financial Inclusion (ENIF) in 2018. This has great relevance at the national level since it gives continuity to the ENIF 2012 and 2015 as it aims to measure the impact of the policies generated on financial inclusion and continue to explore barriers and perceptions of the population regarding access and use of financial services. ENIF 2018 captures information on the tenure of savings products, credit, insurance, savings accounts for retirement, and channels of access to financial services. Thus, the

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results provide more elements to the decision makers for further promotion of financial inclusion, which serves as a basis for generating public policies that promote access and use of financial services. Financial inclusion is a fundamental pillar of development. Access to financial products and services broadens economic opportunities for individuals and firms and helps governments design and deliver transfers more effectively. For policymakers, increasing financial inclusion is a tool to accelerate growth, reduce inequality, and boost productivity for small and medium-sized enterprises. This paper aims to contribute to the literature on the sociodemographic characteristics that increase the barriers to financial inclusion in Mexico. To the best of our knowledge, there are no studies from the point of view of households that analyze the FI problem. Our paper tries to fill this gap by shedding some light on the link between FI and individual sociodemographic characteristics.

2. Literature Review

There is no universal definition of financial inclusion (FI) revealed from our literature review. However, there have been numerous definitions of FI. For instance, FI can be defined as delivering banking services at an affordable cost to disadvantaged and low-income groups (Dev,2006). It can also be defined as individuals' access to appropriate financial products and services (Hayton et al., 2007). It has also been defined as ensuring access to appropriate financial products and services needed by all sections of society, especially vulnerable groups and low-income groups, at an affordable cost fairly and transparently by regulated mainstream institutional players (Chakrabarty, 2011). Sarma (2012) also defined FI as the process that ensures availability and ease of access to the formal financial system for all members of the economy. FI can also be referred to as all the initiatives that make formal financial services available, accessible, and affordable to all segments of the population (Triki & Faye, 2013). FI can also be defined as using and accessing formal financial services (Sahay et al., 2015). The United Nations (2016) also defined FI as the sustainable provision of affordable financial services that bring the poorest and excluded population into the formal economy, while Ozili (2018) defined it as the increment of the number of individuals, primarily low-income adults, that have access to formal financial services mainly through having formal bank accounts, which contributes to poverty reduction and economic growth. For all these definitions, one thing they all have in common and emphasized was that financial services should be accessible to each member of the population for FI to be attained.

When achieved, financial inclusion leads to economic growth by providing people access to financial services, loans, credit, and insurance, hence allowing them to engage in advantageous economic activity. Since it is believed that daily activities consist of a series of financial exchanges and transactions, achieving FI through the provision of apposite financial products will increase the potential for local economic development (Sharma & Kukreja, 2013). However, many factors can hinder a country from attaining FI. Factors such as technological failure (Balasubramanian et al., 2018), high cost of account opening (Allen et al., 2016), substantial transaction costs in financial intermediation (Ozili, 2018), politicizing the national financial inclusion strategy (Polillo, 2011), gender and age discrimination, employment status, geographic distance and high transaction costs for banks to operate in remote locations, socio-economics status (Carbo et al., 2005; NABARD, 2008; Solo, 2008), voluntary financial exclusion (Ozili, 2018) and lack of financial literacy, among others can be barriers especially to poor people becoming financially included. Not surprisingly, (Heimann & Mylenko,2011) reported that those who are at an advantage when it comes to FI are those with access to financial institutions, which tend to be males, middle-aged professionals in full-time employment in the middle- to high-income groups who have cars, telephones and are homeowners. On the other hand, those who are mostly likely to be financially excluded tend to be primarily women, the young, the old, the unemployed, those in semi-skilled or manual jobs and those of low socio-economic status (Carbo et al., 2005; NABARD, 2008; Solo, 2008). Phil Borges (2007) reported that women reinvest up to 90% of their family income compared with 30% to 40% of men. Despite being recognized worldwide as a better credit risk, women are mostly financially excluded than men (Klapper & Demirguc-Kunt, 2012). Reportedly, only 4.2 million young people out of 1.2 billion people between the ages of 15 and 24 have access to financial services, leaving the rest financially excluded (UNESCO, 2012; Making Cents, 2010). Also, Solo (2008: 48) noted that Mexico and Bolivia, which happened to be 'the unbanked in all the countries studied, show other characteristics of marginality such as: lower incomes and lower educational levels than the population at large and higher representation among minority and immigrant population groups, and among those dependent on the informal sector and living in informal settlements.

Carbo et al. (2005) found that people in rural areas or poor neighborhoods, who are rarely studied, are also less likely to access financial institutions, excluding them from financial inclusion. Most of the literature on financial inclusion focuses on the urban poor, leaving out individuals in the rural areas, and we need to learn more about the level of financial inclusion in rural areas. Some may be unbanked because they have limited financial institutions to choose from and may be so out of preference. It has been reported that roughly 30% of people around the world currently need access to formal financial services due to insufficient funds to hold a bank account, thereby accounting for barriers to financial inclusion (Klapper & Demirguc-Kunt, 2012). A survey conducted by Banking on Change (2012) concluded that

36% of group members reported low income as a critical barrier to financial inclusion. Some people may also mistrust financial institutions, thereby may prefer to hold cash for immediate access; rather than having their activities being taxed by the government or the fear that others may know that they have money.

3. Methodology

3.1. Data: The National Financial Inclusion Survey (ENIF)

In 2009, the National Banking and Securities Commission (CNBV) undertook the first effort to measure access and use of financial services by publishing the Financial Inclusion Report. That is, institutions, financial regulators, and supervisors provide the information from the regulatory reports. Despite being advanced, the information only gave us the perspective of the offer of financial services, and it was impossible to capture the household's perspectives. In 2012, the National Institute of Geography and Statistics (INEGI) agreed to support this measurement effort. As part of the collaboration agreement between institutions, it was determined that INEGI would survey the information through the first National Survey of Financial Inclusion (ENIF) 2012, and the CNBV would be the entity in charge of the information analysis. This paper will study the results of the released data in 2018. The ENIF generates information about the characteristics and needs of users and non-users of formal and informal financial services and the barriers that limit access to and use of the formal financial system. This data is very valuable for analyzing financial inclusion on the demand side and designing public policies related to access of financial services.

The survey is very representative at the national level, at the household level, and for individuals, as well as by gender, in towns with a population of more than 15,000 and with a population of less than 15,000. It covers 132 questions organized into 13 sections. The people surveyed were adults aged 18 to 70, selected randomly from 14,500 sample homes. We could make inferences about 79,096,971 people, equivalent to about half the population in Mexico in 2018. The sampling is probabilistic, three-stage, stratified by conglomerates. Among the critical surveys used to measure financial inclusion, the ENIF is more extensive in scope and more detailed for the Mexican population than the Global Findex, which is the survey covering financial inclusion issues with the most significant coverage in the world.

3.2. Model

We have estimated probit models to study the sociodemographic factors that create barriers to access financial services on the demand side. This type of econometric analysis is frequently used to determine the probability that an individual or entity with specific characteristics belongs or does not belong to the group being studied. In this analysis, the probit models take as the dependent variable, the perception of barriers to the use of financial services (1 if the person perceives the barriers and 0 if not); the unit of the study is the individual. Let us assume that the perception of barriers to access and use depends on a latent variable y*, which is determined by a set of independent variables x', included in the vector, so that:

$$y_i^* = x_i'\beta + u_i$$

where the subscript i represents individuals. The vector represents the parameters of the model and u is a normal distribution error term.

A critical threshold y_i is assumed, based on which, if y_i^* is over y_i then an individual is in the financial system. This threshold is not observable; however, if we assume it is distributed normally with the same average and variance, it is possible to estimate the regression parameters and thus obtain information on y_i.

$$P_i = P(y_i = 1|x') = P(y_i \leq y_i^*) = P(V_i \leq \beta x_i') = F(\beta x_i')$$

Where V being a standard normal variable, and F the cumulative normal distribution function.

$$F = \left(\frac{1}{\sqrt{2\pi}}\right) \int_{-\infty}^{\beta x_i'} e^{-V^2/2} dV$$

We conducted a maximum-likelihood estimation as a series of probit models. The interpretation of these marginal effects is similar to that obtained in the linear regression models, where the coefficients represent the change in the probability of having a specific barrier to effective access to the financial system when a variable *xj* belonging to the vector of exogenous variables *x'* changes, maintaining the other factors fixed, given that *E(y* | x') = x' β*.

With respect to dependent variables, the analysis of barriers is based on the ENIF questions referring to the reasons for not having an account or credit at a financial institution.

The main barriers that we defined based on those specific sections from the survey were: 1) *Income Barrier*, represent insufficient income, not being able to accomplish the minimum requirements, credit interest and high commissions; 2) *Self-Barrier*, represent people who do not need or are not interested in financial services, but it does not mean that they cannot get into the financial industry in the future; 3) *Access Barrier*, which represents being far from a financial institution, small interest and big commissions and believe that they could be rejected in case they request some type of credit; 4) *Personal Barrier*, represent people that do not trust the financial institutions or prefer other types of savings or have had a bad experience using financial services or simply that they do not like to be in debt. A probit model was created for each of these categories using the explanatory variables described below.

The explanatory variables considered are those that are in accordance with literature and availability of ENIF data that may influence financial inclusion. The variables used corresponded to 1) gender, some studies have demonstrated that women have fewer possibilities of accessing financial services; 2) Age, people tend to consume less as they get older, and accumulate savings during their adult life; 3) Educational level, we analyzed this variable due to its association with financial knowledge and It has been proved to increase financial inclusion; 4) Occupation; 5)Saving, 6) Characteristics of the household, marital status, number of dependent, It has been shown that the greater size of the household tends to be related to less possibility of access, 7) Capacity to deal with shocks, this is particularly relevant for the vulnerable population, which when hit by shocks falls into poverty or precarious situations that reduce their living standards, 8) Income. Further definition of the variables can be found in the appendix.

4. Results

The results of the probit model are robust at individual and aggregate level and showed that there are distinct variables that influence in each of the four barriers analyzed (see Table 1).

Table 1 Results from the probit models

	(1)	(2)	(3)	(4)
	Income Barrier	Self-Barrier	Access Barrier	Personal Barrier
Women	0.0664	0.00961	-0.0254	0.0340
	(0.0504)	(0.0503)	(0.0699)	(0.0513)
Age	0.00234	-0.00786***	-0.00345	0.00671***
	(0.00155)	(0.00155)	(0.00217)	(0.00157)
Head of Household	0.0247	-0.118*	0.120	-0.0367
	(0.0472)	(0.0471)	(0.0643)	(0.0476)
The household saves	-0.242***	-0.00687	0.121*	0.152***
	(0.0404)	(0.0405)	(0.0562)	(0.0411)
Married or in Couple	0.000321	-0.0968*	0.123*	0.0156
	(0.0427)	(0.0426)	(0.0592)	(0.0430)
Number of people that depend economically	0.0112	-0.00239	0.00615	0.0000724
	(0.00711)	(0.00654)	(0.00801)	(0.00679)
Capacity to deal with shocks	-0.332***	0.228***	0.0445	0.114**
	(0.0409)	(0.0409)	(0.0556)	(0.0416)
Primary education	0.229**	0.102	-0.174	-0.0401
	(0.0746)	(0.0744)	(0.107)	(0.0744)
Secondary education	-0.108	-0.0978	0.224*	0.0376

	(0.0728)	(0.0723)	(0.105)	(0.0722)
High School education	-0.103	0.00163	0.0699	-0.0428
	(0.0543)	(0.0545)	(0.0743)	(0.0556)
Superior education	-0.340***	0.0850	0.226*	-0.155
	(0.0771)	(0.0755)	(0.0988)	(0.0790)
Domestic Worker	0.266**	-0.223*	0.0582	-0.0185
	(0.0866)	(0.0877)	(0.117)	(0.0872)
No actively working	0.237**	-0.0557	-0.145	-0.211*
	(0.0872)	(0.0876)	(0.121)	(0.0883)
Camp Worker	0.0723	-0.249*	0.269	-0.00588
	(0.122)	(0.123)	(0.161)	(0.122)
Common worker	-0.122	-0.146	0.235	0.0837
	(0.0956)	(0.0965)	(0.128)	(0.0965)
Self-employed or run own business	-0.0705	-0.137	0.162	0.0570
	(0.0972)	(0.0980)	(0.131)	(0.0979)
No income	0.385***	-0.294**	-0.222	-0.108
	(0.0946)	(0.0954)	(0.135)	(0.0930)
Income under 3000 pesos	0.413***	-0.148	-0.256	-0.0791
	(0.106)	(0.106)	(0.131)	(0.107)
Income of 3001 to 4999 pesos	0.184	-0.00305	-0.302	-0.0256
	(0.173)	(0.172)	(0.228)	(0.174)
Income of 5000 to 7999 pesos	0.0705	0.0111	-0.0663	-0.0218
	(0.199)	(0.197)	(0.243)	(0.199)
Income above low and under average	-0.186	0.104	-0.151	-0.190
	(0.198)	(0.186)	(0.234)	(0.193)
Income above the average	0.0875	0.0139	-0.140	-0.000776
	(0.120)	(0.120)	(0.149)	(0.121)
Constant	-0.0662	0.283	-1.394***	-0.773***
	(0.159)	(0.159)	(0.208)	(0.160)
N	4701	4701	4701	4701
Chi2	369.2	171.4	55.09	76.40
Prob_Chi2	0	0	0	0

Source: own elaborated; Standard errors in parentheses; * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

From a more descriptive analysis perspective, between 2012 and 2018, the adult population financially included in the system increased by 37%, the number of bank accounts increased by 12.3 million, and credit operations by 5.3 million. In 2012, the gender spread for financial inclusion was around 11%; now, in 2018, the gender bread decreased to 3%. However, there is still a difference between the percentage of males who can make decisions about their assets and the percentage of females who can do that. We found a positive relationship between income, education, employment, and the population percentage with a bank account or credit line. The primary source of savings is payroll accounts (52%); on the credit side, 61% correspond to departmental credit, 34% credit cards, 22% mortgage, 9% personal credit, 7%

payroll loans, 4% car loans, and the rest to other types of credit. Cash is still the leading payment channel, accounting for 90% of the total. Finally, 42% of the adult population reported insufficient income to cover their monthly expenses.

From our statistical model, we find some interesting results regarding the sociodemographic aspects that increase the likelihood of a single household facing any of the four barriers defined in our model. According to the probit model, the income barrier is less common for people who can respond to exogenous shocks and those who save. These results are within expectations, as the capacity to save and deal with unforeseen factors corresponds to people who can accumulate funds and thus are less likely to be limited by their income.

The variables that increase the probability of low income as a barrier are, as expected, related to income: individuals without income are more likely to claim this barrier than people with income. This could be related to the findings of Gnatyuk (2019) that loans to low-income households are less profitable than loans to larger businesses or more affluent households because of their relatively more minor collateral. He further stated that the reason is that underwriting a smaller loan costs the banks just as much as underwriting a larger loan and that lending to low-income households is typically riskier and costlier than lending to larger firms or more affluent households. Hence, because the risk of default might be too high for low-income households with meagre income, they might not be a part of the financial inclusion.

Employment also influences the perception of an income barrier. Homemakers and those not in the labour force are more likely than other categories of the active population not to be included. In the same way, lower educational levels increase the probability of feeling a barrier compared with people with superior education. An interesting result is that once an individual gets past the minimum wage income threshold, there is no significant barrier related to the money earned to overcome this barrier and access to financial services. In a country like México, around half of the population lives in poverty, and just 14% of the population receives an income above the country's average. The results regarding the income barrier seem to be of great importance for this country. Even though the results in the model suggested that any household that receives wages superior to the minimum wage did not face the income barrier, we need to understand that socially, this effect produces an endogenous poverty cycle since households with fewer income possibilities are correlated with less education, and not actively working.

The probability of self-exclusion increases for people who can deal with shocks compared with those who cannot. This could reflect the preference for the informal market or simply the fact that they are well prepared and do not see the need for any financial service. Concerning credit, a recent study by Campero and Kaiser (2013) suggests that in Mexico, there is evidence that people value the informal market highly when households face adverse shocks. Family and friends play an important role in income shocks. This coincides with answers in the ENIF: in an emergency, Mexicans usually turn to loans from families and friends (67.4%) or use an asset of some kind (36.3%). The above data backs up the hypothesis of preference for informal mechanisms, as they show the relationship between the perception of no interest or need for formal saving and credit services and the use of the informal market.

The other statistically significant variables for this barrier have a negative coefficient. People with lower or no income also have a higher likelihood of not being interested in financial services compared with those who receive more than 3,000 pesos per month as income from work. This result indicates that although lower-income people suffer more from financial exclusion, this is not their own decision. As demonstrated by recent studies (Banerjee & Duflo, 2007; Karlan et al., 2013), people on low incomes save and have a latent demand for saving products appropriate to their needs; the above indicates that the exclusion of the low-income population responds more to exogenous barriers, and could be related to what Claessens (2006) calls involuntary exclusion for reasons like price, risk, discrimination or the nature of the financial product. Finally, as age increases, the likelihood of not being interested in financial services falls; in other words, at a particular point in life, the probability of perceiving that it is necessary to have financial products decreases, which would be in line with the life-cycle theory. The variable of belonging to households with savings and capacity to deal with shocks and age increases the likelihood of the personal barrier, compared with people in households without savings and those who cannot deal with shocks. The two first coefficients are coherent and indicate that people with some funds, compared with those who do not have them, may consider not using the financial system. Among the reasons that lie behind these personal decisions are the familiarity, simplicity and speed of the informal financial mechanisms compared with distrust of formal financial institutions and the fear of being refused by them based on prior experience of contact with the financial system. Finally, age could be a signal for older people that don't trust or are not used to the financial products available in the market.

If we had conducted this study some years ago, we could think that some sociodemographic variables could explain the probability of the access barrier; however, after the technology boom in the financial system and the significant increase in financial inclusion in Mexico. With the data available in 2018, we cannot find a clear relation, meaning a possible factor, since no access barrier could impact the entrance to the financial system in Mexico.

4.1. Macroeconomic thoughts

Given the actual condition in Mexico, where the level of financial inclusion is low, there are several macroeconomic implications to be considered:

How people perceive banks influences financial inclusion. Thirty-seven percent of Mexican adults without an account said that lack of trust in financial institutions is a factor; the same proportion reported that they do not have an account because they do not need one (Demirgüç-Kunt et al., 2018; ENIF 2018). This trust deficit could be rooted in bank failures in the recent past. Risky behaviour by banks combined with weak enforcement of property rights contributed to the financial system's collapse in 1996-7, and an estimated 1.75 million people participated in debtor relief programs (Haber, 2005).

Even savings products are needed to maintain their flexibility for consumption smoothing or dealing with sudden shocks, severely reducing future investment, saving, and growth. There needs to be more than the transmission mechanism from the credit channel to transfer the effects of the monetary policy into the real economy. This implies that the Mexican government needs another way to transmit the monetary policy actions into the economy to control inflation and decrease the output gap.

Fiscal policy has been one of the most used tools for the Mexican government to transfer benefits to the economy and incentivize investment for large companies and consumption for households. However, given the large extent of the informal market in Mexico and low financial inclusion, benefits cannot reach the right households, so the increase in consumption and the stimulus for economic activity are not the appropriate measures.
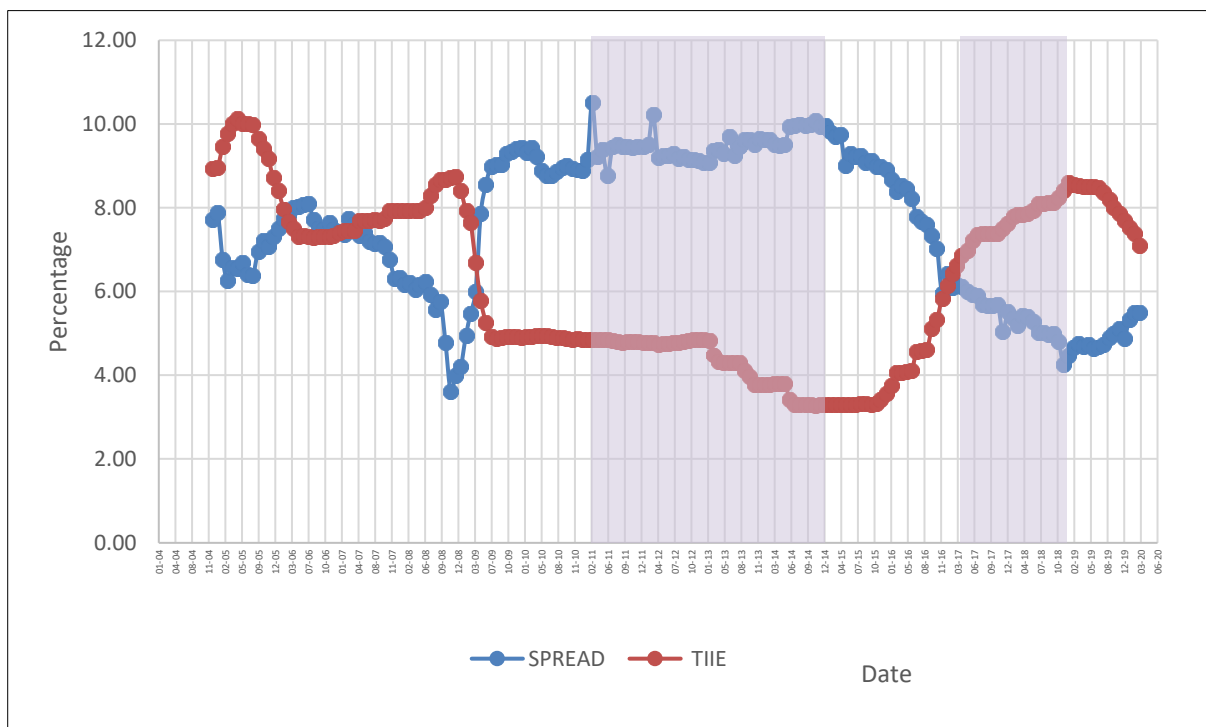

Figure 1 Credit Spread and the Central Bank Interest Rate

In the graph above, we can see the credit spread on the blue line and the central bank interest rate TIIE; the shadowed parts (2011-2014, 2017-2018) represent the periods where financial inclusion increased, while the non-shadowed (2015-2016) areas showed the period where financial inclusion decreased. There is no clear relationship between financial inclusion and the policy interest rate, or the credit spread. When the credit spread decreased, the TIIE increased. Financial inclusion decreased due to disincentivizing economic activity and the unwillingness of banks to sign new contracts with low-income, high-risk customers that represent most of the Mexican population.

The low level of education, caused by the inequality of opportunities, produced low-skilled professionals with low wages, if any, or high unemployment because of the demand for skilled workers in the industry. This means that the Mexican economy underperformed for several quarters, and expectations show a contraction in the GDP. When this

type of household tries to get included in the financial system using the credit market to increase their consumption or investment, they are rejected because they cannot provide collateral or accomplish the minimum requirements.

The informal market is the most common place for economic activity in Mexico. The government's control over these shadow economic activities could be better in terms of regulations. The mechanisms to control inflation are mixed due to big companies facing direct and formal transmission mechanisms and most households facing indirect ones. The sociodemographic aspects that households face in Mexico increase inequality and poverty, consequently increasing some barriers that decrease financial inclusion. Mexico has increased its financial inclusion during the last years, according to the results of the ENIF. However, Mexico needs to continue the fight against the big two problems, poverty and inequality, to increase financial inclusion and improve economic performance and growth.

5. Conclusion and Recommendations

Several factors appear to contribute to Mexico's low financial inclusion, on both the demand and supply sides, but the overall portrait that emerges is of a banking sector that could be more interested in and incentivized to serve the needs of poor customers.

Both international and national surveys of consumers point to insufficient or variable income as a major self-reported reason on the demand side for not opening a bank account. Two other factors—low workforce participation and poor perceptions of the banking sector—appear to contribute to low demand for financial services. Workforce participation is associated with higher levels of financial product consumption in Mexico. This is to be expected because workplaces often make payments through direct deposit and face pressure from the government to formalize their accounting practices. However, much of the labor force work in informal settings, especially in rural areas; women are less likely to have access to formal jobs. Fees, commissions, and interest rates charged by banks appear to be serious barriers for many of the unbanked in Mexico, as well as severe logistical costs to access services (echoed in Fouillet and Morvant-Roux, 2018).

One might expect that banks would customize products to meet demand for financial services across different population segments. In theory, this should be easier among lower-income segments because Mexico has implemented a tiered Know-Your-Customer (KYC) regulatory framework with less rigorous requirements for lower-value accounts. However, looking at financial inclusion by income quintile shows that the only group where the majority owns accounts is the richest 20 percent. The market segmentation process carried out by many financial institutions could contribute to the status quo that effectively excludes a large segment of the population from financial services. Large banks have limited their lending activities to large established corporations, constraining access to informal and small and medium-sized firms.

Financial inclusion involves ownership of a transacting account where a consumer can deposit, withdraw money, make payments, and potentially be able to access credit facilities. In Mexico, however, 62 percent of adults access credit without a transacting account via retailer-issued credit cards, almost twice as many as those who use bank credit cards (Caskey et al., 2006). Credit is used to finance purchases at the retailer who issues the line of credit. The cards come with lower minimum income and ID requirements than bank-issued credit cards.

These retail credit cards are essential because they are explicitly designed to meet the credit constraints of the population's middle—and lower-income segments that the banks have otherwise ignored. Beyond simply targeting lower-income strata, retail stores offer a more convenient option than banks because they carry many items customers need and offer longer working hours. These retail credit cards are meeting some of the demand for financial services in Mexico from the lower-income population; nevertheless, they should not be considered adequate for financial inclusion.

Mexico's financial sector model has historically been concentrated and needs to encourage more competition and innovation to extend coverage to poorer customers. The interoperable CoDi created by Bank of Mexico switch ought to be a step in the right direction, but it still requires a smartphone to scan QR codes and an account with a formal bank, which leaves potential customers subject to all the constraints discussed above.

The FinTech Law of 2018 could introduce more competition, although the relative lack of oversight could backfire if firms take on excess risk and expose customers to losses. Simultaneously, fintech firms are handicapped by the inability to take deposits and rely on banks for this component of their services (Perez, 2018). Finally, fintech needs also to extend its services to mobile money (not just internet-enabled mobile banking), which can be built on minimal technologies like 2G mobile. Balancing regulatory priorities with enough space for innovation is always a delicate task, but levelling the playing field so small players can enter and compete should be a near-term priority.

Governments have proactive policies to promote financial inclusion. Mexico appears to have a risk-based KYC regulatory framework in place to ease access to bank accounts, but there still seems to be a dearth of will on the part of the banks themselves to participate. The Mexican government has an admirable record for delivering social transfer programs, suggesting that it can achieve ambitious financial inclusion goals. The current administration has taken steps to route several cash transfer programs via the banking system, promoting bank account uptake. However, these initiatives will be constrained by all the access limitations of the incumbent bank-led model unless the FinTech Law of 2018 leverages technology to lower entry barriers and level the playing field.

While Mexico has a long way to go to close its enormous financial inclusion gap, we are optimistic about the direction of change in the policy environment. Understanding why the gap exists is an essential first step. We argue that it comes from a combination of demand factors (lack of trust in banks, low incomes, a large informal economy) and supply factors (lack of interest in poor customer segments, discrimination, and too narrowly targeted government social transfers). We find that mobile money has not contributed substantially to financial inclusion so far because it has been handicapped by bank-centric regulation and possibly also the presence of restrictive credit substitutes. Even so, we remain open to the possibility that recent legislative and regulatory moves will provide the space necessary for fintech and mobile money operators to rapidly scale up their services as we have seen elsewhere in the world.

Compliance with ethical standards

Disclosure of conflict of interest

The authors declare no conflict of interest regarding the publication of this article.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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Appendix

Variable	Type	Definition	Other research
Income barrier	Dummy	1 if answered yes to question 5.7.4, 5.7.7, 6.6.5 0 if not	
Self-barrier	Dummy	1 if answered yes to question 5.7.6, 5.7.8, 6.6.6, 6.6.3 0 if not	
Access barrier	Dummy	1 if answered yes to question 5.7.1, 5.7.2, 6.6.2 0 if not	
Personal barrier	Dummy	1 if answered yes to question 5.7.3, 5.7.5, 6.6.7, 6.6.4 0 if not	
Woman	Dummy	1 if women and 0 if man	Allen et al. (2012); Samaniego and Tejerina, (2010); De los Ríos and Trivelli, (2011)
Age	Numerical	Age in years	Modigliani's life-cycle theory
Head of Household	Dummy	1 if head of household 0 if not	
The household saves	Dummy	1 if answered yes to questions… 0 if not	
Married or in Couple	Dummy	1 if lives with a partner or is married 0 if not	

Number of people that depend economically	Numerical	Number of people in the household to which the head is responsible	
Capacity to deal with shocks	Dummy	1 if answered yes to question 4.4 0 if not	Collins et al. (2009); World Bank (2008)
Primary education	Dummy	1 if no level, pre-school or primary 0 otherwise	Mitton (2008); Demirguc-Kunt and Kappler (2012); Kempson et al. (2013) and Djankov et al. (2008)
Secondary education	Dummy	1 if reached secondary, technical 0 otherwise	
High School education	Dummy	1 if reached high school 0 otherwise	
Superior education	Dummy	1 if reached bachelor, master or PhD 0 otherwise	
Domestic Worker	Dummy	1 if works in domestic labor 0 if not	
No actively working	Dummy	1 if student, retired, disables or doesn't work 0 otherwise	
Camp Worker	Dummy	1 if works in a farm environment 0 if not	
Common worker	Dummy	1 if its actively working 0 if not	
Self-employed or run own business	Dummy	1 if running a small business 0 otherwise	
No income	Numerical	1 if doesn't contribute money to household expenses and does not register income 0 otherwise	Both Allen et al. (2012); Djankov et al. (2008); Kedir (2003); Murcia (2007); and Cano et al. (2013)
Income under 3000 pesos	Numerical	1 if less than 3000 9 if not	
Income of 3001 to 4999 pesos	Numerical	1 if between 3000 and 4999 0 if not	
Income of 5000 to 7999 pesos	Numerical	1 if between 5000 and 7999 0 if not	
Income above low and under average	Numerical	1 if between 8000 and 17500 0 if not	
Income above the average	Numerical	1 if above 17000 0 if not	