HHS Public Access

Unbanked status and use of alternative financial services among minority populations

Silvia Helena Barcellos[1,*], **Gema Zamarro**[1,2]

[1]University of Southern California, Dana and David Dornsife College of Letters Arts and Sciences, CESR, 635 Downey Way, Los Angeles, California 90089-4012, USA

[2]University of Arkansas, College of Education and Health Professions, Department of Education Reform, 219B Graduate Education Building, Fayetteville, AR 72701, USA

Abstract

A large number of Americans do not have bank accounts (the 'unbanked') or rely on costly alternative financial services (AFS) such as payday loans (the 'underbanked'), with implications for wealth accumulation and retirement preparedness. Using primary data, we document large racial/ethnic differences in unbanked and in frequent AFS usage rates. We study the role of socio-economic status (SES), financial literacy, trust in financial institutions, networks, and time preferences in explaining these gaps. While these variables explain a large fraction of the white-minority gaps in unbanked status the same is not true for gaps in AFS use. A Blinder-Oaxaca decomposition confirms these patterns: gaps in unbanked status are mostly explained by differences in endowments across groups, for AFS gaps differences in returns to endowments have the largest explanatory power. Our findings suggest that, while related, unbanked and underbanked are distinct concepts with different underlying causes that may require different policy responses.

Keywords

1.   Introduction

Being unbanked or underbanked – defined as being banked but still relying on alternative financial services (AFS) such as non-bank money orders, check cashing services, payday loans, and pawn shops – can have important consequences for retirement preparedness. Access to banking services is critical to wealth-building: they provide households with the means to conduct basic financial transactions, save for an emergency and long-term security needs, and access credit on affordable terms. For example, using exogenous variation in account ownership driven by a social program mandate in the UK, Fitzpatrick (2015) shows that banking previously unbanked poor families increases their financial assets. Moreover, interaction with financial institutions is likely to increase individuals' knowledge of existing financial products that can be used to save for retirement (Clark and d'Ambrosio 2003;

[*]Corresponding author. sbarcell@usc.edu.

Lusardi and Mitchell 2011). Consistent with these findings, in our data (described in detail below) unbanked and underbanked respondents report being in a more fragile economic situation than fully banked respondents (see Table 1).

Despite these factors, many households, in particular minority households, remain unbanked or underbanked to this day. Over 16% of all minority families are unbanked, compared with 3% of non-Hispanic whites (FDIC 2015). Moreover, minority populations often rely on expensive AFS to meet their financial needs, taking payday loans, paying their bills in cash and overpaying for financial services like sending remittances to family members or cashing their checks (see e.g. Rhine *et al.,* 2006). In fact, the white-minority gaps in underbanked status are also large: according to the Federal Deposit Insurance Corporation (FDIC), while 31.1% of black and 29.3% of Hispanic households were underbanked in 2015, the corresponding number was 15.6% for non-Hispanic white households (FDIC 2015). These gaps in unbanked and underbanked status might, in turn, be associated with the lower rates of asset building, wealth creation, and consumption smoothing among minorities (see, e.g. Taylor *et al.*, 2011).

Research, however, is not conclusive on what contributes to lower financial participation and higher AFS use among Hispanics and Blacks. While papers have investigated the role of bounded rationality (Robb *et al.*, 2015), socio-economic status (SES) (Rhine and Greene, 2006 and 2013), planning horizon and credit history (Hogarth et al., 2004), financial knowledge (Barcellos et al., 2015) and state policies (Carter, 2015) on unbanked and underbanked behavior, there is less evidence on what explains race and ethnicity gaps. Notable exceptions include Blanco et al. (2017), who use the Health and Retirement Study and find that real asset ownership, health, cognitive ability, and cultural hurdles contribute substantially to racial/ethnic gaps in bank account ownership among older adults. For Hispanics, language barriers explain most of the gap, while neighborhood-level socio-economic characteristics are more salient for Blacks. In comparison to Blanco et al. (2017), we investigate gaps in underbanked in addition to unbanked status and consider factors such as financial literacy, trust in financial institutions, financial networks and time preferences, which they do not explore. Another exception, Washington (2006) explores legislation requiring banks to offer low-cost accounts and caps on check-cashing fees and finds that it lead to a reduction in the number of low-income minority unbanked households. She does not analyze white-minority gaps directly but notes that the legislation leads to a reduction in the fraction unbanked among blacks and Hispanics, but not among whites. Finally, Bohn and Pearlman (2013) find that immigrants living in areas with high concentration of fellow immigrants from the same region are significantly less likely to have a bank account and that this difference might be explained by the use of AFS provided by fellow immigrants in these areas.

We collected novel data using theAmerican Life Panel (ALP) to identify the key factors associated with white-minority gaps in unbanked and underbanked status. Our main contribution is to go beyond the analysis of traditional SES factors and investigate the role of financial literacy, trust in financial institutions, financial networks, and time preferences. In addition, we investigate the factors associated with gaps in underbanked status and frequent use of AFS (independent of unbanked status), while the previous literature has mostly

focused on gaps in unbanked status only. We show below that, while related, unbanked and underbanked are distinct concepts with different underlying determinants.

In our context, the collection of primary data has several advantages over the use of existing data. First, it allows us to study unbanked and underbanked status jointly, better characterizing the extent to which respondents have access to traditional financial services. Moreover, we can explore the role of financial literacy, trust, and networks in explaining minority gaps in unbanked and underbanked status, which would not be possible in existing data sources. We also focus our data collection on low-and middle-income respondents, who are most likely to be unbanked and/or underbanked. Finally, we complement this quantitative analysis with information reported by respondents regarding the reasons for being unbanked.

There are three main takeaways from our analyses. First, we find considerable gaps in both unbanking and frequent use of AFS among minority groups when compared with non-Hispanic whites, with white-black gaps being larger than white-Hispanic gaps. Second, while the white-Hispanic gaps in unbanked status could be fully explained by SES differences, a significant gap remained for blacks even after all controls were included. Moreover, we find that further controlling for financial literacy, trust, networks, and time preferences can only explain a limited amount of the race/ethnicity gaps in unbanked and frequent AFS use status. We use a Blinder-Oaxaca framework (Blinder, 1973; Oaxaca, 1973) and study whether racial/ethnic gaps are due to level differences in characteristics ('endowment effects') or to differences in the returns to attributes ('coefficient effects') across demographic groups. Our third finding is that while gaps in unbanked status are mostly explained by differences in endowments across groups (e.g. educational and financial literacy levels), for AFS gaps differences in returns to endowments have the largest explanatory power. This result has important implications for public policy as interventions directed at changing the endowed attributes of minority groups might be only effective for reducing unbanked gaps. On the other hand, interventions aimed at directly changing behaviors might be necessary to reduce AFS gaps, especially for blacks, for whom this gap is largest. In this case, not only endowed attributes but also returns of these attributes are key factors explaining the observed gaps. Of these attributes, blacks seem to react differently than whites to networks – i.e., a fraction of friends and family who have bank accounts and of stores accepting credit cards – and to time preferences. As mentioned above, these attributes have not been analyzed before in this context, and more research is needed to understand the origin of these observed differences in returns for these attributes.

The rest of the paper is structured as follows. Section 2 describes the data used and key definitions of variables in the analysis. Section 3 describes our empirical approach while Section 4 discusses the results. Finally, in Section 5 we conclude.

2. Data

Our main source of data for this research comes from data we collected in the RAND ALP. The ALP is an Internet panel of respondents 18 and older who agreed to participate in occasional online surveys. Respondents were recruited using a nationally representative

sampling frame and they do not need Internet access to participate; those without access are provided access, eliminating the bias found in many Internet surveys that include only computer users. For more information about the ALP, please see the description in the Introduction of this special issue.

Our results are based on a survey module designed by the research team to better understand the use of AFS among low-income populations.[1] The survey was fielded between August 2012 and May 2013 and had a response rate of 82%. We only invited respondents whose households had an annual income below $50,000 to take the survey, since the use of AFS is most prevalent among low- and middle-income populations (FDIC 2015). Our designed module included detailed questions about the use of traditional and non-traditional financial services and the reasons for such use, trust in financial institutions, financial literacy, financial networks and knowledge of the cost of different financial products.[2] Sample weights were calculated to make the distributions of age, sex, ethnicity, education, and income approximate the distributions in the Current Population Survey, within the same income range, and to increase the generalizability of the results. We describe below the construction of the main variables used in the analysis.

2.1   Measures of unbanked and underbanked status

Unbanked and underbanked status are related but distinct concepts. We classify as unbanked those respondents who report not having a checking or savings account. On the other hand, our definition of underbanked is a bit more involved and takes into account not only the use of AFS but also the frequency of such use. We asked respondents about the use and frequency of use of the following services and products: check cashing, money order, payday loans, pawn shops, and pre-paid debit cards. First, they are asked if they have ever used each of these services. If they have, they are asked how often they usually use it (3 or more times a year/twice a year/once a year/almost never/don't know). Respondents were defined as being underbanked if they had a bank account (i.e. were not unbanked) but reported using at least two of these five products with a frequency equal to or greater than once a year. This definition is similar but not equal to the definition of underbanked used by others in the literature who often considered as underbanked respondents who do have a bank account and used at least one of the AFS at least once per year (see, e.g. Gross *et al.*, 2012). In contrast, our definition conditions on having used at least two AFS with a frequency of at least once per year. With this alternative definition, we aim to better classify frequent users of these services. For completeness, we also analyze respondents who are fully banked (have a bank account and cannot be classified as underbanked, as defined above) and frequent AFS users, independently of their bank status.[3]

---

[1] All the data used for this paper are freely available at https://mmicdata.rand.org/alp/index.php?page=data, under 'Well Being 276.'
[2] The design of our ALP survey instrument was informed by focus group analyses that we conducted to better understand the barriers to financial participation among these populations. Financial knowledge, trust, and networks were the factors that most came up during these focus groups, and we subsequently introduced them to our ALP instrument.
[3] In fact, we find in our sample that the majority of participants who are frequent AFS users (60%) do have a bank account. Similarly, only half of unbanked respondents also satisfy our definition for frequent AFS user. These figures underscore our argument that the two concepts, even though related, are far from equivalent.

To illustrate the relationship between our unbanked and underbanked classification and measures of financial distress and fragility, we merged our data with information on financial capability, collected in another ALP module.[4] Table 1 shows descriptive statistics for different measures of financial capability depending on whether respondents were classified as unbanked, underbanked, fully banked, or frequent AFS users. These included responses to a 3-point scale asking about the degree of difficulty a respondent has to cover expenses and pay all bills in a typical month, a question indicating whether the respondent had set aside emergency funds that would cover expenses for 3 months, in case of sickness, job loss, economic downturn, or other emergencies, and a measure of financial fragility asking respondents about the degree of confidence they had about coming up with $2,000 if an unexpected need arose within the next month. Although the match with our data was limited, we were only able to match 33% of the observations in our sample, these descriptive results show important patterns. Those who are unbanked, underbanked or frequent AFS users are found to show higher levels of difficulty covering regular expenses in a typical month, compared with fully-banked respondents. 31%, 33%, and 36% of unbanked, underbanked and frequent AFS users, respectively, declare having high levels of difficulty covering these costs. Similarly, these groups are much more likely to not have set aside emergency funds for a rainy day. 94%, 78%, and 85% of unbanked, underbanked or frequent AFS users declare not having such funds as compared with 68% of fully banked low-income respondents. Finally, these groups also struggle on measures of financial fragility. 52%, 59%, and 53% of unbanked, underbanked and frequent AFS users declare they certainly could not come up with $2,000 if an unexpected need arose within the next month, as compared with 29% of fully banked declaring so. Overall, these statistics show the lower levels of financial capability among these groups, which will likely have consequences for retirement planning and behavior.

2.2 Measures of financial literacy, trust, financial networks and time preferences

In order to investigate the possible determinants of unbanked and underbanked status, we also added to our survey measures of financial literacy, trust in financial institutions, financial networks, and time preferences. Financial literacy was measured using ten questions that assessed knowledge about inflation, interest rates, compound interest, returns versus risk and diversification. In particular, our financial literacy questions included eight questions as developed by OECD (2013) to better measure financial literacy among respondents of different countries and backgrounds and two additional questions on the concepts of interest rates and inflation and mutual funds as developed by Lusardi and Mitchell (2006).[5] As is often done in the study of financial literacy (see, e.g. Fonseca *et al.*, 2012 or Lusardi and Mitchell, 2007), the responses to these financial literacy questions were then combined in three indexes obtained through a factor analysis using principal components. In all cases, factors were rotated orthogonally using the varimax method while we retained factors with eigenvalues greater than one. Following this approach, we retained three factors explaining 53% of the variation in financial literacy measures.[6]

---

[4]ALP module 284 'National Financial Capability Study.'

[5]See https://mmicdata.rand.org/alp/index.php?page=data (Well Being 276) for the questionnaire used, including the financial literacy questions.

[6]Details from the factor analyses are available from the authors upon request.

Concerning trust measures, participants were asked to rate their trust in five different types of financial institutions (the stock market, banks, insurance companies, stock brokers and investment advisers) using a 1 (I do not trust at all) to 5 (I trust completely) scale. Individual responses were, also in this case, combined in a unique index of trust concerning all financial institutions, following the same factor analysis strategy used for financial literacy measures.

We also measured two types of financial networks: the fraction of close friends and family members that have bank accounts and the fraction of stores in which the respondent regularly shops in that accept debit or credit cards with no extra fee. In both cases, we constructed a binary variable equal to one if these fractions are equal to or smaller than 50%.

Finally, we measured the respondents' time preferences by creating dummy variables representing whether a respondent was present biased and/or future biased, using respondent's responses to incentivized choice experiments. In our questionnaire, respondents were asked to make a series of choices between a smaller reward in a given period of time or a bigger reward in a different period of time and we used these responses to assess whether a respondent is present biased and/or future biased (see e.g. Meier and Sprenger, 2010 or, for a survey on measuring time preferences, see Frederick *et al.*, 2002).[7]

3. Methods

We analyzed the use of traditional and non-traditional financial services among different demographic groups. We did this using a number of different methods. The first empirical exercise consisted of documenting the white-Hispanic and white-black gaps in our measures of unbanked and underbanked status. We verified whether these differences were statistically significant by testing the null hypothesis of equality of means across the demographic groups. We also investigated how much of such gaps can be explained by differences in SES across groups, such as differences in education, income, and work status. To do so we use multivariate regression models and compare coefficients in linear probability models[8], where the demographic group indicators are included to regressions where we also control for a number of socio-economic characteristics. In order to further our understanding of the determinants of minority gaps in the use of financial services, we also investigated the role played by financial literacy, trust in financial institutions, financial networks, and time preferences[9].

---

[7]Although the recent literature has raised some concerns about the validity of these type of time dated monetary payment choices tasks to identify the shape of time preferences (see e.g. Augenblick et al. 2015), we believe these variables may contain relevant information to study unbanking and underbanking decisions.

[8]We also conducted analysis using binary probit models to better take into account the dichotomous nature of our dependent variables. Results were very similar to those of linear probability models and so, to facilitate computation and interpretation we decided to present the linear probability models estimated coefficients.

[9]We also estimated models that included a measure of cognitive and numeracy ability collected through survey modules Well Being 274 andWell Being 286. However, the effect of this variable was not significant after we controlled for measures of financial literacy, trust, networks, etc. We also estimated models that included a dummy variable to control for whether the respondent owned his home, information available in survey moduleWell Being 62, as a measure of financial wealth. This did not alter our results and home ownership also appeared to be statistically insignificant once we controlled for income, education, and other information already included in our model. These estimates are available from the authors upon request.

Finally, we decomposed the observed gaps into variation due to different endowed characteristics, different coefficients for these characteristics, and their interaction, using a Blinder-Oaxaca decomposition (Blinder 1973; Oaxaca 1973). Conditioning on a given minority group (i.e. Hispanics or blacks) (M) we estimate the following linear probability models separately on the sample containing data from Non-Hispanic whites (W) and the specific minority group of interest to be compared (i.e. Hispanics and blacks):

$$E[y \mid X, d] = dX\beta^M + (1 - d)X\beta^W$$

where y denotes an specific outcome variable of interest (i.e. unbanked or underbanked), X is a vector containing the socio-economic information, financial literacy, trust, financial networks, and time preferences information described above, and d is an indicator variable that takes value one if the respondent belongs to the specific minority group for which we are studying the gap as compared with Non-Hispanic whites. Then, we can decompose the observed minority gap as follows:

$$E[y \mid d = 0] - E[y \mid d = 1] = \Delta X\beta^M + \Delta\beta E(X \mid d = 0) + \Delta X \Delta\beta$$

where $\Delta X = E(X \mid d = 0) - E(X \mid d = 1)$ and $\Delta\beta = \beta^W - \beta^M$. The first term captures how much of the observed gap in unbanking or underbanking is due to differences in characteristics among those of a specific minority group (i.e. Hispanic or black) and non-Hispanic whites (e.g., average education) assuming the same 'production technology' (here, that of the specific minority group). This is often referred to as the 'composition effect' or 'explained' part of the decomposition. The second term captures how much of the observed gap is due to differences in coefficients (production technology) assuming minority and white non-Hispanics having the same characteristics (here, that of whites). This component would capture to what extent gaps are due to differential behavioral reactions to characteristics and it can be interpreted as a 'treatment effect' of being of a certain minority ethnic group, after compositional effects are controlled for (Fortin *et al.*, 2011). The final term corresponds to the part of the gap that remains unexplained and that is attributed to the interaction between endowments and coefficients.

We have also performed an analysis of Binder-Oaxaca decompositions based on binary choice probit model estimates, to better capture the binary nature of our dependent variables, and the results were very similar to the ones presented here.[10] Finally, it should be stressed that the Blinder-Oaxaca decomposition results we present in the next section consider each minority group as the reference group. Similar results, however, are obtained when considering the group of non-Hispanic whites as reference[11].

---

[10]Results are available from the authors upon request.
[11]Resuts are available from the authors upon request.

4. Results

4.1 Descriptive statistics

Table 2 shows descriptive statistics by three mutually exclusive race and ethnicity groups for our ALP sample: Non-Hispanic whites, non-Hispanic blacks, and Hispanics. We focus on the population with annual family income below $50,000 because unbanked and underbanked status is more common among lower-income populations (FDIC 2015) – approximately a quarter of this population are unbanked and 16% are underbanked. Moreover, these rates vary significantly across our race/ethnicity groups: while a fifth of non-Hispanic whites in our sample are unbanked, this fraction is almost half for non-Hispanic blacks and approximately a third for Hispanics. Blacks are 152% more likely to be unbanked and 49% more likely to be underbanked than whites; these figures are 70% and 19% for the white-Hispanic comparison. This paper aims to understand the roots of such large differences. The first obvious suspects are differences in SES across these groups, such as country of birth, education, and income. Table 2 shows that, compared with non-Hispanic whites, Hispanics are younger, less likely to have been born in the USA, are more likely to be unemployed and have lower education levels. Similarly, blacks have lower education and income, have a lower probability of being employed and a higher probability of being unemployed and disabled than whites. Such SES differences most likely affect race/ethnicity gaps in unbanked and underbanked status, an issue that we study next.

In order to investigate what other factors could lead to differences in the use of traditional versus non-traditional financial services among minority populations, we also included our measures of financial literacy, trust in financial institutions, financial networks, and time preferences, in the empirical analysis. Table 3 compares variable means for our three demographic groups of interest as well as for unbanked, underbanked, frequent AFS user and fully-banked respondents. Non-Hispanic white respondents correctly answered, on average, 6.7 out of ten financial literacy questions – the corresponding number is 4.9 correct answers for non-Hispanic blacks and 5.3 for Hispanics. Moreover, unbanked and frequent AFS users had lower financial literacy than the overall population.

Interestingly, a different pattern emerges when we analyze trust in financial institutions. While unbanked and AFS users do on average report levels of trust lower than the overall population, there are no striking differences across race/ethnicity groups or for underbanked respondents. Network effects seem to play an important role in the use of AFS. Unbanked respondents are more than 2 times as likely as the overall population to have half or less of their closest friends and family members to be banked. Similarly, unbanked respondents are more than 60% more likely than the overall population to shop mostly in stores that do not accept debit and credit cards with no extra fees. These differences are also high among frequent AFS users, while underbanked respondents are not very different from the overall population. Racial/ethnicity differences point to a similar network pattern: minority populations are much more likely than whites to have unbanked friends and family and to shop in stores where there is a fee to use credit cards. These figures suggest that the behavior of peers might influence the decision to remain unbanked and use AFS, something we explore in more detail below.

Our final set of variables had the objective to measure respondent's knowledge about the relative costs of using traditional versus non-traditional financial products. More specifically, we asked whether they thought that (1) payday loans were more expensive (or charged higher interest rates) than bank loans and (2) one got less money by selling items at pawn shops. The results point to significant racial/ethnicity differences in these variables: non-Hispanic whites are 50% more likely than minorities to answer that payday loans are more expensive and 10% more likely to say that pawn shops pay a lower price for items sold[12].

4.2   Determinants of race and ethnicity gaps in unbanked and underbanked status

How do race/ethnicity gaps in the unbanked and underbanked status change once we take into account differences in SES across groups? Table 4 answers this question by presenting two sets of regression results for each outcome variable: one that shows the gaps in the raw data and the other that shows the gaps for the same groups but controlling for the SES variables presented in Table 2. For each dependent variable unbanked or underbanked, columns (1) and (2) present the results of this analysis. For both variables, the raw white-black gaps are two to three times larger than the raw white-Hispanic gaps. While Hispanics are 13 percentage points more likely to be unbanked and 2.5 percentage points more likely to be underbanked than non-Hispanic whites, the corresponding white-black comparisons are 28 percentage points and 6.8 percentage points. The gaps in unbanked are significantly reduced once we control for SES, but blacks still have significantly larger unbanked rates than whites. Interestingly, controlling for SES increases the underbanked gaps, especially for Hispanics. This is possible because Hispanics are younger and less likely to be US-born, disabled and to have some college education (see Table 2), which are all characteristics positively related to underbanked status. In fact, when we add each of the SES variables separately to the model, we find that age (and age squared) and being born in the USA are the characteristics that explain the observed downward bias in the unconditional regression the most.[13]

Supplementary Appendix A shows a similar analysis for the probability of being a frequent AFS user and of being fully-banked. Socio-economic characteristics explain a significant portion of the white-black gaps: the gap in frequent AFS user drops from 26 to 22 percentage points and for the gap in fully banked status from 35 to 24 percentage points. The white-Hispanic gaps follow a similar pattern but are smaller than the white-black gaps.[14]

For all our outcome variables, column (3) in Table 4 (and Supplementary Appendix A) complement the results presented in columns (1) and (2) by including financial literacy measures, trust measures, and time preferences in the analysis of white-minority gaps. The results show that financial literacy factors have a negative and significant effect on the probability of being unbanked. A smaller network of friends having bank accounts

---

[12]These variables are clearly potentially endogenous as one would get to know the cost of these services when using them and so, they are excluded of our regression analysis.

[13]Results are available upon request.

[14]When we analyze the different services separately, we see that the patterns are similar – minorities tend to use each service more frequently than whites. The differences are significant for all the services/specifications for black-white gaps. For Hispanic-white gaps the differences are only significant for pawn shops and prepaid cards. Results are available upon request.

and stores admitting credit cards is related to a higher probability of being unbanked and underbanked. Trust measures are related to the probability of being fully-banked. Finally, time preferences are marginally significant in explaining the probability of being unbanked with a positive effect on those who are present biased and a negative effect on those who are future biased.

The white-minority gaps only change marginally with the introduction of these additional controls, suggesting a limited role for such variables in explaining these gaps. One important exception is the fully-banked gaps which drop by 20% for Hispanics and 25% for blacks. Even after all the controls are included, the gaps in fully-banked status remain large: Hispanics are 8pp. and blacks are 18pp less likely to be fully banked than whites.

Overall, the results in Table 4 show that race/ethnicity gaps in unbanked behavior are significantly explained by differences in SES predictors such as age, education, income, and employment. In fact, the white-Hispanic gap is no longer significant after we control for these variables. In addition, financial literacy, friends and stores networks, trust in the US financial system and present-biased behavior further predict unbanked status and explain part of the black-white gap in unbanked status. In contrast, traditional SES variables, as well as our novel financial literacy, trust, networks and time preferences variables, have very little power in explaining race/ethnicity gaps in underbanked status.

4.3 Blinder-Oaxaca decomposition: the contribution of endowments versus returns

The results of the linear regression models presented above provide us with an understanding of which individual characteristics might be relevant for explaining observed gaps in unbanking and underbanking behaviors. However, to quantify how much of the observed gaps could be accounted for by differences across groups in these characteristics (i.e. differences in endowments), as opposed to remaining behavioral differences across ethnic groups (i.e. differences in coefficients), we performed a Blinder-Oaxaca decomposition analysis as described above in Section 3. Table 5 summarizes the results of this analysis. Concerning the probability of being unbanked, differences in endowments fully explain the observed white-Hispanic gap while both differences in endowments, as well as coefficients, explain the observed white-Black gap. In other words, it appears that not only blacks have characteristics that made them more probable to present these behaviors but they react differently than whites to these characteristics. These results are consistent with the results in Tables 3 and 4 above that show that the gaps in unbanked status are significantly reduced (and in the case of Hispanic totally explained) after we add our controls. In particular, detailed results of our Blinder-Oaxaca decomposition show that different endowments in education, financial literacy, and network of friends explain most of the white-Hispanic unbanked and fully banked gaps. In contrast, gaps in underbanked and fully banked status remain virtually the same after all the controls are introduced for the white-black gap.

To get a better understanding of potential drivers of the differential returns of characteristics between blacks and whites, we look at which characteristics appear to drive the differential returns among these two groups. Full sets of results are presented in Supplementary Appendix B[15]. We found that overall blacks appear to be less affected than whites to the

lack of a network of friends that have bank accounts or to the lack of a network of stores that accept credit cards. In contrast, black respondents appear to be more affected by time preferences than whites.

If we look at the results for the probability of being underbanked we observe that in line with results presented in Table 4 there seem to be much smaller gaps in this behavior that are being difficult to be explained. On the other hand, if we look at the use of AFS services generally, without conditioning on having a bank account, a bigger gap is observed between black and white respondents that are both explained by different endowments and returns to those endowments among the two groups.

5. Further discussion and conclusions

Being unbanked or underbanked, defined as relying on AFS can have important consequences for long-term wealth accumulation. Minority households are more likely to be unbanked and underbanked; these households also have lower wealth and accumulate wealth at slower rates (Smith, 1995). The median wealth of white households is 20 times that of black households and 18 times that of Hispanic households (Taylor *et al.*, 2011). Using newly collected data from low-income respondents from the ALP we study white-minority gaps in unbanked and underbanked status and further investigate the determinants of such gaps. Besides traditional SES measures, we study the role of financial literacy, trust in financial institutions, financial networks, and time preferences.

Consistent with the previous literature, we find large racial/ethnic differences in unbanked rates and use of AFS. In this respect, higher gaps are observed for Non-Hispanic blacks than for Hispanics, when compared with low-income white respondents. In particular, while a fifth of non-Hispanic whites in our low-income sample are unbanked, this fraction is almost half for non-Hispanic blacks and approximately a third for Hispanics.

Our regression analysis shows that these gaps, especially for low-income blacks and for the probability of being underbanked, cannot be fully explained by differences in SES across groups. Variables capturing educational levels, labor status and income help explain the observed white-Hispanic gap for the probability of being unbanked. This is not the case, however, for the observed white-black unbanking gap that remains significant, even after controlling for this socio-economic information. Similarly, both the white-Hispanic gap and the white-black gap remain significant for the probability of being underbanked after introducing socio-economic controls. Other variables that seem relevant for the probability of being unbanked are financial literacy levels, trust in the US financial system, the size of the network of friends with bank accounts and the size of the network of stores accepting credit cards. For the case of the probability of being underbanked, the network of stores is the only other significant variable, apart from socio-economic factors, that has a significant effect.

---

[15]Full results on the contribution of each explanatory variable to each of the white-Minority gaps are available from the authors upon request.

Results from a Blinder-Oaxaca decomposition are consistent with the findings from our regression analysis. While the white-Hispanic unbanked and fully banked gaps are mostly explained by differences in endowments among these two groups, the white-non-Hispanic black gaps are explained both by differences in endowments but also by differences in returns of such endowments. In particular, blacks seem to react differently than whites to their available networks of friends with bank accounts, of stores accepting credit cards and to time preferences. The white-black gap in the use of AFS is also explained by both endowments and returns but, in this case, the differences in returns explain the largest part of the gap. From the point of view of public policy, this is an important finding as it suggests different underlying mechanisms driving unbanked/fully banked and use of AFS. In particular, interventions that would aim at directly changing behaviors would probably be needed for reducing the fraction of AFS users and unbanked among blacks.

On the other hand, it could also be that differences in returns to endowments are driven by remaining relevant omitted factors not considered in this analysis. One of these potential variables could be a lack of access to financial services. The variables related to the network of friends with bank accounts and the network of stores accepting credit cards are trying to capture this dimension but are imperfect. Remaining barriers to access not well captured by these variables might still be important unobserved determinants of unbanking and underbanking behaviors. To try to shed light on this issue, we linked our data with two other survey waves in the ALP[16]. Although the match was imperfect, we found that overall unbanked respondents report lower levels of use of credit cards and loans and report higher levels of disagreement with the statement 'I am able to access financial products for all my financial needs.' These respondents are followed by those who frequently use AFS and those who are classified as underbanked. More research is needed, however, to fully understand if limited access to financial services not captured by the network variables in our analysis could be an important unobserved factor or if there could be others.

Finally, to complement the quantitative analysis that constitutes this paper, we also collected qualitative information about unbanked respondent's reasons not to have a bank account.[17] The main reasons unbanked respondents gave for not having bank accounts are the following: The bank information was confusing, service charges were too high, and they felt they did not have enough money to have a bank account, the minimum balance was too high and they had too many overdrafts. Respondents also felt they did not have to write enough checks to make having a bank account worthy, they did not like dealing with banks and they do not trust banks. These results are in line with our results concerning the importance of socio-economic factors such as education, financial literacy, and income.

The findings from this paper underscore the importance of treating unbanking and underbanking – and use of AFS more broadly – as related but distinct concepts with different underlying causes and potential policy responses. In particular, white-minority gaps in unbanking status might decrease naturally, as race and ethnicity disparities in income and (formal and financial) education are reduced. The same is not true for white-minority

---

[16]Survey waves Well Being 274 and Well Being 286.

gaps in the use of AFS. Future research on effective interventions to reduce the high use of AFS among minority populations would be of significant policy interest. In particular, future work could collect new data using platforms such as the UAS and ALP to understand differences in returns to attributes (such as networks and time preferences) between white and minority respondents that explain a large part of the variation on gaps in unbaked status and AFS use.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

Acknowledgements.

References

Augenblick N, Niederle M and Sprenger C (2015) Working over time: dynamic inconsistency in real effort tasks. The Quarterly Journal of Economics 130, 1067–1115.

Barcellos SH, Carvalho LS, Smith JP and Yoong J (2015) Financial education interventions targeting immigrants and children of immigrants: results from a randomized control trial. The Journal of Consumer Affairs 50, 263–285. [PubMed: 31802782]

Blanco LR, Angrisani M, Aguila E and Leng M (2017) Understanding the racial/ethnic gap in bank account ownership among older adults. The Journal of Consumer Affairs. 10.1111/joca.12188.

Blinder AS (1973) Wage discrimination: reduced form and structural estimates. The Journal of Human Resources 8, 436–455.

Bohn S and Pearlman S (2013) Ethnic concentration and bank use in immigrant communities. Southern Economic Journal 79, 864–885.

Carter SP (2015) Payday loan and pawnshop usage: the impact of allowing payday loan rollovers. The Journal of Consumer Affairs 49, 436–456.

Clark RL and d'Ambrosio MB (2003) Ignorance is not bliss: the importance of financial education. TIAA-CREF Research Dialogue 78, 1–14.

FDIC (2015) FDIC National Survey of Unbanked and Underbanked Households. https://www.fdic.gov/householdsurvey/.

Fitzpatrick K (2015) Does 'banking the unbanked' help families to save? Evidence from the United Kingdom. The Journal of Consumer Affairs 49, 223–249.

Fonseca R, Mullen K, Zamarro G and Zissimopoulos J (2012) What explains the gender gap in financial literacy? The role of household decision-making. Journal of Consumer Affairs 46, 90–106. [PubMed: 23049140]

Fortin N, Lemieux T and Firpo S (2011) Decomposition methods in economics. Handbook of Labor Economics, Chapter 1, 4, 1–102.

Frederick S, Loewenstein G and O'Donoghue T (2002) Time discounting and time preference: a critical review. Journal of Economic Literature 40, 351–401.

Gross MB, Hogarth JM and Schmeiser MD (2012) Use of financial services by the unbanked and underbanked and the potential for mobile financial services adoption. Federal Reserve Bulletin 98, September 2012.

Hogarth JM, Anguelov CE and Lee J (2004) Why don't households have a checking account? The Journal of Consumer Affairs 38, 1–34.

Lusardi A and Mitchell OS (2006) Financial Literacy and Planning Implications for Retirement Wellbeing. Wharton School, University of Pennsylvania, Pension Research Council Working Paper no. 1.

Lusardi A and Mitchell OS (2007) Financial Literacy and Retirement Planning: New Evidence from the RAND American Life Panel. MRRC Working Paper 2007–157.

Lusardi A and Mitchell OS (2011) Financial literacy and retirement planning in the United States. Journal of Pension Economics & Finance 10, 509–525.

Meier S and Sprenger C (2010) Present-Biased preferences and credit card borrowing. American Economic Journal: Applied Economics 2, 193–210.

Oaxaca R (1973) Male-female wage differentials in urban labor markets. International Economic Review 14, 693–709.

OECD (2013) OECD/INFE Toolkit to Measure Financial Literacy and Financial Inclusion: Guidance, Core Questionnaire and Supplementary Questions. OECD. September 2013.

Rhine SL and Greene WH (2006) The determinants of being unbanked for U.S. immigrants. The Journal of Consumer Affairs 40, 21–40.

Rhine SL and Greene WH (2013) Factors that contribute to becoming unbanked. The Journal of Consumer Affairs 47, 27–45.

Rhine SL, Greene WH and Toussaint-Comeau M (2006) The importance of check-cashing businesses to the unbanked: racial/ethnic differences. The Review of Economics and Statistics 88, 73–84.

Robb CA, Babiarz P, Woodyard A and Seay MC (2015) Bounded rationality and use of alternative financial services. The Journal of Consumer Affairs 49, 407–435.

Smith JP (1995) Racial and ethnic differences in wealth in the Health and Retirement Study. Journal of Human Resources 30, S158–S183.

Taylor P, Kochhar R, Fry R, Velasco G and Motel S (2011) Wealth Gaps Rise to Record Highs Between Whites, Blacks and Hispanics. PewResearch Center. Social & Demographic Trends.

Washington E (2006) The impact of banking and fringe banking regulation on the number of unbanked Americans. Journal of Human Resources 41, 106–137.

Table 1.

Financial capability by unbanked, underbanked, fully banked, and frequent AFS users status

	Difficulty Covering Expenses			*Emergency Funds*	
	Very difficult	**Somewhat difficult**	**Not difficult**	**Yes**	**No**
Unbanked	31.16	51.12	16.53	4.45	94.04
Underbanked	32.74	49.24	17.55	20.05	78.13
Fully Banked	15.31	48.64	35.71	27.99	68.37
Uses AFS	36.26	47.87	15.57	13.76	85.06
	Unexpected Need				
	Certainly Could	**Could Probably**	**Could Probably Not**	**Could Not**	**N. Obs**
Unbanked	5.1	6.33	21.72	52.42	91
Underbanked	7.35	19.01	8.06	59.27	101
Fully Banked	24.42	22.61	17.94	29.8	292
Uses AFS	6.65	17.41	16.38	53.24	147

Table 2.

Descriptive statistics, respondents in households with income below $50,000

	ALP Data			
	All groups	**Non-Hisp Whites**	**Hispanics**	**Non-Hisp. Blacks**
% sample		59.78%	22.42%	15.65%
Unbanked	0.26	0.19	0.32	0.47
Underbanked	0.16	0.14	0.17	0.21
Frenquent AFS users	0.27	0.20	0.29	0.47
Fully-banked	0.58	0.68	0.51	0.32
Male	0.46	0.46	0.49	0.42
Age	45.43	49.31	37.85	42.05
US born	0.88	0.95	0.64	0.95
US citizen	0.95	0.99	0.81	0.98
Less than high school	0.21	0.17	0.29	0.25
High school graduate	0.39	0.39	0.39	0.40
Some college	0.20	0.21	0.16	0.22
Bachelor degree or more	0.20	0.24	0.16	0.13
Family income below 20 K	0.52	0.48	0.53	0.65
Family income between 20 and 35 K	0.31	0.33	0.30	0.24
Family income between 35 and 50 K	0.17	0.19	0.17	0.11
Employed	0.39	0.37	0.50	0.31
Unemployed	0.20	0.15	0.23	0.33
Disabled	0.17	0.18	0.09	0.27
Retired	0.15	0.20	0.06	0.07
Other	0.16	0.15	0.21	0.13
Interviewed in Spanish	0.05	0.00	0.21	0.00
Observations	1,576	341	854	285

Notes: Authors' calculations using ALP data, survey 276. Sample restricted to families with less than 50 K in annual income. Means calculated using sample weights.

Table 3.

Financial literacy, trust, networks, and time preferences

% sample	All groups 100%	Non-Hisp Whites 60%	Hispanics 22%	Non-Hisp. Blacks 16%	Unbanked 26%	Underbanked 16%	Frequent AFS users 26%	Fully banked 58%
Financial Literacy								
Division correct	0.88	0.91	0.88	0.77	0.76	0.90	0.86	0.93
Inflation correct	0.34	0.44	0.22	0.18	0.20	0.30	0.27	0.42
Interest correct	0.91	0.94	0.89	0.82	0.83	0.89	0.89	0.96
Interest 2 correct	0.50	0.59	0.38	0.34	0.37	0.51	0.47	0.57
Compound interest correct	0.30	0.35	0.26	0.21	0.27	0.32	0.32	0.32
High return high risk correct	0.77	0.82	0.67	0.70	0.60	0.77	0.78	0.85
Inflation defitition correct	0.79	0.83	0.72	0.73	0.65	0.88	0.80	0.83
Diversification correct	0.60	0.69	0.48	0.45	0.39	0.64	0.59	0.69
Real interest correct		0.69	0.46	0.40	0.40	0.58	0.54	0.67
Stock versus mutual fund correct	0.40	0.45	0.35	0.28	0.26	0.39	0.33	0.46
Total number of correct answers	6.08	6.70	5.31	4.87	4.74	6.17	5.86	6.69
Trust in Financial Institutions Stock Market	0.06	0.05	0.08	0.09	0.06	0.05	0.05	0.07
Banks	0.40	0.40	0.45	0.32	0.15	0.46	0.34	0.49
Insurance Companies	0.19	0.19	0.18	0.20	0.12	0.24	0.21	0.21
Stock Brokers	0.04	0.03	0.07	0.03	0.05	0.03	0.03	0.04
Financial Advisers	0.09	0.08	0.11	0.07	0.07	0.08	0.07	0.10
Total trust index	0.78	0.76	0.87	0.71	0.45	0.86	0.69	0.90
Networks								
Network: friends and family	0.14	0.11	0.18	0.23	0.37	0.11	0.20	0.06
Network: stores	0.09	0.05	0.12	0.20	0.16	0.12	0.15	0.05
Cost Knowledge								
Payday loans expensive	0.66	0.78	0.50	0.48	0.46	0.68	0.64	0.75
Less money pawnshop	0.69	0.72	0.65	0.66	0.64	0.75	0.76	0.70
Time Preferences								
Present biased	0.12	0.11	0.12	0.18	0.19	0.10	0.14	0.10
Future biased	0.28	0.30	0.25	0.24	0.18	0.31	0.28	0.31
Observations	1576	341	854	285	407	307	490	853

Notes: Authors' calculations using ALP data, survey 276. Sample restricted to families with less than 50 K in anual income. Means calculated using sample weights.

Table 4.

Race and ethnicity gaps in unbanked/underbanked status

	Unbanked (2)			Underbanked		
	(1)	**(2)**	**(3)**	**(1)**	**(2)**	**(3)**
Hispanic/Latino	0.128 ***	0.0110	0.00801	0.0254	0.0768 ***	0.0734 ***
	(0.0267)	(0.0268)	(0.0261)	(0.0228)	(0.0256)	(0.0263)
Non-Hispanic Black	0.283 ***	0.156 ***	0.114 ***	0.0675 **	0.0695 **	0.0642 **
	(0.0306)	(0.0280)	(0.0279)	(0.0264)	(0.0270)	(0.0281)
Male		0.0142	0.00979		0.00146	0.00755
		(0.0198)	(0.0193)		(0.0189)	(0.0195)
Age		0.00400	0.00538		0.00577	0.00578
		(0.00437)	(0.00416)		(0.00416)	(0.00419)
Age squared		-0.000110 **	$-9.54\text{e-}05$ **		$-5.46\text{e-}05$	$-5.71\text{e-}05$
		(4.89e-05)	(4.65e-05)		(4.65e-05)	(4.69e-05)
US_born		0.00202	-0.00444		0.0760 **	0.0822 ***
		(0.0319)	(0.0304)		(0.0304)	(0.0307)
Less than high school		0.272 ***	0.177 ***		-0.00798	0.00426
		(0.0320)	(0.0319)		(0.0306)	(0.0322)
High-school graduate		0.132 ***	0.0482 *		-0.0410	-0.0358
		(0.0271)	(0.0270)		(0.0259)	(0.0272)
Some college		0.0481	0.0256		0.0725 **	0.0764 ***
		(0.0307)	(0.0292)		(0.0292)	(0.0294)
Family income below 20 K		0.137 ***	0.0585 **		0.0554 **	0.0600 **
		(0.0290)	(0.0282)		(0.0276)	(0.0284)
Family income between 20 and 35 K		0.0763 **	0.0281		0.0514 *	0.0560 *
		(0.0296)	(0.0284)		(0.0281)	(0.0286)
Unemployed		0.249 ***	0.189 ***		-0.0481 *	-0.0382
		(0.0273)	(0.0267)		(0.0264)	(0.0269)
Disabled		0.0784 ***	0.0412		0.0554 **	0.0640 **
		(0.0297)	(0.0284)		(0.0282)	(0.0287)
Retired		0.0719 *	0.0484		0.0136	0.0206
		(0.0419)	(0.0400)		(0.0398)	(0.0403)
Other		0.148 ***	0.128 ***		-0.0883 ***	-0.0789 ***
		(0.0283)	(0.0273)		(0.0270)	(0.0275)
Fin. Lit: inflation, interest and risk factor			-0.0486 ***			-0.000706
			(0.0102)			(0.0103)
Fin. Lit: savings factor			-0.00692			-0.00231
			(0.00967)			(0.00975)
Fin. Lit: basic calculations factor			-0.0237 **			-0.00444

	Unbanked (2)			Underbanked		
	(1)	**(2)**	**(3)**	**(1)**	**(2)**	**(3)**
			(0.0109)			(0.0110)
Network: friends and family			0.265 ***			−0.0478 *
			(0.0279)			(0.0282)
Network: stores			0.0730 **			0.0686 **
			(0.0327)			(0.0330)
Trust in financial institutions factor			−0.0492 ***			0.0132
			(0.00978)			(0.00987)
Present Biased			0.0509 *			−0.0405
			(0.0291)			(0.0294)
Future Biased			−0.0376 *			0.0117
			(0.0215)			(0.0217)
Constant	0.192 ***	−0.00478	0.00532	0.145 ***	−0.1000	−0.111
	(0.0138)	(0.101)	(0.0968)	(0.0118)	(0.0957)	(0.0976)
Observations	1,571	1,571	1,554	1,561	1,561	1,550
R-squared	0.056	0.271	0.329	0.004	0.044	0.051

Notes: Authors' calculations using ALP data, survey 276, using suvey weights. Sample restricted to families with less than 50 K in annual income. For a definition of the variables, see text Section 2 (Data).

***
p < 0.01

**
p < 0.05

*
p < 0.1.

Table 5.

Blinder-Oaxaca decomposition of white-minority gaps in unbanking, underbanking, fully banked, frequent AFS users

Unbanked				
Minority group	**Total diff.**	**Endowments**	**Coefficients**	**Interaction**
Hispanic/Latino	−0.148***	−0.141***	−0.021	0.014
	(0.027)	(0.024)	(0.037)	(0.037)
Non-Hispanic Black	−0.274***	−0.169***	−0.105***	0.0001
Underbanked	(0.034)	(0.036)	(0.035)	(0.038)
	Total diff.	**Endowments**	**Coefficients**	**Interaction**
Hispanic/Latino	−0.029	0.023	−0.098**	0.046
	(0.024)	(0.018)	(0.043)	(0.041)
Non-Hispanic Black	−0.065**	0.004	−0.025	−0.044
Fully Banked	(0.029)	(0.030)	(0.033)	(0.035)
	Total diff.	**Endowments**	**Coefficients**	**Interaction**
Hispanic/Latino	0.177***	0.118***	0.119**	−0.060
	(0.031)	(0.026)	(0.050)	(0.048)
Non-Hispanic Black	0.339***	0.165***	0.132***	0.044
Frequent AFS Users	(0.034)	(0.035)	(0.040)	(0.042)
	Total diff.	**Endowments**	**Coefficients**	**Interaction**
Hispanic/Latino	−0.089***	−0.009	−0.151***	0.071
	(0.028)	(0.022)	(0.049)	(0.047)
Non-Hispanic Black	−0.264***	−0.094**	−0.191***	0.021
	(0.035)	(0.037)	(0.040)	(0.042)