

Internet Appendix for
“Less Mainstream Credit, More Payday Borrowing?”
Evidence from Debt Collection Restrictions

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ABSTRACT

This Internet Appendix provides additional tables and figures supporting the main text.

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I. Additional Results

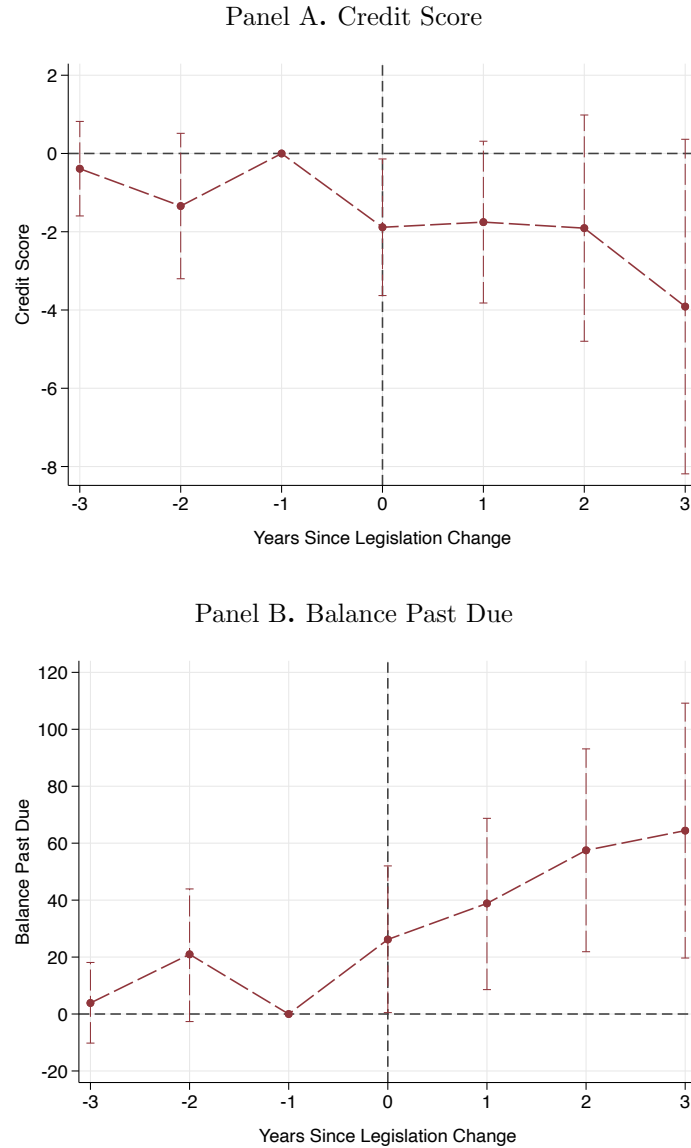
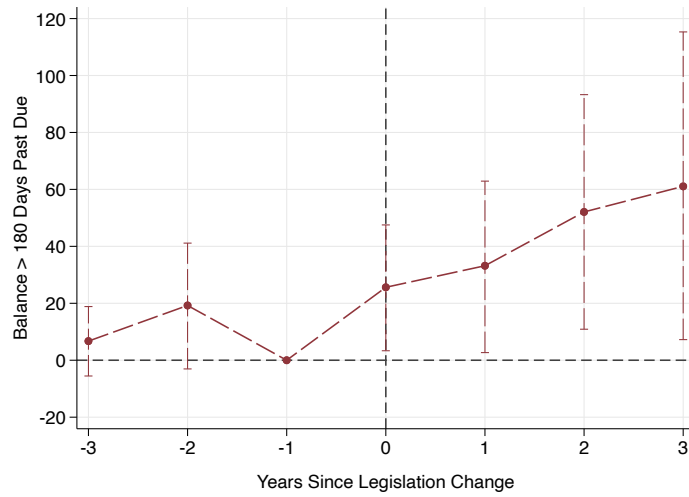


Figure IA.1. Timing of effect on credit scores and past-due balances. This figure shows the timing of the effect of debt collection restrictions on the credit score (Panel A) and the balance past due (Panel B) of low-income borrowers. This figure plots coefficient estimates and 95% confidence intervals from equation (2). Observations are at the consumer-year level and standard errors are clustered at the state level. Controls include unemployment, income per capita, health expenditures per capita, log population, and a house price index. Also included are fixed effects to control for unobservable time-varying differences across subprime and prime consumers and across borrowers with and without accounts in collection.

Panel A. Balance >180 Days Past Due



Panel B. Balance Past Due of New and Existing Borrowers

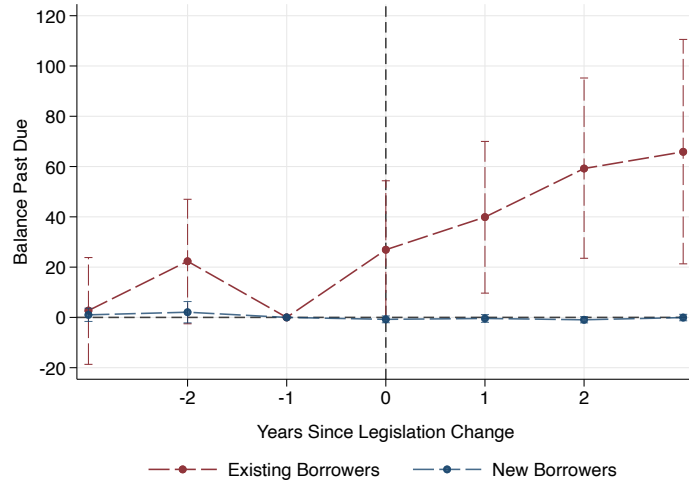


Figure IA.2. Timing of effect on past-due stage and borrower composition.

This figure shows the timing of the effect of debt collection restrictions on balances more than 180 days past due (Panel A) and balances past due for both new and existing low-income borrowers (Panel B). This figure plots coefficient estimates and 95% confidence intervals from equation (2). Observations are at the consumer-year level and standard errors are clustered at the state level. Controls include unemployment, income per capita, health expenditures per capita, log population, and a house price index. Also included are fixed effects to control for unobservable time-varying differences across subprime and prime consumers and across borrowers with and without accounts in collection.

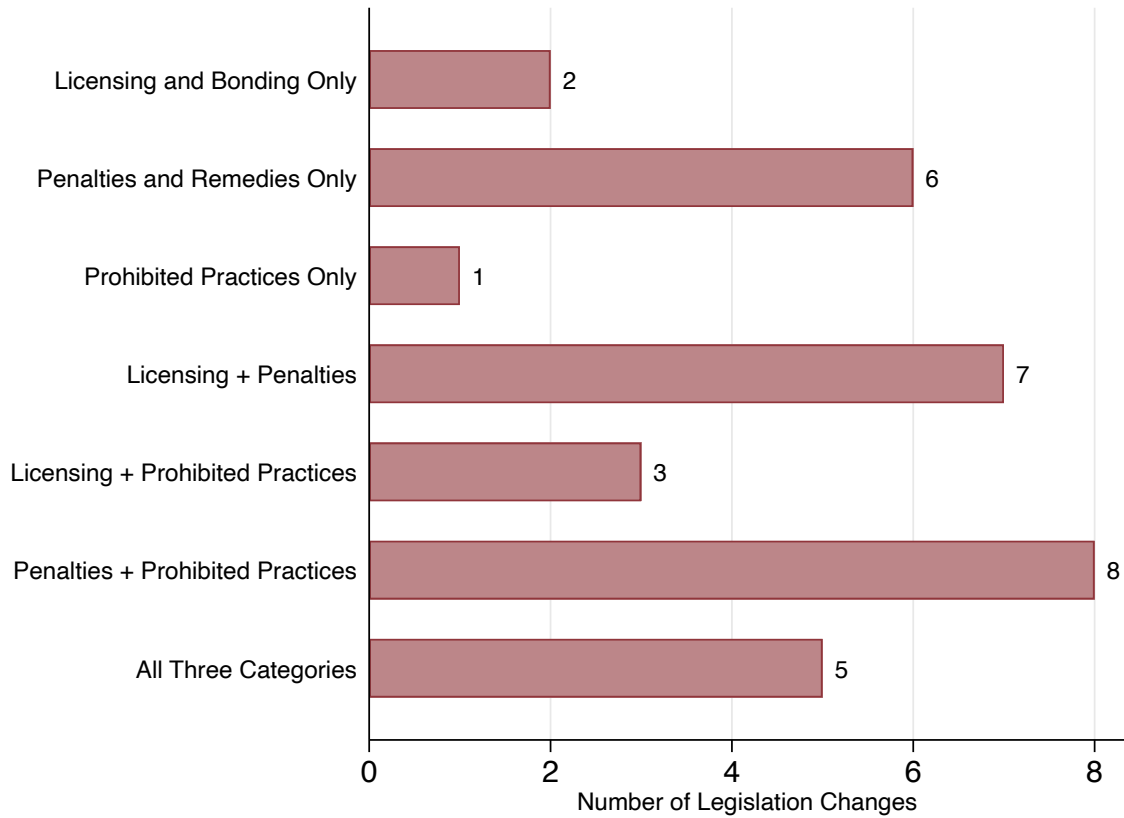


Figure IA.3. Summary of legislation changes by category. This figure breaks down the 32 state-level legislation changes that restricted debt collection practices by type of change. Legislation changes are categorized as: (1) laws that impose or tighten licensing and/or bonding requirements, (2) laws that impose civil or administrative penalties for debt collection violations or introduce private remedies (such as damage provisions and class action lawsuits), and (3) laws that prohibit certain debt collection practices.

Table IA.I

CFPB Public Actions against Payday Lenders

This table summarizes all public enforcement actions by the Consumer Financial Protection Bureau (CFPB) against a payday lender whose debt collection practices violated the Consumer Financial Protection Act (CFPA), the Dodd-Frank Act, or the Fair Debt Collection Practices Act (FDCPA). This information comes from the CFPB’s repository of enforcement actions, which can be found at <https://www.consumerfinance.gov/enforcement/actions/>. I filtered actions belonging to product “Debt Collection” and ran separate searches for keywords “payday loan,” “payday lender,” and “payday.” I then manually reviewed all entries to ensure that the enforcement action was against a payday lender for debt collection violations and determine whether the alleged violation was committed by in-house or third-party collectors. This information is detailed in the complaints and consent orders associated with each enforcement action.

★ ACE Cash Express has since ceased to use third-party debt collectors (Lucas et al. (2016)).

† NGD Financial Corp. collected through a wholly owned subsidiary which collected only the accounts of NGD Financial Corp. itself. These types of firms are not generally considered third-party collectors under the Fair Debt Collection Practices Act (CFBP (2016)).

Year	Payday Lender Name	In-House Collection?	Third-Party Collection?
2013	Cash America International	Yes	No
2014	ACE Cash Express	Yes	Yes★
2015	EZCORP	Yes	No
2016	Moneytree	Yes	No
2018	Cash Express	Yes	No
2019	Cash Tyme	Yes	No
2019	NDG Financial Corp.	Yes	No†
2020	Approved Cash Advance	Yes	No
2020	Cash Store	Yes	No
Total	9	9	1

Table IA.II**Payday Loan Characteristics Across Different Studies**

This table builds on the analysis in Table II of Miller and Soo (2020) and summarizes payday loan characteristics across studies, including this one. Column (1) reports the average number of payday loans per borrower per year. Column (2) reports the average size of a payday loan. Column (3) briefly describes the key characteristics of the sample. The samples differ along many dimensions, including geography, whether payday borrowers have mainstream credit records, whether borrowers have a bankruptcy flag, whether the sample includes payday loans originated by storefront or online payday lenders, and whether rollover loans are treated as new loans or not. However, this analysis serves to provide a benchmark for the data used in this study.

★ Unlike all other studies listed, the sample in the current study includes both payday borrowers and non-payday borrowers. To make my sample comparable to other studies, I compute the average number of payday loans per year and the average loan size conditional on payday borrowing.

† The CFPB reports the median and not the average number of payday loans per year.

	Avg. # Payday Loans (1)	Avg. Payday Loan Size (2)	Description of Sample (3)
Current study	3.2	349	Clarity sample with mainstream credit record*
Allcott et al. (2021)	5.35	373	1,205 payday borrowers from an Indiana lender
Wang and Burke (2022)	5.8	528	CFPB supervisory data set of storefront payday lenders
Miller and Soo (2020)	6	551	Clarity sample with Chapter 7 bankruptcy flag removed
Skiba and Tobacman (2019)	N/A	279	145,000 payday borrowers from Texas lender
Fritzdixon and Skiba (2016)	N/A	354	2,947 online payday borrowers from Tennessee lender
CFBP (2013, 2014)	6 [†]	392	CFPB supervisory data set of storefront payday lenders
Bertrand and Morse (2011)	9.2	373	Texas survey of 1,441 payday borrowers
Lawrence and Eliehausen (2008)	8.3	N/A	National phone survey of 450 payday borrowers
Median	6	373	

Table IA.III

Predicting Legislation Changes

This table reports results of linear regressions of both changes in and the level of the $Index_{st}$ variable and changes to this variable on the number of debt collectors, the number of collection establishments, a house price index, medical expenditures per capita, average credit scores, a measure of payments relative to past-due revolving balances, average loan balances, the average number of accounts in collection, average balances past due, population size, the unemployment rate (in levels and in growth rates), and income per capita (in levels and in growth rates). The measure of payments relative to past-due revolving balances is the ratio of all payments to total past due revolving balances, across all consumers in a given state-year.

Dependent Variable:	Δ Index		Index	
	(1)	(2)	(3)	(4)
Debt Collection Employees	0.000 (0.000)	0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)
Debt Collection Establishments	-0.000 (0.000)	-0.000 (0.000)	0.000 (0.003)	0.000 (0.002)
House Price Index	-0.000 (0.001)	0.000 (0.001)	-0.002 (0.002)	-0.002 (0.002)
Medical Expenditures Per Capita	0.000 (0.000)	0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)
Average Credit Score	0.002 (0.005)	0.005 (0.005)	-0.007 (0.014)	-0.004 (0.015)
Payments/Past-Due Revolving Balances	-0.010 (0.020)	-0.011 (0.020)	0.046 (0.032)	0.037 (0.035)
Average Loan Balances	0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	0.000 (0.000)
Average Number of Collections	0.029 (0.089)	0.009 (0.089)	-0.361 (0.332)	-0.355 (0.350)
Average Balances Past Due	0.000 (0.000)	0.000 (0.000)	-0.000 (0.000)	0.000 (0.000)
State Population	0.000 (0.000)	0.000 (0.000)	-0.000 (0.000)	0.000 (0.000)
Unemployment Rate	-0.015 (0.019)		0.053 (0.037)	
Income Per Capita	0.000 (0.000)		0.000 (0.000)	
Unemployment Growth		-0.007 (0.023)		0.005 (0.028)
Income Growth		-0.569 (0.620)		-0.368 (0.916)
State FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Observations	561	561	561	561

Table IA.IV

Robustness to Log Specification

All columns report estimates of the linear regression model specified in equation (1), with dependent variables in logs. I classify borrowers in 2004 as low income if they are in the first quartile of the 2004 income distribution, as middle income if they are in the middle two quartiles, and as high income if they are in the top quartile of the 2004 income distribution, and I hold this classification fixed over time. To address the large number of zeros in the sample, I use a $\log(x + 0.001)$ transformation. Observations are at the consumer-year level and standard errors, clustered at the state level, are reported in parentheses. The bottom rows specify the fixed effects and controls included in each column, as well as the mean of the dependent variable. Controls include unemployment, income per capita, health expenditures per capita, log population, and a house price index. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Panel A: Mainstream Credit Balances								
Dependent Variable:	Credit Balances				Revolving Credit Balances			
	All	Low Income	Medium Income	High Income	All	Low Income	Medium Income	High Income
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Index	-0.19*** (0.06)	-0.20*** (0.05)	-0.14** (0.05)	-0.10* (0.05)	-0.10* (0.06)	-0.17*** (0.05)	-0.05 (0.04)	-0.03 (0.05)
County-Pair×Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Subprime×Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Collection×Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	16,533,065	2,734,772	9,049,455	4,748,838	16,533,065	2,734,772	9,049,455	4,748,838

Panel B: Mainstream Credit Limits and Usage								
Dependent Variable:	Revolving Credit Limits				Revolving Balance-to-Limit Ratio			
	All	Low Income	Medium Income	High Income	All	Low Income	Medium Income	High Income
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Index	-0.11** (0.06)	-0.22*** (0.07)	-0.06 (0.05)	-0.04 (0.03)	0.03** (0.01)	0.04* (0.02)	0.03** (0.01)	0.02 (0.02)
County-Pair×Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Subprime×Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Collection×Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	16,533,065	2,734,772	9,049,455	4,748,838	16,533,065	2,734,772	9,049,455	4,748,838

Table IA.V

Impact on Number of New Accounts and Inquiries

All columns report estimates of the linear regression model specified in equation (1). New Trades is the total number of new mainstream credit trades for a given consumer. New Trades Per Inquiry is the total number of new mainstream credit trades divided by the total number of mainstream credit inquiries. I classify borrowers in 2004 as low income if they are in the first quartile of the 2004 income distribution, as middle income if they are in the middle two quartiles, and as high income if they are in the top quartile of the 2004 income distribution, and I hold this classification fixed over time. Observations are at the consumer-year level and standard errors, clustered at the state level, are reported in parentheses. The bottom rows specify the fixed effects and controls included in each column, as well as the mean of the dependent variable. Controls include unemployment, income per capita, health expenditures per capita, log population, and a house price index. Differences in the number of observations across regressions are due to differences in the number of borrowers in each income category. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Dependent Variable:	New Trades				Inquiries				New Trades Per Inquiry			
	All	Low Income	Medium Income	High Income	All	Low Income	Medium Income	High Income	All	Low Income	Medium Income	High Income
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Index	-0.01** (0.00)	-0.02*** (0.00)	-0.01* (0.00)	-0.00 (0.00)	-0.00 (0.02)	-0.00 (0.02)	0.01 (0.02)	0.00 (0.02)	-0.00 (0.00)	-0.01*** (0.00)	-0.01** (0.00)	-0.00 (0.00)
County-Pair×Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Subprime×Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Collection×Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Mean	0.34	0.21	0.32	0.50	1.41	1.10	1.45	1.78	0.26	0.20	0.25	0.31
Observations	16,533,065	2,734,772	9,049,455	4,748,838	16,533,065	2,734,772	9,049,455	4,748,838	8,986,356	1,132,428	4,668,963	3,184,965

Table IA.VI

Robustness to Controlling for Medical Expenditures: Payday Borrowing

All columns report estimates of the linear regression model specified in equation (1). Payday Loans are the total amount of loans from payday lenders. Payday Loan Amount is the sum of loan amount across all payday loans. I classify borrowers in the first year of the Clarity sample as payday borrowers if they have at least one payday loan and as credit-constrained if they have no more than \$300 in available mainstream revolving credit, and I hold these classifications fixed over time. Observations are at the consumer-year level and standard errors, clustered at the state level, are reported in parentheses. The bottom rows specify the fixed effects and controls included in each column, as well as the mean of the dependent variable. Controls include unemployment, income per capita, health expenditures per capita, log population, and a house price index. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Dependent Variable:	Payday Loans				Payday Loan Amount			
	All	All	Payday Borrower	Credit-Constrained	All	All	Payday Borrower	Credit-Constrained
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Index	0.006** (0.003)	0.003* (0.002)	1.516** (0.579)	1.622*** (0.548)	0.514* (0.296)	0.514 (0.554)	133.582* (78.516)	180.146*** (59.962)
County-Pair×Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Subprime×Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Collection×Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Mean	0.005	0.005	1.457	1.483	1.766	1.766	349.723	342.490
Observations	4,854,079	3,677,633	6,741	4,622	4,854,079	3,677,633	6,741	4,622

Table IA.VII

Extensive-Margin Effect on Payday Loans

All columns report estimates of the linear regression model specified in equation (1). Has Payday Loan is a dummy that equals one if the borrower takes out a payday loan in a given year. Has Payday Inquiry is a dummy that equals one if the borrower has a payday loan inquiry in a given year. I classify borrowers in the first year of the Clarity sample as payday borrowers if they have at least one payday loan and as credit-constrained if they have no more than \$300 in available mainstream revolving credit, and I hold these classifications fixed over time. Observations are at the consumer-year level and standard errors, clustered at the state level, are reported in parentheses. The bottom rows specify the fixed effects and controls included in each column, as well as the mean of the dependent variable. Controls include unemployment, income per capita, health expenditures per capita, log population, and a house price index. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Dependent Variable:	Has Payday Loan				Has Payday Inquiry			
	All	All	Payday Borrower	Credit-Constrained	All	All	Payday Borrower	Credit-Constrained
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Index	0.000 (0.000)	-0.000 (0.000)	0.054** (0.021)	0.067*** (0.017)	-0.002 (0.001)	-0.003 (0.001)	0.086*** (0.032)	0.136*** (0.043)
County-Pair×Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Subprime×Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Collection×Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Mean	0.002	0.002	0.354	0.354	0.015	0.015	0.570	0.582
Observations	4,854,079	4,854,079	8,886	6,096	4,854,079	4,854,079	8,886	6,096

Table IA.VIII

Heterogeneity by Legislation Characteristics: Balances, Limits, and Usage

All columns report estimates of the linear regression model specified in equation (1) for low income borrowers, with legislation changes broken down into three categories: (1) laws that impose or tighten licensing and/or bonding requirements, (2) laws that impose civil or administrative penalties for debt collection violations or introduce private remedies (such as damage provisions and class action lawsuits), and (3) laws that prohibit certain debt collection practices. Observations are at the consumer-year level and standard errors, clustered at the state level, are reported in parentheses. The bottom rows specify the fixed effects and controls included in each column, as well as the mean of the dependent variable. Controls include unemployment, income per capita, health expenditures per capita, log population, and a house price index. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Panel A: Mainstream Credit Balances								
Dependent Variable:	Credit Balances				Revolving Credit Balances			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Index	-1204.83** (461.21)				-154.49*** (41.90)			
Licensing and Bonding		-948.82* (506.22)				-153.46** (62.75)		
Penalties and Remedies			-1468.46*** (423.28)				-167.77*** (43.67)	
Prohibited Practices				-572.79 (945.45)				-86.03* (48.19)
County-Pair×Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Subprime×Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Collection×Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Mean	13,216.63	13,216.63	13,216.63	13,216.63	1,032.18	1,032.18	1,032.18	1,032.18
Observations	2,734,772	2,734,772	2,734,772	2,734,772	2,734,772	2,734,772	2,734,772	2,734,772
Panel B: Mainstream Credit Limits and Usage								
Dependent Variable:	Revolving Credit Limits				Revolving Balance-to-Limit Ratio			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Index	-600.42*** (181.27)				1.40*** (0.46)			
Licensing and Bonding		-574.39* (302.78)				1.40* (0.76)		
Penalties and Remedies			-706.63*** (186.37)				1.69*** (0.49)	
Prohibited Practices				-120.60 (150.13)				-1.04* (0.49)
County-Pair×Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Subprime×Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Collection×Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Mean	3,653.09	3,653.09	3,653.09	3,653.09	89.66	89.66	89.66	89.66
Observations	2,734,772	2,734,772	2,734,772	2,734,772	2,734,772	2,734,772	2,734,772	2,734,772

Table IA.IX

Heterogeneity by Legislation Characteristics: Payday Borrowing and Past-Due Balances

All columns report estimates of the linear regression model specified in equation (1) for prior payday borrowers in Panel A and low income borrowers in Panel B, with legislation changes broken down into three categories: (1) laws that impose or tighten licensing and/or bonding requirements, (2) laws that impose civil or administrative penalties for debt collection violations or introduce private remedies (such as damage provisions and class action lawsuits), and (3) laws that prohibit certain debt collection practices. Observations are at the consumer-year level and standard errors, clustered at the state level, are reported in parentheses. The bottom rows specify the fixed effects and controls included in each column, as well as the mean of the dependent variable. Controls include unemployment, income per capita, health expenditures per capita, log population, and a house price index. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Panel A: Payday Borrowing								
Dependent Variable:	Payday Loans				Payday Loan Amount			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Index	1.711*** (0.475)				76.853* (42.020)			
Licensing and Bonding		0.650* (0.348)				106.159* (58.542)		
Penalties and Remedies			1.809*** (0.543)				115.245** (45.620)	
Prohibited Practices				1.813*** (0.526)				111.728** (44.616)
County-Pair×Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Subprime×Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Collection×Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Mean	1.827	1.827	1.827	1.827	311.417	311.417	311.417	311.417
Observations	8,886	8,886	8,886	8,886	8,886	8,886	8,886	8,886
Panel B: Credit Scores and Past-Due Balances								
Dependent Variable:	Credit Score				Balances Past Due			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Index	-2.47** (1.15)				37.65*** (14.00)			
Licensing and Bonding		-2.83* (1.56)				19.91* (9.97)		
Penalties and Remedies			-3.01** (1.24)				46.89*** (15.68)	
Prohibited Practices				-1.05 (1.13)				51.75** (19.96)
County-Pair×Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Subprime×Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Collection×Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Mean	600.97	600.97	600.97	600.97	200.19	200.19	200.19	200.19
Observations	2,734,772	2,734,772	2,734,772	2,734,772	2,734,772	2,734,772	2,734,772	2,734,772

Table IA.X

Robustness to Controlling for Distance to the Border: Balances, Limits, and Usage

All columns report estimates of the linear regression model specified in Equation (6), which controls the uncentered mean of the Dieterle, Bartalotti, and Brummet (2020) distance to the border distribution. Observations are at the consumer-year level and standard errors, clustered at the state level, are reported in parentheses. The bottom rows specify the fixed effects and controls included in each column, as well as the mean of the dependent variable. Controls include unemployment, income per capita, health expenditures per capita, log population, and a house price index. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Panel A: Mainstream Credit Balances								
Dependent Variable:	Credit Balances				Revolving Credit Balances			
	All	Low Income	Medium Income	High Income	All	Low Income	Medium Income	High Income
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Index	-3460.21*** (1138.41)	-1341.56*** (462.97)	-1531.42** (753.42)	-3571.03** (1706.52)	-158.45 (105.68)	-121.38*** (40.03)	-67.55 (66.11)	12.11 (170.65)
County-Pair×Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Subprime×Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Collection×Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Baseline Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Distance Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Mean	53,242.96	13,216.63	39,268.90	134,697.34	5,470.22	1,032.18	4,276.15	14,345.03
Observations	16,533,065	2,734,772	9,049,455	4,748,838	16,533,065	2,734,772	9,049,455	4,748,838
Panel B: Mainstream Credit Limits and Usage								
Dependent Variable:	Revolving Credit Limits				Revolving Balance-to-Limit Ratio			
	All	Low Income	Medium Income	High Income	All	Low Income	Medium Income	High Income
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Index	-953.42** (390.48)	-468.89*** (148.65)	-297.57 (224.26)	-867.76 (568.58)	0.53*** (0.20)	0.71** (0.31)	0.26 (0.20)	0.42** (0.20)
County-Pair×Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Subprime×Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Collection×Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Baseline Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Distance Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Mean	23,294.33	3,653.09	18,000.69	62,564.96	62.91	89.66	61.90	30.18
Observations	16,533,065	2,734,772	9,049,455	4,748,838	16,533,065	2,734,772	9,049,455	4,748,838

Table IA.XI

Robustness to Controlling for Distance to the Border: Payday Borrowing and Past-Due Balances

All columns report estimates of the linear regression model specified in Equation (6), which controls the uncentered mean of the Dieterle, Bartalotti, and Brummet (2020) distance to the border distribution. Observations are at the consumer-year level and standard errors, clustered at the state level, are reported in parentheses. The bottom rows specify the fixed effects and controls included in each column, as well as the mean of the dependent variable. Controls include unemployment, income per capita, health expenditures per capita, log population, and a house price index. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Panel A: Payday Borrowing								
Dependent Variable:	Payday Loans				Payday Loan Amount			
	All	All	Payday Borrower	Credit-Constrained	All	All	Payday Borrower	Credit-Constrained
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Index	0.005* (0.003)	0.007** (0.004)	1.86*** (0.56)	1.84*** (0.46)	0.25 (0.36)	1.00 (0.73)	65.35* (38.52)	117.80*** (33.12)
County-Pair×Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Subprime×Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Collection×Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Baseline Controls	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Distance Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Mean	0.010	0.010	1.83	1.85	2.23	2.23	311.42	306.06
Observations	4,854,079	4,854,079	8,886	6,096	4,854,079	4,854,079	8,886	6,096
Panel B: Credit Scores and Past-Due Balances								
Dependent Variable:	Credit Score				Balances Past Due			
	All	Low Income	Medium Income	High Income	All	Low Income	Medium Income	High Income
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Index	-1.79*** (0.64)	-1.75** (0.78)	-1.22** (0.57)	-1.30** (0.60)	12.60* (6.96)	28.45** (10.83)	12.85 (8.32)	6.36 (7.70)
County-Pair×Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Subprime×Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Collection×Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Baseline Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Distance Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Mean	667.13	600.97	670.71	750.11	212.07	200.19	254.95	184.60
Observations	16,533,065	2,734,772	9,049,455	4,748,838	16,533,065	2,734,772	9,049,455	4,748,838

Table IA.XII

Robustness to Excluding States that Banned Payday Lending: Balances, Limits, and Usage

All columns report estimates of the linear regression model specified in equation (1) excluding all consumers residing in states that banned payday lending within a two-year window of restricting collection practices (Georgia and Oregon). Observations are at the consumer-year level and standard errors, clustered at the state level, are reported in parentheses. The bottom rows specify the fixed effects and controls included in each column, as well as the mean of the dependent variable. Controls include unemployment, income per capita, health expenditures per capita, log population, and a house price index. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Panel A: Mainstream Credit Balances								
Dependent Variable:	Credit Balances				Revolving Credit Balances			
	All	Low Income	Medium Income	High Income	All	Low Income	Medium Income	High Income
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Index	-3430.94 (2681.64)	-1413.42*** (496.66)	-918.48 (1080.99)	-4869.97 (4886.72)	-68.43 (211.10)	-167.69*** (45.81)	-8.17 (100.77)	210.50 (342.01)
County-Pair×Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Subprime×Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Collection×Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Mean	53,548.78	13,296.46	39,360.56	135,120.56	5,498.42	1,038.56	4,286.58	14,372.15
Observations	16,097,528	2,648,840	8,801,850	4,646,838	16,097,528	2,648,840	8,801,850	4,646,838

Panel B: Mainstream Credit Limits and Usage								
Dependent Variable:	Revolving Credit Limits				Revolving Balance-to-Limit Ratio			
	All	Low Income	Medium Income	High Income	All	Low Income	Medium Income	High Income
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Index	-771.63 (854.17)	-655.11*** (198.88)	-205.45 (409.11)	-361.80 (1354.08)	0.78** (0.33)	1.49*** (0.51)	0.54** (0.23)	0.54 (0.33)
County-Pair×Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Subprime×Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Collection×Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Mean	23,449.89	3,682.33	18,074.42	62,751.29	62.73	89.52	61.80	30.12
Observations	16,097,528	2,648,840	8,801,850	4,646,838	16,097,528	2,648,840	8,801,850	4,646,838

Table IA.XIII

Robustness to Excluding States that Banned Payday Lending: Payday Borrowing and Past-Due Balances

All columns report estimates of the linear regression model specified in equation (1) excluding all consumers residing in states that banned payday lending within a two-year window of restricting collection practices (Georgia and Oregon). Observations are at the consumer-year level and standard errors, clustered at the state level, are reported in parentheses. The bottom rows specify the fixed effects and controls included in each column, as well as the mean of the dependent variable. Controls include unemployment, income per capita, health expenditures per capita, log population, and a house price index. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Panel A: Payday Borrowing								
Dependent Variable:	Payday Loans				Payday Loan Amount			
	All	All	Payday Borrower	Credit-Constrained	All	All	Payday Borrower	Credit-Constrained
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Index	0.006* (0.003)	0.007* (0.003)	1.693*** (0.492)	1.760*** (0.420)	0.465 (0.325)	0.585 (0.605)	75.027* (42.970)	115.646*** (36.766)
County-Pair×Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Subprime×Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Collection×Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Mean	0.010	0.010	1.841	1.862	2.276	2.276	313.981	308.910
Observations	4,729,327	4,729,327	8,766	6,030	4,729,327	4,729,327	8,766	6,030

Panel B: Credit Scores and Past-Due Balances								
Dependent Variable:	Credit Score				Balances Past Due			
	All	Low Income	Medium Income	High Income	All	Low Income	Medium Income	High Income
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Index	-2.18* (1.21)	-2.84** (1.27)	-1.55* (0.79)	-1.81 (1.45)	20.10*** (7.43)	45.19*** (14.52)	19.70** (9.24)	10.37 (10.28)
County-Pair×Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Subprime×Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Collection×Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Mean	667.50	601.23	670.91	750.22	212.54	200.49	255.70	184.97
Observations	16,097,528	2,648,840	8,801,850	4,646,838	16,097,528	2,648,840	8,801,850	4,646,838

Table IA.XIV

Robustness to Using First Legislation Changes: Balances, Limits, and Usage

All columns report estimates of the linear regression model specified in Equation (7). Observations are at the consumer-year level and standard errors, clustered at the state level, are reported in parentheses. The bottom rows specify the fixed effects and controls included in each column, as well as the mean of the dependent variable. Controls include unemployment, income per capita, health expenditures per capita, log population, and a house price index. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Panel A: Mainstream Credit Balances								
Dependent Variable:	Credit Balances				Revolving Credit Balances			
	All	Low Income	Medium Income	High Income	All	Low Income	Medium Income	High Income
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Treated×Post	-5738.52** (2393.18)	-1858.49** (694.04)	-2079.69* (1114.28)	-6668.67 (5182.80)	-383.27* (191.96)	-242.32*** (63.36)	-170.51 (113.44)	2.75 (347.81)
County-Pair×Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Mean	53,242.96	13,216.63	39,268.90	134,697.34	5,470.22	1,032.18	4,276.15	14,345.03
Observations	22,383,643	2,734,772	9,049,455	4,748,838	22,383,643	2,734,772	9,049,455	4,748,838
Panel B: Mainstream Credit Limits and Usage								
Dependent Variable:	Revolving Credit Limits				Revolving Balance-to-Limit Ratio			
	All	Low Income	Medium Income	High Income	All	Low Income	Medium Income	High Income
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Treated×Post	-2135.19** (837.60)	-956.85*** (292.88)	-1052.14** (499.62)	-1632.27 (1461.66)	2.91*** (0.87)	2.94*** (0.95)	1.88*** (0.55)	1.27** (0.48)
County-Pair×Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Mean	23,294.33	3,653.09	18,000.69	62,564.96	62.91	89.66	61.90	30.18
Observations	22,383,643	2,734,772	9,049,455	4,748,838	22,383,643	2,734,772	9,049,455	4,748,838

Table IA.XV

Robustness to Using First Legislation Changes: Payday Borrowing and Past-Due Balances

All columns report estimates of the linear regression model specified in Equation (7). Observations are at the consumer-year level and standard errors, clustered at the state level, are reported in parentheses. The bottom rows specify the fixed effects and controls included in each column, as well as the mean of the dependent variable. Controls include unemployment, income per capita, health expenditures per capita, log population, and a house price index. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Panel A: Payday Borrowing								
Dependent Variable:	Payday Loans				Payday Loan Amount			
	All	All	Payday Borrower	Credit-Constrained	All	All	Payday Borrower	Credit-Constrained
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Treated×Post	0.005* (0.003)	0.005 (0.003)	1.677** (0.632)	1.792*** (0.589)	0.402 (0.299)	0.461 (0.632)	93.284 (67.740)	142.633** (58.463)
County-Pair×Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Subprime×Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Collection×Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Mean	0.010	0.010	1.827	1.848	2.228	2.228	311.417	306.061
Observations	4,854,079	4,854,079	8,886	6,096	4,854,079	4,854,079	8,886	6,096
Panel B: Credit Scores and Past-Due Balances								
Dependent Variable:	Credit Score				Balances Past Due			
	All	Low Income	Medium Income	High Income	All	Low Income	Medium Income	High Income
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Treated×Post	-7.39*** (2.54)	-6.75** (2.62)	-5.04*** (1.68)	-4.11** (1.94)	21.36** (8.77)	44.91*** (14.47)	27.92** (11.81)	20.09 (13.67)
County-Pair×Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Mean	667.13	600.97	670.71	750.11	212.07	200.19	254.95	184.60
Observations	22,383,643	2,734,772	9,049,455	4,748,838	22,383,643	2,734,772	9,049,455	4,748,838

Table IA.XVI

Robustness to Excluding States that Loosened Restrictions: Balances, Limits, and Usage

All columns report estimates of the linear regression model specified in equation (1) excluding all consumers residing in states that lifted restrictions on debt collectors between 2000 and 2015 (Colorado, Florida, Louisiana, Maine, and Tennessee). Observations are at the consumer-year level and standard errors, clustered at the state level, are reported in parentheses. The bottom rows specify the fixed effects and controls included in each column, as well as the mean of the dependent variable. Controls include unemployment, income per capita, health expenditures per capita, log population, and a house price index. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Panel A: Mainstream Credit Balances								
Dependent Variable:	Credit Balances				Revolving Credit Balances			
	All	Low Income	Medium Income	High Income	All	Low Income	Medium Income	High Income
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Index	-3830.62 (2491.90)	-1177.56** (477.90)	-1280.22 (1029.29)	-4998.49 (4632.71)	-142.47 (192.17)	-155.91*** (43.76)	-72.91 (91.88)	150.51 (311.19)
County-Pair×Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Subprime×Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Collection×Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Mean	54,151.98	13,390.19	39,786.57	136,408.33	5,552.52	1,048.24	4,337.93	14,459.09
Observations	15,615,679	2,570,132	8,509,449	4,536,098	15,615,679	2,570,132	8,509,449	4,536,098

Panel B: Mainstream Credit Limits and Usage								
Dependent Variable:	Revolving Credit Limits				Revolving Balance-to-Limit Ratio			
	All	Low Income	Medium Income	High Income	All	Low Income	Medium Income	High Income
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Index	-1086.02 (786.41)	-630.29*** (185.97)	-418.38 (388.91)	-730.69 (1248.16)	1.00*** (0.32)	1.44*** (0.48)	0.78*** (0.25)	0.67** (0.31)
County-Pair×Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Subprime×Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Collection×Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Mean	23,662.49	3,730.75	18,274.33	63,072.77	62.49	89.37	61.49	30.03
Observations	15,615,679	2,570,132	8,509,449	4,536,098	15,615,679	2,570,132	8,509,449	4,536,098

Table IA.XVII

Robustness to Excluding States that Loosened Restrictions: Payday Borrowing and Past-Due Balances

All columns report estimates of the linear regression model specified in equation (1) excluding all consumers residing in states that lifted restrictions on debt collectors between 2000 and 2015 (Colorado, Florida, Louisiana, Maine, and Tennessee). Observations are at the consumer-year level and standard errors, clustered at the state level, are reported in parentheses. The bottom rows specify the fixed effects and controls included in each column, as well as the mean of the dependent variable. Controls include unemployment, income per capita, health expenditures per capita, log population, and a house price index. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Panel A: Payday Borrowing								
Dependent Variable:	Payday Loans				Payday Loan Amount			
	All	All	Payday Borrower	Credit-Constrained	All	All	Payday Borrower	Credit-Constrained
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Index	0.006** (0.003)	0.007** (0.003)	1.606*** (0.461)	1.629*** (0.377)	0.503* (0.296)	0.648 (0.616)	65.429 (42.951)	100.319*** (31.687)
County-Pair×Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Subprime×Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Collection×Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Mean	0.009	0.009	1.744	1.806	2.066	2.066	297.894	301.761
Observations	4,586,197	4,586,197	7,725	5,216	4,586,197	4,586,197	7,725	5,216

Panel B: Credit Scores and Past-Due Balances								
Dependent Variable:	Credit Score				Balances Past Due			
	All	Low Income	Medium Income	High Income	All	Low Income	Medium Income	High Income
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Index	-2.60** (1.12)	-2.67** (1.17)	-2.01*** (0.75)	-2.13 (1.36)	18.47** (7.54)	40.86*** (13.94)	18.23** (8.98)	10.85 (10.00)
County-Pair×Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Subprime×Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Collection×Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Mean	668.16	601.59	671.78	750.51	208.83	196.37	250.56	184.95
Observations	15,615,679	2,570,132	8,509,449	4,536,098	15,615,679	2,570,132	8,509,449	4,536,098

II. Survey

The pool of potential respondents consisted of the members of the Receivables Management Association International (RMAI), a trade association of third-party debt collectors and debt buyers. All members received an email with an invitation to participate in the survey and answer the following questions:

Over the last 12 months, did your company collect on, purchase, or sell payday loans? Please select one of the options below:

- a. Yes
- b. No

Over the last 12 months, approximately what percentage of your portfolio of receivables corresponded to payday loans? Please select one of the options below:

- a. 0%
- b. 0–5%
- c. 5–10%
- d. 10–20%
- e. 20–50%
- f. 50–75%
- g. More than 75%

Members were not compensated for taking part in the survey. The survey was conducted during the month of September 2021 and a total of 32 members responded to the survey—a response rate of 8%. Survey responses are summarized in Table I.

III. Debt Collection Legislation Changes

Nearly all changes to legislation regarding debt collection practices that I study were first identified by Fedaseyeu (2020), and are described in Appendix B of that work. His sources include the National Consumer Law Center's publication Fair Debt Collection, the National List of Attorneys white papers, and Google search. I independently validate all legislation changes identified in his study and add four legislation changes in three states, which are described below.

1. California, 2013: In 2013, California enacted legislation to restrict the debt collection activities of debt buyers. The bill stipulated that debt buyers could only collect on consumer debt, either in-house or through a third-party debt collector, if in possession of certain information concerning the debt, including proof of the debtor's agreement to the debt. It also created a private right of action for individuals, allowing them to bring suit against debt buyers who engage in illegal collection practices.
2. California, 2015: In 2015, California amended the 2013 bill to give debtors more time to challenge a judgment or a default judgment. Under the 2013 act, a judgment debtor could file a motion to set aside a judgment and for leave to defend an action related to the debt up to two years after the judgment was entered. This amendment extended the deadline for this recourse for up to six years after the judgment was entered, if the collector is a debt buyer or a third-party collector collecting on behalf of a debt buyer.
3. Minnesota, 2013: In 2013, Minnesota adopted an act to restrict to six years the statute of limitations during which actions can be taken against a debtor. It also required additional documentation from collectors entitled to a default judgment, including evidence that the consumer owes the debt and documentation establishing that the amount claimed to be owed is accurate.
4. Washington, 2013: In 2013, Washington extended its debt collection statutes to

debt buyers.

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