What Determines Household Use of Financial Transaction Services?

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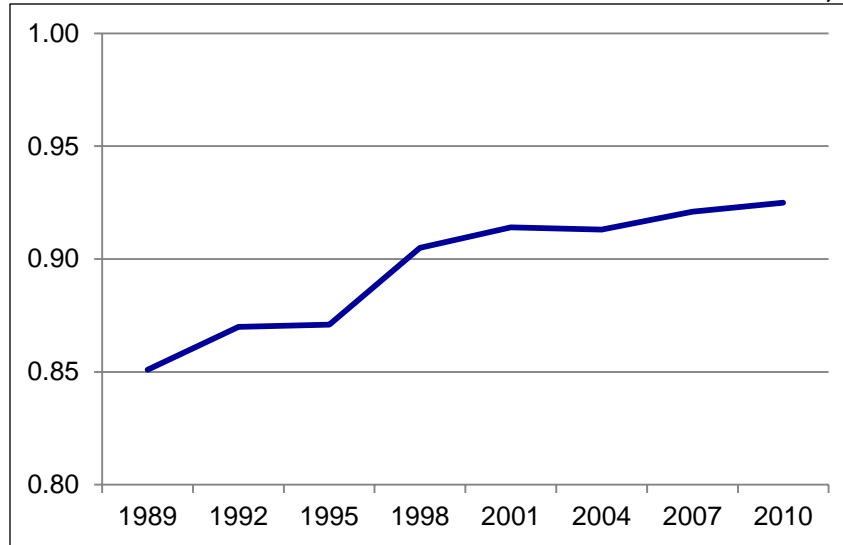
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Introduction

Share of U.S. Families with a Bank Account, by Year

Source: Survey of Consumer Finances; triennial data between 1989-2010

- Bank account ownership has been growing in recent decades

- So has use of nonbank Alternative Financial Services (AFS) such as check cashing and money orders
  (IBISWorld 2012; Apgar and Herbert 2004)

- As of 2011, 25 percent of US households used a nonbank AFS within the past year, and 4 out of 5 AFS users also had a bank account (FDIC 2012)

Introduction

- Our goal: To better understand the determinants of household financial transaction services use

- This is an important issue for consumers and public policy
  - Use of bank accounts is supported by consumer protection laws and regulations which may not apply to AFS
  - Integration into the financial mainstream has benefits for households, and may also yield positive externalities at the community level

- Why is AFS use growing?
  - Lack of access to bank branches? (Caskey 1994)
  - Need for liquidity? (FDIC 2012; Gross et al. 2012)
  - More transparent fee structures? (FI$CA 2013)

Introduction

- Previous literature shows that unbanked rates are higher among households with less income, less education, black, Hispanic, etc.
  - e.g. FDIC 2012; Rhine and Greene 2006; Barr 2009, 2011; Hogarth and O'Donnell 1997; Kooce-Lewis, Swagler, and Burton 1996; Caskey 1994, 1997

- These household characteristics also are associated with higher rates of AFS use (e.g. FDIC 2012; Gross et al. 2012)

- Not clear from previous research the extent to which household characteristics pick up the effects of other unobserved factors

Introduction

Key contributions of our study:

1. We address some of the omitted variable issues from previous literature. Specifically, we control for:

    ❑ the presence of bank branches and AFS providers in the household's local area

    ❑ other neighborhood attributes which may influence household decision making

2. We examine bank account ownership *and* use of nonbank Alternative Financial Transaction Services (AFTS) products in a unified framework

Introduction

- Our focus is on financial *transaction* services
  - Bank account ownership
  - AFTS: money orders, check cashing, and remittances

Distribution of Households by Financial Transaction Services Use

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

Notes: Unweighted proportions, based on analysis sample.

Introduction

Preview of Results

- Household socio-economic characteristics (e.g. income, education) are the most important determinants of bank account ownership

- Other demographic characteristics (e.g. race, ethnicity) have a much more important influence on whether the household uses nonbank AFTS in addition to a bank account, rather than on bank account ownership alone

- The presence of bank branches and AFTS providers within 5 miles of the household's residence has relatively modest effects on household use of financial transaction services

- Other neighborhood attributes have, at most, a minor effect

Outline

- Introduction
- **Data and Model**
- Results
- Conclusions

Data

- Household level data are from 2011 FDIC Unbanked/Underbanked Supplement to CPS
  - Large, nationally representative sample
  - Restricted-access geographic identifiers allow us to merge in localized data

- "Local Market" for Financial Services
  - Defined as the 5 mile radius around the centroid of the HH's census tract
  - Bank branch location data: FDIC's 2011 SOD
  - AFTS location data: Census' 2011 ZCBP (as in Bhutta 2012)
  - For both bank branch and AFTS, we include
    - Binary indicator: = 1 if number of locations > 0, = 0 otherwise
    - Concentration: Number of locations per 1k population

- Neighborhood attributes
  - From 2011 ACS five-year estimates, tract population characteristics
  - County-level property and violent crime rates (FBI's 2011 UCR)
  - County-level voter turnout rates for 2008 presidential election (CQ press)

Empirical Model

We estimate two alternative models (for household i in census tract j):

- **Bank Account Ownership (Logit)**

$$\text{P}\big(Bank\ Account_{ij} = 1\big) = f(z_j, y_i, x_i, a_j, s)$$

- **FTS Bundles (Multinomial Logit)**

$$\text{P}\big(FTS_{ij} = k\big) = f_k(z_j, y_i, x_i, a_j, s)$$

where
- $k = 1$ if "Bank Only"   (i.e. banked and does not use AFTS)
- $k = 2$ if "Bank plus AFTS"   (i.e. banked and uses AFTS)
- $k = 3$ if "AFTS Only"   (i.e. unbanked and uses AFTS)
- $k = 4$ if "Cash Only"   (i.e. unbanked and does not use AFTS)

Empirical Model

- **Control Variables:**

  - z_j: local market for financial services
    (indicators and per capita number of bank branches/AFTS)

  - y_i : socio-economic characteristics of the household
    (income, employment, homeownership, education)

  - x_i : other demographic characteristics of the household
    (age, race, ethnicity, nativity, HH structure)

  - a_j : local neighborhood attributes
    (tract population characteristics; voter turnout; crime rates)

  - s : geographic fixed effects (state level)

Empirical Model

- Note that we do not account for potential selection issues

  - For example, if banks and AFTS providers choose to locate in areas where demand for their services is high, the magnitude of these estimated effects on HH financial services choice will be biased upward in magnitude

  - This concern is mitigated somewhat by the fact we control for a wide range of local population characteristics in our empirical model

Outline

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Results: P(Bank Account = 1)

- Estimates from "standard" model that controls only for HH characteristics are similar to previous literature

- Based on the fully specified model that includes controls for local financial services market and neighborhood attributes, we find:

Partial Effects of Bank Branch and AFTS on P(bank account = 1)

Category	Variable	Estimated Partial Effect	effect of 1 SD inc. from mean
Bank Branches	At least 1 Bank Branch	0.011**	
		(0.005)	
	Bank Branches per capita	0.001	[-0.0005]
		(0.002)	
AFTS Providers	At least 1 AFTS	-0.003	
		(0.004)	
	AFTS per capita	-0.005	[-0.0005]
		(0.008)	

Notes: Partial effects based on estimates from underlying logit model.
Specification includes full set of controls. N = 37919; Pseudo R2 = 0.35

- Geographic access to bank branches and AFTS locations has a relatively small effect on household bank status

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Results: P(Bank Account = 1)

Partial Effects of Neighborhood Attributes on P(bank account = 1)

Category	Variable	Estimated Partial Effect	Effect of 1 SD inc. from mean
Tract Population	TrctPopShr LMI	-0.009 (0.011)	[-0.001]
	TrctPopShr Age <= 34	0.031** (0.016)	[0.003]
	TrctPopShr Black	-0.021** (0.009)	[-0.004]
	TrctPopShr Hispanic	0.002 (0.009)	[0.000]
	TrctPopShr FamHH SnglHd	-0.034* (0.020)	[-0.003]
	TrctPopShr <= HS Diploma	-0.079*** (0.012)	[-0.014]
Crime Rates	County Property Crime	-0.000 (0.000)	[-0.001]
	County Violent Crime	0.000 (0.001)	[0.001]
Voter Turnout	County Voter Turnout Rate	0.053*** (0.020)	[0.006]

Notes: Partial effects based on estimates from underlying logit model. Specification includes full set of controls. N = 37919; Pseudo R2 = 0.35

- Estimated effects of neighborhood attributes are generally quite small in terms of economic magnitude

- One exception: local educational attainment
  - 1 SD increase from the mean in the share of tract population with HS diploma or less (i.e. from 43 to 60 percent) reduces likelihood of being banked by 1.4 pp

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Results: P(Bank Account = 1)

Partial Effects of Socio-economic Characteristics on P(bank account = 1)

Category	Variable	Estimated Partial Effect
HH Income	Middle Income	-0.013***
		(0.004)
	Moderate Income	-0.028***
		(0.004)
	Low Income	-0.075***
		(0.004)
HH LF Status	Part-Time	-0.011***
		(0.004)
	Unemployed	-0.053***
		(0.005)
	NILF	-0.040***
		(0.003)
HH Tenure	Non-Homeowner	-0.052***
		(0.003)
HH Education	No HS Diploma	-0.090***
		(0.004)
	HS Diploma	-0.050***
		(0.003)
	Some College	-0.025***
		(0.003)

Notes: Partial effects based on estimates from underlying logit model.
Specification includes full set of controls. N = 37919; Pseudo R2 = 0.35

- Effects of socio-economic characteristics are large in magnitude

  - Low income HH 8 pp less likely to be banked (relative to high income)

  - HH with no HS diploma are 9 pp less likely to be banked (relative to college degree)

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Results: P(Bank Account = 1)

Partial Effects of Selected Other Demographic Characteristics on P(bank account = 1)

Category	Variable	Estimated Partial Effect
HH Age	Age 34 or less	-0.006
		(0.004)
	Age 55 to 64	0.031***
		(0.004)
	Age 65 or older	0.062***
		(0.003)
HH Race	Black	-0.037***
		(0.005)
	Asian	0.014**
		(0.007)
	Other	-0.026***
		(0.007)
HH Ethnicity	Hispanic	-0.035***
		(0.005)
HH Nativity	Non-Citizen	-0.022***
		(0.005)

Notes: Partial effects based on estimates from underlying logit model. Specification includes full set of controls. N = 37919; Pseudo R2 = 0.35

- Demographic effects are important but generally smaller in magnitude than socio-economic factors

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Results: FTS Bundles

- We now shift to the MNL model; dependent variable is the bundle of financial transaction services used (Bank Only; Bank plus AFTS; AFTS Only; Cash Only)

Results: FTS Bundles

Partial Effects of Bank Branch and AFTS on use of FTS Bundles

Category	Variable	Outcome Bank Only	Bank plus AFTS	AFTS Only	Cash Only
Bank Branches	At least 1 Bank Branch	0.017**	-0.007	-0.007*	-0.004
		(0.008)	(0.008)	(0.004)	(0.003)
	Bank Branches per capita	0.004	-0.002	-0.000	-0.002
		(0.003)	(0.003)	(0.002)	(0.003)
		[0.003]	[-0.002]	[-0.000]	[-0.002]
AFTS Providers	At least 1 AFTS	-0.000	-0.003	0.002	0.000
		(0.007)	(0.006)	(0.004)	(0.003)
	AFTS per capita	-0.056**	0.047**	0.007	0.002
		(0.025)	(0.021)	(0.007)	(0.006)
		[-0.005]	[0.005]	[0.001]	[0.000]
Proportion of Sample in Category		0.75	0.18	0.05	0.03

Notes: Partial effects based on estimates from underlying logit model. Specification includes full set of controls. N = 37919; Pseudo R2 = 0.19. Number in brackets is estimated effect of a 1 SD increase from the mean.

- As in bank account model, effects of Bank branch and AFTS are fairly small in magnitude

- Also as in bank account model, effects of other neighborhood attributes are generally quite small (not shown)

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Results: FTS Bundles

Partial Effects of Selected Socio-Economic Characteristics on FTS Bundles

Category	Variable	Bank Only	Bank plus AFTS	AFTS Only	Cash Only
			Outcome		
HH Income	Middle Income	-0.017**	0.004	0.010***	0.002
		(0.007)	(0.007)	(0.003)	(0.003)
	Moderate Income	-0.045***	0.018***	0.019***	0.008***
		(0.007)	(0.007)	(0.003)	(0.003)
	Low Income	-0.084***	0.010	0.050***	0.024***
		(0.007)	(0.007)	(0.003)	(0.003)
HH Tenure	Non-Homeowner	-0.116***	0.065***	0.036***	0.016***
		(0.005)	(0.005)	(0.002)	(0.002)
HH Education	No HS Diploma	-0.124***	0.035***	0.062***	0.027***
		(0.008)	(0.008)	(0.004)	(0.003)
	HS Diploma	-0.075***	0.025***	0.038***	0.012***
		(0.006)	(0.006)	(0.003)	(0.002)
	Some College	-0.051***	0.026***	0.023***	0.002
		(0.006)	(0.005)	(0.002)	(0.002)
Proportion of Sample in Category		0.75	0.18	0.05	0.03

Notes: Partial effects based on estimates from underlying logit model. Specification includes full set of controls.
N = 37919; Pseudo R2 = 0.19

- Estimated effects of socio-economic characteristics are large in magnitude
- Households at lower levels of socio-economic status are relatively more likely to be AFTS Only or Cash Only (i.e. no bank account) and *less* likely to be in the Bank+AFTS group

Results: FTS Bundles

Partial Effects of Selected Demographic Characteristics on use of FTS Bundles

Category	Variable	Outcome			
		Bank Only	Bank plus AFTS	AFTS Only	Cash Only
HH Age	Age 34 or less	-0.004	-0.001	0.005	0.001
		(0.006)	(0.006)	(0.003)	(0.002)
	Age 55 to 64	0.039***	-0.009	-0.021***	-0.010***
		(0.006)	(0.006)	(0.003)	(0.003)
	Age 65 or older	0.126***	-0.065***	-0.047***	-0.015***
		(0.006)	(0.006)	(0.002)	(0.002)
HH Race	Black	-0.154***	0.116***	0.020***	0.018***
		(0.010)	(0.009)	(0.004)	(0.003)
	Asian	0.017	-0.001	-0.030***	0.014**
		(0.012)	(0.011)	(0.004)	(0.006)
	Other	-0.089***	0.064***	0.017***	0.009*
		(0.014)	(0.014)	(0.006)	(0.005)
HH Ethnicity	Hispanic	-0.078***	0.044***	0.017***	0.018***
		(0.009)	(0.009)	(0.004)	(0.004)
HH Nativity	Non-Citizen	-0.074***	0.050***	0.012***	0.013***
		(0.010)	(0.010)	(0.004)	(0.004)
Proportion of Sample in Category		0.75	0.18	0.05	0.03

Notes: Partial effects based on estimates from underlying logit model. Specification includes full set of controls.
N = 37919; Pseudo R2 = 0.19

- Estimated effects on demographic characteristics are large, and at least as important as socio-economic attributes (unlike the Bank Account model)

- Racial and ethnic minority groups are relatively more likely to be Bank+AFTS and less likely to be AFTS Only or Cash Only

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Results: Discussion

- In summary, our results indicate that:

  - Socio-economic characteristics (e.g. income, education) are the most important determinants of bank account ownership

  - Other demographic characteristics (e.g. race, ethnicity) have a much more important influence on whether or not a household uses nonbank AFTS in addition to a bank account.

- We explore this further by stratifying sample on income

  - Is there heterogeneity in the magnitude of effects?

Results: Stratify by HH Income

Partial Effects of Selected HH Characteristics on Bank Status

Model and Dependent Variable Sample		Logit: P(Bank Account)	
		Low Income	High Income
HH Education	No HS Diploma	-0.198***	-0.022***
		(0.014)	(0.006)
	HS Diploma	-0.136***	-0.015***
		(0.014)	(0.005)
	Some College	-0.079***	-0.011**
		(0.014)	(0.005)
HH Age	Age 34 or less	-0.011*	0.004
		(0.007)	(0.004)
	Age 55 to 64	0.062***	0.002
		(0.009)	(0.003)
	Age 65 or older	0.157***	0.005
		(0.009)	(0.005)
HH Race	Black	-0.065***	-0.009**
		(0.009)	(0.004)
	Asian	0.026	
		(0.021)	
	Other	-0.056***	
		(0.014)	
HH Ethnicity	Hispanic	-0.063***	-0.009*
		(0.009)	(0.005)
Sample Size		14493	9009
Proportion of Sample in Category		0.84	0.996

- Among low-income households, household characteristics are associated with large differences in bank ownership rates

- Among high-income households, effects of race, ethnicity are quite small in magnitude

Implications:

- For more marginal HH, demographic characteristics have some influence

- But above some minimum threshold level of income and education, nearly all households have a bank account regardless of their demographic characteristics

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Results: Stratify by HH Income

Partial Effects of Selected HH Characteristics on FTS Bundles

Model and Dependent Variable		MNL: P(Bank Only)		MNL: P(Bank + AFTS)	
		Low Income	High Income	Low Income	High Income
Sample					
HH Education	No HS Diploma	-0.193***	-0.111***	-0.010	0.099***
		(0.015)	(0.019)	(0.014)	(0.019)
	HS Diploma	-0.140***	-0.049***	-0.002	0.041***
		(0.014)	(0.010)	(0.012)	(0.010)
	Some College	-0.093***	-0.035***	0.009	0.029***
		(0.014)	(0.009)	(0.013)	(0.009)
HH Age	Age 34 or less	-0.016*	0.010	0.005	-0.009
		(0.010)	(0.011)	(0.009)	(0.011)
	Age 55 to 64	0.061***	0.011	0.000	-0.010
		(0.011)	(0.009)	(0.010)	(0.009)
	Age 65 or older	0.225***	0.051***	-0.063***	-0.049***
		(0.011)	(0.014)	(0.011)	(0.014)
HH Race	Black	-0.164***	-0.114***	0.096***	0.108***
		(0.012)	(0.014)	(0.011)	(0.014)
	Asian	0.093***	-0.002	-0.042*	0.058
		(0.025)	(4.284)	(0.024)	(1.950)
	Other	-0.101***	0.012	0.046**	0.043
		(0.020)	(7.156)	(0.018)	(3.120)
HH Ethnicity	Hispanic	-0.074***	-0.062***	0.013	0.057***
		(0.014)	(0.015)	(0.013)	(0.015)
Sample Size		14493	9009	14493	9009
Proportion of Sample in Category		0.63	0.86	0.21	0.13

Note: Estimates for AFTS Only and Cash Only are omitted from this table.

- Even among high-income households, certain HH characteristics have an important influence on HH choice of FTS bundles

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Results: Alternative Specifications

- Prepaid/payroll cards
  - We have ignored such cards in our analysis (use is fairly low in our sample)
  - But these cards are gaining in popularity and may be a viable option for households considering how to manage their finances
  - We tried two alternative specifications, treating use of prepaid/payroll cards as equivalent to using:
    1. bank account
    2. AFTS
  - In both cases, findings are qualitatively similar

- Other robustness checks included:
  - Alt definitions of local area (e.g. 2 mi; 10 mi; 25 mi)
  - Alt measures of financial service providers (e.g. nbr of banks/AFTS locations)
  - Alt treatment of money orders (or remittances), where use does not disqualify household from being categorized as "Bank Only"

Results: Other Caveats

- Our estimates indicate that geographic access to bank branches/AFTS has a relatively minor influence on HH choice of financial transaction services

  - May be due in part to measurement error, but several alternative measures yielded same qualitative finding

  - Other unobserved supply side factors may still be important (e.g. fee structures of bank accounts/AFTS; access to funds)

- Our MNL model imposes assumption of IIA

  - This may be an issue, at least in theory. In practice – not clear.

  - In future work we will evaluate the extent to which this is an issue, and potentially use a specification that relaxes the IIA assumption

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Conclusions

- The presence of bank branches and AFTS providers within 5 miles of the household's residence has relatively modest effects on household use of financial transaction services

- Other neighborhood attributes have, at most, a minor effect

Conclusions

- Household socio-economic characteristics (e.g. income, education) are the most important determinants of bank account ownership

- Other demographic characteristics (e.g. race, ethnicity) have a more important influence on whether the household uses nonbank AFTS in addition to a bank account, rather than on bank account ownership alone

- Given that we control for the local market for financial services, and for other neighborhood attributes, the specific mechanisms driving the finding that black and Hispanic households are more likely to use AFTS in combination with bank accounts are not obvious

- the end -

Thank you!

Appendix: Selected Descriptive Stats

- For all characteristics that vary at the person-level, we use householder characteristics to represent the household

- We drop roughly 15% of households that participated in the CPS supplement due to missing data (primarily due to missing geography; sample means change minimally) → 37919 obs

Selected Descriptive Statistics

Category	Variable		By Bank Status		By Financial Services Type			
		ALL	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 (1k)	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 (1k)	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
	Number of Observations	37919	35139	2780	28289	6850	1792	988

Notes: unweighted proportions, analysis sample. Crime rates are per 100k population.