



Racial Discrimination in the Auto Loan Market

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The auto loan market is incredibly important, and yet it's opaque to regulators and researchers.

- Auto loans are the most widely used form of installment credit by U.S. households (>100 million borrowers)
- Market is less regulated and less transparent than other consumer credit markets
 - May reduce the cost of discriminatory practices
 - Generates concern among regulators
 - 2013 – CFPB issued Special Bulletin, and fined Ally Financial \$98 million for charging minorities higher interest rates
- We know alarmingly little about the existence/prevalence of discrimination in this market

Academic studies of discrimination in auto lending are lacking.

Charles, Hurst, and Stephens (AER P&P 2008)

- Black borrowers pay higher interest rates than whites – estimated 75th percentile is 1.34 percentage points higher

Caveats:

- Based on Survey of Consumer Finances (2,725 white and 320 Black borrowers)
- Data do not contain credit scores
- Can't examine loan approval rates or default rates

Why do we know so little?

Data limitations – auto lenders do not report application/loan level data

We construct a novel dataset to test for lending discrimination.

Credit Bureau Data

- 1% nationally representative panel
- Rich set of financial variables:
 - Hard credit checks (loan applications), new lines of credit, credit scores, delinquencies, etc.

Home Mortgage Disclosure Act (HMDA) Data

- Covers 95% of all mortgage applications and loans (only small rural lenders exempt - [details](#))
- Contains borrower demographics:
 - Race/ethnicity, sex, income, etc.

We link these databases based on 6 detailed characteristics of originated mortgages

- Match works well - uniquely match 69% of mortgages from the credit bureau data
- End result is a credit bureau dataset with demographics added for a panel of 79,000 homeowners from 2005-2017

Defining Lending Discrimination

- We strive to isolate discrimination rooted in biased preferences (Becker (1957, 1993)) or biased beliefs like stereotypes (Bordalo et al. (2016)):
 - Lenders forgo some profitable contracts with minorities
 - Loans to marginal minority borrowers are more profitable

Need to distinguish this from:

- Omitted variable bias:
 - Minority status may be correlated with unobservable factors that lower creditworthiness
- Statistical discrimination (Phelps (1972)):
 - Lenders maximize profits by using race to proxy for info that is unobservable (even to them) ...
 - i.e., use beliefs about minorities *on average* as a stand-in for info about the *individual*

Testing for Lending Discrimination

Approach 1: Do minorities have lower credit approval rates?

- Lower minority approval rates could reflect OVB or statistical discrimination

Approach 2: Do minorities pay higher interest rates?

- Higher rates for minorities could reflect OVB or statistical discrimination

Approach 3: Are loans to marginal minority borrowers more profitable?

- Test whether minorities default less, *ceteris paribus*. This “outcome test” (Becker (1957, 1993)) is the most stringent test for discrimination
 - OVB likely works against finding discrimination
 - Statistical discrimination should not generate lower default rates for minorities

We find strong evidence of discrimination in auto lending.

Minorities...

- Face 1.5 percentage point reduction in approval rates... crowds out 80,000 loans/year
- Pay interest rates 70 basis points higher than comparable white borrowers
- Default *less*, controlling for borrower and loan characteristics

Results are larger...

- In cases where loan officers have more discretion
- In states where racial biases are more prevalent
- In areas with less competition among lenders

Anti-discrimination Enforcement Policy Analysis:

- A CFPB policy initiated in 2013, but halted in 2018, was effective in reducing interest rate discrimination by nearly 60%

Credit Access

Minority auto loan applicants face lower approval rates.

	Full Sample			Subprime Borrowers	Prime Borrowers
	Credit Approval				
	(Auto)	(Auto)	(Auto)	(Auto)	(Auto)
	(1)	(2)	(3)	(4)	(5)
<i>Demographics</i>					
Minority	-4.465*** (0.289)	-1.480*** (0.259)	-1.661*** (0.332)	-2.375*** (0.399)	-0.840*** (0.271)
Minority X Hispanic			0.328 (0.410)		
R-Squared	0.047	0.085	0.085	0.105	0.047
Observations	218,300	214,534	214,534	68,494	146,036

Table 4

Sample: All borrower-years containing auto loan applications in our Matched Panel, 2005-2017

Controls:

Demographics: Sex, Age, Income

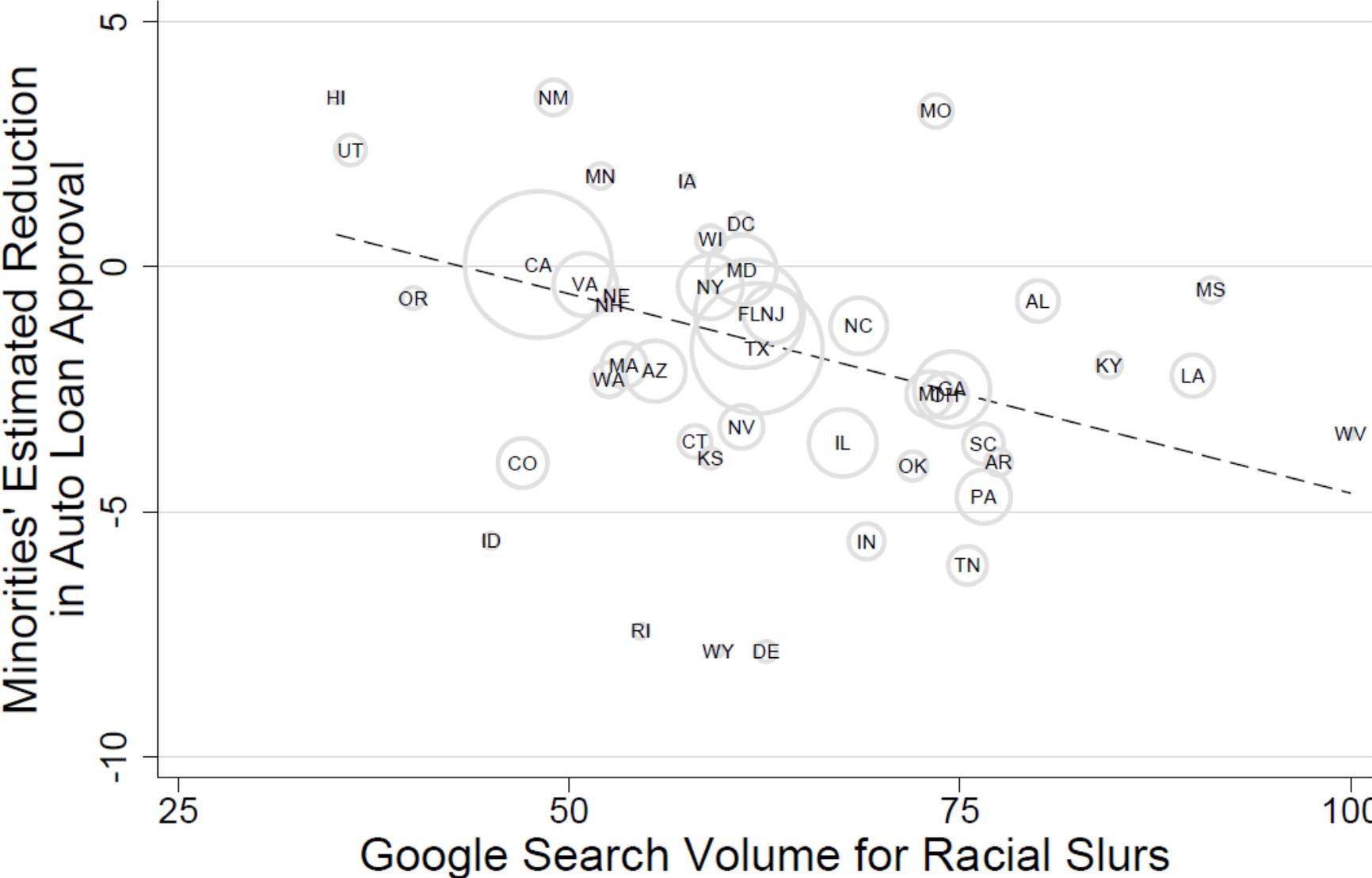
Financial Health: Credit Score, Total Debt, Debt to Income Ratio, Past Due Debt

ZIP Code Characteristics: Per Capita Income, Population Density, % Bachelors Degree, % Commute Using Car

State-by-Year FE, and indicators for time relative to the link

Note: Column 1 omits the financial health controls

Racial disparities are larger where racial biases are more prevalent.



We estimate and plot $State_i \times Minority$ effects.

Correlation between $State_i \times Minority$ effects and the state's *Racial Slur GSV* is -0.49 (p-value = 0.001)

Figure 1

Race matters more in areas with racial biases and with less competition among lenders.

	Credit Approval (Auto) (1)	Credit Approval (Auto) (2)
Minority	-0.906*** (0.254)	-1.268*** (0.255)
Minority X High Racial Bias State	-1.910*** (0.443)	
Minority X Low Banking Competition		-0.728* (0.424)
Low Banking Competition		0.214 (0.207)
R-Squared	0.085	0.085
Observations	214,534	214,534

Table 5

Same sample and controls as previous table.

A falsification test shows that these patterns are absent from credit card lending (which is automated).

	CC Limit Inc. (1)	CC Limit Inc. (2)	CC Limit Inc. (3)
Minority	38.23 (73.09)	-10.44 (84.07)	110.36 (85.54)
Minority X High Racial Bias State		181.61 (154.99)	
Minority X Low Banking Competition			-234.78 (145.53)
Low Banking Competition			74.16 (72.00)
R-Squared	0.075	0.075	0.075
Observations	124,601	124,601	124,601

Table 6

- Sample: People applying for credit cards or limit increases, during the *same borrower-year* as their auto loan application.
- Controls: Same as auto credit approval tests.

Interest Rates

Minorities pay higher interest rates on auto loans than comparable white borrowers.

	APR (1)	APR (2)	APR (3)	APR (4)
<i>Demographics and Interaction Terms</i>				
Minority	1.600*** (0.169)	0.704*** (0.117)	0.442*** (0.084)	0.614*** (0.110)
Minority X High Racial Bias State			0.805*** (0.166)	
Minority X Low Banking Competition				0.293 (0.208)
Low Banking Competition				0.052 (0.065)
R-Squared	0.255	0.440	0.441	0.441
Observations	25,531	25,523	25,523	25,523

Table 8

Controls:

New: Loan Term Indicators, Loan Amount, Auto Loan to Income Ratio, Auto Debt Share, Origination Month Indicators

All from Previous Tests: Demographics, Financial Health, ZIP Code Characteristics, State-by-Year FE, and indicators for time relative to the link

Note: Column 1 omits the financial health controls

Defaults

Next, we implement the toughest test.

Becker (1957, 1993) “outcome test”:

- Test whether loans to marginal minority borrowers are more profitable than loans to marginal white borrowers.
- In practice, researchers test whether minorities ***default less, ceteris paribus.***

Any concerns about OVB should cut both ways:

- If minorities are less creditworthy than the econometric model predicts, they should ***default more.***

Ceteris paribus, minorities default less.

	Full Sample	Subprime Borrowers	Prime Borrowers
	Auto Loan Default	Auto Loan Default	Auto Loan Default
	(1)	(2)	(3)
<i>Demographics</i>			
Minority	-0.237 (0.397)	-2.337** (1.125)	0.288 (0.345)
R-Squared	0.096	0.173	0.054
Observations	10,509	2,005	8,480

Table 9

Controls:

New: Auto Loan Interest Rate

All from Previous Tests: Loan Characteristics, Demographics, Financial Health, ZIP Code Characteristics, State-by-Year FE, and indicators for origination month and time relative to the link

Other loan profitability factors cannot explain our results.

- Prepayment risk is *higher* for White borrowers.
- What about differences in recovery rates?
 - Assume the recovery rate for **White** borrowers is **58%** (average for prime borrowers)
 - Assume the recovery rate for **minorities** is **0%** (cars can't be repossessed or are worthless)
 - Calibration shows even this could not explain the magnitude of our interest rate results.
- Remember, any other profitability factors would have to be able to explain the cross-sectional variation in our results.

Policy Analysis

In 2013, the CFPB sharply increased its anti-discrimination enforcement.

Direct auto lending: apply for loan at a bank, credit union, etc.

Indirect auto lending: car dealership employee helps arrange financing with a third party

- March 2013 – CFPB issued a Special Bulletin warning indirect (mostly non-bank) auto lenders they were liable for interest rate discrimination
- December 2013 – CFPB & DOJ fined Ally Bank \$98 million for charging minorities higher interest rates

The CFPB's 2013 enforcement initiative reduced discrimination at the non-bank lenders it targeted.

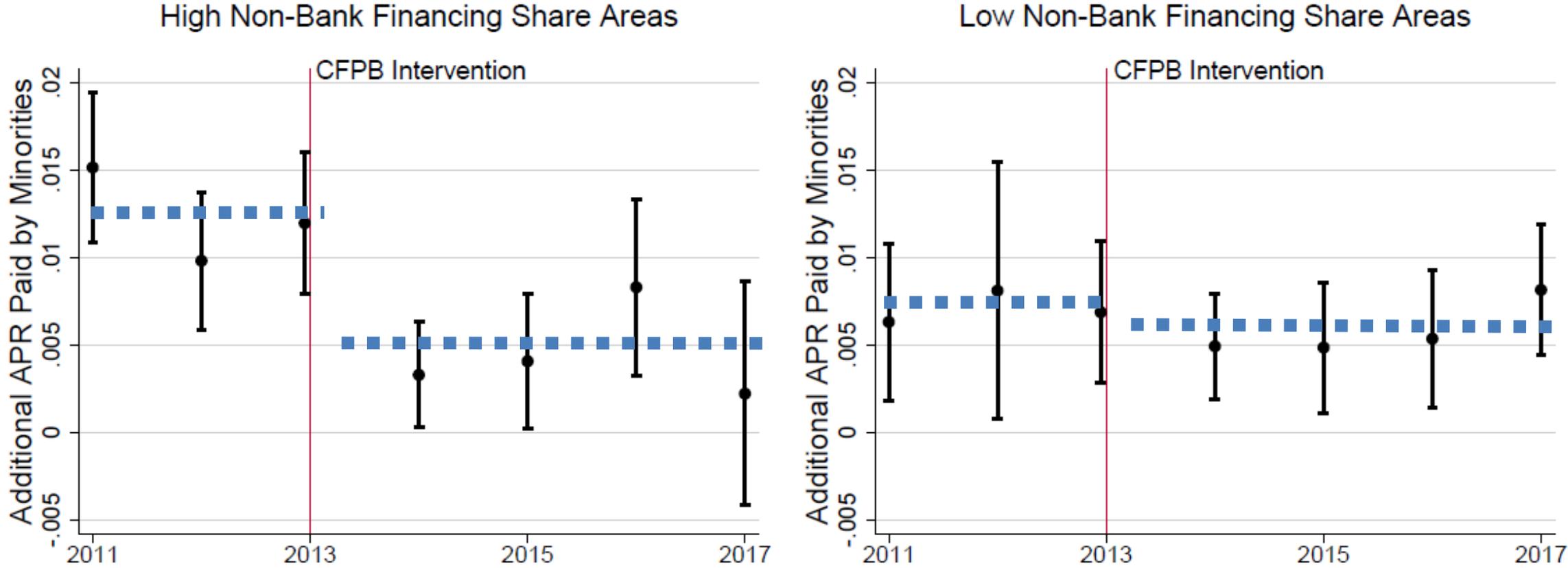


Figure 3

Increased oversight reduced discrimination.

2013 CFPB Initiative:

- Overall, it led to a 60% reduction in the additional APR paid by minorities (from 84bps to 35bps)
- Had no effect on approval rates for minorities... suggesting that the additional interest minorities were paying wasn't necessary to make the loans viable
- This is the first analysis of the market-wide impact of the CFPB's initiative
- Important, because CFPB oversight is controversial:
The 2013 Bulletin used to spearhead the CFPB's efforts was repealed in 2018

Thank You!