Two Papers the Consumer Finance Policy Community Should Care About


2. Discrimination in the Auto Loan Market by Alexander W. Butler, Erik J. Mayer, and James P. Weston

Both papers are notable, particularly for the new data they use.
What Does Paper #1 Do?

The CRA encourages lenders to meet the credit needs of their communities, including low-to-moderate income (LMI) neighborhoods.

**LMI neighborhood** is a Census tract with a median family income that is less than 80 percent of the median family income of the surrounding area.

Uses a **Regression Discontinuity Design (RDD)** investigate whether outcomes differed right at the threshold used to delineate LMI neighborhoods.

Also uses **Difference-in-Differences (DID)** analysis of the RDD results.
Not the First Paper to Use RDD to Study CRA

Bhutta (2011) looks at home mortgage lending

Figure 2. Bank mortgage originations (1994–2002) versus the Community Reinvestment Act assignment variable.

Figure 3. Bank home purchase mortgage originations (1998–2005) versus the Community Reinvestment Act assignment variable.
Shameless Self Promotion

Avery and Brevoort (2015) also looks at home mortgage loans.
So What Makes this Paper Notable? The Data

**Longitudinal Business Database (LBD) of the U.S. Census Bureau**

- Covers **all non-farm U.S. firms** and establishments with employees
- Annually from 2004 to 2015

Also uses data on small business lending collected by FFIEC specifically for CRA
The LBD Appears to Show Interesting CRA-Related Trends

Figure 1. Average Employment on Income

Note: The figure uses a bandwidth sample from 2,488,000 observations of 497,000 firms, 5 percent above and 80 percent below the income threshold. Each point represents the average employment of firms in 0.5 percent of each income bin. The X-axis is the tract’s income ratio and the y-axis is log employment.
What Do the RDD Results Show? (Table 4)

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Note: The unit of analysis is firm-year. The number of observations for all sample is 28,580,000, and 2,488,000 firms for 5 percent sample. Income function for all is quartic function, and 5 percent bandwidth is a linear function. Firm age includes firm age and age squared, and tract characteristics include MSA median family income, population, share of minority population, and share of population with BA or higher degree. Standard errors clustered by firm are in parentheses.
What Do the RDD Results Show? (Table 5)

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Why is this the Right Question?

The unit of observation is the **firm-year**, meaning that the paper is focused on **average firm size**

A richer set of measures might better show the effects of CRA:

- New firm formation
- Aggregate employment in small business sector
- Separate measures by industry

Accept that CRA may not have had a measurable effect
What Does Paper #2 Do?

Provides a straight-forward analysis of racial and ethnic disparities in auto lending

Looks for evidence of disparities in

- Denial rates
- Loan pricing/interest rates
- Default rates
Investigating Discrimination in Auto Lending is Difficult

Unlike mortgages, there are no data combining auto loan information with racial or ethnic characteristics.

The CFPB Approach:

- Collect data from lenders on the loans they originate (excludes race/ethnicity).
- Use **Bayesian Improved Surname Geocoding** to make an educated guess about the race or ethnicity of the borrower.
Paper Builds Its Own Dataset

Combines Two Primary Datasets:

- **1% sample of credit records** from 2004-2017 (about 2.5 million people per year)
- **Home Mortgage Disclosure Act (HMDA)** data from 2010-2016 (about 46 million)
  
  - Contributes Race/Ethnicity & Income

To produce a dataset with 172,131 observation

- CFPB estimates there were 294 million auto loan originations from 2005-2017
- Paper reports a "match rate" of 68.82%
What the Paper Finds

Conditional on credit score, income, age, sex, total debt, "debt-to-income"

- Minorities have a **1.5 percentage point lower acceptance rate** (sample average 83.2 percent)
- **Interest rates** are **70 basis points higher** for minorities (sample average 6%)
- **Default rates** are about **24bps lower** for minorities

The paper interprets these results as evidence of discrimination (e.g., "approximately 80,000 minority applicants fail to obtain auto loans each year due to discrimination")
Deeper Question: What Is Discrimination?

Equal Credit Opportunity Act (ECOA):

15 U.S.C. § 1691

(a) Activities Constituting Discrimination It shall be unlawful for any creditor to discriminate against any applicant, with respect to any aspect of a credit transaction—

(1) on the basis of race, color, religion, national origin, sex or marital status, or age (provided the applicant has the capacity to contract);

(2) because all or part of the applicant’s income derives from any public assistance program; or

(3) because the applicant has in good faith exercised any right under this chapter.
Consider Two Scenarios

1. Consumers live in (incompletely) segregated neighborhoods and there are two lenders.
   - One lender is located in a neighborhood with high-minority concentration and charges an interest rate of 10% on every auto loan it makes;
   - The other lender locates in a low-minority neighborhood and charges 5% on every loan.

2. A single lender charges 10% on auto loans for used cars and 5% on loans for new cars. Minorities are more likely to buy used cars.

Both scenarios would produce the same results reported in the paper: Minorities pay higher interest rates. But all lenders treat all borrowers the same.
Why this Matters

An argument can be made that it doesn't (disparities matter).

- Minorities are paying more on average as a group
- But then why condition on credit score and income?

The right policy approaches to mitigating the disparities will depend critically on the causes of the disparities
Summary

These are two interesting and policy-relevant papers that bring new data to bear on long-standing policy questions.

Both papers would benefit from additional content:

- *Does the Community Reinvestment Act (CRA) Promote Small Business Growth in Lower-Income Neighborhoods?*
  - Look at a broader selection of outcomes than average firm size

- *Discrimination in the Auto Loan Market*
  - Establish that the data used remain representative and informative about underwriting decisions
  - Distinguish discrimination by lenders from broader issue of disparities