Household and Small Firm Access to Credit in Low- and Moderate-Income Areas and Banking Deserts

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Stata Conference
Nashville,
Aug 1, 2025

*The views expressed here are our own and do not represent the views of the Federal Reserve Bank of Dallas or the Federal Reserve System. We use the confidential FRBNY Consumer Credit Panel / Equifax Dataset. We are grateful for comments received at a 2024 Dallas Fed brownbag and the 2025 WEAI conference

Outline

- Background
- Household access to consumer credit in low- and moderate-income (LMI) areas
- House credit access in banking deserts
- Small firm outcomes in banking deserts etc.
- Summary

Background – Community Reinvestment Act and LMI Households

- Access to credit is particularly important for less affluent and minority households and for small firms
- Community Reinvestment Act (CRA) enacted in 1997 to:
  - Eliminate redlining and ensure banks serve low- and moderate-income (LMI) households in areas where they operate etc.
  - An LMI census tract is one with median family income ≤ 80% median family income in the surrounding MSA /MD
  - Banks and banking regulators devote a lot of resources to gathering and examining CRA data
- The evidence on LMI access to credit is mixed
- Using more recent data, we find no economically significant differences in LMI and non-LMI access to credit
  - Which begs the question of whether some of the resources devoted to CRA would be better used elsewhere

Background – Community Banks, Banking Deserts and Small Firm lending

- The number of bank branches and community banks* has been steadily declining
  - Resulting in more banking deserts (no local bank) or potential banking deserts (one local bank)
- Community banks argue that the playing field is not level, and they should be supported more because:
  - They provide banking services to households and firms in areas that would become banking deserts if they closed or merged
  - They support local small businesses who rely on relationship lending with banks
- Want to examine these claims!
  - To the best of our knowledge, no studies of effects of banking deserts on household credit and the findings of the handful of recent papers of bank closures on small firm outcomes are mixed
- Our findings do not support these claims

*Community banks are banks with total assets of $10 billion or less

Household Credit Access Data

- NY Fed Consumer Credit Panel / Equifax Dataset
  - Confidential 5% sample of credit records
  - Scrambled IDs, age, credit score, geography down to Census tract and block level
  - Mortgage, auto loan, credit card and student loan balances, plus account history
- FFIEC Census and Demographic Data
  - “Flat files” containing Census tract level demographic data based on recent 5-year ACS results
    - Minority population, poverty, renter, highest education completed shares etc.. Which help predict LMI status
  - Tract median family income (MFI) as a percentage of MFI in the surrounding MSA/MD
    - Used to derive LMI status, which can vary over time

*FFIEC =Federal Financial Intuitions Examination Council

RD Regression Specification

- Our baseline model for credit balances s:

$$ln\left(\frac{Balance_{ict}}{MFI_{ct}}\right) = \beta_0 + \beta_1 LMI_{ct} + \beta_2(MFI\%_{ct} - 80) + \beta_3 LMI_{ct} \times (MFI\%_{ct} - 80)$$

$$+\gamma' x_{ict} + \delta' z_{ct} + Fixed\ Effects + u_{ict}$$

  - *Balance* = winsorized mortgage, auto or credit card balance, normalized by tract median family income (*MFI*), for individual i in Census tract *c* at quarter *t* (NY Fed CCP/Equifax)
  - *LMI* = Low- or moderate-income tract dummy, i.e., *MFI%* ≤ 80% (FFIEC & ACS)
  - *MFI%* = Tract median family income as a percentage of MSA/MD median family income (FFIEC & ACS)
  - Individual controls x_{ict}: age, age squared and risk score (NY Fed CCP/Equifax)
  - Tract level controls z_{ct}: population density and the shares of the population with access to a computer, internet and broadband (ACS)
- The deviation of *MFI%* from 80% is our RD running variable and β_1 is the RD parameter of interest
- We also ran logit models for positive balances, i.e., the extensive margin

No Economically Significant Difference in Credit Access

Based on RD regressions

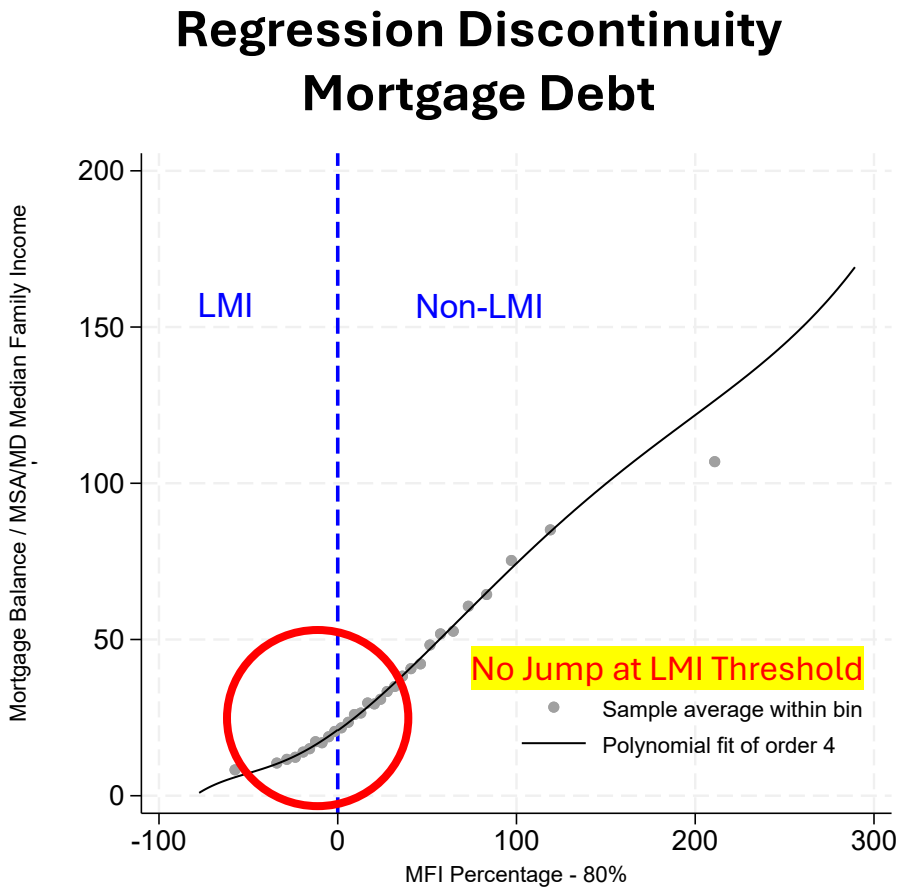
$ln\left(\frac{Balance}{MFI}\right)$	Mortgage Balances	Credit Card Balances	Auto Loan Balances
$LMI \times 100$	0.01133***	0.00001	0.00005
(MFI% - 80) × 100	0.00018***	0.00000	-0.00004***
LMI × (MFI% - 80) × 100	-0.00002	0.00000	0.00001
N (millions)	58.2	58.2	58.2
R Squared	0.069	0.006	0.024
Individual Controls	✓	✓	✓
Tract Controls	✓	✓	✓
Metro FE	✓	✓	✓
Time FE	✓	✓	✓

Notes: Household level NY FED CCP / Equifax balance data for 2017 Q1 to 2024 Q4, using observations in Census tracts within 15% of the LMI threshold. Observations are weighted using a triangular kernel in distance from the threshold. SEs are clustered at the tract level.

- LMI coefficients are extremely small, and positive rather than negative
- Found small, insignificant LMI coefficients in logit (extensive margin) equations
- Results in line with some recent papers, albeit ones using earlier data

Checks on Robustness of RD Results

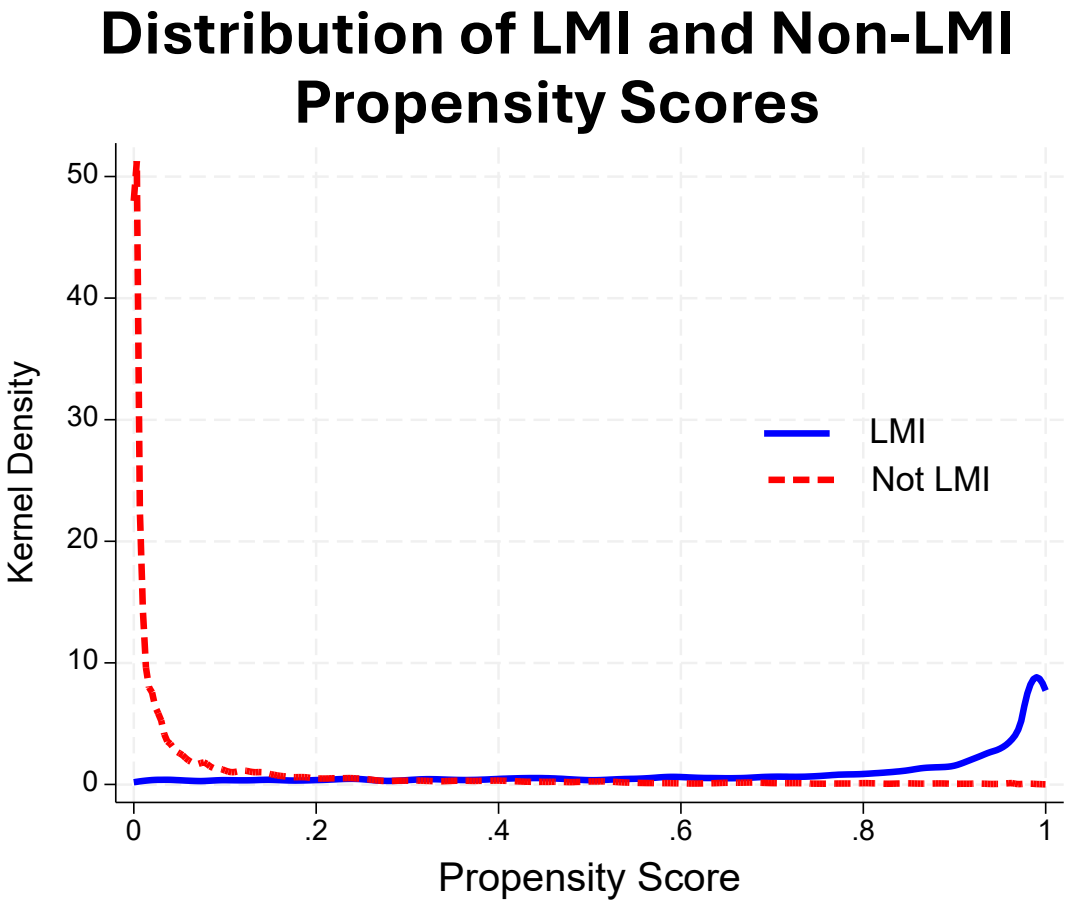
- Different windows: 80% LMI threshold ± 10% and 20%
- Alternative 70% LMI threshold
- Donut check using [65%,75%] and [85%,95%] LMI windows
- No bunching around 80% LMI boundary
- Use of robust RD estimators
- Use of balances versus normalized balances
- Dropping Covid-19 observations (2020 and 2021) when households received large stimulus and child tax credit etc. payments



Note: TX household heads aged 25-64, 2017-2023.
Sources: NY Fed CCP / Equifax, FFIEC.

Propensity Score Matching Estimators?

- Would like to look at credit access away from the 80% MFI threshold
  - Data for individuals are limited - credit score, age (and credit history)
  - Have extensive data for census tracts - minority population, share, poverty share, renter share, highest education completed, shares etc. which help predict LMI status
- Used trimmed propensity score matching estimator
  - Caveat: Limited common support so used PS's in [0.01,0.99] range
- Estimated ATT effects insignificant



Note: TX household heads aged 25-64, 2017-2023.
Sources: NY Fed CCP / Equifax, FFIEC.

Banking Deserts and Bank Closures

LMI and Banking Desert Areas Are Not the Same

	Banking Desert	Potential Desert	Neither	
LMI	3.2%	2.8%	93.9%	100%
Non-LMI	4.0%	3.6%	92.4%	100%
	3.8%	3.4%	92.8%	100%

Source: Philly Fed Banking Desert Dashboard. Note: The tabulations are based on population weighted 2023 data.

Fewer Banks and Bank Branches, Mainly Driven by Consolidation

	2014	2024	% Δ
No. of Commercial Banks	5,607	3,924	-30.0%
No of Commercial Bank Branches	81,405	68,632	-15.7%

Source: FDIC

Household Access to Credit, Banking Deserts and Bank Closures

Combined Mortgage, Credit Card & Auto Loan Balances

$LMI \times 100$	0.0135**	$LMI \times 100$	0.0004
Desert $\times 100$	0.0204	#Banks $\times 100$	-0.0001***
Potential Desert $\times 100$	0.0025	Δ#Banks $\times 100$	0.0103*
$LMI \times$ Desert $\times 100$	0.0193	$LMI \times$ NBanks $\times 100$	0.0001***
LMI $\times$ Potential Desert $\times 100$	-0.0009	$LMI \times \Delta$NBanks $\times 100$	-0.0002
N (millions)	58.2		58.2
R Squared	0.065		0.083
Individual Controls	✓		✓
Tract Controls	✓		✓
Metro FE	✓		✓
Time FE	✓		✓

Notes: The dependent variable is $ln\left(\frac{Balance}{MFI}\right)$. #Banks is the number of banks within 5 miles of the households zip code. See notes to regression table on slide 7.

- First regression uses banking desert variables
- Second regression uses counts of banks within a 5-mile ring
- Sample same as before

- Find no economically significant banking desert or bank count effects

Small Firm Outcomes and Bank Closures Etc.

- Extensive literature on bank relationship lending suggests that small firms are the ones most likely to be adversely affected by bank closures, banking deserts etc. (e.g., Norden and Wang, 2025)
- Do not have firm credit register data, so look at employment growth etc.
- Merged Dun & Bradstreet / Walls NETS data with FFIEC bank branch data using various zip code distance measures (0 to 3 miles, 0 to 5 miles etc.)
  - Constructed counts of the number of full-service banks that are open and closed, as well as a measure of exposure to bank mergers
  - Dropped finance, insurance, real estate (FIRE) and government sectors
- Do not find any economically significant bank closure or banking desert effects on employment growth, sales or speed of paying invoices
  - Effects often statistically insignificant or incorrectly signed
- Findings consistent with county level results in Greenstone et al. (2020), but at odds with very localized, persistent negative bank closure results following large bank mergers in Nguyen (2019) and Ranish et al. (2024)

Employment Growth in Small Standalone Firm (≤25 Employees)

Using Bank Counts Within a 5 Mile Radius

	Texas	Michigan	US
Bank closure rate	-0.0025***	0.0051***	-0.0003***
Avg no of banks	-0.0002***	0.0001***	0.00001**
Lagged Dep Var	✓	✓	✓
Firm FE	✓	✓	✓
Industry x Year FE	✓	✓	✓
County x Year FE	✓	✓	✓
N (millions)	12.00	3.59	147.93
Adj R^2	0.246	0.252	0.276
Within R^2	0.086	0.066	0.073

	Texas	Michigan	US
No bank	0.0812***	0.1384***	0.0025
One bank	-0.1364***	0.3274***	0.1056
Avg no of banks	-0.0002***	0.0002***	0.0001
Lagged Dep Var	✓	✓	✓
Firm FE	✓	✓	✓
Industry x Year FE	✓	✓	✓
County x Year FE	✓	✓	✓
N (millions)	12.34	3.74	153.61
Adj R^2	0.246	0.251	0.224
Within R^2	0.086	0.066	0.077

Notes: The NETS annual employment growth rate is winsorized. The bank closure rate and average number of banks are calculated using a two-year window and are lagged one quarter. The "banking desert" variables are lagged five quarters. Standard errors are clustered by county. The sample period is 2013 to 2022.

- Results robust to choice of distance measure, dropping 2000-2022 Covid-19 observations, and instrumenting bank closures with a measure of exposure to mergers

Summary

- We find little evidence of economically significant gaps in household access to credit in LMI tracts or in banking desert tracts using recent data
- We also find little evidence that small, standalone firms experience significantly lower employment growth in banking deserts or when nearby banks close
- Possible explanations for banking desert and small firm findings?
- Distance to the nearest bank and relationship lending are less important now than in the past
  - Increased internet and broadband access
  - More online, nimble bank and non-bank lenders, e.g., Rocket Mortgages, OnDeck
  - Soft data has gradually been replaced by hard data, e.g., credit scores
- Caveat: Work in progress so results preliminary