

What Determines Household Use of Financial Transaction Services?*

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October 2013

Preliminary Draft – Please do not cite without permission from the authors

* All opinions and conclusions expressed in this paper are those of the authors and do not necessarily reflect the views of the Federal Deposit Insurance Corporation. We thank Karyen Chu, Keith Ernst, Alicia Lloro, Una Osili, and participants at the FDIC DCP research workshop and the FDIC 3rd Annual Consumer Research Symposium for very helpful comments. All remaining errors are our own.

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Abstract

This study examines the factors that influence household choice of financial transaction services. In addition to the standard model of bank account ownership, we model bank account ownership and use of nonbank alternative financial transaction services (AFTS) in a unified framework, a novel approach in the literature. We estimate our model on a nationally representative, large sample of U.S. households from the June 2011 Unbanked/Underbanked Supplement to the Current Population Survey. In addition to measures of household characteristics typically used in the literature, we incorporate bank and nonbank financial services provider locations and other local market attributes in our empirical investigation.

Our analysis shows that household socio-economic characteristics such as income and education are the most important determinants of bank account ownership. While other demographic characteristics such as race and ethnicity have some effect on whether a bank account is used, these attributes have a much stronger influence on whether or not a household uses nonbank AFTS along with a bank account. We find that access to bank branches and AFTS locations has a relatively modest influence on a household's choice of financial transaction services, as do other neighborhood attributes.

1. Introduction

Participation in mainstream financial markets among U.S. consumers has been increasing over the past few decades. As illustrated in Figure 1, roughly 85 percent of families held a transaction account at a bank or other mainstream financial institution in 1989 (Kennickell and Starr-McCluer 1994), compared with 90.5 percent in 1998 (Kennickell et al. 2000) and 92.5 percent in 2010 (Bricker et al. 2012).¹ However, over the same period there also has been a rapid growth in the market for alternative financial services (AFS) such as money orders and check cashing, where providers operate outside of the system of federally insured financial institutions.² As of 2011, an estimated 25 percent of U.S. households had used a nonbank AFS provider within the past year, and roughly 4 out of 5 households that used nonbank AFS also had a bank account.³

The goal of this study is to better understand how access to bank and nonbank financial services providers, neighborhood attributes, and household-level socio-economic and other demographic characteristics influence the way households meet their financial transactions needs. This is an important issue for consumers and for public policy. Consumers who use mainstream financial services providers benefit from consumer protection laws and regulations that may not cover AFS such as check cashing or money orders offered by nonbank providers.⁴

¹ Mainstream financial institutions include banks, thrifts, and credit unions. Throughout this paper we use the term “bank” to represent all types of mainstream financial institutions.

² Although reliable time series data on AFS use by U.S. consumers nationwide is not available, estimates from various sources indicate that the AFS market has been growing over the past few decades. For example, Apgar and Herbert (2004) provide evidence indicating that the industry for AFS products such as check cashing and payday loans grew rapidly over the 1990s. A recent estimate from *IBISWorld* (2012) is that between 2007 and 2012 the check cashing and payday loan industry grew 2.5% annually with revenue of \$10 billion.

³ These estimates are based on authors’ computations using the FDIC’s Unbanked/Underbanked Supplement to Census’ Current Population Survey, June 2011.

⁴ Among the most important consumer protection laws and regulations for transaction and savings account holders are: deposit insurance coverage provided by FDIC or NCUA; Electronic Funds Transfer Act and Regulation E, Electronic Funds Transfer; Federal Truth in Lending Act and Regulation Z, Truth in Lending; Expedited Funds Availability Act, Check Clearing for the Twenty-First Century Act and Regulation CC, Availability of Funds and Collection of Checks; and Truth in Savings Act and Regulation DD, Truth in Saving.

For example, consumers who use a checking account held at a bank or credit union enjoy the safety of deposit insurance, are able to obtain statements summarizing account activities, and have the ability to dispute payments made in error. Integration into the financial mainstream may also be associated with positive externalities at the community level. To the extent that transaction accounts improve consumers' ability to access other mainstream financial services such as savings and credit products, local residents may be better able to weather economic downturns and contribute to economic expansions.⁵

Despite the benefits associated with using mainstream financial products, among U.S. consumers there is widespread use of nonbank alternative financial transaction services (AFTS), including money orders, check cashing, and international remittances. This may be attributable to a variety of factors, such as lack of access to bank branches within specific geographies (Caskey 1994), consumer preferences for greater convenience or faster access to funds (FDIC 2012; Gross et al. 2012), or more transparent fee structures (Fi\$CA, 2013). Understanding the factors that influence consumers' decisions about which financial transaction services are used and their sources is essential to policymakers and others interested in encouraging mainstream participation.

We analyze data from the June 2011 Unbanked/ Underbanked Supplement to the Current Population Survey (CPS), sponsored by the FDIC and administered by Census. These publicly available survey data cover a nationally representative, large sample of U.S. households. The dataset includes a rich set of economic and demographic information which can be used to characterize household-level incentives and preferences. Importantly, these data include information on types of financial transactions made at the household level, including whether

⁵ Recent research also shows that crime rates are lower in neighborhoods with higher rates of bank account ownership, and higher in neighborhoods with a greater concentration of AFS providers (Paulson et al. 2006; Kubrin et al. 2011).

anyone in the household has a bank account and use of nonbank AFTS.⁶ Using restricted access geographic identifiers provided by Census, we also include indicators for the presence of bank branches and AFTS locations within 5 miles of the household residence, as well as the per-capita number (i.e., concentration) of bank branches and AFTS providers in the area. Bank branch and AFTS location information are from FDIC's 2011 Summary of Deposits and Census' 2011 Zip Code Business Patterns data, respectively.⁷ In addition, we include summary demographic information on the population residing within the household's census tract, using American Community Survey 2011 five-year estimates. The inclusion of bank and nonbank financial services provider locations and local market attributes in our empirical investigation is a novel contribution to the existing literature.

We focus on two key measures of financial transaction services use. First, we estimate a model of household bank account ownership (checking or savings) to facilitate a comparison to previous studies. Second, we define a categorical measure of the bundle of financial transaction services used by the household which reflects bank account ownership and use of nonbank AFTS. Specifically, we classify households that have a bank account and do not use AFTS as "Bank Only" and identify households with a bank account who also use AFTS as "Bank plus AFTS" households. Households without a bank account who use AFTS are "AFTS Only" households, while households that do not have a bank account and do not use AFTS are

⁶ Specifically, AFTS products include money orders, check cashing, and international remittances. The Unbanked/Underbanked supplement also includes information on use of AFS credit products such as payday loans, rent-to-own agreements, refund anticipation loans, and pawnshop loans. We exclude credit products from our analysis because household demand for these products is likely driven by fundamentally different factors than for transaction services. And on a practical level, in our data we do not observe whether households use mainstream credit products such as credit cards or short-term personal loans from a bank.

⁷ To our knowledge, Bhutta (2012) is the first to use Census Business Zip Code data for AFS location information.

categorized as “Cash Only.” This approach allows us to model use of bank accounts and AFTS in a unified framework, a unique approach in the literature.⁸

Our empirical results indicate that the presence of bank and nonbank financial services providers have a relatively modest effect on a household’s likelihood of having a bank account. Households that don’t have a bank branch within 5 miles of their residence are roughly 1 percentage point less likely to own a bank account. The effects of bank branch and AFTS provider concentration are very close to zero. And, just as in the bank account ownership model, access to bank and nonbank financial services providers have a modest effect on the financial transaction services bundle used by households. For example, the likelihood that a household has a bank account and does not use AFTS is 1.7 percentage points higher for households residing in an area with at least one bank branch. We also find that local bank branch concentration has little effect, as does the indicator for whether there is at least one AFTS present in the local area. The concentration of AFTS locations has a statistically significant effect on the probability of being Bank Only, but the magnitude of this effect is small.

Previous literature has suggested that the communities in which households live may have an influence over household financial decision making (Lin 2000; Campbell, Martinez-Jerez, and Tufano 2012). Our empirical model includes a number of measures that characterize neighborhood attributes, such as the income level and racial and ethnic composition of the population residing in the household’s census tract. Our estimates indicate that the impact of such attributes on household use of financial transaction services is generally quite small.

⁸ Much of the existing literature focuses on the determinants of bank account ownership, or AFS use, but not both. A notable exception is Rhine, Greene, and Toussaint-Comeau (2006), who show that for a sample of households in the Chicago metropolitan area, the decision to patronize check-cashing businesses (i.e. AFS providers) is jointly made with the decision to hold a bank account.

We find that socio-economic characteristics are the most influential determinants of a household's decision to use a bank account.⁹ For example, low-income households are 7.5 percentage points less likely than upper-income households to have a bank account, and households that lack a high school diploma are 9.0 percentage points less likely to have a bank account than college graduates. Relative to socio-economic characteristics, the effects of other demographic attributes such as race and ethnicity on bank account ownership are generally not as large in magnitude. For example, black and Hispanic households are each less than four percentage points less likely to have a bank account than white and non-Hispanic households, respectively. Perhaps not surprisingly, our results indicate that much of the disparity in bank account ownership rates across racial and ethnic groups observed in the raw data is attributable to other correlated factors controlled for in the multivariate empirical investigation.

As in the bank account model, the most important factors associated with the financial transaction services bundle used are household-level characteristics. However, unlike the bank account model, the effects of demographic characteristics such as race and ethnicity on the likelihood of being in the Bank Only group are large in magnitude and are generally at least as influential as socio-economic factors. For example, we estimate that black households are 15.4 percentage points less likely to be in the Bank Only group and are 11.6 percentage points more likely to be in the Bank plus AFTS group than white households. By comparison, low-income households are 8.4 percentage points less likely to be in the Bank Only group than upper-income households. But low-income households are only 1 percentage point more likely than upper-

⁹ Throughout this paper, for characteristics that vary at the person-level (e.g. employment status, education, race), we use the characteristics of the householder to represent the household. For brevity, we refer to households as having the characteristics of the householder, although clearly there may be differences across persons residing within a household. For example, a "black household" has a householder who is black, but the race of other residents in the household may differ. For more detail on the definition of "householder", refer to the Census website (<http://www.census.gov/cps/about/cpsdef.html>).

income households to have a bank account and use AFTS, while they are 7.4 percentage points more likely to not have a bank account at all (5 percentage points more likely to be in the AFTS Only group, and 2.4 percentage points more likely to be in the Cash Only group).

In summary, our results indicate that household socio-economic characteristics such as income and education are the most important determinants of whether or not a household owns a bank account. While demographic characteristics have some effect on bank account ownership, these attributes have a much more important influence on whether or not a household uses nonbank AFTS along with a bank account. Our findings are generally consistent with the subjective reasons cited by households for not having a bank account and for using nonbank AFTS products. As summarized in FDIC (2012), the primary reasons cited for not having a bank account are economic in nature (e.g. “do not have enough money”), while among banked households the most commonly cited reasons for using nonbank check cashers, money orders, and remittances are related to consumer preferences (e.g. “convenience”; “get money faster”).

The remainder of this paper is organized as follows. Section 2 provides highlights from previous research, Section 3 explains the conceptual framework and empirical specification, and Section 4 describes the data. Estimation results are presented in Section 5 and we provide further discussion in Section 6. Brief concluding thoughts are presented in Section 7.

2. Background

The existing literature provides clear and robust evidence showing that lower rates of bank account ownership are most frequently found among families with lower income or net worth, households with fewer years of education, those who are younger, and members of black

or Hispanic households.¹⁰ For example, a recent study by Rhine and Greene (2013) examines the dynamics of bank account ownership using longitudinal survey data from the 2004 Survey of Income and Program Participation. The authors find that banked households who experience a negative shock to family income, employment, or health insurance coverage in one period are significantly more likely to become unbanked in the subsequent period.

Studies of AFS product use show that the household characteristics typically associated with lower rates of bank account ownership are also related to higher rates of AFS use. As an example, using the 2009 FDIC Unbanked/Underbanked supplement to the CPS, Gross et al. (2012) find that use of various AFS products among U.S. households is higher among less educated, unemployed, and minority households. The authors find that for at least some types of AFS, use is somewhat less prevalent among the lowest-income group (under \$20,000) relative to the middle-income groups. This suggests that households at the lowest income levels may be more likely to use cash to meet their financial transactions needs than to obtain transaction services from financial institutions or nonbank providers.

A limitation of the existing literature is that other potentially important determinants of bank account ownership and AFS use are typically not accounted for. For example, one reason why lower income and minority consumers might use AFS products is that there may be a relative scarcity of bank branches in lower-income neighborhoods (Caskey 1994).¹¹ Further, local neighborhood attributes may have some influence on household behavior, as areas with

¹⁰ For example, see FDIC (2012), Rhine and Greene (2006), Barr (2009), Barr, Dokko and Feit (2011), Hogarth and O'Donnell (1997), Kooce-Lewis, Swagler, and Burton (1996), and Caskey (1994, 1997).

¹¹ Several studies have examined the spatial distribution of bank branches and AFS providers, with the goal of identifying whether particular communities are underserved. Evidence on this point is mixed. A few case studies focusing on specific metropolitan areas find that AFS providers are more commonplace in neighborhoods with fewer bank branches and these areas tend to be more heavily represented by lower-income or minority communities (e.g. Smith et al. 2013; Smith et al. 2008; King et al. 2005; and Graves 2003). In contrast, other studies suggest that AFS providers tend to coexist in neighborhoods with bank branches (e.g. Cover et al., 2011; Kubrin et al., 2011; Fellowes and Mabanta, 2008; and Burkey and Simkins, 2004).

higher social capital may have norms that encourage financial stability, or provide a network of informal assistance (Lin 2000; Campbell, Martinez-Jerez, and Tufano 2012). The association between household characteristics and bank account ownership and AFS use found in previous studies might be attributable, in part, to these unobserved, correlated factors.

Our study extends earlier research by addressing some of these omitted variable issues. Specifically, we account for the household's proximity to bank and nonbank financial service providers, and the potential influence of local community characteristics in our empirical model.¹² We also examine household use of bank accounts and nonbank AFTS in a unified framework, a novel contribution to the literature. We estimate our model on a nationally representative, large sample of U.S. households.

3. Empirical Model

We model household choice of financial transaction services using a latent utility framework. For household i residing in census tract j in state s , the utility associated with choosing a bundle k of financial transaction services (FTS) is specified as follows:

$$FTS_{ijk}^* = z_j' \alpha_k + y_i' \beta_k + x_i' \gamma_k + a_j' \delta_k + s' \theta + \varepsilon_{ijk}$$

where latent utility FTS_{ijk}^* is unobserved, and ε_{ijk} is a random disturbance term. The observed choice $FTS_{ij} = k$ is assumed to maximize household utility. We examine two alternative outcome measures in our empirical work: a binary indicator for bank account ownership and a categorical measure of financial transaction services use. In the first case, the dependent variable

¹² In a study of involuntary bank account closures (i.e. closures initiated by the bank) between 2001 and 2005, Campbell, Martinez-Jerez and Tufano (2012) find that local banking structure has some effect, as counties with a greater share of locally-owned bank branches have lower rates of involuntary account closure. They also find some empirical support for the notion that greater neighborhood social capital may influence outcomes, as higher voter turnout and lower crime rates (their proxies for social capital) are associated with lower closure rates.

FTS_{ij} takes on a value of 1 if the household has a bank account and 0 otherwise. We specify this as a logit model. In the second case, the dependent variable may take on the value $k = 1, \dots, 4$, representing the financial services bundles “Bank Only”, “Bank plus AFTS”, “AFTS Only”, and “Cash Only”, respectively. We specify this as a Multinomial Logit model (MNL).¹³

Turning to the explanatory covariates, the vector z_j measures supply-side characteristics of the local market for financial transaction services, specifically indicator variables for whether there is at least one bank branch (or AFTS provider) and the per-capita number of bank branches (and AFTS providers). We expect these measures to reflect the costs of using a bank account and AFTS for households located in area j . For example, as bank branch concentration increases, the costs of owning a bank account should decrease, due to lower time costs (e.g. distance to the nearest bank branch may decline) and increased competition among providers. The vectors y_i and x_i contain household-level socio-economic and other demographic information, respectively. The household’s “need” for financial services should be reflected by its socio-economic characteristics, while demographic characteristics proxy for the household’s preferences over financial transaction services. The vector a_j contains summary measures of the population residing within the household’s census tract to pick up the potential influence of neighborhood effects on household preferences. Finally, we also include in the model a vector of state fixed effects ($s'\theta$) to control for differences in the regulatory environment, economic conditions, or other unobserved factors that might affect the supply or demand for financial transaction services.

¹³ We use MNL for computational simplicity. However, an unattractive characteristic of the MNL model is that it imposes an “Independence of Irrelevant Alternatives” (IIA) assumption. We discuss the IIA issue further in Section 6.

It is worth noting that we do not account for potential selection in the location of financial services providers in our analysis. To the extent that bank branch and AFTS providers choose to locate in areas where demand for their services is high, our estimates of the effect of such factors on household financial services choice may be biased upward in magnitude.¹⁴ However, this concern is mitigated somewhat by the fact that we control for local population characteristics directly in our empirical model, thereby picking up some of the bank branch and AFTS selection effects.

4. Data

Our analysis uses data from the most recent Unbanked/Underbanked supplement to the Current Population Survey (CPS), administered by Census in June 2011. The supplement collects extensive information about consumers' choice of bank and nonbank financial services products and reasons why these choices were made. Specifically, the survey asks households about checking and savings account ownership, as well as use of a variety of nonbank AFS products. One of the most important and appealing features of these data is that we are able to utilize the rich set of socioeconomic and demographic information available in the base CPS, a large representative sample of the U.S. population. In addition to these publicly available data, we obtained from Census restricted-access data on the census tract of residence for each household in the CPS. Of the 53,691 households that participated in the base CPS, roughly 44,905 (84 percent) also completed the Unbanked/Underbanked Supplement. We omit an additional 1951 observations due to missing data on bank account ownership or AFTS use, and

¹⁴ A similar bias might occur if household choice of residential location is correlated with preferences for financial transaction services, for example if households with a greater preference for using AFTS choose to locate in neighborhoods with more AFTS providers.

43 observations where the household type is equal to “other”.¹⁵ Finally, we drop 4,768 observations due to missing household census tract identifiers and 224 observations due to missing data on crime and voting rates, yielding a final sample size of 37,919 households.¹⁶

As noted above, we focus on two alternative measures of household financial transaction services use: bank account ownership and a categorical measure of financial transaction services use that takes into account whether the household has a bank account and whether it uses nonbank AFTS products.¹⁷ We identify the household as a user of AFTS products if within the past year they went to a place other than a bank to purchase a money order, cash a check, or send money internationally. Table 1 summarizes the distribution of households in our sample based on their use of financial transaction services. Roughly 93 percent of households have a bank account in our sample.¹⁸ Most households (75 percent) are “Bank Only”, i.e. they have a bank account and do not use AFTS providers. A non-trivial share of households (18 percent) have a bank account and also use AFTS (“Bank plus AFTS”). Among the seven percent of households who do not have a bank account, almost two-thirds use AFTS (“AFTS Only”) while the remaining one-third does not (“Cash Only”).

¹⁵ Household type “other” includes residences that are group quarters, family households where the householder is unmarried and in the armed forces, and non-family (i.e. individual) households where the respondent is in the armed forces.

¹⁶ Missing census tract data in the CPS is primarily attributable to housing units included in the sample that were constructed subsequently to the 2000 decennial census. Overall, the sample selection criteria described here had very little effect on mean levels of observable household characteristics.

¹⁷ A small proportion of households in our sample (roughly 2 percent) have a savings account but do not have a checking account. In practice a savings account may not be sufficient to meet the financial transaction services needs for a typical household, as Regulation D states that consumers cannot make more than six withdrawals per month from such accounts. More detailed information about Regulation D is available at http://www.federalreserve.gov/boarddocs/supmanual/cch/int_depos.pdf. As a robustness check, we conducted an alternative analysis using a definition of financial services use where households are categorized by checking account status and AFTS use. Results are quite similar to the main results presented in this paper.

¹⁸ We emphasize that this is an unweighted estimate based on our (selected) analysis sample. Nonetheless the estimate is similar to the best national estimates of bank account ownership in the U.S. FDIC (2012) estimates that almost 92 percent of U.S. households had a bank account as of 2011, while Bricker et al. (2012) estimates that 92.5 percent of families had a bank account in 2010.

Table 2 provides definitions and data sources for all control variables used in our analysis. Bank branch location data are from FDIC 2011 Summary of Deposits (SOD), and the AFTS provider location data are from Census' 2011 Zip Code Business Patterns (ZCBP).¹⁹ Both of these sources provide geographic information at the zip code level. We consider a bank branch (or AFS provider) to be within the local market of a household if the population-weighted centroid of the zip code in which the bank branch (or AFS provider) is located is within five miles of the population-weighted centroid of the household's census tract of residence.²⁰ In order to account for differences across geographic areas in population density, we express bank branch and AFS presence as a per capita measure, dividing the count of financial institutions by the population (in 1000s) residing in the zip codes that comprise the local market.

Table 2 also details the list of variables used to characterize the local community for each household in our sample. Summary measures of the population residing within the household's census tract are from 2011 American Community Survey (ACS) five-year data. Specifically, we include the share of the tract population that is lower income, black or Hispanic, family non-couple households, and educational attainment of high school diploma or less. Finally, as in Campbell, Martinez-Jerez, and Tufano (2012) we include county-level measures of property and violent crime rates, and voter turnout rates, to proxy for other community characteristics that might influence a household's choice of financial services.

¹⁹ Specifically, our measure of AFTS providers in the ZCBP data is the count of businesses coded as "*Other activities related to credit intermediation (522390)*" in the North American Industrial Classification System (NAICS). According to the NAICS code these are, "establishments primarily engaged in facilitating credit intermediation (except mortgage and loan brokerage; and financial transactions processing, reserve, and clearinghouse activities), including check cashing services and money order issuance services." See Bhutta (2012) for more on using ZCBP as a source of AFS provider location information.

²⁰ Zip code and census tract centroid information are from Census' 2010 Gazetteer files. Our choice of a five mile radius is meant to characterize the market for financial services near the household's place of residence. A recent market research report from Mintel indicates that most consumers chose their bank because there is a branch near their home, and nine out of ten said it was important to have a bank branch nearby (Menke 2012). We acknowledge that our choice of a five miles measure is somewhat arbitrary, and at least some consumers may seek financial services outside of this area (for example, near their place of work). However, the results presented in this paper are qualitatively robust to alternative definitions of "local market", including use of a 2, 10, or 25 mile radius.

The specific measures of household-level characteristics in our analysis are from the base CPS. Socio-economic measures included are household income, labor force status, homeownership (a proxy for wealth), and educational attainment.²¹ Other demographic variables included in the model are race, Hispanic status, citizenship status, age, household structure, and metropolitan status. As noted earlier, we use the information from the respondent to represent the household for all person-level covariates such as age or education. We also convert all household-level continuous dependent variables into a series of categorical variables. For example, we use the age of the household respondent to categorize each household into one of the following age groups: 34 and under, 35 to 54, 55 to 64, or 65 and older. Thus our model allows the effect of age to vary non-linearly over the lifecycle.

Table 3 presents summary statistics for all control variables included in the specification, for the overall sample and by financial services type. Eighty-nine percent of households in our sample have at least one bank branch in the local area, and the average number of bank branches is 0.33 per 1,000 residents. In contrast, 66 percent of households have at least one AFTS provider, and the average number of AFTS locations is 0.05 per 1,000 residents. To put this into context, the average number of residents in the household's local area is roughly 178,000. Therefore the average household in our sample has roughly 59 bank branches and 9 AFTS locations within five miles of their residence. Surprisingly, the share of households with at least one bank branch does not vary substantially across financial services categories. However, the number of bank branches per capita is relatively lower among unbanked households, and the presence of AFTS locations is relatively higher among unbanked households and among households that use AFTS either exclusively or in addition to bank accounts.

²¹ See Canner et al. (1998) for a discussion about the strong correlation between a household's homeownership and wealth.

In addition, Table 3 shows that neighborhood characteristics differ across households categorized by bundle of financial transaction services used. For example, the average unbanked household resides in a census tract where 54 percent of residents are low- or moderate-income (LMI) (i.e. household income is less than 80 percent of the area median income), well above the 41 percent of LMI residents living in the average banked household's neighborhood. Similarly, on average, unbanked households reside in census tracts with higher proportions of residents who are black or Hispanic, have lower educational attainment, or are from single (unmarried) family households, relative to banked households.

Finally, Table 3 summarizes socio-economic and demographic characteristics of the household by financial services category, and in Appendix Table 1 we also report the distribution of households across financial transaction services categories by selected household characteristics. Because these summary statistics are generally consistent with expectations, we omit detailed discussion of them here.

5. Results

Household Bank Account Ownership

We start by estimating the logit model of bank account ownership. Each column of Table 4 shows partial effects from a separate specification.²² The first specification includes only household socio-economic and demographic characteristics. The second specification adds variables characterizing the household's access to bank branches and AFTS locations, and the third also adds neighborhood characteristics.

The results from specification 1 are broadly consistent with the existing literature examining bank account ownership. For example, a household's likelihood of having a bank

²² The underlying logit coefficient estimates (omitted here) are available from the authors upon request.

account is increasing in income and educational attainment, while the probability of having a bank account is lower for Black and Hispanic households.

The partial effects in the second and third specification (columns 2 and 3) indicate that the presence of financial service providers in the local area has relatively modest effects on a household's likelihood of having a bank account. Households that don't have a bank branch within 5 miles of their residence are roughly 1 percentage point less likely to own a bank account. Bank branch concentration (per capita) and the presence and concentration (per capita) of AFTS providers do not significantly influence the likelihood of having a bank account.

The effects of neighborhood characteristics on household bank ownership are also fairly modest. A one standard deviation increase from the mean in the share of the population that has a HS degree or less (from 43 to 60 percent) reduces the probability of being banked by 1.4 percentage points. To the extent that less education is associated with lower financial literacy within a community, the finding that neighborhood education levels affect household bank account ownership suggests that programs that promote financial education may not only directly benefit participating consumers but also may yield positive externalities within communities.

Although some of the other local attributes have a statistically significant influence on bank account ownership, the magnitudes are economically small. For example, a one standard deviation increase from the mean in the county level voter turnout rate in the 2008 election (from 60 to 72 percent) is associated with an increase in the likelihood of being banked by only 0.6 percentage points. All other community attribute effects are even smaller in magnitude.

The results from the fully specified model (column 3) indicate that household-level characteristics are the most important determinants of whether or not a household owns a bank account. In particular, the effects of income and education are quite large, particularly at lower

levels. We find that, relative to upper-income households, low-income households are 7.5 percentage points less likely to have a bank account, while the effects for moderate- and middle-income households are roughly 3 and 1 percentage points, respectively. And, relative to college graduates, households that lack a high school diploma are 9.0 percentage points less likely to have a bank account, while the effects for households with a high school diploma or some college education are 5.0 and 2.5 percentage points, respectively.²³ Other socio-economic characteristics of the household also play an important role in bank account ownership. Unemployed households are 5.3 percentage points less likely to have a bank account than households employed full-time. And non-homeowners are 5.2 percentage points less likely than homeowners to have a bank account.

Relative to the socio-economic variables in the model, the effect of other household demographic characteristics are smaller, especially after accounting for the presence of bank branch and AFTS locations and for local population characteristics as shown in specification 3. The likelihood of bank account ownership is 3.7 percentage points lower among Black households, 3.5 percentage points lower among Hispanic households, and 2.2 percentage points lower among non-citizen households (relative to white, non-Hispanic, and citizen households, respectively). Not surprisingly, the effects of race and ethnicity from the MNL model are much smaller than the disparities in banked rates observed in the raw data (see Appendix Table 1). This indicates that much of the raw disparity in bank account ownership rates across racial and ethnic groups is likely attributable to other correlated factors such as income and education.

Household structure has a robust, albeit fairly small, influence on the probability of having a bank account. Regardless of unmarried status (e.g., unmarried female household or

²³ The estimated effect of education on bank ownership likely reflects economic factors associated with education such as differences across households in long run earnings potential (i.e. permanent income), as well as the influence of financial literacy or other factors associated with household preferences.

unmarried female individual), unmarried households/individuals are less likely to have a bank account than married households.

One exception to the general pattern of relatively small effects of household demographic characteristics on bank account ownership is household age. Older households (55 to 64; 65 or older) are substantially more likely to have a bank account than households between 35 and 54 years of age. This may reflect generational differences in household preferences. Alternatively, the sizably higher probability that retirement age households are banked may be due, in part, to the U.S. Treasury's efforts to move federal benefits recipients to electronic transfers. For some time now, Treasury has been encouraging Federal benefits recipients to open checking accounts and use direct deposit.²⁴ Our findings provide evidence to suggest that Treasury's efforts are meeting with some success.

Household Choice of Financial Transaction Service Bundles

We now expand the analysis to look at household bank account ownership *and* use of nonbank AFTS providers. Table 5 presents partial effects based on the estimates from the MNL model, where the dependent variable is the type of bundled financial transaction services (Bank Only, Bank plus AFTS, AFTS Only, and Cash Only). The control variables in the model are specified exactly as in column 3 of Table 4.

Scanning across the list of estimates presented in Table 5 reveals an interesting pattern. For nearly every covariate in the model, the sign of the estimated effect on the household's likelihood of being in the Bank Only group is the *opposite* of the probability of being in any of

²⁴ In 2004, the U.S. Treasury launched the Go Direct campaign to encourage federal benefits recipients to use direct deposit and made Direct Express prepaid cards available to federal benefits recipients. In 2010, Treasury's efforts were stepped up with the launch of a public education campaign to help ready recipients for an all-electronic delivery of federal benefits in March 2013. By March 1, 2013, households were required to receive their federal benefits electronically. More information about Treasury's efforts is available at www.godirect.gov and www.socialsecurity.gov.

the three other financial services groups. Our finding that there is a clear demarcation in the direction of influence for covariates on the probability of a household being in the Bank Only group suggests that, in practice, the relative benefits and costs to a household having only a bank account are fundamentally different than for any of the other options in the model. Analogously, our estimates suggest that the benefits gained by a household using Bank plus AFTS are more similar to those from being an AFTS Only or a Cash Only household and less similar to being a Bank Only household.

Now looking more closely at the partial effects, we find that access to financial service providers has a relatively small effect on household choice of financial transaction services, just as in the bank account ownership model. The probability of being in the Bank Only group is 1.7 percentage points higher for households with at least one bank branch located in the local area. Bank branch concentration has little effect, as does the indicator for whether there is at least one AFTS present in the local area. The concentration of AFTS locations has a statistically significant effect on likelihood of being in the Bank Only group, but the magnitude is small. A one standard deviation increase in AFTS concentration from the mean (i.e. an increase from 0.052 to 0.098 AFTS locations per 1,000 residents, or from 9 to 17 AFTS locations for the average household in our sample) is estimated to reduce the probability of being in the Bank Only group by 0.5 percentage points.

Local area characteristics are also estimated to have, at most, a minor influence on the household's likelihood of being in the Bank Only group. A one standard deviation increase from the mean in the share of the tract population with a HS degree or less (from 43 to 60 percent) is associated with a 1.8 percentage point decline in being in the Bank Only group. All other local area effects are trivial in magnitude.

As in the bank account ownership model, the most important factors associated with a household's financial transaction services decision are household-level characteristics.

However, unlike the bank account model, the effects of other demographic characteristics such as race and ethnicity on the probability of being in the Bank Only group are relatively large in magnitude and are generally at least as important as socio-economic factors.

Even after controlling for other observable factors in the model, black households are 15.4 percentage points less likely to be in the Bank Only group and are nearly 12 percentage points more likely to have a bank account and use AFTS (Bank plus AFTS) than white households. Similarly, relative to non-Hispanics, Hispanic households are almost 8 percentage points less likely to be in the Bank Only group, and 4.4 percentage points more likely to be in the Bank plus AFTS group. Results for non-citizen households are qualitatively similar.

Although socio-economic factors are not the primary determinants for the bundle of financial transaction services used by households, they are still quite important. Our results generally show that households with lower levels of socio-economic attributes are generally less likely to be in the Bank plus AFTS group and more likely to be either AFTS Only or Cash Only. For example, relative to upper-income households, low-income households are 8.4 percentage points less likely to be in the Bank Only group. These households also are 7.4 percentage points more likely to not have a bank account at all (5.0 and 2.4 percentage points more likely to use AFTS Only or Cash Only, respectively). The pattern for educational attainment is similar. Households with no high school diploma are 12.4 percentage points less likely to be in the Bank only group than college educated households, while they are 3.5 percentage points more likely to be in the Bank plus AFTS group, and nearly 9 percentage points more likely to be unbanked (6.2 percent and 2.7 percent are more likely to use AFTS Only or Cash Only, respectively).

6. Discussion

The estimates presented in Tables 4 and 5 suggest that household socio-economic characteristics such as income and employment are the most important determinants of whether or not to own a bank account. While other demographic characteristics have some effect on bank account ownership, they have a much more important influence on whether or not a household uses nonbank AFTS in addition to having a bank account.²⁵ These findings hold even in the fully specified model that accounts for other correlated factors, including the local financial services market and other neighborhood attributes. Such factors are estimated to have at most moderate effects on household choice of financial transaction services.

In order to explore these results further and to verify that our findings are robust, we estimated a variety of alternative specifications which we describe briefly here. First, we stratified the sample by income to identify whether there is heterogeneity across households in the relative influence of household characteristics. Selected partial effects from the logit model of bank account ownership and the MNL model of financial services use are presented in Table 6.²⁶ Starting with the bank account ownership model, the estimates in column 1 show that among lower income households, household characteristics are associated with large differences in bank account ownership rates. For example, low-income households without a HS degree are

²⁵ Logit estimates from an alternative model where the dependent variable is an indicator for AFTS use (regardless of bank account ownership) are consistent with this conclusion. The magnitudes of the estimated effects of demographic variables such as race and ethnicity on use of AFTS are at least as large as estimates on economic variables such as income and labor force status.

²⁶ For brevity, we omit the results for moderate- and middle-income groups from Table 6. Results for these groups show that the relative influence of household characteristics varies monotonically by household income group. Also note that due to collinearity issues, the sample size for the bank account model estimated on the Upper Income group (column 2 of Table 6) falls from 9,009 to 4,928 and households with race equal to “Asian” and “Other” and who reside in many specific states are omitted from the model. This sample selection does not appear to be driving our results, as an alternative model which omits state fixed effects (alleviating much of the potential collinearity issues) yields similar results.

nearly 20 percentage points less likely to have a bank account than low-income households with a college degree. However, among the upper-income sample (column 2), household characteristics such as race and ethnicity have quite small effects on bank account ownership. Together with the patterns present in the raw data shown in Appendix Table 1, these results suggest that above some minimum threshold level of income and education nearly all households have a bank account, regardless of their demographic characteristics.

Shifting to the broader measure of household financial transaction services use, the estimates in columns 3 through 6 of Table 6 suggest that household economic and demographic characteristics have an important influence on the bundle of financial services used by the household, even among upper-income households. Specifically, upper-income Black households are 11.4 percentage points less likely to be in the Bank Only group than upper-income white households, while upper-income Hispanic households are 6.2 percentage points less likely to be in the Bank Only group than upper-income non-Hispanic households. Instead, these populations are more likely to use AFTS in addition to owning a bank account (columns 5 and 6), although insignificant for low-income Hispanic households. These results support the finding noted earlier that the household's decision to use AFTS in addition to a bank account is driven as much by household characteristics as it is by the economic circumstances of households.

The second alternative specification we explored was to incorporate household use of two emerging financial services products: general purpose reloadable (GPR) prepaid cards and payroll cards. Overall, the share of households in our sample who have used such cards is fairly low (12 percent). However, these products are gaining in popularity and may be a viable option for households considering how to manage their financial transaction services.²⁷ GPR prepaid

²⁷ Households may use GPR prepaid cards as a way to meet transactions needs; receive government (federal, state, and local) benefits, child support payments, and unemployment insurance benefits; and facilitate certain transactions

cards and payroll cards may be either complements to or substitutes for a household's bank account. As such, we created two alternative definitions of household financial transaction services bundles. First, we treated use of prepaid and payroll card as equivalent to owning a bank account. Second, we treated prepaid and payroll card use as an additional AFTS product. In both cases the results from the MNL model using these alternative dependent variables are qualitatively similar to the main results presented in this paper. However, it is worth noting that this treatment of GPR and payroll cards may not be ideal, and should be revisited in future work if the recent active entry of banks in the GPR prepaid card space continues.

We conducted a number of robustness checks in order to confirm that our results are not sensitive to specification. We constructed alternative measures of the presence of financial services providers by using different definitions of "local area" (2 mile radius; 10 mile radius). We also used the raw number of institutions in local area (instead of the per-capita number), and split banks by asset size (greater than or less than \$1 billion in assets). In both cases the results were qualitatively similar. We also examined whether our results are sensitive to the treatment of money orders or remittances in the classification of households by financial services choice.²⁸ We estimated the MNL model using alternative definitions of household financial services type, where use of money orders (or remittances) does not disqualify a household from being

such as online purchases, travel-related expenses, and child/student financial support. Typically, payroll cards are distributed by employers to employees as a cost-effective way to distribute payroll funds electronically rather than by paper check. Industry sources indicate that the use of these products is growing, especially with both banks and nonbanks now actively offering these products in the marketplace. For example, Mercator Advisory Services (2012) estimates that the reloadable prepaid card market grew by 24 percent between 2010 and 2011, reaching more than \$184 billion.

²⁸ It seems plausible that even households who rely almost exclusively on mainstream bank accounts for transaction services may occasionally need to obtain a money order for a specific transaction. For example, a landlord may require a money order for a security deposit on a new lease. In our sample, among the 6,850 households classified as Bank plus AFTS, 4,178 used nonbank money orders but did not use nonbank check cashing or remittance services. Use of remittance services is most likely concentrated among households with family or friends outside the U.S. For example FDIC (2012) finds that use of remittances is higher among Asian and Hispanic households, Spanish speaking households, and non-citizen households. In our sample, among the 6,850 households classified as Bank plus AFTS, only 552 used nonbank remittance services but did not use nonbank check cashing or money orders.

classified as Bank Only. Results from these analyses were qualitatively similar to the main results presented in this paper.

Finally, we acknowledge a few caveats to this analysis. First, as noted above we estimate our model of household choice of financial transaction services bundles using MNL. We use MNL for computational simplicity. However, an unattractive characteristic of the MNL model is that it imposes an “Independence From Irrelevant Alternatives” (IIA) assumption, which means that the relative odds that one choice is preferred to another does not depend on the presence (or absence) of other choices in the model.²⁹ Although this may be problematic for our analysis in theory, it is not clear the extent to which the IIA assumption is influencing our results in practice. We note that our general pattern of results is qualitatively robust to the use of a variety of alternative definitions of financial services bundles.³⁰ And based on a comparison of predicted probabilities to actual outcomes across a wide spectrum of household characteristics, our model fit is quite good. Nonetheless, in future work we will evaluate the IIA issue further, and explore the use of alternative econometric specifications which relax the IIA assumption.

A second caveat is that, although our results indicate that the geographic presence of bank and AFTS providers in the household’s local area has a relatively minor effect on household choice of financial transaction services, other supply-side factors not included in our model may matter. For example, we do not observe fee structures at bank and AFTS providers, nor do we observe rules governing access to funds. It seems likely that there are systematic differences across households in the way such factors are valued. Our estimates of the effects of

²⁹ For more on IIA, see for example Greene (2012).

³⁰ In addition to the specification that incorporates use of prepaid or payroll cards described above, we estimated the MNL model on an alternative definition of financial transaction services bundles where the “AFTS Only” and “Cash Only” categories were merged into a single category. We also estimated a logit model where the dependent variable was “Bank Only” (equal to 1 if the household has a bank account and did not use AFTS, and equal to 0 otherwise). In both cases our results were qualitatively similar to the main findings presented in this paper..

household characteristics such as education and race on household choice of financial transaction services may be picking up some of these unobserved differences.

7. Concluding Remarks

This study takes an important step toward bridging the gap in our understanding of how households meet their financial transactions needs. We examine two alternative outcomes: bank account ownership, and a categorical measure of the bundle of financial transaction services used that reflects both bank account ownership and nonbank AFTS use. In our model of household financial transaction services use, we incorporate as explanatory factors the household's geographic access to financial transaction services providers, as well as neighborhood attributes. The inclusion of such factors, in addition to the standard measures of household-level socio-economic and other demographic characteristics, represents a significant contribution to the existing empirical literature.

Our empirical results indicate that the presence of bank and nonbank financial services in the local area has a relatively modest effect on a household's likelihood of having a bank account, and on our broader measure of the bundle of financial transaction services used. And the influence of other neighborhood attributes on household choice of financial transaction services is generally small.

We find that socio-economic characteristics of the household are the most important determinants of bank account ownership. Specifically, our results indicate that above some minimum threshold level of income and educational attainment, bank account ownership is nearly universal. While other demographic characteristics such as race and ethnicity have some effect on bank account ownership, they have a much more important influence on whether or not

a household uses nonbank AFTS in addition to having a bank account. This result holds even among the subset of households with relatively high income. Given that we account for differences across households in the local market for financial services, and for other neighborhood attributes which might influence household behavior, the specific mechanisms driving the finding that racial and ethnic minorities are more likely to use AFTS jointly with bank account ownership are not obvious. Learning more about what these factors are is an important topic for future research.

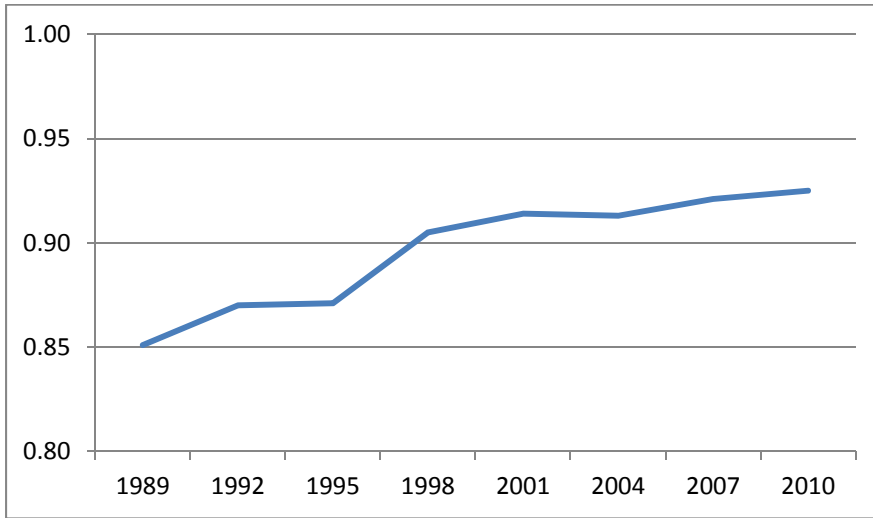
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Figure 1: Share of U.S. Families with a Transaction Account



Notes: Estimates are based on Survey of Consumer Finance data, published in Federal Reserve Board Bulletin articles published triennially between 1989 and 2010. Transaction accounts include checking, savings, and money market deposit accounts; money market mutual funds; and call or cash accounts at brokerages.

Table 1: Distribution of Households by Financial Transaction Services Use

| Nbr Obs Proportion | Does Not Use AFTS | Uses AFTS | All |
|-----------------------|----------------------|--------------------|-----------------|
| | <u>Bank Only</u> | <u>Bank + AFTS</u> | |
| Has Bank Account | 28,289 0.746 | 6,850 0.181 | 35,139 0.927 |
| | <u>Cash Only</u> | <u>AFTS Only</u> | |
| No Bank Account | 988 0.026 | 1,792 0.047 | 2,780 0.073 |
| All | 29,277 0.772 | 8,642 0.228 | 37,919 1.000 |

Notes: Unweighted estimates. A household is considered to use Alternative Financial Transaction Services (AFTS) if anybody in the household went to a nonbank AFS provider to purchase a money order, cash a check, or send a remittance within the past year.

Table 2: Variable Definitions

| Data Source | Category | Variable | Definition |
|--------------------------|------------------|-------------------------------|----------------------------------------------------------------|
| FDIC (2011 SOD) | Bank Branches | At least 1 Bank Branch | Indicates whether at least 1 bank branch in the local area |
| | | Bank Branches per capita | Bank Branches per 1k population in the local area |
| Census (2011 ZCBP) | AFTS Providers | At least 1 AFTS | Indicates whether at least 1 AFTS location in the local area |
| | | AFTS per capita | AFTS locations per 1k population in the local area |
| Census (2011 ACS 5-year) | Tract Population | TrctPopShr LMI | Share of tract population with family income <= 80% MFI |
| | | TrctPopShr Age <= 34 | Share ... aged 34 or less |
| | | TrctPopShr Black | Share ... that is Black |
| | | TrctPopShr Hispanic | Share ... that is Hispanic |
| | | TrctPopShr FamHH Single Head | Share ... in Family HH with Single (non-couple) Head |
| | | TrctPopShr HS Diploma or Less | Share ... that have HS diploma or less |
| | | | |
| FBI (2011 UCR) | Crime Rates | County Property Crime | Property crimes per 100k population (County-level) |
| | | County Violent Crime | Violent crimes per 100k population (County-level) |
| CQ Press | Voter Turnout | County Voter Turnout Rate | Share of County Residents voting in 2008 presidential election |
| Census (CPS June 2011) | HH Income | Upper Income | family income >= 120% MSA median family income (MFI) |
| | | Middle Income | 80% MFI <= family income < 120% MFI |
| | | Moderate Income | 50% MFI <= family income < 80% MFI |
| | | Low Income | Family income < 50% MFI |
| Census (CPS June 2011) | HH LF Status | Employed FT | Usually works full time (35+ hours) |
| | | Employed PT | Usually works part time (less than 35 hours) |
| | | Unemployed | Unemployed |
| | | Not in LF | Not in Labor Force |
| Census (CPS June 2011) | HH Tenure | Owns Home | Homeowner |
| | | Non-Homeowner | Does not own home |
| Census (CPS June 2011) | HH Education | College Degree | Has a college degree or more education |
| | | Some College | Completed some years in college or university |
| | | HS Diploma | Has a high school diploma or equivalent |
| | | No HS Diploma | Completed less than a high school diploma |

Table 2 (continued)

| Data Source | Category | Variable | Definition |
|------------------------|---------------------|-----------------------------|----------------------------------------------------|
| Census (CPS June 2011) | HH Age | Age 34 or less | Between 15 and 34 years of age |
| | | Age 35 to 54 | Between 35 and 54 years of age |
| | | Age 55 to 64 | Between 55 and 64 years of age |
| | | Age 65 or older | Age 65 or more |
| Census (CPS June 2011) | HH Race | White | White only |
| | | Black | Black |
| | | Asian | Asian (and non-black) |
| | | Other | Other (non-black and non-asian and not white only) |
| Census (CPS June 2011) | HH Ethnicity | Non-Hispanic | Non-Hispanic |
| | | Hispanic | Hispanic |
| Census (CPS June 2011) | HH Nativity | Citizen | Citizen |
| | | Non-Citizen | Non-Citizen |
| Census (CPS June 2011) | HH Structure | Married couple | Married (spouse/partner present or not) |
| | | Unmarried Female HH | Family household headed by unmarried female |
| | | Unmarried Male HH | Family household headed by unmarried male |
| | | Individual - Female | Female (single person household) |
| | | Individual - Male | Male (single person household) |
| Census (CPS June 2011) | HH Metro Status | In MSA - Principal City | Resides in a principal city |
| | | In MSA - not Principal City | Resides in MSA outside of a principal city |
| | | Non-Metro | Does not reside in MSA (i.e. rural) |
| Census (CPS June 2011) | Dependent Variables | Bank Account Ownership | Household has a bank account (checking or savings) |
| | | Bank Only | Has Bank Account and does not use AFTS |
| | | Bank plus AFTS | Has Bank Account and uses AFTS |
| | | AFTS Only | No Bank Account and uses AFTS |
| | | Cash Only | No Bank Account and does not use AFTS |

Notes: For all variables not defined at the household level, we use the characteristics of the owner or renter of the home (i.e. “householder”) to represent the household. A household is classified as Upper Income if the ratio of the primary family income to metro area median family income is greater or equal to 1.2; Middle Income if this ratio is between 0.8 and 1.2; Moderate Income if between 0.5 and 0.8, and Lower Income if lower than 0.5. Tract population shares are all based on the population within the household’s census tract of residence. Crime and voter turnout rates are based on the household’s county of residence. Crime rates are expressed per 100k population.

Table 3: Descriptive Statistics

| Category | Variable | ALL | By Bank Status | | By Financial Services Type | | | |
|------------------|-------------------------------|-------|----------------|----------|----------------------------|----------------|-----------|-----------|
| | | | Banked | Unbanked | Bank Only | Bank plus AFTS | AFTS Only | Cash Only |
| Bank Branches | At least 1 Bank Branch | 0.89 | 0.89 | 0.90 | 0.89 | 0.88 | 0.90 | 0.89 |
| | Bank Branches per capita | 0.33 | 0.33 | 0.29 | 0.34 | 0.31 | 0.30 | 0.28 |
| AFTS Providers | At least 1 AFTS | 0.66 | 0.65 | 0.74 | 0.64 | 0.68 | 0.75 | 0.72 |
| | AFTS per capita | 0.05 | 0.05 | 0.07 | 0.05 | 0.06 | 0.08 | 0.07 |
| Tract Population | TrctPopShr LMI | 0.42 | 0.41 | 0.54 | 0.40 | 0.46 | 0.55 | 0.54 |
| | TrctPopShr Age <= 34 | 0.46 | 0.46 | 0.50 | 0.45 | 0.48 | 0.50 | 0.50 |
| | TrctPopShr Black | 0.11 | 0.11 | 0.24 | 0.09 | 0.16 | 0.24 | 0.23 |
| | TrctPopShr Hispanic | 0.12 | 0.12 | 0.22 | 0.11 | 0.15 | 0.22 | 0.22 |
| | TrctPopShr FamHH Single Head | 0.17 | 0.16 | 0.24 | 0.16 | 0.19 | 0.25 | 0.24 |
| | TrctPopShr HS Diploma or Less | 0.43 | 0.42 | 0.55 | 0.41 | 0.46 | 0.55 | 0.54 |
| Crime Rates | County Property Crime | 28.62 | 28.39 | 31.55 | 28.11 | 29.53 | 31.80 | 31.10 |
| | County Violent Crime | 3.89 | 3.82 | 4.72 | 3.74 | 4.16 | 4.79 | 4.58 |
| Voter Turnout | County Voter Turnout Rate | 0.60 | 0.61 | 0.57 | 0.61 | 0.59 | 0.57 | 0.57 |
| HH Income | Upper Income | 0.24 | 0.26 | 0.01 | 0.27 | 0.18 | 0.01 | 0.02 |
| | Middle Income | 0.18 | 0.19 | 0.04 | 0.20 | 0.16 | 0.04 | 0.03 |
| | Moderate Income | 0.20 | 0.20 | 0.10 | 0.20 | 0.22 | 0.11 | 0.09 |
| | Low Income | 0.38 | 0.35 | 0.85 | 0.32 | 0.44 | 0.84 | 0.86 |
| HH LF Status | Employed FT | 0.49 | 0.51 | 0.28 | 0.51 | 0.52 | 0.31 | 0.23 |
| | Employed PT | 0.10 | 0.09 | 0.10 | 0.09 | 0.11 | 0.11 | 0.08 |
| | Unemployed | 0.05 | 0.04 | 0.15 | 0.04 | 0.07 | 0.17 | 0.13 |
| | Not in LF | 0.36 | 0.35 | 0.47 | 0.36 | 0.30 | 0.42 | 0.56 |
| HH Tenure | Non-Homeowner | 0.33 | 0.30 | 0.76 | 0.26 | 0.47 | 0.79 | 0.72 |
| | Owns Home | 0.67 | 0.70 | 0.24 | 0.74 | 0.53 | 0.21 | 0.28 |
| HH Education | No HS Diploma | 0.12 | 0.10 | 0.38 | 0.09 | 0.15 | 0.37 | 0.41 |
| | HS Diploma | 0.30 | 0.29 | 0.38 | 0.28 | 0.33 | 0.39 | 0.36 |
| | Some College | 0.28 | 0.29 | 0.20 | 0.28 | 0.31 | 0.22 | 0.17 |
| | College Degree | 0.30 | 0.32 | 0.04 | 0.35 | 0.22 | 0.03 | 0.06 |

Table 3 (continued)

| Category | Variable | ALL | By Bank Status | | By Financial Services Type | | | |
|-----------------|--------------------------------|------|----------------|----------|----------------------------|----------------|-----------|-----------|
| | | | Banked | Unbanked | Bank Only | Bank plus AFTS | AFTS Only | Cash Only |
| HH Age | Age 34 or less | 0.20 | 0.19 | 0.35 | 0.17 | 0.26 | 0.39 | 0.30 |
| | Age 35 to 54 | 0.37 | 0.37 | 0.41 | 0.35 | 0.42 | 0.43 | 0.37 |
| | Age 55 to 64 | 0.20 | 0.20 | 0.13 | 0.21 | 0.18 | 0.12 | 0.14 |
| | Age 65 or older | 0.23 | 0.24 | 0.11 | 0.27 | 0.14 | 0.06 | 0.19 |
| HH Race | White | 0.84 | 0.85 | 0.65 | 0.88 | 0.74 | 0.66 | 0.63 |
| | Black | 0.10 | 0.09 | 0.30 | 0.06 | 0.19 | 0.29 | 0.30 |
| | Asian | 0.03 | 0.04 | 0.01 | 0.04 | 0.03 | 0.01 | 0.03 |
| | Other | 0.02 | 0.02 | 0.04 | 0.02 | 0.04 | 0.04 | 0.04 |
| HH Ethnicity | Non-Hispanic | 0.90 | 0.92 | 0.73 | 0.93 | 0.85 | 0.72 | 0.74 |
| | Hispanic | 0.10 | 0.08 | 0.27 | 0.07 | 0.15 | 0.28 | 0.26 |
| HH Nativity | Citizen | 0.94 | 0.95 | 0.84 | 0.96 | 0.91 | 0.83 | 0.85 |
| | Non-Citizen | 0.06 | 0.05 | 0.16 | 0.04 | 0.09 | 0.17 | 0.15 |
| HH Structure | Married couple | 0.48 | 0.50 | 0.22 | 0.51 | 0.44 | 0.24 | 0.18 |
| | Unmarried Female HH | 0.13 | 0.11 | 0.30 | 0.09 | 0.18 | 0.32 | 0.26 |
| | Unmarried Male HH | 0.04 | 0.04 | 0.08 | 0.04 | 0.06 | 0.09 | 0.06 |
| | Individual - Female | 0.19 | 0.19 | 0.18 | 0.20 | 0.15 | 0.14 | 0.24 |
| | Individual - Male | 0.17 | 0.16 | 0.22 | 0.16 | 0.16 | 0.21 | 0.26 |
| HH Metro Status | In MSA - Principal City | 0.32 | 0.31 | 0.45 | 0.30 | 0.36 | 0.45 | 0.44 |
| | In MSA - not in Principal City | 0.46 | 0.47 | 0.32 | 0.48 | 0.42 | 0.32 | 0.32 |
| | Non-Metro | 0.23 | 0.22 | 0.23 | 0.22 | 0.23 | 0.22 | 0.24 |

Notes: Unweighted estimates, 37,919 observations. See Table 2 for additional notes.

Table 4: Estimated Partial Effects of Covariates on Probability of Owning a Bank Account

| Category | Variable | (1) | Specification | |
|------------------|-------------------------------|----------------------|----------------------|----------------------|
| | | | (2) | (3) |
| Bank Branches | At least 1 Bank Branch | | 0.013*** (0.005) | 0.011** (0.005) |
| | Bank Branches per capita | | 0.004 (0.002) | 0.001 (0.002) |
| AFTS Providers | At least 1 AFTS | | -0.004 (0.004) | -0.003 (0.004) |
| | AFTS per capita | | -0.007 (0.008) | -0.005 (0.008) |
| Tract Population | TrctPopShr LMI | | | -0.009 (0.011) |
| | TrctPopShr Age <= 34 | | | 0.031** (0.016) |
| | TrctPopShr Black | | | -0.021** (0.009) |
| | TrctPopShr Hispanic | | | 0.002 (0.009) |
| | TrctPopShr FamHH Single Head | | | -0.034* (0.020) |
| | TrctPopShr HS Diploma or Less | | | -0.079*** (0.012) |
| | | | | |
| Crime Rates | County Property Crime | | | -0.000 (0.000) |
| | County Violent Crime | | | 0.000 (0.001) |
| Voter Turnout | County Voter Turnout Rate | | | 0.053*** (0.020) |
| HH Income | Middle Income | -0.014*** (0.004) | -0.014*** (0.004) | -0.013*** (0.004) |
| | Moderate Income | -0.029*** (0.003) | -0.029*** (0.004) | -0.028*** (0.004) |
| | Low Income | -0.079*** (0.003) | -0.079*** (0.003) | -0.075*** (0.004) |
| HH LF Status | Part-Time | -0.010*** (0.004) | -0.010*** (0.004) | -0.011*** (0.004) |
| | Unemployed | -0.055*** (0.005) | -0.055*** (0.005) | -0.053*** (0.005) |
| | NILF | -0.043*** (0.003) | -0.043*** (0.003) | -0.040*** (0.003) |
| HH Tenure | Non-Homeowner | -0.050*** (0.003) | -0.050*** (0.003) | -0.052*** (0.003) |

Table 4 (continued)

| Category | Variable | Specification | | |
|-----------------|-----------------------------|----------------------|----------------------|----------------------|
| | | (1) | (2) | (3) |
| HH Education | No HS Diploma | -0.102*** (0.004) | -0.101*** (0.004) | -0.090*** (0.004) |
| | HS Diploma | -0.056*** (0.003) | -0.056*** (0.003) | -0.050*** (0.003) |
| | Some College | -0.028*** (0.003) | -0.028*** (0.003) | -0.025*** (0.003) |
| HH Age | Age 34 or less | -0.003 (0.004) | -0.003 (0.004) | -0.006 (0.004) |
| | Age 55 to 64 | 0.032*** (0.004) | 0.032*** (0.004) | 0.031*** (0.004) |
| | Age 65 or older | 0.064*** (0.003) | 0.064*** (0.003) | 0.062*** (0.003) |
| HH Race | Black | -0.054*** (0.004) | -0.054*** (0.004) | -0.037*** (0.005) |
| | Asian | 0.014** (0.007) | 0.014** (0.007) | 0.014** (0.007) |
| | Other | -0.030*** (0.008) | -0.029*** (0.008) | -0.026*** (0.007) |
| HH Ethnicity | Hispanic | -0.045*** (0.005) | -0.045*** (0.005) | -0.035*** (0.005) |
| HH Nativity | Non-Citizen | -0.024*** (0.005) | -0.024*** (0.005) | -0.022*** (0.005) |
| HH Structure | Unmarried Female HH | -0.032*** (0.003) | -0.032*** (0.003) | -0.030*** (0.003) |
| | Unmarried Male HH | -0.028*** (0.005) | -0.028*** (0.005) | -0.027*** (0.005) |
| | Unmarried Female Indiv | -0.014*** (0.003) | -0.014*** (0.003) | -0.016*** (0.003) |
| | Unmarried Male Indiv | -0.029*** (0.004) | -0.030*** (0.004) | -0.030*** (0.004) |
| HH Metro Status | In MSA - not Principal City | 0.005* (0.003) | 0.005* (0.003) | -0.002 (0.003) |
| | Non-Metro | -0.008** (0.004) | -0.007* (0.004) | -0.005 (0.004) |

Notes: Estimated partial effects are based on the underlying coefficient estimates from a Logit model of bank account ownership. In addition to the covariates listed here, the model also includes a vector of State fixed effects. The model is estimated on a sample 38,154 observations; pseudo r-squared ranges from 0.34 to 0.35 over the three specifications. The symbol *** indicates the estimate is statistically significant at the one percent level (** = five percent; * = ten percent). Logit coefficient estimates (omitted here) are available from the authors upon request.

Table 5: Partial Effects Estimates, Financial Services Type

| Category | Variable | Outcome | | | |
|------------------|-------------------------------|----------------------|----------------------|---------------------|---------------------|
| | | Bank Only | Bank plus AFTS | AFTS Only | Cash Only |
| Bank Branches | At least 1 Bank Branch | 0.017** (0.008) | -0.007 (0.008) | -0.007* (0.004) | -0.004 (0.003) |
| | Bank Branches per capita | 0.004 (0.003) | -0.002 (0.003) | -0.000 (0.002) | -0.002 (0.003) |
| AFTS Providers | At least 1 AFTS | -0.000 (0.007) | -0.003 (0.006) | 0.002 (0.004) | 0.000 (0.003) |
| | AFTS per capita | -0.056** (0.025) | 0.047** (0.021) | 0.007 (0.007) | 0.002 (0.006) |
| Tract Population | TrctPopShr LMI | -0.051*** (0.019) | 0.042** (0.018) | 0.015 (0.009) | -0.006 (0.007) |
| | TrctPopShr Age <= 34 | 0.017 (0.027) | 0.014 (0.026) | -0.025* (0.014) | -0.006 (0.011) |
| | TrctPopShr Black | -0.046*** (0.017) | 0.025 (0.017) | 0.011 (0.007) | 0.011* (0.006) |
| | TrctPopShr Hispanic | -0.007 (0.018) | 0.009 (0.017) | -0.007 (0.008) | 0.004 (0.006) |
| | TrctPopShr FamHH Single Head | -0.101*** (0.038) | 0.064* (0.036) | 0.030* (0.017) | 0.006 (0.013) |
| | TrctPopShr HS Diploma or Less | -0.103*** (0.021) | 0.024 (0.020) | 0.053*** (0.011) | 0.026*** (0.008) |
| | County Property Crime | -0.000 (0.000) | 0.000 (0.000) | 0.000 (0.000) | 0.000 (0.000) |
| Crime Rates | County Violent Crime | 0.001 (0.001) | -0.001 (0.001) | 0.000 (0.001) | -0.000 (0.001) |
| | County Voter Turnout Rate | 0.039 (0.036) | 0.013 (0.035) | -0.025 (0.017) | -0.026* (0.014) |
| Voter Turnout | County Voter Turnout Rate | 0.039 (0.036) | 0.013 (0.035) | -0.025 (0.017) | -0.026* (0.014) |
| | Middle Income | -0.017** (0.007) | 0.004 (0.007) | 0.010*** (0.003) | 0.002 (0.003) |
| | Moderate Income | -0.045*** (0.007) | 0.018*** (0.007) | 0.019*** (0.003) | 0.008*** (0.003) |
| HH Income | Low Income | -0.084*** (0.007) | 0.010 (0.007) | 0.050*** (0.003) | 0.024*** (0.003) |
| | Part-Time | -0.020*** (0.007) | 0.009 (0.007) | 0.008*** (0.003) | 0.003 (0.002) |
| | Unemployed | -0.078*** (0.009) | 0.024*** (0.009) | 0.035*** (0.004) | 0.019*** (0.003) |
| HH LF Status | NILF | -0.023*** (0.005) | -0.018*** (0.005) | 0.020*** (0.003) | 0.021*** (0.002) |
| | Non-Homeowner | -0.116*** (0.005) | 0.065*** (0.005) | 0.036*** (0.002) | 0.016*** (0.002) |

Table 5 (continued)

| Category | Variable | Outcome: Financial Services Type | | | |
|-----------------|-----------------------------|----------------------------------|----------------------|----------------------|----------------------|
| | | Bank Only | Bank plus AFTS | AFTS Only | Cash Only |
| HH Education | No HS Diploma | -0.124*** (0.008) | 0.035*** (0.008) | 0.062*** (0.004) | 0.027*** (0.003) |
| | HS Diploma | -0.075*** (0.006) | 0.025*** (0.006) | 0.038*** (0.003) | 0.012*** (0.002) |
| | Some College | -0.051*** (0.006) | 0.026*** (0.005) | 0.023*** (0.002) | 0.002 (0.002) |
| HH Age | Age 34 or less | -0.004 (0.006) | -0.001 (0.006) | 0.005 (0.003) | 0.001 (0.002) |
| | Age 55 to 64 | 0.039*** (0.006) | -0.009 (0.006) | -0.021*** (0.003) | -0.010*** (0.003) |
| | Age 65 or older | 0.126*** (0.006) | -0.065*** (0.006) | -0.047*** (0.002) | -0.015*** (0.002) |
| HH Race | Black | -0.154*** (0.010) | 0.116*** (0.009) | 0.020*** (0.004) | 0.018*** (0.003) |
| | Asian | 0.017 (0.012) | -0.001 (0.011) | -0.030*** (0.004) | 0.014** (0.006) |
| | Other | -0.089*** (0.014) | 0.064*** (0.014) | 0.017*** (0.006) | 0.009* (0.005) |
| HH Ethnicity | Hispanic | -0.078*** (0.009) | 0.044*** (0.009) | 0.017*** (0.004) | 0.018*** (0.004) |
| HH Nativity | Non-Citizen | -0.074*** (0.010) | 0.050*** (0.010) | 0.012*** (0.004) | 0.013*** (0.004) |
| HH Structure | Unmarried Female HH | -0.056*** (0.007) | 0.026*** (0.007) | 0.016*** (0.003) | 0.014*** (0.002) |
| | Unmarried Male HH | -0.050*** (0.010) | 0.024** (0.010) | 0.016*** (0.004) | 0.010*** (0.003) |
| | Unmarried Female Indiv | 0.031*** (0.006) | -0.047*** (0.006) | -0.002 (0.003) | 0.017*** (0.002) |
| | Unmarried Male Indiv | -0.001 (0.006) | -0.029*** (0.006) | 0.009*** (0.003) | 0.021*** (0.002) |
| HH Metro Status | In MSA - not Principal City | -0.007 (0.005) | 0.005 (0.005) | 0.002 (0.003) | -0.001 (0.002) |
| | Non-Metro | -0.017** (0.008) | 0.011 (0.007) | 0.002 (0.004) | 0.003 (0.003) |

Notes: Estimated partial effects are based on the underlying coefficient estimates from the MNL model. In addition to the covariates listed here, the model also includes a vector of State fixed effects. The model is estimated on a sample of 38,154 observations; pseudo r-squared is 0.19. The symbol *** indicates the estimate is statistically significant at the one percent level (** = five percent; * = ten percent). MNL coefficient estimates (omitted here) are available from the primary author upon request.

Table 6: Partial Effects of Selected Covariates, Sample Stratified by Income

| Model and Dependent Variable | | Logit: P(Bank Account) | | MNL: P(Bank Only) | | MNL: P(Bank + AFTS) | |
|------------------------------|------------------------|------------------------|---------------------|----------------------|---------------------|---------------------|---------------------|
| | | Low Income | Upper Income | Low Income | Upper Income | Low Income | Upper Income |
| Sample | Column | (1) | (2) | (3) | (4) | (5) | (6) |
| HH Education | No HS Diploma | 0.198*** (0.014) | 0.022*** (0.006) | 0.193*** (0.015) | 0.111*** (0.019) | 0.010 (0.014) | 0.099*** (0.019) |
| | HS Diploma | 0.136*** (0.014) | 0.015*** (0.005) | 0.140*** (0.014) | 0.049*** (0.010) | 0.002 (0.012) | 0.041*** (0.010) |
| | Some College | 0.079*** (0.014) | 0.011** (0.005) | 0.093*** (0.014) | 0.035*** (0.009) | 0.009 (0.013) | 0.029*** (0.009) |
| HH Age | Age 34 or less | 0.011* (0.007) | 0.004 (0.004) | 0.016* (0.010) | 0.010 (0.011) | 0.005 (0.009) | 0.009 (0.011) |
| | Age 55 to 64 | 0.062*** (0.009) | 0.002 (0.003) | 0.061*** (0.011) | 0.011 (0.009) | 0.000 (0.010) | 0.010 (0.009) |
| | Age 65 or older | 0.157*** (0.009) | 0.005 (0.005) | 0.225*** (0.011) | 0.051*** (0.014) | 0.063*** (0.011) | 0.049*** (0.014) |
| HH Race | Black | 0.065*** (0.009) | 0.009** (0.004) | 0.164*** (0.012) | 0.114*** (0.014) | 0.096*** (0.011) | 0.108*** (0.014) |
| | Asian | 0.026 (0.021) | - | 0.093*** (0.025) | 0.002 (4.284) | 0.042* (0.024) | 0.058 (1.950) |
| | Other | 0.056*** (0.014) | - | -0.101*** (0.020) | 0.012 (7.156) | 0.046** (0.018) | 0.043 (3.120) |
| HH Ethnicity | Hispanic | 0.063*** (0.009) | 0.009* (0.005) | 0.074*** (0.014) | 0.062*** (0.015) | 0.013 (0.013) | 0.057*** (0.015) |
| HH Nativity | Non-Citizen | 0.032*** (0.010) | 0.008* (0.005) | 0.065*** (0.015) | 0.045** (0.019) | 0.030** (0.014) | 0.039** (0.019) |
| HH Structure | Unmarried Female HH | 0.062*** (0.008) | 0.004 (0.004) | 0.070*** (0.011) | 0.043*** (0.013) | 0.005 (0.010) | 0.041*** (0.013) |
| | Unmarried Male HH | 0.061*** (0.012) | 0.002 (0.006) | 0.056*** (0.017) | 0.042 (2.922) | 0.004 (0.016) | 0.068 (1.045) |
| | Unmarried Female Indiv | 0.036*** (0.009) | 0.002 (0.006) | 0.019* (0.010) | 0.048*** (0.017) | 0.055*** (0.010) | 0.049*** (0.017) |
| | Unmarried Male Indiv | 0.065*** (0.008) | 0.008** (0.004) | 0.017 (0.011) | 0.012 (0.013) | 0.049*** (0.010) | 0.017 (0.013) |
| Sample Size | | 14493 | 4928 | 14493 | 9009 | 14493 | 9009 |
| Mean of Dependent Variable | | 0.84 | 0.996 | 0.63 | 0.86 | 0.21 | 0.13 |

Notes: Estimates are from the model described in Table 4, specification 3. Estimates for outcomes “AFTS Only” and “Cash Only” are not shown (available upon request). Due to collinearity, sample size for the bank account model estimated on the Upper Income group is 4928, and households with race equal to “Asian” and “Other” are omitted from the model. See Table 4 for additional notes.

Appendix Table 1: Distribution of Households across Financial Services Type

| Category | Variable | Bank Status | | Financial Services Type | | | |
|-----------------|--------------------------------|-------------|----------|-------------------------|----------------|-----------|-----------|
| | | Banked | Unbanked | Bank Only | Bank plus AFTS | AFTS Only | Cash Only |
| HH Income | Upper Income | 0.996 | 0.004 | 0.86 | 0.13 | 0.00 | 0.00 |
| | Middle Income | 0.99 | 0.01 | 0.82 | 0.16 | 0.01 | 0.00 |
| | Moderate Income | 0.96 | 0.04 | 0.76 | 0.20 | 0.03 | 0.01 |
| | Low Income | 0.84 | 0.16 | 0.63 | 0.21 | 0.10 | 0.06 |
| HH LF Status | Employed FT | 0.96 | 0.04 | 0.77 | 0.19 | 0.03 | 0.01 |
| | Employed PT | 0.92 | 0.08 | 0.72 | 0.20 | 0.05 | 0.02 |
| | Unemployed | 0.79 | 0.21 | 0.53 | 0.25 | 0.15 | 0.06 |
| | Not in LF | 0.90 | 0.10 | 0.75 | 0.15 | 0.06 | 0.04 |
| HH Tenure | Non-Homeowner | 0.83 | 0.17 | 0.58 | 0.25 | 0.11 | 0.06 |
| | Owns Home | 0.97 | 0.03 | 0.83 | 0.14 | 0.01 | 0.01 |
| HH Education | No HS Diploma | 0.76 | 0.24 | 0.54 | 0.22 | 0.15 | 0.09 |
| | HS Diploma | 0.91 | 0.09 | 0.71 | 0.20 | 0.06 | 0.03 |
| | Some College | 0.95 | 0.05 | 0.75 | 0.20 | 0.04 | 0.02 |
| | College Degree | 0.99 | 0.01 | 0.86 | 0.13 | 0.00 | 0.01 |
| HH Age | Age 34 or less | 0.87 | 0.13 | 0.64 | 0.23 | 0.09 | 0.04 |
| | Age 35 to 54 | 0.92 | 0.08 | 0.72 | 0.20 | 0.06 | 0.03 |
| | Age 55 to 64 | 0.95 | 0.05 | 0.78 | 0.17 | 0.03 | 0.02 |
| | Age 65 or older | 0.97 | 0.03 | 0.86 | 0.11 | 0.01 | 0.02 |
| HH Race | White | 0.94 | 0.06 | 0.78 | 0.16 | 0.04 | 0.02 |
| | Black | 0.79 | 0.21 | 0.46 | 0.33 | 0.13 | 0.08 |
| | Asian | 0.97 | 0.03 | 0.81 | 0.16 | 0.01 | 0.02 |
| | Other | 0.87 | 0.13 | 0.59 | 0.28 | 0.09 | 0.04 |
| HH Ethnicity | Non-Hispanic | 0.94 | 0.06 | 0.77 | 0.17 | 0.04 | 0.02 |
| | Hispanic | 0.79 | 0.21 | 0.51 | 0.28 | 0.14 | 0.07 |
| HH Nativity | Citizen | 0.93 | 0.07 | 0.76 | 0.17 | 0.04 | 0.02 |
| | Non-Citizen | 0.79 | 0.21 | 0.50 | 0.29 | 0.14 | 0.07 |
| HH Structure | Married couple | 0.97 | 0.03 | 0.80 | 0.17 | 0.02 | 0.01 |
| | Unmarried Female HH | 0.82 | 0.18 | 0.56 | 0.27 | 0.12 | 0.05 |
| | Unmarried Male HH | 0.87 | 0.13 | 0.61 | 0.26 | 0.09 | 0.04 |
| | Individual - Female | 0.93 | 0.07 | 0.79 | 0.14 | 0.03 | 0.03 |
| | Individual - Male | 0.90 | 0.10 | 0.72 | 0.18 | 0.06 | 0.04 |
| HH Metro Status | In MSA - Principal City | 0.90 | 0.10 | 0.70 | 0.20 | 0.07 | 0.04 |
| | In MSA - not in Principal City | 0.95 | 0.05 | 0.78 | 0.17 | 0.03 | 0.02 |
| | Non-Metro | 0.93 | 0.07 | 0.74 | 0.18 | 0.05 | 0.03 |
| All Households | | 0.93 | 0.07 | 0.75 | 0.18 | 0.05 | 0.03 |

Notes: Unweighted Estimates, 37,919 observations. See Table 2 for additional notes.