

Checking Account Activity, Account Costs, and Account Closure in Low- and Moderate-Income Neighborhoods

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Research Objectives

This research uses detailed checking account data for a large random sample of accounts at several large depository institutions to:

- Provide evidence about the account fees incurred by checking account customers
- Examine account-related factors that associated with incurring higher account fees
- Examine account-related factors that appear to pose greater account closure risks
- Examine how checking account outcomes are related to demographic characteristics measured for the census tract where the primary account holder resides

Caveat: Only looking at accounts at a small number of institutions

The data was confidential supervisory information obtained through the examination process and any identifying data was not disclosed.

Key Findings

Account-related factors explain some, but not all of the differences in outcomes associated with tract characteristics;

- Certain tract characteristics appear to be associated with account outcome and help to explain differences observed for LMI households

Relationships between account-related factors and account outcomes are complex

- Marginal relationships reflect correlations among account-related factors
- Univariate patterns can be misleading

Factors associated with higher fees

- Being opted into Reg. E OD coverage, more debit activity, higher deposits, lower ADB, low balance in other deposit accounts, single owner accounts
- Univariate relationships can reflect correlations among account factors (e.g. young account holders)

Factors associated with higher likelihood of involuntary closures

- shorter account tenure, lower deposits, lower ADB, higher fees, single owner accounts
- Marginal relationships reflect how factors are related to account balances and account fees (e.g. being opted in to Reg. E, debit-card use)

Background

Motivation: Concerns about lack of access to mainstream financial institutions

Evidence about the size of unbanked/underbanked populations

- 8.2 percent of US households do not own a bank account (FDIC 2012)
- Close to half of these “unbanked” households were “previously banked”
- Many households with bank accounts use AFS services (FDIC 2012)

Evidence about who tends to be unbanked or underbanked

Unbanked or underbanked households have been found to be disproportionately: lower income, non-homeowners, single headed households with children, in certain minority groups, or without a college degree

For some people it may be cheaper to be unbanked or underbanked (Dunham (2001), Barr et al. (2009)))

Evidence that bank fees are disproportionately incurred by a relatively small subset of account holders (FDIC 2008, CFPB 2013)

Little academic research about the determinants of bank account costs and involuntary account closures

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Our Data

Confidential supervisory information obtained through the examination process.

Analysis sample is based on account outcome during a 90-day event window

- Accounts that are involuntarily closed versus accounts that remained open during 90-day window (voluntary closures are not included in the analysis)
- More than 600,000 accounts

Measure average monthly fees, checking account activity and other account-related variables during a 12-month period prior to the account closure window

- Average monthly fees incurred
 - NSF-related fees (e.g. NSF and OD fees, OD fees, sweep fees, other fees)
 - Non-NSF-related fees (e.g. ATM fees, Maintenance fees, other fees)
- Account tenure, Account holder age, # of account owners, Reg. E opt-in status
- Monthly Deposits, monthly debit-card trans, monthly non-debit-card trans
- Average Daily Balances, balances in other accounts with the bank

Use tract-level Census data to measure characteristics of the neighborhood where the primary account holder resides

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Multivariate analysis

Fee analysis: tract demographics, account-related factors, and fees

- **Ordered logit fee regressions: dependent variable is categorical variable measuring average monthly fees incurred during the 12 months prior to the closure window**
- Logistic “free checking” regressions: dependent variable is whether the account holder incurred no fees during the 12 months prior to the closure window
- Compare marginal probabilities implied by Logistic “free checking” results to estimates from linear probability models.

Closure analysis : tract demographic, account-related factors, and closure

- **Logistic regressions: dependent variable=1 if involuntary closure; =0 if remained open**
- Compare marginal probabilities implied by Logistic closure model results to estimates from linear probability model.

Census Tract Characteristics of Analysis Sample Accounts

- Tract income tends to be correlated with other characteristics associated with being unbanked or underbanked
- Correlations with income may reflect correlations with factors related to income

Table 2: Accounts Classified by Tract Characteristics						
		Accounts classified by tract income				
Percent of accounts		All accounts	Low income	Moderate income	Middle income	High income
All accounts		100	5.4	23.0	41.6	30.0
Other tract characteristics of analysis sample accounts						
	Pct. of Units Owner Occupied	59.2	23.6	43.9	61.4	75.3
	Pct. of Units Vacant	9.2	12.3	10.4	9.5	7.1
	Pct. Single HH with Child	11.0	19.0	14.8	10.4	7.2
	Pct. Hispanic	17.7	31.1	27.6	15.6	10.1
	Pct. Non-Hispanic Black	11.5	32.9	18.0	9.3	5.3
	Pct. Non-Hispanic White	61.9	27.3	45.9	66.7	74.8
	Pct. College Degree	32.0	17.7	21.1	29.1	47.4
The sample includes accounts that were involuntarily closed during the 90-day closure window and accounts that remained open.						

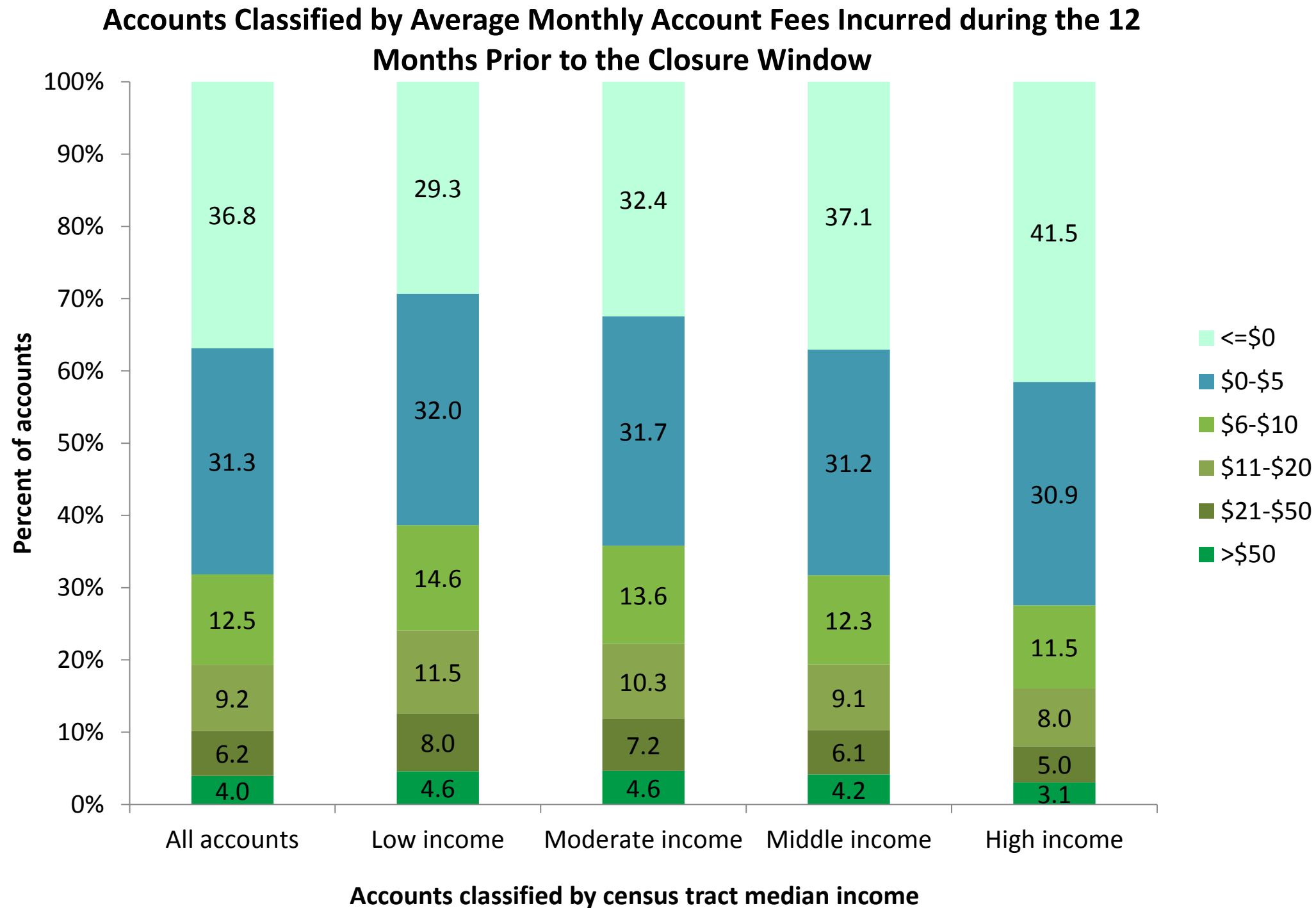
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Descriptive Statistics: Average Monthly Fees

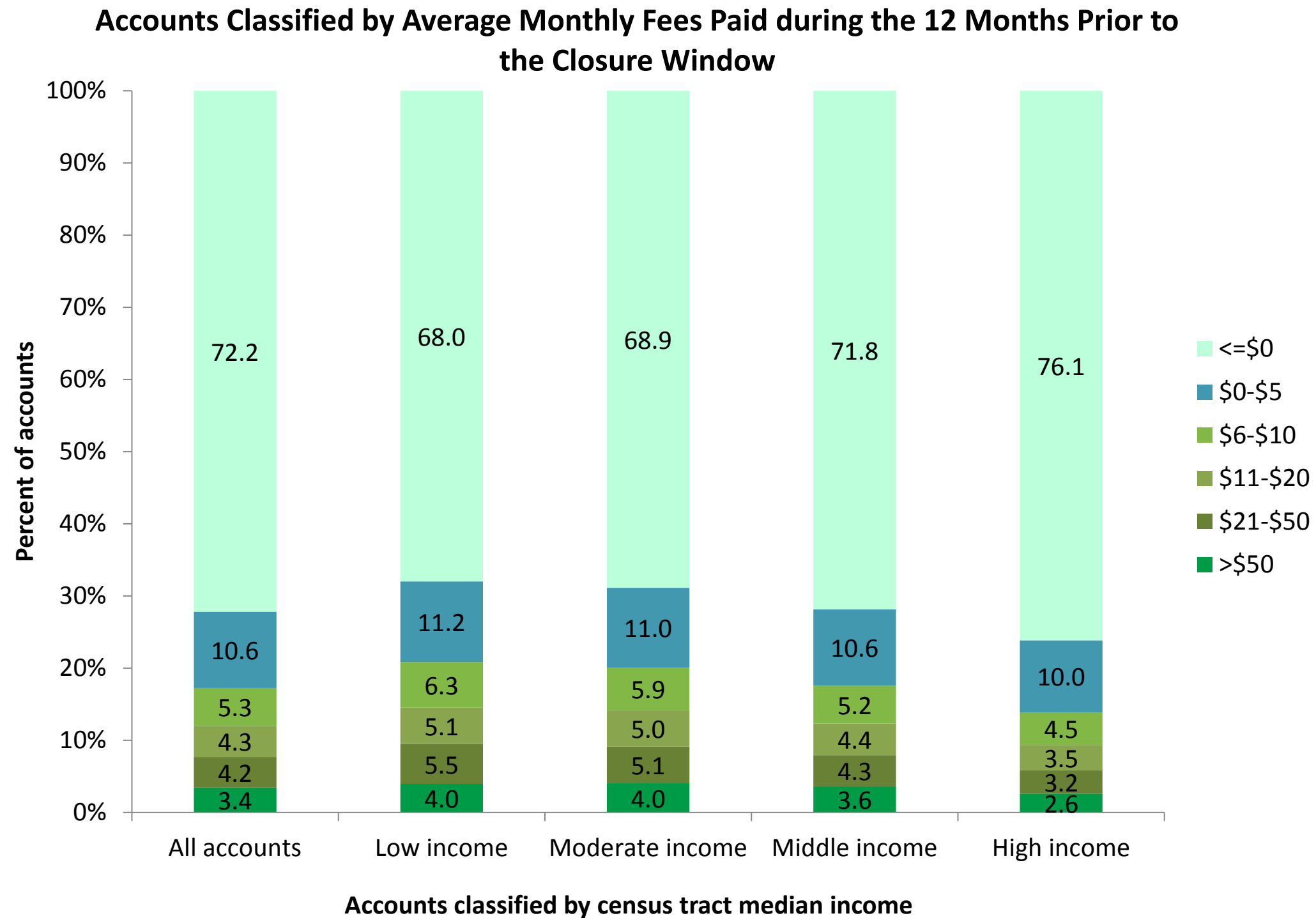
- Average monthly fees on a per account basis were around \$9 for the analysis sample
- NSF-related fees tended to account for around 70% of monthly account fees incurred by these accounts

	Accounts classified by tract income				
	All accounts	Low income	Moderate income	Middle income	High income
Sample mean (dollars)					
Total monthly fees	9.05	10.70	10.32	9.26	7.43
Monthly NSF-related fees	6.34	7.43	7.38	6.61	4.93
Monthly non-NSF-related fees	2.71	3.26	2.94	2.65	2.50
Monthly maintenance fees	1.10	1.30	1.22	1.07	1.00
Monthly ATM fees	0.79	1.25	0.96	0.78	0.57
Other non-NSF-related Fees	0.82	0.72	0.76	0.79	0.92
Percent of total monthly fees					
Total fees	100.00	100.00	100.00	100.00	100.00
NSF-related Fees	70.5	70.3	71.9	71.8	66.7
Non-NSF-related Fees	29.5	29.7	28.1	28.2	33.3
ATM Fees	8.4	11.0	8.9	8.2	7.5
Maintenance Fees	12.5	12.6	12.3	11.9	13.8
Other non-NSF-related Fees	8.6	6.1	6.9	8.1	12.0

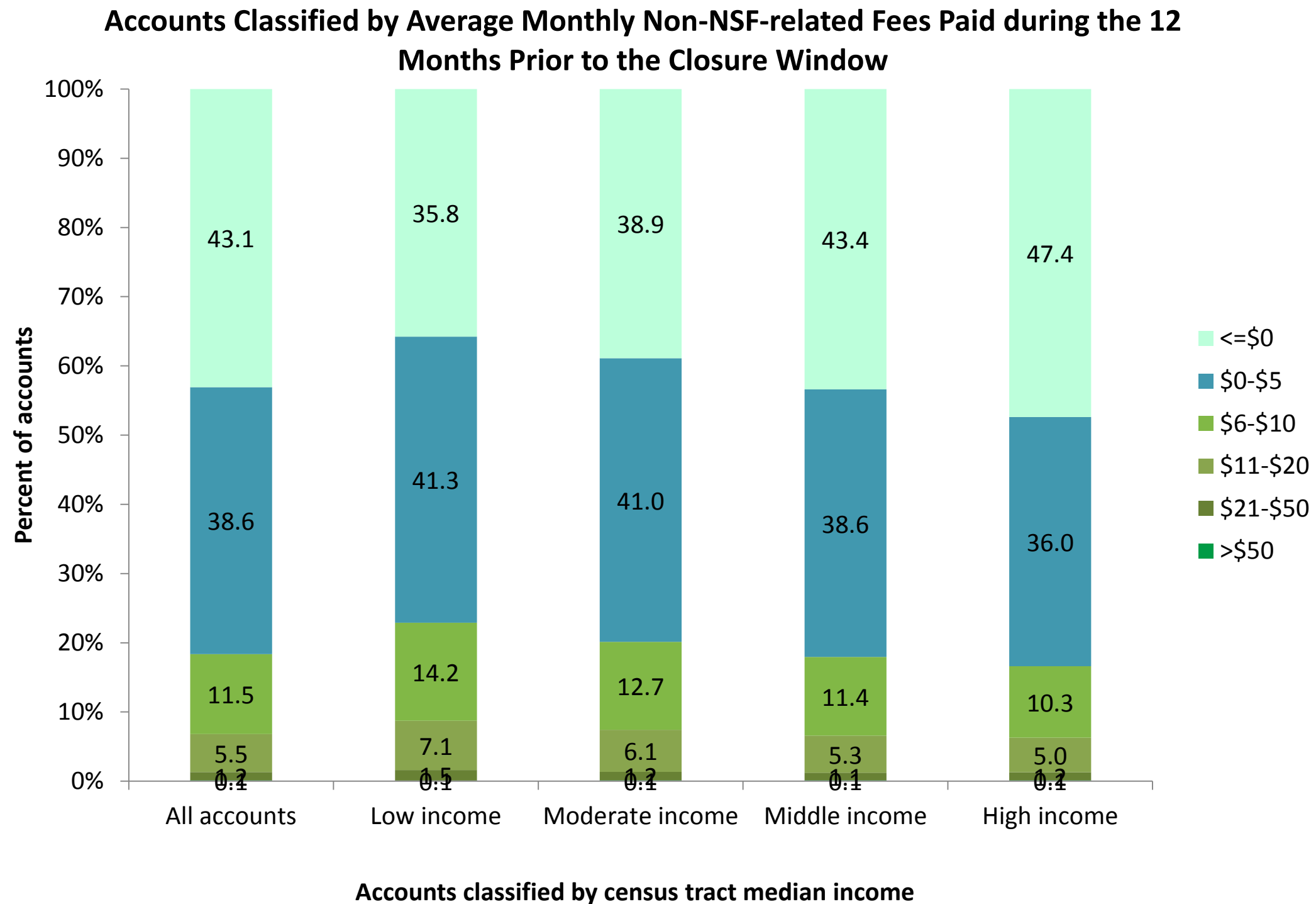
Account fees are disproportionately incurred by a subset of the accounts in the sample: All fees



Account fees are disproportionately incurred by a subset of the accounts in the sample: NSF-related fees



Account fees are disproportionately incurred by a subset of the accounts in the sample: Non-NSF-related fees



Other Summary Statistics

Account measure	Accounts classified by tract income				
	All accounts	Low income	Moderate income	Middle income	High income
Involuntary closures during 90-day Window (%)	1.8	3.4	2.6	1.6	1.0
Account tenure (months)	93	64	81	96	103
Not opted in for Reg. E (%)	78.7	77.5	77.9	78.5	79.8
Had debit card transactions (%)	72.9	79	77.5	73.4	67.4
Percent having average monthly deposits<=\$3000	62.6	79.5	71.1	61.8	54.0
Percent having average daily balances<=\$300	27.9	41.5	33.7	26.8	22.1
Had linked deposit account (%)	27.3	28.3	28.8	27.0	26.5
Had linked credit account (%)	17.7	10.8	14.2	18.7	20.5
Had unlinked deposit account (%)	38.4	32.4	35.4	38.8	41.3
Had unlinked credit account (%)	24.0	15.8	19.9	24.9	27.6

The sample includes account that were involuntarily closed during the 60-day closure window and account that remained open. Account tenure is measure at the beginning of the 90-day closure window. For each account, transaction activity and account balances are measured as monthly averages for the 12 months prior to the closure window.

Ordered Logit Fee Regressions

- Five fee groups
- Coefficient is the marginal likelihood of being in the adjacent higher (or lower) fee group, compared to the omitted base group
- Specifications
 - 1) only tract characteristics
 - 2) add account holder age, account tenure, number of account owners, opt in status
 - 3) add account average monthly account activity measures (Dollar volume of deposits, number of debit-card debits, number of non-debit-card debits)
 - 4) add average daily balances and balances in other accounts with the bank
 - 5) omit non-income tract characteristics from spec with all account-related variables
- Also estimated parallel specification examining NSF-related fees and non-NSF-related fees

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Account-Related Factors and Fees

Ordered Logit Regression Odds Ratios: Average monthly fees incurred during the 12 months prior to the closure window

	No ADB	With ADB		No ADB	With ADB
Customer Age: 18-20	0.986	0.751***	Monthly Deposits of Zero	1.370***	0.254***
Customer Age: 21-24	1.254***	0.992	Mo. Deposits \$1-\$500	1.245***	0.234***
Customer Age: 25-34	1.561***	1.268***	Mo. Deposits \$501-\$1,500	1.280***	0.353***
Customer Age: 35-44	1.808***	1.464***	Mo. Deposits \$1,501-\$3,000	1.121***	0.489***
Customer Age: 45-54	1.637***	1.397***	Mo. Deposits \$3,001-\$6,000	0.977**	0.646***
Customer Age: 55-64	1.317***	1.202***	Mo. Debit Card Trans. 1-5	1.743***	1.548***
Account Tenure < 6 Months	0.644***	0.412***	Mo. Debit Card Trans. 6-10	2.634***	2.017***
Acct. Tenure 6- 12 Mos.	1.251***	0.945***	Mo. Debit Card Trans. 11-20	3.075***	2.172***
Acct. Tenure 1-2 Yrs.	1.337***	1.060***	Mo. Debit Card Trans. > 20	4.200***	2.667***
Acct. Tenure 2-5 Yrs.	1.203***	1.030***	Mo. Non-card Debit Trans. 0	0.141***	0.136***
Reg. E Opt-in Part Year	2.896***	2.304***	Mo. Non-card Debit Trans. 1-5	0.490***	0.551***
Reg. E Opt-in Full Year	1.914***	1.706***	Mo. Non-card Debit Trans. 6-10	0.770***	0.798***
Two-owner Account	0.746***	0.803***	Avg. Daily Balance <= Zero		5.133***
3+ owner Account	0.637***	0.728***	Avg. Daily Bal. \$1-\$100		7.805***
			Avg. Daily Bal. \$101-\$300		6.427***
			Avg. Daily Bal. \$301-\$500		4.656***
			Avg. Daily Bal. \$501-\$1,000		3.224***
			Avg. Daily Bal. \$1,001-\$2,500		1.994***
			Avg. Daily Bal. \$2,501-\$5,000		1.364***

Average monthly account-related activity and account balances measured during the 12 months prior to the closure window

No ADB (Specification 3): All tract demographics and account-related variables except account balances)

With ADB (Specification 4): All tract demographics and account-related variables

Balances in Other Accounts and Fees

Ordered Logit Regression Odds Ratios: Average monthly fees incurred during the 12 months prior to the closure window (omitted group is not having the indicted type of account)

Average monthly balances	Linked deposit accounts	Unlinked deposit accounts
<=0	1.610***	1.477***
1-100	1.518***	1.215***
101-500	1.032**	0.956***
501-1000	0.883***	0.845***
1001-5000	0.788***	0.771***
>5000	0.564***	0.618***
Average monthly balances	Linked credit accounts	Unlinked credit accounts
<=0	1.185***	1.196***
1-500	0.918***	0.910***
501-2000	0.783***	0.812***
2001-5000	0.688***	0.739***
>5000	0.770***	0.599***

Specification 4 (table 6): Includes control for all account-related factors and tract demographic

The sample includes accounts that were involuntarily closed and accounts that remained open during the 90-day closure window

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Tract Demographics and Fees

Ordered Logit Regression Odds Ratios: Average monthly fees incurred during the 12 months prior to the closure window									
	Total Fees Group			NSF-related Fee Group			Non-NSF-related Fee Group		
	No acct variables	All acct variables	All acct variables	No acct variables	All acct variables	All acct variables	No acct variables	All acct variables	All acct variables
Specification	(1)	(4)	(5)	(1)	(4)	(5)	(1)	(4)	(5)
Low Income Census Tract	1.030*	1.022	1.225***	0.983	0.963*	1.027	1.048***	1.054***	1.284***
Moderate Inc. Census Tract	1.021*	0.994	1.113***	1.032**	0.989	1.012	1.009	0.997	1.132***
Middle Inc. Census Tract	1.031***	0.991	1.027***	1.046***	0.989	0.988	1.021**	0.996	1.035***
Pct. Vacant: 5-10	1.062***	1.046***		1.055***	1.039***		1.053***	1.041***	
Pct. Vacant > 10	1.058***	1.095***		1.042***	1.076***		1.051***	1.082***	
Pct. Owner Occupied: 50-70	0.946***	0.982*		1.001	1.030**		0.920***	0.957***	
Pct. Owner Occupied: > 75	0.917***	0.960***		1.007	1.037**		0.879***	0.925***	
Pct. Single HH with Child 7-15	1.110***	0.947***		1.184***	0.961***		1.054***	0.942***	
Pct. Single HH with Child >15	1.261***	0.978		1.349***	0.974		1.149***	0.976*	
Pct. Hispanic: 10-20	1.038***	0.993		1.021*	0.965**		1.046***	1.007	
Pct. Hispanic: > 20	1.103***	1.030**		1.029*	0.952***		1.138***	1.072***	
Pct. Non-Hispanic Black: 5-25	1.090***	1.002		1.109***	1.001		1.064***	1.002	
Pct. Non-Hispanic Black: > 25	1.338***	1.150***		1.386***	1.157***		1.219***	1.112***	
Pct. Non-Hispanic White: 50-80	0.989	0.940***		1.011	0.964***		0.971***	0.937***	
Pct. Non-Hispanic White: > 80	0.961***	0.913***		0.994	0.938***		0.947***	0.922***	
Pct. College Degree: 20-40	0.929***	0.960***		0.936***	0.988		0.945***	0.954***	
Pct. College Degree: > 40	0.876***	1.002		0.816***	1.017		0.951***	1.012	
Average monthly account-related activity and account balances measured during the 12 months prior to the closure window									

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Logistic Involuntary Closure Regressions

Rationale and Interpretation

- Comparing characteristics of accounts that were closed to those that remained open
- Coefficient is the marginal likelihood of being in involuntary closure group, compared to the omitted base group

Specifications

- 1) only tract characteristics
- 2) add account holder age, account tenure, number of account owners, Reg. E opt in status
- 3) add account average monthly account activity measures (Dollar volume of deposits, number of debit-card debits, number of non-debit-card debits)
- 4) add average daily balances and balances in other accounts with the bank
- 5) add variables measuring average monthly fees incurred during the 12 months prior to the closure window
- 6) Include separate variables measuring NSF-related fees and non-NSF-related fees
- 7) omit non-income tract characteristics from spec with all account-related variables

Account-Related Factors and Closure

Logit Regression Odds Ratios: Likelihood of Involuntary account closure during 90-day closure window

Account relationship variables			Account activity and Average Daily Balances		
	No fees	With fees		No fees	With fees
Customer Age: 18-20	1.477***	1.809***	Monthly Deposits of Zero	2.643***	7.260***
Customer Age: 21-24	2.336***	2.602***	Mo. Deposits \$1-\$500	1.152	3.010***
Customer Age: 25-34	2.715***	2.643***	Mo. Deposits \$501-\$1,500	0.898	1.666***
Customer Age: 35-44	2.437***	2.177***	Mo. Deposits \$1,501-\$3,000	0.831*	1.220*
Customer Age: 45-54	2.032***	1.842***	Mo. Deposits \$3,001-\$6,000	0.841*	0.978
Customer Age: 55-64	1.364***	1.277***	Mo. Debit Card Trans. 1-5	1.691***	1.097*
Account Tenure < 6 Months	4.165***	6.606***	Mo. Debit Card Trans. 6-10	1.831***	0.998
Acct. Tenure 6- 12 Mos.	3.406***	3.668***	Mo. Debit Card Trans. 11-20	1.959***	1.014
Acct. Tenure 1-2 Yrs.	2.282***	2.229***	Mo. Debit Card Trans. > 20	1.799***	0.893*
Acct. Tenure 2-5 Yrs.	1.492***	1.462***	Mo. Non-card Debit Trans. 0	0.306***	1.102
Reg. E Opt-in Part Year	1.874***	1.175*	Mo. Non-card Debit Trans. 1-5	0.827***	1.548***
Reg. E Opt-in Full Year	1.297***	0.862***	Mo. Non-card Debit Trans. 6-10	1.000	1.305***
Two-owner Account	0.578***	0.643***	Avg. Daily Balance <= Zero	25.12***	4.871***
3+ owner Account	0.452***	0.524***	Avg. Daily Bal. \$1-\$100	11.32***	3.109***
			Avg. Daily Bal. \$101-\$300	5.076***	1.711***
			Avg. Daily Bal. \$301-\$500	3.301***	1.395**
			Avg. Daily Bal. \$501-\$1,000	2.286***	1.175
			Avg. Daily Bal. \$1,001-\$2,500	1.765***	1.184
			Avg. Daily Bal. \$2,501-\$5,000	1.450**	1.232

Average monthly account-related activity and account balances measured during the 12 months prior to the closure window

No fees (Specification 4): All account-related variables except fees

With fees (Specification 7): All account-related variables

Tract Demographics and Closure

Logit Regression Odds Ratios: Likelihood of Involuntary account closure during 90-day closure window (Specifications with all account-related variables, including fees)

	All variables	No non-income demographics
Specification	(7)	(8)
Low Income Census Tract	0.965	1.337***
Moderate Inc. Census Tract	1.026	1.323***
Middle Inc. Census Tract	0.978	1.121***
Pct. Vacant: 5-10	1.015	
Pct. Vacant > 10	1.053	
Pct. Owner Occupied: 50-70	0.916**	
Pct. Owner Occupied: > 75	0.882**	
Pct. Single HH with Child 7-15	1.111**	
Pct. Single HH with Child >15	1.156**	
Pct. Hispanic: 10-20	0.999	
Pct. Hispanic: > 20	1.023	
Pct. Non-Hispanic Black: 5-25	1.107***	
Pct. Non-Hispanic Black: > 25	1.201***	
Pct. Non-Hispanic White: 50-80	1.005	
Pct. Non-Hispanic White: > 80	1.001	
Pct. College Degree: 20-40	0.964	
Pct. College Degree: > 40	0.873**	

Average monthly account-related activity and account balances measured during the 12 months prior to the closure window

Future Research

Consider credit scores and the types of credit bureau information that goes into a credit score about borrowing and payments.

Examine differences in the types of accounts offered by banks; some account products may waive fees while others do not.

Investigate differences related to timing (we look at average monthly activity) that requires account management. Account management factors, such as deposit or payment volatility, may explain some variation.