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The Foundations of Financial Inclusion

Understanding Ownership and Use of Formal Accounts

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Abstract

Financial inclusion—defined here as the use of formal accounts—can bring many welfare benefits to individuals. Yet the authors know very little about the factors underpinning financial inclusion across individuals and countries. Using data for 123 countries and over 124,000 individuals, this paper tries to understand the individual and country characteristics associated with the use of formal accounts and what policies are effective among those most likely to be excluded: the poor and rural residents. The authors find that greater ownership and use of accounts is associated with a better enabling environment for accessing financial services, such as lower account costs and greater proximity to financial intermediaries. Policies targeted to promote inclusion—such as requiring banks to offer basic or low-fee accounts, exempting some depositors from onerous documentation requirements, allowing correspondent banking, and using bank accounts to make government payments—may be especially effective among those most likely to be excluded. Finally, the study the factors associated with perceived barriers to account ownership among those who are financially excluded and find that these individuals report lower barriers in countries with lower costs of accounts and greater penetration of financial service providers. Overall, the results suggest that policies to reduce barriers to financial inclusion may expand the pool of eligible account users and encourage existing account holders to use their accounts with greater frequency and for the purpose of saving.

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The Foundations of Financial Inclusion: Understanding Ownership and Use of Formal Accounts

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1. Introduction

Financial inclusion, typically defined as the use of formal financial services, has become a subject of growing interest for researchers, policy makers, and other financial sector stakeholders.[1] Financial exclusion is problematic when it is involuntary. In other words, exclusion deserves policy action when there are individuals whose marginal benefit from using financial services exceeds the marginal costs, but who are excluded by barriers—such as high account fees, large distances, and lack of suitable products—that result from market failures. The market failures could be due to a host of factors, such as imperfect information, noncompetitive markets, shortcomings in the contractual environment, and lack of physical infrastructure.

A growing body of research using field experiments shows that financial inclusion can have significant beneficial effects for individuals, providing both an economic and a political rationale for policies that promote financial inclusion.[2] In particular, the evidence is most compelling when it comes to the use of bank accounts. Having a bank account increases savings (Aportela, 1999), female empowerment (Ashraf et al., 2010), and consumption and productive investment of entrepreneurs (Dupas and Robinson, 2009).

In addition, previous studies focusing on the unbanked in the US have argued that not having a bank account can have a wide range of harmful effects. For instance, the lack of a bank account can make liquidity management and payments difficult, which could result in high fees associated with the use of money orders or check-cashing services (Lusardi, 2010). Also, cash transactions present financial and personal risks for those unbanked, since individuals have no

[1] In its most recent communiqué, the G20 agreed to "take the financial inclusion agenda forward" and "to assist countries, policymakers and stakeholders in focusing global efforts on measuring and sustainably tracking progress on access to financial services globally." Furthermore, according to a recent survey of bank regulators across 143 jurisdictions, 67 percent of regulators are charged with promoting financial inclusion (Cihak et al., 2012). For more information See item 9 in: http://www.mof.go.jp/english/international_policy/convention/g20/g20_120420.htm.

[2] See Karlan and Murdoch (2009) for a review of the literature.

recourse if the funds are stolen (Gross, Hogarth and Schmeiser, 2012). Moreover, an individual's decision to remain unbanked can have long-lasting effects, since having a bank account can facilitate asset building and wealth creation that may allow for consumption smoothing at retirement or when faced with shocks (Rhine et al., 2006).

Despite evidence on the importance of financial inclusion in general, and the use of bank accounts in particular, little is known about the reach of the financial sector across countries and the policies that foster inclusion (see Demirguc-Kunt, et al., 2008).[3] Existing studies rely on country-level proxies (such as the number of bank accounts per capita), drawing on data collected from bank regulators and supervisors (e.g., Beck, Demirguc-Kunt, and Martinez Peria, 2007; Honohan, 2008; Kendall, Mylenko, and Ponce, 2010). Not only are these studies problematic because the proxies used have significant limitations (for example, the number of accounts per capita might overestimate the percentage of the population with an account because some people have more than one account or accounts may be owned by foreigners), but more importantly, the fact that the data used are aggregated at the country level makes it impossible to assess how the impact of policies varies across individual characteristics, such as income.

This paper studies the underpinnings of financial inclusion using a new global individual-level database (for a detailed description of the data see Demirguc-Kunt and Klapper, 2012). The unique individual-level nature of the data—from the perspective of the users of financial services—allows us to disaggregate financial inclusion by key respondent characteristics, such as gender, age, education, employment status, and income, and to investigate how the factors and policies associated with greater inclusion vary according to individual-level characteristics. In particular, we are interested in analyzing whether policies to promote inclusion are especially

[3] The exception is the US, where a sizeable literature studies the unbanked and their behavior See, for example, Barr (2004), Hogarth et al. (2004,2005), Rhine and Greene (2006), Rhine et al. (2006) and Gross et al. (2012),

effective among the most commonly excluded (and hence targeted) group of individuals: the poor and those living in rural areas. For those who are financially excluded, we also investigate how the perceived barriers to inclusion (as reported by the individuals) correlate with individual and country characteristics, as well as policy measures.

While most formal financial institutions offer an array of financial services, we focus on deposit account use for several reasons. First, ownership of an account is typically comparable across countries, in contrast with credit, which varies by maturity, interest, collateral requirements, and the like. Second, deposit accounts provide mechanisms for both payments and savings, which are likely to be more universally demanded than credit. In their research on the financial lives of poor households, for example, Collins et al. (2009) find a pattern of intensive use of savings instruments. Third, even if we assume that 100 percent of the population demands credit, it is clear that not everyone is deserving of credit. Many individuals might not have good investment projects, so it would be inefficient to allocate resources to these individuals. Finally, financial stability concerns might imply that universal use of credit services may not be a policy goal. The recent U.S. subprime crisis illustrates this issue very clearly. On the other hand, assuming that there is universal demand for deposit, savings, and payment services, there are a priori fewer reasons why striving for 100 percent inclusion would have major negative implications for financial stability.[4]

What explains the extremely large variations in account penetration worldwide? Why do 99 percent of Danish adults have a bank account whereas virtually no adults living in Niger report having an account? Is the variation simply a function of country-level income, or is it related to other individual- and country-level factors? If so, which are they? Without a doubt,

[4] One potential concern might be that if 100 percent of the population has a bank account, deposit runs could be more destabilizing.

country-level income, proxied by GDP per capita, plays a large role in explaining the huge variation in account penetration worldwide. Beyond a GDP per capita of $15,000, account penetration is virtually universal with only a few exceptions. Indeed, we find that national income explains 73 percent of the variation in the country-level percentage of adults with a formal account around the world.[5] Yet if we examine the bottom 50 percent of the country-level income distribution in our sample (those with a GDP per capita below $2,436, the relationship between GDP per capita and account penetration is much weaker; GDP per capita explains only 15 percent of the variation in country-level account penetration. These disparities suggest that the variance in country-level account penetration is not determined only by economic development as proxied by GDP per capita. Hence, in our estimations, we consider a host of other country-level characteristics and policies as potential determinants of account use.

Our analysis focuses on three indicators of account use: (i) ownership of an account, (ii) use of the account to save, and (iii) frequent use of the account (defined as three or more withdrawals per month). We find that these indicators are associated with a better enabling environment for accessing financial services, such as lower banking costs and greater proximity to financial providers. Policies targeted to promote inclusion—such as offering basic or low-fee accounts, granting exemptions from onerous documentation requirements, allowing correspondent banking, and using bank accounts to make government payments—are especially effective among those most likely to be excluded: poor and rural residents. Finally, among those who do not have accounts, we analyze the factors associated with self-reported barriers to inclusion and find that these individuals report lower barriers in countries with lower costs of accounts and greater penetration of financial service providers. In addition, we find that among

[5] Reported R-squared is based on a country-level ordinary least squares (OLS) regression of account penetration on the log of GDP per capita.

those that report lack of money as the main barrier to account use, government policies to promote inclusion can increase the likelihood that individuals perceive financial services as being within their reach.

The rest of the paper is organized as follows. Section 2 introduces the survey data and summarizes our main variables of interest. Section 3 details the empirical approach we use to test the underpinnings of the use of accounts and the factors correlated with perceived barriers to account use. Section 4 presents the empirical results. Section 5 concludes.

2. Measuring Financial Inclusion

2.1 Survey Methodology

The data were collected by adding a new module on financial inclusion to the 2011 Gallup World Poll (GWP) survey, which has been conducted annually since 2005. Our module included questions on ownership of an individual or joint account, the use of the account for saving, and the frequency with which the account is used. Additional questions asked the unbanked for reasons why they do not use an account. In our analysis, we focus on 123 countries and over 124,000 individuals. We drop data for 25 countries because of missing demographic information, such as education and income. Table 1 lists all the countries included in our sample.

The survey was conducted in the major languages of each country.[6] The 2011 GWP surveyed at least 1,000 individuals per country in 148 economies—representing approximately 97 percent of the world's population—using randomly selected, nationally representative samples.[7] The target population was the entire civilian, noninstitutionalized population aged 15

[6] Detailed country-level information about the data collection dates, sample sizes, excluded populations, and margins of error can be found at http://go.worldbank.org/IGRTPHK660.

[7] In some economies, oversamples are collected in major cities or areas of special interest. Additionally, in some large economies, such as China and Russia, sample sizes of at least 4,000 are collected.

and older. Data weighting is used to ensure a nationally representative sample for each economy. Final weights consist of the base sampling weight, which corrects for unequal probability of selection based on household size, and the poststratification weight, which corrects for sampling and nonresponse error. Poststratification weights use country-level population statistics on gender and age and, where reliable data are available, education or socioeconomic status.

The core GWP (excluding our new data on financial inclusion) has been used in previous academic studies. For example, Deaton (2008) uses GWP questions on life and health satisfaction and looks at the relationships with national income, age, and life expectancy. Stevenson and Wolfers (2008) and Sacks, Stevenson, and Wolfers (2010) use the GWP as part of their research to analyze relationships between measures of subjective well-being and income. Clausen, Kraay, and Nyiri (2011) analyze the relationship between corruption and confidence in public institutions. Stevenson and Wolfers (2011) examine trust in institutions over the business cycle.

We use these data to calculate our measures of account use. Below we provide precise definitions (Table 2) and summary statistics for each of these indicators (Table 3). Appendix 1 shows summary statistics, by country, for all variables used in our analysis. [8]

2.2 Account Ownership

To calculate account ownership, we use the question: "*Do you, either by yourself or together with someone else, currently have an account at a bank, credit union, cooperative, post office, or microfinance institution? An account can be used to save money, to make or receive payments, or to receive wages and remittances.*" On average, 45 percent of adults in our sample of countries report having an account. Not surprisingly, there is enormous variation in the use of

[8] Individual-level data are available at www.worldbank.org/globalfindex.

financial services between high-income and developing economies: account penetration is close to universal (91 percent) in high-income economies, while only 41 percent of adults in developing economies, on average, report having an account at a formal financial institution.[9] Furthermore, we find that among developing economies, account ownership, on average, increases sharply with economic development (Figure 1): adults in upper-middle-income countries (58 percent) are almost three times as likely to have an account as adults in low-income economies (19 percent). In several countries around the world, including Cambodia, the Central African Republic, the Kyrgyz Republic, and the Republic of Yemen, more than 95 percent of adults do not have an account at a formal financial institution.

In addition to sharp differences in account penetration across countries, there are also important disparities in account use by individual characteristics (Figure 2). For example, among developing countries in our sample, those in the highest within-country income quintile are more than twice as likely to have an account as those in the lowest income quintile.[10] There are also significant disparities in the prevalence of accounts along gender lines: in developing countries in our sample, 46 percent of men report having an account at a formal financial institution, compared with 37 percent of women. In developing economies, adults with a tertiary education are, on average, more than twice as likely to have an account as those with a primary education or less. Furthermore, in both high-income and developing economies, adults between the ages of 25 and 64 are more likely to report having an account at a formal financial institution than younger adults and those aged 65 and over. Finally, the urban/rural divide also figures

[9] All statistics aggregated above the country level (by income group, region, and the like) use population weights in addition to country-level weights.

[10] The GWP provides imputed within-country (relative) income quintiles for all observations, but does not publish the imputed absolute income levels. In 2011, income data were imputed for 14 percent of income observations worldwide. Gallup uses published data on individual characteristics as well as proprietary data on each household member to impute income. For additional information see www.gallup.com.

prominently in the prevalence of bank accounts in the developing world.[11] While close to 50 percent of adults in cities have an account, the figure is less than 40 percent among individuals in rural areas.

2.3 The Use of an Account to Save

In addition to account ownership, we are interested in the use of accounts to save. This information is provided in the question: "*In the past 12 months, have you saved or set aside any money?"* If the respondent answered yes, a follow-up question asked, "*In the past 12 months, have you saved or set aside money by: A) Using an account at a bank, credit union, microfinance institution, or another financial institution*[12]*; B) Using an informal savings club or person outside the family (e.g., Chit fund or ROSCA)?"*[13] Among those individuals who have an account (that is, conditional on having an account), 42 percent of adults, on average, used the account to save in the past year.[14] Unlike what we found in terms of account penetration, we find small differences between the share of individuals, on average, who use an account to save in developed countries (49 percent) and those who do so in low- and middle-income countries (40 percent) (Figure 1). In other words, globally, adults who have a formal account are on average about equally likely to use their account to save.

[11] Gallup World Poll data contain two variables related to the urban/rural divide: municipality population data that are used to stratify the sample, and interview-coded data on area size category. We classify urban/rural based on the former, but use interview-coded data when this is not available. The correlation between the population-based and interviewer-coded urban/rural categorizations is very strong: in Sub-Saharan Africa, 94 percent of respondents in cities with populations of 500,000 or more are classified as urban and 95 percent of respondents in towns and villages under 10,000 are classified as rural.

[12] Local examples were provided, such as cooperatives in Latin America.

[13] The excluded category includes "in the home" (because of the sensitivity of asking this question in face-to-face interviews in the home) and other assets such as gold and livestock, as well as other formal markets, such as equity purchases.

[14] In addition to having an account, formal saving is also conditional on an individual's ability and willingness to save. This may be associated with cyclical macroeconomic conditions, idiosyncratic shocks (such as illness or unemployment), as well as cultural attitudes toward saving. An important caveat is that the data were collected in 2011, following the global financial crisis, which might have affected individuals' ability to save.

In terms of differences across individuals in the share of adults who use their account to save, we find that there are practically no differences between males and females. Also, we do not find large differences between individuals in rural and urban areas. In fact, within developing countries in our sample, we find few differences across individual-level characteristics. In general, conditional on having an account, between 30 and 50 percent of individuals in developing countries use the account to save. In contrast, in developed countries we observe significant differences in the share of individuals who use their account to save across income quintiles and across different levels of education.

2.4 Frequency of Use

Beyond the simple ownership of bank accounts, another measure of account "usage" is the frequency of account use. In our estimations, we focus on withdrawals, since such actions are actively initiated by the account holders whereas deposits might be initiated by others (for example, employers or governments). The questionnaire asks account holders: "*In a typical month, about how many times is money taken out of your personal account(s)? This includes cash withdrawals, electronic payments or purchases, checks, or any other time money is removed from your account(s) by yourself or others.*" Respondents are asked (categorically) if they conducted (a) zero withdrawals, (b) 1-2 withdrawals, (c) 3-5 withdrawals, or (d) 6 or more withdrawals in a typical month. In developing countries, 18 percent of individuals who have an account never withdraw funds during the course of a month.[15] This number is only 4 percent in developed countries. Similarly, while 58 percent of individuals in developing countries withdraw

[15] We cannot assume that these are inactive accounts, since account holders may use their accounts to hold long-term savings.

funds from their accounts one or two times a month (most likely when they receive their salaries), the corresponding figure is 22 percent among individuals in high-income countries.

Adults who report one to two withdrawals in a typical month may have an account to receive wages, government payments, or money from family living elsewhere, and likely withdraw the complete amount when payments are deposited. Or barriers to accessing their account, such as high withdrawal fees or long distances to the nearest bank, may discourage the use of accounts for day-to-day cash management. In comparison, those who withdraw from their account more than three times in a typical month are more likely to use their account to store cash or make formal electronic payments.

We define frequent use of an account as a dummy that takes the value 1 if funds are withdrawn at least three times during a month. As shown in Figure 1, on average, adults in high-income economies are more than three times as likely to withdraw funds from their account three or more times a month, compared with adults in low- and middle-income countries. Within our sample of countries, 72 percent of individuals in high-income countries use their account frequently, while only 22 percent do so in developing countries. Across countries, account use appears to be more frequent among richer and among more educated individuals. In developing countries, individuals in urban areas are almost twice as likely to use their accounts frequently.

2.5 Reported Barriers to Account Ownership

Our module provides some insights into barriers to inclusion: over 65,000 adults with no formal account were also asked why they do not have an account at a financial institution. Figure 3 summarizes the responses. [16] Globally, the most cited reason for not having a bank account is "[I] don't have enough money to use them." This reason was reported by 66 percent of adults

[16] Twelve percent of respondents chose none of the given reasons for not having an account.

without a formal account, including 30 percent who reported this as the only reason (multiple responses were permitted). [17] This segment of the population is more likely to be "voluntarily" self-excluded from the formal financial system—that is, individuals who do not have sufficient cash earnings to need the use of a formal account or who choose not to have an account for cultural or religious reasons. For example, "because of religious reasons" was cited by 5 percent of adults.[18] Another reason cited for not having an account is "someone else in the family already has an account," which identifies the group of indirect users (23 percent).

Yet there may also be individuals who are "involuntarily" self-excluded, who do not use formal financial services because of barriers (such as distance or high cost) that arise as a result of market failures (such as asymmetric information or inadequate contract environment). Indeed, the second most important reason reported for not having an account is "[banks/accounts] are too expensive" (24 percent). Other reported reasons, by order of importance, are: "[banks] are too far away" (20 percent); "[I] don't have the necessary documentation" (17 percent); and "[I] don't trust [banks]" (13 percent). The role of policy is to broaden financial inclusion to reach those who are excluded because of barriers and market failures.

Although an analysis of self-reported barriers cannot support causal statements, the data can help suggest potential policies for expanding account use. For example, a commonly cited reason for not having an account is affordability. Fixed transactions costs and annual fees tend to make small transactions unaffordable for large parts of the population. To maintain a checking account in Sierra Leone, for example, an adult must pay the equivalent of 27 percent of that country's GDP per capita in annual fees (see Beck et al., 2008), which is likely a reason why 44

[17] This figure is also likely to be an upper limit, since a majority of respondents who do not have an account but report having saved in the past 12 months (somewhere other than a financial institution) still chose "[I] don't have enough money to use them."
[18] For additional information on Islamic finance, see Beck et al. (2012).

percent of non-account-holders in that country cited cost as a reason for not having a formal account. But fixed fees and high costs of opening and maintaining accounts also often reflect lack of competition and underdeveloped physical or institutional infrastructure.

A second important barrier is documentation requirements. By limiting eligibility, these may exclude workers in the rural or informal sectors, who are less likely to have wage slips or formal proof of domicile. Because of legitimate concerns about fraud and money laundering, however, there is a reasonable limit to how much documentation requirements should be relaxed, and this line likely varies across countries.[19]

Another important barrier to formal account ownership is proximity to a bank. For example, 47 percent of non-account-holders in Tanzania reported distance as a reason why they don't have an account and Tanzania also ranks near the bottom among developing economies in bank branch penetration by area, averaging less than 0.5 bank branches per 1,000 square kilometers.

Trust in banks—or distrust—can constitute a barrier that is difficult to overcome, and suggested causes have been linked to cultural norms, local governance, economic crises, and uncertainty about the future (for example, Bjornskov, 2007; Guiso et al., 2004; Sapienza and Zingales, 2009). For example, respondents in the former Soviet Union—which has been plagued by episodes of government expropriation of bank assets—were almost three times as likely as adults in other regions to choose "[I] don't trust banks" (31 percent).[20]

These self-reported barriers and the information gathered by the survey on account use raise the following questions, which we can test econometrically: First, do we continue to find a

[19] For additional information on documentation requirements and money laundering, see: http://go.worldbank.org/0PHO7X3QA0.

[20] In the core Gallup World Poll questionnaire, respondents are asked to rate their trust in banks and again respondents in the former Soviet Union—banked and unbanked—report the least amount of trust.

significant relationship between account ownership and use (as measured by high-frequency withdrawals and formal saving) and country-level measures of cost, distance, documentation, and trust, after controlling for individual characteristics? Second, do we find a significant relationship between government policies designed to promote financial inclusion and greater usage of formal financial services? Third, do our empirical results suggest that relaxing these constraints would have disproportionate effects on any individual subgroups, such as the poor and rural residents? And fourth, are reasons reported by those excluded for not having an account related to these country characteristics? Below, we outline the econometric methodology we pursue to answer these questions.

3. Empirical Methodology

3.1 Estimation Models

Our main empirical specifications focus on three dimensions of the use of bank accounts: (a) owning a bank account, (b) using a bank account to save, and (c) using the bank account frequently (defined as three or more withdrawals per month). The dependent variable y_{1ij}, owning a bank account, is a binary variable. Therefore, we use the following model to investigate its determinants:

$$y^*_{1ij} = x'_{1i}\beta + z'_{1ij}\gamma + \varepsilon_{1ij}\,, \qquad (1)$$

$$y_{1ij} = 1 \quad \text{if } y^*_{1ij} > 0,$$

$$y_{1ij} = 0 \quad \text{if } y^*_{1ij} \leq 0,$$

where countries and individuals are indexed by i and j, respectively; y^*_{1ij} is a latent variable, x_{1i} is a vector of country characteristics, z_{1ij} is a vector of individual-level characteristics, β and γ

are vectors of parameters, and ε_{1ij} is a normally distributed error term with zero mean and variance equal to 1. We estimate (1) as a probit model by maximum likelihood. In some specifications, we replace x_{1i} with country fixed effects.

Since we only observe whether an individual uses a bank account to save, y_{2ij}, if he or she owns an account, estimating the use of accounts to save involves running a Heckman-style model (Heckman, 1979) where equation (1) above is the selection equation and equation (2) below captures individuals' decision to use their account to save:[21]

$$y^*_{2ij} = x'_{2i}\beta_2 + z'_{2ij}\gamma_2 + \varepsilon_{2ij}\,, \qquad (2)$$

$$y_{2ij} = 1 \quad \text{if} \quad y^*_{2ij} > 0,$$

$$y_{2ij} = 0 \quad \text{if} \quad y^*_{2ij} \leq 0,$$

where y_{2ij} is observed only when $y_{1ij} = 1$. As before, countries and individuals are indexed by i and j, respectively. y^*_{2ij} is a latent variable. x_2 and z_2 are the vectors of country- and individual-level variables, respectively. Their corresponding vectors of parameters are given by β_2 and γ_2. The error term ε_{2ij} is normally distributed with zero mean and variance equal to 1. Ideally, we would like to have at least a variable that explains individuals' decision to have an account but not their resolve to use the account to save. If that were the case, x_2 and/or z_2 would differ from x_1 and/or z_1 and we could identify the estimation of (1) and (2) with that exclusion restriction. However, in our case, we believe that we cannot argue that such a variable exists and, hence, we

[21] Since using an account to save is a binary variable to be estimated with a probit model, we cannot use Heckman's (1979) two-step estimation procedure. The inverse Mills ratio, or Heckman's lambda, only enters in the second step of this procedure in the case of a linear model; see Greene (2012, p. 880). Therefore, we jointly estimate the probit selection procedure and the probit model by maximum likelihood.

follow Lemke and Reed (2001) and Marinescu (2007) in jointly estimating (1) and (2) by maximum likelihood.[22]

Similar to what we described for y_{2ij}, using an account frequently (that is, three or more times a month), which we label y_{3ij}, can only be observed as long as the individual owns an account. Hence, in order to analyze the determinants of using an account frequently, we run a sample selection model similar to that presented in equations (1) and (2), replacing y_{2ij} with y_{3ij} as the dependent variable and including x_{3i} and z_{3ij} as the vectors of country- and individual-level variables, respectively. As above, since in principle we have to assume that the variables that affect the likelihood of having an account (x_{1i} and z_{1ij}) are the same as those that affect the frequency of using an account (x_{3i} and z_{3ij}), we estimate the selection and frequency equations a la Heckman (but with two dichotomous dependent variables) using maximum likelihood.

In addition to analyzing how different individual and country characteristics relate to greater financial inclusion, we also examine reported subjective barriers to financial inclusion. We identify these barriers based on the respondents' answers to the following question: "*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*." The reasons we analyze are: "*(a) They are too expensive*"; "*(b) You don't have the necessary documentation (ID, wage slip)*"; "*(c) They are too far away*"; "*(d) You don't trust them*"; and "*(e) You don't have enough money to use them.*"

[22] Sartori (2003) points out that the Heckman-type estimator may perform poorly when the same variables are included in both the selection (likelihood of having an account) and the outcome (likelihood of using the account to save) equations. This is especially problematic when estimations are conducted using small samples. Sartori (2003) proposes an alternative estimator that assumes that errors are near identical across equations to obtain more precise estimates. In unreported regressions, we applied the Sartori method. We found that the results based on the Sartori estimator are almost identical in size and in significance to those we obtain when using the probit Heckman-type model (without weights). Our challenge is that the Sartori estimator does not allow for the use of weights which is very important when using individual-level survey data. Hence, given the similarity of the results and considering that we have a large sample, we prefer to estimate the Heckman-type model with two binary dependent variables using maximum likelihood.

The respondents could name multiple reasons. For each of these reported reasons, we create a binary variable that takes the value 1 if a respondent without a bank account confirms it as a barrier to having an account and 0 otherwise. These dependent variables are denoted with $y_{5_K ij}$, where $K \in \{a, b, c, d, e\}$. Given that these questions are only asked to individuals that do not own an account, we run a sample selection model similar to those estimated to analyze the use of accounts. However, in this case y_{4ij} takes the value of 1 if the respondent does not have an account. x_{4i} and z_{4ij} are included as the vectors of country- and individual-level variables, respectively. This results in the following model:

$$y^*_{4ij} = x'_{4i}\beta + z'_{4ij}\gamma + \varepsilon_{4ij} \,,$$

$$y_{4ij} = 1 \quad \text{if } y^*_{4ij} > 0, \tag{3}$$

$$y_{4ij} = 0 \quad \text{if } y^*_{4ij} \leq 0,$$

which defines the probit selection procedure, and

$$y^*_{5_K ij} = x'_{5i}\beta_K \mathrm{k} + z'_{5ij}\gamma_k + \varepsilon_{5_K ij} \,, \quad K \in \{a, b, c, d, e\} \tag{4}$$

$$y_{5_K ij} = 1 \quad \text{if } y^*_{5_K ij} > 0, \quad K \in \{a, b, c, d, e\}$$

$$y_{5_K ij} = 0 \quad \text{if } y^*_{5_K ij} \leq 0, \quad K \in \{a, b, c, d, e\}$$

where countries and individuals are indexed by i and j, respectively; $y^*_{5_K ij}$ is a latent variable, x_{5i} is a vector of country characteristics, z_{5ij} is a vector of individual-level characteristics, β and γ are vectors of parameters, and $\varepsilon_{5_K ij}$ is a normally distributed error term with zero mean and variance equal to 1, with $K \in \{a, b, c, d, e\}$. We estimate (3) and (4) by maximum likelihood assuming that $x_{4i} = x_{5i}$ and $z_{4i} = z_{5i}$.

3.2 Explanatory Variables

Among the individual-level characteristics in z_{1ij} , z_{2ij}, z_{3ij}, and z_{4ij}, we include a number of socioeconomic variables that we speculate might affect the use of bank accounts. All these variables come from the Gallup World Poll (2012).[23] *Female* indicates whether the respondent is female. To the extent that it is harder for women to have bank accounts, we expect this variable to have a negative relationship. *Age* and *Age Squared* are both in years. We expect the use of bank accounts to first increase and then decline with age, so in order to capture this we also include age squared.

Rural takes the value 1 if the respondent lives in a rural area and 0 otherwise, where a rural area is defined as a town or village with less than 50,000 inhabitants. If this information is not available, a rural classification is based on the interviewer's perception of whether a respondent lives in a rural area, on a farm, in a small town, or in a village. In general, the presence of financial institutions is more limited in rural areas, so we expect this variable to have a negative impact.

The *Income Quintile* variables are indicators of within-country relative income, based on the income of the respondents in a country. There are five such dummies (the top quintile is the excluded category in the regressions), which range from the poorest 20 percent to the richest 20 percent.[24] Overall, we expect bank account use to increase with income.

Each respondent falls into one of three education categories, represented by three variables: *0-8 Years of Education* corresponds to completion of elementary education or less, *9-15 Years of Education* corresponds to completion of secondary education and some education beyond that, and *> 15 Years of Education* corresponds to four years of completed education after

[23] Table 2 provides a list of all individual and country-level variables with definitions.
[24] We use these income quintiles because we do not have complete data on the actual income of individuals.

high school or completion of a four-year college degree. We expect the likelihood of account ownership to increase with the individual's level of education.

Married indicates whether a respondent is married, and *Divorced/Separated* indicates whether a respondent is divorced or separated. The variable *Household Size (log)* is the logarithm of household size, including the number of children. We speculate that adults who live in larger households (including a spouse) are more likely to use someone else's account, and less likely to own their own.

For employment status, each respondent falls into one of four categories, represented by four variables. The variable *Wage Employee* captures those respondents who, either full time or part time, are employed by an employer. *Self-Employed* captures respondents who work for themselves (and do not report also earning a part-time wage). *Unemployed* equals 1 if the person does not have a job and is looking for one. *Out of Workforce* is a dummy that takes the value 1 when the individual does not have a job and is not looking for one. In general, we expect employed individuals to be more likely to have a bank account, since employers may require accounts to pay salaries.

Aside from controlling for individual-level variables, our estimations also consider a large set of country-level characteristics and policies that might influence the different dimensions of the use of bank accounts (captured by x_{1i} , x_{2i}, x_{3i}, and x_{4i} in equations (1)-(4) above). The variable *GDP per capita (log)* is the logarithm of gross domestic product (GDP) per capita in constant 2000 U.S. dollars in 2009 and comes from the World Development Indicators of the World Bank (2012). The remaining explanatory variables relate to account costs, documentation requirements, proximity to bank outlets, the regulatory environment, banking

sector market structure, the institutional environment, and specific government policies to relax barriers to account use.[25]

We include a number of variables to proxy for the cost of opening, maintaining, and using an account. *Cost of Opening a Bank Account*, *Cost of Maintaining a Bank Account*, *Cost of Direct Credit*, and *Cost of Debit Cards* are all central banks' assessments of the costs of payment and associated services of these respective categories. All these variables are dummies that take the value 1 if the country's central bank perceives the costs as medium to high, and 0 if it perceives them as negligible to low. [26] The data come from the World Bank Global Payment Systems Survey (World Bank, 2010). Ex ante, we expect all these variables to have a negative impact on the likelihood of using bank accounts.[27]

We also include the dummy variable *Offer Basic or Low Fee Account*, which takes the value 1 for countries where the government requires banks to offer a basic or low-fee account to low-income clients (CGAP, 2009). We expect this variable to be positively correlated with the use of formal accounts.

Documentation requirements are measured by information collected from regulators on "know your customer" (KYC) requirements to open accounts: (i) proof of identity through government-issued ID, (ii) proof of identity through any ID, (iii) proof of nationality or legal status in country, (iv) proof of address, (v) proof of income, and (vi) proof of employment. We

[25] Our results excluding country fixed effects are also robust to the inclusion of lagged five-year average inflation. The coefficient is insignificant in predicting account ownership or high frequency of use. The coefficient for savings is significantly negative, but does not affect the significance of our country-level variables. Results available upon request.

[26] To address our concerns on the subjectivity of these indicators, we compare the data with actual banking costs collected for 58 countries in 2005 (see Beck et al., 2008). Though our proxies for the perception of banking costs are imperfect substitutes, the actual annual fees for checking and savings accounts are positively and significantly correlated with our measures of the costs of direct credit and debit cards.

[27] Beck et al. (2008) find that the cost of accounts is negatively related to the number of accounts per capita across countries.

construct a *Principal Component of KYC Requirements.* We expect more extensive documentation requirements to be negatively related to the use of accounts.

As the number of KYC requirements has increased in recent years, the Financial Action Task Force (FATF), recognizing that overly cautious Anti-Money Laundering and Terrorist Financing (AML/CFT) safeguards can have the unintended consequence of excluding legitimate businesses and consumers from the financial system, has emphasized the need to ensure that such safeguards also support financial inclusion (FATF, 2011). We indicate countries that have made exemptions with a dummy variable, *Exception from KYC Requirements*. All data come from CGAP (2009). We expect exemptions to have a positive relationship with account use.

Proxies for distance barriers (or indicators of proximity to and accessibility of financial service providers) are measured by *Branch Penetration* and *ATM Penetration*, which denote the average number of commercial bank branches and automated teller machines (ATMs) per 1,000 square kilometers in 2011, respectively. These data come from the International Monetary Fund's annual Financial Access Survey (IMF, 2012). We expect higher penetration to be positively related to account use.

Proximity to bank outlets is meaningless if there is limited or no interoperability between ATMs or points of sale (POSs) across different banks (that is, if account holders of any given bank cannot use the ATMs or POSs closest to them). We include a measure of the interoperability of POSs from the World Bank Global Payment Systems Survey (World Bank, 2010). This variable measures the degree to which payment cards issued by banks in the country can be used seamlessly at any national POS terminal. This variable ranges from 1 to 3, where lower numbers mean more interoperability; therefore, we expect a negative relationship with account use.

As a way to extend access to banking services to rural and other areas without a formal banking presence, some countries allow services to be offered through correspondents or agents. *Correspondent Banking Permitted* is a dummy variable that takes the value 1 if either private operators are allowed to provide financial services at post offices or banks are allowed to formally contract companies as banking agents, and 0 otherwise (CGAP, 2009). The dummy variable *Promoting Access in Rural Areas* indicates whether promoting access in rural areas is under the purview of the financial regulator (CGAP, 2010). We expect these variables to be positively related to account usage.

On top of the policy variables aimed at reducing the barriers to the use of bank accounts, we also consider the association of financial inclusion with other government initiatives intended to foster the use of accounts (CGAP, 2010). In particular, we include different dummy variables that take the value 1 if the government has a specific scheme to incentivize savings directly (*Promoting savings, savings scheme*) or to promote the use of accounts through tax incentive schemes (*Promoting savings, tax incentive scheme).* We also include a dummy variable for whether the government reported encouraging or mandating the payment of government transfers or social payments (such as conditional cash transfers or other social payments) through bank accounts (*G2P transfers: open accounts*).

The extent to which individuals feel comfortable using bank accounts might also depend on whether they feel that they have sufficient information on banking products and whether they are significantly protected as consumers. To control for the extent of information disclosure on bank accounts, we include *Total Disclosure Requirements for Deposits*, which is the sum of demanded disclosure requirements, both at the time an account is opened and while it is

maintained (CGAP, 2010). Among others, these requirements include the disclosure of the minimum balance requirement, early withdrawal penalties, and the account balance.

We also include two indices measuring the enforceability of consumer protection laws: the *Monitoring Index* and the *Enforcement Index*, which refer to the number of monitoring and enforcement actions available to the regulator, respectively (CGAP, 2010). Examples of these actions are mystery shopping and onsite inspection of financial institutions for the monitoring index, and the ability to issue public notices of violations and impose fines and penalties for the enforcement index. While we expect greater consumer protection to be correlated with greater use of bank accounts, it is hard a priori to assess the impact of information disclosure. It is possible that greater awareness and information on the costs and requirements of using bank accounts might discourage individuals from using bank accounts.

We also speculate that the use of accounts will be affected by the extent to which individuals feel that their rights as creditors are legally protected. We include two variables to capture these effects. The *Legal Rights Index* variable measures the degree to which collateral and bankruptcy laws protect the rights of borrowers and lenders and thus facilitate lending (World Bank, 2011; Djankov et al., 2007). *Political Risk Rating* comes from the International Country Risk Guide (ICRG) of the Political Risk Services Group (2010) and assesses the political stability of a country. Among others, components of this rating are government stability, investment profile (which tries to capture expropriation risk), and corruption.

In addition, we include a variable that measures the scope of explicit deposit insurance, which might be designed to build trust among consumers that their deposits are safe with the banks. The *Share of Member Banks' Deposits Covered* is the share of deposits of member

commercial banks that are covered under the deposit insurance system (Barth et al., 2008). We expect this variable to have a positive impact on the use of bank accounts.

Overall, we expect measures of better consumer protection and governance to be positively related to account use. Theory also suggests that explicit deposit insurance should encourage depositors to store their money and save.

We also consider the association of bank ownership with the use of bank accounts.[28] In particular, we include the *Asset Share of Government-Controlled Banks* and *Asset Share of Foreign-Controlled Banks*, which capture the percentage of assets in government-owned and foreign owned-banks, respectively.

A priori, it is not clear what to expect on the correlation of these variables with the use of bank accounts. Government-owned banks are often created with the purpose of increasing the reach and depth of the financial sector, so in principle we should expect a positive association between government ownership and account use. However, some studies have failed to find a relationship between greater reach of the financial sector and government-owned banks (for example, Beck, Demirguc-Kunt and Martinez Peria, 2007), and similarly, there is evidence that a greater share of government-owned banks is associated with a lower quality of financial intermediation and a misallocation of resources (Khwaja and Mian, 2005; Cole, 2009a,b). For foreign-owned banks, the existing evidence is also mixed. Some studies have found that foreign ownership is negatively related to some indicators of financial sector reach (Beck Demirguc-

[28] The competition environment is also likely to be associated with both the use of accounts and the perceived barriers to use. For example, lack of competition may lead to higher cost of accounts. We do not have good indicators to measure the level of competition directly. However, when we tried different regulatory measures to capture the contestability of the banking sector, the results were consistent with the cost findings—that is, fewer restrictions to entry were associated with greater use, though the significance levels were weak because of a much smaller sample size.

Kunt and Martinez Peria, 2007) and access to finance (Berger et al., 2001; Mian, 2006), while other studies find opposite results (Clarke et al., 2005, 2006).

4. Results

4.1 Individual Characteristics and the Use of Accounts

Table 4 examines the link between individual characteristics and our three measures of the use of accounts: the likelihood of owning a bank account (column 1), the probability of using the account to save (columns 2), and the likelihood of using the account frequently—that is, making three or more withdrawals a month (columns 3). It is again important to note that the cross-sectional nature of the data allows us to interpret these results only as significant correlations, not causal relationships. Column 1 shows that the likelihood of owning an account is higher among richer, older, urban, educated, employed, and married individuals. For example, the likelihood of owning an account is almost 16 percentage points lower for a person in the lowest income quintile than for someone in the highest income quintile. The likelihood of account ownership is around 12 percentage points lower for someone with up to eight years of education than for his or her more educated counterpart, while the likelihood for a rural resident is around 3 percentage points lower than for his or her urban counterpart.

The results for the likelihood of using a bank account to save are very similar to those described for the probability of owning an account. Estimating marginal effects (not shown), we find that the likelihood of using an account to save is around 17.5 percentage points lower for a person in the lowest income quintile than for someone in the top income quintile. For someone who is unemployed the likelihood of using an account to save is around 14 percentage points

lower—and for someone who is out of the workforce, around 9 percentage points lower—than for someone who is self-employed.

In comparison, the likelihood of using an account frequently is higher among older, richer, educated, or married individuals. The other difference between the likelihood of owning an account and the likelihood of using it frequently is that gender has a negative effect on the second, but it does not seem to be correlated with the first, once we account for other individual characteristics.

4.2 Country Characteristics and the Use of Accounts

The estimations in Table 5 allow us to examine how different country characteristics and policies are related to the likelihood of owning an account (column 1), using it to save (column 2), and using it frequently (column 3), controlling for the individual-level characteristics considered in Table 4. In column 1 we report probit estimations, while in columns 2 and 3 we show results from selection probit estimations where we account for the selection problem resulting from the fact that the likelihood of using the account to save and the probability of using the account frequently are only observed for individuals who have an account. Each row in Table 5 shows results from different regressions controlling for individual-level characteristics and for the log of 2009 GDP per capita expressed in constant 2000 U.S. dollars.

Table 5 shows that the likelihood of owning a bank account (column 1) is lower in countries where the costs of opening and using bank accounts are higher. For example, the results suggest that the likelihood of owning an account would be, on average, 11 percentage points higher if these costs were perceived as low to negligible than if perceived as medium to high. On the other hand, the higher the level of branch or ATM penetration, and the higher the

level of the legal rights index and of the political stability rating, the greater would be the likelihood of owning a bank account. Reducing distance barriers, as measured by a one-standard-deviation increase in branch or ATM penetration, would increase the likelihood of account ownership by slightly less than 6 percentage points. The likelihood of owning a bank account is also higher in countries where policy makers encourage savings through tax incentive schemes. Interestingly, greater disclosure of information on bank account products is negatively related to the likelihood of owning a bank account; if the number of disclosure requirements were to increase by three—where nine is the maximum number of requirements possible—the likelihood of owning an account would decline by around 3 percentage points.

Controlling for individual-level characteristics, the likelihood of using the bank account to save is correlated with most of the same factors that are associated with the probability of owning a bank account. There are two exceptions. First, the cost of opening an account is related to the likelihood of owning a bank account, but not the probability of using it to save. This makes sense, since the results in column 2 take into account the fact that the likelihood of saving is observed only conditional on having an account. The cost of opening an account should be correlated with the probability of owning an account but not its uses for saving once the account is open. Second, surprisingly, the existence of tax incentive schemes to promote savings is associated with the likelihood of owning an account but uncorrelated with the probability of using the account to save.[29]

Column 3 shows that the likelihood of using a bank account frequently is negatively related to the cost of accounts but positively related to the interoperability of POSs, stronger legal rights, and greater political stability. Also, the probability of using the account three or

[29] Appendix 3 shows that our results are robust to estimating the likelihood of formally saving using an account, as compared with informally saving, conditional on any savings in the past year.

more times a month is higher in countries where the government makes payments through bank accounts as well as in countries where savings schemes and tax incentive programs to promote savings are in place. For example, if one of these policies were in place, it would raise the likelihood of high-frequency use, on average, by 3.8 percentage points. These policies would partly cancel the negative effects of the higher costs variables (around 7.25 percentage points).

To summarize, we find that both account ownership and the use of accounts are significantly related to lower costs of accounts. Second, we find that access to financial services, as proxied by branch and ATM penetration, are significantly related to ownership of accounts and use of accounts to save. Third, lack of payment system interoperability is negatively related to account use. Fourth, better institutions, such as stronger legal rights and more political stability, are related to greater financial inclusion. Interestingly, we do not find a significant relationship in the complete sample with documentation requirements, most consumer protection provisions, or policies to promote access in rural areas.

Overall, our results suggest an important relationship between financial architecture and financial inclusion. For example, in Malawi and Peru, the costs of opening an account are perceived as medium to high, and the population shares with an account are quite similar, at around 16 and 20 percent, respectively. Our estimation results imply that if these costs were to be perceived as negligible to low, the average predicted probability of having an account at a formal financial institution would be around 6 percentage points higher in Malawi and 15 percentage points higher in Peru.[30]

Our model also predicts that increasing branch and ATM penetration can broaden financial inclusion. For example, Angola has approximately one bank branch per 1,000 square

[30] Since our model is nonlinear, this effect differs from country to country.

kilometers, while India has almost 30. Our results suggest that the average predicted probability of having an account at a formal financial institution would be around 7 percentage points higher in both countries if the number of bank branches per 1,000 square kilometers were to increase by 36, which is roughly a one-standard-deviation increase. On the other hand, in the United States and Peru, which both have slightly more than 9 branches per 1,000 square kilometers, a one-standard-deviation increase would raise the average predicted probability of having an account at a formal financial institution by 3 percentage points in the United States but by 8 percentage points in Peru.

4.3 Interactive Effects

In Table 5 we assumed that all country characteristics and policies relate to all individuals equally. In contrast, in Tables 6 and 7 we relax this assumption and examine how country characteristics and policies relate to individuals who are more likely to be excluded or are the specific target of government policies to promote inclusion.

In Table 6, we control for individual-level characteristics and country fixed effects and focus on how specific policies and country characteristics relate to the use of bank accounts by rural individuals by interacting different country-level variables with the dummy for whether the individual resides in a rural area. In Table 6, column 1, we find that policies such as offering basic or low-fee accounts, granting exemptions from KYC requirements, and encouraging the use of bank accounts for government payments increase the likelihood of owning a bank account among rural residents, relative to urban residents. For example, the additional likelihood of account ownership for rural residents is around 4, 2.5, and 2.5 percentage points higher for these variables, respectively. In addition, the probability of owning a bank account increases

significantly among rural residents (relative to urban residents) with lower costs of accounts, greater branch penetration, and strong consumer protection and political stability. Notably, we find that government policy requiring banks to offer a simple or low-fee account has a marginally larger effect for rural residents, who might have less regular income.

The likelihood of using the account to save (Table 6, column 2) increases among rural residents with lower costs of bank accounts, fewer KYC requirements, the practice of agent or correspondent banking, and strong consumer protection policies. Making correspondent banking available would increase the likelihood of using an account to save by at least another 2 percentage points for rural residents.

Finally, the probability that rural residents use bank accounts relatively more frequently is higher in countries with greater penetration by financial services providers, strong consumer protection enforcement and stable political institutions. Surprisingly, in countries that have policies to promote access in rural areas, rural individuals are less likely to use accounts frequently, which may reflect reverse causality—that is, governments are more likely to have taken recent steps to expand financial inclusion in rural areas in countries with greater financial inequality.

In Table 7, we interact the lowest income quintile dummy (indicating the relatively poorest 20 percent of earners within the country) with different country-level characteristics and policy variables to examine the relative importance of these variables for the poor. Again, we control for individual-level characteristics and country fixed effects. Column 1 shows results for the likelihood of owning a bank account. We find that, in general, the geographic presence of bank branches has a relatively higher correlation among the (relative) poor. For example, the likelihood of account ownership would increase by almost an additional percentage point among

the poor if branch penetration were to increase by one standard deviation. Similarly, deposit insurance coverage and political stability are positive and significant for the lowest income quintile.

Column 2 in Table 7 presents results for the probability of using a bank account to save. We find that the practice of correspondent banking, the presence of government banks, and policies to promote savings through saving schemes are significantly related to a higher likelihood of using an account to save for adults in the bottom income quintile. The effect of correspondent banking is especially large: for this group, the likelihood of using an account to save would increase by roughly an additional 5 percentage points if correspondent banking were allowed.

For the likelihood of using bank accounts frequently (Table 7, column 3), we find that apart from the exemption from KYC requirements (that has the wrong predicted value), hardly any variable enters significantly. One possible explanation for this finding is that there is not enough variation in the frequency of use of accounts among adults in the poorest income quintile.

To summarize, our findings suggest that reducing costs and improving access to financial service providers may have a disproportionate effect on ownership and use of accounts by rural residents and the poor. Furthermore, we find that policies to relax these barriers, such as correspondent banking, are significantly related to higher likelihood of savings using an account by rural residents and the poor.

4.4 Barriers to Financial Inclusion

Table 8 estimates how different individual characteristics affect the likelihood of reporting one of the reasons for not having an account (cost, distance, and the like). Table 9 uses the same sample of unbanked adults to test whether country characteristics—such as on the cost of banking and bank penetration—and different policy measures are associated with the likelihood of reporting a specific barrier to having an account (conditional on not having an account).

Table 8 shows that those who are poor, less educated, unemployed, or rural residents are more likely to report cost as a barrier to account ownership. Lack of necessary documentation is also significantly more likely to be cited as a barrier by less educated or rural residents, as well as by younger or single adults, who may lack residency documents because of relocation for work or other reasons. Distance is significantly more likely to be cited as a barrier by rural residents, as well as by less educated, married, or poor adults, who may find it more costly and difficult to travel long distances to access financial services. Male and wealthier adults are more likely to report that they don't have an account because they don't trust banks. Poor or unemployed adults are more likely to say that they don't have enough money to use an account. Finally, those who are poor, older, urban, or unemployed are more likely to cite not having enough money as the only reason for not having an account.

Table 9 shows how different country characteristics and policies affect the likelihood of reporting various barriers to account ownership. Each row in table 9 shows results from different regressions controlling for individual-level characteristics and for the log of 2009 GDP per capita expressed in constant 2000 U.S. dollars. First, the cost of banking is more likely to be reported as a barrier in countries with greater costs of maintaining an account. The cost of banking is less

likely to be reported as a barrier in countries with a greater share of government-controlled banks, which may be perceived to offer wider rural penetration and simpler, less expensive account options.[31]

Documentation is more likely to be reported as a barrier in countries with a smaller share of government-owned banks and a greater share of foreign-owned banks. This suggests that financially excluded individuals may perceive foreign (government) banks as more (less) likely to have more stringent documentation requirements. Distance is more likely to be reported as a barrier in countries with lower branch penetration. Also, in countries with a smaller share of government-owned banks and a higher share of foreign-owned banks, financially excluded individuals are more likely to perceive distance as a barrier to account use.

Trust is more likely to be reported as a barrier in countries with lower branch penetration and a larger share of foreign-controlled banks. This significant association may suggest a relationship between familiarity with banks and greater trust and, by extension, the importance of financial education in locations with less bank penetration.

Finally, financially excluded individuals are more likely to report that they perceive not having enough money as a barrier to having an account in countries with higher banking costs. It might be the case that these respondents don't have enough money to use what banking services are currently offered—or what the respondents perceive to be available. Use of bank accounts for government payments and tax incentive schemes to promote savings are also associated with a lower likelihood to report "not enough money" as a barrier by the unbanked. If we focus only on financially excluded individuals who report not having enough money as their only barrier, we observe that the presence of basic or low-fee accounts, correspondent banking, consumer protection, and accounts to receive G2P payments lower the likelihood that these individuals will

[31] Note that we find no evidence that government-owned banks are associated with greater account use.

cite lack of funds as a barrier. This suggests that government policies to promote inclusion may be related to a higher likelihood that individuals perceive that financial services are within their reach.

5. Conclusion

Financial inclusion can bring many welfare benefits to individuals. Yet we know very little about the factors underpinning financial inclusion across individuals and countries. Using data for 123 countries and over 124,000 individuals, this paper tries to understand what factors are correlated with the use of formal accounts and what policies are especially effective among those most likely to be excluded: the poor and rural residents. We find that greater financial inclusion is associated with a better enabling environment to access financial services, such as lower banking costs, greater proximity to branches, and fewer documentation requirements to open an account. Policies targeted to promote inclusion—such as government requirements to offer basic or low-fee accounts, exempting small or rural depositors from onerous documentation requirements, and the use of bank accounts for government payments—are especially effective among rural residents and the poor.

We also study the factors associated with perceived barriers to account use among those who are financially excluded. Overall, those who are financially excluded report lower barriers to account access in countries with lower costs of accounts and greater penetration of financial service providers. We also find that among those who report lack of money as the main barrier to account use, government policies to promote inclusion can increase the likelihood that individuals perceive that financial services are within their reach. Overall, our results suggest a role for policy to expand the pool of eligible account users and increase account use to save and with higher frequency.

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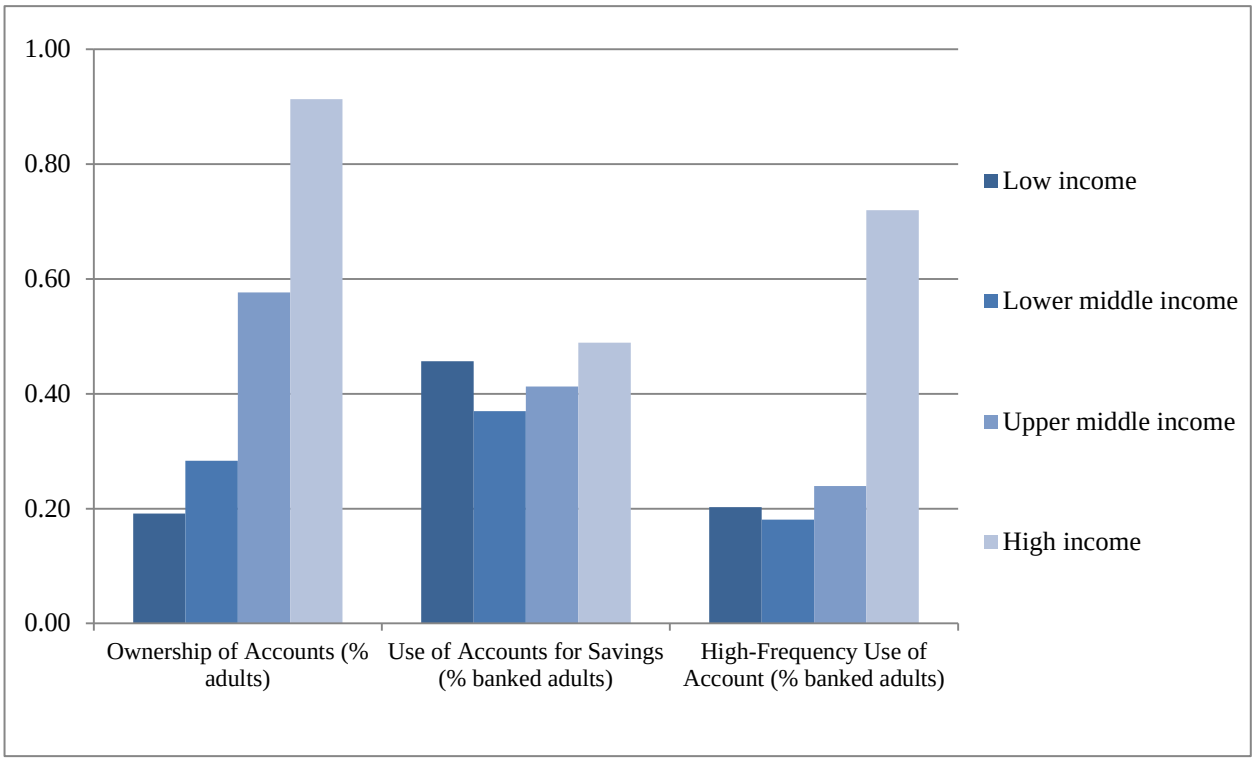
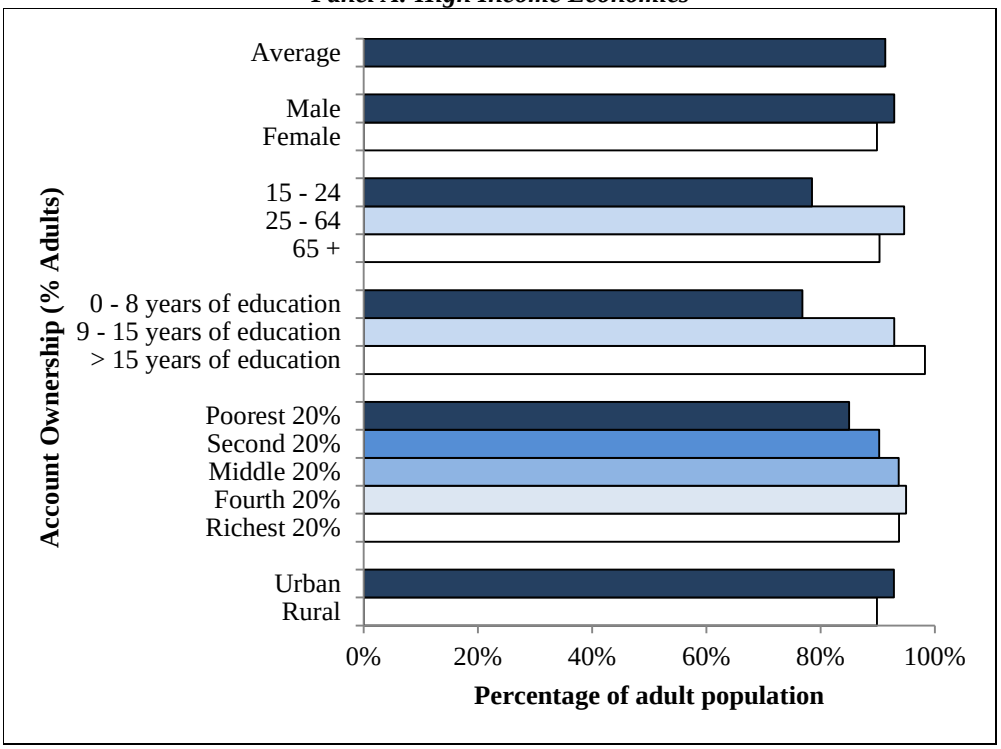
Figure 1: Ownership and Use of Formal Accounts



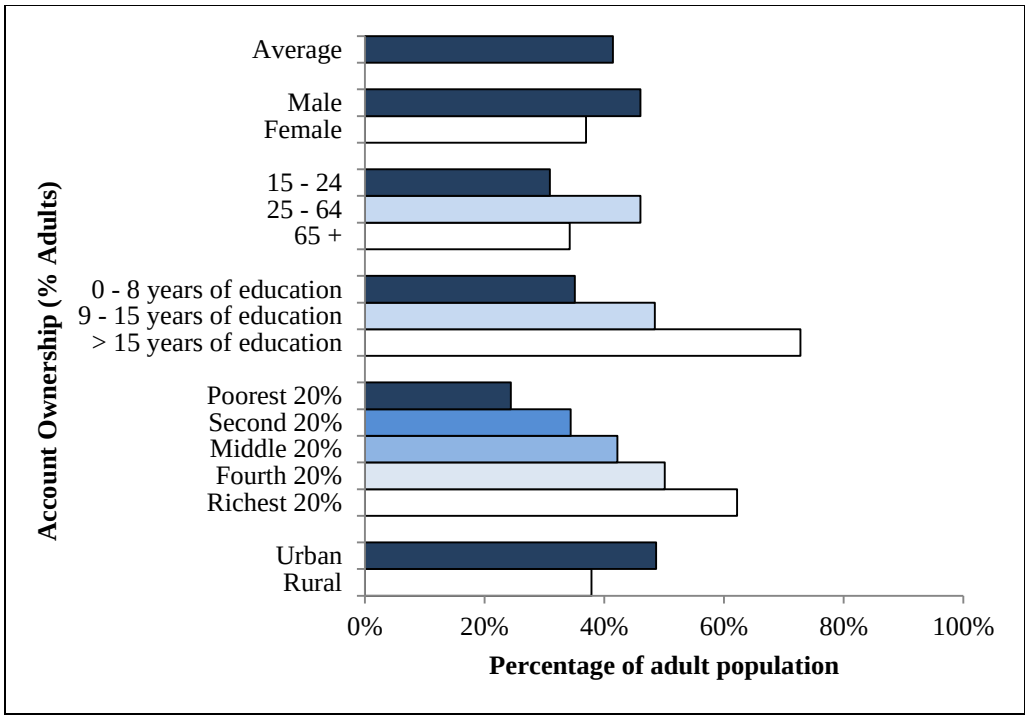
Source: Demirguc-Kunt and Klapper, 2012.

Figure 2: Ownership and Formal Accounts, by Individual Characteristics

Panel A: High Income Economies

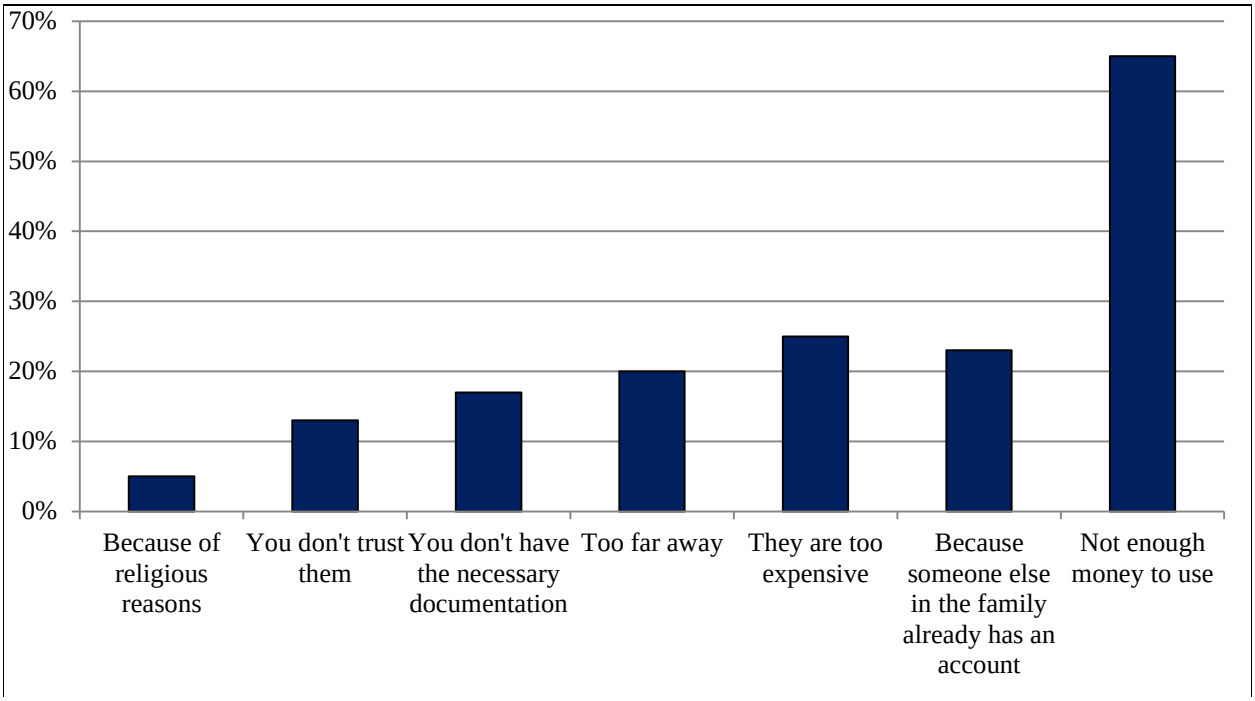


Panel B: Developing Economies



Source: Demirguc-Kunt and Klapper, 2012.

Figure 3: Reported Reasons for Not Having a Formal Account
(% of adults without an account)



Source: Demirguc-Kunt and Klapper, 2012.

Table 1: List of countries

Afghanistan	Comoros	Indonesia	Mongolia	Sri Lanka
Angola	Congo, Dem. Rep.	Iraq	Mozambique	Swaziland
Argentina	Congo, Rep.	Ireland	Nepal	Sweden
Armenia	Costa Rica	Israel	Netherlands	Syrian Arab Republic
Australia	Cyprus	Italy	New Zealand	Taiwan
Austria	Czech Republic	Jamaica	Nicaragua	Tajikistan
Azerbaijan	Denmark	Japan	Niger	Tanzania
Bangladesh	Djibouti	Kazakhstan	Nigeria	Thailand
Belarus	Dominican Republic	Korea, Rep.	Pakistan	Togo
Belgium	Ecuador	Kyrgyz Republic	Panama	Trinidad and Tobago
Benin	Egypt, Arab Rep.	Lao PDR	Paraguay	Tunisia
Bolivia	El Salvador	Latvia	Peru	Turkey
Botswana	Estonia	Lebanon	Philippines	Turkmenistan
Brazil	Finland	Lesotho	Poland	Uganda
Bulgaria	France	Liberia	Portugal	Ukraine
Burkina Faso	Gabon	Lithuania	Romania	United States
Burundi	Georgia	Luxembourg	Russian Federation	Uruguay
Cambodia	Ghana	Malawi	Senegal	Uzbekistan
Cameroon	Greece	Malaysia	Sierra Leone	Venezuela, RB
Canada	Guinea	Mali	Singapore	Vietnam
Central African Republic	Haiti	Malta	Slovak Republic	West Bank and Gaza
Chad	Honduras	Mauritania	Slovenia	Yemen, Rep.
Chile	Hong Kong SAR, China	Mauritius	Somalia	Zambia
China	Hungary	Mexico	South Africa	
Colombia	India	Moldova	Spain	

Table 2: Data description and sources

Panel A: Individual-level variables

Variable	Description	Source
Account (0/1)	Respondent reported to currently have, possibly together with someone else, a bank account at a formal financial institution---a bank, credit union, cooperative, post office, or microfinance institution. This includes having a debit card.	Gallup
Savings (0/1) conditional on formal account	Respondent reported to have saved or set aside money in the past 12 months using an account at a bank, credit union, cooperative, or microfinance institution.	Gallup
Frequency of use (0/1) conditional on formal account	Respondent reported to have taken money out of their personal account(s) 3 or more times in a typical month. This includes cash withdrawals, electronic payments or purchases, checks, or any other time money is removed from their account(s) by themselves or others.	Gallup
Too expensive (0/1)	Respondent answered affirmative to "They are too expensive" as a reason why he or she does not have an account at a bank, credit union, or other financial institution. Asked only to those without an account.	Gallup
Lack of necessary documentation (0/1)	Respondent answered affirmative to "You don't have the necessary documentation (ID, wage slip)" as a reason why he or she does not have an account at a bank, credit union, or other financial institution. Asked only to those without an account.	Gallup
Too far away (0/1)	Respondent answered affirmative to "They are too far away" as a reason why he or she does not have an account at a bank, credit union, or other financial institution. Asked only to those without an account.	Gallup
No trust (0/1)	Respondent answered affirmative to "You don't trust them" as a reason why he or she does not have an account at a bank, credit union, or other financial institution. Asked only to those without an account.	Gallup
Not enough money (0/1)	Respondent answered affirmative to "You don't have enough money to use them" as a reason why he or she does not have an account at a bank, credit union, or other financial institution. Asked only to those without an account.	Gallup
Not enough money, only reason (0/1)	Respondent answered affirmative to "You don't have enough money to use them" as the only reason why he or she does not have an account at a bank, credit union, or other financial institution. Asked only to those without an account.	Gallup
Female (0/1)	Dummy that takes the value 1 if the respondent is female and 0 otherwise.	Gallup
Age	Age in years	Gallup
Age squared	Age in years, squared	Gallup
Rural (0/1)	Dummy that takes the value 1 if the respondent lives in a rural area and 0 otherwise. A rural area is defined as a town or rural village with less than 50,000 inhabitants. If this information is unavailable, a rural area is based on the interviewer's perception of whether a respondent lives in a rural area, on a farm, in a small town, or in a village.	Gallup
Income: poorest 20% (0/1)	Dummy that takes the value 1 if the respondent falls in the lowest income quintile and 0 otherwise. Income quintiles are based on the incomes of the respondents in a country.	Gallup
Income: second 20% (0/1)	Dummy that takes the value 1 if the respondent falls in the second lowest income quintile and 0 otherwise. Income quintiles are based on the incomes of the respondents in a country.	Gallup
Income: middle 20% (0/1)	Dummy that takes the value 1 if the respondent falls in the middle income quintile and 0 otherwise. Income quintiles are based on the incomes of the respondents in a country.	Gallup
Income: fourth 20% (0/1)	Dummy that takes the value 1 if the respondent falls in the second highest income quintile and 0 otherwise. Income quintiles are based on the incomes of the respondents in a country.	Gallup
Income: richest 20% (0/1)	Dummy that takes the value 1 if the respondent falls in the highest income quintile and 0 otherwise. Income quintiles are based on the incomes of the respondents in a country.	Gallup
0 - 8 years of education (0/1)	Dummy that takes the value 1 if the respondent completed elementary education or less (up to 8 years of education) and 0 otherwise.	Gallup

9 - 15 years of education (0/1)	Dummy that takes the value 1 if the respondent completed secondary education and some education beyond secondary education (9-15 years of education) and 0 otherwise.	Gallup
> 15 years of education (0/1)	Dummy that takes the value 1 if the respondent completed four years of education beyond high school and/or received a 4-year college degree and 0 otherwise.	Gallup
Employed for employer (0/1)	Dummy that takes the value 1 if the respondent is employed for an employer, either full or part time, and 0 otherwise.	Gallup
Unemployed (0/1)	Dummy that takes the value 1 if the respondent is unemployed and 0 otherwise.	Gallup
Out of workforce (0/1)	Dummy that takes the value 1 if the respondent is out of the workforce and 0 otherwise.	Gallup
Employed for self (0/1)	Dummy that takes the value 1 if the respondent is self employed and 0 otherwise.	Gallup
Married (0/1)	Dummy that takes the value 1 if the respondent is married and 0 otherwise.	Gallup
Divorced/Separated (0/1)	Dummy that takes the value 1 if the respondent is divorced or separated and 0 otherwise.	Gallup
Log of household size	Logarithm of household size.	Gallup

Panel B: Country-level variables

Variable	Description	Source
Log of GDP per capita	Logarithm of GDP per capita in constant 2000 US $ of 2009. Winsorized.	WDI
Costs of opening a bank account (0/1)	Central Bank's assessment of the costs of payment and associated services of opening a bank account. Dummy that takes the value 1 if the costs are perceived as medium to high and 0 if they are perceived as negligible to low. Winsorized.	GPSS (2010) Table III.16
Costs of maintaining a bank account (0/1)	Central Bank's assessment of the costs of payment and associated services of maintaining a bank account. Dummy that takes the value 1 if the costs are perceived as medium to high and 0 if they are perceived as negligible to low. Winsorized.	GPSS (2010) Table III.16
Costs of direct credit (0/1)	Central Bank's assessment of the costs of payment and associated services of direct credit. Dummy that takes the value 1 if the costs are perceived as medium to high and 0 if the costs are perceived as negligible to low. Winsorized.	GPSS (2010) Table III.16
Costs of debit cards (0/1)	Central Bank's assessment of the costs of payment and associated services of debit cards. Dummy that takes the value 1 if the costs are perceived as medium to high and 0 if the costs are perceived as negligible to low. Winsorized.	GPSS (2010) Table III.16
Offer basic or low fee account (0/1)	Requirement for banks to offer a basic or low fee account to low income clients. Winsorized.	CGAP (2009)
Principle component of KYC requirements	Principle component of information requested as part of “know your customer” regulation. These include: i) proof of identity through government issued ID, ii) proof of identity through any ID, iii) proof of nationality/legal status in country, iv) proof of address, v) proof of income, and vi) proof of employment.	CGAP (2009)
Exception from KYC requirements (0/1)	Exception from "know your customer" requirements for low-income applicants or small accounts. Winsorized.	CGAP (2009)
Branch penetration (geographic)	Amount of commercial bank branches per 1,000 square kilometers in 2011. Winsorized.	FAS (2012)
ATM penetration (geographic)	Amount of automated teller machines (ATMs) per 1,000 square kilometers in 2011. Winsorized.	FAS (2012)
Interoperability POSs	Interoperability of points of sales (POSs) terminals, where full interoperability means that all payment cards issued by banks in the country can be used seamlessly in any POS terminal in the country. 1 is the highest and 3 the lowest value. Winsorized.	GPSS (2010)
Correspondent banking permitted (0/1)	Dummy that takes the value 1 if private operators are allowed to provide financial services at post offices or banks are allowed to formally contract companies as banking agents and 0 otherwise. Winsorized.	CGAP (2009)

Promoting access in rural areas (0/1)	Dummy that takes the value 1 if promoting access in rural areas is under the purview of the financial regulator and 0 otherwise. Winsorized.	CGAP (2010)
Share of member banks' deposits covered	Share of the deposits of member commercial banks that are covered by the deposit insurance scheme. Most recent data over the period 2008-2010 are used. Winsorized.	BRS (2012)
Total disclosure requirements for deposits	Total disclosure requirements for deposits, both upon opening and periodic. These requirements include: i) annual percentage yield and interest rate, ii) method of compounding, iii) minimum balance requirement, iv) fees and penalties, v) early withdrawal penalties, vi) annual percentage yield calculation, vii) amount of interest earned, viii) fees imposed, and ix) account balance. Winsorized.	CGAP (2010)
Consumer Protection: Monitoring Index	Number of monitoring actions available to the regulator. These actions include: i) mystery shopping, ii) consumer interviews, iii) receive complaints statistics, iv) operate complaints hotline, v) monitor ads and websites, and vi) onsite inspection of financial institutions. Winsorized.	CGAP (2010)
Consumer Protection: Enforcement Index	Number of enforcement actions available to the regulator. These actions include: i) require refund of excess charges, ii) issue public notice of violations, iii) withdraw license to operate, iv) withdraw misleading ads, v) impose fines and penalties, and vi) issue warnings to financial institutions. Winsorized.	CGAP (2010)
Asset share of government controlled banks	Share of banking system's assets that was in banks that were government controlled. Most recent data over the period 2008-2010 are used. Winsorized.	BRS (2012)
Asset share of foreign controlled banks	Share of banking system's assets that was in banks that were foreign controlled. Most recent data over the period 2008-2010 are used. Winsorized.	BRS (2012)
Legal rights index	Strength of legal rights index measures the degree to which collateral (8) and bankruptcy (2) laws protect the rights of borrowers and lenders and thus facilitate lending. Winsorized.	DB
Political risk rating	The political risk rating assesses the political stability of a country. Among others, components of the index are government stability, investment profile, and corruption. Winsorized.	ICRG
G2P transfers: open accounts (0/1)	Dummy that takes the value 1 if a country reported encouraging or mandating conducting government transfers through the banking system and 0 otherwise. Winsorized.	CGAP (2009)
Promoting Savings, Savings scheme (0/1)	Dummy that takes the value 1 if the country has a matched savings scheme in place to promote savings and 0 otherwise. Winsorized.	CGAP (2009)
Promoted Savings, Tax incentive scheme (0/1)	Dummy that takes the value 1 if the country provides tax incentives to promote savings and 0 otherwise. Winsorized.	CGAP (2009)

Note: The 3 largest and smallest values of a variable are replaced by the 4th largest and smallest, respectively, when the variable is winsorized.

Table 3: Summary statistics

Panel A: Individual-level variables

Variable	Obs.	Mean	Std. Dev.	Min	Max
Formal account (0/1)	125073	0.446	0.497	0	1
Savings (0/1), conditional on formal account	59923	0.412	0.492	0	1
Frequency of use (0/1), conditional on formal account	59923	0.511	0.500	0	1
Too expensive	65280	0.266	0.442	0	1
Documentation requirements	65228	0.215	0.411	0	1
Too far away	65226	0.215	0.411	0	1
No trust	65271	0.178	0.383	0	1
Not enough money	65403	0.698	0.459	0	1
Not enough money (only reason)	65240	0.303	0.460	0	1
Female (0/1)	125073	0.517	0.500	0	1
Age	125073	38.707	17.254	13	99
Age squared	125073	1795.897	1549.184	169	9801
Rural (0/1)	125073	0.594	0.491	0	1
Income: poorest 20% (0/1)	125073	0.216	0.411	0	1
Income: second 20% (0/1)	125073	0.207	0.405	0	1
Income: middle 20% (0/1)	125073	0.201	0.401	0	1
Income: fourth 20% (0/1)	125073	0.195	0.396	0	1
Income: richest 20% (0/1)	125073	0.182	0.386	0	1
0 - 8 years of education (0/1)	125073	0.432	0.495	0	1
9 - 15 years of education (0/1)	125073	0.471	0.499	0	1
> 15 years of education (0/1)	125073	0.096	0.295	0	1
Employed for employer (0/1)	125073	0.305	0.461	0	1
Unemployed (0/1)	125073	0.079	0.269	0	1
Out of workforce (0/1)	125073	0.392	0.488	0	1
Employed for self (0/1)	125073	0.224	0.417	0	1
Married (0/1)	125073	0.518	0.500	0	1
Divorced/Separated (0/1)	125073	0.044	0.206	0	1
Log of household size	125073	1.460	0.612	0	4.625
Formal account (0/1)	125073	0.446	0.497	0	1

Panel B: Aggregate-level variables

Variable	Obs.	Mean	Std. Dev.	Min	Max
Log of GDP per capita	120	7.769	1.563	5.189	10.420
Costs of opening a bank account (0/1)	78	0.179	0.386	0	1
Costs of maintaining a bank account (0/1)	78	0.346	0.479	0	1
Costs of direct credit (0/1)	72	0.417	0.496	0	1
Costs of debit cards (0/1)	75	0.200	0.403	0	1
Offer basic or low fee account (0/1)	103	0.136	0.344	0	1
Principle component of KYC requirements	103	0.000	1.678	-2.309	2.961
Exception from KYC requirements (0/1)	103	0.165	0.373	0	1
Branch penetration (geographic)	111	22.557	36.566	0.103	142.857
ATM penetration (geographic)	107	64.560	129.263	0.149	612.500
Interoperability POSs	87	1.667	0.787	1	3
Correspondent banking permitted (0/1)	103	0.534	0.501	0	1
Promoting Access in Rural Areas (0/1)	103	0.398	0.492	0	1
Share of member banks' deposits covered	52	43.704	26.635	2	83
Total disclosure requirements for deposits	103	4.437	3.105	0	9
Consumer Protection: Monitoring Index	103	2.049	1.580	0	5
Consumer Protection: Enforcement Index	103	2.864	2.160	0	6
Asset share of government controlled banks	92	16.800	19.193	0	71
Asset share of foreign controlled banks	88	45.574	29.866	5.580	94.560
Legal rights index	120	5.358	2.449	1	10
Political risk rating	103	66.999	12.051	42.375	88.583
G2P transfers: open accounts (0/1)	103	0.320	0.469	0	1
Promoting Savings, Savings scheme (0/1)	103	0.175	0.382	0	1
Promoting Savings, Tax incentive scheme (0/1)	103	0.340	0.476	0	1

Table 4: Relationship between financial inclusion indicators and individual characteristics

	(1)	(2)	(3)
Variable	Account	Savings	Frequency of use
Model	Probit	Probit (selection)	Probit (selection)
Country fixed effects	Yes	Yes	Yes
Female (0/1)	-0.027	-0.010	-0.091***
	(0.022)	(0.016)	(0.015)
Income: poorest 20% (0/1)	-0.777***	-0.633***	-0.660***
	(0.036)	(0.040)	(0.047)
Income: second 20% (0/1)	-0.616***	-0.464***	-0.514***
	(0.032)	(0.031)	(0.042)
Income: middle 20% (0/1)	-0.454***	-0.324***	-0.333***
	(0.028)	(0.029)	(0.037)
Income: fourth 20% (0/1)	-0.279***	-0.186***	-0.253***
	(0.023)	(0.028)	(0.029)
Age	0.038***	0.000	0.033***
	(0.003)	(0.004)	(0.004)
Age squared	-0.000***	-0.000	-0.000***
	(0.000)	(0.000)	(0.000)
Rural (0/1)	-0.156***	-0.030	-0.133***
	(0.025)	(0.022)	(0.028)
0 - 8 years of education (0/1)	-0.580***	-0.273***	-0.463***
	(0.027)	(0.029)	(0.031)
Log of household size	-0.139***	-0.127***	-0.157***
	(0.018)	(0.021)	(0.019)
Married (0/1)	0.107***	0.062**	0.098***
	(0.021)	(0.025)	(0.021)
Divorced/Separated (0/1)	0.051	-0.083**	0.089***
	(0.035)	(0.034)	(0.033)
Employed for employer (0/1)	0.329***	-0.034	0.146***
	(0.032)	(0.026)	(0.037)
Unemployed (0/1)	-0.328***	-0.518***	-0.349***
	(0.035)	(0.041)	(0.051)
Out of workforce (0/1)	-0.365***	-0.332***	-0.303***
	(0.030)	(0.034)	(0.033)
Constant	-0.849***	-0.258*	-1.333***
	(0.068)	(0.137)	(0.171)
Observations	125,073	59,923	59,923

Note: Each column represents the estimation result of a regression of a financial inclusion indicator on country fixed effects and a set of individual characteristics. These financial inclusion indicators are as follows. Account refers to adults reported to currently have a bank account at a formal financial institution. Savings refers to adults reported to have saved or set aside money in the past 12 months using a financial institution. Finally, frequency of use refers to adults reported to have taken money out of their personal account(s) 3 or more times in a typical month. The exact definitions and data sources are in Table 2. Standard errors are in parentheses and are clustered at the country level. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

Table 5: Relationship between financial inclusion indicators and country characteristics

	(1)	(2)	(3)
Variable	Account	Savings	Frequency of Use
Model	Probit	Probit (selection)	Probit (selection)
Individual determinants	Yes	Yes	Yes
Controlled for log GDP per capita	Yes	Yes	Yes
Costs of opening a bank account (0/1)	-0.426**	-0.158	-0.367**
	(0.175)	(0.122)	(0.155)
Costs of maintaining a bank account (0/1)	-0.440***	-0.209*	-0.221
	(0.137)	(0.112)	(0.140)
Costs of direct credit (0/1)	-0.469***	-0.261**	-0.294**
	(0.140)	(0.113)	(0.144)
Costs of debit cards (0/1)	-0.350**	-0.233	-0.328*
	(0.172)	(0.153)	(0.186)
Offer basic or low fee account (0/1)	-0.020	-0.044	0.077
	(0.215)	(0.122)	(0.154)
Principle component of KYC requirements	-0.023	-0.014	-0.052
	(0.037)	(0.030)	(0.037)
Exception from KYC requirements (0/1)	0.120	0.050	0.022
	(0.165)	(0.117)	(0.141)
Branch penetration (geographic)	0.007***	0.002*	0.001
	(0.002)	(0.001)	(0.001)
ATM penetration (geographic)	0.002***	0.001**	0.000
	(0.001)	(0.000)	(0.000)
Interoperability POSs	-0.162	0.005	-0.230**
	(0.102)	(0.081)	(0.101)
Correspondent banking permitted (0/1)	0.178	0.092	0.139
	(0.129)	(0.102)	(0.115)
Promoting Access in Rural Areas (0/1)	-0.057	0.076	-0.035
	(0.146)	(0.127)	(0.135)
Share of member banks' deposits covered	0.005	0.001	0.002
	(0.003)	(0.002)	(0.003)
Total disclosure requirements for deposits	-0.042*	-0.033**	-0.023
	(0.022)	(0.016)	(0.028)
Consumer Protection: Monitoring Index	-0.025	-0.002	0.003
	(0.041)	(0.031)	(0.032)
Consumer Protection: Enforcement Index	0.030	-0.001	0.041
	(0.028)	(0.024)	(0.025)
Asset share of government controlled banks	-0.001	-0.005*	-0.004
	(0.004)	(0.003)	(0.004)
Asset share of foreign controlled banks	-0.000	0.001	0.008
	(0.002)	(0.002)	(0.000)
Legal rights index	0.085***	0.061***	0.079***
	(0.018)	(0.016)	(0.024)
Political risk rating	0.033***	0.024***	0.056***
	(0.009)	(0.007)	(0.011)
G2P transfers: open accounts (0/1)	0.146	0.094	0.238*
	(0.147)	(0.092)	(0.143)
Promoting Savings, Savings scheme (0/1)	0.098	0.041	0.253*
	(0.179)	(0.103)	(0.151)
Promoting Savings, Tax incentive scheme (0/1)	0.318**	0.117	0.240*
	(0.130)	(0.106)	(0.122)

Notes: Each cell represents the estimation result of a separate regression of a financial inclusion indicator on the individual characteristics in Table 2, the log of GDP per capita, and a country characteristic. These financial inclusion indicators are as follows. Account refers to adults reported to currently have a bank account at a formal financial institution. Savings refers to adults reported to have saved or set aside money in the past 12 months using a financial institution. Finally, frequency of use refers to adults reported to have taken money out of their personal account(s) 3 or more times in a typical month. The exact definitions and data sources are in Table 2. Standard errors are in parentheses and are clustered at the country level. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

Table 6: Interactions with rural

	(1)	(2)	(3)
Variable	Account	Savings	Frequency of Use
Model	Probit	Probit (selection)	Probit (selection)
Individual determinants	Yes	Yes	Yes
Controlled for country fixed effects	Yes	Yes	Yes
Costs of opening a bank account (0/1) x rural	-0.126*	-0.111**	-0.111
	(0.066)	(0.052)	(0.091)
Costs of maintaining a bank account (0/1) x rural	0.042	0.057	-0.004
	(0.063)	(0.047)	(0.064)
Costs of direct credit (0/1) x rural	-0.025	-0.007	-0.093
	(0.065)	(0.048)	(0.066)
Costs of debit cards (0/1) x rural	-0.010	-0.042	0.115
	(0.065)	(0.064)	(0.078)
Offer basic or low fee account (0/1) x rural	0.187**	0.081	0.084
	(0.078)	(0.051)	(0.098)
Principle component of KYC requirements x rural	-0.014	-0.026*	-0.025
	(0.016)	(0.014)	(0.017)
Exception from KYC requirements (0/1) x rural	0.124*	0.016	-0.028
	(0.068)	(0.065)	(0.069)
Branch penetration (geographic) x rural	0.003***	-0.000	0.001**
	(0.001)	(0.001)	(0.001)
ATM penetration (geographic) x rural	0.000	-0.000	0.000**
	(0.000)	(0.000)	(0.000)
Interoperability POSs x rural	-0.034	-0.003	-0.049
	(0.037)	(0.037)	(0.042)
Correspondent banking permitted (0/1) x rural	0.064	0.088*	-0.044
	(0.053)	(0.045)	(0.059)
Promoting Access in Rural Areas (0/1) x rural	-0.094	0.026	-0.118*
	(0.057)	(0.060)	(0.065)
Share of member banks' deposits covered x rural	0.001	0.001	-0.000
	(0.001)	(0.001)	(0.001)
Total disclosure requirements for deposits x rural	0.018**	0.004	0.001
	(0.009)	(0.008)	(0.009)
Consumer Protection: Monitoring Index x rural	0.038***	0.026*	0.020
	(0.014)	(0.014)	(0.018)
Consumer Protection: Enforcement Index x rural	0.034***	0.010	0.032**
	(0.011)	(0.012)	(0.012)
Asset share of government controlled banks x rural	0.002	0.001	-0.001
	(0.001)	(0.001)	(0.001)
Asset share of foreign controlled banks x rural	-0.001	0.000	0.001
	(0.001)	(0.001)	(0.001)
Legal rights index x rural	-0.009	0.001	-0.002
	(0.009)	(0.008)	(0.012)
Political risk rating x rural	0.011***	0.002	0.009***
	(0.003)	(0.002)	(0.002)
G2P transfers: open accounts (0/1) x rural	0.112*	0.050	0.088
	(0.057)	(0.043)	(0.057)
Promoting Savings, Savings scheme (0/1) x rural	0.036	0.034	0.027
	(0.078)	(0.046)	(0.082)
Promoting Savings, Tax incentive scheme (0/1) x rural	0.079	0.002	0.033
	(0.068)	(0.046)	(0.062)

Notes: Each cell represents the estimation result of a separate regression of a financial inclusion indicator on the individual characteristics in Table 2, country fixed effects, and a country characteristic interacted with rural. These financial inclusion indicators are as follows. Account refers to adults reported to currently have a bank account at a formal financial institution. Savings refers to adults reported to have saved or set aside money in the past 12 months using a financial institution. Finally, frequency of use refers to adults reported to have taken money out of their personal account(s) 3 or more times in a typical month. The exact definitions and data sources are in Table 2. Standard errors are in parentheses and are clustered at the country level. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

Table 7: Interactions with poorest income quintile

	(1)	(2)	(3)
Variable	Account	Savings	Frequency of Use
Model	Probit	Probit (selection)	Probit (selection)
Individual determinants	Yes	Yes	Yes
Controlled for country fixed effects	Yes	Yes	Yes
Costs of opening a bank account (0/1) x poorest 20%	-0.097	0.025	-0.105
	(0.068)	(0.062)	(0.105)
Costs of maintaining a bank account (0/1) x poorest 20%	-0.016	0.037	-0.019
	(0.061)	(0.067)	(0.060)
Costs of direct credit (0/1) x poorest 20%	0.028	0.010	-0.027
	(0.066)	(0.065)	(0.065)
Costs of debit cards (0/1) x poorest 20%	-0.055	0.005	-0.013
	(0.070)	(0.094)	(0.098)
Offer basic or low fee account (0/1) x poorest 20%	0.002	-0.008	0.043
	(0.058)	(0.092)	(0.086)
Principle component of KYC requirements x poorest 20%	-0.017	-0.013	-0.018
	(0.019)	(0.018)	(0.018)
Exception from KYC requirements (0/1) x poorest 20%	-0.054	0.067	-0.193**
	(0.049)	(0.094)	(0.087)
Branch penetration (geographic) x poorest 20%	0.001**	0.000	0.000
	(0.001)	(0.001)	(0.001)
ATM penetration (geographic) x poorest 20%	0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)
Interoperability POSs x poorest 20%	-0.023	0.073*	-0.050
	(0.038)	(0.043)	(0.038)
Correspondent banking permitted (0/1) x poorest 20%	0.025	0.244***	0.071
	(0.062)	(0.066)	(0.056)
Promoting Access in Rural Areas (0/1) x poorest 20%	-0.057	0.079	-0.052
	(0.052)	(0.089)	(0.076)
Share of member banks' deposits covered x poorest 20%	0.003**	0.001	0.002
	(0.001)	(0.002)	(0.001)
Total disclosure requirements for deposits x poorest 20%	0.017*	-0.012	0.004
	(0.009)	(0.011)	(0.008)
Consumer Protection: Monitoring Index x poorest 20%	0.006	-0.001	0.003
	(0.018)	(0.020)	(0.019)
Consumer Protection: Enforcement Index x poorest 20%	0.011	0.007	0.007
	(0.015)	(0.015)	(0.015)
Asset share of government controlled banks x poorest 20%	-0.001	0.004**	-0.001
	(0.001)	(0.002)	(0.001)
Asset share of foreign controlled banks x poorest 20%	0.001	-0.000	0.000
	(0.001)	(0.001)	(0.001)
Legal rights index x poorest 20%	-0.006	-0.009	-0.020*
	(0.007)	(0.015)	(0.012)
Political risk rating x poorest 20%	0.006**	-0.006**	0.000
	(0.002)	(0.003)	(0.003)
G2P transfers: open accounts (0/1) x poorest 20%	0.061	-0.040	0.043
	(0.057)	(0.074)	(0.059)
Promoting Savings, Savings scheme (0/1) x poorest 20%	0.102	0.123**	0.016
	(0.068)	(0.059)	(0.058)
Promoting Savings, Tax incentive scheme (0/1) x poorest 20%	-0.003	-0.034	-0.021
	(0.074)	(0.068)	(0.062)

Notes: Each cell represents the estimation result of a separate regression of a financial inclusion indicator on the individual characteristics in Table 2, country fixed effects, and a country characteristic interacted with the poorest income quintile. These financial inclusion indicators are as follows. Account refers to adults reported to currently have a bank account at a formal financial institution. Savings refers to adults reported to have saved or set aside money in the past 12 months using a financial institution. Finally, frequency of use refers to adults reported to have taken money out of their personal account(s) 3 or more times in a typical month. The exact definitions and data sources are in Table 2. Standard errors are in parentheses and are clustered at the country level. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

Table 8: Relationship between perceived barriers to account ownership and individual characteristics

Variable	(1) Too expensive	(2) Lack of necessary documentation	(3) Too far away	(4) No trust	(5) Not enough money	(6) Not enough money only reason
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Female (0/1)	-0.017	-0.027	0.002	-0.061***	-0.010	0.024
	(0.015)	(0.019)	(0.019)	(0.016)	(0.016)	(0.016)
Income: poorest 20% (0/1)	0.254***	-0.013	0.115**	0.009	0.342***	0.152***
	(0.049)	(0.053)	(0.055)	(0.041)	(0.053)	(0.046)
Income: second 20% (0/1)	0.222***	-0.002	0.097**	0.038	0.268***	0.075*
	(0.035)	(0.048)	(0.046)	(0.040)	(0.039)	(0.040)
Income: middle 20% (0/1)	0.157***	0.034	0.094**	0.063	0.157***	0.011
	(0.037)	(0.042)	(0.039)	(0.039)	(0.030)	(0.030)
Income: fourth 20% (0/1)	0.145***	0.015	0.043	0.082**	0.088***	-0.027
	(0.029)	(0.039)	(0.035)	(0.034)	(0.025)	(0.028)
Age	0.004	-0.017***	-0.002	0.006*	0.009***	0.010***
	(0.003)	(0.004)	(0.003)	(0.003)	(0.003)	(0.003)
Age squared	-0.000	0.000***	0.000	-0.000	-0.000**	-0.000**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Rural (0/1)	0.074**	0.072**	0.560***	0.017	-0.007	-0.110***
	(0.032)	(0.033)	(0.045)	(0.028)	(0.027)	(0.027)
0 - 8 years of education (0/1)	0.082***	0.112***	0.119***	0.037	0.016	-0.051*
	(0.030)	(0.041)	(0.030)	(0.033)	(0.029)	(0.029)
Log of household size	0.052***	0.003	0.027	0.007	0.047**	-0.007
	(0.019)	(0.021)	(0.023)	(0.021)	(0.019)	(0.015)
Married (0/1)	-0.009	-0.079***	0.046**	0.025	-0.026	0.001
	(0.022)	(0.024)	(0.022)	(0.021)	(0.018)	(0.020)
Divorced/Separated (0/1)	0.100***	-0.050	0.049	0.075*	0.041	0.003
	(0.037)	(0.044)	(0.042)	(0.039)	(0.034)	(0.036)
Employed for employer (0/1)	-0.002	0.031	-0.023	-0.036	0.039	0.059
	(0.036)	(0.039)	(0.031)	(0.035)	(0.048)	(0.037)
Unemployed (0/1)	0.086**	0.012	-0.151***	0.067*	0.077*	0.092**
	(0.041)	(0.047)	(0.042)	(0.036)	(0.040)	(0.038)
Out of workforce (0/1)	-0.069*	0.011	-0.153***	-0.076***	-0.073***	0.021
	(0.037)	(0.043)	(0.033)	(0.028)	(0.027)	(0.030)
Constant	-0.858***	-0.039	-0.943***	-0.578***	-0.649***	-2.356***
	(0.086)	(0.125)	(0.113)	(0.089)	(0.091)	(0.093)
Observations	65,262	64,573	65,178	65,251	65,387	65,185

Note: The sample includes only unbanked adults. Each column represents the estimation result of a regression of a perceived barrier to account ownership on country fixed effects and a set of individual characteristics. These account barriers are as follows. Too expensive refers to the respondents without an account that indicated "They are too expensive" as a reason. Lack of necessary documentation refers to the respondents without an account that indicated "You don't have the necessary documentation" as a reason. Too far away and no trust refers to the respondents without an account that indicated "Too far away" and "You don't trust them" as a reason, respectively. Finally, not enough money refers to the respondents without an account that indicated "Not enough money to use" as a reason. Note that respondent could give multiple reasons for not having an account. The exact definitions and data sources are in Table 2. Standard errors are in parentheses and are clustered at the country level. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

Table 9: Relationship between perceived barriers to account ownership and country characteristics

Variable	(1) Too expensive	(2) Lack of necessary documentation	(3) Too far away	(4) No trust	(5) Not enough money	(6) Not enough money only reason
Controlled for log of GDP per capita	Yes	Yes	Yes	Yes	Yes	Yes
Costs of opening a bank account (0/1)	0.224	-0.053	-0.020	0.111	-0.072	-0.143
	(0.141)	(0.127)	(0.169)	(0.111)	(0.145)	(0.179)
Costs of maintaining a bank account (0/1)	0.347***	0.096	0.164	0.088	0.179	-0.147
	(0.122)	(0.127)	(0.109)	(0.105)	(0.124)	(0.106)
Costs of direct credit (0/1)	0.165	-0.021	-0.113	0.133	0.232*	0.052
	(0.140)	(0.119)	(0.134)	(0.108)	(0.138)	(0.163)
Costs of debit cards (0/1)	0.135	-0.012	0.087	0.082	-0.036	-0.207*
	(0.129)	(0.127)	(0.144)	(0.113)	(0.119)	(0.124)
Offer basic or low fee account (0/1)	0.124	-0.029	-0.038	-0.038	-0.167	-0.210*
	(0.162)	(0.081)	(0.082)	(0.137)	(0.102)	(0.110)
Principle component of KYC requirements	0.017	0.014	0.034	-0.014	0.029	0.012
	(0.030)	(0.026)	(0.028)	(0.021)	(0.026)	(0.025)
Exception from KYC requirements (0/1)	0.122	0.121	-0.005	-0.079	-0.045	-0.130
	(0.120)	(0.107)	(0.097)	(0.093)	(0.101)	(0.098)
Branch penetration (geographic)	-0.004**	-0.004*	-0.004*	-0.007***	-0.002	0.002
	(0.002)	(0.002)	(0.002)	(0.001)	(0.003)	(0.002)
ATM penetration (geographic)	-0.001	-0.001	-0.001	-0.001	0.000	0.001*
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.000)
Interoperability POSs	-0.012	0.014	-0.030	0.075	0.071	0.002
	(0.067)	(0.056)	(0.075)	(0.064)	(0.075)	(0.092)
Correspondent banking permitted (0/1)	0.152	0.094	0.255***	0.125	-0.093	-0.255***
	(0.095)	(0.090)	(0.087)	(0.084)	(0.092)	(0.082)
Promoting Access in Rural Areas (0/1)	0.120	0.265***	0.300***	-0.032	0.022	-0.166*
	(0.110)	(0.098)	(0.094)	(0.100)	(0.109)	(0.092)
Share of member banks' deposits covered	-0.005**	-0.003	-0.001	0.001	-0.000	0.002
	(0.003)	(0.003)	(0.002)	(0.003)	(0.003)	(0.003)
Total disclosure requirements for deposits	-0.003	0.009	-0.009	0.021	-0.004	-0.016
	(0.017)	(0.016)	(0.015)	(0.014)	(0.016)	(0.016)
Consumer Protection: Monitoring Index	0.056	0.048	0.052**	0.027	-0.018	-0.066***
	(0.034)	(0.029)	(0.024)	(0.035)	(0.034)	(0.021)
Consumer Protection: Enforcement Index	-0.009	-0.002	-0.001	0.004	-0.022	-0.014
	(0.022)	(0.022)	(0.021)	(0.021)	(0.023)	(0.022)
Asset share of government controlled banks	-0.003*	-0.008***	-0.005**	-0.003	-0.002	0.002
	(0.002)	(0.002)	(0.002)	(0.003)	(0.003)	(0.002)
Asset share of foreign controlled banks	0.002	0.005***	0.004**	0.003**	0.002	-0.001
	(0.002)	(0.002)	(0.002)	(0.001)	(0.002)	(0.002)
Legal rights index	-0.005	-0.004	0.006	-0.023	0.000	0.000
	(0.018)	(0.021)	(0.020)	(0.017)	(0.020)	(0.018)
Political risk rating	-0.002	0.003	0.001	-0.010	-0.009	-0.000
	(0.007)	(0.008)	(0.007)	(0.006)	(0.008)	(0.008)
G2P transfers: open accounts (0/1)	0.116	0.038	0.084	0.031	-0.292***	-0.266***
	(0.111)	(0.091)	(0.089)	(0.097)	(0.089)	(0.088)
Promoting Savings, Savings scheme (0/1)	0.287*	0.057	0.208**	0.265***	-0.215**	-0.431***
	(0.158)	(0.101)	(0.080)	(0.096)	(0.106)	(0.114)
Promoting Savings, Tax incentive scheme (0/1)	-0.094	-0.099	-0.057	-0.057	-0.269***	-0.082
	(0.139)	(0.113)	(0.094)	(0.132)	(0.085)	(0.133)

Note: The sample includes only unbanked adults. Each cell represents the estimation result of a separate regression of a perceived barrier to account ownership on the set of individual characteristics in Table 2, the log of GDP per capita, and a country characteristic. These account barriers are as follows. Too expensive refers to the respondents without an account that indicated "They are too expensive" as a reason. Lack of necessary documentation refers to the respondents without an account that indicated "You don't have the necessary documentation" as a reason. Too far away and no trust refers to the respondents without an account that indicated "Too far away" and "You don't trust them" as a reason, respectively. Finally, not enough money refers to the respondents without an account that indicated "Not enough money to use" as a reason. Note that respondent could give multiple reasons for not having an account. The exact definitions and data sources are in Table 2. Standard errors are in parentheses and are clustered at the country level. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

Appendix 1: Summary statistics of dependent variables, by country

	Account				Savings	Frequency of use
Country	All	Rural	Poorest 20%	Richest 20%	All	All
Afghanistan	0.09	0.06	0.01	0.21	0.31	0.25
Angola	0.39	0.33	0.33	0.40	0.35	0.39
Argentina	0.33	0.39	0.19	0.55	0.11	0.36
Armenia	0.17	0.15	0.16	0.25	0.05	0.20
Australia	0.99	1.00	0.98	1.00	0.63	0.88
Austria	0.99	1.00	0.94	0.99	0.54	0.90
Azerbaijan	0.15	0.12	0.14	0.25	0.05	0.12
Bangladesh	0.32	0.30	0.19	0.52	0.40	0.14
Belarus	0.59	0.47	0.38	0.76	0.10	0.52
Belgium	0.98	0.98	1.00	0.98	0.45	0.80
Benin	0.09	0.05	0.04	0.23	0.64	0.28
Bolivia	0.27	0.20	0.10	0.50	0.57	0.24
Botswana	0.30	0.26	0.12	0.48	0.44	0.36
Brazil	0.56	0.54	0.33	0.72	0.17	0.33
Bulgaria	0.53	0.46	0.29	0.77	0.09	0.25
Burkina Faso	0.13	0.12	0.06	0.25	0.59	0.13
Burundi	0.07	0.05	0.02	0.21	0.44	0.15
Cambodia	0.04	0.02	0.00	0.12	0.09	0.13
Cameroon	0.13	0.13	0.12	0.22	0.64	0.04
Canada	0.98	0.99	0.94	0.99	0.52	0.86
Central African Rep.	0.03	0.01	0.01	0.10	0.77	0.13
Chad	0.08	0.05	0.06	0.24	0.69	0.18
Chile	0.42	0.37	0.19	0.67	0.28	0.30
China	0.64	0.58	0.39	0.85	0.49	0.21
Colombia	0.30	0.26	0.09	0.61	0.29	0.27
Comoros	0.20	0.20	0.06	0.41	0.50	0.16
Congo, Dem. Rep.	0.03	0.02	0.00	0.17	0.45	0.06
Congo, Rep.	0.09	0.04	0.01	0.20	0.58	0.08
Costa Rica	0.50	0.52	0.31	0.69	0.38	0.38
Cyprus	0.87	0.85	0.77	0.91	0.35	0.67
Czech Republic	0.81	0.80	0.71	0.87	0.44	0.69
Denmark	1.00	1.00	0.99	1.00	0.57	0.92
Djibouti	0.12	0.08	0.04	0.34	0.27	0.16
Dominican Republic	0.38	0.26	0.18	0.64	0.41	0.22
Ecuador	0.32	0.28	0.15	0.58	0.38	0.25
Egypt, Arab Rep.	0.10	0.06	0.05	0.26	0.04	0.06
El Salvador	0.14	0.12	0.01	0.34	0.55	0.16
Estonia	0.97	0.96	0.94	0.99	0.30	0.80
Finland	1.00	1.00	1.00	1.00	0.57	0.95
France	0.97	0.98	0.96	1.00	0.52	0.88
Gabon	0.19	0.13	0.04	0.38	0.45	0.14
Georgia	0.33	0.28	0.25	0.49	0.03	0.09
Ghana	0.29	0.25	0.17	0.61	0.55	0.18
Greece	0.78	0.76	0.75	0.86	0.26	0.26
Guinea	0.04	0.02	0.02	0.09	0.56	0.14
Haiti	0.22	0.16	0.04	0.52	0.79	0.34
Honduras	0.20	0.15	0.15	0.46	0.44	0.27
Hong Kong SAR, China	0.89	0.78	0.78	0.98	0.49	0.67
Hungary	0.73	0.70	0.58	0.86	0.23	0.48
India	0.35	0.33	0.21	0.55	0.31	0.15
Indonesia	0.19	0.16	0.09	0.47	0.76	0.15
Iraq	0.11	0.08	0.05	0.14	0.37	0.26
Ireland	0.95	0.96	0.91	0.99	0.55	0.80
Israel	0.91	0.84	0.88	0.91	0.27	0.71
Italy	0.78	0.80	0.70	0.86	0.22	0.56
Jamaica	0.74	0.73	0.76	0.69	0.42	0.35
Japan	0.98	0.98	0.96	0.98	0.53	0.50
Kazakhstan	0.42	0.35	0.30	0.54	0.16	0.15
Korea, Rep.	0.94	0.87	0.86	0.94	0.50	0.66
Kyrgyz Republic	0.04	0.02	0.01	0.11	0.18	0.38
Lao PDR	0.27	0.20	0.16	0.27	0.66	0.05
Latvia	0.90	0.87	0.83	0.97	0.15	0.53
Lebanon	0.37	0.30	0.19	0.54	0.45	0.33
Lesotho	0.18	0.16	0.08	0.29	0.40	0.27

	Account				Savings	Frequency of use
Country	All	Rural	Poorest 20%	Richest 20%	All	All
Liberia	0.18	0.17	0.03	0.42	0.63	0.07
Lithuania	0.74	0.73	0.68	0.87	0.28	0.48
Luxembourg	0.96	0.98	0.97	0.94	0.55	0.76
Malawi	0.16	0.15	0.09	0.36	0.43	0.26
Malaysia	0.67	0.52	0.47	0.83	0.48	0.39
Mali	0.07	0.05	0.03	0.14	0.46	0.25
Malta	0.96	0.96	0.95	0.95	0.47	0.62
Mauritania	0.15	0.14	0.06	0.34	0.37	0.27
Mauritius	0.80	0.81	0.67	0.95	0.39	0.41
Mexico	0.28	0.15	0.12	0.57	0.21	0.44
Moldova	0.18	0.15	0.06	0.36	0.17	0.26
Mongolia	0.77	0.76	0.68	0.89	0.29	0.42
Mozambique	0.40	0.40	0.20	0.56	0.43	0.54
Nepal	0.24	0.21	0.14	0.36	0.38	0.10
Netherlands	1.00	1.00	0.99	1.00	0.59	0.87
New Zealand	1.00	0.99	1.00	1.00	0.61	0.90
Nicaragua	0.12	0.08	0.03	0.27	0.42	0.13
Niger	0.01	0.01	0.00	0.06	0.71	0.12
Nigeria	0.29	0.22	0.12	0.62	0.78	0.28
Pakistan	0.10	0.08	0.05	0.19	0.13	0.26
Panama	0.24	0.20	0.15	0.44	0.38	0.28
Paraguay	0.21	0.13	0.04	0.53	0.42	0.18
Peru	0.20	0.14	0.06	0.46	0.41	0.29
Philippines	0.24	0.17	0.04	0.51	0.53	0.20
Poland	0.70	0.69	0.60	0.82	0.26	0.53
Portugal	0.86	0.89	0.74	0.90	0.31	0.81
Romania	0.44	0.37	0.26	0.72	0.18	0.29
Russian Federation	0.50	0.44	0.36	0.62	0.20	0.26
Senegal	0.06	0.04	0.04	0.13	0.62	0.08
Sierra Leone	0.15	0.13	0.04	0.30	0.75	0.20
Singapore	0.98		0.98	0.98	0.59	0.82
Slovak Republic	0.80	0.79	0.66	0.86	0.46	0.68
Slovenia	0.97	0.97	0.92	1.00	0.30	0.78
Somalia	0.31	0.17	0.12	0.58	0.42	0.66
South Africa	0.54	0.44	0.35	0.78	0.41	0.30
Spain	0.94	0.93	0.92	0.92	0.37	0.69
Sri Lanka	0.68	0.67	0.50	0.87	0.38	0.11
Swaziland	0.29	0.29	0.13	0.44	0.59	0.41
Sweden	0.99	0.99	1.00	1.00	0.64	0.92
Syrian Arab Republic	0.26	0.24	0.22	0.30	0.22	0.47
Taiwan, China	0.88	0.86	0.78	0.91	0.52	0.49
Tajikistan	0.03	0.02	0.01	0.07	0.11	0.02
Tanzania	0.17	0.13	0.02	0.44	0.62	0.26
Thailand	0.73	0.70	0.64	0.87	0.57	0.25
Togo	0.09	0.06	0.01	0.18	0.34	0.12
Trinidad and Tobago	0.79	0.79	0.71	0.88	0.54	0.27
Tunisia	0.32	0.26	0.14	0.63	0.14	0.39
Turkey	0.58	0.60	0.46	0.72	0.07	0.22
Turkmenistan	0.00	0.00	0.00	0.01	0.29	0.12
Uganda	0.20	0.19	0.07	0.36	0.78	0.15
Ukraine	0.41	0.33	0.19	0.61	0.13	0.27
United States	0.89	0.87	0.79	0.91	0.57	0.87
Uruguay	0.23	0.21	0.08	0.47	0.24	0.35
Uzbekistan	0.23	0.23	0.15	0.27	0.03	0.58
Venezuela, RB	0.45	0.41	0.28	0.55	0.31	0.38
Vietnam	0.21	0.16	0.06	0.36	0.35	0.32
West Bank and Gaza	0.19	0.22	0.08	0.34	0.27	0.21
Yemen, Rep.	0.04	0.03	0.00	0.09	0.28	0.21
Zambia	0.20	0.22	0.08	0.49	0.54	0.27

Appendix 2.A: Correlation matrix of individual-level variables

		A	*B*	*C*	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Female (0/1)	1	-0.01*	-0.03*	0.01	1													
Age	2	0.18*	-0.04*	0.05*	0.03*	1												
Age squared	3	0.15*	-0.05*	0.03*	0.03*	0.98*	1											
Rural (0/1)	4	-0.18*	-0.00	-0.09*	-0.03*	-0.04*	-0.04*	1										
Income: poorest 20% (0/1)	5	-0.13*	-0.12*	-0.05*	0.05*	0.12*	0.14*	0.10*	1									
Income: second 20% (0/1)	6	-0.07*	-0.06*	-0.02*	0.01*	0.03*	0.03*	0.05*	-0.26*	1								
Income: middle 20% (0/1)	7	-0.00	-0.01	0.01	-0.00	-0.02*	-0.03*	-0.00	-0.26*	-0.25*	1							
Income: fourth 20% (0/1)	8	0.05*	0.04*	0.00	-0.02*	-0.06*	-0.07*	-0.04*	-0.26*	-0.24*	-0.24*	1						
0 - 8 years of education (0/1)	9	0.15*	0.11*	0.04*	-0.04*	-0.07*	-0.08*	-0.12*	-0.26*	-0.24*	-0.24*	-0.24*	1					
Employed (0/1)	10	-0.34*	-0.08*	-0.22*	0.03*	0.10*	0.12*	0.21*	0.18*	0.07*	-0.01*	-0.08*	-0.16*	1				
Unemployed (0/1)	11	0.14*	-0.02*	0.04*	-0.03*	-0.13*	-0.13*	-0.09*	-0.10*	-0.02*	0.03*	0.05*	0.03*	-0.75*	1			
Out of workforce (0/1)	12	0.27*	0.10*	0.15*	-0.00	0.04*	0.02*	-0.16*	-0.12*	-0.07*	-0.02*	0.04*	0.18*	-0.30*	-0.40*	1		
Married (0/1)	13	0.30*	0.09*	0.14*	-0.12*	-0.08*	-0.13*	-0.10*	-0.14*	-0.05*	0.02*	0.07*	0.12*	-0.24*	0.07*	0.22*	1	
Divorced/Separated (0/1)	14	-0.09*	-0.06*	-0.04*	-0.01	-0.13*	-0.13*	-0.00	0.04*	0.01*	-0.00	-0.02*	-0.03*	-0.03*	0.05*	-0.03*	-0.20*	1
Log of household size	15	-0.12*	-0.10*	-0.05*	0.20*	0.16*	0.22*	-0.03*	0.10*	0.04*	-0.01*	-0.05*	-0.08*	0.10*	-0.01	-0.12*	-0.55*	-0.23*

Note: * denotes significance at the 1%. *A* represents account (0/1), *B* represents savings (0/1) conditional on having a formal account, and *C* represents frequency of use (0/1) conditional on having an account.

Appendix 2.B: Correlation matrix of country-level variables

		1	2	3	4	5	6	7	8	9	10
Log of GDP per capita	1	1									
Costs of opening a bank account (0/1)	2	-0.10	1								
Costs of maintaining a bank account (0/1)	3	-0.05	0.22	1							
Costs of direct credit (0/1)	4	-0.12	0.34*	0.47*	1						
Costs of debit cards (0/1)	5	-0.24*	0.20	0.40*	0.28*	1					
Offer basic or low fee account (0/1)	6	0.25*	0.01	0.02	-0.03	-0.12	1				
Principle component of KYC requirements	7	-0.11	0.16	0.18	0.22	0.17	-0.10	1			
Exception from KYC requirements (0/1)	8	-0.06	0.13	0.06	0.18	0.08	0.20*	0.23*	1		
Branch penetration (geographic)	9	0.53*	-0.11	-0.28*	-0.35*	-0.16	0.021	-0.15	-0.06	1	
ATM penetration (geographic)	10	0.47*	-0.14	-0.26*	-0.32*	-0.16	-0.02	-0.05	-0.02	0.81*	1
Interoperability POSs	11	-0.44*	0.07	0.00	0.28*	0.04	-0.19	0.20	0.10	-0.09	-0.02
Correspondent banking permitted (0/1)	12	0.18	0.04	0.01	-0.06	-0.12	0.25*	0.01	0.04	0.11	0.03
Promoting Access in Rural Areas (0/1)	13	-0.51*	0.01	0.11	0.10	-0.02	-0.04	0.15	0.15	-0.24*	-0.13
Share of member banks' deposits covered	14	0.35*	-0.42*	-0.25	-0.11	-0.26	-0.12	-0.02	-0.16	0.08	0.16
Total disclosure requirements for deposits	15	0.27*	0.01	0.06	0.17	-0.13	0.29*	-0.09	-0.09	0.05	0.04
Consumer Protection: Monitoring Index	16	0.31*	0.16	0.08	0.12	-0.01	0.46*	-0.13	0.09	0.03	0.08
Consumer Protection: Enforcement Index	17	0.20*	0.00	-0.06	0.00	-0.05	0.25*	-0.04	0.06	0.14	0.15
Asset share of government controlled banks	18	-0.19	-0.11	0.06	0.00	0.09	0.01	0.10	0.10	-0.24*	-0.22*
Asset share of foreign controlled banks	19	-0.04	-0.17	0.09	-0.00	-0.14	-0.02	0.08	-0.02	0.08	0.14
Legal rights index	20	0.35*	0.07	0.05	-0.12	-0.29*	0.10	-0.03	0.05	0.22*	0.30*
Political risk rating	21	0.81*	-0.13	-0.13	-0.16	-0.31*	0.18	-0.09	-0.01	0.44*	0.39*
G2P transfers: open accounts (0/1)	22	0.27*	0.12	0.01	-0.12	-0.06	0.27*	-0.09	0.19*	0.01	0.04
Promoting Savings, Savings scheme (0/1)	23	0.32*	-0.04	0.06	-0.14	-0.19	0.26*	-0.17	-0.06	0.07	0.08

Appendix 2.B: Correlation matrix of country-level variables (continued)

		11	12	13	14	15	16	17	18	19	20	21	22	23
Interoperability POSs	11	1												
Correspondent banking permitted (0/1)	12	-0.07	1											
Promoting Access in Rural Areas (0/1)	13	0.49*	0.02	1										
Share of member banks' deposits covered	14	0.12	0.18	-0.23	1									
Total disclosure requirements for deposits	15	-0.00	-0.04	0.01	0.16	1								
Consumer Protection: Monitoring Index	16	-0.12	0.21*	0.11	0.15	0.39*	1							
Consumer Protection: Enforcement Index	17	-0.07	0.07	-0.02	0.05	0.28*	0.53*	1						
Asset share of government controlled banks	18	0.10	-0.14	0.17	-0.11	-0.06	-0.17	-0.11	1					
Asset share of foreign controlled banks	19	-0.02	0.11	0.08	0.01	-0.17	-0.15	-0.06	-0.42*	1				
Legal rights index	20	-0.02	0.26*	-0.13	0.16	-0.05	0.15	0.15	-0.46*	0.23*	1			
Political risk rating	21	-0.36*	0.22*	-0.36*	0.31*	0.14	0.19	0.23*	-0.31*	0.20	0.48*	1		
G2P transfers: open accounts (0/1)	22	-0.05	0.01	-0.07	-0.00	0.13	0.22*	0.03	-0.05	-0.07	0.12	0.08	1	
Promoting Savings, Savings scheme (0/1)	23	-0.17	0.22*	-0.20*	0.01	0.11	0.20*	0.15	-0.24*	0.30*	0.21*	0.26*	0.34*	1
Promoting Savings, Tax incentive scheme (0/1)	24	-0.32*	0.17	-0.29*	0.26	0.05	0.15	0.07	-0.19	0.04	0.22*	0.36*	0.42*	0.58*

Note: * denotes significance at the 5%.