

The Effect of Interest Rate Caps on Bankruptcy: Synthetic Control Evidence from Recent Payday Lending Bans

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Research highlight

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Highlights

- We test whether recent state-level payday restrictions affect (in)formal bankruptcy filings.
- Analyze the supply and demand side effects of state-level legislations on payday lending activities - Both experience a negative impact.
- Synthetic control and ArCo estimation: Our key finding, based on the state of New Hampshire, indicates that payday restriction does not have any significant effect on bankruptcy filing.
- Explore additional mechanisms that indicate limiting access to payday loans restriction potentially drives users to other high-cost financial alternatives.

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Background

Payday loans in the US

- Payday loans (PDL): Unsecured short-term (2 weeks) high interest loans with a typical annualized percentage rate of 390% or more.
- Requirements: A valid ID; a bank statement; and proof of stable income; post-dated check for the maturity date of the loan.
- Borrower can roll over the loan for an additional fee if unable to repay on the due date. Happens approximately **80%** of the time.
- **12 million** Americans use payday loans annually, amounting to a total of **9 billion** dollars in fees (Pew 2012).
- Growth in numbers since mid-90's: Across the country, payday lenders have more locations than Starbucks and McDonalds combined!

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Implications of payday loans

- **Benefits:** Provides credit during financial emergency and help users to “smooth consumption”. Users can borrow “from future good times to help cover current shortfalls” (Skiba 2012).
- **Costs:** Debt trap from repeated rollovers - The cycle ultimately stops at filing for formal bankruptcy protection.
 - Payday loan consumers can also experience a decline in socio-economic well-being.
 - Adverse consequences include lower job performance, high dependence of public welfare, criminal activities, substance use, or even contemplate suicide (Carrell & Zinman 2014; Xu 2016; Zaki 2016; Cuffe & Gibbs 2017; Lee (2017).
 - Payday lenders often engage in shady marketing tactics (Stegman 2007) and target regions with a high prevalence of demographic minorities (Barth et al. 2016).

Implications of payday loans

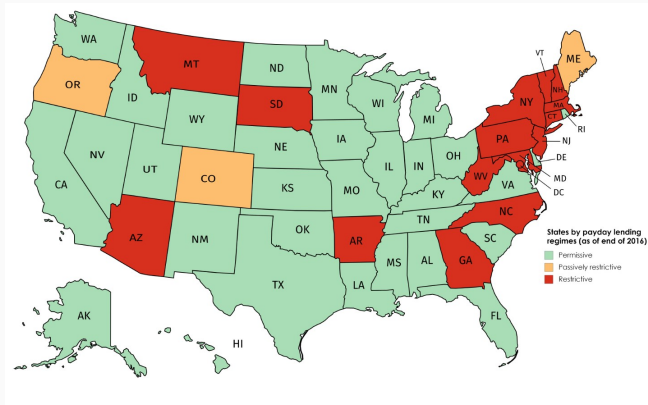
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Payday lending regulations

- Federal level - Military Lending Act and the Dodd-Frank act. The latter established the Consumer Financial Protection Bureau.
- Citing consumer protection concerns, several state governments have capped interest rates at 36% APR on small loans.
- Recently: Arizona, Arkansas, Montana, and New Hampshire.

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Previous literature: Payday lending & Bankruptcy

- Mixed results on the relationship between payday lending access and incidence of bankruptcy or loan delinquency.
 - Hynes (2009) and Stoianovici & Maloney (2010): No effect
 - Bhutta et al. (2015): No discernable effect
 - Gathergood et al. (2019): Short-run increase and long-run decrease
 - Skiba & Tobacman (2011), Morgan et al. (2012) - Positive effect
 - Zinman (2010) & Morse (2011) - Negative impact
- Gap in the literature: Most recent study relies on RDD using proprietary firm-level data.
 - Concerns about external validity

Research questions

1. Are interest rate caps an effective payday lending ban?

Results: Yes

2. Did the interest rate caps lower bankruptcy rates in these states?

Results: The short answer is no, but there's indicative evidence of a decline in the long-run.

3. Where do would-be borrowers go for financing?

Results: Late credit card payments; pawnshops

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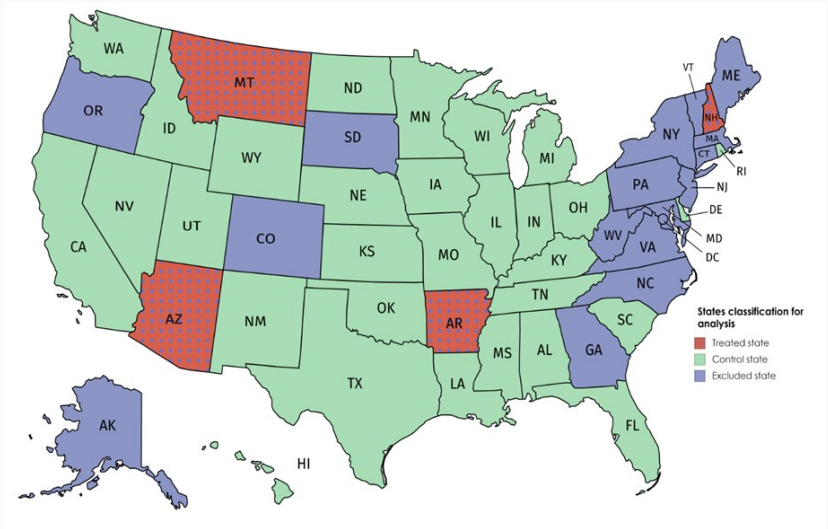
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Analysis

Selection of states in the control pool



Are Interest Rate Caps an Effective Payday Loan Ban?

- Data

- FDIC Underbanked Survey & FINRA Financial Capability Survey (measure of PDL use) - Demand side effect.
- NAICS 522390 Establishments (from US Census Bureaus County Business Pattern data) - Proxy for number of payday lenders to explore the supply side effect.

- Methodology - Difference-in-differences (DID) regression:

$$Y_{ist} = \rho_0 + \rho_1(PDLban)_{st} + \rho_2 X_{ist} + \rho_3 Z_{st} + \gamma_s + \lambda_t + \epsilon_{ist} \quad (1)$$

Are Interest Rate Caps an Effective Payday Loan Ban?

- DID linear regression results:

	FDIC Payday Loan Use	FINRA Payday Loan Use	NAICS 522390 Establishments
Study period	2009 - 2015	2009 - 2015	2001 - 2016
Sample mean	0.015	0.125	6.075
Payday loan restriction	-0.010* (0.006)	-0.043** (0.009)	-2.779*** (0.781)
State fixed effects	✓	✓	✓
Year fixed effects	✓	✓	✓
State characteristics	✓		✓
Individual characteristics	✓	✓	✓
Sample size	137,593	54,571	529

- Additional evidence: 10-K of Advance America Inc.

Did the Interest Rate Caps Lower Bankruptcy Rates in These States?

- Bankruptcy
 - Formal - Non-business Chapter 7, 13 and overall (US Courts Caseload Statistics; annual).
 - Informal: Delinquency w.r.t credit card, mortgage, auto, student loans (Federal Reserve Bank of New York; annual)
- Methodology - Difference-in-differences (DID) regressions

Did the Interest Rate Caps Lower Bankruptcy Rates in These States?

Proxies	Formal Bankruptcy				Informal Bankruptcy (Delinquencies)		
	All filings	Chapter 7 filings	Chapter 13 filings	Credit card	Mortgage loan	Auto loan	Student loan
Study period	2001 - 2016				2003 - 2016		
Sample mean	431.300	309.578	121.401	9.051	2.931	3.283	9.185
Payday loan restriction	-41.209 (33.394)	-25.254 (23.542)	-15.952 (17.123)	-0.036 (0.387)	-0.253 (0.519)	0.064 (0.202)	0.341 (0.621)
State fixed effects	✓	✓	✓	✓	✓	✓	✓
Year fixed effects	✓	✓	✓	✓	✓	✓	✓
State characteristics	✓	✓	✓	✓	✓	✓	✓
Sample size	529				462		

Synthetic Control Evidence from New Hampshire

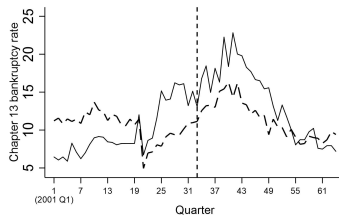
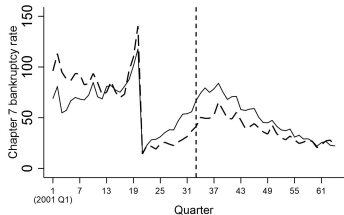
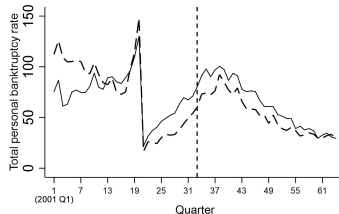
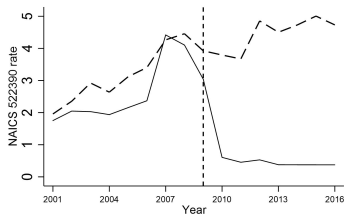
- Data: Same as above, but formal bankruptcies are now at the quarterly level.
- Methodology:

$$W^* = \arg \min_W (\mathbf{Y}_0 - \mathbf{Y}_1 \mathbf{W})' \mathbf{V} (\mathbf{Y}_0 - \mathbf{Y}_1 \mathbf{W})$$

$$s.t. \sum_{i=1}^I w_i = 1; w_i \geq 0 \forall i = (1...I)$$

Synthetic Control Evidence from New Hampshire

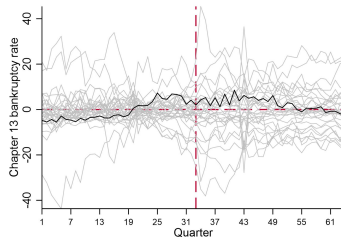
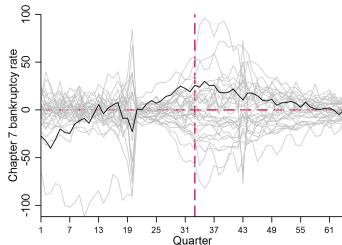
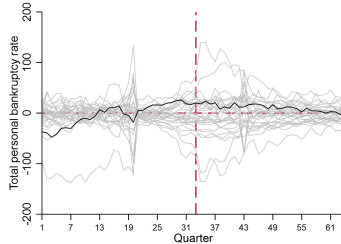
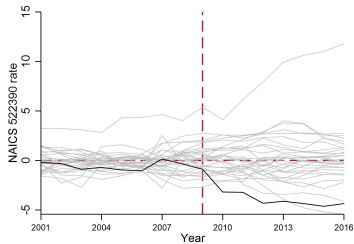
Visual results: Formal Bankruptcy



— New Hampshire - - - synthetic New Hampshire

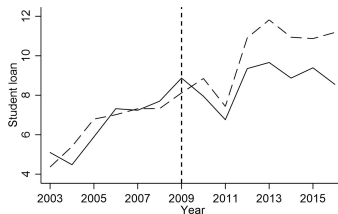
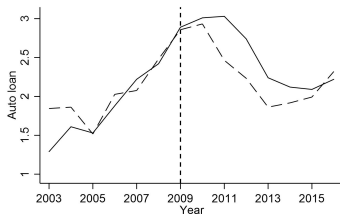
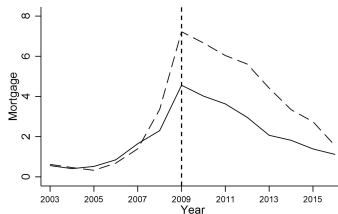
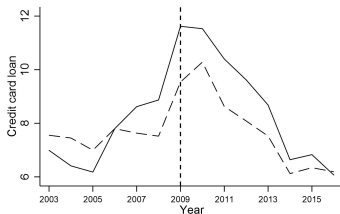
Synthetic Control Evidence from New Hampshire

Placebo Results: Formal Bankruptcy



Synthetic Control Evidence from New Hampshire

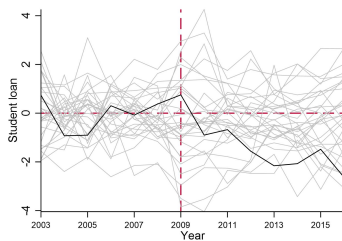
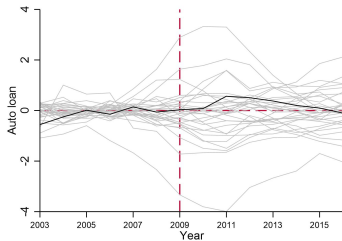
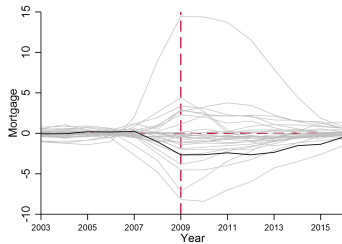
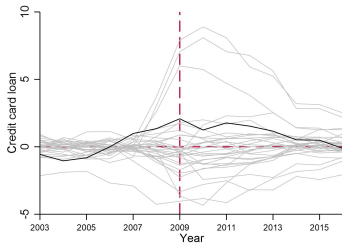
Visual Results: Informal Bankruptcy (Annual Data)



— New Hampshire - - synthetic New Hampshire

Synthetic Control Evidence from New Hampshire

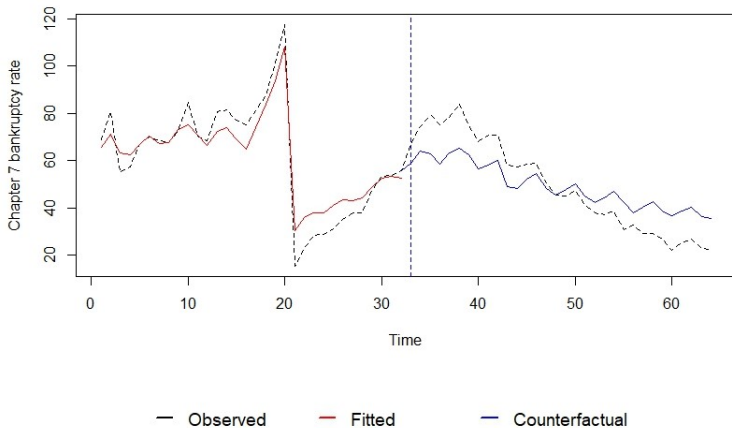
Placebo Results: Informal Bankruptcy (Annual Data)



- “Artificial Counterfactual” (Carvalho et al. 2018, JMetrics).
- We can relax the constraint that weights must be non-negative if:
 - Donor pool units unaffected by the treated units intervention.
 - The data are trend-stationary.
- Condition 1 is met: Each state in the donor pool is geographically far from New Hampshire.
- Condition 2: Panel unit root tests reject the presence of a unit root.

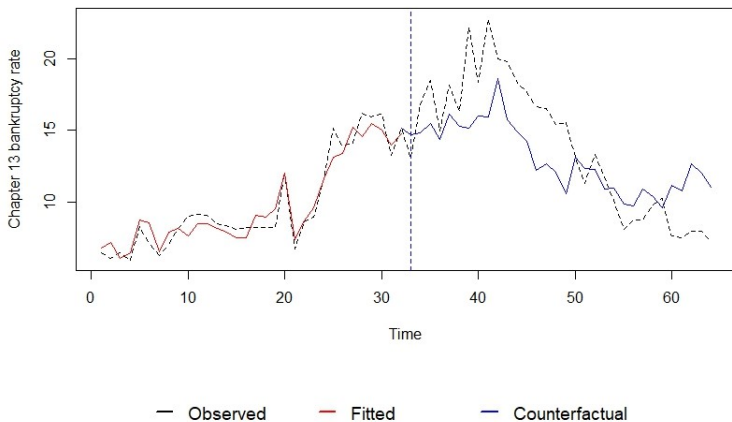
ArCo Evidence from New Hampshire

Visual Results: Chapter 7



ArCo Evidence from New Hampshire

Visual Results: Chapter 13



Bankruptcy of a Population of Payday Borrowers

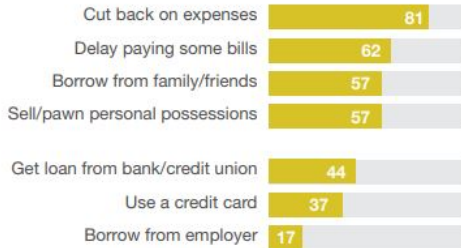
Source				
FINRA National Financial Capability Study				
	Bankruptcy	Late on credit card payment	Difficulty paying bills	Overall financial condition
Study period	2009, 2012, 2015			
Sample mean	0.085	0.474	1.89	4.333
Payday loan restriction	0.061 (0.086)	0.124** (0.054)	-0.006 (0.098)	0.337 (0.384)
State fixed effects	✓	✓	✓	✓
Year fixed effects	✓	✓	✓	✓
Individual characteristics	✓	✓	✓	✓
Sample size	6,821			

Where Do Would-Be Borrowers Go for Financing?

Source	FINRA National Financial Capability Study				FBI Uniform Crime Reporting	
	Bank overdraft	Credit card over-limit	Credit card advance	Pawn shop usage	Property crime	Robbery
Study period	2009, 2012, 2015				2001 - 2016	
Sample mean	0.560	0.387	0.340	0.560	3214.402	97.753
Payday loan restriction	0.050 (0.067)	0.052 (0.078)	0.173 (0.101)	0.174** (0.070)	179.251 (201.034)	10.012 (6.746)
State fixed effects	✓	✓	✓	✓	✓	✓
Year fixed effects	✓	✓	✓	✓	✓	✓
Individual characteristics	✓	✓	✓	✓		
State characteristics					✓	✓
Sample size	6,821				529	

EXHIBIT 5:

ALTERNATIVES IF PAYDAY LOANS WERE UNAVAILABLE



Borrowers are more likely to choose options that do not connect them to a formal institution.

Concluding remarks

Conclusion and Future Research

- Welfare effects of a payday lending ban
 - Hurts consumers: revealed preference argument.
 - Helps consumers: commitment mechanism to better budgeting.
- Future research avenues
 - Do payday lending bans increase labor supply?
 - Do payday lending bans lead to better budgeting/financial literacy?

Thank You

Thank you very much for your time.

Full study is available at [▶ AUT WP Series 2019](#).

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