The Effect of Economic and Demographic Factors on Household Choice of Financial Transaction Services

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Abstract

In this study we examine the economic and demographic factors that affect household choice of financial transaction services. Checking account ownership and use of nonbank alternative financial transaction services (AFTS) are modeled in a unified framework, a novel approach in the literature. Our empirical analysis finds distinct differences in factors that influence households' decision to use checking accounts only relative to the other financial transaction services options, including use of checking accounts and AFTS, AFTS only, and cash only. For example, having lower income, working less than fulltime, being less educated, or being a member of certain minority or ethnic groups lowers the likelihood that a household uses checking only and increases the probability that a household uses one of the other three financial transactions options. The analysis uses the 2011 Unbanked/Underbanked Supplement to the Current Population Survey, which uniquely collects information on checking and savings account ownership as well as use of nonbank AFTS for a large, nationally representative sample of U.S. households.

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), where providers operate outside of the system of federally insured financial institutions.[2] Although reliable time series data on AFS use by U.S. consumers is not available, it is clear that a substantial share of U.S. households obtain financial services from nonbank AFS providers. In 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 a nonbank AFS also had a bank account (FDIC 2012a).[3]

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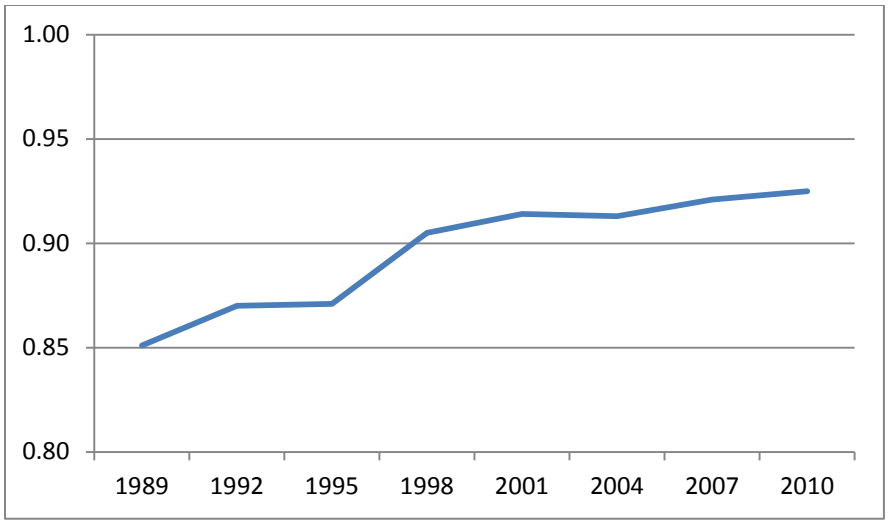

Figure 1. Share of U.S. Families with a Transaction Account

Note: 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.

The goal of this study is to better understand how economic and demographic attributes influence the way households meet their financial transactions needs. This topic has important implications from a policy perspective. Consumers who use mainstream financial services providers benefit from consumer protection laws and regulations that may not cover alternative financial services such as check cashing or money orders offered by nonbank providers.[4] 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 any 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 can more easily contribute to economic expansions. 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).

Despite the benefits associated with mainstream financial products, use of nonbank alternative financial transaction services (AFTS), including money orders, check cashing, and international remittances, remains widespread among U.S. consumers.[5] This may be attributable to a variety of factors, such as lack of access to mainstream transaction (i.e. checking) accounts among certain populations or geographies, consumer preferences for greater convenience and faster access to funds (FDIC 2011b; 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 is essential to policymakers and others interested in encouraging mainstream participation.

Our analysis uses 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 also include information on financial transactions at the household level, including whether anyone in the household has a checking (transaction) account at a bank, and whether the household has used any nonbank AFS within the past year. Specifically, we observe whether the household used any of the following AFTS products: money orders, check cashing, and international wire transfers (i.e. remittances).

We focus on financial transaction services in this study.[6] An innovation in our analysis is that we examine the household's choice to hold a checking account and to use nonbank AFTS in a unified

framework. Much of the existing literature focuses on the determinants of bank account usage, or AFS usage, but not both.[7] We develop a model of household financial transaction services choice, where a household chooses the bundle of financial transaction services that maximizes its utility. In our model the utility received from each of the alternative bundles is determined by economic factors, which should be related to the household's need for financial transaction services, and demographic characteristics, which serve as a proxy for household tastes and preferences.

In our data households are observed to choose one of four financial services bundles. Those who have a checking account and do not use AFTS are categorized as "checking only" households. Households with a checking account who also use AFTS are "checking plus AFTS" households, while households who have no checking account and use AFTS are "AFTS only" households. Finally, households that have no checking account and do not use AFTS are categorized as "cash only."

While preliminary, our results indicate that there is a clear distinction between households that use checking only and those that choose one of the other three financial services options. Both economic and demographic factors are found to be important to the financial services decision made by households. Economic attributes that lower the probability of using checking only include having income at or below middle income and working less than full time. In contrast, being a homeowner increases the likelihood that the checking only option is chosen. Demographic factors such as having less education or being a member of a minority (i.e. black or other race) or ethnic (i.e. Hispanic) group are found to lower the probability that a household chooses checking only, while these attributes increase the likelihood that households choose from among the other three financial services options. Future research will expand this analysis to examine how household access to bank and nonbank financial services providers and local community characteristics may influence the financial services bundle chosen.

Background

The existing literature provides clear and robust evidence that rates of bank account ownership are lower among households with less family income or net worth, have lower educational attainment, are younger, and are black or Hispanic.[8] We highlight two recent studies here, each of which focus on the dynamics of bank account ownership. Using longitudinal survey data from the 2004 Survey of Income and Program Participation, Rhine and Greene (2012) find that banked families who experience a loss of income, employment, or health insurance are significantly more likely to become unbanked.

Campbell, Martinez-Jerez, and Tufano (2012) examine factors associated with *involuntary* account closures initiated by the bank primarily because of excessive customer overdrafts over the 2001 to 2005 timeframe. Involuntary closures may have longer-term effects on the household and the community in which the family resides, as most banks require up to five years before accepting an application for a new deposit account from a consumer who previously had an account involuntarily closed.[9] The authors' findings are generally consistent with the prior literature, in that *county-level* account closure rates are higher in areas with lower levels of income and employment, educational attainment, etc. Their findings also offer some empirical support for the notion that greater neighborhood social capital (e.g. higher voter turnout and lower crime rates) is associated with fewer bank account closures.

The literature on AFS product use reveals that, generally speaking, household characteristics associated with lower rates of bank account ownership are also related to higher rates of AFS use. For example, using the 2009 FDIC Unbanked/Underbanked supplement to the CPS, Gross et al (2012) show that use of various AFS products is higher among less educated, unemployed, and minority households. In contrast to patterns of bank account use, however, 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 are more likely to use cash to meet their financial transactions needs than to obtain transaction services from financial institutions or nonbank providers.

In a related literature, several studies have attempted to determine whether consumers use AFS providers because of a lack of bank branches in their communities, with mixed results. Smith et al (2008) analyze the four-county region surrounding the City of Philadelphia and find that there is a spatial void of bank branches in the region, thereby encouraging consumers to use AFS providers. A lack of branches in lower-income communities also has been suggested as an explanation for the presence of payday lenders (Graves 2003). In contrast to these findings, Fellowes and Mabanta (2008) report that over 90

percent of AFS providers across the country are located within one mile of a bank or credit union branch. A similar finding is reported by Kubrin et al. (2011) for neighborhoods in the Seattle, Washington area.

This study seeks to bridge the gap in our understanding of how economic and demographic factors drive a household's decision to use a particular bundle of financial transaction services. We extend earlier research by estimating our model on a nationally representative, large sample of US households who report their use of financial services. Uniquely, our data set contains information on household deposit account ownership as well as use of nonbank AFTS products and services. As such, the results presented here are more comprehensive and generalizable to the entire U.S. population.

Data and Methodology

Our analysis is based on 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 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, which is a large, nationally representative sample. 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 checking account ownership or AFTS use, and 43 observations where the household type is equal to "other", yielding a final sample size of 42,911 households.[10]

Measuring Household Choice of Financial Transaction Services

We construct a categorical measure of financial transaction services choices at the household-level, based on checking account ownership status and use of nonbank AFTS products. Specifically, we classify the household as an AFTS user 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. Households who have a checking account and do not use AFTS providers are categorized as "checking only" households. Households with a checking account who also use AFTS are "checking plus AFTS" households, while households who have no checking account and use AFTS are "AFTS only" households. Finally, households that have no checking account and do not use AFTS are categorized as "cash only" households.[11]

Table 1 summarizes the distribution of households in our sample based on their use of one of the four financial services bundles. Most of the households (75 percent) are in the checking account only group, compared with 17 percent who account for the checking plus AFTS group. Of the nine percent of households who do not have a checking account, more than half (5.4 percent) use AFTS only and the remainder (3.5 percent) is in the cash only group.

Table 1

Distribution of Households by Financial Transaction Services Use

Nbr Obs Proportion	Does Not Use AFTS	Uses AFTS	All
	Checking Only	Checking + AFTS	
Has Checking Account	31,951	7,136	39,087
	0.745	0.166	0.911
	Cash Only	AFTS Only	
No Checking Account	1,494	2,330	3,824
	0.035	0.054	0.089
	33,445	9,466	42,911
All	0.779	0.221	1.000

Notes: Based on authors calculations using June 2011 Unbanked/Underbanked supplement to CPS. 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.

Determinants of the Household Financial Transaction Services Decision

We model the household's choice of financial transaction services as a function of its economic characteristics, which should be related to the household's need for transaction services, and demographic factors, which serve as a proxy for unobservable household tastes and preferences. The specific measures of household economic characteristics in our analysis include household income, labor force status, and homeownership (a proxy for wealth).[12] Demographic variables include educational attainment, race, Hispanic status, citizenship status, age, household structure, and metropolitan status. See Table 2 for a complete list of definitions for the variables used in the analysis. Note that we use the information from the household respondent for all person-level covariates such as age or education, and we convert all continuous dependent variables into a series of categorical variables to capture nonlinearities that may exist. For example, we use the age of the household respondent to categorize each household into one of the following age groups: 24 and under, 25 to 54, 55 to 64, or 65 and older. In this case, creating categorical variables allows us to observe whether lifecycle-related age effects influence the financial services bundle chosen by the household.

Table 2

Description of Socioeconomic and Demographic Variables

Variable	Categories	Definition
Family 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
Labor Force 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
Homeownership	Non-Homeowner	Does not own home
	Owns Home	Homeowner
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
Age	Age 24 or less	Between 15 and 24 years of age
	Age 25 to 54	Between 25 and 54 years of age
	Age 55 to 64	Between 55 and 64 years of age
	Age 65 or older	Age 65 or more
Race	White	White only
	Black	Black
	Asian	Asian (and non-black)
	Other	Other (non-black and non-asian and not white only)
Ethnicity	Non-Hispanic	Non-Hispanic
	Hispanic	Hispanic
Nativity	Citizen	Citizen
	Non-Citizen	Non-Citizen
Household Type	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)
Metro Status	In MSA - Principal City	Resides in a principal city
	In MSA - not in Principal City	Resides in MSA outside of a principal city
	Non-Metro	Does not reside in MSA (i.e. rural)
	Not Identified	Metro status is unknown or withheld from base CPS data

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. Metropolitan statistical area (MSA)

and principal city definitions are produced by Office of Management and Budget. See http://www.census.gov/population/metro/ for more information.

Table 3 presents proportional means of all economic and demographic variables, both for the overall sample and by household financial services category. Overall, these summary data are consistent with expectations. There is a larger proportion of upper-income, married, and more highly educated households in the checking account only group than the other three groups. Checking account only households and those who use a checking account plus AFTS are more likely to work full time and own a home than AFTS or cash only households. In addition, several distinctions appear between checking account only and checking account plus AFTS households. For example, a substantially higher proportion of households in the checking account only group have upper income, a college degree, and are married, while the checking account plus AFTS group has a higher proportion of female heads of house, similar to the AFTS and cash only households. For the checking account plus AFTS group, some characteristics appear more closely aligned with AFTS or cash only households. As an example, these three groups tend to be 54 years of age or younger, unmarried, and have a somewhat larger representation among certain minority households, including Hispanics and blacks, and noncitizens.

Table 3

Proportional Means by Household Financial Transaction Services Type

Variable	Categories	ALL	Checking Only	Checking plus AFTS	AFTS Only	Cash Only
Household Income	Upper Income	0.26	0.30	0.20	0.02	0.04
	Middle Income	0.19	0.20	0.18	0.05	0.06
	Moderate Income	0.19	0.20	0.22	0.12	0.12
	Low Income	0.36	0.30	0.40	0.81	0.78
Labor Force Status	Employed FT	0.51	0.53	0.54	0.32	0.27
	Employed PT	0.09	0.09	0.11	0.11	0.09
	Unemployed	0.05	0.04	0.07	0.15	0.10
	Not in LF	0.35	0.34	0.28	0.42	0.54
Homeownership	Non-Homeowner	0.32	0.25	0.45	0.75	0.65
	Owns Home	0.68	0.75	0.55	0.25	0.35
Education	College Degree	0.32	0.37	0.24	0.04	0.08
	Some College	0.29	0.29	0.32	0.23	0.19
	HS Diploma	0.29	0.27	0.31	0.39	0.36
	No HS Diploma	0.11	0.08	0.13	0.34	0.37
Age	Age 24 or less	0.04	0.03	0.07	0.10	0.08
	Age 25 to 54	0.54	0.51	0.62	0.68	0.56
	Age 55 to 64	0.19	0.20	0.18	0.14	0.15
	Age 65 or older	0.22	0.25	0.13	0.09	0.21
Race	White	0.84	0.88	0.75	0.65	0.67
	Black	0.10	0.06	0.19	0.29	0.26
	Asian	0.04	0.04	0.04	0.01	0.03
	Other	0.02	0.02	0.03	0.05	0.04
Ethnicity	Non-Hispanic	0.91	0.94	0.85	0.75	0.78
	Hispanic	0.09	0.06	0.15	0.25	0.22
Nativity	Citizen	0.95	0.96	0.91	0.85	0.88
	Non-Citizen	0.05	0.04	0.09	0.15	0.12
Household Type	Married couple	0.49	0.53	0.46	0.25	0.24
	Unmarried Female HH	0.12	0.09	0.18	0.31	0.23
	Unmarried Male HH	0.04	0.03	0.06	0.08	0.06
	Individual - Female	0.18	0.19	0.14	0.14	0.23
	Individual - Male	0.16	0.15	0.16	0.21	0.24
Metro Status	In MSA - Principal City	0.24	0.22	0.27	0.36	0.32
	In MSA - not in Principal City	0.35	0.37	0.34	0.24	0.25
	Non-Metro	0.22	0.22	0.21	0.24	0.25
	Not Identified	0.19	0.20	0.18	0.17	0.18
	Number of Observations	42911	31951	7136	2330	1494

While informative, the raw differences in household characteristics across the four financial services categories observed in Table 3 do not provide definitive evidence as to how each of the socioeconomic and demographic factors relate to a household's financial services choice. Estimates from our multivariate empirical model allow us to better isolate the effect of each variable on the household financial services choice, holding other things equal.

Empirical Model

We model household choice of financial transaction services using a Multinomial Logit (MNL) framework. For household *i*, the utility associated with choosing a bundle *j* of financial transaction services (*FTS*) is specified as follows:

$$FTS_{ij}^{*} = x_i'\beta_j + \varepsilon_{ij}$$

where latent utility FTS_{ij}^{*} is unobserved and ε_{ij} is a random disturbance, by assumption independent and identically distributed by the extreme value distribution. The observed choice FTS_{ij} is assumed to maximize household utility. Under these assumptions, the probability of household *i* choosing *FTS* bundle *j* can be expressed as follows:

$$Prob(FTS_i = j \mid x_i) = \exp(x_i'\beta_j) \,/\, \sum_{k=1}^{4} \exp(x_i'\beta_k)$$

where *j* = 1, …, 4 represents the financial services bundles "checking only", "checking plus AFTS", "AFTS only", and "cash only", respectively.

The vector x_i includes variables that characterize the economic and demographic characteristics of the household. In addition to these household-level variables, we also include in the model a vector of state fixed effects to control for differences in regulatory environment, economic conditions, or other unobserved factors that might affect the supply or demand for financial transaction services.

An unattractive characteristic of the MNL model is that it imposes an "Independence of 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. The IIA assumption may be problematic for our analysis because, by construction, the various categories of household financial transaction services are not independent choices. We will extend the current empirical investigation to include choice-specific attributes when this data become available and will conduct specification tests to evaluate how restrictive the IIA assumption is in the context of our analysis. We will also explore alternative empirical specifications such as multinomial probit (MNP) which does not impose the IIA assumption but has the potential for issues related to model identification. Overall, our preliminary work suggests that the MNL model is robust to the findings from the less restrictive and, in our case, identifiable MNP model.

Results

Coefficient estimates from the MNL model are provided in the Appendix. These results are used to calculate estimated partial effects of the covariates on each household financial transaction services choice, presented in Table 4.

Table 4

Estimated Partial Effects of Covariates on Household Financial Services Type

Variable	Categories	Checking Only	Checking plus AFTS	AFTS Only	Cash Only
Household Incom	(Upper Income omitted)				
	Middle Income	-0.028***	0.014**	0.011***	0.003
		(0.006)	(0.006)	(0.003)	(0.003)
	Moderate Income	-0.063***	0.030***	0.025***	0.009***
		(0.006)	(0.006)	(0.003)	(0.003)
	Low Income	-0.107***	0.017***	0.061***	0.028***
		(0.006)	(0.006)	(0.003)	(0.003)
Labor Force Statu	(Employed FT omitted)				
	Employed PT	-0.022***	0.008	0.007**	0.007**
		(0.007)	(0.006)	(0.003)	(0.003)
	Unemployed	-0.077***	0.017**	0.038***	0.021***
		(0.009)	(0.008)	(0.004)	(0.004)
	Not in LF	-0.029***	-0.017***	0.021***	0.025***
		(0.005)	(0.005)	(0.003)	(0.002)
Homeownership	Owns Home	0.106***	-0.052***	-0.038***	-0.017***
		(0.004)	(0.004)	(0.002)	(0.002)
Education	(College Degree omitted)				
	Some College	-0.063***	0.032***	0.025***	0.005**
		(0.005)	(0.005)	(0.002)	(0.002)
	HS Diploma	-0.094***	0.028***	0.047***	0.020***
		(0.005)	(0.005)	(0.003)	(0.002)
	No HS Diploma	-0.160***	0.037***	0.076***	0.048***
		(0.008)	(0.007)	(0.004)	(0.004)
Age	(Age 25 to 54 omitted)				
	Age 24 or less	-0.007	0.027***	-0.013***	-0.007**
		(0.009)	(0.009)	(0.004)	(0.004)
	Age 55 to 64	0.035***	-0.007	-0.019***	-0.009***
		(0.006)	(0.005)	(0.003)	(0.003)
	Age 65 or older	0.128***	-0.062***	-0.048***	-0.018***
		(0.006)	(0.005)	(0.003)	(0.002)

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Table 4 (continued)

Variable	Categories	Checking Only	Checking plus AFTS	AFTS Only	Cash Only
Race	(White omitted)				
	Black	-0.197***	0.127***	0.040***	0.029***
		(0.008)	(0.008)	(0.004)	(0.004)
	Asian	0.002	0.006	-0.030***	0.022***
		(0.011)	(0.010)	(0.004)	(0.007)
	Other	-0.097***	0.054***	0.029***	0.014**
		(0.014)	(0.013)	(0.007)	(0.006)
Ethnicity	Hispanic	-0.095***	0.051***	0.023***	0.021***
		(0.007)	(0.006)	(0.003)	(0.003)
Nativity	Non-Citizen	-0.070***	0.045***	0.017***	0.008***
		(0.008)	(0.008)	(0.004)	(0.003)
Household Type	(Married couple omitted)				
	Unmarried Female HH	-0.060***	0.024***	0.022***	0.013***
		(0.007)	(0.006)	(0.003)	(0.003)
	Unmarried Male HH	-0.050***	0.020**	0.022***	0.009**
		(0.010)	(0.009)	(0.005)	(0.004)
	Individual - Female	0.033***	-0.043***	-0.003	0.014***
		(0.006)	(0.005)	(0.003)	(0.003)
	Individual - Male	-0.004	-0.029***	0.013***	0.021***
		(0.006)	(0.005)	(0.003)	(0.003)
Metro Status	(In Principal City omitted)				
	In MSA - not Principal City	0.011**	0.000	-0.008***	-0.003
		(0.005)	(0.005)	(0.003)	(0.002)
	Non-Metro	-0.019***	0.006	0.005	0.008**
		(0.007)	(0.006)	(0.003)	(0.003)
	Not Identified	-0.004	0.001	-0.001	0.005*
		(0.007)	(0.006)	(0.003)	(0.003)

Notes: Estimated partial effects are computed using the coefficient estimates from the Multinomial Logit (MNL) model presented in the Appendix. In addition to the covariates listed here, the model also includes a vector of State fixed effects. The analysis sample has 42,911 observations. The symbol *** indicates the estimate is statistically significant at the one percent level (** = five percent; * = ten percent).

Scanning across the list of estimates presented in Table 4 reveals an interesting pattern. For nearly every covariate in the model, the sign of the estimated effect on the household's likelihood of being checking only is the *opposite* of the probability of being in any of the three other groups. The following characteristics are determined to decrease the household's probability of choosing checking only, and increase the likelihood of choosing any other bundle of financial services: having a lower level of household income, working less than full time, having a lower level of educational attainment, being a member of a black or other minority group or Hispanic, and living in a single female or male head of household with at least one child. Conversely, being a homeowner or living in an older household (age 55+) increases the likelihood of choosing checking only and decreases the likelihood of choosing any other financial services bundle.

Our finding that there is a clear distinction in the direction of influence for covariates on the probability of a household being in the checking only group compared to the other three options suggests that, in practice, the utility function associated with being a checking only household is fundamentally different than for checking plus AFTS, AFTS only, or cash only.

Analogously, our estimates suggest that the benefits that a household yields from choosing checking plus AFTS are more similar to those from being an AFTS only or cash only household, and less similar to a checking only household.

We now discuss the covariate estimates in greater detail. As expected, economic factors play an important role in a household's financial services choice. Relative to upper-income households (the omitted category), a low-income household is 11 percentage points less likely to be checking only, and more likely to be checking plus AFTS, AFTS only, or cash only (by 2, 6, and 3 percentage points, respectively). The point estimates across the various income groups indicate that the effect of income is monotonic for checking only, AFTS only, or cash only, but this is not the case for the checking plus AFTS group. As an example, the estimated probability of being checking only is decreasing in household income. But the likelihood of being in the checking plus AFTS group is largest for the moderate-income group, and roughly similar for the middle- and low-income groups. These results are consistent with earlier research examining how income is related to use of AFS products (e.g. Gross et al. 2012).

Homeownership (a proxy for wealth) has a large effect, as a household that owns its home is 10 percentage points more likely to be checking only. As for labor force status, we find that unemployment has an economically important effect, as the probability of being in the checking only group is nearly 8 percentage points lower relative to being employed full-time. Part-time employment and not being in the labor force (NILF) generally have a statistically significant effect on household choice of financial services, but the magnitudes of these estimated effects are smaller.

Our estimates show that many of the demographic characteristics included in the model have a relatively large effect on choice of financial transaction services. For example, we observe that relative to households with a college degree, those with less than a high school diploma are 16 percentage points less likely to choose checking only, and those with a high school diploma are 9 percentage points less likely. Similar to the income effects, these point estimates indicate that educational attainment has a monotonic effect on the probability of being checking only, AFTS only, or cash only, but not for checking plus AFTS. Relative to the omitted category (college degree), each of the other education categories has a positive effect on the probability of choosing checking plus AFTS, but the magnitude of this effect is fairly similar across education groups. The finding that households with lower levels of education are more likely to use one of the three non-checking only options may reflect differences in financial literacy across households. Earlier research has established a positive correlation between educational attainment and financial knowledge and decision making (e.g. Lusardi and Mitchell 2009). Households with better financial decision-making ability may be able to better evaluate the costs associated with AFTS products, or better able to manage the sometimes uncertain costs associated with maintaining a checking account.[13]

Estimated age effects are interesting. For the youngest age group in our model, the probability of being checking only is not statistically different than for the prime age group (age 25 to 54), the omitted category. However, the young age group is slightly more likely to be checking plus AFTS and less likely to be AFTS only or cash only. The age 65+ group is roughly 13 percentage points more likely to be in the checking only group. The sizably higher likelihood that retirement aged households are in this group, relative to the other financial services options, may be due in part to the U.S. Treasury's efforts to move federal benefits recipients from paper checks to electronic transfers. For some time now, Treasury has been encouraging federal benefits recipients to open checking accounts and use direct deposit. As of

March 1, 2013, households are required to receive their federal benefits electronically.[14] Our findings provide evidence to suggest that Treasury's efforts are meeting with some success.

Black and other race households are less likely than white households to use a checking account only for financial transaction services, by almost 20 and 10 percentage points, respectively. Similarly, Hispanic households are nearly 10 percentage points less likely than non-Hispanic households to use checking only and noncitizens are 7 percentage points less likely than U.S. citizens to choose this option. Our findings that race, ethnicity, and citizenship have relatively large effects on the checking only and checking plus AFTS options are consistent with the prior literature. For example, Rhine and Greene (2006) report fairly large effects from being a member of a black or other racial group and Hispanic. In addition, they found that immigrants who are U.S. citizens are significantly less likely than noncitizens to be without a checking or a savings account (unbanked).

Discussion and Next Steps

Our findings show that many economic and demographic factors are important to the financial transaction services decision made by households. In particular, we find a clear distinction between households that use checking only and those that choose one of the other three financial services options. Economic drivers such as having income at or below middle income or working less than full time decrease the probability of using checking only, while being a homeowner increases the likelihood that checking only is chosen. Demographic factors such as having less education or being a member of a minority (i.e. black or other race) or ethnic (i.e. Hispanic) group also lowers the probability that a household chooses checking only and raises the likelihood that these households will choose from among the other three financial services options. Our analysis raises a few questions and suggests several areas for further investigation.

Why are Certain Demographic Characteristics Estimated to Have Such a Large Effect?

Consistent with many earlier studies on this topic, we find that demographic factors such as race and ethnicity have an important impact on household financial decision making, even after accounting for income, education, and other socioeconomic characteristics of the household. Although not a novel finding, the magnitudes of these effects are nonetheless striking. For example, our estimates indicate that, other things equal, a black household is 20 percentage points less likely than a white household to use only a mainstream checking account for financial transaction services. To put the size of this estimate into context, consider that the impact of a household moving from the highest income group (family income at least 120 percent of area median income) to the lowest income group (family income less than 50 percent of area median income) is estimated to be 11 percentage points, or roughly half the size.

Campbell et al. (2012) note that although a number of studies have established a relationship between race and financial decision making, the potential mechanisms for this association are not well understood. For example, it may be the case that household preferences over the choices of financial services are affected by community or social norms. Campbell et al. (2012) posit that neighborhoods with more social capital may have greater financial health or stability, or may form different types of social networks. Lin (2000) describes the inequality of social capital across racial and ethnic groups and suggests that minority groups with lower income and wealth are more likely to use informal ties based on family, friends, and neighbors who likely have similar economic circumstances. This suggests that the demographic covariates in our model may be picking up the effect of other unobserved, correlated factors, such as the social networks woven within the fabric of neighborhoods.

An alternative explanation for the observed differences across racial and ethnic groups in choice of financial services is that there may be systematic variation across neighborhoods in the availability of bank branches and AFS providers.[15] Such supply-side factors are likely to have an important impact on household decision making. For example, a household may be substantially less likely to obtain a checking account if it is located in a neighborhood with a lack of convenient access to a bank branch. Although we include state fixed effects in our empirical model, we are currently unable to control for more localized neighborhood characteristics.

In order to better evaluate the impact that access to financial services providers might have on household financial decision making, as well as the effect of other neighborhood characteristics, we are currently working with Census to gain access to restricted geographic information for the households in

our data. These census tract-level identifiers will allow us to merge in data from other sources in order to better account for local area characteristics in our analysis. Specifically, we plan to introduce measures of bank branch and AFS provider presence in the local market (from FDIC's Summary of Deposits data, and from Census Business Statistics data), as well as summary measures of socioeconomic and demographic characteristics of the local residential population and community social capital characteristics (using estimates from Census' American Community Survey). By including these controls, we will be better able to isolate the effect of household level socioeconomic and demographic characteristics on household choice of financial services.

What is the Role of Prepaid and Payroll Cards?

The financial services industry continues to evolve, with innovative payments options continuing to be brought to the marketplace. The increased offering of branded, general purpose reloadable (GPR) prepaid cards by banks and nonbanks points to an emerging financial services bundle that could be considered in the future. Payroll cards, typically offered by an employer to its employees, also are an option available to households whose employer offers this card. We currently set aside the use of such cards when classifying households by financial transaction services choice because it is unclear how GPR prepaid or payroll cards should be treated. In part, complications arise from the differences in the way these cards are treated from a consumer protection perspective and their structured features and fees. In particular, a few GPR prepaid are comparable in protections offered for checking deposit accounts but many others do not as yet.[16]

A fairly small share (12 percent) of households in our sample use prepaid or payroll cards. However, we do find fairly substantial differences in use of prepaid and payroll cards across households categorized by financial services type as defined in our study. Use of prepaid or payroll cards was less than 10 percent among checking only households, and roughly 12 percent among cash only households. By comparison, use was substantially higher among households that also use AFTS. In particular, among checking plus AFTS households and AFTS only households, the share using prepaid or payroll cards was 20 and 27 percent, respectively.

In preliminary analyses, we considered two alternative definitions of household financial services choice that account for use of prepaid and payroll cards. First, we treated prepaid/payroll card use as akin to having a checking account only. Second, we treated prepaid and payroll card use as an additional AFTS product.[17] In both cases the marginal effects estimates from the MNL model using these alternative definitions are similar to the main results presented in this paper.

How Sensitive are the Findings to the Inclusion of Money Orders?

We examined whether our results are sensitive to the treatment of money orders in the classification of households by financial services choice. It seems plausible that even households who rely primarily on mainstream checking accounts for transaction services may occasionally need to obtain a money order for a specific transaction. For example, in some cases a landlord may require a money order for a security deposit on a new lease. In our sample, among the 7,136 households classified as checking plus AFTS, more than 60 percent (or 10 percent of all households in the sample) used nonbank money orders but did not use nonbank check cashing or remittance services. As a robustness check, we estimated our model using an alternative definition of household financial services type where use of money orders does not disqualify a household from being classified as checking only. Results from this analysis were qualitatively similar to the main results presented in this paper.

Concluding Remarks

Our preliminary findings show that households that choose checking only are distinctly different than those households that use one of the other three financial transaction services options. Efforts are underway to expand this analysis to include potentially important supply-side factors and neighborhood characteristics. This study takes an important step toward bridging the gap in our understanding of how economic and demographic factors contribute to a household's decision to use a particular bundle of financial transactions services. These findings provide a foundation for future studies seeking to provide valuable insights for policymakers and others interested in household financial services decision making.

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Endnotes

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

[2] Although estimates on the size of the AFS market vary across sources, altogether they indicate this market has been growing over the past few decades. 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 calculations 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 accountholders 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.

[5] Remittances are included to account for financial transaction services important to consumers who send funds to family (and possibly friends) who reside outside the U.S. As an example of the importance of these types of transactions, Orozco (2012) states that remitters send funds on average 12 times per year.

[6] We also observe use of AFS credit products such as payday loans, rent-to-own agreements, refund anticipation loans, and pawnshop loans. We ignore use of such credit products in our analysis because household demand for credit products may be 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] 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.

[8] For example, see FDIC (2011a), Rhine and Greene (2006), Barr (2009, 2011), Hogarth and O'Donnell (1997), Kooce-Lewis, Swagler, and Burton (1996), and Caskey (1994a, 1997).

[9] Banks typically screen potential new accountholders using consumer reporting services such as ChexSystems. According to FDIC's National Survey of Banks' Efforts to Serve the Unbanked and Underbanked, only one in five banks said they offered a "second chance" account to consumers listed on ChexSystems (FDIC 2011(b)). Individuals unable to open a deposit account must find other ways to pay their bills and meet other financial obligations. AFTS providers or the use of cash may be the only choices available to these consumers.

[10] 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.

[11] For the purpose of this analysis we do not consider savings accounts to 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. A small proportion of households in our sample (roughly 2 percent) have a savings account and do not have a checking account. These households are categorized as either AFTS only, or cash only, depending on whether they used an AFTS in the past year. As a robustness check, we conducted an alternative analysis using a definition of financial services use where households are categorized by bank account status (i.e. checking or savings account ownership) and AFTS use. Results were quite similar to the main results presented in this paper.

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

[13] It is not necessarily true that alternative financial *transaction* services such as money orders or check cashing are more costly than maintaining a checking account. In some cases AFTS may be relatively less expensive, e.g. money orders from post offices or check cashing from grocery stores.

[14] 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 the electronic delivery of federal benefits in March 2013. More information about Treasury's efforts is available at www.godirect.gov and www.socialsecurity.gov.

[15] The existing literature does not provide conclusive evidence on whether lower income and minority communities suffer from a lack of access to mainstream bank branches. Based on an examination of five U.S. cities over the period 1970-1989, Caskey (1994b) finds mixed evidence in support of this hypothesis. Apgar and Herbert (2004) find that in the Dallas metropolitan area, bank branches are relatively less concentrated in lower-income and minority census tracts, while AFS providers are more highly concentrated in such tracts. Prager (2009) finds that the number of AFS providers per capita is related to demographic characteristics of the county population, while Bhutta (2012) finds that neighborhood racial composition has little influence on payday lender locations after controlling for income, wealth, and other demographic characteristics of the population.

[16] A comprehensive discussion about the potential lack of consumer protections and higher costs for using GPR prepaid cards is provided by PEW Charitable Trust's Prepaid Card Research Project is available at http://www.pewstates.org/projects/prepaid-cards-research-project-328981.

[17] Under the first alternative where prepaid/payroll is treated as similar to having a checking account, there are minor differences in the distribution of households over the four financial services groups. An additional 1.5 percent of households (previously classified as AFTS only) are classified as checking/prepaid plus AFTS. Under the second alternative where we treat use of prepaid and payroll as an AFTS, the overall distribution of households changes more substantially. Roughly 3067 households (or 7 percent of the sample) formerly classified as checking only are classified as checking/prepaid plus AFTS.

Appendix

Multinomial Logit Coefficient Estimates

Variable	Categories	Checking plus AFTS	AFTS Only	Cash Only
Household Income	(Upper Income omitted)	0.000	0.000	0.000
		(.)	(.)	(.)
	Middle Income	0.153***	0.772***	0.259
		(0.044)	(0.188)	(0.172)
	Moderate Income	0.319***	1.367***	0.646***
		(0.045)	(0.173)	(0.156)
	Low Income	0.367***	2.282***	1.422***
		(0.046)	(0.167)	(0.147)
Labor Force Status	(Employed FT omitted)	0.000	0.000	0.000
		(.)	(.)	(.)
	Employed PT	0.102**	0.273***	0.350***
		(0.048)	(0.087)	(0.109)
	Unemployed	0.296***	1.062***	1.000***
		(0.061)	(0.084)	(0.108)
	Not in LF	-0.015	0.629***	0.921***
		(0.038)	(0.064)	(0.077)
Homeownership	Owns Home	-0.569***	-1.213***	-0.918***
		(0.033)	(0.059)	(0.066)
Education	(College Degree omitted)	0.000	0.000	0.000
		(.)	(.)	(.)
	Some College	0.338***	1.217***	0.466***
		(0.038)	(0.122)	(0.115)
	HS Diploma	0.392***	1.800***	1.091***
		(0.039)	(0.118)	(0.108)
	No HS Diploma	0.601***	2.484***	1.899***
		(0.054)	(0.124)	(0.114)
Age	(Age 25 to 54 omitted)	0.142**	-0.256***	-0.226**
		(0.061)	(0.089)	(0.113)
	Age 24 or less	0.000	0.000	0.000
		(.)	(.)	(.)
	Age 55 to 64	-0.123***	-0.500***	-0.401***
		(0.038)	(0.075)	(0.086)
	Age 65 or older	-0.718***	-1.730***	-1.056***
		(0.048)	(0.091)	(0.088)

(continued on next page)

Appendix (continued)

Variable	Categories	Checking plus AFTS	AFTS Only	Cash Only
Race	(White omitted)	0.000 (.)	0.000 (.)	0.000 (.)
	Black	1.032*** (0.044)	1.333*** (0.069)	1.317*** (0.081)
	Asian	0.020 (0.079)	-1.097*** (0.259)	0.514*** (0.167)
	Other	0.511*** (0.087)	0.873*** (0.129)	0.729*** (0.158)
Ethnicity	Hispanic	0.530*** (0.050)	0.852*** (0.080)	0.982*** (0.092)
Nativity	Non-Citizen	0.433*** (0.061)	0.606*** (0.091)	0.489*** (0.107)
Household Type	(Married couple omitted)	0.000 (.)	0.000 (.)	0.000 (.)
	Unmarried Female HH	0.272*** (0.043)	0.669*** (0.072)	0.671*** (0.089)
	Unmarried Male HH	0.228*** (0.064)	0.632*** (0.102)	0.521*** (0.133)
	Individual - Female	-0.343*** (0.044)	-0.141* (0.082)	0.398*** (0.089)
	Individual - Male	-0.155*** (0.043)	0.359*** (0.075)	0.698*** (0.086)
Metro Status	(In Principal City omitted)	0.000 (.)	0.000 (.)	0.000 (.)
	In MSA - not Principal City	-0.030 (0.039)	-0.234*** (0.070)	-0.170** (0.081)
	Non-Metro	0.086* (0.049)	0.188** (0.081)	0.292*** (0.093)
	Not Identified	0.014 (0.049)	-0.003 (0.084)	0.172* (0.097)

Notes: Coefficient estimates from a multinomial logit model of household financial transaction services choice. All estimates are relative to the omitted choice of "checking only". Specification also includes state fixed effects. Estimated on a sample of 42,911 observations. Pseudo R-squared is 0.177. The symbol *** indicates the estimate is statistically significant at the one percent level (** = five percent; * = ten percent).

