

## Determinants of how intensely financial accounts are used in Latin America

### Abstract

The purpose of this article is to reveal which are the factors and expose in what way they affect how intensely people use financial accounts, from 17 Latin American countries for the years 2011 and 2014. The results show that, at an individual level, men, older adults, and those with higher education and income levels make more frequent use of their accounts. Similarly, at a contextual level, as the GDP per capita, inflation, and the number of ATMs increases, so does the level of account use. In contrast, an increase in the number of Internet users has the opposite effect.

**Key words:** Financial inclusion, level of use, intensity, Latin America, Global Findex

**JEL Classification:** D19, G21, G23, O16

### 1. Introduction

Participation in the financial system provides people with the possibility to improve their quality of life through access to productive savings services, payment mechanisms, credit sources and insurance policies that improve individuals' socioeconomic situations. In fact, the theoretical and empirical literature has highlighted the importance of financial systems for a country's economic development, exhibited through increased growth rates and the reduction of poverty and income inequality among its population.

Financial inclusion, which has become more important globally over the past two decades, may then be understood as a process through which people access and use such services to fulfil a great variety of needs. Studies on the topic have focused on trying to understand the barriers to access and use determinants of financial services. However, to the knowledge of the authors of this study, there is no existing research that focuses on analysing the determinants of the use intensity for such services. As such, in order to contribute to the literature, and bearing in mind that holding an account in a formal financial institution is the most basic expression of financial inclusion, this study endeavours to answer the question: What determines how intensely Latin American households use their financial accounts?

As mentioned briefly above, the purpose of this work is to estimate the factors that affect people's behaviour in terms of how intensely they use their accounts in financial institutions. To do this, we carry out an econometric analysis based on a pooled cross section methodology, through which it is possible to highlight individual and contextual determinants that explain such behaviours. This essay focuses on the Latin American region given the availability of data for at least 17 countries with relatively homogeneous socioeconomic characteristics. We also consider it interesting to study developing countries that, given their condition, can take advantage of the results found to propose policies that encourage the use of financial services and, as such, improve people's wellbeing. In contrast to most previous studies, this work, based on people's individual behaviour, focuses on analysing financial inclusion from the demand-side perspective. The results show that, at an individual level, a) men use their accounts more than women; b) account use increases with age, but this relationship becomes inverted at a certain point in time; and c) the higher an individual's level of education or income, the more likely he or she is to make use of his or her financial account. At a contextual level, macro-economic phenomena such as increased GDP per capita and inflation, together with factors relating to financial scope such as the number of ATMs, also intensify a country's inhabitants' account use rates. However, it has also been proven that an increased number of Internet users have the opposite effect, probably due to a greater use of electronic financial services than the use of "physical" ones.

The paper is structured as follows. The second section presents a literature review referring to the topic of financial inclusion, highlighting the gap in the literature that we expect to fill with this study. The third section exposes the methodology used to answer the question, it provides a detailed description of the variables of interest, and explains the econometric model used to reach these statistical results. The fourth section exposes and analyses the coefficients and marginal effects of the different regressions. Finally, the fifth section presents the conclusions, and a concrete answer to the initial question.

## **2. Literature review**

In the study *Access to finance: An unfinished agenda* (2008), authors Thorsten Beck and Asli Demirgüç-Kunt affirmed that financial services and institutions emerge as mechanisms that respond to the economic frictions caused by information asymmetry and transaction costs in the markets. In addition, such institutions serve as a means to reduce credit restrictions for entrepreneurship projects and as efficient resource distribution mechanisms for productive activities. The authors also highlight that a country's financial development generates macro level benefits, evident in sustained economic growth, and

micro level benefits, through the reduction of inequality and poverty in societies. Beck, Demirgüç-Kunt and Levine (2007) expose that there is a statistical and economically significant relationship between the development of a country's financial system and the increased participation of the poorest quintile of society in it, as well as a reduction of the number of people who live on less than a dollar a day.

In order to investigate and understand the mechanisms which give rise to such phenomena, recent literature has changed its focus from the study of financial depth (the amount of deposits and credits in the banking system), to one that analyses financial scope and inclusion. While the scope can be understood as accessibility to the system in geodemographic terms, there is no consensus in the literature dealing with the definition of financial inclusion. Nevertheless, there does seem to be a pattern, which highlights the multidimensional nature of this concept. In this study, we will use the definition offered by the Alliance for Financial Inclusion (AFI), which sets out that financial inclusion is based on the access, usage, quality, and welfare offered by a financial system (AFI, 2010). Here, access is understood as the possibility to be able to use the formal financial services available on the market, while use is defined as the permanence and depth of the use of financial products and services. The dimensions of quality and welfare refer to the characteristics of the services provided by the financial entities and the positive impact that these have on the lives of the consumers, respectively (AFI, 2011). However, Demirgüç-Kunt, Klapper, Singer, and Van Oudheusden (2015) establish that financial inclusion and access to the system are conceptually different topics. For these authors, while the term inclusion is related to use, its absence does not necessarily imply impossible access. It is this conceptual difference that gives rise to an opportunity to study an aspect that has not been broadly looked into until now: how intensely financial services are used.

Recent studies that have dealt with financial inclusion have done so with the due conceptual division between access to and use of the financial products. As mentioned above, it is possible to segment the population in the first instance between those who have the possibility to access the financial system and those who, due to some kind of barrier, find access impossible (Beck and De la Torre, 2006). Researchers in this topic focus on finding out what these limitations to access are, their consequences for the population, and how these can be reduced through the implementation of public policies. It has been found that for an individual, access to the financial system is involuntarily frustrated mainly because of the lack of sufficient income, but also because of high service charges and the lack of sufficient documentation, among other reasons (CAF, 2011). In turn, high levels of exclusion are associated to greater levels of poverty, inequality, and discrimination in a country (Beck, Demirgüç-Kunt and Martinez Peria, 2008). On the other hand, among those who can access such services, there are individuals that voluntarily either use the financial system or not (World Bank, 2014). The researchers have found

that the determinants of opting-out of the financial system include different religious and cultural factors, mistrust in the system, risk-aversion, or a simple lack of need.

Participation in the financial system is a factor that should allow people to improve their quality of life through access to productive savings services, payment mechanisms, credit sources, and insurance policies that improve their socioeconomic situations. Studies by Beck et al. (2008), Bruhn and Love (2014), Burgess and Pande (2005), among others, show that people that actively participate in the system have better opportunities to: create and expand companies, invest in productive activities, manage risk, and cope with economic shocks. Despite this, María José Roa, a researcher from the Centre for Latin American Monetary Studies, points out that “private agents show low or zero use of financial services due to reasons such as lack of financial knowledge or education; a lack of savings, employment, or income; mistrust in the financial institutions; and fear of getting into debt,” among other reasons (Roa, 2013, pg.: 124).

For Demirgüç-Kunt et al. (2015), financial inclusion, at its most basic, begins by being in possession of a bank account, and it is through its regular use that people benefit from having one. For most, having an account in a formal financial institution constitutes a first step to entering the financial system through which they can have access to services such as handling and transferring savings, incomes, remittances, and government transfers, etc. Accounts serve as a simple and consistent metric that facilitates the measurement of financial inclusion within and between countries. Roa (2013) highlights that the use indicators for these accounts gather information on both demand and supply, the number of people that have financial products for savings and payment, the frequency of account use, and client permanence. Most of this data comes from surveys applied to financial institutions, regulators, and supervisors, as well as households and small and medium companies.

Beck, Demirgüç-Kunt and Martínez Peria (2007) mention that one of the greatest limitations to analysing the use of financial services, such as deposits and statements, is the absence of sufficient intertemporal and interstate data, especially at user level. This document proposes a first step in filling the gap in the literature on how intensely the most basic financial product—an account in a formal institution—is used. Based on the data gathered by the *Global Findex*, a World Bank demand-side study, we can analyse the indicators of financial inclusion and service use in different countries and at different points in time. In this case, we will evaluate the incidence of individual and contextual characteristics on how intensely these accounts were used in Latin America between 2011 and 2014 (which is the data we have available).

As pointed out in the studies by Demirgüç-Kunt et al. (2015), Cull and Scott (2010), and Murcia Pabón (2007), there are individual characteristics, such as gender, age, and level of education and income that affect access to and use of financial services. The authors show that, being male increases the tendency to use financial tools for saving, credit, and formal insurance, as does increasing age, education, and income levels. Similarly, Demirgüç-Kunt et al. (2015), Beck, Demirgüç-Kunt et al. (2007), and Demirgüç-Kunt and Klapper (2013), show how the contextual characteristics of each country affect the use of financial services by its population. These include macroeconomic variables, institutional strength, the development of information technology, and the scope of the financial offer. The authors indicate that there is a positive and significant correlation between the GDP per capita, the number of branches and ATMs made available by commercial banks, and the development of communication infrastructure, with the level of loan and deposit transactions carried out by a country's population in its financial entities. Finally, the inhabitants of Latin America are taken as the object of study given the possibility this sector offers to analyse a broad population with relatively homogenous characteristics, within a region lagging behind in financial development when compared to other world regions (CAF, 2011).

Nevertheless, it is important to highlight that we found no evidence of studies which investigate folksthat do make use of the financial system, leaving an academic gap in terms of their behaviour and how intensely accounts are used. In fact, the most notable contribution of this work lies in the use of sources of intertemporal data to determine, based on the results of econometric regressions, the individual and contextual factors that affect how intensely financial accounts are used by people in Latin America.

### **3. Methodology**

This study goes beyond the traditional literature on financial inclusion concerning its dimension of accessibility or its utility for the public. We wish to go deeper by answering the questions set out by Demirgüç-Kunt et al. (2015) regarding the number of people that really use their financial accounts and how many do so in a way that allows them to take full advantage of the benefits of financial inclusion. Given the impossibility of observing or measuring how intensely individuals use accounts in a continuous scale, it is necessary to create a proxy variable that allows the corresponding analysis.

**Dependent variable: Level of use**

In *The Global Findex Database 2014: Measuring Financial Inclusion around the World* report, Demirgüç-Kunt et al. (2015) define four levels of how intensely financial accounts are used. In the first place, they classify as *dormant* those accounts from which the users do not withdraw or deposit money for a period of a year. The accounts of users who only make one or two deposits a month or that carry out at least one mobile money transaction a year are classified as *low use*. Among transactions carried out through wireless devices, we only consider those undertaken through accounts not linked to a financial institution but providers of this service in particular. Similarly, those accounts used for receiving remittances, government transfers or remunerations for productive activities throughout a year are classified as *medium use*. Finally, *frequent use* accounts are those that serve as savings funds and from which three or more withdrawals are done per month, as well as those used to pay public service bills or school fees, to send remittances or to make debit card payments. Thus, based on the information available in the database referring to each of these characteristics, we were able to build a proxy variable to undertake the analysis described above. To sum up, we present the component of each category for this variable in Table 1.

Table 1: Components of the proxy variable: Level of use.

<b>Category</b>	<b>Description</b>
<b>4</b>	<b>Frequent use:</b> used for savings, to make three withdrawals each month, to pay public services bills or school fees, to send remittances, to make payments with a debit card
<b>3</b>	<b>Medium use:</b> used to receive salaries or payments for agricultural products, to receive Government transfers, to receive remittances
<b>2</b>	<b>Low use:</b> mobile money transactions, make one or two monthly deposits or withdrawals
<b>1</b>	<b>Inactive:</b> No deposits or withdrawals within a year

### 3.2 Database description

In order to gather a greater quantity of data for each country and in order to measure regional evolution in terms of how intensely accounts are used, we used a pooled cross section methodology to build the database. We gathered the information of a single population (Latin America<sup>1</sup>), and added the individual data from random samples and the contextual indicators

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<sup>1</sup> Information for 17 countries in LATAM was found: Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Peru, Uruguay and Venezuela.

for two points in time. These times were chosen based on the availability of data in the most recent *Global Findex* surveys, carried out in 2011 and 2014. The database was made up of 13,353 observations for 2011, and 13,392 for 2014. However, this number was reduced given that the proxy variable only existed for individuals that have an account in a financial institution, which, for the Latin American case, is not very common. For this specific analysis, the number of observations was of 4,781 for 2011, and 5,655 for 2014, for a global total of 10,436.

### 3.3 Model variables

Table 2 shows how the variables used in the regression analysis were formed. In order to find the determinants of how intensely accounts in financial institutions are used by Latin Americans, we had to make up a database that contained the proxy variable, together with the individual and contextual indicators of each person for the different countries in Latin America. For the proxy variable (level of use) and the individual variables (age, gender, educational and income level per quartile), we used the information available in the *Global Findex* Survey, a demand-side study of financial inclusion carried out by the World Bank. The survey, representative of 148 countries, is applied to randomly selected adults over 15 years of age in order to determine how they carry out their financial transactions for savings, loans, payments, and risk management.

The macroeconomic contextual variables (GDP per capita, inflation and unemployment), together with the financial scope indicators (number of ATMs and commercial bank branches per 100 inhabitants), were obtained from the International Monetary Fund (i.e., *Financial Access Survey*) databases, while the number of Internet users in each country was taken from the International Telecommunication Union (i.e., *ICT Facts and Figures*). The indicators of institutional strength for each economy: credit registry coverage and the strength of legal rights indexes were obtained from *Doing Business*: a World Bank project that provides measurements of the commercial regulations for 189 economies.

Table 2: Definition of the variables used in the regression analysis.

VARIABLES	DESCRIPTION	TYPE
<b>Dependent</b>		
Level of use	How intensely financial accounts are used measured in four levels: 1=Inactive, 2=Low use, 3=Medium use, 4=Frequent use	Ordinal categorical
<b>Independent</b>		
Year	The year in which the survey was applied: 0=2011, 1=2014	Dichotomous

<b>Individual</b>	Age	Age reported as the person's age when surveyed	Continuous
	Age2	The age squared	Continuous
	Gender	The surveyed individual is: 0=Female, 1=Male	Dichotomous
	Education	The highest educational level reached: 1=Primary or less, 2=Secondary, 3=Complete tertiary or higher	Ordinal categorical
	Income quintile	The household's income quintile	Ordinal categorical
<b>Contextual</b>	Ln (GDP per capita)	The natural logarithm of the GDP per capita per country.	Continuous
	Inflation	The annual percentage of the average change in consumer prices	Continuous
	Unemployment	The rate of people who are not currently employed and that have actively looked for work	Continuous
	Internet users	The index of people who have used the Internet from any place over the last 12 months, per 100 inhabitants	Continuous
	Strength of legal rights	The strength of legal rights index measured through the extent to which the guarantees and bankruptcy laws protect the rights of the lenders and borrowers and, as such, facilitate loans	Continuous scale between 0-12
	Coverage of the credit register	The percentage of the adult population registered in a database managed by the public sector, which gathers information on the creditworthiness of borrowers in the financial system	Continuous scale
	Branches of commercial banks	The number of branches of resident commercial banks that provide financial services to clients and are physically separated from the main office, per 100,000 inhabitants	Continuous
ATMs	The number of telematic devices provided by an entity to its clients in order to give them access to financial transactions in a public place, per 100,000 inhabitants	Continuous	



### 3.4 Descriptive statistics

Table 3 outlines the distribution of information in the database, and it highlights that the number of observations per variable is more or less constant between the two years of interest. We can see that the proportion of men and women and the number of people surveyed in each country is well distributed. However, it is important to highlight that the database is made up mainly of people who completed secondary education and that are in income quintiles 4 and 5. The behaviour of the proxy variable reveals that *low use* is the most common for both years, and that *dormant* diminished by almost 10 percentage points over time. We can also see that the average for the continuous independent variables stayed partially constant between 2011 and 2014. Latin America is described as a young region with an average age that oscillates around the age of 40, with a per capita index of around \$5.500 (USD at 2005 constant prices), and whose inflation and unemployment rate is around 9% and 6%, respectively. It could also be said that the region has shown an improvement in terms of Internet coverage, whereby the service has extended to almost 50% of the population. Finally, there is evidence of intertemporal progress in the contextual variables related to institutional strength and the scope of the financial offer.

Table 3: Distribution of the information in the pooled cross section database.

<b>Level of use</b>	Inactive	19.12%	9.28%
	Low use	68.37%	77.86%
	Medium use	10.37%	5.59%
	Frequent use	2.13%	7.27%
<b>Gender</b>	Woman	52.21%	52.24%
	Man	47.49%	47.76%
<b>Income quintile</b>	1	8.78%	10.11%
	2	11.29%	13.14%
	3	17.53%	17.75%
	4	23.72%	23.73%
	5	38.67%	35.26%
<b>Level of Education</b>	Complete primary or less	24.83%	25.69%
	Secondary	55.36%	54.85%
	Complete tertiary or higher	19.81%	19.45%

<b>Country</b>	Argentina	7.43%	8.35%
	Bolivia	5.00%	5.38%
	Brazil	11.48%	10.10%
	Chile	7.74%	8.17%
	Colombia	5.71%	5.02%
	Costa Rica	9.71%	8.79%
	Dominican Republic	6.76%	6.22%
	Ecuador	7.01%	6.54%
	El Salvador	2.47%	3.66%
	Guatemala	4.06%	4.07%
	Honduras	3.97%	3.55%
	Mexico	5.29%	4.49%
	Nicaragua	2.24%	1.89%
	Panama	4.52%	4.67%
	Peru	4.25%	4.40%
	Uruguay	4.41%	6.47%
Venezuela	7.97%	8.22%	

Average	2011	2014
<b>Age</b>	41.75	43.24
<b>GDP per capita</b>	\$ 5,315.04	\$ 5,733.50
<b>Inflation</b>	7.76%	11.28%
<b>Unemployment</b>	6.40%	6.05%
<b>Internet users</b>	38.19	49.68
<b>Strength of legal rights</b>	3.75	4.01
<b>Coverage of the credit register</b>	52.61%	60.70%
<b>Branches of commercial banks</b>	26.72	40.66
<b>ATMs</b>	48.55	57.35

Based on a correlation matrix between the dependent variable and the regressors presented in Table 4, and according to the findings by researchers into topics related to financial inclusion exposed in the previous section, we were able to project the expected behaviour for each explanatory variable with respect to its influence on the objective variable of the model. In the first place, it is expected that as a person gets older, he or she will have to make greater use of the financial system and, as such, of his or her financial account. However, the negative correlation can be explained given that it is feasible to suppose that a time will come when the individual no longer needs to use the financial services so intensely, and thus reverse the behaviour. Also, it has been empirically proven that the higher the level of education and income quintiles, the more

intense an individual’s participation in the financial system. It is also expected for the model to be consistent with the idea that in Latin America, men tend to make greater use of the financial tools than women.

Inasmuch as the macroeconomic contextual variables, it is expected that, as a country’s GDP per capita, inflation, and number of Internet users increase, its population will be more likely to use financial accounts more intensely. In the first place, with respect to per capita income, the directly proportional relationship is explained by the fact that socioeconomic development is positively correlated with the development of a country’s financial system, where more advanced economies show higher levels of financial depth and inclusion. In terms of inflation, it is rational to think that individuals will seek to shield themselves from the depreciation of the value of their money over time through the financial system and its instruments that enable them to obtain yields by capital raising interests. It is also expected that as the number of Internet users in a country increases, the geographical barriers to access and use of the financial system will be reduced, thus increasing how intensely the system is used. Finally, it is not possible to determine the impact of unemployment on the dependent variable, as people with different income levels react differently when faced with changes in their employment status. While, by definition, individuals with higher incomes will not feel strongly affected by increased unemployment, those from more vulnerable sectors will find it more difficult to participate in the system given the scarcity of resources.

Consistent with the literature, it is expected that the variables of financial scope expressed as the number of ATMs for every 100,000 inhabitants and the number of commercial bank branches for every 100,000 inhabitants will have a positive correlation with how intensely a country’s population uses financial accounts. In the same vein, a similar behaviour is projected with respect to the variables for institutional strength, expressed by coverage of the credit register indices and the guarantee of legal rights.

Table 4: Correlation matrix between the dependent variable and the model regressors.

	<b>Level of use</b>
<b>Age</b>	-0.0245**
<b>Gender</b>	0.0501***
<b>Education</b>	0.0850***
<b>Quintile</b>	0.0747***
<b>GDP per capita</b>	0.0334***

<b>Inflation</b>	0.0696***
<b>Unemployment</b>	-0.0079
<b>Internet users</b>	0.0453***
<b>Strength of legal rights</b>	0.0232**
<b>Coverage of the credit register</b>	0.0041
<b>Commercial bank branches</b>	0.0192**
<b>ATMs</b>	0.0578***

\*\*\* p<0.01 \*\* p<0.05 \* p<0.1

### 3.5 Econometric model

As mentioned above, the dependent variable, referring to how intensely an account is used, was measured based on a proxy variable that provides an ordered classification of use on four levels based on the specifications made by Demirgüç-Kunt et al. (2015). As exposed in the theory by Jeffrey Wooldridge (2010), carrying out an econometric analysis of this variable implies the use of an ordinal response model, built based on a latent regression, assuming a linear relationship between the dependent and independent variables, expressed by the following equation:

$$y_i^{\zeta} = \beta' X_i + e_i$$

Where  $y_i^{\zeta}$  is a non-observable latent variable, that can be interpreted as the representation of how intensely an account is used by an individual in a continuous scale,  $\beta' X_i$  is a linear combination of regressors, and  $e_i$  is a random error term. The ordered logit model provides information on how the probability of being in a certain evaluation category (dormant, low, medium, high) changes due to variations in individual and contextual indicators.

The dependent variable  $y_i$  is divided into  $J$  categories, where each observation is situated in a certain category when the estimated latent variable crosses an unobservable threshold. That is:

$$y_i = j \text{ si } \mu_{j-1} < y_i^{\dot{c}} \leq \mu_j, j=1, \dots, J$$

Accordingly, the latent variable  $y_i^{\dot{c}}$  is related to the four categories of the dependent variable  $y_i$  as follows:

$$y \begin{cases} \text{Dormant} = 1 \text{ si } y_i^{\dot{c}} \leq \mu_1 \\ \text{Low} = 2 \text{ si } \mu_1 < y_i^{\dot{c}} \leq \mu_2 \\ \text{Medium} = 3 \text{ si } \mu_2 < y_i^{\dot{c}} \leq \mu_3 \\ \text{High} = 4 \text{ si } \mu_3 < y_i^{\dot{c}} \end{cases}$$

Where  $\mu_i$  are constants that represent unobservable thresholds. The probability of observing each one of the categories of  $y_i$  is defined by the following system:

$$\text{Prob}(y_i=1) = \Phi(\mu_1 - \beta' X) \quad \text{Prob}(y_i=2) = \Phi(\mu_2 - \beta' X) - \Phi(\mu_1 - \beta' X)$$

$$\text{Prob}(y_i=3) = \Phi(\mu_3 - \beta' X) - \Phi(\mu_2 - \beta' X) \quad \text{Prob}(y_i=4) = 1 - \Phi(\mu_3 - \beta' X)$$

Where  $\Phi$  denotes a logistic distribution function expressed as:

$$\Phi(\mu_j - \beta' X_i) = \frac{e^{(\alpha_j - \beta' X_i)}}{1 + e^{(\alpha_j - \beta' X_i)}}, j=1, \dots, J-1$$

The values for  $\mu_j$  are estimated together with coefficients  $\beta$  using a maximum likelihood method. In

addition, for all the probabilities to be positive, the following has to be true  $\mu_1 < \mu_2 < \mu_3$ . In the same way

as with the traditional logistics model, the coefficients estimated by this ordered model do not directly quantify the change in the probability given variations in the independent variables. Thus, while the sign of the coefficients does indicate the direction of change, the magnitude of the variation depends on the concrete value taken by the density function. Therefore, a concrete interpretation of the model can be carried out with the marginal effects corresponding to the probability variation for each of the values taken by the dependent variable given the unitary changes of the explanatory variables.

#### 4. Results and analysis

Table 5 shows the results obtained by running the different models through ordered logit regressions for the *level of use* variable, with the individual and contextual explanatory variables.

Table 5: Logistic regression ordered by the dependent variable: Level of use

<b>Variables</b>	<b>(1) Level of use</b>	<b>(2) Level of use</b>	<b>(3) Level of use</b>	<b>(4) Level of use</b>
<b>Year</b>	0.529***	0.587***	0.590***	0.618***
<b>Age</b>	0.0266***	0.0248***	0.0248***	0.0260***
<b>Age2</b>	-0.000285***	-0.000278***	-0.000278***	-0.000288***
<b>Man</b>	0.260***	0.270***	0.270***	0.267***
<b>Secondary</b>	0.403***	0.391***	0.392***	0.444***
<b>Complete tertiary or higher</b>	0.473***	0.469***	0.470***	0.562***
<b>2do Quintile</b>	0.252**	0.267**	0.267**	0.255**
<b>3er Quintile</b>	0.188*	0.209*	0.209*	0.203*
<b>4to Quintile</b>	0.468***	0.503***	0.503***	0.496***
<b>5to Quintile</b>	0.547***	0.593***	0.593***	0.581***
<b>GDP per capita</b>		0.401***	0.407***	0.270***
<b>Inflation</b>		1.162***	1.162***	1.427***
<b>Unemployment</b>		-1.255	-1.283	2.354
<b>Internet users</b>		-0.0110***	-0.0113***	-0.0183***
<b>Strength of legal rights</b>			-0.00297	0.0181
<b>Coverage of the credit register</b>			0.0134	-0.0183
<b>Commercial bank branches</b>				-0.000228
<b>ATMs</b>				0.00925***
<b>Threshold 1</b>	-0.264	2.674***	2.704***	2.108***
<b>Threshold 2</b>	3.639***	6.607***	6.636***	6.042***
<b>Threshold 3</b>	4.691***	7.664***	7.693***	7.131***

\*\*\* p<0.01 \*\* p<0.05 \* p<0.1

As mentioned above, the positive coefficients show an increase in the probability of a person using his or her financial account more frequently and thus figuring at a higher level of intensity, while negative coefficients indicate the opposite. We also verify that the condition for the probabilities to be positive,  $\mu_1 < \mu_2 < \mu_3$ , are fulfilled for all four models. It is important to highlight that in all the regressions the “svy” command was used to adjust the regression models to the survey data, considering the sampling weights for each observation.

For all the models, the individual level explanatory variables are significant at 1%, except those for quintiles 2 and 3, which are significant at 5 and 10%, respectively. We can see that there is a tendency for the level of use of financial accounts to increase as age, education, and income quintile levels increase. The model also shows that men are more likely to use their accounts more frequently. The negative sign of the age variable squared indicates that, despite the fact that people use accounts more intensely with each additional year of life, there is a maximum age after which the situation reverses. Finally, the dichotomous variable for the year shows that in 2014 Latin Americans tended to use their bank accounts more frequently than they did in 2011. The above results are consistent with the studied literature and the behaviour expected for each variable.

The macroeconomic factors, introduced from the second model onward, were significant at 1% for all cases, except for unemployment. We can see that people’s propensity for using their accounts more intensely increases as their income per capita increases, providing a result which is consistent with the literature, whereby countries with greater socioeconomic development show a higher level of financial inclusion. Despite the fact that it is not the aim of this study to analyse the direction of this causality, it does show that economic and financial development go hand-in-hand. Similarly, we can see that the greater the levels of inflation, the greater the probability that Latin Americans will use their financial accounts. Again this result is consistent with the rationale that people seek to shield themselves from the loss of value of their physical cash by making use of the financial system. A more intensive use of financial accounts may be interpreted as a greater use of the returns offered by financial entities. On the other hand, we can see that as the number of people in a country that use the internet increases, the population’s intensity of account use diminishes, which,

despite seeming contradictory, can be explained given the definition of a proxy variable. The *medium* and *frequent* levels of use of financial accounts do not include Internet transactions or movements, despite the fact that this mechanism is being used increasingly often to manage monetary resources. Thus, in this case as the number of people who use the Internet in a country increases, and with it presumably the use of electronic transactions increases, the use intensity of accounts at a physical level diminishes. Finally, the fact that unemployment was not significant at any level may be due to the fact that, in principle, it affects the lower-income population more. That is, an increase in the rate of unemployment does not affect the behaviour of people who make little or no use of their financial accounts in any case.

The institutional strength variables were not significant at any level. This was probably a result of the construction of indexes that represent these variables and to the lack of impact of these factors on people's financial activity. Both the strength of legal rights and the coverage of the credit register—explained in Table 2—are measures created by the World Bank's *Doing Business* project, within a framework of reference that considers many other variables of a country's financial system. Thus, using only these two indicators distorts the real impact of the institutional strength indicators on the objective variable.

Finally, we can see that of the variables that show the scope of the financial offer, the number of ATMs did have a positive and significant impact on how intensely people use their financial accounts, while the number of commercial bank branches did not. This result is consistent with the findings by Beck et al. (2007), where the use of financial services increases with a greater penetration of ATMs in a population, while this is not affected by the number of branches.

Table 6 shows the marginal effects of the factors on each of the categories of the proxy variable. Each cell contains a coefficient that explains the percentage change in the probability of the occurrence of each category, given a unit increase on the value of each factor. It is precisely these results that enabled us to carry out the innovative analysis presented in this study.

Table 6: Marginal effects of the ordered logit regression generalised to each category of the dependent variable: Level of use



Level of use	Inactive	Low use	Medium use	Frequent use
<b>Year</b>	-0,0710***	0,00344	0,0393***	0,0283***
<b>Age</b>	-0,00298***	0,000145	0,00165***	0,00119***
<b>Age2</b>	3,31e-05***	-0,0000016	-1,83e-05***	-1,32e-05***
<b>Man</b>	-0,0309***	0,00201*	0,0168***	0,0120***
<b>Secondary</b>	-0,0559***	0,0124***	0,0259***	0,0177***
<b>Complete tertiary or higher</b>	-0,0681***	0,0105***	0,0339***	0,0236***
<b>2nd Quintile</b>	-0,0344**	0,0114*	0,0138**	0,00917**
<b>3er Quintile</b>	-0,0278*	0,00989	0,0108*	0,00711*
<b>4er Quintile</b>	-0,0621***	0,0129**	0,0291***	0,0200***
<b>5er Quintile</b>	-0,0707***	0,0113*	0,0350***	0,0244***
<b>GDP per capita</b>	-0,0310***	0,0015	0,0172***	0,0124***
<b>Inflation</b>	-0,164***	0,00795	0,0907***	0,0653***
<b>Unemployment</b>	-0,27	0,0131	0,15	0,108
<b>Internet users</b>	0,00210***	-0,000102	-0,00116***	-0,000835***
<b>Strength of legal rights</b>	-0,00208	0,000101	0,00115	0,000826
<b>Coverage of the credit register</b>	0,00211	-0,000102	-0,00117	-0,000839
<b>Commercial bank branches</b>	0,0000262	-0,00000127	-0,0000145	-0,0000104
<b>ATMs</b>	-0,00106***	0,0000515	0,000588***	0,000423***

\*\*\* p<0,01 \*\* p<0,05 \* p<0,1

It is important to highlight that by definition of the logistic methodology, the table's base comparative unit is comprised of women surveyed in 2011, with a level of education that goes as far as primary school or less and that belong to the first income quintiles of the society. That is, any analysis of the changes in the individual factors must use this baseline group in order to avoid interpretation biases. The behaviour of these effects is consistent with the results of the regressions previously analysed. We can see that, over time, an increase in age, being a man, and having greater levels of education and income, significantly reduces the probability of the account being dormant, while the other levels of use become more common.

For example, in 2014, a man with tertiary education or higher belonging to the highest income quintile was 8.83% (2.83%+1.2%+2.36%+2.44%) more likely to present frequent use; and 12.5% (3.93%+1.68%+3.39%+3.5%) more likely to display a medium use of his financial account, when compared to a woman in 2011 with primary education or less and belonging to the lowest income quintile.

Similarly, we can see that, for each percentage point by which the GDP per capita or inflation of a country increases, the probability of its inhabitants having dormant accounts diminishes by 0.031% and 16.4%, while use intensity increases. The same behaviour can be observed with an increased number of ATMs per 100,000

inhabitants, where inactivity diminishes by 0.1% and medium and frequent use increase slightly. We can also see that as the number of Internet users per 100 inhabitants increases, inactivity increases by 0.21%, while how intensely people use accounts diminishes. Finally, we can see that the marginal effect of a change in the unemployment rate presents a similar behaviour to that of income per capita and inflation. However, given that none of the coefficients of this factor seemed to be significant, it is not possible to affirm that this is true for all cases.

Finally, it is important to highlight that low use, defined as mobile money transactions or making one or two deposits or withdrawals a month, is not significantly affected by variables such as year, age, and contextual factors. This may be due to a bias in the way how the proxy variable categories are defined, given the novelty represented by the handling of financial accounts through mobile devices or the Internet, especially in Latin America. That is, while the rest of the categories of the objective variable are defined concretely, the low use of an account presents a certain degree of ambiguity that makes its interpretation rather more difficult.

## **5. Conclusions**

During the last two decades the topic of financial inclusion has become increasingly important in the academic arena, providing evidence of a progressive rise in the number of research studies on the topic. Through econometric studies, several authors have been able to show the benefits of a higher degree of financial inclusion for the inhabitants of a country. However, one of the most important topics discussed is the multidimensional nature of this process. In the first place, financial inclusion must be understood as an individual's possibility to access savings, credit, insurance, and financial management tools offered on the market. On the other hand, the process also covers issues regarding the actual use of such tools by people who really do have access to them. Based on these two facets, researchers have focused their efforts on understanding the individual and contextual phenomena that influence and determine access to and use of the financial system.

However, there is another issue that is as important as the two dimensions we discussed previously. Assuming that a person has access to the different tools on the financial market and that he or she also uses some of

them, that individual could only take advantage of the benefits as he or she makes greater use of the tools. That is, as the individual's use intensity of a tool increases, he or she will be able to obtain greater benefits from it. Thus, to fill this gap in the literature and contribute to increasing the number of studies on the topic of financial inclusion, in this essay we set out to investigate how some individual and contextual determinants affect the use intensity of the most basic tool in the financial system: an account. For this case in particular, the object of study was the information available in the databases of the World Bank's *Global Findex*, for a total of 17 Latin American countries at two different points in time, in order to increase the amount of data available for the analysis.

To achieve this aim, we constructed a proxy variable which explains the level of use of the financial accounts under 4 categories. We undertook a series of econometric regressions based on an ordered logit methodology, fit for the nature of the model's dependent variable, through which it was possible to discover the impact of some of the factors on how intensely an individual uses his or her account. The results obtained from the regressions were consistent with the expected behaviour, discussed according to the existing literature. It was proven that as age and educational level increase, so does the propensity to use the account with greater intensity. It was also shown that men make greater use of this tool, compared to women, and that compared to 2011, in 2014 there was a greater tendency for Latin Americans to make more intense use of their accounts. Also, as GDP per capita, inflation, and the number of ATMs in a country increase, so does the probability that its inhabitants use their accounts more intensely. In contrast, the results indicate that as the number of Internet users in a region increase, individual account use diminishes. This phenomenon is thought to be a result of the definition of the proxy variable, where the medium use and frequent use categories do not take into account the electronic transactions that a person may carry out.

We hope that the present study and its results serve as an initial approach to a topic that has not been broadly studied in the literature on financial inclusion. Evidently, the lack of sufficient data and diversity of variables were a limiting factor for the potential scope of the topic discussed. One of the most important aspects that could not be treated here, given the scarcity of information, was that of examining and assessing the differences between countries. Thus, we hope that future research will carry out interregional comparisons in order to find factors that affect how intensely people use accounts in different economies. This will also allow

the implementation of public policies, based on those that have proven to be more effective, in order to increase the level of financial inclusion and with it, our societies' wellbeing.

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