



Federal Reserve Bank of Chicago

## **What Can We Learn about Financial Access from U.S. Immigrants?**

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## What Can We Learn about Financial Access from U.S. Immigrants?<sup>1</sup>

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### Abstract

We find that wealthier and more educated immigrants are more likely to make use of basic banking services and other formal financial services. Holding these (and other) factors constant, we find immigrants from countries with more effective institutions are more likely to have a relationship with a bank and use formal financial markets more extensively. Institutional quality appears to be an important factor in both determining both the breadth and the depth of financial access. It can explain approximately 17 percent of the country-of-origin-level variation in bank account usage among immigrants in the U.S., after other characteristics, including wealth, education and income, are controlled for. Institutional quality is even more important for explaining more extensive participation in financial markets, accounting for 27 percent of the analogous variation. We examine various measures of institutional effectiveness and are careful to control for unobserved individual characteristics, including specifications with country fixed-effects.

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## 1. Introduction

There is a growing interest in understanding what determines the availability and the usage of financial services in both developing and developed countries. Even among developed countries, there is significant variation in the fraction of individuals who use financial services. In the U.S., a significant subset of the population makes little use of even basic financial services. Between 10 to 25% of individuals in the U.S. have neither a savings nor a checking account.<sup>2</sup> Participation in retirement savings and stock markets is even lower. In Sweden, Germany and Canada the fraction of people without a bank account is much lower than in the U.S, closer to 3 percent. Although the data is sparse, in some developing countries the norm is to be without a bank account. Approximately 75% of households in Mexico lack and account as do 90% of Kenyans.<sup>3</sup> Since financial markets provide important tools for enhancing welfare – tools to transfer resources across time and across states of the world, to make payments, to mitigate risk and to fund investments -- low rates of participation may be associated with lower welfare.

This paper examines the determinants of financial market participation among immigrants in the U.S., examining the role of both individual level determinants like wealth and education as well as the effect of the country of origin institutional environment. In contrast to our earlier work on stock market participation (Osili and Paulson, 2005), this paper is concerned with two more fundamental aspects of financial market participation: breadth and depth. Financial breadth is equal to one if an individual has any relationship with a bank (a savings or a checking account). The second measure, financial depth, captures how many of the functions of financial markets the individual uses: safe savings products (saving accounts or certificates of deposit), payment services (checking or money market accounts) or investment services (stock, IRAs or Keogh accounts).<sup>4</sup>

One important reason for being concerned with both the breadth and the depth of financial market participation is the extensive literature that shows that better developed financial markets lead to improved conditions at the country level. This literature uses cross-country data to show that financial development accelerates growth, decreases poverty and reduces inequality. See for example, Rajan and Zingales (1998), Levine (2005), Beck, Demirgüç-Kunt and Levine (2004), and Clarke, Xu and Zou (2003). In addition, other papers show that greater financial development allows firms and individuals to realize growth opportunities and to take advantage of new technologies (Beck, Demirgüç-Kunt and Levine, *forthcoming*). Finally, financial development allows

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<sup>2</sup> The exact estimate depends on the dataset. The Survey of Consumer Finances delivers estimates closer to 10%, while the 1996 – 2000 Survey of Income and Program Participation data that we analyze produces estimates closer to 25%.

<sup>3</sup> Beck, Demirgüç-Kunt and Peria (2005)

<sup>4</sup> We do not examine usage of insurance products explicitly. However, financial depth measure is likely to capture the ability of an individual to use financial markets to smooth consumption. Entrepreneurial activity would be an alternative way to measure financial depth. However, there are not enough self-employed immigrants in the SIPP data to distinguish “entrepreneurs”, who may need to raise capital, from individuals whose self-employment is an informal alternative to a wage paying job.

firms to operate on a larger scale and encourages asset allocation and eases entry of new firms (Klapper, Laeven and Rajan (2004)).

Our work is also related to the a growing number of studies show that the ability of a country's institutions to protect private property and to provide incentives for investment can explain a large fraction of the persistent disparity in financial development and economic performance across countries. These studies include Knack and Keefer (1995), La Porta et al. (1997, 1998, 2000), Levine (1998, 1999), Levine, Loayza and Beck (2000), Rajan and Zingales (2003), Beck, Demirguc-Kunt and Levine (2003a, 2003b), Açemoglu, Johnson and Robinson (2001 and 2002) and Açemoglu and Johnson (2005).<sup>5</sup> In addition, Rodrik, Subramanian and Trebbi (2002) present evidence that, not only do high quality institutions contribute to economic development – institutions are, in fact, the key determinant of economic development.

We focus our attention on U.S. immigrants for several reasons. First, immigrants are a large and growing segment of the U.S. population. Second, international migration allows us to study the impact of placing an individual into a different formal institutional environment while holding past experience with institutions fixed. In the process of migrating from one country to another, individuals move from one formal institutional environment to another but may maintain beliefs about institutions acquired in their countries of origin. This allows us to explore the importance of the second component of North's (1990) definition of institutions: "formal constraints – rules that human beings devise" and "informal constraints – such as conventions and rules of behavior." By studying the behavior of international migrants in the U.S., we isolate the impact of informal institutional constraints, since all of the migrants face the same set of formal rules in the U.S.<sup>6</sup> Understanding the role of informal institutional constraints is a crucial component of predicting the impact of formal institutional change.

In addition, by studying immigrants in the U.S. we retain some of the interesting diversity of a cross-country study, but eliminate some confounding factors. To a first approximation, studying immigrants in the U.S. controls for factors that impact the supply of financial services across countries. For example, all of the immigrants whose behavior we study face the same competitive environment; make decisions in the same regulatory environment; are subject to the same legal structure, the same infrastructure and so on.<sup>7</sup> We focus our attention on how the experience of these supply factors in the country of origin manifests itself in preferences and beliefs and by extension the usage of financial services.

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<sup>5</sup> Besley (1995) and Johnson, McMillan and Woodruff (2002) use firm-level data to show that investment increases when institutions do a better job of protecting property rights.

<sup>6</sup> We relax this assumption in the empirical work by including Metropolitan Statistical Areas (MSAs). Effectively, the empirical strategy assumes that formal institutional constraints are the same for immigrants living in the same MSA.

<sup>7</sup> Undocumented immigrants may not have access to the same legal protections as documented immigrants; however, our results are robust to restricting the sample to citizen immigrants for whom this potential discrepancy is not an issue.

Studying immigrants creates some new empirical challenges. Immigrants are not random representatives of their birth countries. Instead they have, typically, chosen to come to the U.S. The decision to emigrate may be influenced by country of origin qualities that are correlated with unobservable individual characteristics. We take a number of steps to ensure that our findings are robust to this type of unobserved heterogeneity.<sup>8</sup>

We find that wealthier and more educated immigrants are more likely to make use of basic banking services and have higher measures of financial depth. Holding these (and other) factors constant, we find immigrants from countries with more effective institutions are more likely to have a relationship with a bank and also use formal financial markets more extensively. These results are robust to alternative measures of institutional effectiveness, adding additional country of origin controls and various methods of addressing potential bias due unobserved individual characteristics, including specifications with country fixed-effects. Country of origin institutions affect the financial market participation of recent immigrants as well as those with up to 27 years of U.S. experience. They also influence the behavior of immigrants who arrive in the U.S. as children as well as those who migrate as adults. Institutional quality appears to shape preferences and beliefs in a way that influences both the breadth and the depth of financial access.

The rest of the paper is organized as follows: Section 2 describes the framework we use to develop the hypotheses. Section 3 describes the data. In section 4 we discuss our empirical findings. Section 5 concludes.

## 2. Conceptual Framework

In this section, we draw on Osili and Paulson (2005) to sketch out a simple reduced-form framework to make the hypotheses that we test clear. Following North (1990), we define institutions as “the rules of the game in a society,” including formal institutions that protect and enforce the various property rights as well as informal institutions, which are society’s underlying norms of conduct. Both formal and informal aspects of institutions can affect the incentives and costs associated with financial institutions.

We illustrate the framework in terms of an individual’s decision about whether to hold a given financial asset –demand deposits, stock, and other financial assets. For example, consider an individual,  $i$ , from country  $J$  who is considering whether or not to open a bank account. The individual’s demand for a given financial asset is represented by:

$$S_i = f(R, X_i)$$

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<sup>8</sup> Our empirical strategy is similar to that of Fernandez and Fogli (2005) who show that country-of-ancestry fertility and female labor force characteristics influence the fertility and work behavior of U.S.-born children of immigrants. Carroll, Rhee and Rhee (1994) also use a conceptually similar approach in their study of the cultural determinants of savings. Hendricks (2004) examines the behavior of immigrants in the U.S. to explain variation in hours worked across countries. For hours worked in the U.S. he finds that home-country characteristics are important for women but not for men. Borjas (1987) also looks at the impact of country-of-origin characteristics on immigrant wage assimilation.

where  $S_i$  is the amount that individual  $i$  invests in a given financial asset,  $R$  is the expected return from the investment, and  $X_i$  is a vector of individual characteristics (risk aversion, wealth, income, education, years in the U.S., age at migration, and other characteristics) that affect the demand for the financial asset.

Institutional quality is modeled by assuming that the investor believes there is some probability,  $\pi_i$  that the bank or other financial institution will abscond with the investor's funds. This variable captures the investor's beliefs about the likelihood of expropriation by firm managers or by the government. It measures not only the possibility that the bank managers or financial institution will abscond with funds but also the possibility that the institutional framework is not sufficient to ensure that funds will be invested in profit-maximizing projects and that investment proceeds will be appropriately reinvested or returned to investors. We assume that all brokers are governed by the same institutional framework and therefore they face a common cost of absconding. This means that broker variation in the likelihood of absconding can be safely ignored.

Given her beliefs, the investor's expected return on the investment will not be  $R$ , the expected return on the financial asset, but  $\pi_i \times 0 + (1 - \pi_i) \times R$ . The probability that an investor places on the likelihood that the bank manager absconds is a function of the quality of the institutions in the country that investor was born in,  $J$ , which may in turn be a function of the length of time the investor experienced those institutions,  $y_J$ , and the length exposure that the investor has to U.S. institutions,  $y_{US}$ :  $\pi_i = \pi(J, y_J, y_{US})$ .

For the typical immigrant who comes from a country where institutions are weaker than in the U.S.,  $\pi$  is decreasing in origin-country institutional quality, increasing in years spent in the origin country, and decreasing in years spent in the U.S. Given this framework, demand for a given financial asset will be increasing in home-country institutional quality, and for a given level of institutional quality,  $\pi$  will be higher for individuals who have recently arrived in the U.S. and who have arrived as adults.

A closely related channel through which origin country institutions exert an influence on financial market behavior is by influencing the expected costs of participation in financial markets.<sup>9</sup> In standard theoretical models of financial behavior, the fixed costs of participation may deter an individual from holding a given financial asset. Guiso et al (2003) provide empirical evidence on the importance of participation costs across countries. We can modify the framework described above to take this into account.<sup>10</sup>

Specifically, we assume that the investor forms beliefs about the fixed costs of participation that vary with institutional quality. The investor believes that there is some probability,  $\alpha_i$ , that the costs of investing are high,  $F^H$  and some probability,  $(1 - \alpha_i)$ , that

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<sup>9</sup> For example, several authors have studied the effect of market frictions mostly in the form of fixed entry and/or transaction costs on stock market participation.

<sup>10</sup> It is straightforward to extend the model to consider the effect of institutions as mediated through the ability to transfer ownership or liquidate financial assets. With weak institutions, the expected costs of transferring or liquidating financial assets are likely to be high.

the cost of investing will be zero.<sup>11</sup> Given these beliefs, the investor's expected net return on the financial asset is equal to:

$$[\pi_i \times 0 + (1 - \pi_i) \times R] - [\alpha_i \times F_i + (1 - \alpha_i) \times 0]$$

We assume that perceptions regarding the fixed costs of investment,  $\alpha_i$ , for a given financial asset will vary with quality of the institutions in the country that investor was born in,  $J$ , which may in turn be a function of the length of time the investor experienced those institutions,  $y_J$ , and the length exposure that the investor has to U.S. institutions,  $y_{US}$ :  $F_i = F(J, y_J, y_{US})$ .<sup>12</sup>

An additional channel through which origin country institutions may affect immigrant's financial decisions is through supply. Several empirical studies emphasize the role of legal and regulatory institutions in the emergence and development of financial markets.<sup>13</sup> The key assumption here is that better institutional quality will lower the costs that the financial institutions incur in providing services to individuals and households. For example, better institutions would lower the cost of monitoring and screening for banks, allowing the expansion of banking institutions. If better institutions lead to an expansion in the supply of origin country financial institutions, then immigrants will have had more opportunities for direct exposure to financial institutions prior to migration.

### 3. Data

#### Individual data

The challenge in using individual data is to find meaningful variation in institutional quality within a single data set. We achieve this by looking at a large sample of immigrants living in the U.S. Historically high rates of migration to the U.S. in the past two decades mean that at least 10 percent of the U.S. population was born abroad. The 1996 – 2000 Survey on Income and Program Participation (SIPP) data that we use are designed to be representative of the U.S. population and include approximately 46,000 individuals, of whom 11 percent are immigrants. These individuals face a common set of formal institutional constraints in the U.S., but the immigrants vary in the institutional constraints that they have experienced prior to coming to the U.S.

The indicators of financial access that we focus on are financial depth (owning a checking or a savings account) and financial depth (the number of distinct functions of financial markets that an individual makes use of: safe savings, payment services and

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<sup>11</sup> Assuming the fixed costs would be zero simplifies the analysis a bit. We would get the same substantive results if we assumed that the investor believed there was some probability that fixed costs would be low.

<sup>12</sup> The World Bank database on financial market access suggests that transaction costs associated with financial market activity can be quite high. For example, minimum amounts required to open a checking account in some African countries like Malawi and Uganda can be as high as over 30 to 50 percent of GDP per capita.

<sup>13</sup> For example, Beck, Demirgüç-Kunt and Peria (2006) document large differences in the supply of banks and other financial institutions across countries. For example, in many countries in Sub Saharan Africa there is less than one bank branch per 100,000 people, while some developed countries (Portugal, Spain) have 50 or more bank branches per 100,000 people.

investment services). We find low rates of financial market participation among immigrants compared to the native-born. Sixty-one percent of the immigrant sample has a savings or a checking account, compared with 76 percent of the native-born (see Table 2A). The median measure of financial depth is one for immigrants and two for the native-born. In addition, we see that 47 percent of immigrants have a checking account compared with 64 percent of the native-born. Savings account ownership has a similar pattern. Forty percent of the immigrant sample has a savings account, compared with 55 percent of the native-born.

Table 2C and Figure 0 provide further evidence of relatively low rates of financial market participation among immigrants compared to the native-born. Based on a wide range of financial indicators, the median immigrant is likely to use the formal financial sector for either safe savings or for payment services, while the median native-born individual is likely to use both of these functions of financial markets.

We restrict the sample to immigrants who are over 18 and live in a metropolitan statistical area (MSA), for a total sample of 15,043 observations, with (approximately) 4 annual observations per person.<sup>14</sup> Table 2A summarizes these data for immigrants and the native-born. Compared to the native-born, immigrants are younger, more likely to be married, non-white, have more children and more likely to be unemployed or economically inactive. Immigrants also tend to be less educated than the native-born. Slightly less than 36 percent of the immigrant sample has never completed high school compared to only 15 percent of the native-born sample. However, the percentage of immigrants and the native-born who have an advanced degree is roughly the same at 7 percent and 8 percent, respectively.

Monthly per capita household income is significantly lower for immigrants compared to the native born. For immigrants, average monthly per capita household income is \$1,640, compared to \$2,224 for the native-born. In addition to having lower incomes, immigrant households have also accumulated less wealth compared to households headed by individuals who were born in the U.S. The median immigrant household has wealth of \$29,001 compared to \$71,123 for the native-born.

Additional immigrant characteristics are described in Table 2B. Nearly one-half of the immigrants arrived in the U.S. within the 10 prior to the start of the survey. Just under half of the immigrants were born in a North American country and about 15 percent were born in Europe.<sup>15</sup> Most of the immigrants arrived in the U.S. as adults, with almost 71 percent arriving at twenty-one years or older.

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<sup>14</sup> We restrict our attention to the four annual survey waves where wealth data are available. Other SIPP data are collected quarterly.

<sup>15</sup> Mexico accounts for just over one-quarter of the immigrants in the sample. We assign institutional quality measures to individuals who were born in the Soviet Union, the former Yugoslavia or Czechoslovakia in the following way: individuals who reported that they were born in Russia, Armenia, Azerbaijan, the Baltic States, Belarus, Estonia, Georgia, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Moldova, Tajikistan, Turkmenistan, Ukraine, USSR, Uzbekistan are mapped to the institutional quality measure for the Soviet Union; individuals who reported that they were born in Czechoslovakia, Slovakia, Czech Republic are mapped to the institutional quality measure for Czechoslovakia and individuals who

## Country data

The individual data are augmented with country-level data compiled from various sources. These data include various measures of institutional quality, and other important country characteristics. Table 1 defines each variable and describes its source.

The measure of institutional quality that we use is “protection from expropriation”.<sup>16</sup> This variable evaluates the risk “outright confiscation and forced nationalization” of property and comes from the International Country Risk Guide (ICRG) IRIS-3 Data. Ratings range from 1 to 10 and lower ratings “are given to countries where expropriation of private foreign investment is a likely event.” We average annual country observations from 1982 to 1995 to form the “protection from expropriation” variable that is used in the empirical work.

In addition to institutional quality, we also examine how financial market participation is influenced by geography (as captured by the absolute value of the latitude of the country’s capital divided by 90) and legal origins (in particular whether the country has a common law tradition, or not). Other important country of origin variables include: gdp per capita, religious composition, measures of infrastructure including internet usage, an indicator for whether immigrants from the country in question are likely to speak English, and characteristics of the financial sector in the country of origin.

Table 3A presents summary statistics for each of the country-level variables that we use. U.S. values for each variable are reported in the column on the far right of the table. Protection from expropriation, ranges from 1.83 (Iraq) to 10.00 (the Netherlands, Switzerland, the U.S.). The average is 7.50. One attractive feature of the “protection from expropriation” measure of institutional quality is that improvements in “protection from expropriation” are correlated with future equity returns (Erb, Harvey and Viskanta (1996)).<sup>17</sup> Açemoglu, Johnson and Robinson (2001 and 2002) find that institutional quality, as measured by protection from expropriation, causes long-run economic and financial development. Correlations between the various country of origin variables are presented in Table 3B.

## 4. Empirical Findings

This section reports on our empirical findings. We estimate financial breadth ( $B_{isj}$ ) and financial depth ( $D_{isj}$ ) using the following linear model:

$$B_{isj} \text{ or } D_{isj} = \alpha + \beta_1 X_i + \beta_2 Z_j + \delta_s + \varepsilon_{isj},$$

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reported that they were born in Yugoslavia, Bosnia and Herzegovina, Croatia, Macedonia, Montenegro, Slovenia, Serbia are assigned the institutional quality measure for Yugoslavia.

<sup>16</sup> In previous work (see Osili and Paulson, 2005) we have investigated alternative measures of institutional quality. The findings presented in this paper are also robust to alternative measures of institutional quality, including: constraints on the executive and measures of domestic protection from expropriation. These results are available from the authors.

<sup>17</sup> Erb, Harvey and Viskanta (1996) find that changes in “rule of law” and other ICRG-IRIS-3 variables are not correlated with future equity returns.

where  $B_{isj}$  is the decision to have a bank account (or the intensity of financial market participation,  $D_{isj}$ ) for individual  $i$  who lives in metropolitan statistical area  $s$  and comes from country  $j$ . Individual controls are incorporated in  $X_i$  and include age, age squared, wealth quartiles, income, labor force status, education, sex, marital status, number of children in household, and race. A full set of MSA controls are included in  $\delta_s$ , and  $Z_j$  measures supply characteristics in country  $j$ . To the extent that individual characteristics, like wealth and education, are influenced by supply characteristics in the country of origin, the regression will tend to produce overly conservative estimates of the direct effect of institutions,  $\beta_2$ .

By including measures of individual characteristics, we are able to isolate the effect of country of origin institutions.<sup>18</sup> All of the reported standard errors are adjusted to allow for correlation across observations for immigrants that come from the same country. When the dependent variable is  $B_{isj}$  we also correct for the heteroscedasticity that is implicit in a linear probability model.<sup>19</sup>

### **Baseline Findings and Institutions v. Geography and Legal Origins**

The relationship between financial market participation and institutional quality is explored in Table 4 for a variety of country of origin characteristics. Columns [1] – [4] report the results for financial breadth and columns [5] – [8] report the results for financial depth. Figures 1A and B summarize the relationship between “protection from expropriation” and financial market participation implied by regressions [1] and [5].

The sample is restricted to immigrants who are at least 18 years of age, live in a MSA and come from one of the 78 countries for which institutional quality data are available. In addition to a measure of institutional quality, human capital or geography, the explanatory variables include age, age squared, wealth quartiles, labor force status, income, marital status, sex, race, education, number of children and controls for the MSA where the immigrant lives.<sup>20</sup>

We find that institutional quality has a positive and significant effect on having a bank account. According to these estimates, if an individual from a country with “average” institutions, as captured by “protection from expropriation” had instead come from a country that had institutions that were one standard deviation above the mean, the likelihood that they had a savings or a checking account would increase by 4.7

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<sup>18</sup> This addresses an important concern with some earlier cross-country studies that focus on the impact of institutions on financial development. For example, the identification strategy used by Açemoglu, Johnson and Robinson (2001 and 2002) stresses the link between institutional development and settler mortality during the colonial period, but leaves open the possibility that the human capital of colonial settlers played a role in future economic development.

<sup>19</sup> We use a linear probability model because it is computationally attractive given the large number of fixed effects, is consistent under weak assumptions and because the coefficient estimates are easy to interpret. In particular, the coefficients on interaction terms are straight-forward to interpret (see Ai and Norton, 2003). Non-linear estimation methods, such as probit or logit, generate similar results.

<sup>20</sup> See Appendix Table 2 for the impact of these independent variables.

percentage points, a 7.7 percent increase in the likelihood of having a bank account, relative to the observed likelihood for immigrants of 61 percent. The same change is associated with a 10 percent increase in financial depth. This is roughly equivalent to considering what would happen if Argentina's "protection from expropriation" had been the same as Germany's between 1982 and 1995.

In cross-country studies, geographic attributes of countries have been found to have a significant effect on income per capita and economic growth, see for example Gallup, Sachs and Mellinger (1998) or Sachs and Malaney (2002). Beck, Demirgüç-Kunt and Levine (2003b) show that latitude helps to explain financial development. We use the absolute value of the latitude of the capital city divided by 90 to capture this effect and find that individuals who were born in countries that are further from the equator are significantly more likely to have a bank account and to otherwise participate in the U.S. financial markets (see columns [2] and [6]). A one standard deviation increase in the distance from the equator is associated with a 3.7 percentage point increase in the likelihood of having a bank account and a 8% increase in financial depth.

La Porta et al. (1998 and 2000) show that greater protection is offered to shareholders in countries with a British legal tradition and that financial development is accelerated in these countries. This possibility is explored in columns [3] and [7]. Our findings parallel theirs: the probability of having a bank account among immigrants from countries with a British legal tradition is 4.4 percentage points higher than that of immigrants from countries with a different legal tradition. Financial depth is estimated to be 11 percent higher for immigrants from countries with a British legal tradition.

Rodrik, Subramanian and Trebbi (2004) and Açemoglu, Johnson and Robinson (2001) find that geography has an important effect through its impact on the quality of institutions. They contend that countries that are further from the equator tend to develop stronger institutions. Açemoglu, Johnson and Robinson (2001) argue that European colonialists adopted different colonization policies depending on the host country environment, leading to more effective institutional arrangements in some countries. Although their work emphasizes the role of settler mortality rates in determining the colonization policy, they also show that places where effective institutional arrangements were established tend to be further from the equator. In regressions [4] and [8], we allow financial market participation to be influenced by institutions, geography and legal origin.

Our findings parallel those of Rodrik, Subramanian and Trebbi (2004) and Açemoglu, Johnson and Robinson (2001). Once institutional quality is controlled for, geography and legal origin no longer have a significant impact on financial market participation.<sup>21</sup> Institutional quality continues to have a strong, significant effect on both financial breadth and depth.

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<sup>21</sup> We should note that other aspects of geography may be important. For example, Sachs (2003) finds that malaria transmission, which is related to geography, impacts the level of income per capita after controlling for institutional quality.

These baseline findings suggest that immigrants come to the U.S. with attitudes shaped by the effectiveness of home-country institutions, and that the ability of home-country institutions to protect investment and provide incentives for investment has a significant effect on immigrant behavior in the U.S. over and above the impact of individual characteristics including wealth, income and education. In addition, institutional quality trumps the importance of geography and legal origins when all three country of origin characteristics are included in the regression. For ease of exposition, the rest of the paper uses a single measure of institutional quality, “protection from expropriation”. We have replicated the results using other measures of institutional quality with largely the same conclusions.<sup>22</sup>

### **Omitted Country Variables**

We turn our attention now to exploring the robustness of our findings. The first issue we consider is that there may be other important country-of-origin characteristics that are correlated with institutional quality that were left out of the baseline results. We explore the impact of adding additional country characteristics in Tables 5A and 5B, for having a bank account and for financial depth, respectively. In addition to the explanatory variables reported on in Tables 5A and B, each of these estimates includes all of the same control variables that were included in the baseline estimates.<sup>23</sup>

For purposes of comparison, the first column of Tables 5A repeats the results from Table 4 column [1], and the first column of Table 5B repeats the results from Table 4 column [5]. In column [2] of Tables 5A and B, we report on estimates that include continent controls in addition to protection from expropriation. The size of the coefficient on protection from expropriation declines modestly, but otherwise results are unchanged. This rules out the possibility that the results were driven by discrimination against individuals based on their continent of origin, say Africa or Central or South America, for example, and that countries in the same continent tend to share institutional qualities.<sup>24</sup>

We also examine the possibility that religious influences on institutional quality are responsible for our earlier findings in column [3] of Tables 5A and B. Stulz and Williamson (2003), for example, document a link between a country’s religious attributes and investor rights, particularly creditor rights. This estimate adds controls for the percentage of the country-of-origin population that is Catholic, Protestant and Muslim to the baseline specification. Adding these variables lowers the point estimate of the impact of institutional quality from 0.027 to 0.023 in the case of having a bank relationship and from 0.071 to 0.057 in the case of financial depth.

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<sup>22</sup> In addition to the results reported here, we find similar results when we use alternative measures of institutional quality including: “rule of law”, the “quality of the bureaucracy” (both from the ICRG-IRIS-3 data set), “domestic protection from expropriation” (see Osili and Paulson (2005) for details on how this variable is created), and “constraints on the executive” (from the Polity IV database).

<sup>23</sup> The issue of omitted country characteristics is also addressed in specifications which include country fixed effects (see Table 6) and in placebo regressions (see Table 7).

<sup>24</sup> Recall that the estimates include a control for being “non-white”, so the continent controls capture differential treatment based on continent of origin, holding racial characteristics fixed.

Another potential explanation for our findings is that financial market adaptation may be easier for immigrants from countries that are more similar to the U.S. This would mean that the positive coefficient on protection from expropriation should be interpreted to mean that individuals from countries with institutions like the U.S. are more likely to participate in U.S. financial markets, rather than as an indication that better institutions to protect private property encourage financial market participation. If this is the case, then including other, potentially better, measures of the similarity between the country-of-origin economy and the U.S. should eliminate the significance of “protection from expropriation”.

In order to capture this possibility, we include average per capita GDP from 1982 to 1995 in the country of origin in the estimate presented in column [4] of Tables 5A and B. Countries with better institutions have higher GDP per capita (see Rodrik, Subramanian and Trebbi (2004), for example), so including this variable may absorb some of the effect of institutional quality. The likelihood of having a bank relationship and the number of financial relationships are predicted to be significantly higher when GDP per capita is higher.<sup>25</sup> Adding this variable reduces the coefficient on “protection from expropriation” from 0.027 to 0.020 for the probability of having a bank account and from 0.071 to 0.044 in the case of financial depth, however its effect remains highly significant.

Since countries with high institutional quality also tend to have been colonized by Britain, it is possible that the positive coefficient on protection from expropriation is capturing not institutional quality, but the ability of individuals who were born in some former British colonies to speak English. The ability or inability to speak English may play an important role in determining the ease of financial market participation.<sup>26</sup> Ideally, we would include an individual measure of English speaking ability in the estimates.<sup>27</sup> However, the SIPP data do not include any measure of this characteristic, so we try to capture it at the country level instead.

Column [5] in Tables 5A and B adds an indicator variable that is equal to one if the country of origin has English as an official language of the country *and* if a majority of immigrants from that country surveyed in the 1980 U.S. Census spoke English at home (see Bleakley and Chin, 2004). Coming from a country where English is spoken does not have a significant impact on the likelihood of owning a bank account or on the number of financial relationships. Adding this variable to the estimates lowers the point estimate of the coefficient on institutional quality somewhat for both dependent variables. However, it remains positive and significant.

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<sup>25</sup> Many studies, including Hall and Jones (1999), Açemoglu, Johnson and Robinson (2001, 2002), Açemoglu and Johnson (2005), Easterly and Levine (2003), and Rodrik, Subramanian and Trebbi (2004) find that GDP per capita is higher in countries with better institutions.

<sup>26</sup> Chiswick (1978) and Borjas (1987) show that immigrants from English speaking countries experience more rapid wage assimilation.

<sup>27</sup> We should note that our estimates do include household income and education, which are likely to partially account for the ability to speak English. Black, Haviland, Sanders and Taylor (2006) find that college-educated immigrants who speak English at home have wages that are the same as similar native-born individuals.

The availability of home-country financial markets may also influence the likelihood of financial market participation among immigrants in the U.S. The supply of banks may be lower in countries where entry is costly. In column [6] of Table 5A and B, we add “bank freedom” to the regression.<sup>28</sup> This variable measures the absence of government interference in the banking sector and is likely to be higher in countries where entry is less costly (see Table 1 for a detailed definition). The freedom of the country of origin banking sector has a positive and significant effect on financial market participation. However, home country institutions remain important. The coefficient on institutional quality in the regression where having a bank account is the dependent variable is highly significant and equal to 0.029. Note that the freedom of the banking sector is likely to be influenced, perhaps quite strongly, by the quality of country-of-origin institutions. We have replicated these results using a measure of banking concentration (the percentage of banking assets held by the three largest banks) with similar results.<sup>29</sup>

In column [7] of Tables 5A and B, we add a proxy for infrastructure conditions in the country of origin. The measure we use is the number of internet users per 1,000 people. The specific measure does not seem to be important, and we get similar results when we use telephone usage or the percentage of roads that are paved. In countries where infrastructure is weak, individuals may have little direct experience with banks and other financial institutions since they may be costly to get to and to communicate with. These conditions appear to spill over to behavior in the U.S. Immigrants from countries with more extensive infrastructure are more likely to participate in U.S. financial markets, whether we use financial breadth or financial depth as the dependent variable. The coefficient on institutional quality remains positive and strongly significant in these regressions.

Overall the results presented in Tables 5A and 5B suggest that the finding that financial market participation in the U.S. is influenced by the quality of institutions in the country of origin is robust to including additional attributes of the country of origin.

### **Unobserved Heterogeneity**

We turn our attention now to what is an important empirical issue for any study of immigrant behavior and for ours in particular. Immigrants are not random representatives of their country of origin. They choose to migrate and that decision may be influenced by characteristics that are not observable. If unobserved individual characteristics are correlated with country-of-origin institutional quality, then we need to be concerned that our findings capture the effect of unobserved individual characteristics, rather than the effect of institutional quality.

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<sup>28</sup> Beck, Demirgüç-Kunt and Maksimovic (2004) find that firms’ access to finance is more restricted by concentration in the banking industry in countries where bank freedom is lower.

<sup>29</sup> We have also examined the effect of controlling for remittances to the home country. If immigrants are not investing in U.S. financial markets perhaps they are investing at home through remittances. Including a measure of remittances received in the home country does not alter the effect of institutional quality. We find that migrants from countries that receive higher per capita remittances are more likely to participate in U.S. financial markets. This is consistent with work by Aggarwal, Demirgüç-Kunt and Peria (2005) who find that remittances promote financial development.

Borjas (1987) describes one avenue through which unobserved heterogeneity could bias the results. In his model, the decision to migrate will be a function of, among other things, unobserved migrant ability and the distribution of income in the country of origin and the destination country. Because high ability migrants are only concerned with the right tail of the income distribution, they will tend to migrate from more equal societies to less equal ones. In contrast, low ability migrants will move from less equal societies to more equal ones, to protect themselves against a draw from the low end of the wage distribution. Assuming that unobserved ability affects financial behavior as well as labor market outcomes, this type of selection could bias our results.

Since countries with low inequality also tend to have strong institutions, our finding that financial market participation increases with country-of-origin institutional quality could be driven by ability bias.<sup>30</sup> For example, immigrants from Sweden, a country with low inequality (relative to the U.S.) and high quality institutions, are likely to be of high ability. In contrast, immigrants from Brazil, a country with high inequality and less effective institutions will tend to have lower unobserved ability.

In addition to unobserved ability, there are other individual characteristics that we cannot observe that may play a role in the decision to participate in financial markets and may also be correlated with country-of-origin institutional quality. For example, the degree of risk aversion may be correlated with the likelihood of migration from particular countries and also influence the decision to own stock. Similarly, variation in the quality of schooling across countries may impact the cost of obtaining information about U.S. financial markets.<sup>31</sup>

In order to produce unbiased estimates of the effect of country-of-origin institutional quality on financial market participation in the U.S., we need to eliminate the possibility that omitted individual characteristics are correlated with country-of-origin institutional quality. If we can do this, we can confidently interpret the coefficient estimate on institutional quality, despite the fact that there may be important individual characteristics that we do not observe.

To do this, we create a new measure of institutional quality that captures both institutional quality and the potential size of an immigrant network. The new measure of institutional quality is the interaction of “protection from expropriation” with “ethnic concentration. Ethnic concentration is defined as the percentage of people in an MSA who come from the same country as the immigrant in question:

$$EC_{sj} = \frac{\# \text{ of immigrants from country } j \text{ living in MSA } s}{\text{total population in MSA } s}$$

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<sup>30</sup> Engermann and Sokoloff (2002) provide evidence that in societies with high initial inequality the evolution of institutions favored a narrow elite.

<sup>31</sup> In addition, parental participation in financial markets is likely to be correlated with country-of-origin institutional quality and with the decision of the current generation to participate in financial markets (Chiteji and Stafford (2000)).

Because this new institutional quality measure varies by country of origin, we can include country-of-origin fixed effects in the estimation. By including country-of-origin fixed effects, we eliminate correlation between unobserved individual attributes and country of origin. Appendix Table 1 reports the median ethnic concentration for immigrants from each country. We use data from the 1990 Census IPUMS to calculate this measure for each country of origin and MSA.

In Table 6, we estimate:

$$B_{isj} \text{ or } F_{isj} = \alpha + \beta_1 X_i + \beta_2 Z_j \times EC_{sj} + \beta_3 EC_{sj} + \delta_s + \delta_j + \varepsilon_{isj},$$

where  $Z_j \times EC_{sj}$  is the interaction of institutional quality and ethnic concentration for an individual from country  $j$  who lives in MSA  $s$ . We include a full set of country-of-origin controls in  $\delta_j$ . All of the other variables are defined above.

By including MSA fixed effects in all of the estimates, we rule out another potential source of bias in the new institutional quality measure.<sup>32</sup> Since location choice is non-random, immigrants who choose to live in an MSA with a large fraction of immigrants from the same country of origin are likely to be systematically different along unobservable dimensions from immigrants who choose to live in an MSA with very few immigrants from the same country of origin. By including MSA fixed effects, we ensure that the coefficient on protection from expropriation interacted with ethnic concentration will not be biased by these unobservable characteristics.

In addition to dealing with a potential source of bias, this approach may also shed light on why the quality of country-of-origin institutions matters for financial market participation. A significant and positive coefficient on the new institutional quality measure means that the impact of coming from a country with weak institutions is reinforced when individuals from countries with weak institutions live near one another.

These estimates are reported in Table 6. The first two columns report the results for the probability of having a bank account and the last two report the results for the number of financial relationships. The estimates presented in columns [1] and [3] do not include country fixed effects. Columns [2] and [4] add country fixed effects. These estimates are summarized in Figures 2A and B. The coefficient on institutional quality interacted with ethnic concentration remains positive and significant when country fixed effects are included.

For the median immigrant who lives in a metropolitan area where 0.78 percent of the population comes from the same country, the estimates imply that the likelihood of having a bank account would increase by 1.1 percentage points and that an individual would make use of 0.03 more of the functions of financial markets if institutional quality were one standard deviation higher from 1982 to 1995. By comparison, the baseline

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<sup>32</sup> Note that  $EC_{sj}$  varies by country-of-origin for a given MSA, so we can include both country and MSA fixed effects in the regressions.

findings, which are not corrected for unobserved heterogeneity, imply that the same increase in institutional quality is associated with a 4.7 percentage point increase in the likelihood of having a bank account and a 0.12 increase in financial depth.

### **Enforcement of Informal Institutional Constraints**

In addition to addressing an important econometric issue, the estimates which include institutional quality interacted with ethnic concentration speak to an important substantive one. North (1993) defines institutions as a trinity: the formal rules of the game, informal institutional constraints and the enforcement of formal and informal constraints. One role of neighborhoods with a large population of immigrants from a single country is the enforcement of country-of-origin norms and customs (see for example Kandori (1992)). When immigrants live in a place where country-of-origin institutional constraints are more likely to be enforced, these constraints should matter more.

We find evidence in favor of this view. Ethnic concentration is roughly twice that of the median immigrant for Filipino immigrants and about one-half of the median for Portuguese immigrants. A one standard deviation improvement in institutions in the Philippines is predicted to increase the probability that Filipinos have a bank account by 2.6 percentage points and financial depth by 0.08. The same improvement in institutional quality would increase bank account ownership by 0.52 percentage points and financial depth by 0.02 for Portuguese immigrants.

The finding that the effect of institutional quality varies with size of the potential immigrant network is consistent with work by Madrian and Shea (2000), Duflo and Saez (2003) and Hong, Kubik and Stein (2004) who show that social interactions have important effects on financial decisions. Immigrant networks have also been shown to be important in a number of other non-financial contexts, including employment probabilities (Munshi, 2003), wage growth and human capital accumulation (Boras, 1995 and 2000) and language proficiency (Chiswick and Miller, 1996).<sup>33</sup>

### **The effect of institutional quality on other behavior**

In Table 7 we present estimates of the effect of country-of-origin institutional quality on the decision to own stock, to have a savings account, to have a checking account, to be self-employed, to drive one's own car to work, and to visit a doctor. These estimates serve two purposes. First, they allow us to test the hypothesis that the importance of institutional quality declines with the level of institutional support required to make a particular investment decision reasonable. Second, these estimates address the possibility that institutional quality is proxying for some other country-of-origin characteristic – national attitudes regarding self-reliance or altruism, for example -- that explains all sorts of behavior, not just behavior that should be governed by the institutions that determine protection of private property and incentives for investment. In other words, the

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<sup>33</sup> In addition, Fernandez and Fogli (2005) show that the impact of country-of-ancestry norms on fertility and women's labor force participation is also amplified for the children of immigrants who reside in neighborhoods with other people who share the same country of ancestry.

regressions in Table 7 tell us if institutional quality matters when it is supposed to and does not matter when it should not.

The first panel of Table 7 uses the baseline specification and the second panel controls for unobserved heterogeneity using the specification from Table 6, which interacts protection from expropriation with ethnic concentration and includes country-of-origin fixed effects.

Looking first at the decision to open a savings account (column [2]), we see that in the baseline specification higher institutional quality is associated with a higher likelihood of having a savings account. A one standard deviation increase in institutional quality is associated with a 3.8 percentage point increase in the likelihood of having a savings account, a 9.5 percent increase in the likelihood of having a savings account relative to the observed percentage of immigrants with a savings account of 40.1 percent. The same increase in institutional quality is predicted to increase stock market participation by 29 percent (column [1]). As we expect from the relative importance of institutional support required by the two investments, institutional quality has a larger impact on the likelihood of owning equity compared to the likelihood of having a savings account. In addition, we cannot rule out the possibility that the savings account results are due to biases induced by unobserved heterogeneity.

Owning a checking account and using checks are more institutionally intense compared to having a savings account. Not only must an individual be convinced that the bank will keep funds safe and available upon demand, but they must also be convinced that the payment system as a whole and the system for getting checks from one place to another is sufficiently secure to prevent fraud. At the same time, the threshold of institutional quality that is required to support checks is lower than that required to support investments in the stock market. The results bear out this ranking (see column [3]). In contrast to the findings for savings accounts, the impact of institutional quality on having a checking account is robust to controlling for unobserved heterogeneity, but improvements in institutional quality are more important for stocks than for checks. A one standard deviation increase in institutional quality is associated with an 11 percent increase in stock market participation and a 4.7 percent increase in the likelihood of having a checking account. Similarly, Guiso, Sapienza and Zingales (2004) find that households in high social capital areas are more likely to use checks and invest more in the stock market.

In column [4], we examine the impact of country of origin institutions on self-employment. While higher quality institutions are associated with a higher likelihood of self-employment, this finding is not replicated in the specifications that include country of origin fixed effects. This result is somewhat surprising. Entrepreneurial activities that require outside financing would seem to be very institutionally intense. However, it appears that many of the self-employment activities undertaken by immigrants in the SIPP do not rely on outside financing. Instead, they employ the entrepreneur and possibly a family member or two and very few make use of debt financing. These types

of investments appear to be primarily intermediated through the family rather than through formal financial institutions and the regression results are consistent with this.

We see a similar pattern with a selection of other investment activities that are intermediated through the family: driving to work and visiting a doctor (columns [5] and [6]). Investments in these activities are not significantly influenced by country-of-origin institutional quality in the baseline specification. In addition, these results are not robust to controlling for unobserved heterogeneity.

The fact that institutional quality has impacts financial decisions that require more institutional support and does not appear to influence investments that are mediated through the family raises our confidence that our findings are driven by individuals who embody home-country institutions and not by some spurious correlation between country-of-origin characteristics and immigrant behavior more generally.

### **The effect of institutional quality on different types of people**

We turn now to analyzing how institutional quality affects different groups of immigrants. These estimates help to identify the potential channels through which home-country institutions come to influence behavior and also serve as further robustness checks on our main results.

#### *Education, occupation, citizenship*

In Table 8, we examine how the impact of institutions varies with education and with occupational characteristics. In the top panel the dependent variable is equal to one if an individual has a savings or a checking account. The dependent variable in the bottom panel is financial depth. In columns [2] and [3], we provide estimates for two education groups: high education (those with a college degree or more schooling) and low education (those who have not completed high school). Country of origin institutions are important for both groups, with slightly different patterns depending on whether we are looking at the probability of having a bank relationship or depth of financial access.

Country of origin institutions appear to be more important among immigrants with less schooling. A one standard deviation increase in home-country institutional quality is predicted to raise the likelihood of having a bank account by 7.7 percentage points for immigrants in the low education group and by 3.8 percentage points for immigrants in the high education group. A similar, but less pronounced, pattern is seen for financial depth. This is consistent with Guiso, Sapienza and Zingales (2004 and 2006) who find that the effect of social capital and culture is muted for those with greater education.

In columns [4] and [5], we compare the effect of institutional quality on high and low skill workers, respectively.<sup>34</sup> One reason for making this comparison is because foreign

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<sup>34</sup> “High Skill Workers” are workers whose 3-digit occupation code from SIPP is mapped into the “Professional and Technical” or “Executive, Administrative, and Managerial” categories according to Bureau of Labor Statistics (BLS) classifications. “Low Skill Workers” include workers whose 3-digit occupation code from SIPP is similarly mapped into “Transportation and Material Moving Occupations”,

educational credentials are often not accepted by U.S. employers. This means that a highly educated immigrant may be working in a low skill occupation. It may be the occupational milieu rather than education itself that drives the differential impact of institutions for high and low education immigrants. This is consistent with the patterns that we see for the likelihood of having a bank account. Among high skill workers, country of origin institutions do not have a significant impact on the probability of having a bank account. The effect is large and significant for low skill workers. Financial depth increases significantly with institutional quality for both skill groups, with a slightly larger effect for low skill workers. Recall that all of the regressions include controls for education.

In column [6], the sample is restricted to immigrants who are naturalized U.S. citizens. Among U.S. citizen immigrants, the likelihood of having a bank account and financial depth are significantly increasing in home-country institutional effectiveness. Restricting the sample in this way has (at least) two effects. First, we make sure that the link between financial market participation and home-country institutional quality is not driven by the reluctance of undocumented immigrants to buy stock and the potential correlation between being undocumented and coming from a country with weak institutions. Second, immigrants must choose to become citizens and by doing so signal their general orientation toward U.S. society and institutions. However, despite this decision, their investment behavior continues to be influenced by country-of-origin institutions, suggesting that informal institutional constraints cannot be shed at will.

Finally in column [7], we eliminate Mexican immigrants from the sample. Just over a quarter of the immigrants were born in Mexico, and we want to make sure that the results are not driven by the large number of immigrants who share the same institutional background. Eliminating Mexican immigrants from the sample has no effect on the results.

#### *Persistence of Institutions*

We now consider the persistence of the effects of home-country institutions. We address this question in columns 2 - 6 of Table 9 which examines the effect of country-of-origin institutional quality on financial market participation in the U.S. for subsets of immigrants based on the number of years they have lived in the U.S. The top panel reports results for the likelihood of having a bank account and the bottom panel reports on regressions where the dependent variable is financial depth.

Columns 2 – 6 of Table 9 divide the immigrant sample into five sub-samples based on how many years they have been living in the U.S. For each sub-sample, two estimates are produced: one which includes controls for how old the immigrant was when she arrived in the U.S. and one which does not. Controlling for age at arrival in the U.S. produces slightly more conservative results, so we discuss those estimates in the text. The effects of informal institutional constraints are very persistent. The effect of

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“Handlers, Equipment Cleaners, Helpers and Laborers”, or “Service Occupations, Except Private Household” categories according to the same BLS classifications.

protection from expropriation is positive and significant for every sub-sample, except for the sub-sample of immigrants who have been in the U.S. for more than 28 years.

The persistent impact of country of origin institutions suggests that the “supply” channel is not the major mechanism by which individuals behavior is influenced by institutions. If lack of experience with institutions due to restricted supply conditions in the country of origin was the primary mechanism through which institutions influence individual behavior, it would be likely to decay with time spent in the U.S. The long lasting effect of country-of-origin institutions is akin to the finding that individuals who lived through the Great Depression have persistently higher savings rates (see Meredith and Schewe, 1994).

### *Learning about Institutions*

We have presented evidence that informal institutional constraints are embodied in individuals and that these constraints influence financial market decisions even in a new formal institutional framework. However, these findings do not address the question of how or when these constraints become embodied in individuals. For example, are they inherited and present even in individuals who migrated at a very young age? Or are they only observed individuals who migrate as mature adults, consistent with the view that they are shaped by an individual’s experience in their country of origin? Answers to these questions can help us to better understand the channels through which informal institutional constraints impact behavior.

We take an initial step toward answering these questions via the estimates presented in Table 10. This table examines the effect of country-of-origin institutional quality on the likelihood of having a bank account (top panel) and financial depth (bottom panel) for subsets of immigrants based on their age of arrival in the U.S.

Table 10 divides the immigrant sample into three sub-samples based on age at arrival in the U.S.: those who arrived before age 16, those who arrived when they were between 16 and 20 years and those who arrived when they were 21 years or older. Two estimates are produced: one which includes controls for the calendar year when the immigrant arrived in the U.S. and one which does not. Controlling for year of arrival in the U.S. generally produces slightly smaller coefficients on institutional quality, so we only discuss the findings which include these controls.

Informal institutional constraints from the country of origin are present even in very young migrants. The effect of protection from expropriation is positive and statistically significant for all groups, including the youngest migrants. The point estimate for the likelihood of having a bank relationship ranges from 0.032, for immigrants who arrived in the U.S. before the age of 16, to 0.019 for immigrants who arrived after their 21<sup>st</sup> birthday. For financial depth, the estimates are somewhat smaller for the youngest migrants, 0.054, versus 0.061 for the other groups. Note that differences in the size of the coefficient across age groups are not significant.

The effect of country-of-origin institutions is present even in those who migrated when they were less than 16 and before many of them would have been likely to have had much direct experience with their country-of-origin institutions outside of school. They would have been unlikely, for example, to have owned stock or had a bank account or to have had direct experience with their country of birth's legal system. This suggests that families and possibly the educational system, and not just direct experience, play an important role in shaping an individual's perception of the trustworthiness of institutions.

#### *Intergenerational Transmission of Informal Institutional Constraints*

In a final set of estimates, we take another approach to examine the robustness of the findings. This approach also helps to illuminate the mechanism through which institutions come to influence behavior. Expanding on the findings from Table 10, which show that the behavior of immigrants who arrived in the U.S. as young children is influenced by home-country institutions, we consider whether institutional attitudes are inherited. To do this we take advantage of the fact that the SIPP data provide information on region or country of ancestry for individuals born in the U.S. We can map some of these responses to individual countries and then estimate the effect of institutional quality on having a bank account and financial depth for natives as well as for immigrants.<sup>35</sup> The estimates are presented in Table 11. The top panel reports results for the probability of having a checking or a savings account, and the bottom panel reports results for financial depth.

For immigrants, we find a positive and significant effect of institutional quality on financial market participation. For those who were born in the U.S., but trace their ancestry to one of the same countries, institutional quality has no effect on financial market participation. When the formal institutional environment is altered as profoundly as it is when an individual migrates from one country to another, the influence of informal institutional constraints for financial market behavior do not appear to be passed along to future generations. The SIPP data do not include information on the generation of ancestry, so we are not able to refine these estimates by comparing the children of immigrants and the grand-children of immigrants, for example.

#### **Assessing the importance of institutions**

One way to assess the importance of institutions is to see how much of the variation in financial market participation for immigrants from different countries can be explained by variation in institutional quality across countries. To do this, we regress bank account ownership and financial depth on a full set of the control variables (age, age squared, wealth quartiles, income, labor force status, education, sex, marital status, number of children in household, race, MSA controls) as well as controls for country of origin. The coefficients on the country of origin controls represent the "country" components of financial market participation holding the control variables listed above fixed.

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<sup>35</sup> We form samples of natives and of immigrants who map their ancestry to or were born in one of the following thirteen countries: Canada, France, the Netherlands, England, Germany, Hungary, Ireland, Italy, Poland, Russia, Cuba, Mexico and the Dominican Republic.

These country components are then regressed on protection from expropriation. The R-squared in that regression represents the percentage of the country level variation in financial market participation that is explained by institutional quality. For bank account ownership, the R-squared is 17 percent and for financial depth it is 27 percent. This exercise suggests that institutions play an important role in explaining cross-country variation in financial market participation.

## 5. Conclusions

We find that immigrants from countries with institutions that more effectively protect private property and provide incentives for investment are more likely to have a bank account in the U.S. and participate more extensively in U.S. financial markets. The effect of home-country institutions effects immigrants for at least the first 28 years that they live in the U.S. and is present in even immigrants who arrive in the U.S. as young children. The impact of institutions is amplified by living in a neighborhood with many other immigrants from the same country of origin. These findings are robust to alternative measures of institutional effectiveness and to various methods of controlling for unobserved individual characteristics, including specifications with country fixed-effects.

The results hint at the channel through which the institutional environment comes to influence subsequent behavior. The fact that the impact of institutions is very persistent and is present even in the youngest migrants, suggests that the main channel is not lack of experience with banks and other institutions because a weak institutional environment restricted supply and therefore the opportunity to gain experience with banks and other financial entities. Instead, the findings seem most consistent with the idea that the institutional environment becomes part of the cultural capital that individuals bring with them wherever they move to. These preferences and beliefs appear to be quite resistant to updating. Our findings are consistent with recent survey evidence that finds that households often choose not to have bank accounts because they dislike dealing with banks. According to a recent analysis of Survey of Consumer Finances data, “often they are imbued with a cultural distrust of banks, and they may be concerned with privacy.”

What do our findings tell us about the likely results of efforts to increase financial access in developing countries? First we learn that institutional reform is a very important tool in the effort to expand financial access. In addition, institutional reform is likely to increase financial access both directly (through the expansion of banks) and indirectly (through beliefs and perceptions about the trustworthiness of financial institutions). In addition, institutions matter even after controlling for wealth, income, and education. This suggests that limited usage of financial services is not simply a problem of poverty (see Claessens, 2005) and while poverty reduction is likely to increase financial market participation, institutional reform has an important role to play as well.

However, mistrust of banks is deeply rooted in informal institutional constraints and is resistant to change. We can think about the immigrant experience in the U.S. as an experiment in institutional reform. In some sense this experiment corresponds to a best case scenario for institutional reform: the change in the institutional environment is credible, it is multi-faceted, affecting fiscal, monetary and trade policy as well as the

judicial and political system; and the majority of the individuals whose behavior we study have, in some sense, sought out institutional change and are motivated to succeed economically. Even in this environment, informal institutional constraints influence the behavior of international migrants in the U.S. for decades.

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**Figure 0: # of Financial Relationships, Natives and Immigrants**

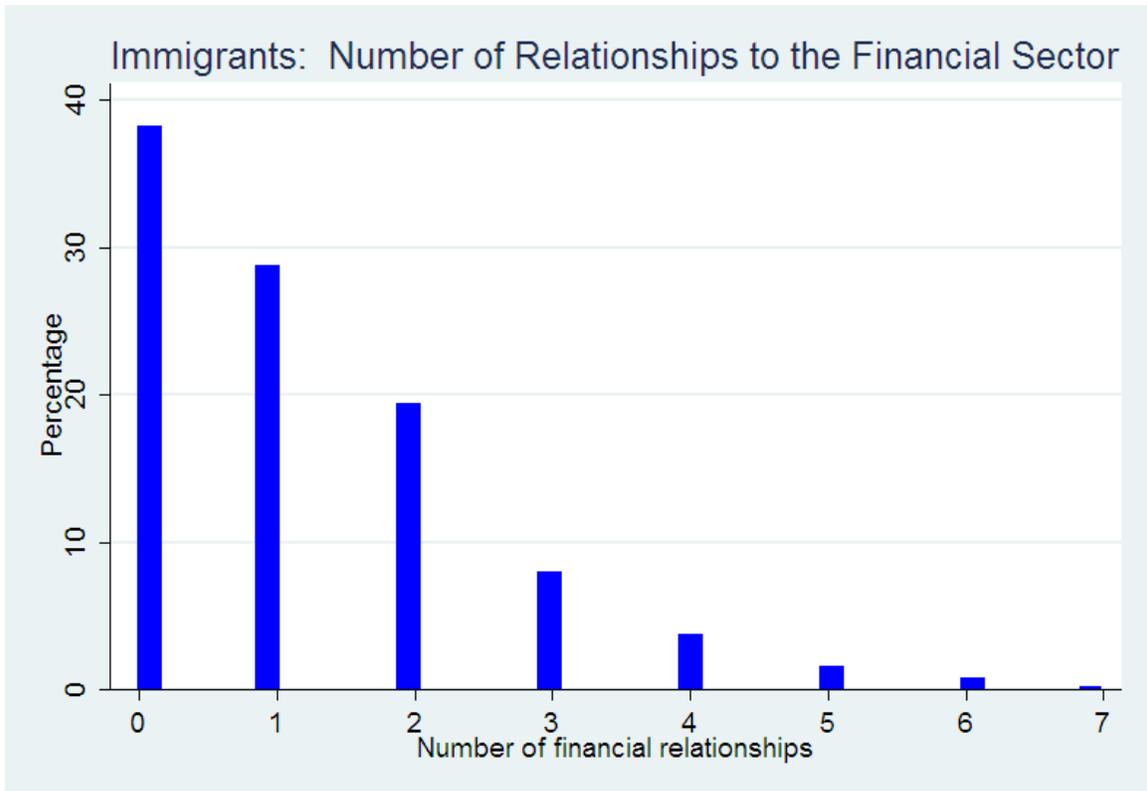
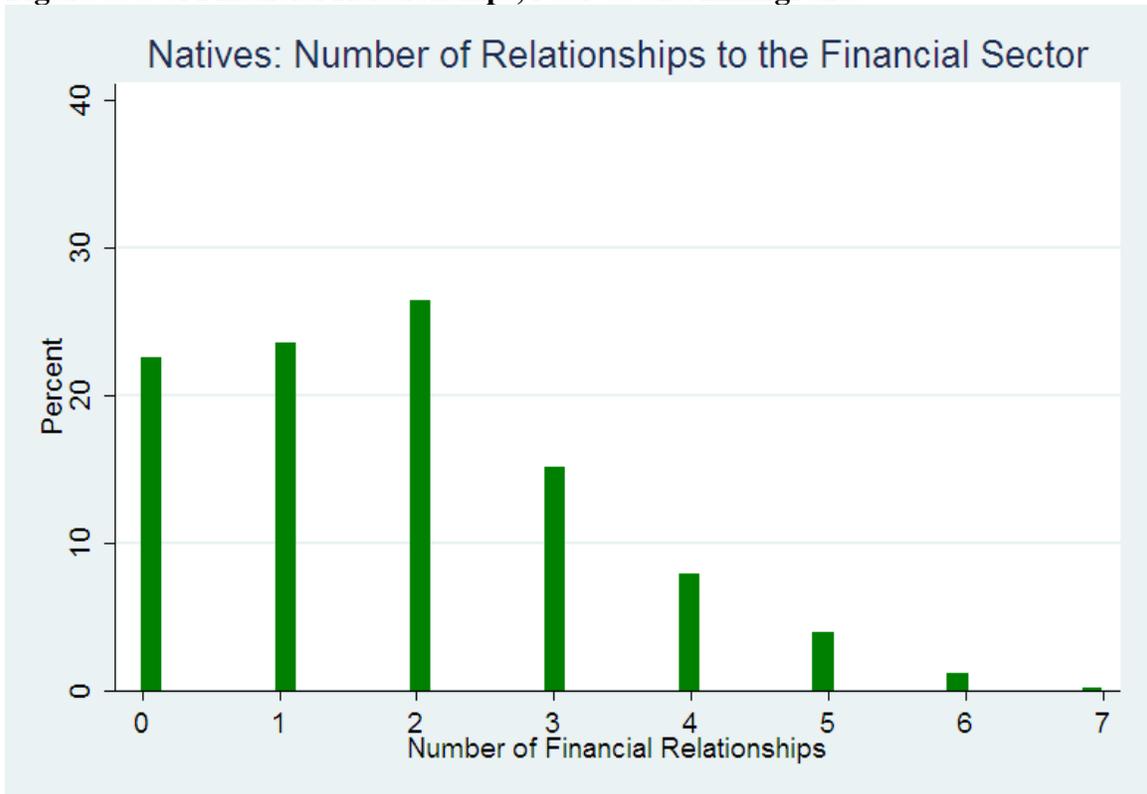


Figure 1A: Bank Relationships and Institutional Quality  
 source: Table 4 Column (1)

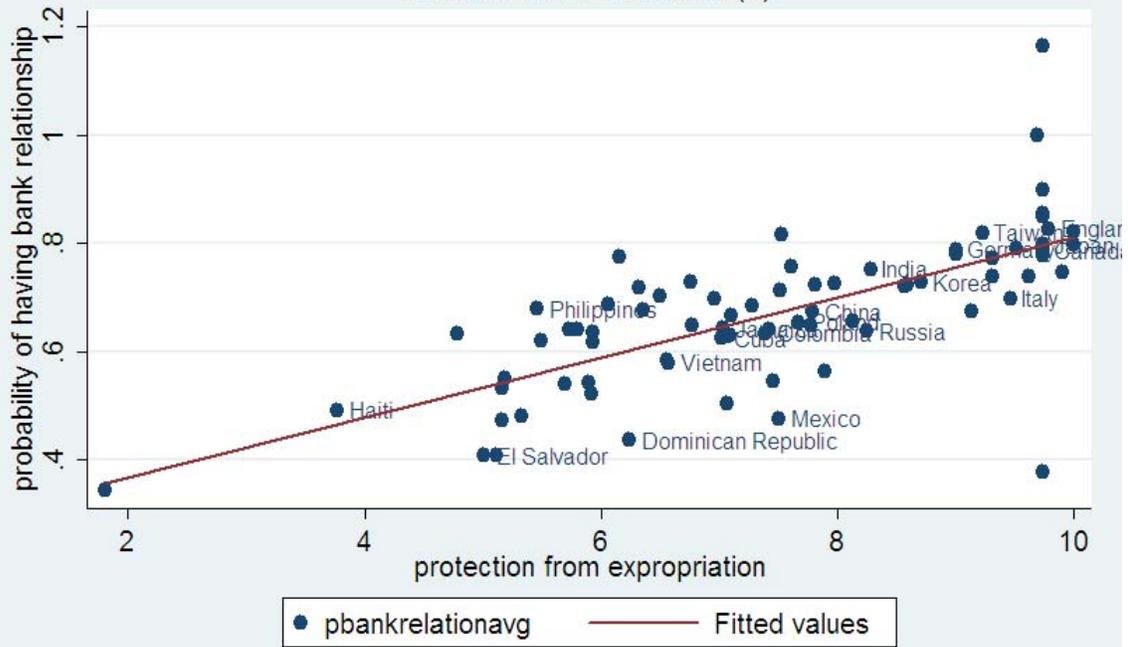


Figure 1B: Number of Financial Relationships  
 and Institutional Quality (source: Table 4 Column (5))

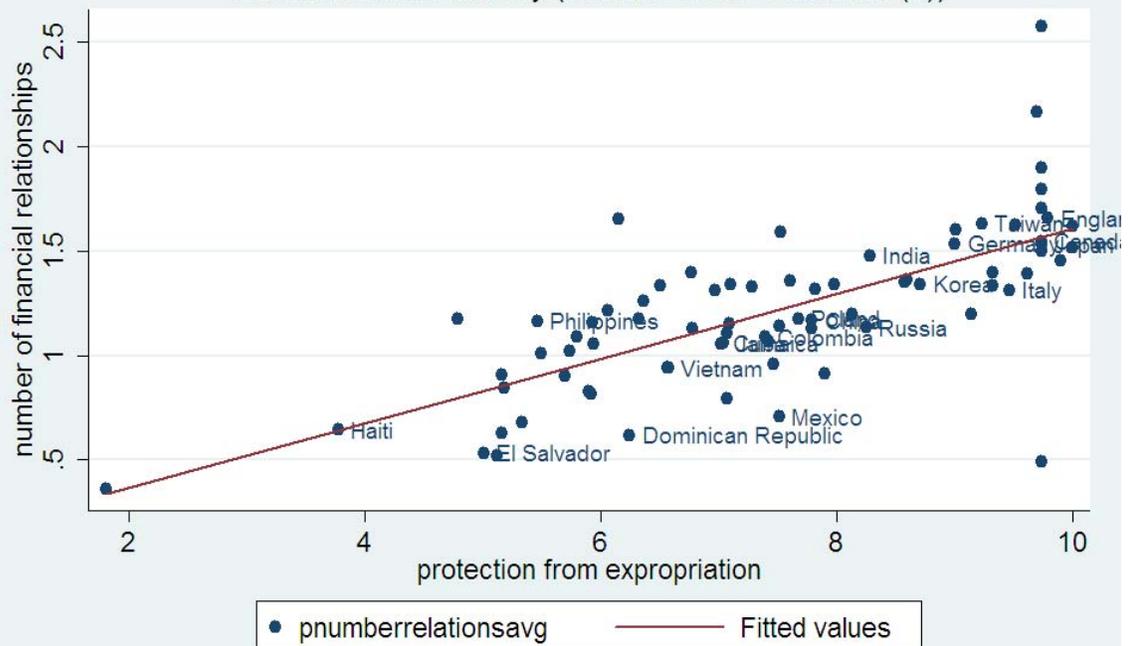


Figure 2A: Bank Relationships and Institutional Quality  
Including Country Fixed Effects: Table 6 Column (2)

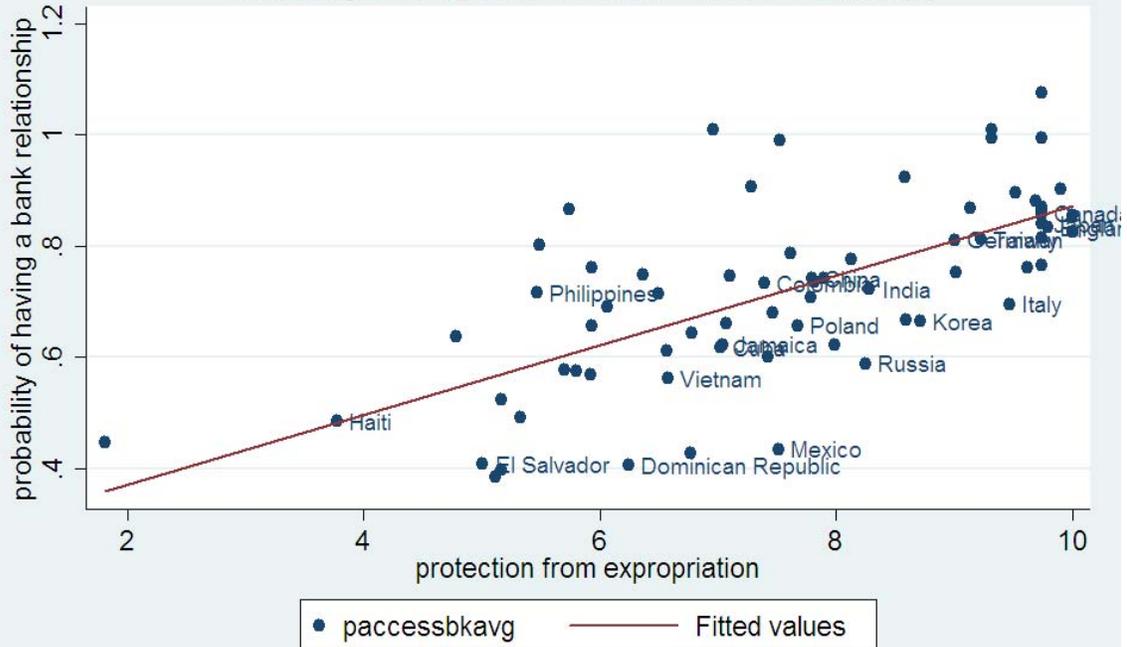
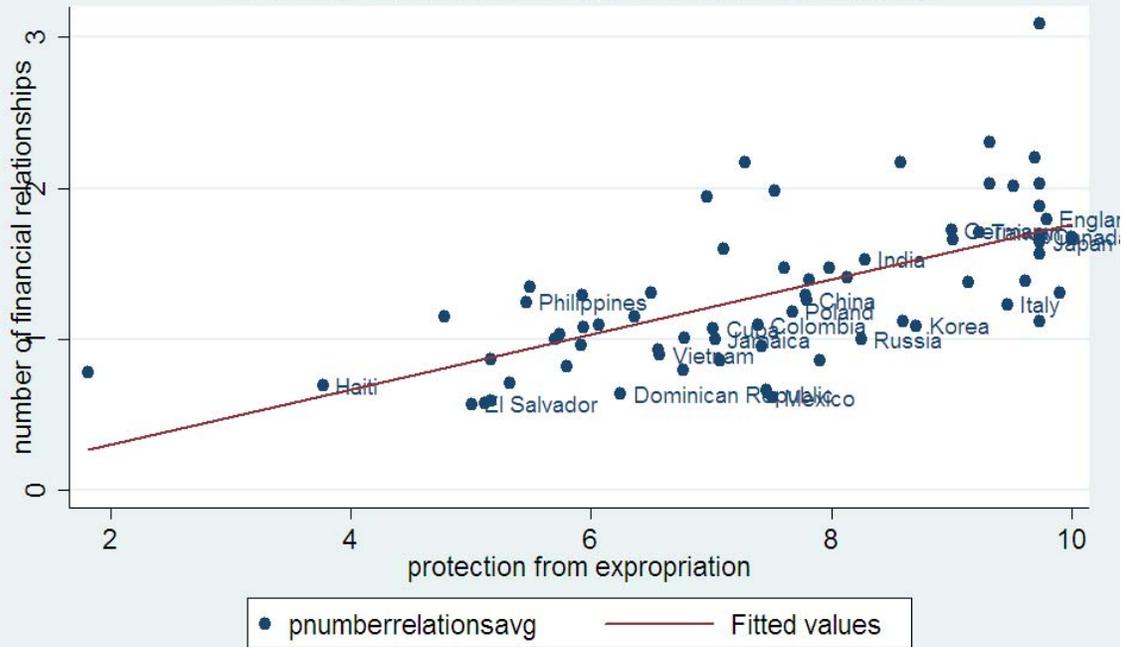


Figure 2B: Number of Financial Relationships and Institutional Quality  
Including Country Fixed Effects: Table 6 Column (4)



**Table 1: Definitions and Sources of Country-level Variables**

<b>Variable</b>	<b>Definition and Source</b>
Protection from Expropriation of Private Investment	This variable evaluates the risk "outright confiscation and forced nationalization" of property. Lower ratings "are given to countries where expropriation of private foreign investment is a likely event." Variable is the average over annual country observations 1982 – 1995. Source: International Country Risk Guide (ICRG) IRIS-3 Data
British Legal Origin	This variable is equal to one if the legal regime of the country is British and zero otherwise. Source: "The Quality of Government" LaPorta, Lopez-de-Silanez, Schleifer, Vishny (1999). <a href="http://www.som.yale.edu/faculty/fl69/datasets.asp">http://www.som.yale.edu/faculty/fl69/datasets.asp</a>
English Speaking	This variable is equal to one if English is one of the official languages of the country <i>and</i> if at least 50% of the immigrants from the country who were surveyed in the 1980 U.S. Census report that they do not speak a language other than English at home. Source: Bleakley, Hoyt and Aimee Chin. "Language Skills and Earnings: Evidence from Childhood Immigrants", <i>Review of Economics and Statistics</i> , May 2004.
Latitude	This variable is equal to the absolute value of the latitude of the country's capital divided by 90. Source: "The Quality of Government" LaPorta, Lopez-de-Silanez, Schleifer, Vishny (1999). <a href="http://www.som.yale.edu/faculty/fl69/datasets.asp">http://www.som.yale.edu/faculty/fl69/datasets.asp</a>
Av. Per Capita GDP	Average real GDP per capita 1982 – 1995, 1995 dollars. Source: World Bank World Development Indicators.
Catholic, Protestant, Muslim	The percentage of people in the country (x 100) who are a particular religion. Source: CIA Factbook.
Banking Freedom	This variable indicates the absence of government interference in the banking system and is averaged over the period 1995-99. This indicator is based on 5 questions: Specifically, this indicator is based on five questions: (1) Does the government own banks? (2) Can foreign banks open branches and subsidiaries? (3) Does the government influence credit allocation? (4) Are banks free to operate without government regulations such as deposit insurance? (5) Are banks free to offer all types of financial services like buying and selling real estate, securities, and insurance policies? Source: Thorston Beck, Asli Demirguc –Kunt, and Vojislav Maksimovic, "Bank Competition and Access to Finance: International Evidence", <i>Journal of Money, Credit, and Banking</i> , Vol. 36, No. 3 (June 2004, Part 2) (citing to data indicator from the Heritage Foundation, <a href="http://www.heritage.org/">http://www.heritage.org/</a> )
Bank Concentration	This variable indicates the share of the assets of the largest three banks in total banking sector assets, averaged over 1995-1999. The variable is calculated using commercial, savings, and cooperative banks as well as nonbank credit institutions data from the Bankscope database. Source: Thorston Beck, Asli Demirguc –Kunt, and Vojislav Maksimovic, "Bank Competition and Access to Finance: International Evidence", <i>Journal of Money, Credit, and Banking</i> , Vol. 36, No. 3 (June 2004, Part 2)
Internet Usage	Average number of Internet users per 1,000 people, 1982-1995. "Internet users" is defined as people with access to the worldwide network. Source: World Bank World Development Indicators.

**Table 2A: Characteristics of Immigrants and the Native Born in the SIPP Data**

<b>Characteristic</b>	<b>Native Born</b>	<b>Immigrant</b>
<b>Individual Characteristics</b>		
Age	46.47 (17.52)	45.22 (16.51)
% Male	45.6%	46.2%
% Married	57.4%	65.6%
% non-white	16.4%	32.2%
% unemployed or out of the labor force	33.8%	36.7%
# of children < 18 in household	0.720 (1.090)	1.118 (1.347)
Average monthly per capita household income	\$2,224.44 (2,832.45)	\$1,639.53 (2,375.44)
Median monthly per capita household income	\$1,578	\$1,050
Average household wealth	\$185,754 (1,398,146)	\$122,685 (978,910)
25 <sup>th</sup> percentile of household wealth	\$14,660	\$3,017
Median household wealth	\$71,123	\$29,001
75 <sup>th</sup> percentile of household wealth	\$186,512	\$117,917
<b>Educational Attainment (%)</b>		
Less than High School	15.0%	35.8%
High School Graduate	30.4%	24.5%
Some College	30.6%	20.1%
Bachelor Degree	15.9%	12.5%
Advanced Degree	8.1%	7.1%
<b>Financial Market Participation</b>		
Financial Breadth (% with bank relationship)	76.3%	61.0%
Financial Depth (# of types of financial relationships) mean	1.71 (1.02)	1.22 (1.01)
Financial Depth - median	2.00	1.00
% who own stock	20.0%	8.6%
% with a checking account (interest or non-interest)	63.8%	47.0%
% with a savings account	54.8%	40.1%
<b>Other characteristics (%)</b>		
% who are self-employed	9.1%	8.7%
% who drive own car to work	81.7%	75.1%
% who visited doctor in past 12 months	78.8%	79.3%
% who purchased prescription drugs for children	51.8%	34.1%
Number of Individuals	31,046	5,020
Number of Observations	100,839	15,043

Notes: Unless otherwise noted, mean values are reported. Standard deviations are in parentheses. The unit of observation is a person-wave. Sample is restricted to the four waves of the Survey on Income and Program Participation with wealth information, to individuals 18 and over, to those who live in a Metropolitan Statistical Area and to those who have non-missing data for “expropriation risk”. See text for definitions of financial breadth and depth.

**Table 2B: Immigrant Characteristics**

<b>Characteristic</b>	<b>Immigrant</b>
<b>Year of Arrival in the U.S. (%)</b>	
Before 1964	11.5%
1965 – 1969	8.2%
1970 – 1974	10.1%
1975 – 1979	12.8%
1980 – 1984	17.9%
1985 – 1989	18.4%
1990 – 1996	21.2%
<b>Age at Migration (%)</b>	
five years or younger	3.7%
six to ten years	4.6%
eleven to fifteen years	6.8%
sixteen to twenty years	14.3%
over twenty years	70.6%
<b>Continent of Origin (%)</b>	
North America	46.9%
Europe	15.4%
Asia	30.3%
Africa	0.9%
South America	6.3%
Australia and Oceania	0.2%

Notes: Unless otherwise noted, mean values are reported. Standard deviations are in parentheses. The unit of observation is a person-wave. Sample is restricted to the four waves of the Survey on Income and Program Participation with wealth information, to individuals 18 and over, to those who live in a Metropolitan Statistical Area and to those who have non-missing data for “expropriation risk”.

**Table 2C: Distribution of Financial Asset Ownership by Number of Financial Relationships**

**Natives**

	<u># of Financial Relationships</u>							
	0	1	2	3	4	5	6	7
% of Total	22.4%	23.4%	26.4%	15.1%	7.8%	3.9%	1.1%	0.1%
Savings		37.3%	84.2%	84.6%	83.8%	91.8%	98.7%	100%
Checking		58.6%	88.9%	92.6%	94.9%	97.6%	99.6%	100%
Stock		2.4%	10.9%	47.1%	65.6%	84.6%	98.6%	100%
IRA		1.3%	8.1%	36.5%	63.1%	80.7%	99.1%	100%
CD		1.1%	5.7%	24.3%	40.9%	59.4%	92.9%	100%
Moneymarket		0.1%	4.6%	19.7%	48.9%	80.6%	97.9%	100%
Keogh		0.0%	0.2%	0.7%	2.9%	5.2%	13.0%	100%

**Immigrants**

	<u># of Financial Relationships</u>							
	0	1	2	3	4	5	6	7
% of Total	38.2%	28.7%	19.3%	7.9%	3.7%	1.5%	0.7%	0.02%
Savings		37.9%	84.3%	84.8%	83.6%	91.6%	98.6%	100%
Checking		58.3%	89.1%	92.5%	94.8%	97.7%	99.7%	100%
Stock		2.2%	10.4%	46.3%	65.3%	84.5%	98.7%	100%
IRA		1.2%	7.9%	36.3%	63.2%	81.0%	98.9%	100%
CD		1.1%	5.9%	24.7%	40.9%	59.3%	93.2%	100%
Moneymarket		1.0%	4.8%	19.9%	49.2%	80.8%	98.1%	100%
Keogh		0.0%	0.1%	0.1%	3.0%	5.2%	12.8%	100%

**Table 3A: Summary of Country Variables**

<b>Characteristic</b>	<b>N</b>	<b>Mean</b>	<b>Standard Deviation</b>	<b>Min</b>	<b>Median</b>	<b>Max</b>	<b>U.S. value</b>
<b>Measures of Institutional Quality</b>							
Protection from Expropriation	79	7.50	1.74	1.81	7.51	10.00	10.00
British Legal Origin	79	0.29	0.46	0.00	0.00	1.00	1.00
Latitude	79	0.33	0.19	0.01	0.33	0.71	0.42
<b>Other Country Characteristics</b>							
English Speaking	79	0.139	0.35	0.00	0.00	1.00	1.00
GDP Per Capita	74	8,704	10,376	106	3,208	42,873	24,831
Catholic	74	39.29	40.01	0.00	27.2	97.00	24.00
Protestant	74	10.43	19.39	0.00	0.35	87.00	52.00
Muslim	74	16.82	33.77	0.00	0.00	100.00	1.00
Internet Usage	77	4.46	8.40	0.00	.43	41.77	33.96
Banking Freedom	48	3.34	0.73	1.60	3.30	5.00	4.00
Bank Concentration	48	0.52	0.18	0.18	0.51	0.97	0.18

**Table 3B: Correlation between Country Variables**

<b>Characteristic</b>	<b>Protection From Exp</b>	<b>British Legal Origin</b>	<b>Latitude</b>	<b>Internet Access</b>	<b>Banking Freedom</b>	<b>Bank Concentration</b>
Protection from Expropriation	----					
British Legal Origin	0.119	----				
Latitude	0.572***	-0.200*	----			
Internet Usage	0.607***	0.114	0.530***	----		
Banking Freedom	0.334**	0.046	0.283**	0.312**	----	
Bank Concentration	-0.296**	0.006	-0.069	-0.173	-0.335**	----

Notes: \*\*\* indicates significance at at least the 1% level, \*\* at at least the 5% level, \* at at least the 10% level.

**Table 4: The Effect of Institutional Quality on Financial Market Participation**

Explanatory Variable	Probability of Having a Bank Relationship				Depth of Financial Market Participation			
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Protection from Expropriation	0.027*** (0.005)			0.022*** (0.007)	0.071*** (0.012)			0.056*** (0.016)
Latitude		0.192*** (0.070)		0.057 (0.085)		0.507*** (0.165)		0.156 (0.176)
British Legal Origin			0.044* (0.023)	0.017 (0.020)			0.137** (0.059)	0.068 (0.049)
Adjusted R-Squared	0.2666	0.2644	0.2625	0.2668	0.3969	0.3932	0.3906	0.3976
Number of Observations	14,232	14,232	14,232	14,232	14,232	14,232	14,232	14,232

Notes: In addition to those reported on here, all of these regressions include controls for age, age squared, wealth quartiles, labor force status, income, marital status, sex, ethnicity, education, number of children and MSA controls. The number of observations differs depending on the number of countries for which a particular measure of institutional quality is available. A linear model is used and standard errors are corrected for heteroskedasticity and clustering at the country level. Standard errors are in parentheses. \*\*\* indicates significance at at least the 1% level, \*\* at at least the 5% level, \* at at least the 10% level.

**Table 5A: The Effect of Institution Quality on the Probability of Having a Bank Relationship, Additional Country Controls**

<b>Explanatory Variable</b>	<b>[1]</b>	<b>[2]</b>	<b>[3]</b>	<b>[4]</b>	<b>[5]</b>	<b>[6]</b>	<b>[7]</b>
Protection from Expropriation	0.027 *** (0.005)	0.023 *** (0.007)	0.023 *** (0.005)	0.020 *** (0.008)	0.019 ** (0.008)	0.029 ** (0.008)	0.030 *** (0.008)
Av. Per Capita GDP <sup>†</sup>				2.490 ** (1.180)	2.470 ** (1.150)	-0.301 (1.090)	-3.290 ** (1.370)
English Speaking					0.024 (0.018)	-0.020 (0.035)	-0.078 ** (0.035)
Bank Freedom						0.037 ** (0.015)	0.040 *** (0.014)
Internet Usage							0.010 *** (0.002)
Religion Controls	No	No	Yes	No	No	No	No
Continent Controls	No	Yes	No	No	No	No	No
Adjusted R-Squared	0.2666	0.2697	0.2706	0.2687	0.2688	0.2877	0.2887
Number of Observations	14,232	14,232	13,250	13,336	13,336	10,799	10,799

Notes: In addition to those reported on here, all of these regressions include controls for age, age squared, wealth quartiles, labor force status, income, marital status, sex, ethnicity, education, number of children and MSA controls. The number of observations differs depending on the number of countries for which a particular country characteristic is available. A linear model is used and standard errors are corrected for heteroskedasticity and clustering at the country level. The reported coefficients and standard errors of explanatory variables marked by a † are the actual ones multiplied by 1,000,000. Standard errors are in parentheses. \*\*\* indicates significance at at least the 1% level, \*\* at at least the 5% level, \* at at least the 10% level.

**Table 5B: The Effect of Institution Quality on Depth of Financial Market Participation, Additional Country Controls**

<b>Explanatory Variable</b>	<b>[1]</b>	<b>[2]</b>	<b>[3]</b>	<b>[4]</b>	<b>[5]</b>	<b>[6]</b>	<b>[7]</b>
Protection from Expropriation	0.071 *** (0.012)	0.056 *** (0.015)	0.057 *** (0.013)	0.044 *** (0.016)	0.039 ** (0.017)	0.055 *** (0.014)	0.056 *** (0.014)
Av. Per Capita GDP <sup>†</sup>				8.730 *** (2.770)	8.660 *** (2.760)	7.170 *** (2.620)	2.30 (3.260)
English Speaking					0.080 * (0.049)	-0.0001 (0.068)	-0.095 (0.091)
Bank Freedom						0.056 ** (0.026)	0.061 ** (0.026)
Internet Usage							0.016 (0.007) **
Religion Controls	No	No	Yes	No	No	No	No
Continent Controls	No	Yes	No	No	No	No	No
Adjusted R-Squared	0.3969	0.3997	0.3981	0.4043	0.4047	0.4179	0.4185
Number of Observations	14,232	14,232	13,250	13,336	13,336	10,799	10,799

Notes: In addition to those reported on here, all of these regressions include controls for age, age squared, wealth quartiles, labor force status, income, marital status, sex, ethnicity, education, number of children and MSA controls. The number of observations differs depending on the number of countries for which a particular country characteristic is available. A linear model is used and standard errors are corrected for heteroskedasticity and clustering at the country level. The reported coefficients and standard errors of explanatory variables marked by a † are the actual ones multiplied by 1,000,000. Standard errors are in parentheses. \*\*\* indicates significance at at least the 1% level, \*\* at at least the 5% level, \* at at least the 10% level.

**Table 6: Does Enforcement Matter?  
Controlling for Unobserved Heterogeneity, Institution Quality and Ethnic Concentration**

Explanatory Variable	Probability of Having a Bank Relationship		Depth of Financial Market Participation	
	[1]	[2]	[3]	[4]
Protection from Expropriation * Ethnic Concentration	1.118*** (0.300)	0.827* (0.487)	2.704*** (0.604)	2.422** (1.075)
Ethnic Concentration	-8.638*** (2.225)	-5.734* (3.581)	-20.989*** (4.516)	-18.090** (7.995)
Country Controls	No	Yes	No	Yes
Adjusted R-Squared	0.2626	0.2754	0.3914	0.4104
Number of Observations	13,867	13,867	13,867	13,867

Notes: In addition to those reported on here, all of these regressions include controls for age, age squared, wealth quartiles, labor force status, income, marital status, sex, ethnicity, education, number of children and MSA controls. A linear model is used and standard errors are corrected for heteroskedasticity and clustering at the individual level. Standard errors are in parentheses. \*\*\* indicates significance at at least the 1% level, \*\* at at least the 5% level, \* at at least the 10% level.

**Table 7: Do Institutions Matter Differently for Different Types of Behavior?**

	Stock Ownership	Savings Account	Checking Account	Self-Employment	Drive own Car to Work	Visited a Doctor in Past 12 Months
<b>A. Baseline specification</b>	[1]	[2]	[3]	[4]	[5]	[6]
Protection from Expropriation	0.016 *** (0.005)	0.022 *** (0.006)	0.024 *** (0.006)	0.007 * (0.004)	-0.003 (0.006)	0.002 (0.003)
Mean of Dependent Variable	8.6%	40.1%	47.0%	8.7%	75.1%	79.3%
Adjusted R-Squared	0.2315	0.1835	0.2386	0.1090	0.0573	0.0035
Number of Observations	14,232	14,232	14,232	14,231	7,546	8,705
<b>B. Controlling for Unobserved Heterogeneity</b>						
Protection from Expropriation x Ethnic Concentration	0.696 * (0.369)	-0.282 (0.598)	1.625 *** (0.496)	0.037 (0.340)	0.892 (0.658)	-0.268 (0.492)
Ethnic Concentration	-5.142 * (2.757)	2.533 (4.417)	-12.004 *** (3.665)	-0.400 (2.499)	-6.702 (4.820)	1.839 (3.619)
Country Controls	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R-squared	0.2599	0.1973	0.2492	0.1230	0.0682	0.0017
Number of Observations	13,867	13,867	13,867	13,866	7,340	8,474

Notes: In addition to those reported on here, all of these regressions include controls for age, age squared, wealth quartiles, labor force status, income, marital status, sex, ethnicity, education, number of children and MSA controls. A linear model is used and standard errors are corrected for heteroskedasticity and clustering at the country level. Standard errors are in parentheses. \*\*\* indicates significance at at least the 1% level, \*\* at at least the 5% level, \* at at least the 10% level. “Checking Account” is equal to one if the respondent has a checking account that either does or does not pay interest. “Savings Account” is equal to one if the respondent has a savings account and zero otherwise. “Entrepreneur” is equal to one if the respondent is the owner or part-owner of a business, and zero otherwise. “Drives own Car to Work” is asked of respondents who are employed or own a business and is equal to one if the respondent drives to work and is equal to zero otherwise. “Visited a Doctor in the past 12 months” is equal to one if the respondent visited a doctor in the 12 months before the survey question and zero otherwise.

**Table 8: Do Institutions Matter Differently for Different Types of Immigrants**

	<b>Baseline</b>	<b>High Educ. Immig.</b>	<b>Low Educ. Immig.</b>	<b>High Skill Workers</b>	<b>Low Skill Workers</b>	<b>Citizens</b>	<b>Exclude Mexico</b>
	<b>[1]</b>	<b>[2]</b>	<b>[3]</b>	<b>[4]</b>	<b>[5]</b>	<b>[6]</b>	<b>[7]</b>
<b>Probability of Bank Relationship</b>							
Protection from Expropriation	0.027*** (0.005)	0.022*** (0.006)	0.044*** (0.010)	0.006 (0.005)	0.033*** (0.010)	0.021*** (0.006)	0.031*** (0.005)
Adjusted R-Squared	0.2666	0.1558	0.2453	0.1478	0.2482	0.1819	0.2281
<b>Depth of Financial Market Participation</b>							
Protection from Expropriation	0.071*** (0.012)	0.074*** (0.019)	0.082*** (0.019)	0.059*** (0.019)	0.071*** (0.020)	0.066*** (0.014)	0.073*** (0.011)
Adjusted R-Squared	0.3969	0.3270	0.2875	0.3311	0.3060	0.3314	0.3688
Number of Observations	14,232	2,842	5,127	1,984	2,408	5,829	10,199

Notes: In addition to those reported on here, all of these regressions include controls for age, age squared, wealth quartiles, labor force status, income, marital status, sex, ethnicity, education, number of children and MSA controls. A linear model is used and standard errors are corrected for heteroskedasticity and clustering at the country level. High education immigrants are those with a bachelor's degree or more education. Low education immigrants are those with less than a high school degree. Standard errors are in parentheses. \*\*\* indicates significance at at least the 1% level, \*\* at at least the 5% level, \* at at least the 10% level. "High Skill Workers" are workers whose 3-digit occupation code from SIPP is mapped into "Professional and Technical" or "Executive, Administrative, and Managerial" according to Bureau of Labor Statistics classifications. "Low Skill Workers" include workers whose 3-digit occupation code from SIPP is similarly mapped into "Transportation and Material Moving Occupations", "Handlers, Equipment Cleaners, Helpers and Laborers", and "Service Occupations, Except Private Household".

**Table 9: The Persistence of Institutions**  
**The Effect Institution Quality on the Financial Market Participation by Years of**  
**U.S. Experience**

<b>Probability of Bank Relationship</b>	<b>Years in the U.S.</b>					
	<b>ALL</b>	<b>1 – 7</b>	<b>8 – 12</b>	<b>13 – 17</b>	<b>18 – 27</b>	<b>28+</b>
<b>No Age at Arrival Controls</b>						
Protection from Expropriation	0.027*** (0.005)	0.022** (0.011)	0.029** (0.011)	0.023*** (0.008)	0.027*** (0.009)	0.012 (0.011)
Adjusted R-Squared	0.2666	0.3653	0.3168	0.3033	0.2653	0.2369
<b>Age at Arrival Controls</b>						
Protection from Expropriation	0.027*** (0.005)	0.022** (0.011)	0.027** (0.011)	0.022*** (0.008)	0.027*** (0.009)	0.010 (0.011)
Adjusted R-Squared	0.2673	0.3679	0.3191	0.3046	0.2656	0.2427
<b>Depth of Financial Market Participation</b>						
	<b>Years in the U.S.</b>					
	<b>ALL</b>	<b>1 – 7</b>	<b>8 – 12</b>	<b>13 – 17</b>	<b>18 – 27</b>	<b>28+</b>
<b>No Age at Arrival Controls</b>						
Protection from Expropriation	0.071*** (0.012)	0.052** (0.023)	0.078*** (0.024)	0.081*** (0.019)	0.083*** (0.020)	0.050* (0.029)
Adjusted R-Squared	0.3969	0.4293	0.4593	0.4369	0.4284	0.3967
<b>Age at Arrival Controls</b>						
Protection from Expropriation	0.069*** (0.012)	0.052** (0.022)	0.075*** (0.023)	0.081*** (0.020)	0.083*** (0.020)	0.039 (0.028)
Adjusted R-Squared	0.3978	0.4312	0.4630	0.4364	0.4283	0.4012
Number of Observations	14,232	2,619	2,192	2,145	2,750	2,955

Notes: In addition to those reported on here, all of these regressions include controls for age, age squared, wealth quartiles, labor force status, income, marital status, sex, ethnicity, education, number of children and MSA controls. A linear model is used and standard errors are corrected for heteroskedasticity and clustering at the country level. Standard errors are in parentheses. \*\*\* indicates significance at at least the 1% level, \*\* at at least the 5% level, \* at at least the 10% level.

**Table 10: Learning about Institutions**  
**The Effect Institution Quality on the Financial Market Participation by Age at Migration**

<b>Probability of Bank Relationship</b>	<b>Age at Arrival in U.S.</b>			
	<b>ALL</b>	<b>1 – 15</b>	<b>16 – 20</b>	<b>21+</b>
<b>No Year of Arrival Controls</b>				
Protection from Expropriation	0.027*** (0.005)	0.032*** (0.011)	0.026** (0.013)	0.019*** (0.005)
Adjusted R-Squared	0.2666	0.3322	0.3319	0.2720
<b>Year of Arrival Controls</b>				
Protection from Expropriation	0.028*** (0.005)	0.029** (0.013)	0.025* (0.013)	0.019*** (0.005)
Adjusted R-Squared	0.2698	0.3350	0.3319	0.2769
<b>Depth of Financial Market Participation</b>	<b>Age at Arrival in U.S.</b>			
	<b>ALL</b>	<b>1 – 15</b>	<b>16 – 20</b>	<b>21+</b>
<b>No Year of Arrival Controls</b>				
Protection from Expropriation	0.071*** (0.012)	0.061*** (0.020)	0.061** (0.029)	0.060*** (0.013)
Adjusted R-Squared	0.43969	0.4727	0.4344	0.4051
<b>Year of Arrival Controls</b>				
Protection from Expropriation	0.071*** (0.013)	0.054** (0.022)	0.062** (0.028)	0.061*** (0.014)
Adjusted R-Squared	0.4006	0.4742	0.4384	0.4126
Number of Observations	14,232	1,677	1,639	7,963

Notes: In addition to those reported on here, all of these regressions include controls for age, age squared, wealth quartiles, labor force status, income, marital status, sex, ethnicity, education, number of children, and MSA controls. A linear model is used and standard errors are corrected for heteroskedasticity and clustering at the country level. Standard errors are in parentheses. \*\*\* indicates significance at at least the 1% level, \*\* at at least the 5% level, \* at at least the 10% level.

**Table 11: Intergenerational Transmission of Institutional Lessons  
The Effect of Institution Quality on Financial Market Participation  
Selected Natives and Immigrants**

<b>Probability of Bank Relationship</b>	<b>Native</b>	<b>Immigrant</b>
Protection from Expropriation	-0.0001 (0.012)	0.041*** (0.010)
Adjusted R-Squared	0.2226	0.2964
<b>Depth of Financial Market Participation</b>	<b>Native</b>	<b>Immigrant</b>
Protection from Expropriation	0.039 (0.038)	0.127*** (0.029)
Adjusted R-Squared	0.3666	0.4300
Number of Observations	44,181	7,040

Notes: In addition to those reported on here, all of these regressions include controls for age, age squared, wealth quartiles, labor force status, income, marital status, sex, ethnicity, education, number of children and MSA controls. A linear model is used and standard errors are corrected for heteroskedasticity and clustering at the country level. Standard errors are in parentheses. \*\*\* indicates significance at at least the 1% level, \*\* at at least the 5% level, \* at at least the 10% level. The native-sample used in these estimates includes U.S. born individuals who identified their ancestral country as: Canada, France, the Netherlands, England, Germany, Hungary, Ireland, Italy, Poland, Russia, Cuba, Mexico, and the Dominican Republic. The immigrant sample includes foreign-born individuals who were born in these same countries.

**Appendix Table 1: Ethnic Concentration and Number of observations per country**

	Country	Median Ethnic Concentration (%)	Number of Observations
1	Argentina	0.0747%	96
2	Australia	0.0580%	30
3	Austria	0.0633%	64
4	Bahamas, The	---	11
5	Bangladesh	---	40
6	Belgium	0.0314%	21
7	Bolivia	0.0479%	36
8	Brazil	0.0965%	55
9	Canada	0.6848%	392
10	Chile	0.0717%	77
11	China	0.8739%	595
12	Colombia	0.7335%	217
13	Costa Rica	---	34
14	Cuba	17.3184%	617
15	Czechoslovakia <sup>36</sup>	0.1673%	38
16	Denmark	0.0704%	7
17	Dominican Republic	1.5686%	267
18	Ecuador	0.6477%	172
19	Egypt	0.1477%	38
20	El Salvador	1.0890%	494
21	England <sup>37</sup>	0.5252%	419
22	Ethiopia	0.0815%	5
23	Finland	0.0145%	3
24	France	0.1185%	88
25	Germany (East and West)	0.4858%	373
26	Ghana	---	16
27	Greece	0.3521%	124
28	Guatemala	0.1697%	158
29	Guyana	0.5743%	134
30	Haiti	0.6296%	219
31	Honduras	0.1611%	143
32	Hong Kong	0.1917%	139
33	Hungary	0.1195%	72
34	India	0.3301%	417
35	Indonesia	0.1241%	1
36	Iran	0.0987%	145
37	Iraq	0.1540%	53
38	Ireland	0.1394%	136
39	Israel	0.1350%	53
40	Italy	0.5840%	290
41	Jamaica	1.0060%	318
42	Japan	0.3189%	182
43	Jordan	0.0270%	16
44	Kenya	---	7
45	Korea, South	0.5308%	438
46	Lebanon	0.0330%	52

<sup>36</sup> Includes individuals who reported that they were born in: Czechoslovakia, Slovakia, Czech Republic.

<sup>37</sup> Includes individuals who reported that they were born in: England, United Kingdom, Scotland, Wales, Northern Ireland.

**Appendix Table 1: Ethnic Concentration and Number of observations per country, continued**

	Country	Median Ethnic Concentration (%)	Number of Observations
47	Malaysia	0.0232%	19
48	Mexico	8.5920%	4,163
49	Morocco	---	6
50	Myanmar	---	23
51	Netherlands	0.1492%	46
52	New Zealand	0.0027%	3
53	Nicaragua	0.3377%	81
54	Nigeria	0.0562%	39
55	Norway	0.0386%	19
56	Pakistan	0.0764%	84
57	Panama	0.0652%	26
58	Peru	0.2147%	108
59	Philippines	1.8140%	916
60	Poland	0.7874%	249
61	Portugal	0.3592%	88
62	Romania	0.0873%	52
63	Russia <sup>38</sup>	0.4919%	365
64	Singapore	0.0130%	3
65	South Africa	0.0297%	24
66	Spain	0.1249%	66
67	Sweden	0.0388%	29
68	Switzerland	0.0464%	16
69	Syria	0.0511%	42
70	Taiwan	0.2270%	216
71	Thailand	0.0547%	79
72	Trinidad & Tobago	0.4149%	131
73	Turkey	0.0555%	15
74	Uruguay	0.0644%	7
75	Venezuela	0.3400%	46
76	Vietnam	0.7256%	663
77	Yugoslavia <sup>39</sup>	0.1243%	117
	All	0.7829%	15,043

<sup>38</sup> Includes individuals who reported that they were born in: Russia, Armenia, Azerbaijan, the Baltic States, Belarus, Estonia, Georgia, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Moldova, Tajikistan, Turkmenistan, Ukraine, USSR, Uzbekistan.

<sup>39</sup> Includes individuals who reported that they were born in: Yugoslavia, Bosnia and Herzegovina, Croatia, Macedonia, Montenegro, Slovenia, Serbia.

**Appendix Table 2: The Effect of Control Variables on the Probability of Having a Bank Relationship and Depth of Financial Market Participation**

<b>Explanatory Variable</b>	<b>Probability of Having a Bank Relationship [1]</b>	<b>Depth of Financial Market Participation [2]</b>
Age <sup>†</sup>	0.704 *** (0.153)	1.818 *** (0.394)
Age Squared <sup>†</sup>	-0.004 *** (0.002)	-0.015 *** (0.004)
2 <sup>nd</sup> Wealth Quartile	0.183 *** (0.015)	0.331 *** (0.029)
3 <sup>rd</sup> Wealth Quartile	0.173 *** (0.017)	0.444 *** (0.044)
4 <sup>th</sup> Wealth Quartile	0.168 *** (0.019)	0.689 *** (0.048)
Unemployed or Out of Labor Force	-0.086 *** (0.013)	-0.073 ** (0.032)
Per Capita Income <sup>††</sup>	37.900 *** (8.540)	115.200 *** (16.300)
Per Capita Income Squared <sup>††</sup>	-0.001 *** (0.000)	-0.003 *** (0.001)
Male	-0.050 *** (0.007)	-0.120 *** (0.017)
Married	0.163 *** (0.014)	0.302 *** (0.029)
Number of Children	-0.022 *** (0.005)	-0.046 *** (0.014)
Non-white	0.019 (0.018)	0.012 (0.041)
High School Graduate	0.126 *** (0.015)	0.235 *** (0.022)
Some College	0.187 *** (0.015)	0.404 *** (0.033)
Bachelor Degree	0.200 *** (0.018)	0.449 *** (0.046)
Advance Degree	0.189 *** (0.021)	0.595 *** (0.049)
Protection from Expropriation	0.027 *** (0.005)	0.071 *** (0.012)
Constant	-0.115 *** (0.056)	-0.731 *** (0.119)
MSA Controls	Yes	Yes
Adjusted R-Squared	0.2666	0.3969
Number of Observations	14,232	14,232

Notes: A linear model is used and standard errors are corrected for heteroskedasticity and clustering at the country level. Standard errors are in parentheses. The reported coefficients and standard errors of explanatory variables marked by a † are the actual ones multiplied by 100, by a †† are multiplied by 1,000,000. The lowest wealth quartile is the omitted wealth category, and the omitted education category is less than high school graduate. \*\*\* indicates significance at at least the 1% level, \*\* at at least the 5% level, \* at at least the 10% level.

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