SAVING THE NEXT BILLION FROM OLD AGE POVERTY

global lessons for local action

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9

DEVELOPING DIGITAL PENSION **INCLUSION IN MEXICO**

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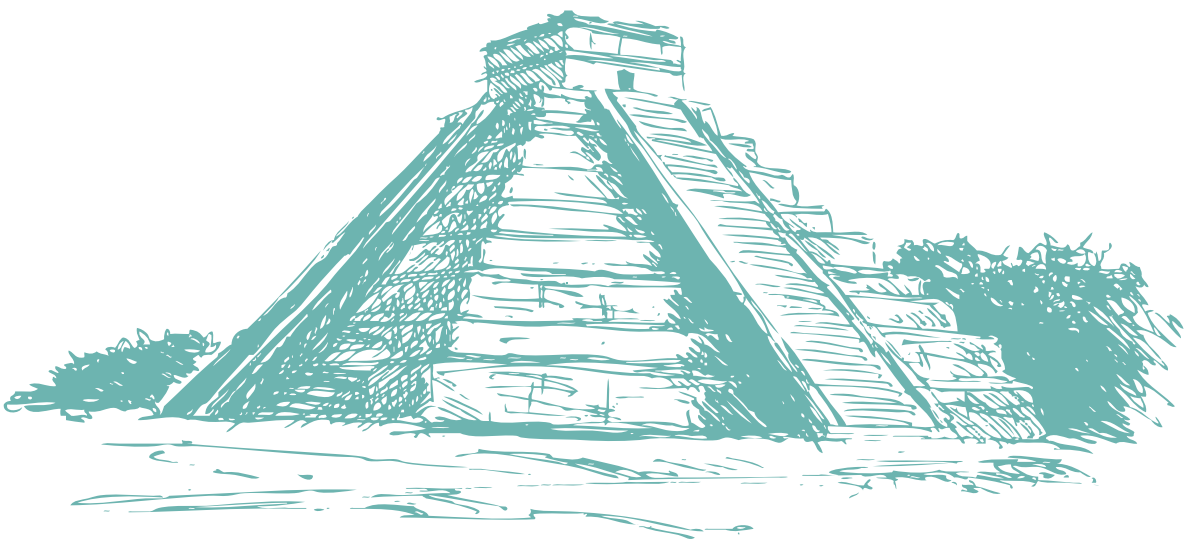


* "The views and conclusions expressed in this chapter are strictly personal and do not necessarily coincide with those of Banco de México."

CURRENT STATUS OF THE MEXICAN PENSION SYSTEM

The Mexican pension system is fragmented, as there are several schemes run by different social security institutions, which do not operate in an integrated way. There are three main components. First, there is the non-contributory pillar. There are several non-contributory old-age pension schemes at the federal and state level. With respect to coverage and budget, the most important is the *Pensión para Adultos Mayores* (Pension for the elderly), financed by the Government and managed through the Secretariat for Social Development (SEDESOL). From 2012, this program was granted to all those people who do not receive an old-age pension from a social security institution. The amount consists of USD 30 per month, paid every two months, and a one off-payment of USD 77 if the beneficiary dies. In accordance with the National Council for the Evaluation of Social Development Policy (CONEVAL), in 2015 the program benefited 5.7 million elderly adults (which is 68% of the elderly population), with a total spending of USD 1,940 million.

Additionally, some states have implemented their own non-contributory pension schemes for elderly adults that vary in the type of benefits granted (monetary or in kind), the age of eligibility (between 60 and 70), and the amount paid (from 26 to 46 USD per month). In general, these programs require the beneficiary to live in the state for a number of years, from three (Federal District) to 20 (Veracruz), and to not receive any other pension. In 2011, the population benefiting from non-contributory state pensions was 1.4 million elderly adults. However, the amount of pension granted by most of these programs is lower than the cost of a basic food basket, which is equivalent to the minimum welfare basket defined by CONEVAL. The rules governing the national and local safety nets are independent from each other, and there is no coordination between state and federal programs – mirroring the situation between the Union and State Governments in India in relation to old-age income support. (see Chapter 1 on India).

Second, in the case of the mandatory contributory pillar, the main public pension systems are Defined Contribution (DC) schemes, with a private administration of funds by the Pension Fund Administrators (Afores). Currently, the main contributory pension systems cover around 42% of the economically active population (EAP), with the most important being the Mexican Social Security Institute (IMSS) for formal workers in the private sector, with a coverage of 36.2% of the EAP; and the Social Security Institute for Public Sector Workers (ISSSTE) for federal government employees, which covers 5.5% of the EAP. Both pension systems were reformed in 1997 and 2007 respectively.[1]

In 2016, the Retirement Saving System (SAR)[2] administered USD 140 billion (14.5% of Gross Domestic Product, GDP) from the pension savings of 56.3 million individual

[1] Mexico also has a mandatory 5% contribution to fund the purchase of a home, paid to an institution known as INFONAVIT.
[2] Combining the assets of both the private sector (IMSS) workers and the public sector (ISSSTE) workers.

accounts of IMSS, ISSSTE, and independent workers. Nevertheless, there are many Defined Benefit (DB) schemes for state governments, state-owned companies, and public universities, all of them covering 2% of the EAP, with no portability of entitlements between them or with the federal systems.

Finally, there is the voluntary contributory pillar to individual accounts that can be made by employees contributing to the SAR, self-employed workers, and informal workers. Unlike the situation in Chile (see Chapter 7) there has so far been no attempt to create any mandatory requirements for the self-employed to contribute. Also, some companies offer occupational pension plans to their employees. Additionally, insurance companies and financial groups offer personal pension savings with various modalities.

Independent workers are not legally obliged to contribute to any pension system, but are allowed to open an individual account in an Afore and make contributions for their retirement. However, it is not mandatory to contribute a fixed amount or percentage of their income, or with any regularity. Despite the tax incentives for voluntary pension savings, according to the pension supervisor (CONSAR), the amount of voluntary savings made in Afores as of 2016 is only 1.5% of the total assets managed by the SAR, and just 4.9% of individual accounts make voluntary savings.

In terms of the coverage of the Mexican pension system, the National Employment and Occupation Survey (ENOE) shows that in 2016 there were 51 million people who were occupied, and 42.6% of those were formal workers. Therefore, near 60% of the working population is excluded from the mandatory pension system, either because they are unemployed or work in the informal economy, with some never entering the formal sector at all. This put Mexico mid-way in terms of the case studies in this volume, with higher informality than say Chile or the U.K., around the same as in Turkey, but far lower than in India, Bangladesh, Kenya, and Nigeria.

The results of the 2012 National Survey of Worker's Career Paths show that many workers switch between formal and informal sectors several times during their careers (a similar pattern seen in Chapter 7 on Chile), leading to low contribution densities in the pension system. Between 2007 and 2012, 17.1% of the workers had switched from formality to informality and 17.6% from informality to formality. Over the five-year period, 24% of the workers had worked in both sectors. A study from OECD (2015) points out that reducing the informal sector is, therefore, a key policy objective in order to increase coverage and contribution densities in the pension system. This is clearly important – but as set out in this volume, it is also necessary to improve the ease and extent of contributions from the informal sector as well.

The high level of informality in the labour market, as well as the limited financial literacy and retirement planning, have not encouraged the increase of coverage significantly over recent years. Therefore, there is an important challenge in order to include informal workers into contributory pension systems.

Regarding coverage in old age, according to CONEVAL and the National Survey of Household Income and Expenditure (ENIGH) of 2014, only 29% of the elderly population (65 years and older) has a pension. Thus, the pension coverage levels are far from ideal, and most of the labour force is without any old-age protection. In addition, the old-age poverty rate in Mexico was above 30% in 2013 (OECD, 2015). Therefore, the combination of low coverage, low contribution density, and low replacement rates in a country where poverty rates are already high, raises important social challenges (Villagomez, 2014).

Finally, in terms of pension adequacy, mandatory contributions to IMSS are the equivalent of 6.5% of an employee's salary to their individual retirement account: 5.15% is paid by the employer, the employee pays 1.125%, and the government supplies the remaining 0.225%. Some studies forecast that the average worker making minimum contributions within this system will receive a monthly pension of less than 40% of their current salary during retirement. This figure could be optimistic, as many workers weave in and out of the formal employment system and, therefore, do not consistently contribute to their individual pension accounts. The main reason why coverage and contribution densities are relatively low in Mexico, despite the mandatory affiliation of employees, is due to the high level of the informal sector. So, under these conditions, successful retirement planning probably depends on individuals voluntarily making additional pension contributions. On the other hand, the government does pay a flat rate 'social quota' for lower income workers. This means that for a worker on one minimum wage salary this effectively increases the contribution rate to 13% of salary – a figure that tends gradually towards 6.5% as incomes rise and the relative impact of the social quota diminishes (and ultimately disappears completely above an income level equal to 15 times the minimum wage).

An important issue that deserves more attention in Mexico is the lack of interest in the pension system. According to the OECD (2015), the lack of interest in the pension system is linked to the low financial literacy of the Mexican population. The 2013 National Survey on the Knowledge and Perception of the Retirement Saving System, shows that 66% of the private-sector workers affiliated to the IMSS (aged 18 to 65) do not have a saving habit. Of those who save, around 70% do so to face emergencies and only 7.2% save for retirement in other institutions or channels different from Afores. More than half of the workers have not thought about what they are going to live on at retirement. About 56% of them hope they will get a pension replacing fully their salary, but only 27% actually save to reach that target. Finally, a large proportion of workers do not know the performance of their Afore (67.5%) or the administrative fees charged by it (74.2%). However, as argued in other chapters in the volume, levels of financial knowledge and understanding are often very low – and so many efforts in reforms aim to make it more mandatory to join or contribute, rather than depending on building an informed public who will actively seek out pension products.

THE DIGITAL PATH FOR AN **INCLUSIVE PENSION SYSTEM**

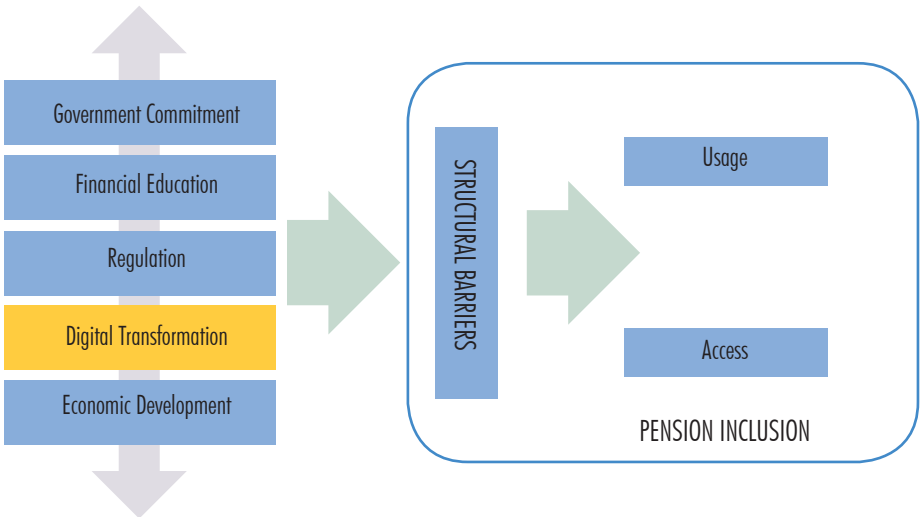
What is an inclusive pension system? Following Cámara and Tuesta (2013), we define an inclusive pension system as the one that increases access and use (active participation), while at the same time, mitigates those barriers that limit people's participation in saving systems. Access should be measured by the infrastructure developed by public and private providers of pension services in the cumulative and pay-out phase; usage should be measured by the current level of active participation in the pension system; while pension barriers are all the structural factors that limit the possibility to save for retirement, such as the presence of formal/informal markets structure, administrative costs of the pensions system, geographical limitations (rural/urban world), documentation requirement, trust in government, and financial institutions, among others.

In section one, we discussed some indicators that showed the lowest levels of access, use, and the enormous barriers that the Mexican economy faces for making a more inclusive pension system. The pension system can be effectively accessed by only those who belong to the formal sector. Usage, measured by the level of active contribution to the pension system is limited, only reaching approximately 40% of active workers. Likewise, the high level of informality, which makes up three quarters of the labour force, constitutes an enormous obstacle in the implementation of any Bismarckian or quasi-Bismarckian structure – that is to say a pension system based on workers making contributions with and assisted by their employers in a largely formal labour market context.

ENABLING FACTORS THAT CONDITION PENSION INCLUSION

According to Tuesta (2016), there are fundamental factors that could enable financial inclusion, in our case, pension inclusion (see Figure 9.1). First, there are long-term economic conditions that can be measured by variables such as the level of GDP per capita, poverty indicators, and income distribution. These variables define the capacity of a country to save. In this regard, if a country effectively implements sound long-term policies that increases its economic development it is very likely that, accordingly, its capacity to save in pensions increases.

Figure 9.1
Pension inclusion and enabling factors



Source: Adapted from Tuesta (2016)

Another enabling factor is the high level government commitment (Tuesta, 2016; Nair, 2016). This commitment could be reflected in a national plan for pension inclusion (as part of a financial inclusion strategy), which spur relevant actor's engagement from the public and the private sector to deploy a coordinated effort to increase the current level of pension coverage. Accordingly, having a well-defined regulation for pension plans is fundamental in order to promote and protect retirement savings. Together with the importance of this national commitment, are two other enabling factors for increasing pension inclusion. The introduction of a comprehensive financial literacy program adequately designed to provide financial capacity and awareness about the importance to save for retirement is a first step to define the right incentives to contribute. Another important factor that can help to get effectiveness and efficiency to pension inclusion programs is the so called digital transformation with its ability to permeate different activities.

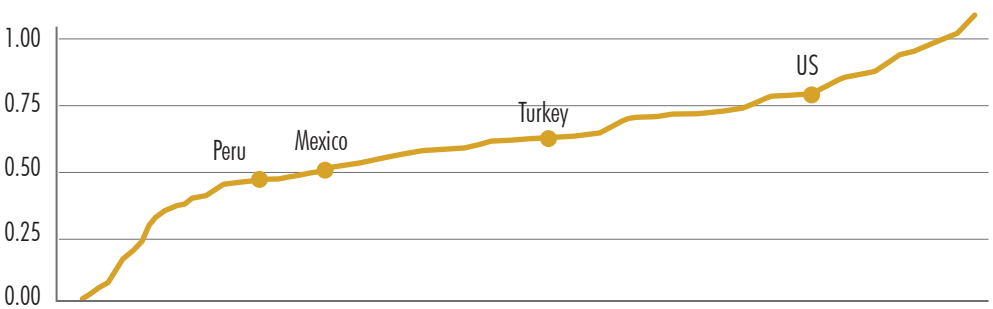
DIGITAL CONTEXT IN MEXICO FOR PENSION INCLUSION

The use of digital appliances to foster financial inclusion has been extensively analysed and gradually applied in different contexts and geographies. However, a huge amount relates to banking and insurance, with a more limited focus on savings. The literature on financial inclusion and pensions coverage around the world is far more limited (Bhardwaj, 2016; Brodersohn, 2016; Karlan, 2016; Karlan et al, 2014; Karlan et al 2016; Banerjee et al, 2016; Benartzi, 2012, Madrian, 2013). According to Camara and Tuesta (2016) it is important to pay attention to the digital conditions a country presents in order to define the adequate actions to provide access to financial services. Digital tools have demonstrated interesting

evidence in terms of reducing transactions costs that now make it attractive to the supply side to offer financial products for low income clients and, at the same time, increase incentives to the demand side to save given more convenient and less costly channels. One of the central arguments of this chapter is that these advances need to be allied to a fuller understanding of the market structure, governance, and investment approach that can deliver the most value-added from the 'traditional' pension market. This volume highlights the importance of those who help people join a pension scheme channelling their contributions from the agency or company; one or the other which can most efficiently provide administration of the accounts over time and invest the assets, leveraging economies of scale and using member-focused governance.

In Figure 9.2, we observe the digital index developed by Camara and Tuesta (2016), which is a composite indicator that measures six digital dimensions: technological infrastructure, digital adoption, usage of digital products/services by individuals, usage of digital products/services by firms, cost for accessing, and digital contents and regulatory conditions of the digital context. We observe that Mexico is placed in the second quartile, with similar levels such as Morocco, Poland, China, or the Russian Federation. Other emerging economies such as Uruguay, Brazil, South Africa, or Chile, presented better digitization indexes than Mexico. Regarding this, it is clear that Mexico has a long way to go and, at the same time, has a great opportunity to improve current conditions.

Figure 9.2
Digitization index and Mexico

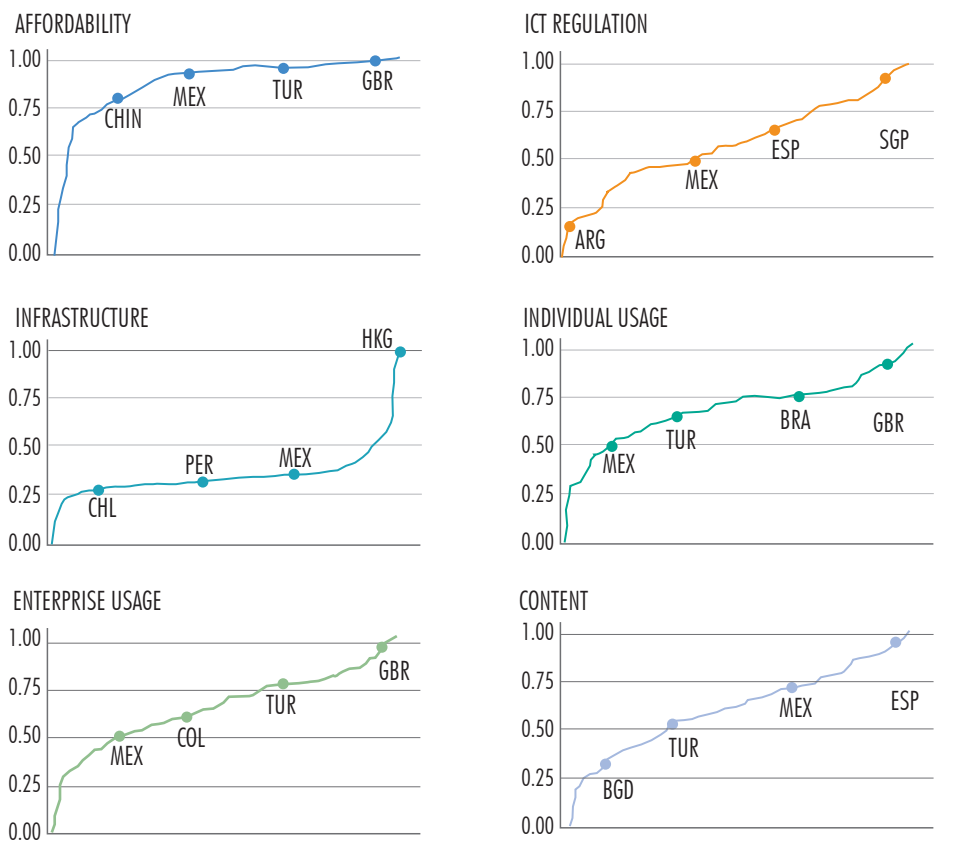


Algeria	Vietnam	Morocco	China	Hungary	Germany	Sweden
Qatar	Peru	Thailand	Saudia Arabia	Turkey	Malaysia	Netherlands
Nigeria	Argentina	Mexico	Croatia	Romania	Denmark	Finland
Pakistan	Egypt	Sri Lanka	Colombia	Uruguay	Latvia'	Lithuania
Bangladesh	Ukraine	Italy	Slovenia	Luxembourg	Canada	Korea, Rep.
Paraguay	Greece	Poland	Kazakhstan	Brazil	Australia	Japan
India	Philippines	Bulgaria	Russian Federation	Czech Rep.	France	Estonia
Venezuela	Indonesia	Cyprus	Slovak Republic	South Africa	United States	Hong Kong SAR
						United Kingdom

Source: Camara and Tuesta (2016)

However, if we analyse the digital index in more detail, we see that Mexico has interesting results in two dimensions: digital infrastructure and digital content. In Figure 9.3, we see that in both cases the indicator places the country in the third highest quartile. However, the overall index for Mexico is mostly penalized by low achievements in terms of individual and enterprise usage (the bottom quartile). In the case of the regulatory and affordability dimensions, the index places Mexico in the second bottom quartile.

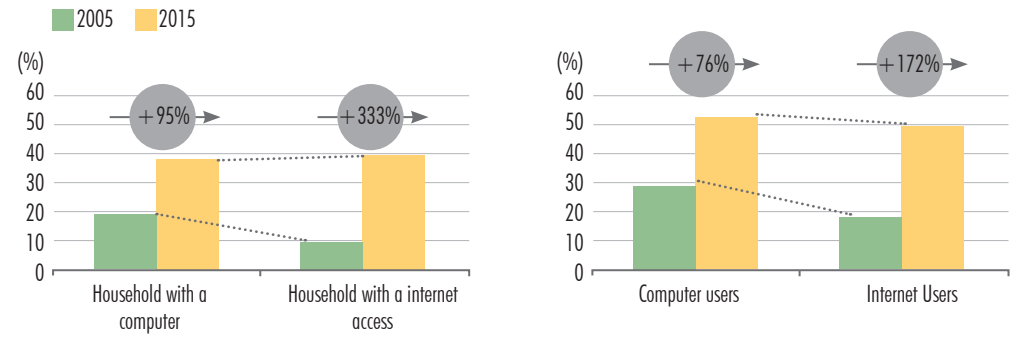
Figure 9.3
Digitization index by components in Mexico



Source: Camara and Tuesta (2016)

While focusing on specific digital products and services, we observe interesting and contrasting developments in Mexico. In the case of computer and internet usage indicators, we see in Figure 9.4 that, in both cases, the number of households with a computer and the number of households with internet access increased strongly between 2005 and 2015, reaching coverage of 40% approximately. The same happens in the case of computer and internet individual use, reaching coverage of 50% approximately.

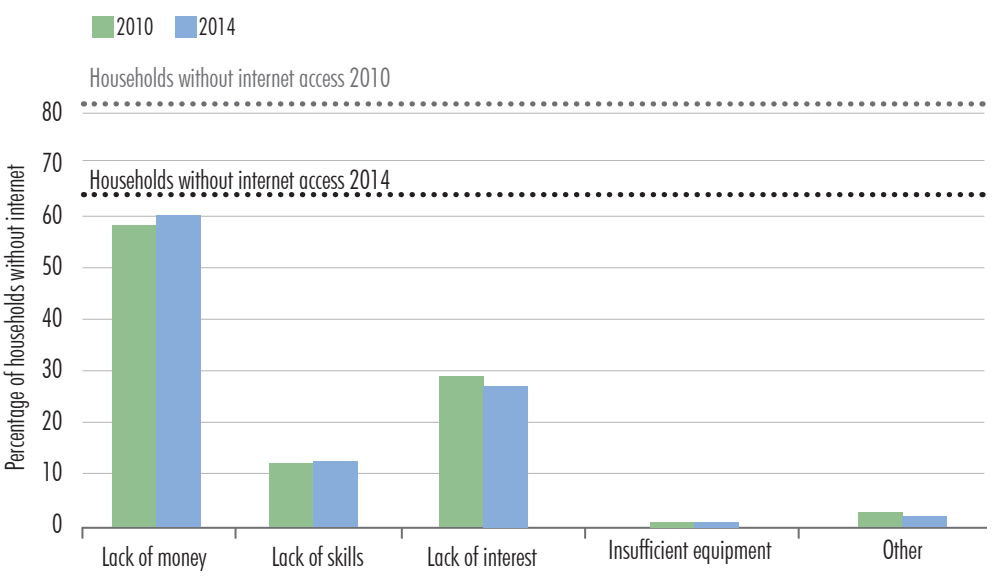
Figure 9.4
Computer and internet: access at home and usage in Mexico



Source: INEGI

Although the size of the increases has been important, there are some notable difficulties that explain why the aforementioned indicators for Mexico have not yet achieved universal coverage. Observing Figure 9.5, it is noticeable that in the case of those not accessing the Internet in 2014 – 60% said that it was for lack of money, while, interestingly, another 30% considered access to the Internet as not relevant to them. There are other additional issues, such as lack of skills and insufficient equipment, which are less significant factors. Given these results, it is important that governments and regulators provide the necessary facilities to make Internet access affordable for more Mexican people.

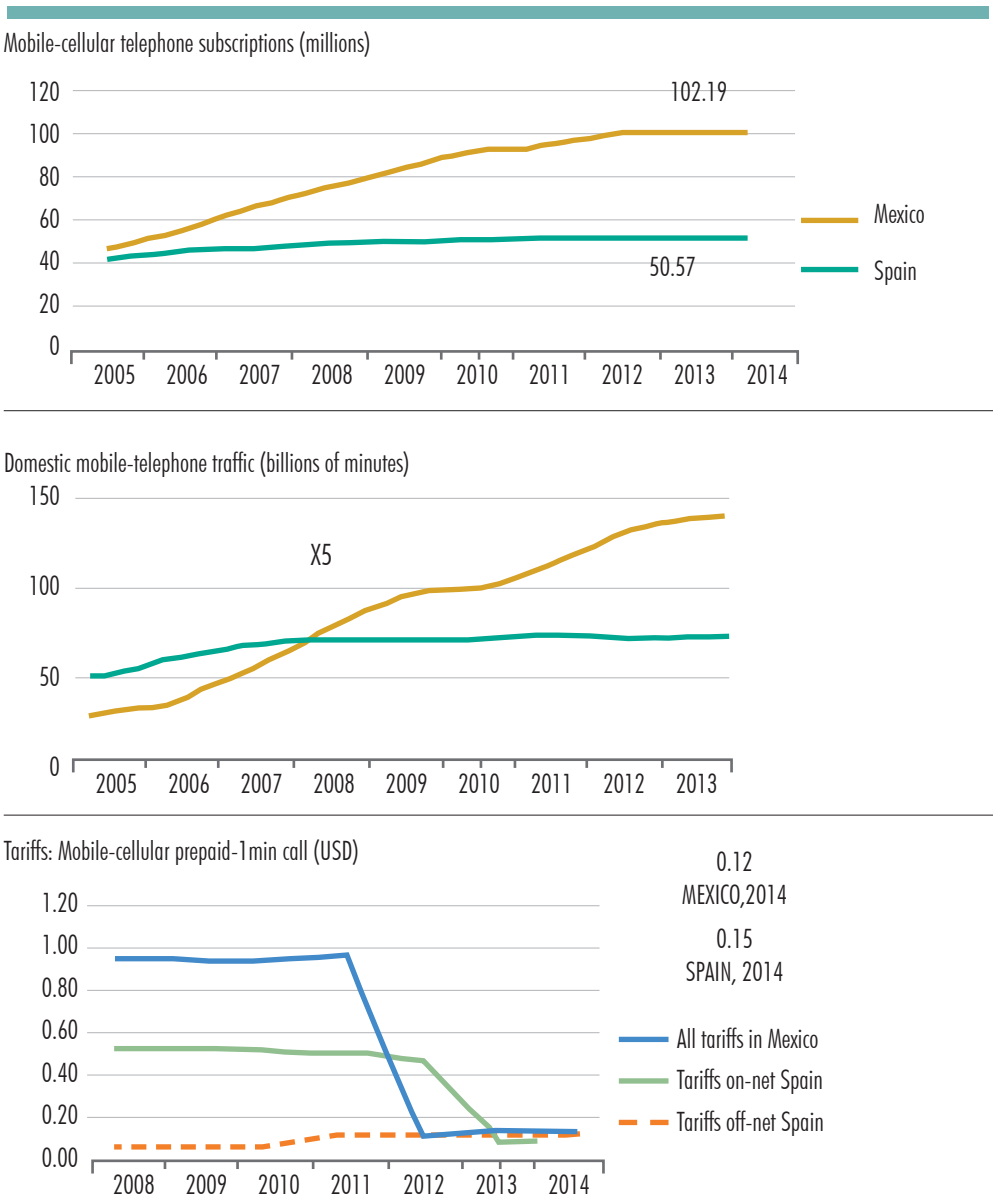
Figure 9.5
Internet access barrier at home- Mexico

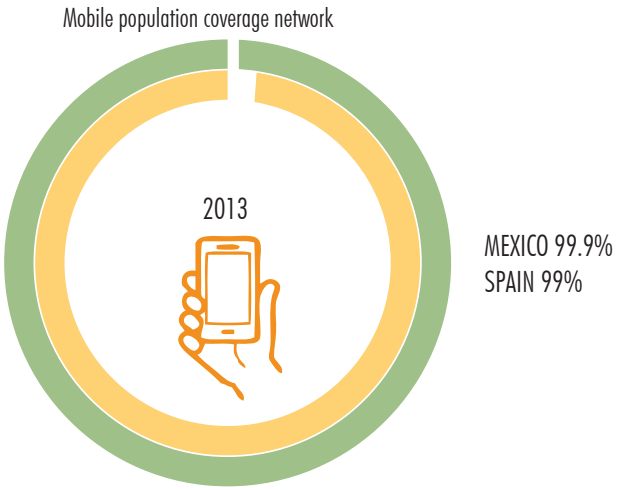


Source: INEGI

However, it is interesting to see that in the case of mobile devices, the indicators show better results. In Figure 9.6, we present some figures of Mexico compared, in some cases, to Spain's numbers as a reference of a country that is better placed in the digitization index ranking. We observe that cell phones' subscriptions have increased by 50% approximately since 2005 and that mobile phone traffic has also multiplied by five times in nine years. Besides that, both indicators are double the figures achieved by Spain. Unlike Internet access, mobile line access seems to be more affordable, being slightly cheaper than that in Spain. Finally, it stands out that the mobile population coverage network is 99%, practically providing universal access.

Figure 9.6
Mobile indicators for Mexico





Source: The World Telecommunication

In a nutshell, from the analysis of some digital figures in Mexico, we can conclude that mobile penetration has achieved a level of maturity that could make possible the introduction of digital mobile solution for long term savings, particularly the case of pension inclusion. In the following two sections we present a statistical analysis to measure likely impacts of digital variables on pension inclusion as well as the most relevant projects currently under development in Mexico in order to spur digital pension inclusion. Echoing one of the key messages in this volume of the synergies between the development of financial inclusion and the pension coverage infrastructure; these developments in mobile penetration and payments are so significant because they can link into an already existing individual account infrastructure for pensions in Mexico, which has been operating for nearly 20 years.

SOCIOECONOMIC AND DIGITAL ASPECTS **AFFECTING PENSION INCLUSION**

Since the reform of 1994, leading to the new private pensions in 1997, Mexico has been aiming to improve social protection for their citizens. However, the particular structural conditions that surround its economy have so far limited the possibilities to go further. The presence of the large informal economy constrained the scope of a pension system that mostly deals with those workers under a formal contractual agreement with their firms. The current setting of most pension systems in the world,–including Mexico, relies on formal firms as their natural partners for collecting workers' contributions. This structure definitively fails when firms are out of the reach of the State because of their informal condition. In all countries, when the informal economy is a significant factor, pension system participation is highly affected.

According to Levy (2008), the Bismarckian structure of the Mexican pension system is useless for the socioeconomic informal structure of the country. This situation challenges many emerging economies, which are experiencing the same limitations, and are in the process of improving the design in order to broaden worker's savings to pensions. According to different studies, (Benartzi, 2012; Holzmann et al, 2012; Karlan et al, 2016; Madrian, 2013; Tuesta, 2014;), pension systems in developing economies need to take one or more steps further in order to find a more flexible design that reaches those currently uncovered, by using economic incentives and enabling them to use increasing popular channels,–such as mobile devices, that facilitate their participation.

In order to find new pension designs that provide an impetus and make other facilitators work, it is important to have a better knowledge of countries' socioeconomic conditions, particularly those variables that most likely explain the likelihood of active participation in a pension system. As Thaler (2016) and Benartzi (2012) mention, the incorporation of any mechanism to nudge people to change their economic attitudes – in this case to save for retirement – must naturally align valuable goals for them, their natural behaviours, and routines. In this case, for instance, digital devices could be an interesting focus for improving pension savings in cases where they are currently part of their daily and routine tasks.

In order to know better the effects of these socioeconomic aspects, we use the micro data obtained from the ENIGH which is developed by the National Institute of Statistics and Geography (INEGI) of Mexico. The results of the ENIGH are representative at the national level and, in some years, for rural and urban areas. This is published biennially. Years 2008, 2010, 2012, and 2014 have been considered, along with the different modules that compose the ENIGH for the period under study were: Households, Revenues, Population, and Jobs.

METHODOLOGY

We are interested to know which socioeconomic factors condition an individual's likelihood to save for pensions in order to have better insights about how to go forward in defining a more inclusive pension system. In order to do that, we define a model where our dependent variable is the likelihood to contribute to pensions.

Because our dependent variable is binary (answer 1 or 0), it is not advisable to use a linear model such as ordinary least squares (OLS) since it is possible to fall into several errors. For example: model predictions will not necessarily be between zero and one; errors will not be distributed as normal; and will result in a heteroskedasticity problem.

Although these problems do not impede the application of OLS, some assumptions of the model are quite restrictive. As an alternative, it is proposed to use a nonlinear probability model such as the Probit model. This methodology allows quantifying the probability that an individual with given characteristics belongs or not to the study group, where both the variables explained are binary response (1 or 0). So, the decision to contribute or not

to pensions depends on a latent variable y^* which is determined by a set of exogenous variables,[3] collected in the vector (or group of variables) x 'such that:

$$y^*_i = x'_i \beta + u_i$$

$$y_i = 1 \text{ si } y^*_i > 0 \; ; y_i = 0 \text{ si } y^*_i \leq 0$$

where the subscript *i* represents individuals. The vector β refers to the parameters of the model and *u* is the error term which is assumed to be normal and independently distributed.

A critical threshold is assumed y_i from which, if y^*_i exceeds y_i then an individual will belong to the group under study. Both y_i and y^*_i are unobservable, although under the assumption that they are normally and independently distributed with the same mean and variance, it is possible to estimate the regression parameters and thus obtain information about y^*_i such that:

$$P_i = P(y_i = 1 | x') = P(y_i \leq y^*_i) = P(Z_i \leq \beta x'_i) = F(\beta x'_i) \qquad (1)$$

where Z follows a standard normal distribution $Z \sim N(0,\sigma^2)$ and F is the standard cumulative normal distribution function, $F = \left(\frac{1}{\sqrt{2\pi}}\right) \int_{-\infty}^{\beta x'_i} e^{-\frac{z^2}{2}} dz$.

The model (1) is estimated by Maximum Likelihood. From the different coefficients estimated in the model, the marginal effects on the latent variable are calculated. The interpretation of these marginal effects is similar to that obtained by a linear regression model, where the coefficients represent the change in the probability of fulfilling or not the condition (e.g. remaining active) when a variable belonging to the exogenous vector x' changes, whilst keeping the other factors constant and assuming that $E(y^* \mid x') = x'\beta$ is satisfied.

RESULTS

In Table 9.1 we provide the statistical results of different socioeconomic factors affecting the probability to actively contribute to a pension system. Details about the statistical characteristics of the data and the robustness of the regression analysis are presented in Appendix 1.

It is important to bear in mind that considering the characteristics of the survey, variables available, and the presence of idiosyncratic and unobserved country specific factors, the results should be considered as earliest findings to open new paths of research.

Let's first discuss how important it is that people interact with technology for pension savings. We consider three indicators available in the Mexican survey: the access to mobile phones, computers, and the Internet. According to the Probit-model, people's interaction

[3] These are variables that affect the dependent variable – in this case the choice of whether to save in a pension or not – but that in turn are not affected themselves by the dependent variable – that is there is no feedback from the decision to save that will impact the exogenous variable and create a feedback loop.

with mobile phones shows a statistically significant effect of increasing the likelihood to save in a pension system. Although, having access to a computer or to the Internet also show positive signs, in both cases the effect is not statistically significant. These results make sense in terms of the stylized facts we discussed in section 2, where we discussed the highest penetration of mobile phones (99% coverage) and less financial barriers to access, compared to computer and Internet access. Besides, we also discussed the greater variety of activities and daily interactions experienced by people using their mobile phones.

However, it is important to monitor other relevant variables that affect the likelihood to contribute to pensions. Gender seems to have a significant effect on savings for retirement. Being male rather than female increases the likelihood of contributing. In this regard, policies need to bear in mind the importance of tackling this issue in order to broaden pension coverage. Likewise, other socioeconomic issues such as having fewer years of education and being in the lowest quintile receiving labour income affect negatively the probability to pension savings. It is interesting to observe that when total incomes are considered — e.g. such as those received as government transfers – the probability of saving for retirement increases.

One aspect that needs further research is the role of families' investments in real estate assets. It seems that being a property owner in the lower quintiles, with respect to the richest quintile, is a statistically significant variable affecting negatively the likelihood to save in pensions. In a context of limited resources, low incomes, and high labour informality, families seem to prioritize how to distribute their savings-investment portfolio. Given that a house also has a greater appeal for a family and considering that retirement is a far-distant situation when viewed from the active stage of the labour force, preferences for saving in housing are considered a priority. Moreover, the commitment to pay their mortgages or improving properties' conditions is also a priority for them. Besides, being an owner could also be considered an alternative strategy to facing retirement. In this sense, it could be challenging for policy makers to think about new tools that align the valid motives that lead to saving for purchasing a house and to saving for retirement. Some financial products, such as reverse mortgage, could be an interesting mechanism, although further discussion is needed in order to implement them broadly (Hoyo and Tuesta, 2013). As highlighted in other chapters, it is not that one form of saving is necessarily right or wrong, but it is important to get the best balance.

Finally, it is interesting to find significant evidence about the importance of the age factor for pension savings. People in the earliest stage of the labour cycle are most likely not to save for pension, which contrasts with the attitude of those in the later stage of the labour cycle, who are most likely to save for retirement. Considering the importance of saving early for increasing the size of pension funds, it is also important that policy makers explore strategies to give incentives and attract younger cohorts to save as early as possible for retirement. In this regard, as discussed in the previous section, an active attitude of the government is fundamental, especially if these strategies are linked with financial literacy programs and the use of digital devices.

Table 9.1
Likelihood to save for pensions[4]

Variable	dy/dx	Std.	z	P>|z|	Min	Max	x
Mobile Phone	0,04	0,02	2,39	0,02	0,01	0,07	0,70
Computer	0,01	0,02	0,65	0,51	-0,03	0,06	0,28
Internet	0,01	0,02	0,26	0,79	-0,04	0,05	0,23
Labour contract	-0,01	0,02	-0,48	0,63	-0,04	0,02	0,76
House ownership	0,00	0,02	-0,03	0,98	-0,03	0,03	0,73
Male	0,07	0,01	4,54	0,00	0,04	0,09	0,63
Non studies	-0,57	0,01	-54,72	0,00	-0,59	-0,55	0,05
Primary school	-0,48	0,02	-27,65	0,00	-0,51	-0,44	0,26
Secondary school	-0,17	0,02	-9,06	0,00	-0,21	-0,14	0,49
Labour income q.1	-0,80	0,03	-25,19	0,00	-0,87	-0,74	0,21
Labour income q.2	0,16	0,16	0,98	0,33	-0,16	0,48	0,19
Labour income q.3	0,03	0,15	0,21	0,83	-0,26	0,32	0,19
Labour income q.4	0,04	0,12	0,29	0,77	-0,21	0,28	0,20
Total income q.1	0,03	0,04	20,22	0,00	0,66	0,80	0,21
Total income q.2	-0,17	0,17	-0,97	0,33	-0,51	0,17	0,18
Total income q.3	-0,04	0,15	-0,29	0,77	-0,33	0,25	0,18
Total income q.4	-0,05	0,12	-0,38	0,70	-0,29	0,20	0,21
Value of household q.1	-0,08	0,02	-3,38	0,00	-0,13	-0,03	0,22
Value of household q.2	-0,07	0,02	-3,11	0,00	-0,11	-0,03	0,28
Value of household q.3	-0,06	0,02	-2,47	0,01	-0,11	-0,01	0,17
Value of household q.4	-0,08	0,02	-3,29	0,00	-0,13	-0,03	0,17
I people household	0,01	0,03	0,29	0,77	-0,05	0,06	0,10
2 people household	0,01	0,02	-0,26	0,79	-0,05	0,04	0,16
3 people household	0,01	0,02	0,30	0,77	-0,04	0,05	0,18
4 people household	-0,02	0,02	-0,73	0,47	-0,06	0,03	0,23
5 people household	-0,02	0,02	-0,81	0,42	-0,07	0,03	0,16
Younger than 24y	-0,22	0.04	-5,49	0,00	-0,30	-0,14	0,16
Between 25 to 34y	-0,03	0.04	-0,65	0,52	-0,10	0,05	0,25
Between 35 to 44y	0,02	0.04	0,46	0,64	-0,06	0,09	0,26
Between 45 to 54y	0,07	0.04	1,87	0,06	0,00	0,15	0,19
Between 55 to 64y	0,06	0.04	1,51	0,13	-0,02	0,14	0,09

[4] The figures of the table show us some relevant statistics of the regression. As an example, we may focus on the variable 'mobile phone' (first row). The results of the Probit analysis tell us that pension inclusion in Mexico increases in 4% as a response of more mobile phone penetration alone. The results in this case is statistically significant at the 2% level.

GOVERNMENT'S INITIATIVES FOR DIGITAL PENSION INCLUSION

Most of the financial inclusion efforts at a national level have been focused on banking, access to financial products, and formal institutions, as well as on short term financial services such as credits and savings options in bank accounts. Nonetheless, in recent years CONSAR has taken some measures to alert the population of the importance of saving for retirement.

In 2016, the first National Survey on Voluntary Savings (CONSAR, 2016 d) identified the factors that foster or inhibit voluntary savings for formal workers. The factors that would promote voluntary contributions are security and simplicity in making contributions, adequate communication campaigns, matching contributions from the employer or the government, as well as attractive yields. Most of the workers declared that they are not doing anything to prepare for their retirement because they cannot anticipate the amount of income that will be needed during retirement; moreover 75% of them say that they are willing to increase their mandatory contribution. On the other hand, the factors that inhibit voluntary savings are the lack of resources left for saving, and distrust of financial institutions.

CONSAR has developed an integrated strategy to promote voluntary savings in 2016, through: (i) expanding the channels in which voluntary contributions can be made; (ii) establishing non-monetary incentives to change the behaviour of the potential savers; and (iii) increasing the number of potential savers:

EXPANDING THE CHANNELS FOR MAKING VOLUNTARY SAVINGS

In an effort to ease the ways in which individuals can make deposits into existing Afore accounts, since 2015 voluntary contributions can be made at common retail outlets, branches of Bansefi (a development bank), and Telecomm (a state-owned company that offers telecommunication and financial services). It is worth mentioning that the aforementioned channels are also banking agents in the national strategy of financial inclusion.

Since 2016, voluntary savings can also be made through a mobile phone payment platform called Transfer, in which savers can open a basic bank account that requires only a cell phone number, and make deposits in their Afore without being charged any fee. The deposits can be made also via a SMS (short message service), which does not require a smartphone.

The next steps in the strategy of CONSAR for promoting voluntary savings are the following:

a. In August 2017 a mobile app was launched in Mexico and the United States of America (for Mexican workers living abroad), that allows independent workers to

open an Afore account, make one-time or programmed deposits linked to a debit card, and check the balances of individual pension accounts. The app will also send messages reminding users of the importance of savings, and show the nearest contact points of Afores. This examples shares similarities with the attempts of the Government of India to get Indians living and working abroad but that plan to retire in India – such as workers in the gulf states – to make contributions directly into the India Pension system from their earnings abroad.

b. On a second stage of this project (1st semester of 2018), the app will also permit withdrawals of voluntary savings and of the unemployment benefit considered in the social security law (from the Afore account).

According to Ideas42 (2015), these new accessibility initiatives address crucial structural issues. However, a more comprehensive approach informed by a nuanced understanding of how people behave and make choices about their finances in the real world is needed to increase voluntary retirement savings. Adopting nonmonetary incentives from a behavioural science approach will help to tackle the problem from an entirely new perspective. Therefore, CONSAR has taken some actions in this regard, as described above.

ESTABLISHING NON-MONETARY INCENTIVES FOR VOLUNTARY SAVINGS

The main measures that CONSAR has conducted in this regard are the following:

Since 2014, Afores are required to send an annual pension report with an estimate of the future pension level, as well as voluntary savings scenarios. This report has clear and simple indicators showing the amount of pension with and without additional savings.

In 2015, CONSAR launched two simulators on its webpage for IMSS affiliates and independent workers to allow them to calculate their pension with different scenarios of retirement ages, densities of contributions, and voluntary savings.

Also, CONSAR has developed easy communication campaigns focused on low income and workers with low financial literacy, with musical jingles promoting voluntary savings, even in small amounts (10 pesitos Campaign).

However, there is more work to be done. As the study from Ideas42 (2015) points out, current data show that only 0.3% of the 19 million active account holders make a contribution in a given year, not including the tens of millions of account holders with inactive retirement accounts. Low voluntary contribution rates could perpetuate the high rates of poverty among the elderly and continue the cycle of inadequate retirement preparation.

INCREASING THE NUMBER OF POTENTIAL SAVERS

In 2016 CONSAR upgraded its call centre service (SARTEL) to be available also in the United States of America, in order to give advice to the 13.8 million Mexicans living

in that country on basic aspects of the pension system and the benefits of saving and planning for retirement. Given that many of the Mexicans working abroad have already an inactive Afore account, this measure seeks to foster voluntary savings for this group.

In 2014 CONSAR conducted an Independent Workers Survey, in which one of the main findings was that this group declared that currently they are not saving for their retirement, but be willing to, if provided proper information and incentives. Thus, a microsite for independent workers was launched at CONSAR's web page that gives easy and useful information on how to open a voluntary pension account and the benefits of doing so, including a calculator for the voluntary savings needed to reach a desired pension amount.

Another measure taken by CONSAR on June 2016 was a pilot test with a group of 120,000 workers who were sent a special version of their Afore account balance, based on visual stimulus using 'behavioural economics theory', never used before in Mexico in this kind of document, to increase the awareness of the workers in a graphic way about the impact of regular voluntary savings and their estimated returns in the future. The follow-up of this group will measure the results of this policy.

Additionally, since September 2016, all Afores can offer individual pension accounts for children, in which the parents can make voluntary savings on behalf of their children. Thus, the saving habit for retirement can also be promoted in early ages. Currently, there is only one Afore that permits this kind of account.

Finally, a new pension report with a personalized projection of the expected pension amount funded only with the current mandatory contributions, was sent in 2015 to workers with their Afore account balance, in order to disclose the estimated replacement rate of the pension (given that the majority of workers are not aware of this information), including different examples of the additional voluntary contributions needed to obtain a greater pension, and information about the channels and options to make voluntary savings.

CONCLUSION

The need to increase pension coverage in Mexico is enormous. Labour force participation is only 40% and old-age participation is barely 30%. Average replacement rates are also low, due to high informality, interrupted careers, and low contribution rates. Therefore, policy makers have the vital challenge to foster pension inclusion strategies in order to build a more participative social protection system.

This chapter defines an inclusive pension system as the one that fosters more access to long-term savings, promotes the use (participation) of the available financial tools for retirement and, which at the same time reduces the structural barriers that limit the participation in pension systems, such as labour informality, cost, trust, document

requirements, geographic limitations, among others. We identify important enabling factors to overcome these barriers and spur usage and access to pension systems. The literature identifies interesting evidence about the importance of digital tools to give incentives for financial and pension participation. The digital transformation is considered a trigger to face structural barriers by reducing transactions costs to the demand and supply side. In addition to the factors reviewed in this chapter, it is also essential to look at the whole pension value chain and understand the cost structure, and where costs can add value to the final retirement outcome – on which Chapter 18 on costs provides important evidence.

A Probit-model was designed in order to detect the statistical importance of digital variables in increasing pension inclusion in Mexico. We found that the use of mobile devices is a statistical significant variable that increases active pension participation in Mexico more so than access to the Internet or a computer. Policy makers should pay attention to this result and continue making efforts to develop digital tools to facilitate the access and participation to long term financial services for retirement. In this chapter we have examined the recent effort of the Mexican government to spur voluntary savings by using digital strategies. We anticipate that a continuous determination in this area should deliver interesting results for pension inclusion in the coming years.

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APPENDIX 1

Regression robustness and descriptive statistics of the variables used

	Value
Number of obs	**5.646**
Wald chi2(28)	1564,2
Prob > chi2	0
Pseudo R2	0,1371
Log pseudolikelihood	-3352,3446

Variable	Obs	Mean	Std. Dev.	Min	Max
Workers contributing	165.628	0,3440179	0,4750484	0	1
Mobile phone	56.136	0,6938685	0,4608891	0	1
Computer	56.136	0,2668163	0,4422995	0	1
Internet	56.136	0,2147463	0,4106499	0	1
Labour contract	67.035	0,4211382	0,4937453	0	1
House ownership	55.071	0,6504149	0,4768432	0	1
Male	215.099	0,4867201	0,4998248	0	1
Non studies	203.902	0,1362174	0,3430201	0	1
Primary school	203.902	0,3518945	0,4775624	0	1
Secondary School	203.902	0,4072692	0,491327	0	1
Labour income q.1	22.211	0,2022421	0,4016809	0	1
Labour income q.2	22.211	0,196074	0,3970341	0	1
Labour income q.3	22.211	0,194093	0,3955097	0	1
Labour income q.4	22.211	0,1985503	0,3989176	0	1
Total income q.1	56.136	0,2036305	0,4027009	0	1
Total income q.2	56.136	0,1951689	0,3963342	0	1
Total income q.3	56.136	0,1947413	0,396005	0	1
Total income q.4	56.136	0,1987317	0,3990491	0	1
Value of household q.1	48.044	0,2382191	0,4259983	0	1
Value of household q.2	48.044	0,2819707	0,4499638	0	1
Value of household q.3	48.044	0,1654733	0,371611	0	1
Value of household q.4	48.044	0,1556698	0,3625458	0	1
1 people at household	55.071	0,0980008	0,2973184	0	1
2 people at household	55.071	0,1627172	0,3691108	0	1
3 people at household	55.071	0,1835994	0,3871606	0	1
4 people at household	55.071	0,2220951	0,4156585	0	1
5 people at household	55.071	0,1620635	0,3685124	0	1
Younger than 24y	211.531	0,1677201	0,3736184	0	1
Between 25 to 34y	211.531	0,1442153	0,3513087	0	1
Between 35 to 44y	211.531	0,1368452	0,3436847	0	1
Between 45 to 54 y	211.531	0,1074452	0,3096792	0	1
Between 55 to 64 y	211.531	0,0727175	0,2596728	0	1