Understanding the Racial/Ethnic Gap in Bank Account Ownership among Older Adults

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Abstract

The observed racial/ethnic gap in bank account ownership among older adults is substantial. We investigate which socio-economic, cognitive and cultural barriers underlie it. As additional potential barriers are accounted for, the residual gaps in financial inclusion with respect to Whites is reduced by 14 percent for Blacks and 47 percent for Hispanics. We find that citizenship and "taste for privacy" play a limited role for both minority groups, while asset ownership, health, cognitive ability and cultural hurdles contribute substantially to the gap. For Hispanics, language barriers explain most of the gap, while household- and neighborhood-level socioeconomic characteristics, such as income and wealth, 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. This suggests that mixed couples are less concerned with the economic and cultural barriers facing minority couples.

Keywords: financial inclusion, unbanked, Hispanics; Blacks; older population

JEL: G21, J15

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

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[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) different types of 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, beyond and above the explanatory power of conventional socioeconomic characteristics, like education, income, and wealth, that have been used in the previous work. Moreover, we rely on restricted geographic identifiers and 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.

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[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 14 percent for Blacks and by 47 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 different types of financial 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, at the individual and neighborhood level, is a critical determinant of the existing gap in bank account ownership between Hispanics and Whites. Our results also show that minority couples are 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 are cautious in interpreting these findings as evidence of spousal spillovers in financial-decision making as our empirical strategy does not allow us to completely rule out assortative matching 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. 2012; Robles 2014), alongside with legal status and long-term plans for residency (Datta 2011). 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 2009). 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; Robles 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 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).

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[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.

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, saving or money market 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).[4] Table A1 in the Appendix presents the distribution of race and ethnicity of financial respondent in our sample by wave.[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 and state dummies are also included to account for general trends in bank account ownership over the observation period and at the state level.

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 different types of assets (ownership of home, vehicle, CDs, stocks, and bonds) and debt. 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

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[4] Individuals from other races represent 12.8 percent of the sample of individuals who participate in the HRS during the period 2000-2012 (627 out of 22,423).
[5] For the sake of simplicity, throughout the text we often refer to Whites non-Hispanics as Whites and to Blacks non-Hispanics as Blacks.

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 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 geo codes, 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 ZIP code where HRS respondents reside at the time of the interview. We also consider in our analysis the racial/ethnic composition and primary language spoken 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 the Appendix in Table A2. We include in all estimations state dummies to control for state characteristics that can be relevant to bank account ownership.

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:

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

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:

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

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

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

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

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

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 $\eta_i = \gamma \bar{x}_i' + v_i$, where $\bar{x}_i$ denotes individual-specific time averages and $E[v_i|\bar{x}_i] = 0$, equation (4) can be rewritten as:

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

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 $E[v_i|z_i, x_{it}] = 0$ 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 former 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 latter 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 10 percent of non-Hispanic White households do not own a bank account, 39 and 32 percent of Black and Hispanic households do not own a bank account, respectively. Interestingly, the fraction of unbanked households increased significantly for all groups around the time of the

Great Recession (December 2007-June 2009), but returned to the pre-crisis level thereafter. When looking at cross-wave transitions (Table A3 in the Appendix), we observe that the 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.[6] 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).[7]

In our baseline specification, Blacks and Hispanics are less likely to own a bank account than Whites by 14 and 15 percentage points, respectively. 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 14 percent for Blacks and 47 percent for Hispanics.

Among the determinants of the gap, ownership of different types of assets, especially financial ones, accounts for about 2 percentage points for both minority groups. We observe a positive correlation between health and financial inclusion and an apparent cognition gradient in

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[6] The very same regressions are also estimated via RE. The corresponding results are presented in Table A5 in the Appendix.

[7] The estimated coefficients for all variables included in the CRE model is provided in Table A4 in the Appendix.

the probability of owning a bank account. Together, physical and cognitive health account for 1 percentage point of the racial/ethnic gap. An important hurdle to financial inclusion among Hispanics is language. 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 7 percentage points). Characteristics of the neighborhood where the individual currently resides, such a neighborhood SES index and number of financial institutions (weighted by population), do not substantially contribute to explain 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 A5 in the Appendix, Column 7), the gaps for Blacks and Hispanics are 14 and 10 percentage points, respectively. These estimated gaps are reduced to 12 and 8, respectively, when using CRE, which allows to better control for unobserved individual heterogeneity in financial decisions.

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/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 A6 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. 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). While we control for a wide range of variables that could drive such differences between mixed and minority couples (e.g., education, income, wealth, cognitive ability, neighborhood characteristics, etc.), we cannot rule out the possibility of them being determined by assortative matching: couple members with different racial/ethnic backgrounds may have similar (unobservable) preferences for financial planning and adoption of financial instruments. To the extent that the CRE model captures these household-level preferences for financial choices, our results may point to the presence of spillovers within mixed couples that may help reduce cultural barriers towards financial inclusion faced by only minority households.

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 (23 percent decrease) lower in the full model. Asset ownership, health, cognitive ability, and language barriers are the factors contributing the most to this reduction. 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.

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 A7 in the Appendix has the full set of estimates). As can be seen from Panel A of Table 6, for Blacks below median income, the probability of owning a bank account is 13 percentage points lower than for their White counterparts. This gap is reduced to 6 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. In contrast, there is no evidence of differential gap in bank account ownership between Hispanics across different income groups.

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

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12 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. This analysis shows little evidence of differential gaps. For both Blacks and Hispanics 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 only for Blacks). These findings confirm the limited role of community spillovers and supply-side factors, beyond and above the influence of individual-level SES and circumstances, in explaining the minority gap in bank account ownership.

We explore further the role of neighborhood factors, focusing on 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. Adding these controls does not reduce the gap for Blacks, but greatly affect the estimated coefficient for Hispanics. Notably, the neighborhood indicators for race/ethnicity and language at the census tract level account for the large reduction in the Hispanic-White gap that we have so far attributed to lack of English proficiency. 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 remains virtually unchanged at 7.5 percentage points.

To better understand the role that neighborhood racial composition and language play in explaining the gap for Hispanics, 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 about 9 percentage points less likely than Whites to own a bank account in census tracts with above-median percentage of Spanish-speaking individuals. Coupled with the results in Panel C of Table 7, which showed no evidence of differential gaps by overall neighborhood SES, these findings confirm that language is perhaps the most salient barrier preventing older Hispanics from accessing financial services.

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 matching 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 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 14 percent and 47 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, 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 (9 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 as one of the most important barriers towards financial inclusion for older Hispanic households. Interestingly, conditional on being in an area where most individuals speak Spanish, answering the HRS in Spanish does not contribute further to explain difference in bank account ownership between Whites and Hispanics.

Hurdles towards financial inclusion are different across minority groups. For Hispanics, acculturation and language barriers explain the gap in bank account ownership with respect to Whites to a larger degree than other factors. For Blacks, household- and neighborhood-level socioeconomic characteristics, such as income and wealth appear to be the most important factors underlying the gap in bank account ownership with respect to Whites.

Our results also offer suggestive evidence of spousal effects in financial decisions. After controlling for a wide range of household variables, including mean income and wealth over the observation period to capture household-specific attitudes towards managing finances, we estimate a significantly smaller residual gap between "mixed" and White couples than between minority and White couples. This suggests that mixed couples are less concerned with the economic and cultural 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.

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

	Percentage/ Threshold	Mean	Standard Deviation	Minimum	Maximum
Ownership of bank account (No=0, Yes=1)		0.839	0.367	0	1
Race and ethnicity, financial respondent					
White, non-Hispanic (No=0, Yes=1)	75.06				
Black, non-Hispanic (No=0, Yes=1)	17.63				
Hispanic (No=0, Yes=1)	7.31				
Race and ethnicity, couple households					
White - White (No=0, Yes=1)	74.17				
White - Minority (No=0, Yes=1)	1.49				
Minority - Minority (No=0, Yes=1)	24.34				
Gender (Female =0, Male = 1)		0.429	0.495	0	1
Age		68.434	9.931	51	90
Education					
Less than high school (No=0, Yes=1)	19.99				
High school graduate (No=0, Yes=1)	58.49				
Some college or more (No=0,Yes=1)	21.53				
Couple Household (No=0, Yes=1)		0.499	0.500	0	1
Household size		2.025	1.142	1	18
Works (No=0, Yes=1)		0.358	0.480	0	1
Receiving Social Security (No=0, Yes=1)		0.632	0.482	0	1
Receiving Private Pension (No=0, Yes=1)		0.282	0.450	0	1
Household Annual Income (2012 $US)		55,201	247,509	0	60,000,000
Household Annual Income, tertiles					
Tertile 1	≤18,988				
Tertile 2	18,989 to 46,524				
Tertile 3	>46,524				
Household wealth (2012 $US)		404010	1131139	-2245500	90700000
Household wealth, tertiles		2.045	0.810	1	3
Tertile 1	≤51,650				
Tertile 2	51,651 to 270,000				
Tertile 3	>270,000				

		Mean	SD	Min	Max
Home ownership					
No home ownership (No=0, Yes-1)	23.54				
Owns home with mortgage (No=0, Yes-1)	48.27				
Owns home without mortgage (No=0, Yes-1)	28.20				
Owns Vehicles (No=0, Yes-1)		0.829	0.377	0	1
Owns CDs (No=0, Yes=1)		0.273	0.445	0	1
Owns Stocks (No=0, Yes=1)		0.219	0.413	0	1
Owns Bonds (No=0, Yes=1)		0.066	0.249	0	1
Has Debt (No=0, Yes=1)		0.301	0.459	0	1
Overall Health index (standardized)		0.005	0.992	-4.017	1.724
Cognitive ability index (standardized)		0.022	0.973	-2.841	2.253
Cognitive ability index, quartiles					
Quartile 1	≤-0.638				
Quartile 2	-0.638 to 0.188				
Quartile 3	0.188 to 0.765				
Quartile 4	>0.765				
Nativity, 5 regions					
United States	94.55				
Mexico	1.17				
Central and South America, Cuba	1.30				
Caribbean	0.63				
Other	2.35				
Citizenship (No=0, Yes=1)		0.951	0.217	0	1
Social Security Number consent					
missing (No=0, Yes=1)	21.46				
refuse (No=0, Yes=1)	24.46				
provide (No=0, Yes=1)	54.08				
Spanish survey (No=0,Yes=1)		0.028	0.166	0	1

Notes: N=74,359. All individual-level variables refer to the household financial respondent. N=37,681 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	16.64	26.31	0	100
Hispanics residents, percentage	12.72	19.95	0	100
Whites residents, percentage	73.17	27.78	0	100
English language, percentage	82.36	18.61	0	100
Spanish language, percentage	11.01	17.19	0	100

Notes: 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%	9%	11%	9%	10%
Black (%)	39%	34%	32%	30%	37%	38%	35%	39%
Hispanic (%)	32%	31%	37%	35%	42%	46%	38%	32%
Observations	10,753	10,063	10,930	10,304	9,746	11,456	11,107	74,359

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	-0.1451***	-0.1284***	-0.1149***	-0.1166***	-0.1155***	-0.1187***	-0.1159***
	(0.0052)	(0.0051)	(0.0052)	(0.0052)	(0.0052)	(0.0052)	(0.0053)
Hispanic	-0.1520***	-0.1345***	-0.1258***	-0.1162***	-0.1156***	-0.0841***	-0.0822***
	(0.0076)	(0.0075)	(0.0075)	(0.0083)	(0.0083)	(0.0089)	(0.0089)
Home owner, no mortgage		-0.0098	-0.0103	-0.0102	-0.0102	-0.0104	-0.0097
		(0.0065)	(0.0065)	(0.0065)	(0.0065)	(0.0065)	(0.0065)
Home owner, w/mortgage		0.0017	0.0013	0.0014	0.0013	0.0012	0.0017
		(0.0067)	(0.0067)	(0.0067)	(0.0067)	(0.0067)	(0.0067)
Vehicle ownership		0.0640***	0.0632***	0.0632***	0.0631***	0.0632***	0.0633***
		(0.0056)	(0.0056)	(0.0056)	(0.0056)	(0.0056)	(0.0056)
CD ownership		0.0004	0.0004	0.0004	0.0003	0.0003	0.0002
		(0.0040)	(0.0040)	(0.0040)	(0.0040)	(0.0040)	(0.0040)
Stock ownership		0.0115***	0.0114***	0.0114***	0.0114***	0.0114***	0.0114***
		(0.0042)	(0.0042)	(0.0042)	(0.0042)	(0.0042)	(0.0042)
Bond ownership		0.0176***	0.0175***	0.0175***	0.0175***	0.0174***	0.0175***
		(0.0061)	(0.0061)	(0.0061)	(0.0061)	(0.0061)	(0.0061)
Debt ownership		0.0359***	0.0362***	0.0362***	0.0361***	0.0361***	0.0362***
		(0.0033)	(0.0033)	(0.0033)	(0.0033)	(0.0033)	(0.0033)
Overall Health Index			0.0066***	0.0066***	0.0067***	0.0068***	0.0068***
			(0.0025)	(0.0025)	(0.0025)	(0.0025)	(0.0025)
Cognition, quartile 2			0.0112***	0.0112***	0.0112***	0.0112***	0.0113***
			(0.0042)	(0.0042)	(0.0042)	(0.0042)	(0.0042)
Cognition, quartile 3			0.0171***	0.0171***	0.0171***	0.0172***	0.0172***
			(0.0047)	(0.0047)	(0.0047)	(0.0047)	(0.0047)
Cognition, quartile 4			0.0198***	0.0198***	0.0198***	0.0200***	0.0200***
			(0.0054)	(0.0054)	(0.0054)	(0.0054)	(0.0054)
Foreign born, Mexico				-0.1444***	-0.1443***	-0.0511*	-0.0497*
				(0.0284)	(0.0284)	(0.0298)	(0.0298)
Foreign born, CA, SA, Cuba				-0.0217	-0.0219	0.0561*	0.0557*
				(0.0282)	(0.0282)	(0.0293)	(0.0292)
Foreign born, Caribbean				0.0227	0.0230	0.0570*	0.0570*
				(0.0305)	(0.0305)	(0.0306)	(0.0306)
Foreign born, Other				-0.0285	-0.0274	-0.0231	-0.0229
				(0.0220)	(0.0220)	(0.0220)	(0.0220)
No citizenship				-0.0393*	-0.0388*	-0.0345	-0.0333
				(0.0232)	(0.0232)	(0.0231)	(0.0231)
SSN, refuse to provide					-0.0077	-0.0077	-0.0078
					(0.0054)	(0.0054)	(0.0054)
SSN, provided					-0.0026	-0.0027	-0.0028
					(0.0044)	(0.0044)	(0.0044)
Spanish survey						-0.1531***	-0.1531***
						(0.0289)	(0.0289)
NSES index							0.0054***
							(0.0021)
Ln(Finc. inst. weig.)							0.0006
							(0.0008)
R-sqr., overall	0.224	0.242	0.246	0.247	0.248	0.250	0.250

Notes: No. of obs.= 74,359, No. of ind. = 18,572. 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 A4 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	-0.0339***	-0.0283**	-0.0271**	-0.0275**	-0.0276**	-0.0284**	-0.0275**
	(0.0123)	(0.0121)	(0.0120)	(0.0120)	(0.0120)	(0.0120)	(0.0120)
Minority couple	-0.1316***	-0.1145***	-0.1051***	-0.1045***	-0.1034***	-0.0997***	-0.0972***
	(0.0064)	(0.0064)	(0.0065)	(0.0067)	(0.0067)	(0.0068)	(0.0069)
Home owner, no mortgage		-0.0147	-0.0156	-0.0155	-0.0156	-0.0163	-0.0159
		(0.0103)	(0.0103)	(0.0103)	(0.0103)	(0.0103)	(0.0103)
Home owner, w/mortgage		-0.0043	-0.0049	-0.0049	-0.0051	-0.0057	-0.0053
		(0.0103)	(0.0103)	(0.0103)	(0.0103)	(0.0103)	(0.0103)
Vehicle ownership		0.0749***	0.0741***	0.0741***	0.0741***	0.0744***	0.0745***
		(0.0095)	(0.0095)	(0.0095)	(0.0095)	(0.0095)	(0.0095)
CD ownership		0.0035	0.0035	0.0035	0.0035	0.0035	0.0034
		(0.0048)	(0.0048)	(0.0048)	(0.0048)	(0.0048)	(0.0048)
Stock ownership		0.0044	0.0043	0.0043	0.0043	0.0044	0.0043
		(0.0049)	(0.0049)	(0.0049)	(0.0049)	(0.0049)	(0.0049)
Bond ownership		0.0189***	0.0188***	0.0188***	0.0188***	0.0189***	0.0190***
		(0.0070)	(0.0070)	(0.0070)	(0.0070)	(0.0070)	(0.0070)
Debt ownership		0.0347***	0.0350***	0.0350***	0.0349***	0.0349***	0.0349***
		(0.0042)	(0.0042)	(0.0042)	(0.0042)	(0.0042)	(0.0042)
Overall Health Index			0.0070**	0.0070**	0.0071**	0.0071**	0.0072**
			(0.0035)	(0.0035)	(0.0035)	(0.0035)	(0.0035)
Cognition, quartile 2			0.0202***	0.0201***	0.0201***	0.0201***	0.0202***
			(0.0059)	(0.0059)	(0.0059)	(0.0059)	(0.0059)
Cognition, quartile 3			0.0244***	0.0243***	0.0243***	0.0246***	0.0247***
			(0.0064)	(0.0064)	(0.0064)	(0.0064)	(0.0064)
Cognition, quartile 4			0.0264***	0.0264***	0.0264***	0.0268***	0.0268***
			(0.0072)	(0.0072)	(0.0072)	(0.0072)	(0.0072)
Foreign born, Mexico				-0.1511***	-0.1500***	-0.0827**	-0.0825**
				(0.0356)	(0.0356)	(0.0377)	(0.0377)
Foreign born, SA, CA, Cuba				-0.0032	-0.0020	0.0625*	0.0604
				(0.0353)	(0.0353)	(0.0373)	(0.0373)
Foreign born, Caribbean				0.0024	0.0040	0.0276	0.0274
				(0.0411)	(0.0411)	(0.0412)	(0.0412)
Foreign born, Other				-0.0505*	-0.0483*	-0.0473*	-0.0475*
				(0.0283)	(0.0283)	(0.0283)	(0.0282)
No citizenship				-0.0446	-0.0426	-0.0420	-0.0417
				(0.0302)	(0.0302)	(0.0302)	(0.0302)
SSN, refuse to provide					-0.0062	-0.0063	-0.0063
					(0.0074)	(0.0074)	(0.0074)
SSN, provided					-0.0016	-0.0016	-0.0016
					(0.0060)	(0.0060)	(0.0060)
Spanish survey						-0.2718***	-0.2721***
						(0.0360)	(0.0360)
NSES index							0.0046*
							(0.0027)
Ln(Finc. inst. weig.)							0.0012
							(0.0010)
R-sqr, overall	0.190	0.205	0.208	0.209	0.209	0.211	0.211

Notes: No. of obs.= 37,129, No. of ind. = 9,842.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	-0.1348***	-0.0730***	45.65
	(0.0072)	(0.0066)	[0.00]
Hispanic	-0.0933***	-0.0708***	3.00
	(0.0123)	(0.0106)	[0.08]
Panel B	*Wealth (W)*		
	W < Median	*W ≥ Median*	*Chi-squared test*
Black	-0.1206***	-0.0558***	41.39
	(0.0071)	(0.0069)	[0.00]
Hispanic	-0.0869***	-0.0473***	4.84
	(0.0124)	(0.0104)	[0.03]
Panel C	*Neighborhood Socio-Economic Status (NSES)*		
	NSES < Median	*NSES ≥ Median*	*Chi-squared test*
Black	-0.1118***	-0.0978***	4.88
	(0.0070)	(0.0077)	[0.03]
Hispanic	-0.0824***	-0.0792***	0.11
	(0.0126)	(0.0115)	[0.74]

Notes: No. of obs.= 74,359, No. of ind. = 18,572. 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 the Chi-squared one-sided test (with p-value in brackets) for the null of no differential gap between groups against the alternative of larger gap among households below median. *See Table A7 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	-0.1140***	-0.1140***	-0.1159***	-0.1160***
	(0.0065)	(0.0065)	(0.0053)	(0.0053)
Hispanic	-0.0756***	-0.0755***	-0.0756***	-0.0755***
	(0.0093)	(0.0093)	(0.0093)	(0.0093)
Spanish survey	-0.1530***		-0.1529***	
	(0.0289)		(0.0289)	
Blacks, percent	-0.0003	-0.0003		
	(0.0002)	(0.0002)		
Hispanics, percent	-0.0004***	-0.0004***		
	(0.0001)	(0.0001)		
Whites, percent	-0.0002	-0.0002		
	(0.0002)	(0.0002)		
English language, percent			-0.0003	-0.0003
			(0.0002)	(0.0002)
Spanish language, percent			-0.0007**	-0.0007**
			(0.0003)	(0.0003)
R-sqr., overall	0.250	0.250	0.250	0.250

Notes: No. of obs.= 74,359, No. of ind. = 18,572. 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	-0.1179***	-0.1184***	0.01
	(0.0069)	(0.0074)	[0.92]
Hispanic	-0.0280	-0.0849***	1.89
	(0.0244)	(0.0098)	[0.17]
Panel B	Spanish language census, tract, percentage (S)		
	S < Median	S ≥ Median	Chi-squared test
Black	-0.1214***	-0.1162***	0.24
	(0.0071)	(0.0071)	[0.62]
Hispanic	-0.0091	-0.0857***	4.63
	(0.0232)	(0.0098)	[0.03]

Notes: No. of obs.= 74,359, No. of ind. = 18,572. 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 the Chi-squared one-sided test (with p-value in brackets) for the null of no differential gap between groups against the alternative of larger gap among households below median.

TABLE A1. Distribution of Race and Ethnicity of Financial Respondent in the Sample by Waves

Year		White, non-Hispanic	Black, non-Hispanic	Hispanic	Total
2000	Frequency	8,445	1,653	655	10,753
	Percent	*78.54*	*15.37*	*6.09*	*100*
2002	Frequency	7,886	1,542	635	10,063
	Percent	*78.37*	*15.32*	*6.31*	*100*
2004	Frequency	8,375	1,771	784	10,930
	Percent	*76.62*	*16.2*	*7.17*	*100*
2006	Frequency	7,853	1,679	772	10,304
	Percent	*76.21*	*16.29*	*7.49*	*100*
2008	Frequency	7,355	1,627	764	9,746
	Percent	*75.47*	*16.69*	*7.84*	*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 A2 - 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 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.
Owns CDs	Indicator equal to 1 for CD (Certificate of Deposit) ownership, 0 otherwise.
Owns Stocks	Indicator equal to 1 for stock ownership, 0 otherwise.
Owns Bonds	Indicator equal to 1 for bond 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, 2015) 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 A3. Bank Account Ownership Transitions by Race and Ethnicity (percentages)

Whites, non-Hispanic

Bank account ownership

	No	Yes
No	35	65
Yes	7	93
Total	9	91

Blacks, non-Hispanic

Bank account ownership

	No	Yes
No	64	36
Yes	20	80
Total	34	66

Hispanics

Bank account ownership

	No	Yes
No	66	34
Yes	25	76
Total	40	60

Source: HRS, 2000-2012. Rows represent values at wave *t*, while columns represent values at wave *t+1*.

TABLE A4. *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	-0.1451***	-0.1284***	-0.1149***	-0.1166***	-0.1155***	-0.1187***	-0.1159***
	(0.0052)	(0.0051)	(0.0052)	(0.0052)	(0.0052)	(0.0052)	(0.0053)
Hispanic	-0.1520***	-0.1345***	-0.1258***	-0.1162***	-0.1156***	-0.0841***	-0.0822***
	(0.0076)	(0.0075)	(0.0075)	(0.0083)	(0.0083)	(0.0089)	(0.0089)
Home owner, no mort.		-0.0098	-0.0103	-0.0102	-0.0102	-0.0104	-0.0097
		(0.0065)	(0.0065)	(0.0065)	(0.0065)	(0.0065)	(0.0065)
Home owner, w/mort.		0.0017	0.0013	0.0014	0.0013	0.0012	0.0017
		(0.0067)	(0.0067)	(0.0067)	(0.0067)	(0.0067)	(0.0067)
Vehicle ownership		0.0640***	0.0632***	0.0632***	0.0631***	0.0632***	0.0633***
		(0.0056)	(0.0056)	(0.0056)	(0.0056)	(0.0056)	(0.0056)
CD ownership		0.0004	0.0004	0.0004	0.0003	0.0003	0.0002
		(0.0040)	(0.0040)	(0.0040)	(0.0040)	(0.0040)	(0.0040)
Stock ownership		0.0115***	0.0114***	0.0114***	0.0114***	0.0114***	0.0114***
		(0.0042)	(0.0042)	(0.0042)	(0.0042)	(0.0042)	(0.0042)
Bond ownership		0.0176***	0.0175***	0.0175***	0.0175***	0.0174***	0.0175***
		(0.0061)	(0.0061)	(0.0061)	(0.0061)	(0.0061)	(0.0061)
Debt ownership		0.0359***	0.0362***	0.0362***	0.0361***	0.0361***	0.0362***
		(0.0033)	(0.0033)	(0.0033)	(0.0033)	(0.0033)	(0.0033)
Overall Health Index			0.0066***	0.0066***	0.0067***	0.0068***	0.0068***
			(0.0025)	(0.0025)	(0.0025)	(0.0025)	(0.0025)
Cognition, quartile 2			0.0112***	0.0112***	0.0112***	0.0112***	0.0113***
			(0.0042)	(0.0042)	(0.0042)	(0.0042)	(0.0042)
Cognition, quartile 3			0.0171***	0.0171***	0.0171***	0.0172***	0.0172***
			(0.0047)	(0.0047)	(0.0047)	(0.0047)	(0.0047)
Cognition, quartile 4			0.0198***	0.0198***	0.0198***	0.0200***	0.0200***
			(0.0054)	(0.0054)	(0.0054)	(0.0054)	(0.0054)
Foreign born, Mexico				-0.1444***	-0.1443***	-0.0511*	-0.0497*
				(0.0284)	(0.0284)	(0.0298)	(0.0298)
Foreign born, SA,CA,CU				-0.0217	-0.0219	0.0561*	0.0557*
				(0.0282)	(0.0282)	(0.0293)	(0.0292)
Foreign born, Caribbean				0.0227	0.0230	0.0570*	0.0570*
				(0.0305)	(0.0305)	(0.0306)	(0.0306)
Foreign born, Other				-0.0285	-0.0274	-0.0231	-0.0229
				(0.0220)	(0.0220)	(0.0220)	(0.0220)
No citizenship				-0.0393*	-0.0388*	-0.0345	-0.0333
				(0.0232)	(0.0232)	(0.0231)	(0.0231)
SSN, refuse to provide					-0.0077	-0.0077	-0.0078
					(0.0054)	(0.0054)	(0.0054)
SSN, provided					-0.0026	-0.0027	-0.0028
					(0.0044)	(0.0044)	(0.0044)
Spanish survey						-0.1531***	-0.1531***
						(0.0289)	(0.0289)
NSES index							0.0054***
							(0.0021)
Ln(Finc. inst. weig.)							0.0006
							(0.0008)
Gender	-0.0381***	-0.0369***	-0.0349***	-0.0347***	-0.0348***	-0.0343***	-0.0342***
	(0.0039)	(0.0038)	(0.0038)	(0.0038)	(0.0038)	(0.0038)	(0.0038)
Age	0.0137***	0.0120***	0.0104**	0.0104**	0.0102**	0.0103**	0.0103**
	(0.0046)	(0.0046)	(0.0046)	(0.0046)	(0.0046)	(0.0046)	(0.0046)
Age squared	-0.0001***	-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)
High school completed	0.0853***	0.0713***	0.0535***	0.0513***	0.0514***	0.0474***	0.0469***
	(0.0050)	(0.0049)	(0.0050)	(0.0050)	(0.0050)	(0.0050)	(0.0050)
College completed (or more)	0.0953***	0.0814***	0.0569***	0.0547***	0.0544***	0.0510***	0.0492***
	(0.0066)	(0.0065)	(0.0067)	(0.0067)	(0.0067)	(0.0067)	(0.0067)
Couple household	-0.0044	-0.0095	-0.0096	-0.0095	-0.0095	-0.0094	-0.0095
	(0.0063)	(0.0063)	(0.0063)	(0.0063)	(0.0063)	(0.0063)	(0.0063)
Household size	-0.0014	-0.0011	-0.0011	-0.0011	-0.0010	-0.0010	-0.0011
	(0.0018)	(0.0018)	(0.0018)	(0.0018)	(0.0018)	(0.0018)	(0.0018)
Income, tertile 2	0.0289***	0.0267***	0.0263***	0.0263***	0.0263***	0.0262***	0.0262***
	(0.0043)	(0.0043)	(0.0043)	(0.0043)	(0.0043)	(0.0043)	(0.0043)
Income, tertile 3	0.0358***	0.0330***	0.0326***	0.0326***	0.0326***	0.0324***	0.0323***
	(0.0054)	(0.0054)	(0.0054)	(0.0054)	(0.0054)	(0.0054)	(0.0054)
Wealth, tertile 2	0.0506***	0.0507***	0.0503***	0.0503***	0.0503***	0.0502***	0.0502***
	(0.0048)	(0.0050)	(0.0050)	(0.0050)	(0.0050)	(0.0050)	(0.0050)
Wealth, tertile 3	0.0743***	0.0741***	0.0735***	0.0735***	0.0735***	0.0735***	0.0732***
	(0.0064)	(0.0067)	(0.0067)	(0.0067)	(0.0067)	(0.0067)	(0.0067)
Works	0.0182***	0.0174***	0.0165***	0.0165***	0.0165***	0.0166***	0.0166***
	(0.0043)	(0.0043)	(0.0043)	(0.0043)	(0.0043)	(0.0043)	(0.0043)
Receives social security	0.0123**	0.0125***	0.0121**	0.0121**	0.0120**	0.0117**	0.0117**
	(0.0049)	(0.0049)	(0.0049)	(0.0049)	(0.0049)	(0.0049)	(0.0049)
Receives pension	0.0176***	0.0165***	0.0161***	0.0161***	0.0161***	0.0161***	0.0161***
	(0.0043)	(0.0043)	(0.0043)	(0.0043)	(0.0043)	(0.0043)	(0.0043)
Coefficients of mean for time variant variables							
Age	-0.0135**	-0.0156***	-0.0154***	-0.0157***	-0.0141**	-0.0142**	-0.0141**
	(0.0057)	(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	-0.0018	-0.0131	-0.0126	-0.0123	-0.0122	-0.0107	-0.0101
	(0.0081)	(0.0081)	(0.0081)	(0.0081)	(0.0081)	(0.0081)	(0.0081)
Household size	-0.0127***	-0.0109***	-0.0103***	-0.0103***	-0.0104***	-0.0102***	-0.0102***
	(0.0027)	(0.0027)	(0.0027)	(0.0027)	(0.0027)	(0.0027)	(0.0027)
Income, tertile 2	0.1022***	0.0647***	0.0567***	0.0565***	0.0563***	0.0542***	0.0539***
	(0.0080)	(0.0080)	(0.0080)	(0.0080)	(0.0080)	(0.0080)	(0.0080)
Income, tertile 3	0.1354***	0.1006***	0.0885***	0.0878***	0.0876***	0.0861***	0.0851***
	(0.0100)	(0.0101)	(0.0101)	(0.0101)	(0.0101)	(0.0101)	(0.0101)
Wealth, tertile 2	0.0982***	0.0662***	0.0592***	0.0587***	0.0594***	0.0576***	0.0566***
	(0.0075)	(0.0086)	(0.0086)	(0.0086)	(0.0086)	(0.0086)	(0.0086)
Wealth, tertile 3	0.0572***	0.0351***	0.0261**	0.0246**	0.0255**	0.0237**	0.0205*
	(0.0091)	(0.0107)	(0.0107)	(0.0107)	(0.0107)	(0.0107)	(0.0108)
Works	0.0166**	0.0046	-0.0052	-0.0051	-0.0050	-0.0053	-0.0054
	(0.0073)	(0.0072)	(0.0074)	(0.0074)	(0.0074)	(0.0074)	(0.0074)
Receives social security	-0.0094	-0.0101	-0.0111	-0.0105	-0.0097	-0.0077	-0.0075
	(0.0097)	(0.0095)	(0.0095)	(0.0095)	(0.0095)	(0.0095)	(0.0095)
Receives pension	0.0230***	0.0137**	0.0112*	0.0114*	0.0113*	0.0100	0.0102
	(0.0068)	(0.0067)	(0.0067)	(0.0067)	(0.0067)	(0.0067)	(0.0067)
Home owner, no mortgage		0.0099	0.0122	0.0144	0.0145	0.0154*	0.0168*
		(0.0093)	(0.0092)	(0.0092)	(0.0092)	(0.0092)	(0.0092)
Home owner, w/mortgage		0.0107	0.0110	0.0121	0.0123	0.0127	0.0127
		(0.0097)	(0.0096)	(0.0096)	(0.0096)	(0.0096)	(0.0096)
Vehicle ownership		0.0652***	0.0572***	0.0573***	0.0577***	0.0550***	0.0549***
		(0.0085)	(0.0085)	(0.0085)	(0.0085)	(0.0085)	(0.0085)
CD ownership		0.0558***	0.0519***	0.0516***	0.0520***	0.0509***	0.0515***
		(0.0073)	(0.0073)	(0.0073)	(0.0073)	(0.0072)	(0.0072)
Stock ownership		0.0055	0.0031	0.0036	0.0033	0.0034	0.0027

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		(0.0074)	(0.0074)	(0.0074)	(0.0074)	(0.0074)	(0.0074)
Bond ownership		-0.0236*	-0.0246**	-0.0243**	-0.0243**	-0.0234*	-0.0246**
		(0.0122)	(0.0122)	(0.0122)	(0.0122)	(0.0121)	(0.0121)
Debt ownership		0.0520***	0.0487***	0.0481***	0.0475***	0.0467***	0.0466***
		(0.0064)	(0.0065)	(0.0064)	(0.0065)	(0.0064)	(0.0064)
Overall Health Index			0.0024	0.0024	0.0025	0.0024	0.0023
			(0.0033)	(0.0033)	(0.0033)	(0.0033)	(0.0033)
Cognition, quartile 2			0.0554***	0.0552***	0.0554***	0.0551***	0.0550***
			(0.0086)	(0.0086)	(0.0086)	(0.0086)	(0.0086)
Cognition, quartile 3			0.0645***	0.0643***	0.0644***	0.0648***	0.0645***
			(0.0085)	(0.0085)	(0.0085)	(0.0085)	(0.0085)
Cognition, quartile 4			0.0628***	0.0632***	0.0631***	0.0639***	0.0633***
			(0.0098)	(0.0098)	(0.0098)	(0.0098)	(0.0098)
SSN, refuse to provide					-0.0087	-0.0089	-0.0091
					(0.0096)	(0.0096)	(0.0096)
SSN, provided					-0.0032	-0.0031	-0.0028
					(0.0089)	(0.0088)	(0.0088)
Spanish survey						-0.0051	-0.0045
						(0.0331)	(0.0331)
R-sqr, within	0.0131	0.0179	0.0183	0.0183	0.0184	0.0189	0.0188
R-sqr, between	0.354	0.382	0.387	0.389	0.389	0.392	0.392
R-sqr, overall	0.224	0.242	0.246	0.247	0.248	0.250	0.250

Notes: No. of obs.= 74,359, No. of ind. = 18,572. 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 A5. *Determinants of Ownership of Bank Account, Race and Ethnicity for Financial Respondent – Random Effects (RE) Model*

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Black	-0.1615***	-0.1445***	-0.1353***	-0.1370***	-0.1364***	-0.1394***	-0.1356***
	(0.0051)	(0.0050)	(0.0050)	(0.0051)	(0.0051)	(0.0050)	(0.0052)
Hispanic	-0.1702***	-0.1540***	-0.1473***	-0.1365***	-0.1362***	-0.1013***	-0.0985***
	(0.0076)	(0.0074)	(0.0074)	(0.0083)	(0.0083)	(0.0087)	(0.0087)
Home owner, no mortgage		0.0101**	0.0090**	0.0101**	0.0102**	0.0101**	0.0116***
		(0.0045)	(0.0045)	(0.0045)	(0.0045)	(0.0045)	(0.0045)
Home owner, w/mortgage		0.0253***	0.0234***	0.0240***	0.0241***	0.0238***	0.0242***
		(0.0047)	(0.0047)	(0.0047)	(0.0047)	(0.0047)	(0.0047)
Vehicle ownership		0.1053***	0.1005***	0.1005***	0.1006***	0.0992***	0.0993***
		(0.0042)	(0.0042)	(0.0042)	(0.0042)	(0.0042)	(0.0042)
CD ownership		0.0196***	0.0185***	0.0184***	0.0184***	0.0180***	0.0181***
		(0.0033)	(0.0033)	(0.0033)	(0.0033)	(0.0033)	(0.0033)
Stock ownership		0.0156***	0.0142***	0.0144***	0.0143***	0.0144***	0.0138***
		(0.0034)	(0.0034)	(0.0034)	(0.0034)	(0.0034)	(0.0034)
Bond ownership		0.0136***	0.0130**	0.0131**	0.0131**	0.0132**	0.0127**
		(0.0053)	(0.0053)	(0.0053)	(0.0053)	(0.0053)	(0.0053)
Debt ownership		0.0503***	0.0508***	0.0506***	0.0505***	0.0502***	0.0503***
		(0.0028)	(0.0028)	(0.0028)	(0.0028)	(0.0028)	(0.0028)
Overall Health Index			0.0111***	0.0111***	0.0113***	0.0112***	0.0111***
			(0.0016)	(0.0016)	(0.0016)	(0.0016)	(0.0016)
Cognition, quartile 2			0.0328***	0.0328***	0.0328***	0.0328***	0.0327***
			(0.0036)	(0.0036)	(0.0036)	(0.0036)	(0.0036)
Cognition, quartile 3			0.0451***	0.0451***	0.0451***	0.0453***	0.0451***
			(0.0038)	(0.0038)	(0.0038)	(0.0038)	(0.0038)
Cognition, quartile 4			0.0501***	0.0502***	0.0502***	0.0507***	0.0502***
			(0.0045)	(0.0045)	(0.0045)	(0.0045)	(0.0045)
Foreign born, Mexico				-0.1495***	-0.0472	-0.0453	-0.1495***
				(0.0284)	(0.0296)	(0.0296)	(0.0284)
Foreign born, SA, CA, Cuba				-0.0237	0.0619**	0.0613**	-0.0237
				(0.0283)	(0.0291)	(0.0291)	(0.0283)
Foreign born, Caribbean				0.0161	0.0536*	0.0533*	0.0161
				(0.0306)	(0.0307)	(0.0307)	(0.0306)
Foreign born, Other				-0.0321	-0.0272	-0.0271	-0.0321
				(0.0221)	(0.0220)	(0.0220)	(0.0221)
No citizenship				-0.0317	-0.0317	-0.0389**	-0.0367*
				(0.0194)	(0.0194)	(0.0193)	(0.0193)
SSN, refuse to provide					-0.0110***	-0.0111***	-0.0112***
					(0.0043)	(0.0043)	(0.0043)
SSN, provided					-0.0043	-0.0041	-0.0041
					(0.0037)	(0.0037)	(0.0037)
Spanish survey						-0.1731***	-0.1725***
						(0.0141)	(0.0141)
NSES index							0.0067***
							(0.0021)
Ln(Finc. inst. weig.)							0.0008
							(0.0008)
R-sqr, overall	0.216	0.234	0.239	0.240	0.240	0.242	0.243

Notes: No. of obs.= 74,359, No. of ind. = 18,572. 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.

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TABLE A6. 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	4,459	149	933	5,541
	Percent	*80.47*	*2.69*	*16.84*	*100*
2006	Frequency	4,140	150	861	5,151
	Percent	*80.37*	*2.91*	*16.72*	*100*
2008	Frequency	3,832	141	844	4,817
	Percent	*79.55*	*2.93*	*17.52*	*100*
2010	Frequency	4,222	218	1,147	5,587
	Percent	*75.57*	*3.9*	*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 A7. *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	-0.1348***	-0.0730***	-0.1206***	-0.0558***	-0.1118***	-0.0978***
	(0.0072)	(0.0066)	(0.0071)	(0.0069)	(0.0070)	(0.0077)
Hispanic	-0.0933***	-0.0708***	-0.0869***	-0.0473***	-0.0824***	-0.0792***
	(0.0123)	(0.0106)	(0.0124)	(0.0104)	(0.0126)	(0.0115)
Home owner, no mortgage	-0.0119	-0.0025	0.0025	-0.0080	-0.0141	-0.0144*
	(0.0106)	(0.0086)	(0.0102)	(0.0093)	(0.0110)	(0.0087)
Home owner, w/mortgage	-0.0045	0.0090	0.0067	0.0041	0.0035	-0.0038
	(0.0119)	(0.0084)	(0.0106)	(0.0097)	(0.0116)	(0.0088)
Vehicle ownership	0.0728***	0.0424***	0.0765***	0.0191**	0.0839***	0.0366***
	(0.0084)	(0.0085)	(0.0086)	(0.0076)	(0.0090)	(0.0073)
CD ownership	-0.0036	0.0024	0.0053	0.0006	0.0035	-0.0024
	(0.0084)	(0.0040)	(0.0104)	(0.0034)	(0.0074)	(0.0044)
Stock ownership	0.0186*	0.0093**	0.0207*	0.0105***	0.0057	0.0129***
	(0.0097)	(0.0041)	(0.0113)	(0.0036)	(0.0081)	(0.0046)
Bond ownership	0.0240	0.0143***	0.0507**	0.0145***	0.0182	0.0174***
	(0.0171)	(0.0055)	(0.0254)	(0.0047)	(0.0133)	(0.0062)
Debt ownership	0.0511***	0.0192***	0.0533***	0.0133***	0.0467***	0.0199***
	(0.0061)	(0.0037)	(0.0057)	(0.0037)	(0.0055)	(0.0042)
Overall Health Index	0.0089	0.0148**	0.0156**	0.0030	0.0104	0.0088
	(0.0066)	(0.0058)	(0.0070)	(0.0049)	(0.0065)	(0.0056)
Cognition, quartile 2	0.0150*	0.0156**	0.0187**	0.0111**	0.0184**	0.0117*
	(0.0078)	(0.0061)	(0.0081)	(0.0053)	(0.0075)	(0.0060)
Cognition, quartile 3	0.0186*	0.0209***	0.0255**	0.0126**	0.0117	0.0207***
	(0.0100)	(0.0066)	(0.0101)	(0.0059)	(0.0091)	(0.0068)
Cognition, quartile 4	-0.0354	-0.1062**	-0.0597	-0.0390	-0.0689*	-0.0228
	(0.0379)	(0.0416)	(0.0406)	(0.0368)	(0.0417)	(0.0403)
Foreign born, Mexico	0.0556	0.0135	0.0474	0.0534*	0.0618	0.0734**
	(0.0382)	(0.0373)	(0.0417)	(0.0319)	(0.0433)	(0.0351)
Foreign born, SA, CA, Cuba	0.0525	0.0185	0.0411	0.0618*	0.0416	0.0629*
	(0.0393)	(0.0418)	(0.0423)	(0.0345)	(0.0449)	(0.0358)
Foreign born, Caribbean	-0.0211	-0.0337	-0.0197	-0.0066	-0.0249	-0.0136
	(0.0301)	(0.0269)	(0.0326)	(0.0230)	(0.0329)	(0.0265)
Foreign born, Other	-0.0320	-0.0343	-0.0411	-0.0033	-0.0393	-0.0141
	(0.0309)	(0.0291)	(0.0336)	(0.0244)	(0.0346)	(0.0276)
No citizenship	-0.0136	-0.0046	-0.0092	-0.0066	-0.0092	0.0025
	(0.0097)	(0.0063)	(0.0103)	(0.0056)	(0.0094)	(0.0066)
SSN, refuse to provide	-0.0014	-0.0054	-0.0032	-0.0033	-0.0039	0.0074
	(0.0078)	(0.0051)	(0.0083)	(0.0045)	(0.0076)	(0.0054)
SSN, provided	-0.1551***	-0.2382***	-0.1852***	-0.0718	-0.1352***	-0.1633***
	(0.0415)	(0.0479)	(0.0422)	(0.0470)	(0.0416)	(0.0444)
Spanish survey	0.0084**	0.0049**	0.0105***	0.0041**		
	(0.0033)	(0.0022)	(0.0036)	(0.0020)		
NSES index	-0.0002	0.0014	-0.0002	0.0008	0.0008	0.0004
	(0.0013)	(0.0009)	(0.0013)	(0.0008)	(0.0013)	(0.0010)
Ln(Finc. inst. weig.)	-0.1348***	-0.0730***	-0.1206***	-0.0558***	-0.1118***	-0.0978***
	(0.0072)	(0.0066)	(0.0071)	(0.0069)	(0.0070)	(0.0077)
Observations	37,179	37,180	36,825	37,534	37,180	37,179
Number of individuals	12,452	11,581	11,863	10,492	11,535	10,873
R-sqr, overall	0.2540	0.0871	0.2290	0.0633	0.2630	0.1680

Notes: 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.