

Working Paper No. 14/09
Madrid, February 2014

Factors that Matter for Financial Inclusion: Evidence from Peru

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February 2014

Abstract

This study comprises a quantitative approach to the determinants of financial inclusion in Peru based on micro-data from surveys. Significant correlations are used to identify those socioeconomic characteristics that may affect financial inclusion (or exclusion) of households and enterprises. We also analyse the sensitivity to some barriers on the part of individuals who do not use banking services. The results show that the traditionally more vulnerable groups (women, individuals living in rural areas and young people) are those with the greatest difficulties in accessing the formal financial system. When it comes to financial products, loans and mortgages appear to be better drivers for financial inclusion than saving products. For enterprises, formality and education stand out as significant factors for financial inclusion. Finally, for individuals excluded from the financial system, factors such as age, gender, education and income level seem to affect perception of the barriers to financial inclusion. The identification of individual characteristics that could affect financial inclusion provides useful empirical evidence for designing policies that promote more inclusive financial systems.

Keywords: financial inclusion, economic development, personal finance.

JEL: D14, G21

1. Introduction

The objective of achieving universal financial access by 2020, expressed by the president of the World Bank, is another attempt to recognize the important role of financial inclusion (hereafter, FI) for economic growth and alleviation of poverty. In this context, the coming years will present a worldwide challenge in terms of objectives and commitment to accomplishing the common goal of improving financial inclusion.

The recent financial crisis has highlighted the importance of the financial sector in promoting economic development and ensuring stability. FI-related issues are a subject of growing interest and one of the major socioeconomic challenges on the agendas of international institutions, policymakers, central banks, financial institutions and governments¹. Financial services are provided more efficiently by the private sector and thus financial institutions are the main agents involved in these processes. However, since lack of use of financial services is mostly due to the presence of market failures, governments should try to mitigate these failures by establishing adequate regulation and policies. It is desirable to ensure that financial services can reach the whole demandants with appropriate products and access channels.

According to the latest World Bank estimates, there are still around 2.5 billion people in the world who do not have a bank account. Global Findex data for 2012 reveal that only around 50% of adults (people aged 15 and above) in the world have at least one bank account in the formal financial system. However, this percentage of individuals with a bank account varies considerably between developed and developing countries. In developing countries, banking penetration rates are far below the average. In Africa, the percentage of adults with a bank account is 20%, and in Latin America 39%. The problem of involuntary financial exclusion requires intervention to address market failures such as asymmetric information, lack of competition in the markets or insufficient infrastructure. These failures make it difficult for certain population groups, low-income groups or those who have traditionally been more vulnerable, such as women, young people or people who live in rural areas, to use formal financial services.

Although FI has become a key issue, there is still much progress to be made in terms of data collection and theoretical developments to address these problems. From a macroeconomic point of view, the seminal article by Goldsmith (1969), demonstrating the relationship between financial and economic development, has generated increasing interest (De Gregorio and Guidotti, 1995; Demetriades and Hussein, 1996; Arestis and Demetriades, 1997; Khan, 2001; Calderon and Lui, 2003; and Christopoulos and Tsonias, 2004, among others). However, despite the large number of theoretical and empirical works documenting a strong positive relationship between economic growth and financial development, some authors claim that in order to gain a better understanding of the topic, we need to look beyond this relationship². Indeed, the question is still a topic for discussion, because of the large number of non-financial factors (e.g. technological improvements, regulation, etc.) that determine the quality of financial services.

The link between banking penetration and poverty starts from the premise that households try to maximise their profit and not their income³. Their objective is to synchronise income flows and consumption needs. In this context, the use of financial services is an important tool for smoothing the cycles in consumption. However, the most vulnerable groups find it particularly difficult to access these services. As a result, they are forced to combine irregular income flows with limited or imperfect financial instruments. Some authors conclude that the lack of use of financial services could lead to the poverty trap and to an increase in the inequality gap

1: The most recent G20 statement (Saint Petersburg, September 2013) agreed to continue with the financial inclusion agenda and to provide support to countries, politicians and stakeholders to focus efforts on the measurement and monitoring of global progress in access to financial services. In addition, 67% of banking regulators out of a total of 143 countries promote financial inclusion (Cihak et al., 2012).

2: See Levine, 1997, for a complete discussion of the relationship between financial development and economic growth.

3: Most of the existing studies to date are mainly based on macroeconomic data (Patrick, 1996; Beck, et al. 2007; Honohan, 2008; Kendall, Mylenko and Ponce, 2010).

(Banerjee and Newman, 1993; Galor and Seira, 1993; Aghion and Bolton, 1997; Beck, Demirgüç-Kunt and Levine, 2007). In addition, empirical evidence suggests that the use of financial instruments increases savings (Aportela, 1999; Ashraf et al., 2010) and consumption (Dupas and Robinson, 2009; Ashraf et al., 2010b).

From a microeconomic point of view, there are few empirical studies that analyse the determinants of FI and quantify the impact of the different factors affecting participation in the formal financial system. It is important to understand the socioeconomic characteristics conditioning the use of the financial system by both households and enterprises. For households, the use of financial products (savings, credit, insurance, etc.) improves the possibilities of consumption. Financial products can smooth the income cycles generated by unexpected shocks or discontinuous income flows, thus optimising inter-temporal consumption and improving well-being. A micro-data based paper by Allen et al. (2012) estimates several Probit models for a total of 123 countries for analysing the relationship between FI and individual and country level variables, such as regulatory aspects, the implementation of policies and alternative banking designs. These authors found that greater FI has a positive correlation with better access to formal financial services (lower banking costs, greater proximity to bank branch offices and reduced documentation requirements). Living in rural areas and low income are negatively correlated with FI⁴.

Meanwhile, the use of financial products also helps enterprises to take investment decisions that would be difficult to achieve using only the funds generated by the economic activity itself. Investment or spending needs are not necessarily synchronised with the inflow and outflow of funds generated by the productive process. They may occur at a time when there are not sufficient savings to deal with them. Dupas and Robinson (2009) show that FI has a positive impact on productive investment. In addition, it has been demonstrated that there is a positive and significant relationship between the use of credit and the growth of enterprises, particularly for smaller companies (Carpenter and Petersen, 2002).

This study aims to contribute to the literature on the determinants of FI for the case of Peru, which is considered one of the best environments for financial inclusion in the world. However, to the best of our knowledge, there are no studies from the point of view of demand that analyse the FI problem. Our paper tries to fill this gap by shedding some light on the link between FI and individual characteristics.

Using micro-data from surveys, we study the factors that could affect the decision to be included in the formal financial system. We try to establish common features of individuals deciding whether to participate in the formal financial system. In addition, for those individuals excluded from the banking system, we analyse the perception of barriers to FI as a function of the individual characteristics. First, we identify some factors that characterise those households and enterprises that use the formal financial system to extract patterns that can help in developing economic policies to promote FI. We build a proxy to study FI with information from the Household Survey conducted in Peru (ENAHO). Second, we analyse the barriers perceived by financially-excluded individuals, by testing whether there is any significant correlation between their individual characteristics and the perceived barriers when using formal financial services. We use the information from the recent Global Findex survey developed by the World Bank in 2011. This information can be useful for designing both public policies by governments (Demirgüç-Kunt et al., 2008) and new products and access channels by financial institutions.

The rest of the document is organised as follows. Section 2 contains a brief description of the financial sector in Peru. Section 3 presents the data and descriptive statistics. Section 4 describes the methodology and the findings. Finally, Section 5 discusses the main conclusions and some economic policy recommendations derived from the analysis.

4: The authors find similar results with respect to savings.

2. Macroeconomic scenario: the financial sector in Peru

Peru ranks first out of 55 countries in the *Microscope on the Business Environment for Microfinance*, in 2013 and it is considered as one of the best environments for FI and microfinance in the world. The year 2014 starts in Peru with a strong commitment for achieving greater levels of FI. These are promising steps for achieving the objective of universal financial inclusion by 2020, stated by the president of the World Bank. The goal is to foster economic growth and welfare of individuals by focusing on the poorer households that are the ones most affected by financial exclusion.

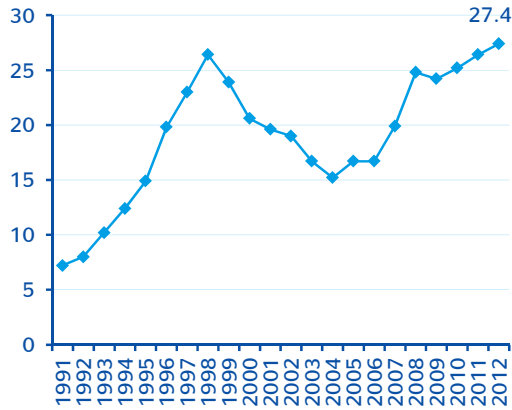
In the last 20 years, banking penetration (users of financial services over the GDP) in Peru has grown rapidly. According to ASBANC, the Peruvian banking association, the banking penetration ratio in 2013 is almost three times higher than in 1993. The Global Findex (2012) shows that 20.5% of the Peruvian population aged over 15 has a bank account. This is far below the 42.2% in Chile and the more than 55.9% in Brazil. 5.3% of the bank accounts in Peru are inactive since there have not been any deposits or withdrawals in a given month. Regarding the distribution of bank accounts, the figures by gender show that the proportion of banked men, out of the total adult population age 15 and above, is higher than the proportion of women, at 23.4% and 17.6% respectively. People living in urban areas have a banked rate of 24.4% and people living in rural areas 13.3%.

In terms of GDP, the Peruvian economy has also grown significantly in recent years. In 2012, GDP grew at 6.2%, but this increase was not reflected, as expected, in greater FI. In particular, the Peruvian financial system is not as deep as it should be if we compare it with similar income level countries. Financial depth (private credit over GDP) is below the average among the countries in the region⁵. In 2012 this ratio was 27.19% for Peru, 33.4% in Colombia and 77.8% in Chile. Mexico, which has a higher level of per capita income than Peru, is the only one with a lower ratio, at 17.2%⁶. In terms of number of loans, 29.2% of the adults declare they have a loan but only 12.8% are in a formal financial institution. Looking at the ratio of deposit penetration (deposits over GDP), the position of the Peruvian economy is less optimistic than the credit situation. Only Argentina, Ecuador, the Dominican Republic and Mexico have lower rates than Peru. The percentage of individuals with formal deposits is also low compared to the total number of savers. 8.6% of the individuals have deposits in formal accounts in contrast to 29.1% of the people who have deposits. We observe that even in periods of economic growth, few Peruvians put their surplus income into the formal financial system.

5: This number is even lower in the International Financial Statistics (IMF, 2012).

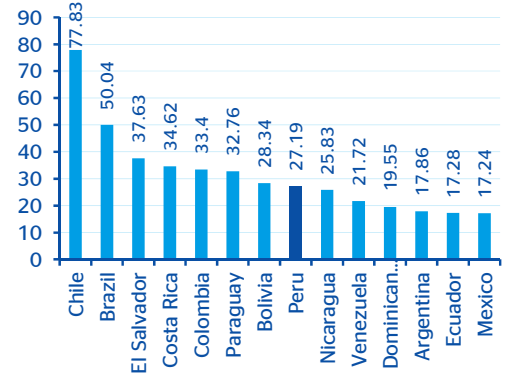
6: Data obtained from Felaban

Chart 1
Credit in the banking system/GDP



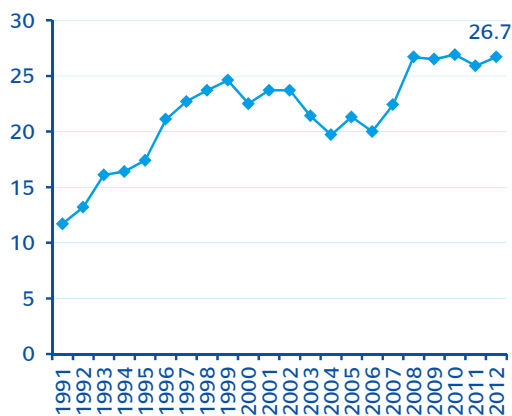
Source: BBVA Research with Felban data

Chart 2
Credit in the banking system/GDP, 2012



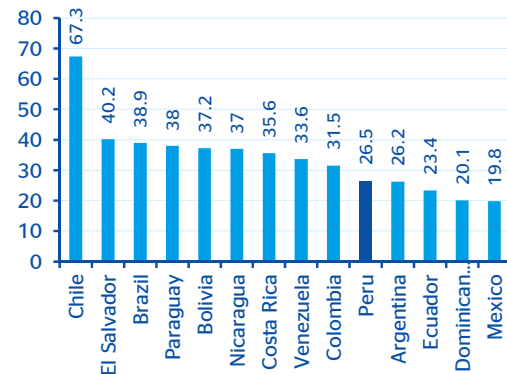
Source: BBVA Research with Felban data

Chart 3
Deposits in the banking system/GDP



Source: BBVA Research with Asbanc data

Chart 4
Deposits in the banking system/GDP, 2012

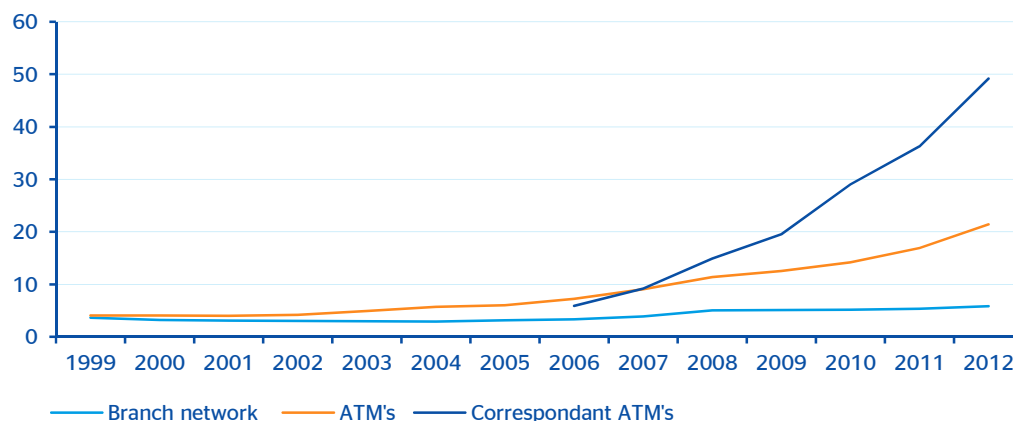


Source: BBVA Research with Asbanc data

In terms of access, it is interesting to see how new forms of banking have been gaining strength since their implementation in the mid-2000s. Correspondent banking is an alliance between the banking sector and other non-financial agents to expand the supply of banking services by offering broader access. The goal is to provide basic financial services, such as cash-in, cash-out, deposits, payments or insurance acquisitions, on behalf of banks and under the same conditions as at bank branches. Correspondent banking provides not only more extensive geographical coverage, particularly in remote areas, but also more intensive coverage, by lengthening opening hours. This promising way of offering banking services is an opportunity to improve FI in economies such as Peru where the geography makes access difficult. There are also other important advantages in the significant reduction in waiting times due to the congestion of traditional bank branches, easier communication between customers and banks⁷, lower supply costs and greater security when carrying out transactions compared with ATMs in the street. According to the survey carried out by the Center for Financial Inclusion for Peru (2012), correspondent banking and mobile banking, the latter used by 1.8% of adults, are considered among the best opportunities for fostering FI. As shown in Figure 3, access to banking services through correspondent banking is now significantly greater than the sum of all traditional banking: bank branches and ATMs.

7: Correspondent banking can be at supermarkets, pharmacies, petrol stations, etc. that are part of a customer's daily routine. Customers feel more comfortable when interacting with these agents than with bankers, which in turn makes purchasing financial products easier. This also applies in terms of trust.

Chart 5

Coverage of banking services per 100,000 inhabitants

Source: BBVA Research with Asbanc data

3. Measurement and data

Measuring FI is not a straightforward issue because of the lack of a unique definition for this latent variable. This is particularly challenging for emerging and less developed economies due to the scarcity of information. Most of the concepts that define FI refer to a set of ideas that include the use of banking services by unbanked people, the democratisation of credit, the decentralisation of services, financial penetration, greater range of financial services on offer and access to finance. However, none of these concepts imply the use of financial services by all, at any cost. The CGAP defines FI as the situation that aims to ensure that everyone who wants to use financial services has access to them at affordable prices, provided for customers in a convenient and responsible fashion. We approach the study of FI through the concept of use of formal financial services. This is a commonly used definition that provides a first approximation to the link between a financial system and individuals⁸.

3.1. Approaching financial inclusion: the National Household Survey (ENAHO)

We use information from the 2011 National Household Survey (ENAHO), developed by the *Instituto Nacional de Estadística y Tecnologías de la Información* (INEI), to identify the microeconomic factors affecting the likelihood of FI for households and enterprises. Although ENAHO is not a specific survey for FI, we take advantage of the data quality and the coverage to get useful information that allows us to address some of the issues in our analysis. The ENAHO is representative of the whole country and covers both urban and rural areas in the 24 administrative departments and the Constitutional Province of Callao⁹. These departments are divided into eight geographical regions: metropolitan Lima, Costa Norte, Costa Centro, Costa Sur, Sierra Norte, Sierra Centro, Sierra Sur and Selva. The population for our study is defined as all the households and their occupants living in urban and rural areas of the country. The

8: From a microeconomic perspective, the few attempts to measure FI focus on different indicators to proxy access and use of banking services (Allen et al., 2012; Demirgüç-Kunt and Klapper, 2012; AFI, 2013).

9: Members of the armed forces living in barracks, camps, on board ships, etc. are excluded from the sample since they are not part of the population under study. Also excluded are people who live in collective housing (hotels, hospitals, institutions, religious retreats, prisons, etc.).

survey is published both quarterly and annually¹⁰. We have used the latest annual survey available from 2011. ENAHO-2011 was based on a probabilistic multi-stage sample, stratified by geographical areas. The size of the sample is 26,456 households, 16,368 in urban areas and 10,088 in rural areas¹¹.

We construct our variable of interest to proxy FI as the likelihood of an individual using financial services. A household is included in the banking system if falls into at least one of the following categories: it receives interest on one or more financial products, has a mortgage loan or carries out online banking transactions. Thus, FI is a binary variable that takes the value 1 if the person fulfills at least one of the three conditions, and 0 otherwise¹². We consider households, in contrast to enterprises, as the individuals who are employees or independent workers, workers without wage (i.e. housekeepers) or employers with less than five employees. We decided to include this group of employers as representative of households due to the interaction between personal and business finance for small enterprises. In a recent paper, Attanasio et al. (2011) show that more than half of the microcredits granted to small businesses were used for household purposes and not for the business. The most common uses are the purchase of electrical appliances for the house, paying for household loans and smoothing the seasonality of consumption. These uses make sense from an economic theory point of view, but do not coincide with the objectives of the party that granted the loan¹³. So, in terms of finance, the behaviour of these agents is more similar to households than to enterprises.

Similarly, we define enterprises as employers with four or more but fewer than 100 employees. As in the case of households, we consider an enterprise to be banked if it meets at least one of the following conditions: it receives interest on one or more financial products, has a mortgage loan or carries out online banking transactions.

Table 1 shows the distribution of banking penetration by income level for both individuals and enterprises, which shows that those with higher incomes are the most banked. These figures are very similar to those obtained from the Global Findex, although they are slightly underestimated in all cases except for the richest individuals¹⁴. We observe few banked individuals in the lowest income quintile, and even in the highest income quintile FI is only slightly above 50%. This suggests that there are other characteristics that determine the level of FI as well as income-related issues.

Table 1

Descriptive statistics

Income Quintile	Households	Enterprises
Quintile 1 (poorest)	2%	1%
Quintile 2	8%	5%
Quintile 3	14%	9%
Quintile 4	24%	15%
Quintile 5 (richest)	52%	70%

Source: BBVA Research with ENAHO data

10: Households are visited monthly, giving rise to quarterly and annual surveys with different levels of representativeness.

11: See: <http://www.inei.gob.pe> for a detailed description of the methodology used for preparing the ENAHO.

12: Although this proxy is far from perfect, it is relatively accurate.

13: Banks face the uncertainty of whether households with a self-employed activity that ask for a loan can generate sufficient funds to repay it, regardless of whether this money is being used for purposes related to such self-employment.

14: According to Global Findex information, the percentages using banking services by income levels in quintiles 1 to 5 are 6%, 10%, 16%, 33% and 47%, respectively.

3.2. Approaching financial exclusion: the Global Financial Inclusion database

We try to shed some light on the effects that certain individual characteristics may have when analysing the main reasons for financial exclusion. The recent World Bank survey, the Global Financial Inclusion database (Global Findex, 2012), offers harmonised information on FI issues for 148 countries. It covers nearly 97% of the world's population. The survey sample consists of 150,000 individuals randomly selected among adults aged 15 and above, and is representative at a country level. The survey includes information such as whether the respondent holds a formal account, use of accounts, behaviour of savers, use of loans, insurances and barriers to having a bank account¹⁵.

We use the information in the Global Findex for Peru to identify some perceived barriers that explain financial exclusion. The question of interest is as follows: *"Please tell me whether each of the following is a reason why you, personally, DO NOT have an account at a bank, credit union or other financial institution. There is a choice of seven reasons: "A) They are too far away", "B) They are too expensive", "C) You don't have the necessary documentation (ID, wage slip)", "D) You don't trust them", "E) You don't have enough money to use them", "F) Because of religious reasons" and "G) Because someone else in the family already has an account".* The questionnaire allows the selection of more than one reason, so the design of policies to promote FI need to take into account different combinations of these reasons rather than considering them individually.

This information about the reasons for individuals being excluded from the formal financial system enable us to analyse the empirical relationship between some obstacles and the socioeconomic characteristics of the individuals to get some insights into the reasons why certain people are excluded from the financial system. This is important for governments and financial institutions to promote policies for enhancing more inclusive financial systems that improve well-being and sustainable economic growth¹⁶.

A first look at the data reveals that the lack of money and the high cost of financial services are perceived by most of the people who do not use banking services as the main obstacles (54% and 55%, respectively). The income quintile 4 contains most of the individuals who consider the high cost of services as a barrier (59%), and within quintile 2 most cite a lack of resources (61.5%). Experts interviewed by the Centre for Financial Inclusion (CFI) also suggest that the main obstacle to achieving FI in Peru is the high cost of delivering services to rural, remote and poor areas. The lack of trust in financial institutions is an obstacle perceived by 37% of the people who do not use banking services, and this figure grows with the level of income. Geographical distance is perceived as a barrier by 23.7% of individuals, with women giving this reason more frequently than men: 28% and 18.7% respectively. More than 36% of this group of individuals are in the lowest income quintile. The lack of necessary documentation does not seem to be very important in determining whether to participate in the formal financial system in Peru. Only 15.7% perceive it as an obstacle, and it is the highest quintile that displays the greatest density of individuals who perceive this as a barrier (21.5%). It could be reflecting the higher opportunity cost of this group. There are also 11% of the individuals who do not have a bank account but they use the account of someone else in the family. Finally, religious reasons in Peru are not a good reason for being financially excluded, as only 2.3% offer this reason.

15: For a detailed explanation of the Global Findex database, see Demirgüç-Kunt and Klapper (2012).

16: The Center for Financial Inclusion finds that financial education and the high cost of satisfying demand in excluded areas are the most important problems for FI. The results are based on a 2013 survey which aims to identify the opportunities and barriers for FI in Peru.

4. Methodology and results

This section estimates several Probit models to analyse the link between FI and some variables of interest. The first sub-section aims to identify the characteristics of households and enterprises that use banking services, from the point of view of both socioeconomic determinants and geographical factors. The second sub-section analyses the relationship between the barriers that exclude individuals from the formal financial system and their individual characteristics.

We compute the probability of an individual belonging to the group under study, those included in the formal financial system, to get some insights about the evidence on households and enterprises holding financial products. Given that the endogenous variable is a binary response - i.e. whether households, y_{hi} , and enterprises, y_{ei} , use formal financial services - the dependent variables can only take the values 0 or 1.

Let us assume that the decision to use formal financial services depends on a latent variable y^* which is determined by a set of exogenous variables, included in vector x' , so that :

$$y_{ij}^* = x'_{ij}\beta_j + u_{ij}$$

$$y_{ij} = 1 \text{ if } y_{ij}^* > 0 ; y_{ij} = 0 \text{ if } y_{ij}^* \leq 0$$

where the subscript i represents individuals and $j \in \{h, e\}$, with h representing households and e enterprises. β is a vector of parameters and u is a normally distributed error term with mean 0 and variance 1.

There is a critical threshold, y_i , so that if y_i^* exceeds y_i then a household or enterprise has a bank account. y_i is not observable either, and we assume that it is distributed normally with the same mean and variance. Thus it is possible to estimate the parameters of interest, β , to obtain information on y_i^* .

$$P_i = P(y_i = 1|x') = P(y_i \leq y_i^*) = P(Z_i \leq \beta x'_i) = F(\beta x'_i) \tag{1}$$

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

We estimate model (1) by Maximum Likelihood as a series of Probit models for households, enterprises and barriers. The marginal effects on the latent variable are calculated from the different coefficients estimated in the models. Given that $E(y^*|x') = x'\beta$, the interpretation of these marginal effects is similar to that obtained in linear regression models, where the coefficients represent the change in the probability of using bank services when $x_j \in \{x'\}$ change, all other things being equal.

4.1. Drivers of FI for households and enterprises

a) Households

We use significant correlations to determine those factors that could affect the probability of FI for households¹⁷. Table 2 shows the estimates. Detailed description of the explanatory variables, x' , for the analysis is included in Table A1 in the Appendix. As observed in column 1, most of these variables are significant at conventional levels and all of them have the expected sign. Living in rural areas, being a woman, having a low educational level and low income, being single and more people with a wage in the household appear as significant factors that reduce the likelihood of using financial products. These results are in line with those of Allen et al. (2012). The factors with the biggest impact on the probability of using banking services include living in a rural environment (reduces the likelihood by 3% compared to an identical

17: Notice that in the definition of individuals we include those employers with fewer than four employees, since we consider that they represent the behaviour of households rather than enterprises.

individual living in an urban area), literacy (increases the likelihood by 3% compared to an illiterate individual) and income (increases the likelihood by around 3.5% for each income quintile, taking as a control group the highest income level quintile). It is interesting to notice the substitution effect between the number of people receiving income in the household and the use of financial products, although these impacts on FI are lower than the previous ones. It could be reflecting the costs of accessing financial services, since they would use an only bank account for all the members in the household. Thus, if there is already a person in the household who has a financial product, the rest of the members of the household probably share the product rather than buying a new product and using it exclusively.

The second column of Table 2 includes some additional variables of interest, such as whether a household runs a surplus or deficit. The results show that those households with financial needs are more likely to use banks than those having the capacity to save. This is one of the factors with the greatest impact on FI. Our estimates show that having the capacity to save is not a significant factor for FI. This result is in line with those obtained by Collins et al. (2009). For poor households, it is not easy to decide which is the most appreciated financial service. On the one hand, microcredits have focused on loans as an important product. On the other hand, those in favour of the savings programmes consider that saving is the fundamental need for these types of households and they claim more attention.

Owning a house increases the probability of using banking services by 2%. This could be because ownership of an asset such as a house provides a guarantee that banks often seek as collateral for loans. Property owners are more likely to fulfill the documentary requirements and guarantees than those who do not own a house.

Finally, it is interesting to check how important access is for FI, particularly in developing countries. Once we control for aspects such as income, education and gender, town size appears to be a good proxy to analyse the effect of access as a driver for FI. Column 3 in Table 2 shows the link between spatial variables and FI. Living in very small towns (less than 401 households) reduces the likelihood of using banking services. Living in remote areas, where access to the financial system is generally more limited, seems to be a major problem for FI since financial institutions tend to locate branches in densely-populated areas to take advantage of economies of scale. However, this problem has been tackled recently with the development of mobile banking schemes. This new model of banking aims to promote FI and focuses on minimising the problems of access, through the use of technology or correspondent banking. The combination of technology (mainly the use of cell phones) and expanded coverage through an extensive network of banking correspondents (stores, drugstores or other establishments providing banking services on behalf of a bank) makes it much easier to foster FI¹⁸.

18: For a more detailed discussion on mobile banking in Peru, see Alonso et al. (2013).

Table 2
Household characteristics and banking

Banked household (1/0)	(1)	(2)	(3)
Rural	-0.0309324*** (0.0037)	-0.0335627*** (0.00367)	-0.0363028*** (0.00479)
Woman	-0.0085476*** (0.00327)	-0.0089877*** (0.00323)	-0.0088927*** (0.00323)
Single	-0.0067631* (0.00378)	-0.0088973** (0.00381)	-0.0091609** (0.00381)
Literate	0.0256241*** (0.00918)	0.023656*** (0.00893)	0.0238766*** (0.00893)
Worker without wage	-0.0192492*** (0.00445)	-0.0206411*** (0.00435)	-0.0202361*** (0.00435)
Indepnedent worker	-0.0027933 (0.0038)	-0.0035034 (0.00372)	-0.00349 (0.00372)
Employer (<5 people)	-0.0050841 (0.00807)	-0.0053327 (0.00788)	-0.0054119 (0.00784)
Household expenditure	0.000000561*** (0.000)	0.000000531*** (0.000)	0.000000524*** (0.000)
Net annual household income	0.000000137* (0.000)	0.00000014* (0.000)	0.000000144** (0.000)
Non-wage annual income	0.000000563** (0.000)	0.000000515** (0.000)	0.000000518** (0.000)
Annual income remmitances from abroad	-0.00000027 (0.000)	-0.000000317 (0.000)	-0.000000343 (0.000)
Annual income private transfers	-4.04E-07 (0.000)	-0.000000209 (0.000)	-0.0000002 (0.000)
Annual income public transfers	-8.9E-08 (0.000)	-0.000000115 (0.000)	-0.000000108 (0.000)
Age	0.0001064 (0.00064)	0.0000813 (0.00065)	0.000035 (0.00065)
Age squared	-0.00000859 (0.00001)	-0.0000094 (0.00001)	-0.00000887 (0.00001)
Education	0.0085157*** (0.0009)	0.0084771*** (0.00089)	0.008488*** (0.00089)
Annual household cell phone expenditure	0.0000107*** (0.000)	0.0000102*** (0.000)	0.0000104*** (0.000)
Household income recivers	-0.0072121*** (0.00133)	-0.0084818*** (0.00135)	-0.0084998*** (0.00135)
Poor household	-0.0010699 (0.00556)	-0.00177 (0.00546)	-0.0019589 (0.00545)
Income quintile 1	-0.0492952*** (0.00452)	-0.048868*** (0.00436)	-0.0477838*** (0.00447)
Income quintile 2	-0.0414753*** (0.00428)	-0.0414314*** (0.00415)	-0.0406367*** (0.00418)
Income quintile 3	-0.0304195*** (0.00428)	-0.0315131*** (0.00413)	-0.0308936*** (0.00413)
Income quintile 4	-0.0148504*** (0.00418)	-0.0157301*** (0.00407)	-0.0154926*** (0.00407)
Expenditure per capita (district)		-4.83E-08 (0.000)	-0.0000002 (0.000)
Home ownership		0.0194931*** (0.0033)	0.0199194*** (0.0033)
Surplus-household		0.0041189 (0.00527)	0.0044836 (0.00528)
Overdrawn-household		0.0329358*** (0.00464)	0.0327126*** (0.00465)
Towns of 20,001 to 100,000 homes			-0.0027653 (0.00421)
Towns of 10,001 to 20,000 homes			-0.0005576 (0.00568)
Towns of 4,001 to 10,000 homes			0.0050611 (0.00609)
Towns of 401 to 4,000 homes			-0.0064287 (0.00584)
Towns of with less than 401 homes			-0.0264015*** (0.00603)

***, ** and * denotes significance to 99%, 95% and 90% respectively.

Values in brackets are the standard errors.

Source: BBVA Research with data from ENAHO 2011

Our results are robust to alternative specifications. It is worth mentioning that our definition of FI may be underestimating the number of households that use banking services. The reason is that there could be other relationships with banks that cannot be accounted for in the information from ENAHO. However, we consider that our definition is broad enough to get a good proxy for FI in Peru. It accounts for more than half of the households that use banking services in Peru, according to the estimates by the World Bank¹⁹.

b) Enterprises

In this section, we analyse FI from the point of view of enterprises, namely those who carry out a business activity. Enterprises are defined as employers with a minimum of five and fewer than 100 employees. We focus on micro and small enterprises to study whether their behaviour is different from that of households.

The results of the estimates are presented in Table 3. As can be observed, being literate has a greater effect on FI among enterprises than households (3.7% compared with 2.3%). However, the importance of education, once we control for literacy, has a very similar effect for both households and enterprises, although it is slightly greater for the latter. Formality, understood as the legal registration of the company and the standardised presentation of business accounts, appears as another relevant factor for FI. Formal enterprises are more likely to use banking services than informal enterprises (3% greater probability). This could be because it is easier for formal enterprises to use financial services, given the greater transparency of their business which enables banks to assess risk and then increase financial institutions' interest in these customers. However, the restrictions for FI are not only determined by the supply side. Issues related to formality are also important for understanding the factors affecting FI on the demand side. The informality of enterprises leads to a self-exclusion phenomenon that reflects the fear of employers who are part of the shadow economy of being scrutinised by the authorities. It means that their demand for financial services may be satisfied by informal channels that escape legal control, generating a self-selection from the demand side.

The income effect is also significant when it comes to determining the level of FI. Although there is no difference between the income quintiles 3 and 4 compared to 5, quintiles 1 and 2 are less likely to use financial services than quintile 5 (4% and 3% respectively).

Geographical issues do not appear to be relevant for FI from the point of view of enterprises, after controlling for other factors. Our results are robust to different specifications although, as in the case of households, the sample of individuals using banking services may be underestimated due to the limited information available.

19: The definition for the endogenous variable is the best estimate that can be obtained using ENAHO information, which is not specifically financial. This is not a significant problem, given that our objective is not to predict the levels of financial inclusion, but to analyse the effects of the socioeconomic characteristics of individuals on financial inclusion (and exclusion).

Table 3
Enterprise characteristics and banking

Banked Enterprise (1/0)	(1)	(2)	(3)
Woman	0.0068 (0.0077)	0.0118 (0.0087)	0.0121 (0.0089)
Single	-0.0113 (0.0077)	-0.0133* (0.0072)	-0.0131* (0.0073)
Literate	0.0417*** (0.0161)	0.0369** (0.0154)	0.0371** (0.0153)
Age	0.0005 (0.0014)	0.0001 (0.0015)	0.00007 (0.0015)
Age-squared	-0.00001 (0.00001)	-0.0000096 (0.00002)	-0.000009 (0.00002)
Education	0.0121*** (0.002)	0.00998*** (0.0020)	0.0100*** (0.0020)
Poor household	-0.0149* (0.0081)	-0.0149* (0.0082)	-0.0151* (0.0082)
Income quintile 1	-0.0430*** (0.0069)	-0.0374*** (0.0073)	-0.0378*** (0.0074)
Income quintile 2	-0.0308*** (0.0061)	-0.0250*** (0.0068)	-0.0256*** (0.0068)
Income quintile 3	-0.0152** (0.006)	-0.0075 (0.008)	-0.0079 (0.008)
Income quintile 4	-0.0155*** (0.0059)	-0.00996 (0.0074)	-0.0102 (0.0072)
Formal enterprise		0.0286* (0.0178)	0.029* (0.0178)
Profit		0.00000008* (0.0000)	0.00000008* (0.0000)
Towns of 20,001 to 100,000 homes			-0.0056 (0.0074)
Towns of 10,001 to 20,000 homes			-0.0049 (0.0128)
Towns of 4,001 to 10,000 homes			-0.0002 (0.01)
Towns of 401 to 4,000 homes			0.0052 (0.0107)

***, ** and * denotes significance to 99%, 95% and 90% respectively.
Values in brackets are the standard errors.
Source: BBVA Research with data from ENAHO 2011

4.2. Barriers to financial inclusion

In the previous section, we analysed how individual characteristics can be associated with a greater or lower level of FI. Now we focus on the segment of the population which is financially excluded, so they do not use formal financial services. This exclusion can be either voluntary or involuntary, and it is connected with the difference between access and use²⁰. There are people who decide not to use formal financial services, either because they do not need them or because they have alternative preferred options. Unfortunately, there is scant information about these self-excluded people²¹. Alternatively, there are those with an effective demand for formal financial services who face market failures so they are involuntarily excluded. Market failures could make that individuals for whom the marginal benefit is greater than its marginal cost, are excluded. Access to formal financial services is mostly related to supply, while use is determined by both supply and demand. We are interested in studying common patterns of those individuals who do not use or access formal financial services because they are prevented by some sort of barrier.

We rely on the perceived barriers to get information about the link between obstacles for FI and individual characteristics. Individuals who do not have an account in a finance or microfinance institution are our population of interest. Global Findex allows identifying seven different barriers for FI based on the reasons for not having a bank account. These reasons are: distance, cost of financial services, documentary requirements (ID, wages, paper work, etc.), lack of trust in financial institutions, lack of money, religious reasons and joint use of financial services. We do not consider the last two reasons - religious issues and other relatives having a bank account - since they are irrelevant to the Peruvian economy, as we show in Section 3. Table 4 illustrates the estimates of the Probit models for the probability of perceiving each barrier as a reason for exclusion. The first column of Table 4 shows that education and income are significant characteristics for individuals who do not have a bank account because of geographical distance. In particular, less-educated individuals with lower income are more likely to perceive the distance as an obstacle to FI. Specifically, individuals in the income quintile 1 are 18% more likely to perceive this barrier than those in quintile 5. Similarly, a person who has only completed primary education has a 17% greater likelihood of perceiving distance as a barrier than another with the same broad characteristics but with a higher level of education. A plausible explanation for this may be that people with lower levels of education are unaware of the existence of alternative banking options, such as mobile banking. It may also be that they lack the confidence or skills needed to use them. Rather than general education, financial education is also recognised as both the lead opportunity for, and obstacle to advancing FI in Peru in the survey developed by the CFI. The perception of the distance as a problem could also reflect lack of access, since living in a rural area makes it more difficult to access financial services. This issue have not been taken into account in the regression, due to lack of information.

Column 2 shows the estimates for people who perceive the cost of financial services as a barrier. As can be observed, only age appears to be a significant characteristic, but with little importance. The price to pay for having a bank account is perceived as an obstacle that increases with age (1% per year). There is a turning-point at the age of 53, when age is no longer relevant. This could reveal that despite the demand for financial services, their price may be higher than most individuals are willing to pay. In developing countries, lack of economies of scale or a competitive market could make the price of financial services more expensive. Thus, financial services are unaffordable for a substantial part of the population. Surprisingly, there are no significant differences in this perception by income level. Age is the only significant individual characteristic for documentation requirements too. By contrast, the lack of the documentation required to have a bank account affects younger individuals to a greater extent. As we can observe in column 3, for each additional year the likelihood of perceiving the lack of documents as a barrier falls by 2%, until it reaches a turning-point at the

20: World Bank (2008).

21: One of the limitations of the Global Findex database is that it offers no information on self-exclusion. It is important to bear in mind that not all individuals are interested in using financial services.

age of 53. This result could reflect that people gain access, with age, to the documents required by financial institutions for opening a bank account, such as personal IDs, certifications of residence, an employment contract, etc. These documents allow financial institutions to minimise the problems of asymmetry of information for assigning a customer's risk level. The lack of information blurs risk assessment, so that people who would otherwise qualify can be excluded. Our estimates could reflect the disadvantages that young people face, compared to older ones, in obtaining these documents. The nature of some documents (such as employment contracts or certificates of ownership) means that the likelihood of having them increases with age.

Another barrier for FI is the lack of trust in financial institutions. The estimated equation in Column 4 shows the relevance of gender in perceiving this barrier. Women trust financial institutions more than men, so the likelihood of FI is lower among men. Lack of trust in financial institutions is 8% higher among men than women. This finding could partially explain the success of some programmes and pilot projects for saving and loans that are targeted at women. The role of institutions such as central banks is key to this issue. They work towards price stability, which protects people who receive fixed incomes (pensioners and seasonal workers) and those who are unable to protect themselves against inflation because of their lack of financial knowledge. In addition, they contribute to the stability of the financial system, preserving the security of money and thus extending the use of banking services. However, it is not entirely the responsibility of the central banks to enhance trust in financial institutions, as cultural or religious aspects are also factors that should be taken into account when designing tools to promote effective policies for encouraging FI²².

Finally, the lack of money is the obstacle most widely perceived to FI. As expected, individuals with the lowest incomes have the highest probability of perceiving this barrier (Column 5). Our estimates show that there is no difference in the perception of the lack of money as a barrier among individuals in income quintiles 3 and 4, when compared with those in quintile 5. However, for individuals in income quintiles 1 and 2 the likelihood of perceiving this as a barrier is 14% and 17% higher than for individuals in quintile 5.

Given that each of the individuals surveyed mentions a variety of barriers inhibiting FI, it would be advisable to design policies that address the existence of several barriers at the same time.

22: Programmes and initiatives that bring banks closer to people are important in this respect. They include those designed to promote financial literacy, advertising campaigns and image campaigns aimed at boosting trust in financial institutions.

Table 4
Perceived barriers and household characteristics

	Diatance	Costs	Documentation required	Lack of trust	Lack of money
Woman	0,0518781 (0.04039)	-0,0107745 (0.0457)	0,0189815 (0.032)	-0,0804905* (0.04642)	-0,0223851 (0.04552)
Primary education	0.1655305*** (0.0592)	0,0653496 (0.05791)	0,0679935 (0.05373)	0,0218672 (0.06345)	-0,0065808 (0.06135)
Age	-0,001029 (0.00532)	0.0149658** (0.00606)	-0,0221776*** (0.00392)	0,0023363 (0.00616)	0,0047999 (0.00596)
Age-squared	0,00000154 (0.00006)	-0,0001409** (0.00007)	0,0002096*** (0.00004)	-0,0000137 (0.00007)	-0,0000372 (0.00007)
Income quintile 1	0.1878473** (0.077)	0,0245993 (0.07513)	-0,0342558 (0.05016)	-0,078622 (0.07717)	0.1364057* (0.07555)
Income quintile 2	0,0088253 (0.07774)	0,0402903 (0.07751)	-0,0300318 (0.05097)	-0,0772841 (0.07968)	0.1663571** (0.07498)
Income quintile 3	0,0731341 (0.07884)	0,0312698 (0.07347)	-0,0481338 (0.04538)	-0,0419531 (0.07622)	0,0842691 (0.07586)
Income quintile 4	-0,031543 (0.07536)	0,0852061 (0.07701)	-0,0474368 (0.04879)	0,0659501 (0.08669)	0,0967189 (0.08098)

***, ** and * denotes significance to 99%, 95% and 90% respectively.
Values in brackets are the standard errors.
Source: BBVA Research with data from Global Findex 2012

5. Main conclusions and policy implications

FI is important for sustainable economic growth and the improvement of social well-being. How to build inclusive financial systems is a challenging subject on the agendas of researchers, policymakers, regulators and financial institutions. This is particularly important in developing countries and emerging markets, where banking penetration rates are relatively low.

In addition to the macroeconomic determinants, the link between individual characteristics and FI is also important. It is necessary for people to be aware of the benefits of having access to financial systems, and to understand the consequences of involuntary financial exclusion. This study offers a basic approach to the link between FI and individual characteristics in the case of Peru, which is considered to be one of the best environments for FI in the world.

First, we analyse some of the relevant characteristics for FI, with the information in ENAHO. We find that traditional factors such as being a woman, living in a rural area or having a low income and educational level may reduce the likelihood of being included in formal financial system. Also, households with cash flow problems are more prone to use banking services than those with savings. The results are similar for enterprises. The only difference is that education seems to be more important for enterprises than for households in fostering FI. In the case of enterprises, it is also interesting to observe the role of formality. Formal enterprises are more likely to participate in the formal financial system than informal ones. In this line, fostering formality can be a valuable aid in promoting FI.

Second, for those individuals excluded from the formal financial system we identify some characteristics that may affect their likelihood of perceiving barriers for FI. Financial exclusion is

considered as a sort of social exclusion, and thus interventions are justified to overcome market failures that prevent some individuals from using financial services. It helps to understand the reasons why people use informal financial services rather than the formal ones. More than 50% of the unbanked perceive the lack of money and the high cost of financial services as the main obstacles for FI. Policy makers need to take this information into account in order to design adequate policies. A good example would be the revision of the *Know Your Customer* and *Anti Money-laundering* guidelines. Also important are the designing of adequate documentation requirements, new financial products (i.e. low-cost accounts), improvements in access and the provision of financial education.

Peru has already started to construct the basis for FI. The Peruvian government is designing the National Strategy for Social Inclusion, which includes the National Strategy for Financial Inclusion. In 2012, the government approved the *e-Money* regulatory framework that aims to promote FI by enhancing access to the financial system without a prohibitively expensive infrastructural investment. This kind of regulation, together with the improvement in technologies and the high penetration of mobile phones, would make mobile banking a more efficient alternative to traditional branch banking, especially in terms of the cost of product delivery. This seems very promising in a country like Peru, where the geography and the dispersion of the population make access one of the most important obstacles to FI.

Although a lot of work has already been done, there is still a long way for FI to go in Peru. The information for implementing inclusive strategies needs a strong commitment from both public and private institutions, working together to achieve the goals. Better financial information, including behavioural issues, for households and enterprises is essential to make progress. The development of specific FI surveys could be an important tool to help in the design of policies to create incentives to include enterprises and households in the formal financial system, and to mitigate market failures that limit access to banking.

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Appendix A

Variables description

Table A.1.

Description of the variables in the household regressions

Variable	Description
Bank user (0/1)	A household is considered to be banked if it falls into one of the following categories: it has a mortgage, receives interest on some financial product (savings...) or carries out online banking transactions.
Rural (0/1)	Dummy that takes the value 1 if the respondent lives in a rural area and 0 otherwise.
Woman (0/1)	Dummy that takes the value 1 if the respondent is a woman and 0 otherwise.
Single (0/1)	Dummy that takes the value 1 if the respondent is single and 0 otherwise.
Literate	Dummy that takes the value 1 if the respondent can read and write and 0 otherwise.
Worker without wage	Person who works for the family business, house-wives, etc...
Independent worker (0/1)	Dummy that takes the value 1 if the respondent is an independent worker and 0 otherwise.
Employee (0/1)	Dummy that takes the value 1 if the respondent works for a formal company and 0 otherwise.
Employer (0/1)	Dummy that takes the value 1 if the respondent is an employer and 0 otherwise.
Annual household spending	Total household spending (in soles)
Net annual household income	Annual household income (net), (in soles)
Non-wage annual income	Monetary income from property rental, (in soles)
Annual income remittances from abroad	Monetary income from remittances received by the household from abroad, (in soles)
Annual income private transfers	Monetary income from private transfers, (in soles)
Annual income public transfers	Monetary income from public transfers, (in soles)
Age	Age in years
Educational	Years of education
Age squared	Age in years, squared
Annual household cell phone expenditure	Household spending on mobile telephony, (in soles)
Recipients of income in household	Number of individuals in the household earning income
Poor household	Dummy that takes the value 1 if the household is in a condition of poverty or extreme poverty according to the national measurement (poverty/extreme poverty line) and 0 otherwise
Income quintile 1 (0/1)	Dummy that takes the value 1 if the respondent is in the lowest income quintile and 0 otherwise. Income quintiles depend on the income of a country's respondents.
Income quintile 2 (0/1)	Dummy that takes the value 1 if the respondent is in the second lowest income quintile and 0 otherwise. Income quintiles depend on the income of a country's respondents.
Income quintile 3 (0/1)	Dummy that takes the value 1 if the respondent is in the middle income quintile and 0 otherwise. Income quintiles depend on the income of a country's respondents.
Income quintile 4 (0/1)	Dummy that takes the value 1 if the respondent is in the second highest income quintile and 0 otherwise. Income quintiles depend on the income of a country's respondents.
Per capita income (district)	Average income of each of the households, in the districts of residence (in soles)
Home ownership	Dummy that takes the value 1 if the respondent owns a home and 0 otherwise.
Household saves	Dummy that takes the value 1 if the household has a surplus at the end of the month and 0 otherwise.
Household in debt	Dummy that takes the value 1 if the household has a deficit at the end of the month and 0 otherwise.
Towns of 20,001 to 100,000 homes	Dummy that takes the value 1 if the respondent lives in a population center of 20,001 to 100,000 homes and 0 otherwise.
Towns of 10,001 to 20,000 homes	Dummy that takes the value 1 if the respondent lives in a population center of 10,001 to 20,000 homes and 0 otherwise.
Towns of 4,001 to 10,000 homes	Dummy that takes the value 1 if the respondent lives in a population center of 4,001 to 10,000 homes and 0 otherwise.
Towns of 401 to 4,000 homes	Dummy that takes the value 1 if the respondent lives in a population center of 401 to 4,000 homes and 0 otherwise.
Towns of less than 401 homes	Dummy that takes the value 1 if the respondent lives in a population center of 401 homes and 0 otherwise.

Source: BBVA Research

Table A.2.

Description of the variables in the enterprise regressions

Variable	Description
Bank user (0/1)	A company is considered to be banked if it falls into one of the following categories: it has a mortgage, receives interest on some financial product (savings...) or carries out online banking transactions.
Rural (0/1)	Dummy that takes the value 1 if the respondent lives in a rural area and 0 otherwise.
Woman (0/1)	Dummy that takes the value 1 if the respondent is a woman and 0 otherwise.
Single (0/1)	Dummy that takes the value 1 if the respondent is single and 0 otherwise.
Literate	Dummy that takes the value 1 if the respondent can read and write and 0 otherwise.
Age	Age in years
Educational level	Years of education
age2	Age in years, squared
Poor household	Dummy that takes the value 1 if the household is in a condition of poverty or extreme poverty according to the national measurement (poverty/extreme poverty line) and 0 otherwise
Income quintile 1 (0/1)	Dummy that takes the value 1 if the respondent is in the lowest income quintile and 0 otherwise. Income quintiles depend on the income of a country's respondents.
Income quintile 2 (0/1)	Dummy that takes the value 1 if the respondent is in the second lowest income quintile and 0 otherwise. Income quintiles depend on the income of a country's respondents.
Income quintile 3 (0/1)	Dummy that takes the value 1 if the respondent is in the middle income quintile and 0 otherwise. Income quintiles depend on the income of a country's respondents.
Income quintile 4 (0/1)	Dummy that takes the value 1 if the respondent is in the second highest income quintile and 0 otherwise. Income quintiles depend on the income of a country's respondents.
Income from independent activity	Net income from the independent activity, (in soles)
Net profit of the business	Net profit of the business, (in soles)
Annual household spending	Total household spending (in soles)
Per capita spending (district)	Average spending of each of the households, in the districts of residence (in soles)
Towns of 20,001 to 100,000 homes	Dummy that takes the value 1 if the respondent lives in a population center of 20,001 to 100,000 homes and 0 otherwise.
Towns of 10,001 to 20,000 homes	Dummy that takes the value 1 if the respondent lives in a population center of 10,001 to 20,000 homes and 0 otherwise.
Towns of 4,001 to 10,000 homes	Dummy that takes the value 1 if the respondent lives in a population center of 4,001 to 10,000 homes and 0 otherwise.
Towns of 401 to 4,000 homes	Dummy that takes the value 1 if the respondent lives in a population center of 401 to 4,000 homes and 0 otherwise.
Towns of less than 401 homes	Dummy that takes the value 1 if the respondent lives in a population center of 401 homes and 0 otherwise.

Source: BBVA Research.

Table A.3.

Description of the variables in the barriers regressions

Variable	Description
Perceived barriers	
Too far away	Unbanked individuals choose the option: "They are very far away"
High costs	Unbanked individuals choose the option: "Their services are too expensive"
Lack of documentation required	Unbanked individuals choose the option: "I do not have the documentation required (personal identification, ID card, etc.)"
Lack of trust	Unbanked individuals choose the option: "I do not trust financial institutions"
Lack of money	Unbanked individuals choose the option: "I do not have enough money to use them"
Woman (0/1)	Dummy that takes the value 1 if the respondent is a woman and 0 otherwise.
Primary education	Dummy that takes the value 1 if the respondent has completed at least primary education (minimum 8 years of schooling) and 0 otherwise.
Age	Age in years
Age ²	Age in years, squared
Quintile 1 (0/1)	Dummy that takes the value 1 if the respondent is in the lowest income quintile and 0 otherwise. Income quintiles depend on the income of a country's respondents.
Quintile 2 (0/1)	Dummy that takes the value 1 if the respondent is in the second lowest income quintile and 0 otherwise. Income quintiles depend on the income of a country's respondents.
Quintile 3 (0/1)	Dummy that takes the value 1 if the respondent is in the middle income quintile and 0 otherwise. Income quintiles depend on the income of a country's respondents.
Quintile 4 (0/1)	Dummy that takes the value 1 if the respondent is in the second highest income quintile and 0 otherwise. Income quintiles depend on the income of a country's respondents.

Source: BBVA Research.

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