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Abstract

The observed racial/ethnic gap in bank account ownership among older adults is substantial. We investigate socio-economic, cognitive and cultural barriers underling it. As additional potential barriers are accounted for, the residual gaps in financial inclusion with respect to Whites is reduced by 19 percent for Blacks and 46 percent for Hispanics. We find that citizenship and "taste for privacy" play a limited role for both minority groups, while real asset ownership, health, cognitive ability and cultural hurdles contribute substantially to the gap. For Hispanics, language barriers explain most of the gap, while neighborhood-level socioeconomic characteristics are more salient for Blacks. We also examine how the racial/ethnic composition of couples influences financial decisions. We estimate a significantly smaller residual gap between "mixed" and White couples than between minority and White couples. We provide empirical evidence suggesting that, other things equal, mixed couples are less concerned with the cultural/psychological barriers facing minority couples.

Keywords: financial inclusion, unbanked, Hispanics; Blacks; older population ***JEL:*** G21, J15

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1. INTRODUCTION

Access to financial services has become an important policy issue in developed countries where, notably, a large proportion of the population lacks access to basic financial services. About 20 percent of the population are unbanked in the European Union and the United Kingdom (Datta 2009). According to the latest National Survey of Unbanked and Underbanked Households of the Federal Deposit Insurance Corporation (Federal Deposit Insurance Corporation 2016), 7 percent of households were unbanked in 2015 in the United States.

Being unbanked is associated with higher transactional costs and poor saving behavior. Individuals without a bank account are likely to save less and incur significant monetary costs for everyday transactions (Carbo Valverde, Gardener, and Molyneux 2005; Thaler 1999). Considering only the transaction fees when using non-bank payment services (thus, excluding costs associated with the loss of interest earned on savings, lack of protection, etc.), it has been estimated that the cost of being unbanked in the United States represents around 4 percent of median household income (Caskey et al., 2006). Lack of participation in the financial sector is also related to the ability to effectively plan for the future. Lack of interaction with financial institutions, in fact, is likely to decrease individuals' knowledge of existing financial products that can be used to save for retirement (Clarke and Ambrosio 2003; Lusardi and Mitchell 2011).[1]

Minorities in the United States (U.S.) are more likely to be unbanked and underbanked (Hogarth, Anguelov and Lee, 2005). Latest data on the unbanked shows that while the unbanked rate among non-Hispanic White households is 4 percent, Hispanic and Black households exhibit

[1] As recently showed by Aguila, Angrisani and Blanco (2016) ownership of a bank account is likely to reduce stress and improve mental health and wellbeing, especially among Hispanics, who face higher cultural barriers to financial inclusion.

the highest unbanked rates, with 20 percent and 21 percent, respectively (Federal Deposit Insurance Corporation 2016). Also, while the likelihood of having a checking or savings account increases steadily with age among non-Hispanic Whites, minority older adults remain noticeably unbanked. Black and Hispanic individuals age 65 and older are approximately two times less likely than their White counterparts to have a bank account (AARP Public Policy Institute 2010).

As of 2014, individuals 65 and older represent 14.5 percent of the U.S. population and this fraction is expected to grow to 21.7 percent by 2060. Blacks age 65 and older represent 9 percent of the older population in the U. S. and by 2060 this percentage is projected to grow to 12 percent. The proportion of older Hispanics is expected to grow more rapidly. As of 2014, Hispanics age 65 and older represent 8 percent of the older population, a fraction that will rise to 22 percent by 2060 (Administration for Community Living, 2014). In view of the growing presence of Hispanic and Black minorities in the U.S. and the rapid aging of the population, these statistics constitute a cause of national concern as the financial health and economic security of more and more households is expected to be at risk in the near future. These statistics also call for a deeper understanding of the saving behavior of more vulnerable groups and the barriers they face towards participation in the formal financial sector. This knowledge is crucial for devising and implementing interventions that can effectively change financial decision making among households where resources are most scarce and cultural/psychological hurdles more difficult to overcome. In this paper, we take on this task by investigating what determines the racial/ethnic gap in bank account ownership among older adults in the U.S. and identify the main factors that are responsible for it.

We contribute to the existing literature in several ways. First, we use a representative sample of the U.S. population over the age of 50, drawn from the Health and Retirement Study

(HRS) over the period 2000-2012, and assess differences in financial inclusion of Hispanic and Black households with respect to their non-Hispanic White counterparts.[2] While, for the reasons given above, minority older adults constitute an interesting case study, they have not been the focus of attention in previous work. Hogarth, Anguelov, and Lee (2005) consider the entire U.S. population and analyze the socioeconomic characteristics, among them age and race, associated with bank account ownership. Lusardi (2005) examines the financial behavior of individuals between the ages of 40 and 65, arguing that high information and learning costs prevent minorities from accessing basic financial services and accumulating enough retirement wealth.

Second, exploiting the richness of information available in the HRS, we build on the empirical models adopted in previous studies and amend them with additional factors that are presumably related to the observed racial/ethnic gap in bank ownership. Specifically, we gauge the relative importance of 1) real asset holdings, 2) health status and cognitive ability, 3) being foreign born and citizenship status, 4) "taste for privacy," and 5) language barriers in explaining the lack of financial inclusion among minorities, above and beyond the explanatory power of conventional socioeconomic characteristics, like education, income, and wealth, that have been used in the previous work. Moreover, relying on restricted geographic identifiers, we condition our analysis on the characteristics of the neighborhood where households reside. To the best of our knowledge, such comprehensive analysis of what prevents access to basic financial services among older minorities has not been performed before.

[2] In our analysis we use the term financial inclusion to refer to individual participation in the formal financial sector through the ownership of a bank account. Lack of basic financial services in our study refers to the lack of bank account ownership.

Third, the design of the HRS allows us to explore how the racial and ethnic composition of couples is related to access to financial services. Specifically, we investigate whether the behavior of couples with both minority members is different from that of "mixed" couples, where only one member belongs to a minority group. Looking at possible spousal effects in terms of financial inclusion constitutes a major, innovative contribution of our study.

Finally, from a methodological point of view, we take full advantage of the long panel data set at our disposal and estimate both random-effects (RE) and correlated random-effects (CRE) models. In the latter case, we include averages of time-varying variables, which allow us to control more encompassingly for unobserved heterogeneity across households. Previous work has relied on RE models (e.g., Rhine and Greene, 2006) only.

We document that minority older adults are significantly less likely to own a bank account than their White counterparts after controlling for a comprehensive set of socioeconomic variables and neighborhood characteristics. As we account for additional potential barriers to financial inclusion, the residual gap with respect to Whites is reduced by 19 percent for Blacks and by 46 percent for Hispanics. We find that nativity, citizenship and "taste for privacy," as measured by lack of consent to sharing Social Security number with HRS, play no important role in determining differences across racial/ethnic groups. Ownership of real assets, health and cognitive ability account together for about 3 percentage points of the minority gap in ownership of a bank account. While socio-economic characteristics at the individual and neighborhood level (especially income and wealth) are more likely to explain differences between Blacks and Whites, language is a critical determinant of the existing gap in bank account ownership between Hispanics and Whites. This is consistent with the findings of the 2015 Federal Deposit Insurance Corporation's biennial

survey on unbanked and underbanked households which indicates that households that speak only Spanish are unbanked (defined as lacking a checking or savings account) at five times the rate of households where Spanish is not the only language spoken (FDIC, 2016). Plausibly, lack of English proficiency may also be the manifestation of other cultural and behavioral barriers associated with little assimilation/acculturation. Our results also show that minority couples are from 13 to 10 percentage points less likely than White couples and from 10 to 7 percentage points less likely than "mixed" couples to own a bank account. Notably, the gap in bank account ownership between "mixed" and White couples is small at around 3 percentage points across different specifications. We use different specifications to assess the contribution of assortative mating to our results and do not find it to be large. Yet, we remain cautious in interpreting our findings as evidence of spousal spillovers in financial-decision making as we cannot completely rule out assortative mating on unobservable preferences/tastes for managing household finances and adopting financial instruments.

The paper is organized as follows. The next section presents a literature review on the determinants of access to financial services. Sections 3 and 4 discuss the data and methodology used in this study, respectively. Section 5 presents the results from the analysis, and Section 6 concludes.

2. DETERMINANTS OF ACCESS TO FINANCIAL SERVICES

Financial inclusion is clearly determined by both demand and supply factors. As far as the former, there is ample evidence that access to financial services is closely related to socioeconomic status (SES), with the rate of unbanked individuals being significantly higher among low-educated and low-income groups (Anderloni et al. 2008; Claessens 2006). Similarly, ethnic and racial

minorities are less likely to own checking and savings accounts and other financial instruments (Atkinson 2006; Carbo Valverde, Gardener, and Molyneux 2005; Hogarth, Anguelov, and Lee 2005; Robles 2009). Bogan (2014) highlights that poor health and limited cognitive ability, such as numeracy and memory, directly contribute to the lack of participation in financial markets, especially for among more vulnerable groups.

Language and cultural barriers may prevent some segments of the population from accessing financial services (Collard, Kempson, and Whyley 2001; Rhine and Greene 2006; Caskey et al. 2006; Barcellos et al. 2016; Robles 2014), alongside with legal status and long-term plans for residency (Datta 2009). Bogan (2014) documents that immigrants from countries with more exposure to financial services are more likely to participate in the financial system in the U.S. Furthermore, Northwood and Rhine (2016) find that Mexicans and Latin Americans immigrants have a higher probability of using nonbank financial services (payday loans, pawn shops, remittances, among others) than native born with similar education and income levels.

There are also behavioral issues related to subjective perceptions of the costs and benefits of owning a bank account. Bertrand, Mullainathan, and Shafir (2004) argue that when studying individuals' usage of financial services not only major factors, such as the cost of a bank account, financial education, and availability of financial information should be taken into consideration, but also small situational barriers, like distance from a bank, hours of service, bank customer service, and concerns related to consumer privacy. Hogarth, Anguelov, and Lee (2004) investigate subjective reasons behind the decision of remaining unbanked. They observe that most individuals cite account features, such as minimum balance, service charges and usefulness of checks, as reasons for not owning a bank account. Motivational (not having enough money) and institutional

(not wanting to deal with banks) reasons are mentioned by around 20 percent of unbanked individuals. Interestingly, account features receive similar weights within SES and racial/ethnic groups.

Regarding the supply side, financial institutions tend to be scarcer in disadvantaged and diverse communities (Rubin, 2007). Because of lack of profitability, banks might not offer adequate services to certain groups, especially the most vulnerable such as low SES individuals, the elderly, and minorities (Federal Deposit Insurance Corporation 2011). Straight (2002) analyzes asset accumulation differences between Whites and Blacks between 1995 and 1998 and argues that lower accumulation for Blacks is partly due to the supply of financial services. Choudhury (2001) mentions that, by primarily targeting Whites, financial institutions may have created a cultural bias against holding financial assets among minorities. Stevenson and Plath (2006), document that financial institutions have not fully developed strategies to reach Hispanics because they have not considered Hispanics' preferences and trust towards institutions that understand their culture, particularly language. Community and neighborhood environments as well as peer effects, participation in the cash economy and informal saving circles are critical aspects to consider when studying financial inclusion (Robles 2009, 2014). Bohn and Pearlman (2013) show that enclaves, defined as areas with high concentrations of immigrants from the same region, play an important role in determining racial/ethnic differences in bank use. Bogan (2004) observes that immigrants who live around other immigrants have less exposure and information about the financial system than immigrants that live in a community of native U.S. citizens. A similar argument applies to ethnic concentration impacting negatively participation in the financial system. Along the same lines, Vermilyea and Wilcox (2002), using data from a survey conducted in Los Angeles and New York in the late 1990s, document that the racial composition of the neighborhood affects the

likelihood of owning a bank account and that individuals living in Census tracts with higher share of Hispanics or Blacks are less likely to own a bank account.

Building on the existing literature, our study aims at comprehensively examining the determinants of the observed racial/ethnic gap in bank account ownership, with a specific focus on the population over the age of 50. Even though they are projected to constitute an increasing fraction of the U.S. population and often face more-difficult-to-overcome hurdles towards financial inclusion, older minorities have received relatively little attention in previous work on this topic.[3] For the purposes of our analysis, we take advantage of the richness of information elicited by the HRS questionnaire and amend previously estimated models with both individual-level and neighborhood-level variables that are bound to influence the decision of being unbanked. These include, but are not limited to, household wealth composition, health status and cognitive ability, immigration and citizenship status, taste for privacy, language barriers, neighborhood SES status, and supply of formal financial institutions. We show that such a richer model, featuring an exhaustive range of both demand- and supply-side factors, can explain a significant fraction of the observed racial/ethnic gap in bank account ownership and identify the variables that contribute the most to explaining high unbanked rates among older minorities.

3. DATA

We use data from Health and Retirement Study (HRS) for the period 2000-2012 and restrict our sample to individuals 51 to 90 years old. This group includes retirees, as well as workers on

[3] Lusardi and Mitchell (2011) document that financial literacy is significantly lower among older Blacks and Hispanics than among older Whites. This phenomenon is consistent with the fact that older minorities exhibit higher unbanked rates and, as a result, are more likely to miss on the opportunity to acquire basic knowledge of existing financial products.

the verge of retirement, a time when sound financial decisions are critical to ensure future economic wellbeing and income security at older ages. We focus on individuals who are designated as the financial respondent of the household (e.g., the person mostly responsible of and knowledgeable about household financial matters). We exclude individuals over the age of 90, as they are at a higher risk of physical/cognitive impairments that could potentially preclude them from being able to personally manage their finances and, therefore, from having a bank account.[4]

The HRS is a multipurpose, longitudinal household survey representing the U.S. population over the age of 50. Since 1992, it has surveyed age-eligible individuals and their spouses on a biannual basis to track transitions from work to retirement, to measure economic wellbeing and changes in financial situation over time, and to monitor individuals' health as they age. The HRS oversamples Blacks and Hispanics, making it an ideal data set to examine racial/ethnic disparities in bank account ownership. These two minority groups exhibit very similar recruitment and response rates at baseline and retention/attrition in follow-ups as Whites (Ofstedal and Weir, 2011). This is important for the purposes of our study as it does not introduce biases due to differential/selective participation in the survey among different racial/ethnic groups.

Our dependent variable is a dichotomous indicator for access to financial services (i.e., financial inclusion), taking value 1 if the individual owns a checking, savings or money market

[4] The results of our analysis remain qualitatively and quantitatively unchanged when we include individuals above the age of 90. In the interest of space, we do report the results based on such extended sample. They are, however, available upon request.

account. We assign individuals to three mutually exclusive groups, White non-Hispanic, Black non-Hispanic, and Hispanic (we drop respondents who report being of other races).[5]

Our baseline specification mimics empirical models used in previous studies. It includes the following set of individual- and household-level characteristics: gender (male), a quadratic polynomial in age, education, an indicator for couple household (age-eligible respondent and spouse/partner are both interviewed), household size, work status, indicator for whether the respondent or the spouse/partner receives any social security or pension income, household income, and wealth tertiles. Year dummies and state dummies are also included to account for general trends in bank account ownership over the observation period and to control for state characteristics that can be correlated with the rate of unbanked individuals within different segments of the population.

We amend the baseline specification with potential determinants of the racial/ethnic differential in financial inclusion that, because of data availability, have not featured models previously estimated in the literature. First, we take into account ownership of real assets, such as home and vehicles, as well as debt exposure. Second, we construct and control for indexes of overall health status and cognitive ability. Third, we include in the model indicators for nativity and citizenship, which may capture legal barriers to financial inclusion. Fourth, we consider a proxy for individual "taste for privacy" measured by the respondent's consent to share their Social Security Number (SSN) with the HRS for administrative data linkage. Fifth, we control for whether the survey was answered in Spanish, indicating lack of English proficiency. Summary

[5] Individuals from other races represent l2.8 percent of the sample of individuals who participate in the HRS during the period 2000-2012 (627 out of 22,423 individuals). For the sake of simplicity, throughout the text we often refer to Whites non-Hispanics as Whites and to Blacks non-Hispanics as Blacks.

statistics for all the individual- and household-level variables used in the analysis are shown in Table 1.

We further expand our empirical specification with measures of neighborhood environments, like socioeconomic characteristics of residents and number of existing formal financial institutions. As mentioned above, these variables account for supply-side factors and peer/community effects that are bound to influence individuals' access to formal financial services. For this purpose, we rely on restricted HRS geocodes, to obtain the census tract where respondents reside at the time of the interview. Following Diez Roux et al. (2001), we construct a neighborhood SES index at the census tract level. Additionally, we create a variable recording the number of financial institutions in the census tract where HRS respondents reside at the time of the interview. We also consider in our analysis the racial/ethnic composition and primary language spoken by residents at the census tract level. Summary statistics for neighborhood-level variables are presented in Table 2. Full details for individual, household and neighborhood level variable construction and sources are available in Table A1 in the Appendix. Table A2 presents the distribution of race and ethnicity in our sample by wave, while Table A3 shows summary statistics by race/ethnicity for selected variables.

4. METHODOLOGY

The decision to own a bank account can conveniently be given a latent-variable interpretation. Indicate the net utility of owning a bank account for individual *i* at time *t* with:

$$u_{it}^{*} = \beta_0 + \beta_1 z_i' + \beta_2 x_{it}' + \eta_i + \varepsilon_{it} \qquad (1)$$

where z represents time-invariant characteristics, among others the individual's racial/ethnic group, and the vector x includes time-varying individual- and household-level variables as well as environmental factors, such as SES neighborhood characteristics and availability of financial institutions in the place of residence. The term η_i represents unobserved, time-invariant individual preference/taste for financial inclusion, while ε_{it} is an idiosyncratic shock assumed to be orthogonal to the explanatory variables.

Utility-maximizing individuals choose to own a bank account if and only if the net utility they get is greater than the one they would obtain under the alternative scenario of being unbanked. Denoting our indicator of financial inclusion with y, we would therefore observe:

$$y_{it} = \begin{cases} 1 \; if \; u_{it}^{*} > 0 \\ 0 \; if \; u_{it}^{*} \leq 0 \end{cases} \qquad (2)$$

where normalizing the net utility of being unbanked to 0 is without loss of generality as long as an intercept is included in equation (1). Assuming that

$$E[\eta_i | z_i, x_{it}] = 0, \qquad (3)$$

the binary, latent-variable model described by equations (1) and (2):

$$y_{it} = \beta_0 + \beta_1 z_i' + \beta_2 x_{it}' + \eta_i + \varepsilon_{it}, \qquad (4)$$

can be estimated using a random-effects (RE) linear probability model.

The assumption that unobserved individual preference/taste for bank account ownership is uncorrelated with the explanatory variables of the model is undoubtedly restrictive. Yet, relaxing equation (3) implies that the parameters of the model cannot be consistently estimated unless the

time-invariant individual heterogeneity represented by η_i is removed. This can be done via fixed-effects (FE) estimation, which, however, comes at the cost of not being able to identify the effect of time-invariant covariates on the dependent variable. For the purposes of our study, this is a major drawback as our interest lies in assessing the racial/ethnic gap in financial inclusion. Confronted with a similar situation, Rhine and Greene (2006) opt for maintaining assumption (3) and estimate the model in equation (4) by RE Probit. We follow a different approach.

The RE and FE models can be unified by explicitly modeling the relationship between η_i and x_{it} and, therefore, by somehow relaxing the assumption in equation (3). Specifically, if $\eta_i = \gamma\bar{x}_i' + \nu_i$, where $\bar{x}_i$ denotes individual-specific time averages and $E[\nu_i|\bar{x}_i] = 0$, equation (4) can be rewritten as:

$$y_{it} = \beta_0 + \beta_1 z_i' + \beta_2 x_{it}' + \gamma\bar{x}_i' + \nu_i + \varepsilon_{it}. \qquad (5)$$

This is known as a correlated random effects (CRE) model (Wooldridge 2010). As originally shown by Mundlak (1978), estimating β_2 in equation (5) by RE is equivalent to estimating β_2 in equation (4) by FE. Such result arises because $\bar{x}_i$ takes into account the correlation between the time-varying variables x_{it} and the time-invariant, unobserved individual preferences/tastes η_i. Moreover, since equation (5) is treated as a RE model, it is possible to estimate the effect of the time-invariant covariates z_i, which would be otherwise wiped out by a within/FE transformation. It should be noted that for the estimate of β_1 to be consistent the condition $E[\nu_i|z_i, x_{it}] = 0$ still needs to hold. While this may not be a serious concern for our main variable of interest – race/ethnicity – the assumption that individual heterogeneity is uncorrelated with other time-invariant variables in our data, like education, may appear too restrictive. For this reason, we must

use caution when interpreting the estimate of β_1. Nonetheless, the presence of $\bar{x}_i$ ensures that the parameter estimates for β_1 are net of the correlation between η_i and x_{it}.

We carry out our empirical analysis using both the RE and the CRE estimation approaches, but focus our discussion on the CRE results. The RE estimation approach makes our results more directly comparable to those of previous studies on the topic that have commonly estimated RE models (Lusardi 2005; Rhine and Greene 2006). The CRE estimation approach allows specifying a less restrictive within-individual error structure and to obtain estimates of time-invariant variables that are corrected for individual heterogeneity as measured by across-individual differences in time-varying covariates. Moreover, by comparing the results of the RE and CRE estimations, we can assess the extent to which controlling more encompassingly for individual heterogeneity in our model affects the size of the estimated racial/ethnic gap in bank account ownership.

5. RESULTS

Bank Account Ownership by Race and Ethnicity of the Household Financial Respondent

Table 3 shows the percentage of households who do not own a bank account by race and ethnicity of the financial respondent and, separately, for each survey year. As can be seen, there exists a significant racial/ethnic gap in bank account ownership. During the 2000-2012 period, while only 9 percent of non-Hispanic White households do not own a bank account, 35 and 38 percent of Black and Hispanic households are unbanked, respectively. Interestingly, the fraction of unbanked households has increased significantly for all groups around the time of the Great Recession (December 2007-June 2009) and remained somewhat higher than the pre-crisis level, especially among Hispanics. The unbanked rates in our sample, which only includes individuals

age 51-90, are higher than those for the adult population as a whole (at least 18 years of age). Indeed, according to the National Survey of the Unbanked and Underbanked Households, the unbanked rates among White, Black and Hispanic households in 2011 are 4, 20 and 21, respectively (FDIC, 2011), hence much lower than those observed in the HRS and reported in Table 3 for the either 2010 or 2012. In view of these differences, the results of our analysis should not be generalized to the entire adult population. They are, instead, specific of middle-age and older adults and illustrative of the barrier towards financial inclusion faced by minorities within this segment of the population. As argued above, given the increasing share of minorities in the U.S. and the rapid aging of the population, studying the banking situation of minority older adults is an important contribution of this paper, especially because minority older adults have not been the focus of previous work on the topic of financial inclusion. When looking at cross-wave transitions (Table A4 in the Appendix), we observe that Blacks and Hispanics are substantially more likely than Whites to pass from having to not having a bank account (13 and 18 percentage points, respectively) and less likely to be banked if they were unbanked in the previous wave (29 and 31 percentage points, respectively).

We estimate the CRE model in equation (5) using seven specifications. Starting from a conventional baseline model, we sequentially add variables measuring economic status, health, cognitive ability, and cultural barriers to bank account ownership facing minority older adults. Table 4 shows the residual gap across progressively richer specifications, as measured by the coefficients on the indicators for whether the household financial respondent is either Black or Hispanic (Whites are the reference group).[6]

[6] The estimated coefficients for all variables included in the CRE model is provided in Table A5 in the Appendix. The very same regressions are also estimated via RE. The corresponding results are presented in Table A6 in the Appendix.

In our baseline specification, Blacks and Hispanics are less likely to own a bank account than Whites by 15 percentage points. As we account for additional potential barriers to bank account ownership, the residual gap for minorities is reduced, although to a different extent for Blacks and Hispanics. In our full model, Blacks and Hispanics are less likely to own a bank account than Whites by 12 and 8 percentage points, respectively. Thus, compared to the baseline model, the estimated residual gap is cut by 19 percent for Blacks and 46 percent for Hispanics.

Among the determinants of the gap, ownership of real assets accounts for about 1.5 percentage points for both minority groups. Together, physical and cognitive health account for an additional 1 percentage point of the racial/ethnic gap. Indicators of foreign nativity do not appear to explain the residual gap in financial inclusion for minority groups. Taste for privacy, proxied by the consent to share the Social Security number with HRS, does not correlate with bank account ownership. We acknowledge that this measure is imperfect, not only due to the large proportion of missing values, but also because it may reflect reluctance of illegal immigrants to provide their SSN (if available). Lack of English proficiency, as measured by whether the HRS questionnaire was answered in Spanish, is the factor contributing the most to the gap in bank ownership for Hispanics (approximately 4 percentage points above and beyond the contribution of all the other variables described so far). This is in line with a recent report of the Federal Deposit Insurance Corporation, according to which Spanish-only speaking households are five times less likely to use a bank or credit union (FDIC, 2016). Lack of English proficiency may also more broadly be interpreted as lower cultural assimilation. This, in turn, may lead Hispanic immigrants to be unfamiliar with the U.S. financial system and/or to mistrust financial institutions based on experiences in their countries of origin (Osili and Paulson, 2008).

Characteristics of the neighborhood where the individual currently resides, such a neighborhood SES index and number of financial institutions (weighted by population), do not explain much of the observed White/Minority gap in financial inclusion beyond and above what is already accounted for by individual-level variables. It is worth noting that the contribution of the aforementioned variables to explaining the observed minority gap in financial inclusion is only marginally affected by the order in which the variables are entered in the model.

We obtain similar results as those of Rhine and Greene (2006), who, relying on a RE Probit model, find that U.S. born Blacks and Hispanics are 13 and 8 percentage points more likely to be unbanked than U.S. born Whites, respectively. In our full model estimated by RE (Table A6 in the Appendix, Column 7), the gap for Blacks is 14 percentage points and the one for Hispanics is 10 percentage points. These estimated gaps are reduced to 12 and 8, respectively, when estimation is carried out by CRE, which allows to better control for unobserved individual heterogeneity in financial decisions.

The CRE model also delivers fixed-effects estimated coefficients of time-varying variables, which help identify the factors that contribute to changes in the decision to own a bank account. Among them, health and cognition play an important role. One standard deviation increase in the health index is associated with a 0.7 percentage-point increase in the likelihood of bank account ownership. This implies that the average individual moving from the top 5 percent to the bottom 5 percent of the health index distribution would be approximately 3 percentage points less likely to have a bank account. Cognition is also positively associated with financial inclusion. Compared to those in the first cognition index quartile, individuals in the second, third and fourth quartiles are from 1 to 2 percentage points more likely to own a bank account. It is worth noting that minorities are about 30 percentage points more like than Whites to be in the bottom 25 percent

of the cognition distribution and 15 percentage points less likely to be in the top 25 percent of the distribution. Consequently, they exhibit significantly lower propensity to be banked than Whites and, as discussed above, cognition is a significant contributor of this gap. There exist apparent income and wealth gradients. Compared to households in the first income tercile, those in the second and third are 2.7 and 3.4 percentage points more likely to hold a bank account, respectively. Similarly, compared to households in the first wealth tercile, those in the second and third are 4.6 and 7.2 percentage points more likely to be banked, respectively. Moving in and out of work also affects the probability of bank account ownership. Interestingly, receiving a pension or Social Security benefits has a positive impact on financial inclusion. This may be related to the fact that often electronic payments of benefits are strongly encouraged (for Social Security benefits, they became mandatory starting from March 2013).

Bank Account Ownership by Race and Ethnicity of the Couple

We delve more into the household financial decision-making process and explore potential spousal effects on the choice of being unbanked. For this purpose, we restrict attention to couple households and create groups interacting race/ethnicity of the household financial respondent and his/her spouse or partner. Specifically, we separate the sample into (i) White couples, where both members are White; (ii) White–Minority couples, where one member is either Black or Hispanic ("mixed" couples); and (iii) Minority couples, where both members are either Black or Hispanic (Table A7 in Appendix shows summary statistics for race/ethnicity at the couple level).

Table 5 presents the estimated coefficients for the White-Minority and Minority couple indicators (White couples are the reference group) across our seven specifications. The results show that minority couples are from 10 to 7 percentage points less likely than "mixed" couples to

own a bank account. In our baseline specification, minority couples are 13 percentage points less likely to own a bank account than White couples. The residual gap decreases steadily as more hurdles to financial inclusion are considered in the regression equation. Compared to the baseline specification, the residual gap is about 3 percentage points (26 percent decrease) lower in the full model. Again, ownership of real assets, health, cognitive ability, and language barriers are the factors contributing the most to the reduction of the gap. In the last column of Table 5, the effect of language barriers is less pronounced than the one observed in Table 4 as minority couples are not just Hispanic couples for whom lack of English proficiency is most relevant. Notably, the gap in bank account ownership between "mixed" and White couples is small and remains virtually constant across model specifications (3 percentage points less than White couples).

Since in our regressions we do not control for spouses' specific characteristics (e.g., education, cognitive ability), we cannot rule out the possibility that these results are determined by assortative mating. For instance, conditional on education of the financial respondent, spouses in white, mixed and minority couples may have different levels of education or financial literacy, leading to the observed differences in the adoption of bank accounts (as long as, at least to some extent, financial decisions are made jointly within the household). To shed further light on this issue, we repeat the exercise in Table 5 restricting attention only to couples where both members have the same level of education. The results of these regressions (reported in Table A8 in the Appendix) are qualitatively and quantitatively unchanged. For minority couples, the gap in bank ownership relative to White couples is about 14 percentage points in the most parsimonious specification and it is reduced to 11 percentage points in the richest specification. In comparison, the gap between "mixed" and White couples is about 3 percentage points across all models. This

suggests that assortative mating, at least on the basis of education, does not play a major role in driving the findings in Table 5.[7]

A potential mechanism for the lower gap of mixed couples estimated in Table 5 is that the spouse from the dominant race is also the one making financial decisions. To gain insight on this point, we distinguish between mixed couples with a White financial respondent and mixed couples with a minority financial respondent. The results of this additional analysis (presented in Table A9 in the Appendix) show that the gap in bank account ownership relative to White couples is only 2 percentage points and not statistically significant for mixed couples with a White financial decision-maker. For mixed couple with a minority financial decision-maker the gap is 4 percentage points and statistically significant, but still 6 percentage points lower than that of minority couples. Together with the empirical evidence described above, this suggests that spillovers within mixed couples, by which the minority financial decision maker assimilates the financial culture and/or learns financial literacy from the spouse, may help reduce barriers towards financial inclusion faced by only minority households.

The Role of Household Financial Resources and Neighborhood Characteristics

We further investigate the role of household financial resources and neighborhood characteristics by estimating our model separately for those with income, wealth and NSES index below and above the sample median. Table 6 presents the residual gap in bank ownership estimated using our richest specification separately for the aforementioned groups (Table A10 in the Appendix has the full set of estimates). As can be seen from Panel A of Table 6, for Blacks below median income,

[7] We obtain very similar results if we control for the spouse's educational attainment. To the extent that our CRE estimation strategy does not capture household-level preference for financial choices, assortative mating on these unobservable characteristics cannot be fully ruled out.

the probability of owning a bank account is 14 percentage points lower than for their White counterparts. This gap is reduced to 8 percentage points among older Blacks above median income. The null hypothesis that the gap is the same for both income groups is rejected at 1 percent significance level in favor of the alternative that it is larger for Blacks below median income. The differential gap in bank account ownership between Hispanics below and above median income is less pronounced and approximately equal to 2.5 percentage points, but still statistically significant.

In Panel B of Table 6, we estimate sizeable (4 to 6 percentage points) and statistically significant differential gaps by wealth for both minority groups. Blacks below median wealth are 13 percentage points less likely than Whites to own a bank account. This difference shrinks to 6 percentage points among Blacks above median wealth. Similarly, Hispanics with wealth below and above the median are 9 and 5 percentage points more likely to be unbanked than Whites, respectively. The null hypothesis of no differential residual gap by wealth is rejected at 5 percent significance level against the alternative that the gap is larger for households below than above median wealth for both minority groups.

In Panel C, we separate respondents living in low and high SES neighborhoods. For Blacks residing in neighborhoods with below-median SES, the estimated bank ownership gap with respect to their White counterparts is approximately 1 percentage point larger than for those living in above-median SES neighborhoods, and this difference is statistically significant at the 5 percent significance level. There is, instead, no apparent difference for Hispanics. These findings suggest a limited role of community spillovers and supply-side factors in explaining the minority gap in bank account ownership, above and beyond the influence of individual-level SES and circumstances. At the same time, the NSES index may mask heterogeneity in language and cultural

barriers faced by minority older adults, which appear to be the major drivers of lack of participation in the formal financial sector.

We, therefore, explore the role of specific neighborhood factors, such as the racial and ethnic composition as well as the primary language spoken at the census tract where sample households reside. Table 7 shows the results when we add to the full model the percent of Blacks, Hispanics and Whites (columns 1 and 2) and the percent of those who primarily speak Spanish (columns 3 and 4) in the census tract. Holding these variables constant does not reduce the gap for Blacks and only marginally affects the gap for Hispanics (by less than 1 percentage point). Notably, the main contributor to explaining the Hispanic-White gap is still an individual's lack of English proficiency, which does not seem to be proxied by neighborhood indicators for race/ethnicity and language at the census tract level. Indeed, when (in columns 2 and 4 of Table 7) we control for neighborhood racial/ethnic composition and main language, but we do not take into account whether the HRS survey was answered in Spanish, the estimated gap for Hispanics is slightly above 10 percentage points. It is, instead, reduced to 7.5 percentage points when the Spanish survey indicator is added to the set of regressors.

While neighborhood racial composition and language seem to play a limited role in explaining the overall minority gap above and beyond household-level characteristics, one would still expect the gap to be wider in areas with larger concentrations of minorities, other things equal. To shed light on this point, we estimate our full model (including a control for whether the HRS questionnaire was answered in Spanish) for individuals who reside in census tracts with below and above median percentage of Hispanic residents (Panel A of Table 8) as well as with below and above median percentage of Spanish speakers (Panel B of Table 8). As can be seen, the observed gap between Hispanics and Whites is driven by those households residing in neighborhoods with

a relatively high representation of Hispanics and, therefore, Spanish-speaking individuals. Specifically, while there is virtually no noticeable residual gap in census tracts with below-median percentage of Spanish-speaking individuals, Hispanics are as much as 8 percentage points less likely than Whites to own a bank account in census tracts with above-median percentage of Spanish-speaking individuals. As mentioned above, lack of English proficiency, which may hinder one's ability to navigate the U.S. financial system, is plausibly the manifestation other cultural and behavioral barriers associated with little assimilation/acculturation. The results in Table 8 substantiate the expectation that such barriers are more easily formed and more difficult to overcome in relatively more segregated areas.

Among these barriers, legal citizenship could represent a significant hurdle towards financial inclusion. In neighborhoods with a large representation of Hispanics and where Spanish is the predominant language, the number of illegal immigrants is likely higher and this may contribute to the differences estimated in Table 8.[8] To gauge the importance of this potential contribution, one would ideally run the same regressions as above for census tracts with relatively low and high percentage of illegal residents. But, obviously, there is no official count of undocumented individuals.[9] It should be noted that legal status is not a necessary condition to be banked. For example, major U.S. banks have been accepting the *matricula consular* (an ID card from the Mexican consulate issued to undocumented immigrants) to open an account. Legal status,

[8] In our regressions we control for whether respondents consent to share their Social Security Number with the HRS for administrative data linkage. We have interpreted lack of consent as "taste for privacy." However, it could also indicate absence of a legal identification document.

[9] As a very coarse approximation, we have estimated our model splitting the sample into census tracts below and above the median percentage of foreign-born residents and into census tracts below and above the median percentage non-citizen residents (non-citizen data are only available for 2012). While the White-minority gap tends to be larger in census tracts with a relatively larger proportion of foreign-born and non-citizen residents, there are no statistically significant difference across groups. The results have not been included in the interest of space, but are available upon request.

however, might add to the demand-side factors preventing financial inclusion of minorities, as mistrust in banking institutions may keep undocumented individuals in the cash economy.

Unfortunately, we do not have data to investigate to what extent language barriers may also be a supply-side phenomenon stemming, for instance, from the shortfall of services in Spanish provided by financial institutions. Developments in the banking system in the last couple of decades, however, would suggest that this is unlikely to be the case. A 2006 report by the Office of the Comptroller of the Currency, which regulates and supervises national banks, found that many banks have progressively expanded their provision of multilingual services. The largest increase has been observed for services in Spanish. This is not surprising as Hispanics have been the fastest growing minority group in the U.S. and have greatly gained in terms of purchasing power, thereby representing a source of retail growth for financial institutions. Major national banks now offer services in Spanish both online and in most branches, while credit unions increasingly reach out to the Hispanic community via targeted advertising material, pamphlets and posters in Spanish.

Limitations

Our analysis contributes to the existing literature by providing further insights onto the racial/ethnic gap in bank account ownership. To this end, we exploit richer data than previously available to other authors and rely on a CRE estimation approach that, at least partially, accounts for individual heterogeneity. We recognize the following limitations of our study. First, we cannot rule out potential biases stemming from unobservable characteristics not captured by individual-specific averages of time-varying variables. Hence, we must warn against considering our

estimates as causal. Second, and as already mentioned above, we must be cautious in interpreting the observed differences among white, mixed and minority couples as evidence of spousal/peer effects on bank account ownership. To the extent that the CRE model does not fully control for it, assortative mating on unobservable preferences/tastes for financial decision-making might drive our results. For future research, we warrant including parental SES and early-life family background characteristics to proxy for individuals' attitude towards managing personal finances. Third, we only look at the impact of current neighborhood characteristics on the likelihood that older adults own a bank account. Clearly, early-life environmental circumstances are bound to be important as well in this domain, as they might shape wealth accumulation patterns and determine cultural integration. Unfortunately, the HRS does not provide data on early-life residence. This information would constitute a very valuable addition to gauge the potential role of neighborhood effects more generally.

6. CONCLUSION

We investigate the determinants of the racial/ethnic gap in bank account ownership among older adults in the U.S. Exploiting the wealth of information available in the HRS and its longitudinal dimension, we estimate CRE models for the probability of owning a bank account featuring a comprehensive range of household- and neighborhood-level explanatory variables. As additional potential barriers to financial inclusion are accounted for, the residual gaps between Blacks and Whites and between Hispanics and Whites are reduced by 18 percent and 46 percent, respectively. We find that citizenship and "taste for privacy," as measured by lack of consent to share Social Security number with HRS, play a limited role for both minority groups. On the other hand, real asset ownership, health, and cognitive ability contribute substantially to the racial/ethnic

gap. Conditional on household-level SES measures, the effect of neighborhood socioeconomic characteristics, including the number of available financial institutions, is rather minor, although somewhat more pronounced for Blacks. On the other hand, we find that the Hispanic-White gap is significantly larger (8 percentage points) in neighborhoods with above-median percentage of Spanish-speaking individuals and negligible (about 0) in neighborhoods with below-median percentage of Spanish-speaking individuals. This points at the lack of English proficiency, which plausibly is the manifestation of little acculturation/assimilation, as one of the most important barriers towards financial inclusion for older Hispanic households. As noted by a recent Consumer Financial Protection Bureau's report "there is a general understanding that language cannot always be separated from culture, and that offering information in languages other than English does not necessarily mean that all Limited English Proficient populations will be able to access, understand, or use the information provided." The same report calls for more extensive educational campaign to reach out and engage underserved populations, especially minorities (Consumer Financial Protection Bureau, 2017).

Our results also offer suggestive evidence of spousal effects in financial decisions. Indeed, we estimate a significantly smaller residual gap between "mixed" and White couples than between minority and White couples. We reach similar conclusions when we restrict attention to couples where both members have the same level of education to better control for assortative mating. Our findings may indicate that mixed couples are less concerned with the cultural/psychological barriers facing minority couples.

Our work aims at providing a deeper understanding of the financial behavior of more vulnerable groups, such as minority older adults. This knowledge is crucial for devising

interventions that can effectively change financial decision-making among households where resources are most scarce and cultural hurdles more difficult to overcome.

REFERENCES

AARP Public Policy Institute. 2010. "A Portrait of Older Underbanked and Unbanked Consumers: Findings from a National Survey." http://assets.aarp.org/rgcenter/ppi/econ-sec/underbank-economic-full-092110.pdf.

Administration for Community Living [ACL]. 2014. "Statistical Profiles". Retrieved December 15, 2016, from http://www.aoa.acl.gov/Aging_Statistics/minority_aging

Anderloni, Luisa, Bernard Bayot, Piotr Błędowski, Iwanicz-Drozdowska, Małgorzata, and Kempson, Elaine. 2008. "Financial Services Provision and Prevention of Financial Exclusion", Report Prepared for the European Commission Directorate General for Employment, Social Affairs and Equal Opportunities." http://ec.europa.eu/social/BlobServlet?docId=760&langId=en.

Atkinson, Adele. 2006. "Migrants and Financial Services: A Review of the Situation in the United Kingdom." A research report from the Personal Finance Research Centre. University of Bristol. http://www.bristol.ac.uk/media-library/sites/geography/migrated/documents/pfrc0605.pdf.

Barcellos, Silvia Helena, Leandro S. Carvalho, James P. Smith, and Joanne Yoong. 2016. "Financial Education Interventions Targeting Immigrants and Children of Immigrants: Results from a Randomized Control Trial." *Journal of Consumer Affairs* 50 (2): 263–85. doi:10.1111/joca.12097.

Bertrand, Marianne, Sendhil Mullainathan, and Eldar Shafir. 2004. "A Behavioral-Economics View of Poverty." *American Economic Review* 94 (2): 419–23. doi:10.1257/0002828041302019.

Bogan, Vicki L. 2014. “Household Investment Decisions.” In Investor Behavior: The Psychology of Financial Planning and Investing, 1st ed., 83–98. Hoboken, New Jersey: John Wiley & Sons, Inc.

Bohn, Sarah, and Sarah Pearlman. 2013. “Ethnic Concentration and Bank Use in Immigrant Communities.” *Southern Economic Journal* 79 (4): 864–85. doi:10.4284/0038-4038-2010.245.

Carbo Valverde, Santiago, Edward P.M. Gardener, and Philip Molyneux. 2005. *Financial Exclusion*. New York: Palgrave Macmillan.

Caskey, John P, Tova Maria Solo, and Clemente Ruiz Duran. 2006. “The Urban Unbanked in Mexico and the United States.” WPS3835. The World Bank. http://documents.worldbank.org/curated/en/2006/02/6559581/urban-unbanked-mexico-united-states.

Choudhury, Sharmila. 2001. “Racial and Ethnic Differences in Wealth and Asset Choices.” *Social Security Bulletin* 64 (4). https://www.ssa.gov/policy/docs/ssb/v64n4/v64n4p1.html.

Claessens, S. 2006. “Access to Financial Services: A Review of the Issues and Public Policy Objectives.” *The World Bank Research Observer* 21 (2): 207–40. doi:10.1093/wbro/lkl004.

Clarke, Robert, and Madeleine Ambrosio. 2003. “Ignorance Is Not Bliss: The Importance Of Financial Education.” 78. Research Dialogue. TIAA-CREF Institute. https://www.tiaainstitute.org/public/institute/research/dialogue/rd_78.html.

Collard, Sharon, Elaine Kempson, and Claire Whyley. 2001. *Tackling Financial Exclusion: An Area-Based Approach*. Bristol, UK: Policy Press.

Consumer Financial Protection Bureau. 2017. "Spotlight on Serving Limited English Proficient Consumers." Available at https://s3.amazonaws.com/files.consumerfinance.gov/f/documents/cfpb_spotlight-serving-lep-consumers_112017.pdf

Datta, Kavita. 2009. "Risky Migrants?: Low-Paid Migrant Workers Coping With Financial Exclusion in London." *European Urban and Regional Studies* 16 (4): 331–44. doi:10.1177/0969776409340865.

———. 2011. *New Migrant Communities and Financial Services*. Friends Provident Foundation. http://www.friendsprovidentfoundation.org/wp-content/uploads/2013/03/QMUL_-_New_migrant_communities_-_Summary2.pdf.

Diez Roux, A. V., S. S. Merkin, D. Arnett, L. Chambless, M. Massing, F. J. Nieto, P. Sorlie, M. Szklo, H. A. Tyroler, and R. L. Watson. 2001. "Neighborhood of Residence and Incidence of Coronary Heart Disease." *The New England Journal of Medicine* 345 (2): 99–106. doi:10.1056/NEJM200107123450205.

Federal Deposit Insurance Corporation. 2011. "2011 FDIC National Survey of Unbanked and Underbanked Households." https://www.fdic.gov/householdsurvey/2011/index.html.

———. 2016. "2015 FDIC National Survey of Unbanked and Underbanked Households." October 20. https://www.fdic.gov/householdsurvey/2015/2015report.pdf.

Health and Retirement Study, ([insert Product Name]) public use dataset. Produced and distributed by the University of Michigan with funding from the National Institute on Aging (grant number NIA U01AG009740). Ann Arbor, MI, (year).

Hogarth, Jeanne M., Christoslav E. Anguelov, and Jinhook Lee. 2005. "Who Has a Bank Account? Exploring Changes Over Time, 1989–2001." *Journal of Family and Economic Issues* 26 (1): 7–30. doi:10.1007/s10834-004-1410-6.

Hogarth, Jeanne M., Christoslav E. Anguelov, and Jinkook Lee. 2004. "Why Don't Households Have a Checking Account?" *Journal of Consumer Affairs* 38 (1): 1–34. doi:10.1111/j.1745-6606.2004.tb00463.x.

Lusardi, Annamaria. 2005. "Financial Education and the Saving Behavior of African-American and Hispanic Households." Hanover, New Hampshire: Department of Economics Dartmouth College.

Lusardi, Annamaria, and Olivia Mitchell. 2011. "Financial Literacy and Planning: Implications for Retirement Wellbeing." w17078. Cambridge, MA: National Bureau of Economic Research. http://www.nber.org/papers/w17078.pdf.

Mundlak, Yair. 1978. "On the Pooling of Time Series and Cross Section Data." *Econometrica* 46 (1): 69. doi:10.2307/1913646.

Northwood, Joyce M., and Sherrie L. W. Rhine. 2016. "Use of Bank and Nonbank Financial Services: Financial Decision Making by Immigrants and Native Born." SSRN Scholarly Paper ID 2826068. Rochester, NY: Social Science Research Network. https://papers.ssrn.com/abstract=2826068. Forthcoming in *Journal of Consumer Affairs*.

Ofstedal, Mary B., & Weir, David R. 2011. "Recruitment and retention of minority participants in the health and retirement study." *The Gerontologist, 51,* 8-20.

Osili, U. O. and Paulson, A. (2008) "What Can We Learn About Financial Access From U.S. Immigrants? The Role of Country of Origin Institutions and Immigrant Beliefs. " *World Bank Economic Review* 22(3), 431-455.

RAND HRS Data, Version O. Produced by the RAND Center for the Study of Aging, with funding from the National Institute on Aging and the Social Security Administration. Santa Monica, CA (August 2016).

Rhine, Sherrie L. W., and William H. Greene. 2006. "The Determinants of Being Unbanked for U.S. Immigrants." *Journal of Consumer Affairs* 40 (1): 21–40. doi:10.1111/j.1745-6606.2006.00044.x.

Robles, Bárbara J. 2009. "U.S. Latino Families, Heads of Household, and the Elderly: Emerging Trends in Financial Services and Asset-Building Behaviors." Madison, WI: Filene Research Institute. https://filene.org/assets/pdf-reports/195_Robles_US_Latino_Families.pdf.

———. 2014. "Economic Inclusion and Financial Education in Culturally Diverse Communities: Leveraging Cultural Capital and Whole-Family Learning: Economic Inclusion and Financial Education in Culturally Diverse Communities." *New Directions for Adult and Continuing Education* 2014 (141): 57–66. doi:10.1002/ace.20085.

Rubin, Julia Sass. 2007. *Financing Low Income Communities*. Russell Sage Foundation. http://muse.jhu.edu/book/15041.

Siegel, Paul, Elizabeth Martin, and Rosalind Bruno. 2007. Language Use and Linguistic Isolation: Historical Data and Methodological Issues. U.S. Census Bureau, Survey Methodology #2007-2. https://www.census.gov/srd/papers/pdf/ssm2007-02.pdf

Stevenson, Thomas H., and D. Anthony Plath. 2006. "Marketing Financial Services to Hispanic American Consumers: A Portfolio-centric Analysis." *Journal of Services Marketing* 20 (1): 37–50. doi:10.1108/08876040610646563.

Straight, Ronald L. 2002. “Wealth: Asset-Accumulation Differences by Race: SCF Data, 1995 and 1998.” *The American Economic Review* 92 (2): 330–34.

Thaler, Richard H. 1999. “Mental Accounting Matters.” *Journal of Behavioral Decision Making* 12 (3): 183–206. doi:10.1002/(SICI)1099-0771(199909)12:3<183::AID-BDM318>3.0.CO;2-F.

Vermilyea, Todd, and James A. Wilcox. 2002. “Who Is Unbanked, and Why: Results from a Large, New Survey of Low- and Moderate-Income Individuals.” *ResearchGate*, no. May (February): 442–68.

Wooldridge, Jeffrey M. 2010. “Econometric Analysis of Cross Section and Panel Data, Second Edition.” *MIT Press*. https://mitpress.mit.edu/books/econometric-analysis-cross-section-and-panel-data.

TABLE 1 – Individual- and Household-Level Variables: Summary Statistics

	Percentage/ Threshold	Mean	Standard Deviation	Minimum	Maximum
Ownership of bank account (No=0, Yes=1)		0.840	0.366	0	1
Race and ethnicity, financial respondent					
White, non-Hispanic (No=0, Yes=1)	75.21				
Black, non-Hispanic (No=0, Yes=1)	17.50				
Hispanic (No=0, Yes=1)	7.28				
Race and ethnicity, couple households					
White - White (No=0, Yes=1)	74.32				
White - Minority (No=0, Yes=1)	1.48				
Minority - Minority (No=0, Yes=1)	24.18				
Gender (Female =0, Male = 1)		0.429	0.495	0	1
Age		68.439	9.924	51	90
Education					
Less than high school (No=0, Yes=1)	24.68				
High school graduate (No=0, Yes=1)	31.29				
Some college or more (No=0,Yes=1)	44.02				
Couple Household (No=0, Yes=1)		0.499	0.500	0	1
Household size		2.024	1.141	1	18
Works (No=0, Yes=1)		0.358	0.479	0	1
Receiving Social Security (No=0, Yes=1)		0.632	0.482	0	1
Receiving Private Pension (No=0, Yes=1)		0.308	0.461	0	1
Household Annual Income (2012 $US)		55,821	248,075	0	60,000,000
Household Annual Income, tertiles					
Tertile 1	≤19,176				
Tertile 2	19,177 to 47,935				
Tertile 3	>47,936				
Household wealth (2012 $US)		404,115	1,126,671	-2,245,500	90,700,000
Household wealth, tertiles		2.045	0.810	1	3
Tertile 1	≤48,000				
Tertile 2	48,001 to 262,300				
Tertile 3	>262,300				

Home ownership					
No home ownership (No=0, Yes-1)	23.51				
Owns home with mortgage (No=0, Yes-1)	48.29				
Owns home without mortgage (No=0, Yes-1)	28.20				
Owns Vehicles (No=0, Yes-1)		0.829	0.376	0	1
Has Debt (No=0, Yes=1)		0.301	0.459	0	1
Overall Health index (standardized)		0.021	0.985	-3.966	1.724
Cognitive ability index (standardized)		0.022	0.973	-2.841	2.253
Cognitive ability index, quartiles					
Quartile 1	≤-0.665				
Quartile 2	-0.666 to 0.103				
Quartile 3	0.104 to 0.765				
Quartile 4	>0.765				
Nativity, 5 regions					
United States	94.57				
Mexico	1.16				
Central and South America, Cuba	1.30				
Caribbean	0.63				
Other	2.35				
Citizenship (No=0, Yes=1)		0.951	0.216	0	1
Social Security Number consent					
missing (No=0, Yes=1)	21.35				
refuse (No=0, Yes=1)	24.46				
provide (No=0, Yes=1)	54.20				
Spanish survey (No=0,Yes=1)		0.028	0.166	0	1

Notes: N=74,945. All individual-level variables refer to the household financial respondent. N=37,454 for percentages of race/ethnicity for couple households. Data on nativity was obtained from restricted version of HRS. Source: Health and Retirement Study, waves 2000, 2002, 2004, 2006, 2008, 2010, and 2012.

TABLE 2 – Neighborhood-Level Variables: Summary Statistics

	Mean	Standard Deviation	Minimum	Maximum
NSES index	-0.08	0.94	-3.83	3.54
Number of financial institutions (weighted by population)	0.02	0.06	0	3.45
Blacks residents, percentage	16.52	26.23	0	100
Hispanics residents, percentage	12.65	19.89	0	100
Whites residents, percentage	73.33	27.73	0	100
English language, percentage	82.44	18.56	0	100
Spanish language, percentage	10.95	17.13	0	100

Notes: N=74,945, unless stated otherwise. NSES index is the neighborhood socioeconomic status index constructed as the principal component of median household income, median household value, percentage of households with interest income, percentage of residents with high school, percentage of residents with college, and percentage of residents in managerial positions (we follow the methodology of Diez Roux et al. 2001). All variables correspond to the census tract where HRS households reside at the time of the HRS interview. Source: components of NSES index and the percentage of Blacks, Hispanics, and Whites residents, and English and Spanish languages are at the census tract level and taken from the United States Census of 2000 and the American Community Survey (ACS) of 2009, 2010 and 2012. Number of financial institutions at the census tract level is obtained from the Federal Deposit Insurance Corporation, 2015. We use population benchmarks from Census and ACS for constructing the weighted number of financial institutions.

TABLE 3. *Percentage of Financial Respondents 51 Years and Older Who Do Not Own a Bank Account at the Household Level by Race and Ethnicity*

	2000	2002	2004	2006	2008	2010	2012	2000-12
White (%)	10%	7%	7%	8%	7%	9%	11%	9%
Black (%)	39%	34%	32%	30%	30%	37%	38%	35%
Hispanic (%)	32%	31%	37%	35%	38%	42%	46%	38%
Observations	10,753	10,063	10,930	10,601	10,035	11,456	11,107	74,945

Notes: Ownership of a bank refers to whether the household owns a checking, saving, or money market account. Percentages are calculated using only the household financial respondent. We use year-specific weights to compute percentages in each year. For the percentage during the period 2000-2012, we use a base weight, which is the weight of the individual when it entered the survey. Source: Health and Retirement Study (HRS) 2000, 2002, 2004, 2006, 2008, 2010, and 2012

TABLE 4. *Determinants of Ownership of Bank Account, Race and Ethnicity for Financial Respondent – Correlated Random Effects (CRE) model*

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Black	-0.1481***	-0.1341***	-0.1189***	-0.1206***	-0.1196***	-0.1227***	-0.1202***
	(0.0052)	(0.0051)	(0.0052)	(0.0052)	(0.0053)	(0.0052)	(0.0053)
Hispanic	-0.1541***	-0.1389***	-0.1287***	-0.1177***	-0.1172***	-0.0847***	-0.0830***
	(0.0076)	(0.0075)	(0.0075)	(0.0083)	(0.0083)	(0.0088)	(0.0088)
Home owner, no mort.		-0.0081	-0.0085	-0.0084	-0.0085	-0.0086	-0.0080
		(0.0064)	(0.0064)	(0.0064)	(0.0064)	(0.0064)	(0.0064)
Home owner, w/mort.		0.0024	0.0020	0.0021	0.0020	0.0019	0.0024
		(0.0067)	(0.0067)	(0.0067)	(0.0067)	(0.0067)	(0.0067)
Vehicle ownership		0.0648***	0.0640***	0.0640***	0.0639***	0.0640***	0.0641***
		(0.0055)	(0.0055)	(0.0055)	(0.0055)	(0.0055)	(0.0055)
Debt ownership		0.0356***	0.0359***	0.0359***	0.0359***	0.0358***	0.0359***
		(0.0033)	(0.0033)	(0.0033)	(0.0033)	(0.0033)	(0.0033)
Overall Health Index			0.0067***	0.0067***	0.0067***	0.0068***	0.0068***
			(0.0025)	(0.0025)	(0.0025)	(0.0025)	(0.0025)
Cognition, quartile 2			0.0109***	0.0109***	0.0109***	0.0109***	0.0109***
			(0.0042)	(0.0042)	(0.0042)	(0.0042)	(0.0042)
Cognition, quartile 3			0.0164***	0.0164***	0.0164***	0.0165***	0.0166***
			(0.0047)	(0.0047)	(0.0047)	(0.0047)	(0.0047)
Cognition, quartile 4			0.0193***	0.0193***	0.0193***	0.0196***	0.0195***
			(0.0055)	(0.0055)	(0.0055)	(0.0055)	(0.0055)
Foreign born, Mexico				-0.1492***	-0.1492***	-0.0525*	-0.0513*
				(0.0284)	(0.0284)	(0.0295)	(0.0295)
Foreign born, SA,CA,CU				-0.0269	-0.0271	0.0534*	0.0532*
				(0.0283)	(0.0283)	(0.0290)	(0.0290)
Foreign born, Caribbean				0.0246	0.0248	0.0599*	0.0601**
				(0.0306)	(0.0306)	(0.0306)	(0.0306)
Foreign born, Other				-0.0313	-0.0303	-0.0256	-0.0255
				(0.0220)	(0.0220)	(0.0220)	(0.0220)
No citizenship				-0.0393*	-0.0388*	-0.0344	-0.0333
				(0.0232)	(0.0232)	(0.0231)	(0.0231)
SSN, refuse to provide					-0.0070	-0.0070	-0.0070
					(0.0054)	(0.0054)	(0.0054)
SSN, provided					-0.0021	-0.0021	-0.0022
					(0.0044)	(0.0044)	(0.0044)
Spanish survey						-0.1628***	-0.1625***
						(0.0141)	(0.0141)
NSES index							0.0046**
							(0.0021)
Ln(Finc. inst. weig.)							0.0007
							(0.0008)
R-sqr., overall	0.223	0.239	0.244	0.245	0.245	0.247	0.248

Notes: No. of obs.= 74,945, No. of ind. = 18,582. Significance denoted as *** p<0.01, ** p<0.05, * p<0.1. CA is Central America and SA South America. Estimated coefficients for male, education, age, age squared, couple, household size, income and wealth tertiles, employment, receive social security benefits and pension income, mean of all time variant variables (except NSES index and financial institutions), year and state dummies and constant are omitted in the interest of space. *See Table A5 in Appendix for full set of estimates*.

TABLE 5. *Determinants of Ownership of Bank Account, Race and Ethnicity for Financial Respondent (FR) and Spouse (S) – Correlated Random Effects (CRE) model*

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Mixed couple	-0.0335***	-0.0303**	-0.0283**	-0.0286**	-0.0287**	-0.0298**	-0.0288**
	(0.0123)	(0.0121)	(0.0120)	(0.0120)	(0.0120)	(0.0120)	(0.0120)
Minority couple	-0.1333***	-0.1195***	-0.1085***	-0.1074***	-0.1063***	-0.1010***	-0.0985***
	(0.0064)	(0.0063)	(0.0065)	(0.0067)	(0.0067)	(0.0067)	(0.0068)
Home owner, no mortgage		-0.0108	-0.0117	-0.0117	-0.0118	-0.0122	-0.0117
		(0.0102)	(0.0102)	(0.0102)	(0.0102)	(0.0102)	(0.0102)
Home owner, w/mortgage		-0.0021	-0.0028	-0.0028	-0.0030	-0.0033	-0.0029
		(0.0102)	(0.0102)	(0.0102)	(0.0102)	(0.0102)	(0.0102)
Vehicle ownership		0.0748***	0.0740***	0.0740***	0.0740***	0.0741***	0.0742***
		(0.0095)	(0.0095)	(0.0095)	(0.0095)	(0.0095)	(0.0095)
Debt ownership		0.0349***	0.0352***	0.0352***	0.0351***	0.0351***	0.0351***
		(0.0042)	(0.0042)	(0.0042)	(0.0042)	(0.0042)	(0.0042)
Overall Health Index			0.0068*	0.0068*	0.0069*	0.0069*	0.0069*
			(0.0035)	(0.0035)	(0.0035)	(0.0035)	(0.0035)
Cognition, quartile 2			0.0184***	0.0184***	0.0184***	0.0183***	0.0183***
			(0.0059)	(0.0059)	(0.0059)	(0.0059)	(0.0059)
Cognition, quartile 3			0.0228***	0.0228***	0.0228***	0.0228***	0.0229***
			(0.0064)	(0.0064)	(0.0064)	(0.0064)	(0.0064)
Cognition, quartile 4			0.0245***	0.0245***	0.0245***	0.0246***	0.0246***
			(0.0073)	(0.0073)	(0.0073)	(0.0073)	(0.0073)
Foreign born, Mexico				-0.1542***	-0.1530***	-0.0586	-0.0584
				(0.0356)	(0.0356)	(0.0373)	(0.0373)
Foreign born, SA, CA, Cuba				-0.0059	-0.0047	0.0855**	0.0837**
				(0.0353)	(0.0353)	(0.0369)	(0.0369)
Foreign born, Caribbean				0.0048	0.0065	0.0394	0.0393
				(0.0411)	(0.0411)	(0.0412)	(0.0412)
Foreign born, Other				-0.0506*	-0.0483*	-0.0468*	-0.0471*
				(0.0283)	(0.0283)	(0.0282)	(0.0282)
No citizenship				-0.0431	-0.0409	-0.0401	-0.0399
				(0.0302)	(0.0302)	(0.0302)	(0.0302)
SSN, refuse to provide					-0.0052	-0.0053	-0.0053
					(0.0073)	(0.0073)	(0.0073)
SSN, provided					-0.0009	-0.0009	-0.0009
					(0.0060)	(0.0060)	(0.0060)
Spanish survey						-0.1409***	-0.1409***
						(0.0168)	(0.0168)
NSES index							0.0042
							(0.0026)
Ln(Finc. inst. weig.)							0.0013
							(0.0010)
R-sqr, overall	0.189	0.202	0.205	0.207	0.207	0.208	0.209

Notes: No. of obs.= 37,454, No. of ind. = 9,850. Coefficients for mixed and minority couple indicators are reported (White couples are the reference group). Mixed couples are defined as those where one member is Black or Hispanic and the other person is White; minority couples are defined as those where both members are either Black or Hispanic; and White couples are defined as those where both members are White. Significance denoted as *** p<0.01, ** p<0.05, * p<0.1. CA is Central America and SA South America. Estimated coefficients for male, education, age, age squared, couple, household size, wealth and income tertiles, employment, receive social security benefits and pension income, mean of all time variant variables (except NSES index and financial institutions), year and state dummies and constant are omitted in the interest of space.

TABLE 6 - Determinants of the Minority Gap in Bank Account Ownership by SES Group (race/ethnicity of the household financial respondent)

Panel A	***Income (I)***		
	I < Median	***I ≥ Median***	***Chi-squared test***
Black	-0.1411***	-0.0779***	70.7
	(0.0072)	(0.0066)	[0.00]
Hispanic	-0.0952***	-0.0697***	4.89
	(0.0121)	(0.0106)	[0.02]
Panel B	***Wealth (W)***		
	W < Median	***W ≥ Median***	***Chi-squared test***
Black	-0.1283***	-0.0624***	41.89
	(0.0071)	(0.0069)	[0.00]
Hispanic	-0.0880***	-0.0508***	4.65
	(0.0122)	(0.0103)	[0.03]
Panel C	***Neighborhood Socio-Economic Status (NSES)***		
	NSES < Median	***NSES ≥ Median***	***Chi-squared test***
Black	-0.1166***	-0.1012***	5.26
	(0.0070)	(0.0077)	[0.02]
Hispanic	-0.0823***	-0.0812***	0.12
	(0.0124)	(0.0113)	[0.72]

Notes: No. of obs.= 74,945, No. of ind. = 18,582. Coefficients for Black and Hispanic indicators are reported (Whites are the reference group). They are estimated using the specification in column (7) of Table 4 and separately for the different groups indicated in the Table. Standard errors are in parentheses; significance level denoted as *** p<0.01, ** p<0.05, * p<0.1. We report a Chi-squared test (with p-value in brackets) for the equality of coefficients between groups. *See Table A10 in Appendix for full set of estimates*.

TABLE 7. Determinants of the Minority Gap in Bank Account Ownership Controlling for Race/Ethnicity and Language in Neighborhood (race/ethnicity of the financial respondent)

	(1)	(2)	(3)	(4)
Black	-0.1176***	-0.1143***	-0.1202***	-0.1173***
	(0.0065)	(0.0065)	(0.0053)	(0.0053)
Hispanic	-0.0758***	-0.1026***	-0.0757***	-0.1015***
	(0.0092)	(0.0089)	(0.0092)	(0.0089)
Spanish survey	-0.1569***		-0.1561***	
	(0.0142)		(0.0143)	
Blacks, percent	-0.0003	-0.0004*		
	(0.0002)	(0.0002)		
Hispanics, percent	-0.0004***	-0.0006***		
	(0.0001)	(0.0001)		
Whites, percent	-0.0002	-0.0003		
	(0.0002)	(0.0002)		
English language, percent			-0.0003	-0.0004
			(0.0002)	(0.0002)
Spanish language, percent			-0.0007**	-0.0010***
			(0.0003)	(0.0003)
R-sqr, overall	0.248	0.246	0.248	0.246

Notes: No. of obs.= 74,945, No. of ind. = 18,582. Significance denoted as *** p<0.01, ** p<0.05, * p<0.1. Other regressors are as in column (7) of Table (4). The full set of estimated coefficients is available upon request.

TABLE 8. Determinants of the Minority Gap in Bank Account Ownership by Race/Ethnicity and language at the census tract Group (race/ethnicity of the financial respondent)

Panel A	**Hispanics in census tract, percentage (H)**		
	H < Median	***H ≥ Median***	***Chi-squared test***
Black	-0.1225***	-0.1223***	0.01
	(0.0070)	(0.0074)	[0.90]
Hispanic	-0.0306	-0.0857***	1.99
	(0.0245)	(0.0096)	[0.15]
Panel B	***Spanish language census tract, percentage (S)***		
	S < Median	***S ≥ Median***	***Chi-squared test***
Black	-0.1249***	-0.1201***	0.03
	(0.0071)	(0.0071)	[0.86]
Hispanic	-0.0095	-0.0870***	5.07
	(0.0234)	(0.0097)	[0.02]

Notes: No. of obs.= 74,945, No. of ind. = 18,582. Coefficients for Black and Hispanic indicators are reported (Whites are the reference group). They are estimated using the specification in column (7) of Table 4 and separately for the different groups indicated in the Table. Standard errors are in parentheses; significance level denoted as *** p<0.01, ** p<0.05, * p<0.1. We report a Chi-squared test (with p-value in brackets) for the equality of coefficients between groups.

APPENDIX (ONLINE, SUPPLEMENTAL MATERIAL)

Table A1 - Description of Variable Construction and Source

Variable name	Description
Source: HRS (Health and Retirement Study). RAND HRS Version O.	
Ownership of bank account	The HRS asks "Do you [or your husband/wife/partner] have any checking or savings accounts or money market funds?" Ownership of bank account is a dichotomous indicator for financial inclusion, taking value 1 if the answer to this question is affirmative and 0 otherwise.
Race/ethnicity (Fin. Resp.)	Individuals are assigned to 3 mutually exclusive groups, White non-Hispanic, Black non-Hispanic, and Hispanic, after dropping respondents who report being of "other races" (about 5% of the sample).
Race/ethnicity (Couple)	We create the following 3 groups for couple race/ethnicity: 1) White-White, 2) White (Minority)-Minority (White), and 3) Minority-Minority.
Gender (Male)	Equal to 1 if male, 0 otherwise.
Age	Age in years.
Education	We use indicators for less than high school, high school graduate, and some college or more.
Couple Household	Indicator equal to 1 if financial respondent is in a couple household, 0 otherwise.
Household size	Number of people living in the household.
Works	Indicator equal to 1 if currently working for pay, 0 otherwise.
Receiving Soc. Sec.	Indicator equal to 1 if currently receiving social security benefits, 0 otherwise.
Receiving Priv. Pen.	Indicator equal to 1 if currently receiving a pension, 0 otherwise.
Income	Household total income in 2012 $US. Indicators for income tertiles used in the regressions.
Wealth	Household total wealth in 2012 $US. Indicators for wealth tertiles are used in the regressions.
Home and Mortgage ownership	We create indicators accounting for home and mortgage ownership. One for no home ownership and no mortgage, one for home ownership but no mortgage, and one for home ownership with mortgage.
Owns Vehicles	Indicator equal to 1 for vehicle ownership, 0 otherwise.
Has Debt	Indicator equal to 1 if household has debt, 0 otherwise.
Overall Health index	An overall health index is constructed following Michaud and van Soest (2008). We obtain the principal component of the following variables: self-reported health, severe condition indicator, mild condition indicator, CESD score, and at least one difficulty with activities of daily living. The severe condition indicator is equal to 1 if the individual ever suffered cancer or a malignant tumor of any kind except skin cancer; chronic lung disease except asthma such as chronic bronchitis or emphysema; heart attack, coronary heart disease, angina, congestive heart failure, or other heart problems; and/or stroke or transient ischemic attack (TIA). The mild condition indicator that is equal to 1 if the individual ever had high blood pressure or hypertension; diabetes or high blood sugar; emotional, nervous, or psychiatric problems; and/or arthritis or rheumatism. The health index is transformed so that higher values represent better health and standardized to have mean 0 and standard deviation 1.
Cognitive Ability index	Cognitive ability index is constructed using the principal component of two cognitive tests scores, namely the serial of 7 test score and the total word recall score. The serial 7 test score provides the number of correct subtractions in the serial 7s test. This test asks the individual to subtract 7 from the prior number, beginning with 100 for five trials. The total word recall variable is the sum of the

	immediate and delayed word recall scores (10 words recall). The index is standardized to have mean 0 and standard deviation 1.
Citizenship	Indicator equal to 1 if citizen, 0 otherwise.
SSN consent	Indicators for missing consent to share SSN (Social Security Number) for administrative data linkage, for no SSN consent, and for given SSN consent.
Spanish survey	Indicator equal to 1 if HRS survey was answered in Spanish, 0 otherwise. In all waves but 2000, there is a specific question about whether the questionnaire was administered in Spanish or English. In the 2000 wave, the percentage of the questionnaire that was answered in Spanish is provided. In this case, we set Spanish survey equal to 1 if this percentage is at least 75%.
Source: HRS (Health and Retirement Study). Cross-Wave Geographic Information (Detail). Restricted Data, accessed at RAND.	
Census tract	Census tract of the residence of the individual at the time the HRS wave.
State	State in which the individual resides at the time of the HRS wave. We created state dummies, which we include in our model.
Nativity (5 groups)	Separate individuals by the nativity in five groups. Indicator equal to 0 if not foreign born (United States), equal to 1 if born in Mexico, equal to 2 if born in Central and South America and Cuba, equal to 3 if born in a Caribbean country, and equal to 4 if born in other region.
Source: US Census and ACS (American Community Survey). Data purchased from GeoLytics.	
NSES index	The NSES index is constructed following Diez Roux et al. (2001) by estimating the principal component of the following variables: 1) median household income (natural log), 2) median value of housing units (natural log), 3) percent households with interest, dividend, or rental income, 4) percent of residents 25 years and older with a high school degree, 5) percent of residents 25 years and older with a college degree, and 6) percent of residents in executive, managerial, or professional specialty occupations. To construct this index we use data from the 2000 United States Census and the 2009, 2010 and 2012 American Community Survey (ACS). The reference geographic unit is a Census tract and the created NSES-DR index is associated to each HRS respondent using restricted HRS geographic identifiers and the time when the HRS survey was administered. Specifically, we use the NSES-DR index based on the 2000 Census for the HRS 2000, 2002 and 2004 waves; the one based on the 2009 ACS for the HRS 2006 and 2008 waves; the one based on the 2010 ACS for the HRS 2010 wave; and the one based on the 2012 ACS for the HRS 2012 wave.
Racial/ethnic composition of neighborhood	We created three indicators at the census tract level to account for racial/ethnic composition of the neighborhood: percent of residents in the census tract that are Black, Hispanic and White.
Language in neighborhood	We created two indicators at the census tract level to account for language spoken in the neighborhood: percent of residents in the census tract that are speak English and Spanish.
Source: FDIC(Federal Deposit Insurance Corporation). Data provided by the FDIC	
Number of financial institutions (weighted by population)	We use data from the Federal Deposit Insurance Corporation (FDIC, 2016) that identifies the location of each financial institution branch, and construct the number of financial institutions at the census tract level during the years 2000-2012. We construct a weighted indicator by dividing the number of financial institutions by the population in the census tract. In the empirical analysis, we consider the number (in natural log) of financial institutions in the census tract where the individual resides in the year of the survey. For those census tracts in which we did not observe that a financial institution was located, we set the number of financial institutions equal to zero. When taking the log, these observations were set equal to a number slightly below the minimum taken by the log-transformed variable (natural log of 0.5).

TABLE A2. Distribution of Race and Ethnicity by Wave
(analytic sample, financial respondents only)

Year		White, non-Hispanic	Black, non-Hispanic	Hispanic	Total
2000	Frequency	8,444	1,653	656	10,753
	Percent	*78.53*	*15.37*	*6.10*	*100*
2002	Frequency	7,885	1,542	636	10,063
	Percent	*78.36*	*15.32*	*6.32*	*100*
2004	Frequency	8,374	1,771	785	10,930
	Percent	*76.61*	*16.20*	*7.18*	*100*
2006	Frequency	8,137	1,681	783	10,601
	Percent	*76.76*	*15.86*	*7.39*	*100*
2008	Frequency	7,631	1,629	775	10,035
	Percent	*76.04*	*16.23*	*7.72*	*100*
2010	Frequency	8,097	2,453	906	11,456
	Percent	*70.68*	*21.41*	*7.91*	*100*
2012	Frequency	7,804	2,387	916	11,107
	Percent	*70.26*	*21.49*	*8.25*	*100*

Source: Health and Retirement Study, waves 2000, 2002, 2004, 2006, 2008, 2010, and 2012.

Table A3. Summary Statistics by Racial/Ethnic Groups, Selected Variables

	White		Black		(1) Mean	Hispanic		(2) Mean
	Mean	Std. Dev.	Mean	Std. Dev.	Difference	Mean	Std. Dev.	Difference
Ownership of bank account (No=0, Yes=1)	0.908	0.289	0.642	0.479	0.266	0.611	0.488	0.297
Education, less than high school (No=0, Yes=1)	0.186	0.389	0.383	0.486	-0.196	0.545	0.498	-0.359
Education, high school graduate (No=0, Yes=1)	0.337	0.473	0.261	0.439	0.076	0.186	0.389	0.152
Education, some college or more (No=0,Yes=1)	0.476	0.499	0.356	0.479	0.121	0.269	0.443	0.207
Age	69.189	9.970	65.910	9.441	3.279	66.775	9.370	2.414
Household wealth (2012 $US)	497,286	1,267,828	109,461	369,094	387,825	149,854	372,092	347,432
Household Annual Income, tertiles	63,169	284,387	34,212	46,126	28,958	31,853	48,582	31,316
Overall Health index (standardized)	0.097	0.951	-0.198	1.025	0.295	-0.232	1.101	0.328
Cognitive ability index (standardized)	0.193	0.893	-0.519	1.034	0.712	-0.429	0.986	0.622

Notes: N = 74,945 (N_{White} = 56,372, N_{Black} = 13,116 , $N_{Hispanic}$ = 5,457).
(1) Mean Difference = $Mean_{White} - Mean_{Black}$; all variable means are significantly different between Whites and Blacks at the 1 percent level.
(2) Mean Difference = $Mean_{White} - Mean_{Hispanic}$; all variable means are significantly different between Whites and Hispanic at the 1 percent level.

Table A4. Bank Account Ownership Wave-Transitions by Race and Ethnicity (percentages)

Whites, non-Hispanic			
		Wave t+1	
		No	Yes
Wave t	No	35	65
	Yes	7	93
	Total	**9**	**91**
Blacks, non-Hispanic			
		Wave t+1	
		No	Yes
Wave t	No	64	36
	Yes	20	80
	Total	**34**	**66**
Hispanics			
		Wave t+1	
		No	Yes
Wave t	No	66	34
	Yes	25	76
	Total	**40**	**60**

Source: HRS, 2000-2012. Numbers represent percentage of households transitioning from one bank ownership state in wave t to a different bank ownership state in wave t+1. For instance, the first entry for Whites indicates that 35% of households with no bank account in wave t have no bank account in wave t+1. Totals indicate the fractions of individuals without and with bank account over the observation period 2000-2012

TABLE A5. Determinants of Ownership of Bank Account, Race and Ethnicity for Financial Respondent – Correlated Random Effects (CRE) model.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Black	-0.1481***	-0.1341***	-0.1189***	-0.1206***	-0.1196***	-0.1227***	-0.1202***
	(0.0052)	(0.0051)	(0.0052)	(0.0052)	(0.0053)	(0.0052)	(0.0053)
Hispanic	-0.1541***	-0.1389***	-0.1287***	-0.1177***	-0.1172***	-0.0847***	-0.0830***
	(0.0076)	(0.0075)	(0.0075)	(0.0083)	(0.0083)	(0.0088)	(0.0088)
Home owner, no mort.		-0.0081	-0.0085	-0.0084	-0.0085	-0.0086	-0.0080
		(0.0064)	(0.0064)	(0.0064)	(0.0064)	(0.0064)	(0.0064)
Home owner, w/mort.		0.0024	0.0020	0.0021	0.0020	0.0019	0.0024
		(0.0067)	(0.0067)	(0.0067)	(0.0067)	(0.0067)	(0.0067)
Vehicle ownership		0.0648***	0.0640***	0.0640***	0.0639***	0.0640***	0.0641***
		(0.0055)	(0.0055)	(0.0055)	(0.0055)	(0.0055)	(0.0055)
Debt ownership		0.0356***	0.0359***	0.0359***	0.0359***	0.0358***	0.0359***
		(0.0033)	(0.0033)	(0.0033)	(0.0033)	(0.0033)	(0.0033)
Overall Health Index			0.0067***	0.0067***	0.0067***	0.0068***	0.0068***
			(0.0025)	(0.0025)	(0.0025)	(0.0025)	(0.0025)
Cognition, quartile 2			0.0109***	0.0109***	0.0109***	0.0109***	0.0109***
			(0.0042)	(0.0042)	(0.0042)	(0.0042)	(0.0042)
Cognition, quartile 3			0.0164***	0.0164***	0.0164***	0.0165***	0.0166***
			(0.0047)	(0.0047)	(0.0047)	(0.0047)	(0.0047)
Cognition, quartile 4			0.0193***	0.0193***	0.0193***	0.0196***	0.0195***
			(0.0055)	(0.0055)	(0.0055)	(0.0055)	(0.0055)
Foreign born, Mexico				-0.1492***	-0.1492***	-0.0525*	-0.0513*
				(0.0284)	(0.0284)	(0.0295)	(0.0295)
Foreign born, SA,CA,CU				-0.0269	-0.0271	0.0534*	0.0532*
				(0.0283)	(0.0283)	(0.0290)	(0.0290)
Foreign born, Caribbean				0.0246	0.0248	0.0599*	0.0601**
				(0.0306)	(0.0306)	(0.0306)	(0.0306)
Foreign born, Other				-0.0313	-0.0303	-0.0256	-0.0255
				(0.0220)	(0.0220)	(0.0220)	(0.0220)
No citizenship				-0.0393*	-0.0388*	-0.0344	-0.0333
				(0.0232)	(0.0232)	(0.0231)	(0.0231)
SSN, refuse to provide					-0.0070	-0.0070	-0.0070
					(0.0054)	(0.0054)	(0.0054)
SSN, provided					-0.0021	-0.0021	-0.0022
					(0.0044)	(0.0044)	(0.0044)
Spanish survey						-0.1628***	-0.1625***
						(0.0141)	(0.0141)
NSES index							0.0046**
							(0.0021)
Ln(Finc. inst. weig.)							0.0007

							(0.0008)
Gender	-0.0376***	-0.0387***	-0.0362***	-0.0360***	-0.0361***	-0.0355***	-0.0355***
	(0.0039)	(0.0038)	(0.0038)	(0.0038)	(0.0038)	(0.0038)	(0.0038)
Age	0.0133***	0.0116**	0.0100**	0.0100**	0.0098**	0.0100**	0.0099**
	(0.0045)	(0.0045)	(0.0045)	(0.0045)	(0.0045)	(0.0045)	(0.0045)
Age squared	-0.0001***	-0.0001***	-0.0001**	-0.0001**	-0.0000**	-0.0000**	-0.0000**
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
High school graduate	0.0724***	0.0648***	0.0498***	0.0482***	0.0483***	0.0458***	0.0455***
	(0.0050)	(0.0049)	(0.0050)	(0.0050)	(0.0050)	(0.0050)	(0.0050)
Some college or more	0.0844***	0.0740***	0.0529***	0.0514***	0.0513***	0.0487***	0.0476***
	(0.0051)	(0.0051)	(0.0052)	(0.0052)	(0.0052)	(0.0052)	(0.0053)
Couple household	-0.0042	-0.0096	-0.0097	-0.0097	-0.0096	-0.0095	-0.0095
	(0.0062)	(0.0063)	(0.0063)	(0.0063)	(0.0063)	(0.0063)	(0.0063)
Household size	-0.0014	-0.0011	-0.0011	-0.0011	-0.0011	-0.0011	-0.0011
	(0.0018)	(0.0018)	(0.0018)	(0.0018)	(0.0018)	(0.0018)	(0.0018)
Income, tertile 2	0.0290***	0.0271***	0.0268***	0.0268***	0.0268***	0.0267***	0.0267***
	(0.0043)	(0.0043)	(0.0043)	(0.0043)	(0.0043)	(0.0043)	(0.0043)
Income, tertile 3	0.0366***	0.0350***	0.0346***	0.0346***	0.0346***	0.0344***	0.0343***
	(0.0054)	(0.0054)	(0.0054)	(0.0054)	(0.0054)	(0.0054)	(0.0054)
Wealth, tertile 2	0.0458***	0.0468***	0.0463***	0.0463***	0.0463***	0.0463***	0.0462***
	(0.0048)	(0.0050)	(0.0050)	(0.0050)	(0.0050)	(0.0050)	(0.0050)
Wealth, tertile 3	0.0704***	0.0724***	0.0718***	0.0718***	0.0718***	0.0718***	0.0716***
	(0.0064)	(0.0066)	(0.0066)	(0.0066)	(0.0066)	(0.0066)	(0.0066)
Works	0.0182***	0.0172***	0.0163***	0.0163***	0.0163***	0.0164***	0.0164***
	(0.0043)	(0.0043)	(0.0043)	(0.0043)	(0.0043)	(0.0043)	(0.0043)
Receives social security	0.0125***	0.0126***	0.0121**	0.0121**	0.0121**	0.0118**	0.0118**
	(0.0048)	(0.0048)	(0.0048)	(0.0048)	(0.0048)	(0.0048)	(0.0048)
Receives pension	0.0183***	0.0172***	0.0168***	0.0168***	0.0168***	0.0168***	0.0168***
	(0.0043)	(0.0043)	(0.0043)	(0.0043)	(0.0043)	(0.0043)	(0.0043)
Coefficients of mean for time variant variables							
Age	-0.0132**	-0.0167***	-0.0167***	-0.0169***	-0.0156***	-0.0156***	-0.0155***
	(0.0056)	(0.0056)	(0.0056)	(0.0056)	(0.0057)	(0.0057)	(0.0057)
Age squared	0.0001***	0.0001***	0.0001***	0.0001***	0.0001***	0.0001***	0.0001***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Household couple	-0.0016	-0.0125	-0.0123	-0.0121	-0.0120	-0.0105	-0.0099
	(0.0081)	(0.0081)	(0.0081)	(0.0081)	(0.0081)	(0.0081)	(0.0081)
Household size	-0.0127***	-0.0114***	-0.0107***	-0.0107***	-0.0109***	-0.0106***	-0.0106***
	(0.0027)	(0.0027)	(0.0027)	(0.0027)	(0.0027)	(0.0027)	(0.0027)
Income, tertile 2	0.1078***	0.0739***	0.0642***	0.0638***	0.0636***	0.0611***	0.0608***
	(0.0080)	(0.0080)	(0.0080)	(0.0080)	(0.0080)	(0.0080)	(0.0080)
Income, tertile 3	0.1388***	0.1101***	0.0955***	0.0947***	0.0945***	0.0929***	0.0917***
	(0.0100)	(0.0100)	(0.0100)	(0.0100)	(0.0100)	(0.0100)	(0.0100)
Wealth, tertile 2	0.0986***	0.0746***	0.0670***	0.0666***	0.0673***	0.0653***	0.0646***
	(0.0075)	(0.0086)	(0.0086)	(0.0086)	(0.0086)	(0.0086)	(0.0086)

Wealth, tertile 3	0.0585***	0.0567***	0.0448***	0.0436***	0.0445***	0.0426***	0.0396***
	(0.0090)	(0.0102)	(0.0103)	(0.0103)	(0.0103)	(0.0103)	(0.0103)
Works	0.0158**	0.0017	-0.0085	-0.0084	-0.0083	-0.0085	-0.0086
	(0.0073)	(0.0072)	(0.0074)	(0.0074)	(0.0074)	(0.0073)	(0.0073)
Receives social security	-0.0096	-0.0107	-0.0118	-0.0111	-0.0105	-0.0083	-0.0082
	(0.0097)	(0.0095)	(0.0095)	(0.0095)	(0.0095)	(0.0095)	(0.0095)
Receives pension	0.0228***	0.0161**	0.0128*	0.0129*	0.0128*	0.0114*	0.0115*
	(0.0068)	(0.0067)	(0.0067)	(0.0067)	(0.0067)	(0.0067)	(0.0067)
Home owner, no mortgage		0.0073	0.0098	0.0119	0.0120	0.0129	0.0142
		(0.0093)	(0.0092)	(0.0092)	(0.0092)	(0.0092)	(0.0092)
Home owner, w/mortgage		0.0018	0.0029	0.0040	0.0041	0.0047	0.0047
		(0.0096)	(0.0096)	(0.0096)	(0.0096)	(0.0096)	(0.0096)
Vehicle ownership		0.0680***	0.0589***	0.0588***	0.0593***	0.0563***	0.0562***
		(0.0085)	(0.0085)	(0.0085)	(0.0085)	(0.0085)	(0.0085)
Debt ownership		0.0497***	0.0463***	0.0456***	0.0450***	0.0441***	0.0441***
		(0.0064)	(0.0064)	(0.0064)	(0.0064)	(0.0064)	(0.0064)
Overall Health Index			0.0029	0.0029	0.0030	0.0028	0.0028
			(0.0033)	(0.0033)	(0.0033)	(0.0033)	(0.0033)
Cognition, quartile 2			0.0596***	0.0592***	0.0594***	0.0586***	0.0585***
			(0.0086)	(0.0086)	(0.0086)	(0.0085)	(0.0085)
Cognition, quartile 3			0.0720***	0.0718***	0.0718***	0.0716***	0.0714***
			(0.0086)	(0.0086)	(0.0086)	(0.0086)	(0.0086)
Cognition, quartile 4			0.0688***	0.0692***	0.0691***	0.0696***	0.0689***
			(0.0098)	(0.0098)	(0.0098)	(0.0098)	(0.0098)
SSN, refuse to provide					-0.0079	-0.0082	-0.0083
					(0.0096)	(0.0096)	(0.0096)
SSN, provided					-0.0027	-0.0026	-0.0024
					(0.0089)	(0.0089)	(0.0089)
R-sqr, within	0.0128	0.0173	0.0177	0.0177	0.0177	0.0182	0.0182
R-sqr, between	0.355	0.380	0.386	0.388	0.388	0.391	0.391
R-sqr, overall	0.223	0.239	0.244	0.245	0.245	0.247	0.248

Notes: No. of obs.= 74,945, No. of ind. = 18,582. Significance denoted as *** p<0.01, ** p<0.05, * p<0.1. CA is Central America and SA South America. Estimated coefficients for year and state dummies and constant are omitted in the interest of space.

TABLE A6. *Determinants of Ownership of Bank Account, Race and Ethnicity for Financial Respondent – Random Effects (RE) Model*

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Black	-0.1657***	-0.1508***	-0.1405***	-0.1421***	-0.1416***	-0.1445***	-0.1404***
	(0.0051)	(0.0050)	(0.0050)	(0.0050)	(0.0050)	(0.0050)	(0.0052)
Hispanic	-0.1734***	-0.1592***	-0.1515***	-0.1394***	-0.1390***	-0.1027***	-0.0997***
	(0.0076)	(0.0074)	(0.0074)	(0.0082)	(0.0082)	(0.0087)	(0.0087)
Home owner, no mort.		0.0108**	0.0098**	0.0110**	0.0111**	0.0109**	0.0125***
		(0.0045)	(0.0045)	(0.0045)	(0.0045)	(0.0045)	(0.0045)
Home owner, w/mort.		0.0236***	0.0217***	0.0224***	0.0224***	0.0221***	0.0226***
		(0.0047)	(0.0047)	(0.0047)	(0.0047)	(0.0047)	(0.0047)
Vehicle ownership		0.1076***	0.1024***	0.1025***	0.1026***	0.1010***	0.1010***
		(0.0042)	(0.0042)	(0.0042)	(0.0042)	(0.0042)	(0.0042)
Debt ownership		0.0494***	0.0499***	0.0497***	0.0496***	0.0493***	0.0494***
		(0.0028)	(0.0028)	(0.0028)	(0.0028)	(0.0028)	(0.0028)
Overall Health Index			0.0115***	0.0115***	0.0116***	0.0116***	0.0114***
			(0.0016)	(0.0016)	(0.0016)	(0.0016)	(0.0016)
Cognition, quartile 2			0.0345***	0.0344***	0.0344***	0.0342***	0.0341***
			(0.0036)	(0.0036)	(0.0036)	(0.0036)	(0.0036)
Cognition, quartile 3			0.0470***	0.0469***	0.0469***	0.0469***	0.0467***
			(0.0039)	(0.0039)	(0.0039)	(0.0039)	(0.0039)
Cognition, quartile 4			0.0522***	0.0522***	0.0522***	0.0525***	0.0519***
			(0.0045)	(0.0045)	(0.0045)	(0.0045)	(0.0045)
Foreign born, Mexico				-0.1559***	-0.1558***	-0.0489*	-0.0469
				(0.0285)	(0.0285)	(0.0296)	(0.0296)
Foreign born, SA,CA,CU				-0.0286	-0.0285	0.0605**	0.0601**
				(0.0283)	(0.0283)	(0.0291)	(0.0291)
Foreign born, Caribbean				0.0166	0.0167	0.0557*	0.0556*
				(0.0307)	(0.0307)	(0.0307)	(0.0307)
Foreign born, Other				-0.0348	-0.0340	-0.0288	-0.0287
				(0.0221)	(0.0221)	(0.0220)	(0.0220)
No citizenship				-0.0399*	-0.0397*	-0.0349	-0.0331
				(0.0233)	(0.0233)	(0.0232)	(0.0232)
SSN, refuse to provide					-0.0101**	-0.0102**	-0.0103**
					(0.0043)	(0.0042)	(0.0042)
SSN, provided					-0.0034	-0.0033	-0.0032
					(0.0037)	(0.0037)	(0.0037)
Spanish survey						-0.1796***	-0.1790***
						(0.0141)	(0.0141)
NSES index							0.0068***
							(0.0020)
Ln(Finc. inst. weig.)							0.0009
							(0.0008)
R-sqr, overall	0.214	0.232	0.236	0.237	0.237	0.240	0.240

Notes: No. of obs.= 74,945, No. of ind. = 18,582. Significance denoted as *** p<0.01, ** p<0.05, * p<0.1. CA is Central America and SA South America. Estimated coefficients for male, age, age squared, education, couple, household size, income and wealth tertiles, work status, receive social security benefits and pension income, year and state dummies and constant are omitted in the interest of space.

TABLE A7. *Distribution of Race and Ethnicity for Financial Respondent (FR) and Spouse (S) by Waves*

Year		FR White – S White	FR/S White - S/FR Minority	FR Minority - S Minority	Total
2000	Frequency	4,606	128	854	5,588
	Percent	*82.43*	*2.29*	*15.28*	*100*
2002	Frequency	4,175	113	807	5,095
	Percent	*81.94*	*2.22*	*15.84*	*100*
2004	Frequency	4,458	150	933	5,541
	Percent	*80.45*	*2.71*	*16.84*	*100*
2006	Frequency	4,297	153	864	5,314
	Percent	*80.86*	*2.88*	*16.26*	*100*
2008	Frequency	3,989	143	847	4,979
	Percent	*80.12*	*2.87*	*17.01*	*100*
2010	Frequency	4,221	219	1,147	5,587
	Percent	*75.55*	*3.92*	*20.53*	*100*
2012	Frequency	4,004	210	1,136	5,350
	Percent	*74.84*	*3.93*	*21.23*	*100*

Source: Health and Retirement Study, waves 2000, 2002, 2004, 2006, 2008, 2010, and 2012.

TABLE A8-*Determinants of Ownership of Bank Account, Race and Ethnicity for Financial Respondent (FR) and Spouse (S) – Correlated Random Effects (CRE) model – reducing sample for households where FR & S have same level of education*

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Mixed couple	-0.0383**	-0.0328*	-0.0310*	-0.0315*	-0.0313*	-0.0329**	-0.0326*
	(0.0171)	(0.0168)	(0.0168)	(0.0168)	(0.0168)	(0.0168)	(0.0168)
Minority couple	-0.1368***	-0.1265***	-0.1172***	-0.1203***	-0.1201***	-0.1144***	-0.1131***
	(0.0086)	(0.0085)	(0.0087)	(0.0090)	(0.0090)	(0.0091)	(0.0092)

Notes: No. of obs.= 21,018, No. of ind. = 5,403. Significance denoted as *** p<0.01, ** p<0.05, * p<0.1.

TABLE A9-*Determinants of Ownership of Bank Account, Race and Ethnicity for Financial Respondent (FR) and Spouse (S) – Correlated Random Effects (CRE) model – using 4 categories*

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
FR-White, S-Min	-0.0221	-0.0201	-0.0203	-0.0214	-0.0213	-0.0216	-0.0208
	(0.0158)	(0.0155)	(0.0155)	(0.0154)	(0.0154)	(0.0154)	(0.0154)
FR-Min, S-White	-0.0495***	-0.0447**	-0.0395**	-0.0388**	-0.0390**	-0.0413**	-0.0402**
	(0.0187)	(0.0183)	(0.0183)	(0.0183)	(0.0183)	(0.0183)	(0.0183)
Minority couple	-0.1334***	-0.1196***	-0.1086***	-0.1076***	-0.1064***	-0.1011***	-0.0987***
	(0.0064)	(0.0063)	(0.0065)	(0.0067)	(0.0067)	(0.0067)	(0.0068)

Notes: No. of obs.= 37,454, No. of ind. =9,850. Significance denoted as *** p<0.01, ** p<0.05, * p<0.1.

TABLE A10. *Determinants of Ownership of Bank Account, Race and Ethnicity for Financial Respondent by Income, Wealth, and NSES index below or above or equal Median Groups – Correlated Random Effects (CRE) model*

	(1) I<Med	(2) I≥Med	(3) W<Med	(4) W≥Med	(5) N<Med	(6) N≥Med
Black	-0.1411***	-0.0779***	-0.1283***	-0.0624***	-0.1166***	-0.1012***
	(0.0072)	(0.0066)	(0.0071)	(0.0069)	(0.0070)	(0.0077)
Hispanic	-0.0952***	-0.0697***	-0.0880***	-0.0508***	-0.0823***	-0.0812***
	(0.0121)	(0.0106)	(0.0122)	(0.0103)	(0.0124)	(0.0113)
Home owner, no mort.	-0.0086	-0.0019	0.0056	-0.0087	-0.0106	-0.0142*
	(0.0106)	(0.0086)	(0.0101)	(0.0092)	(0.0110)	(0.0086)
Home owner, w/mort.	-0.0029	0.0087	0.0065	0.0024	0.0055	-0.0042
	(0.0118)	(0.0084)	(0.0105)	(0.0097)	(0.0116)	(0.0087)
Vehicle ownership	0.0743***	0.0417***	0.0774***	0.0190**	0.0854***	0.0365***
	(0.0083)	(0.0085)	(0.0086)	(0.0076)	(0.0090)	(0.0072)
Debt ownership	0.0499***	0.0197***	0.0522***	0.0131***	0.0462***	0.0202***
	(0.0060)	(0.0037)	(0.0057)	(0.0037)	(0.0054)	(0.0042)
Overall Health Index	0.0070*	0.0050	0.0086**	0.0034	0.0074*	0.0059*
	(0.0040)	(0.0032)	(0.0042)	(0.0029)	(0.0040)	(0.0032)
Cognition, quartile 2	0.0105	0.0142**	0.0160**	0.0015	0.0109*	0.0082
	(0.0066)	(0.0059)	(0.0069)	(0.0050)	(0.0065)	(0.0056)
Cognition, quartile 3	0.0164**	0.0144**	0.0185**	0.0089*	0.0177**	0.0111*
	(0.0078)	(0.0062)	(0.0081)	(0.0054)	(0.0075)	(0.0061)
Cognition, quartile 4	0.0198**	0.0199***	0.0242**	0.0106*	0.0119	0.0204***
	(0.0100)	(0.0068)	(0.0100)	(0.0060)	(0.0091)	(0.0068)
Foreign born, Mexico	-0.0340	-0.0928**	-0.0512	-0.0593	-0.0655	-0.0334
	(0.0377)	(0.0413)	(0.0401)	(0.0363)	(0.0413)	(0.0400)
Foreign born, SA,CA,CU	0.0543	0.0232	0.0470	0.0354	0.0639	0.0616*
	(0.0380)	(0.0370)	(0.0412)	(0.0315)	(0.0430)	(0.0349)
Foreign born, Caribbean	0.0572	0.0214	0.0450	0.0587*	0.0515	0.0577
	(0.0393)	(0.0419)	(0.0421)	(0.0345)	(0.0449)	(0.0358)
Foreign born, Other	-0.0232	-0.0393	-0.0179	-0.0172	-0.0234	-0.0183
	(0.0300)	(0.0270)	(0.0323)	(0.0230)	(0.0329)	(0.0265)
No citizenship	-0.0301	-0.0372	-0.0410	-0.0100	-0.0359	-0.0167
	(0.0309)	(0.0291)	(0.0334)	(0.0245)	(0.0347)	(0.0277)
SSN, refuse to provide	-0.0120	-0.0052	-0.0073	-0.0057	-0.0082	0.0021
	(0.0096)	(0.0062)	(0.0101)	(0.0055)	(0.0093)	(0.0066)
SSN, provided	-0.0001	-0.0056	-0.0014	-0.0030	-0.0032	0.0073
	(0.0077)	(0.0051)	(0.0081)	(0.0045)	(0.0075)	(0.0054)
Spanish survey	-0.1661***	-0.1207***	-0.1577***	-0.1596***	-0.1294***	-0.2308***
	(0.0178)	(0.0231)	(0.0183)	(0.0213)	(0.0189)	(0.0198)
NSES index	0.0078**	0.0049**	0.0096***	0.0050**		
	(0.0033)	(0.0022)	(0.0035)	(0.0020)		
Ln(Finc. inst. weig.)	0.0001	0.0016*	0.0003	0.0009	0.0012	0.0004
	(0.0013)	(0.0009)	(0.0013)	(0.0008)	(0.0013)	(0.0010)
Observations	37,469	37,476	37,470	37,475	37,472	37,473
R-sqr, overall	0.251	0.0839	0.226	0.0580	0.261	0.166

Notes: No. of obs.= 74,945, No. of ind. = 18,582. Significance denoted as *** p<0.01, ** p<0.05, * p<0.1. CA is Central America and SA South America. Estimated coefficients for male, age, age squared, education, couple, household size, income and wealth tertiles, work status, receive social security benefits and pension income, mean of all time variant variables (except NSES index and financial institutions), year and state dummies and constant are omitted in the interest of space.