Household Credit and Spending Under Usury Limits

5th CEAR-RSI Household Finance Workshop

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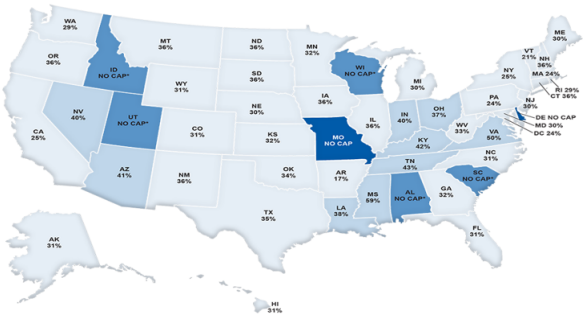
*The views expressed in this paper are those of the author and do not necessarily reflect the position of the Federal Reserve Bank of New York or the Federal Reserve System.

Resistance to high interest loans since ancient times

"You shall not lend upon interest to your brother, interest on money, interest on victuals, interest on anything that is lent for interest" – Deuteronomy 23:19

APR limit on 2-year $2,000 installment loan (NCLC)

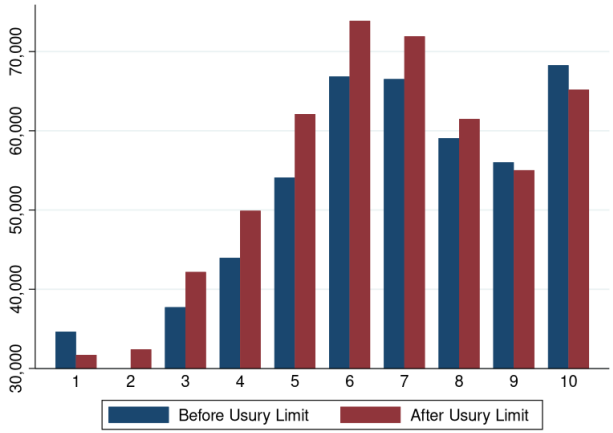


- 34 states plus DC cap loans at 36% or less
- 9 states cap between 36% and 60% APR

This Paper

- Research Question: How do usury limits (i.e. caps on interest rates) affect borrowers?
- Use (1) individual-level household credit bureau data and (2) individual-level consumer spending data to study usury limit changes in 5 states from 2016-2021
- Study access to credit, credit health and spending **according to borrower creditworthiness**

Lending to Riskiest Borrowers Drops After Usury Limits



Source: New York Fed Consumer Credit Panel/Equifax and authors' calculations

Key findings

1. Less credit is extended to the riskiest borrowers after usury limits
2. Lenders lend more to marginally lower risk borrowers
3. Some evidence of increased spending after usury limits for high risk borrowers

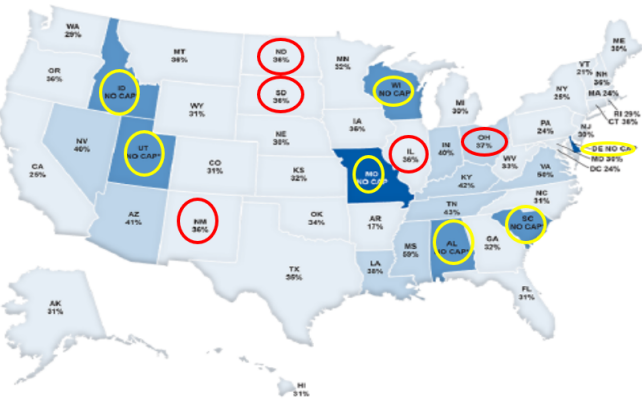
Literature Review

- Credit constraints from usury limits
  - Greer (1975); Villegas (1982); Benmelech and Moskowitz (2010); Rigbi (2013); Melzer and Schroeber (2017); Bolen, Elliehausen and Miller (2023); Cuester and Supelveda (2021); Bhutta, Golden and Homonoff (2016)
- Possible benefits of usury limits
  - Glaeser and Scheinkman (1998); Gabaix and Laibson (2006); Bertrand and Morse (2011); Stango and Zinman (2011); Laibson, Carrell and Zinman (2014); Coco and De Meza (2009)

Usury Limit Laws

- Usury caps ban the provision of high-cost credit
  - Driven by fear that these lenders take advantage of borrower behavioral biases
- After first national usury limit in 2007 under Military Lending Act, many states have enacted 36% caps or lower

Usury Limit Laws



- Compare changes treated states that capped rates from 2016-2021 to controls with no caps in that period

Usury Limit Laws

State	Law	Law Name	Passed	Effective	Limit
South Dakota	IM 21	South Dakota Payday Lending Initiative	11/8/2016	11/16/2016	36%
New Mexico	HB 347	Installment Loan Fee Limits & Literacy Fund	4/6/2017	1/1/2018	175%
Ohio	HB 123	Modify short-term, small, and mortgage loan laws	7/30/2018	4/27/2019	28%
Illinois	SB 1792	Predatory Loan Prevention Act	3/23/2021	3/23/2021	36%
North Dakota	SB 2103	Money Brokers Act	4/19/2021	8/1/2021	36%

Data

- National Consumer Law Center information on usury limits
- New York Fed/Equifax Consumer Credit Panel
- NielsenIQ Consumer Panel Data

Summary Statistics

Debt Balance Outcomes

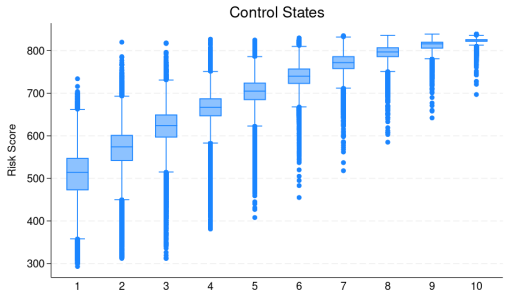
	Bottom Risk Decile				All Other Deciles			
	Mean	Median	StDev	Count	Mean	Median	StDev	Count
Total Debt	9652.31	4545.00	14066.00	4017068	11492.05	4201.00	21172.26	36148655
Average Loan Size	3487.89	1658.23	5558.52	3306108	3907.47	1851.71	8870.25	30988897
Num. Accounts	3.85	2.50	4.27	4017068	3.31	2.50	3.28	36148655
Observations	4017068				36148655			

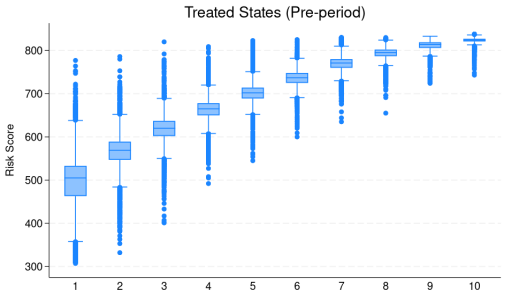
Credit Standing Outcomes

	Bottom Risk Decile				All Other Deciles			
	Mean	Median	StDev	Count	Mean	Median	StDev	Count
Risk Score	518.14	525.00	63.03	4017068	727.00	748.00	88.75	36148655
90+ Delinquent Share, Total	0.31	0.05	0.41	3688019	0.04	0.00	0.18	32748270
Num. Inquiries (12mo)	3.14	2.00	3.61	3406622	1.52	1.00	1.89	21476423
Observations	4017068				36148655			

Source: New York Fed Consumer Credit Panel/Equifax and authors' calculations

Distribution of credit scores





- Distribution of credit scores similar for control and treated states

Source: New York Fed Consumer Credit Panel/Equifax and authors' calculations

Difference-in-Difference Design

$$y_{ist} = \beta_1 Treat_s \times Post_t + \gamma_i + \tau_t + \epsilon_{ist}$$

- $Treat_s$ is 1 if state s passes a usury limit
- $Post_t$ is 1 if the usury limit has been passed
- γ_i, τ_t are individual and quarter fixed effects
- y_{ist} are different household borrowing and credit health outcomes
- Standard errors clustered at the state-by-quarter level

Little Change in Aggregate Borrowing

	Total Debt	Average Loan Size	Num. Accounts
Treated × Post	-44.14	-73.99***	-0.0102
	(-1.28)	(-4.59)	(-1.58)
Mean	11288.5	3864.1	3.359
N	40302185	34397194	40302185
Household FE	Yes	Yes	Yes
Zip Code FE	Yes	Yes	Yes
Quarter FE	Yes	Yes	Yes
Err. Cluster	State-quarter	State-quarter	State-quarter
R-Squared	0.686	0.469	0.796

- Dynamic difference-in-difference results look similar

Source: New York Fed Consumer Credit Panel/Equifax and authors' calculations

Little Change in Aggregate Credit Health

	Risk Score	90+ Delinquent Share, Total	Num. Inquiries (12mo)
Treated × Post	0.382***	0.00398***	-0.149***
	(3.66)	(8.88)	(-6.48)
Mean	706.0	0.0683	1.748
N	40302185	36534006	24933134
Household FE	Yes	Yes	Yes
Zip Code FE	Yes	Yes	Yes
Quarter FE	Yes	Yes	Yes
Err. Cluster	State-quarter	State-quarter	State-quarter
R-Squared	0.888	0.692	0.477

- Dynamic difference-in-difference results look similar

Source: New York Fed Consumer Credit Panel/Equifax and authors' calculations

Triple-Difference Design

$$y_{ist} = \beta_1 HighRisk_i \times Treat_s \times Post_t + \beta_2 HighRisk_i \times Post_t + \Gamma Age_{it} + \gamma_i + \tau_{zt} + \epsilon_{it}$$

- We now study borrowers lower risk scores (i.e. the main clientele for these loans)
- $HighRisk_i$ is 1 if individual i had a bottom decile credit score before the usury limit
- γ_i, τ_{zt} are individual and zip code-by-quarter fixed effects
- Standard errors clustered at the state-by-quarter level

Triple-difference – debt balances

	Total Debt	Average Loan Size	Num. Accounts
High-risk × Treated × Post	-1916.7***	489.6***	-0.678***
	(-26.45)	(5.91)	(-38.48)
Mean	11307.6	3866.9	3.363
N	40142498	34257537	40142498
Household FE	Yes	Yes	Yes
Zip Code-quarter FE	Yes	Yes	Yes
Err. Cluster	State-quarter	State-quarter	State-quarter
R-Squared	0.688	0.490	0.797

- Debt balances decrease for high-risk borrowers, driven by a drop in accounts

Source: New York Fed Consumer Credit Panel/Equifax and authors' calculations

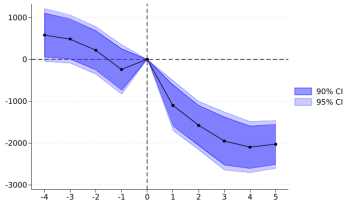
Triple-difference – credit profile

	Risk Score	90+ Delinquent Share, Total	Num. Inquiries (12mo)
High-risk × Treated × Post	22.30***	0.0409***	-0.431***
	(14.65)	(9.74)	(-16.16)
Mean	706.1	0.0683	1.747
N	40142498	36400649	24826526
Household FE	Yes	Yes	Yes
Zip Code-quarter FE	Yes	Yes	Yes
Err. Cluster	State-quarter	State-quarter	State-quarter
R-Squared	0.889	0.694	0.482

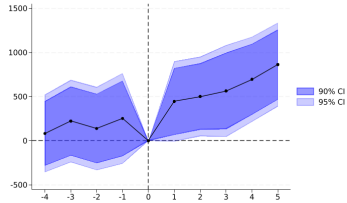
- Risk scores increase, but so do delinquencies.

Source: New York Fed Consumer Credit Panel/Equifax and authors' calculations

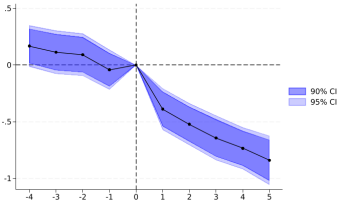
Dynamic triple-difference – debt balances



(a) Total Debt



(b) Average Debt Balance

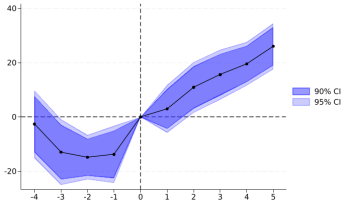


(c) # Accounts

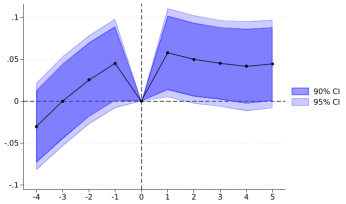
- Parallel trends assumption appears valid

Source: New York Fed Consumer Credit Panel/Equifax and authors' calculations

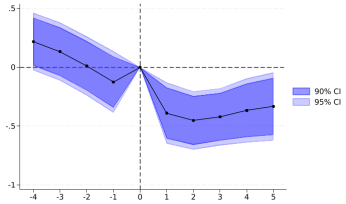
Changes in credit standing for high-risk borrowers



(a) Risk Score



(b) % Balance Delinquent



(c) # Inquiries

- Increase in risk scores is driven by a pre-trend

Source: New York Fed Consumer Credit Panel/Equifax and authors' calculations

How do Lenders Respond

- Lenders could respond to usury limits by:
  1. Leaving the state
  2. Lending to more creditworthy borrowers at lower rates
- To examine whether lenders reallocate to other borrowers, we look at lending for borrowers in the 2nd, 3rd, 4th and 5th deciles of risk scores relative to all borrowers with high risk scores

Reallocation results

	Total Debt	90+ Delinquent Share, Total	Num. Inquiries (12mo)
Decile 2 × Treated × Post	-74.72	0.00530	0.0445***
	(-1.01)	(1.46)	(3.42)
Decile 3 × Treated × Post	1061.8***	0.00602***	0.0196
	(19.47)	(3.24)	(1.43)
Decile 4 × Treated × Post	1335.0***	0.00315***	-0.0361***
	(16.07)	(5.47)	(-3.28)
Decile 5 × Treated × Post	1134.2***	0.00262***	-0.0273***
	(8.70)	(5.61)	(-2.99)

- Lending to slightly more creditworthy borrowers increases
- Parallel trend assumption appears reasonable from dynamic DiD plot

Source: New York Fed Consumer Credit Panel/Equifax and authors' calculations

Do Usury Limits Affect Spending?

- It's possible that usury limits either:
  1. Increase spending for affected borrowers if they are trapped by high cost debt or
  2. Reduces spending for affected borrowers if high cost debt is needed to fund spending
- Use Nielsen data to study changes in spending after usury limits for zip codes with high populations of risky borrowers

Summary Statistics

	Bottom Risk Decile				All Other Deciles			
	Mean	Median	StDev	Count	Mean	Median	StDev	Count
Total Spending	2057.10	1665.71	1527.55	19803	2079.60	1706.81	1521.70	197270
Total Food Spending	700.40	561.05	512.32	19514	760.90	642.59	525.15	195298
Total Non-Food Spending	516.87	366.33	523.92	19514	501.34	360.50	517.65	195298
Total Essential Spending	804.70	646.72	581.08	19514	861.56	723.84	598.58	195298
Total Non-Essential Spending	412.58	278.22	457.27	19514	400.68	278.42	439.43	195298
Observations	21729				217216			

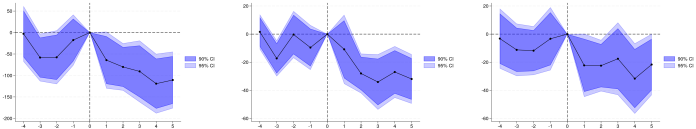
Source: NielsenIQ Consumer Panel Dataset; Total US 2015–2022

Difference-in-differences – Spending Data

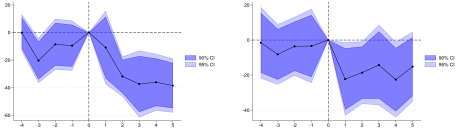
	Overall	Food	Non-Food	Essential	Non-Essential
Treated × Post	-70.91***	-22.93***	-18.32***	-25.39***	-15.86***
	(-3.64)	(-3.91)	(-3.26)	(-3.85)	(-3.17)
Mean	2081.1	756.3	504.4	857.8	402.9
N	216493	214228	214228	214228	214228
Household FE	Yes	Yes	Yes	Yes	Yes
Quarter FE	Yes	Yes	Yes	Yes	Yes
Err. Cluster	State-quarter	State-quarter	State-quarter	State-quarter	State-quarter
Nielsen Weights	Yes	Yes	Yes	Yes	Yes
R-Squared	0.751	0.751	0.748	0.754	0.730

- Spending declines in the aggregate

Dynamic difference-in-differences – Spending data



(a) All Spending (b) Food (c) Non-Food



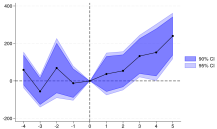
(d) Necessity (e) Non-Necessity

Triple-difference – Spending Data

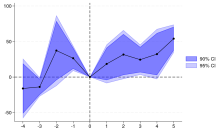
	Overall	Food	Non-Food	Essential	Non-Essential
High Risk Zip Code × Treated × Post	109.0***	25.88**	11.80	19.47	18.21*
	(3.51)	(2.39)	(0.93)	(1.56)	(1.68)
Mean	2148.5	772.0	522.9	883.6	411.3
N	216493	214228	214228	214228	214228
Household FE	Yes	Yes	Yes	Yes	Yes
Quarter FE	Yes	Yes	Yes	Yes	Yes
Err. Cluster	State-quarter	State-quarter	State-quarter	State-quarter	State-quarter
Nielsen Weights	Yes	Yes	Yes	Yes	Yes
R-Squared	0.752	0.752	0.749	0.756	0.732

- Increase in spending for zip codes with high population of risky borrowers.

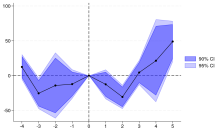
Dynamic triple-difference – Spending data



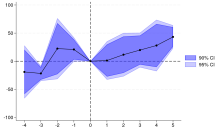
(a) All Spending



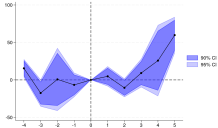
(b) Food



(c) Non-Food



(d) Necessity



(e) Non-Necessity

Other Results

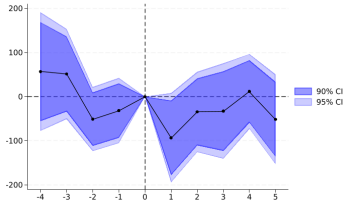
- Results are similar when conducting a difference-in-differences analysis within the treated states, comparing high-risk borrowers to others
- Results hold when dropping Ohio, and dropping the COVID years
- Results similar when only using Wisconsin and Utah as controls
- Spending results similar when making weighting proportional to state-populations

Conclusion and Future Work

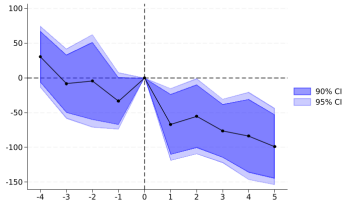
- Results show that lending decreases to high-risk borrowers after usury limits
- Does not appear to be associated with improved credit standing, although spending seems to increase
- Lenders seem to reallocate credit to marginally lower-risk borrowers
- Future Work:
  - What drives the increase in spending for high-risk borrowers.

Appendix

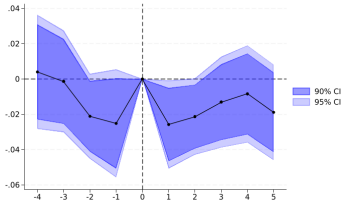
Little Change in Aggregate Borrowing



(a) Total Debt



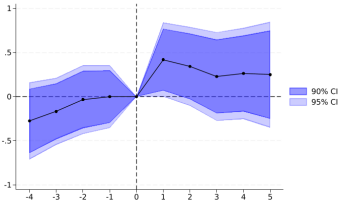
(b) Average Debt Balance



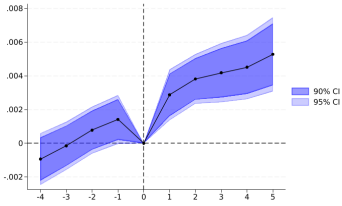
(c) # Accounts

Source: New York Fed Consumer Credit Panel/Equifax and authors' calculations

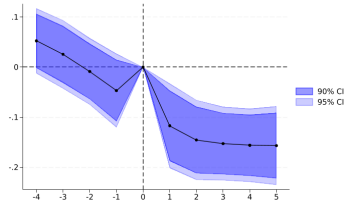
Little Change in Aggregate Credit Health



(a) Risk Score



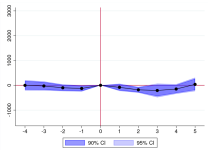
(b) % Balance Delinquent



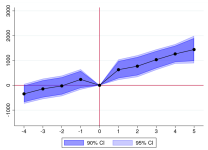
(c) # Inquiries

Source: New York Fed Consumer Credit Panel/Equifax and authors' calculations

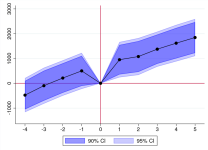
Reallocation of balances results – dynamic difference-in-differences



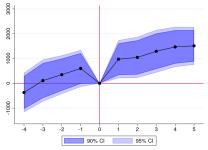
(a) 2nd Decile



(b) 3rd Decile



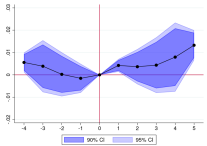
(c) 4th Decile



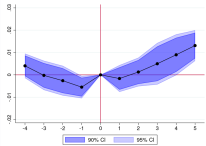
(d) 5th Decile

Source: New York Fed Consumer Credit Panel/Equifax and authors' calculations

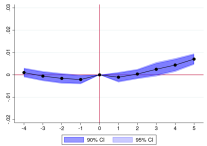
Reallocation of delinquencies results – dynamic difference-in-differences



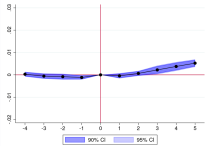
(a) 2nd Decile



(b) 3rd Decile



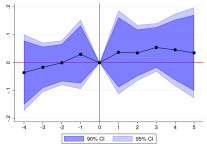
(c) 4th Decile



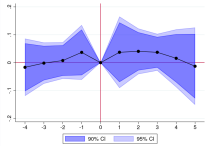
(d) 5th Decile

Source: New York Fed Consumer Credit Panel/Equifax and authors' calculations

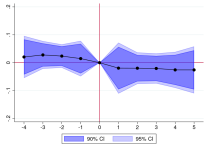
Reallocation of inquiries results – dynamic difference-in-differences



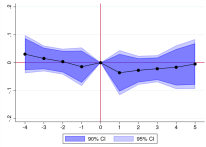
(a) 2nd Decile



(b) 3rd Decile



(c) 4th Decile



(d) 5th Decile

Source: New York Fed Consumer Credit Panel/Equifax and authors' calculations

Difference-in-differences within treated states – debt balance outcomes

	Total Debt	Average Loan Size	Num. Accounts
High-risk × Post	-1754.4***	481.2***	-0.630***
	(-20.07)	(5.20)	(-30.92)
Mean	11253.8	3362.8	3.744
N	10382710	9302806	10382710
Household FE	Yes	Yes	Yes
Zip Code FE	Yes	Yes	Yes
Quarter FE	Yes	Yes	Yes
Err. Cluster	State-quarter	State-quarter	State-quarter
R-Squared	0.830	0.686	0.907

Source: New York Fed Consumer Credit Panel/Equifax and authors' calculations

Difference-in-differences within treated states – credit outcomes

	Risk Score	90+ Delinquent Share, Total	Num. Inquiries (12mo)
High-risk × Post	22.05***	0.0424***	-0.430***
	(13.09)	(9.81)	(-15.36)
Mean	711.1	0.0621	1.494
N	10382710	9421040	6057918
Household FE	Yes	Yes	Yes
Zip Code FE	Yes	Yes	Yes
Quarter FE	Yes	Yes	Yes
Err. Cluster	State-quarter	State-quarter	State-quarter
R-Squared	0.928	0.815	0.575

Source: New York Fed Consumer Credit Panel/Equifax and authors' calculations

Difference-in-differences within treated states – spending outcomes

	Overall	Food	Non-Food	Essential	Non-Essential
High Risk Zip Code × Post	109.5**	26.68*	10.66	20.37	16.98
	(3.44)	(2.37)	(0.82)	(1.58)	(1.52)
Mean	2094.7	738.4	504.9	845.4	397.8
N	57383	56889	56889	56889	56889
Household FE	Yes	Yes	Yes	Yes	Yes
State-quarter FE	Yes	Yes	Yes	Yes	Yes
Nielsen Weights	Yes	Yes	Yes	Yes	Yes
Err. Cluster	State-quarter	State-quarter	State-quarter	State-quarter	State-quarter
R-Squared	0.796	0.793	0.787	0.800	0.747

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Triple-difference dropping Ohio states – debt balance outcomes

	Total Debt	Average Loan Size	Num. Accounts
High-risk × Treated × Post	-1831.7***	646.7***	-0.659***
	(-21.15)	(4.30)	(-24.14)
Mean	11331.3	3959.9	3.293
N	35800003	30324360	35800003
Household FE	Yes	Yes	Yes
Zip code-quarter FE	Yes	Yes	Yes
Err. Cluster	State-quarter	State-quarter	State-quarter
R-Squared	0.672	0.477	0.781

Source: New York Fed Consumer Credit Panel/Equifax and authors' calculations

Triple-difference dropping Ohio states – credit outcomes

	Risk Score	90+ Delinquent Share, Total	Num. Inquiries (12mo)
High-risk × Treated × Post	24.34***	0.0405***	-0.417***
	(10.99)	(6.11)	(-9.62)
Mean	706.4	0.0697	1.761
N	35800003	32454298	22117369
Household FE	Yes	Yes	Yes
Zip code-quarter FE	Yes	Yes	Yes
Err. Cluster	State-quarter	State-quarter	State-quarter
R-Squared	0.884	0.685	0.474

Source: New York Fed Consumer Credit Panel/Equifax and authors' calculations

Triple-difference dropping Ohio – spending outcomes

	Overall	Food	Non-Food	Essential	Non-Essential
High Risk Zip Code × Treated × Post	59.55	0.251	-13.89	-18.39	4.741
	(1.25)	(0.01)	(-0.83)	(-1.01)	(0.34)
High Risk Zip Code × Treated	-249.4	-221.0***	-74.09	-213.3***	-81.82
	(-1.41)	(-4.33)	(-1.48)	(-4.30)	(-1.62)
Mean	2083.2	765.3	505.8	866.5	404.6
N	190403	188406	188406	188406	188406
Household FE	Yes	Yes	Yes	Yes	Yes
State-quarter FE	Yes	Yes	Yes	Yes	Yes
Nielsen Weights	Yes	Yes	Yes	Yes	Yes
Err. Cluster	State-quarter	State-quarter	State-quarter	State-quarter	State-quarter
R-Squared	0.749	0.746	0.746	0.750	0.732

t statistics in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Triple-difference dropping COVID years – debt balance outcomes

	Total Debt	Average Loan Size	Num. Accounts
High-risk × Treated × Post	-1918.7***	480.0**	-0.617***
	(-12.64)	(2.64)	(-12.23)
Mean	10804.6	3969.9	3.226
N	31756004	25993304	31756004
Household FE	Yes	Yes	Yes
Zip code-quarter FE	Yes	Yes	Yes
Err. Cluster	State-quarter	State-quarter	State-quarter
R-Squared	0.752	0.499	0.815

Source: New York Fed Consumer Credit Panel/Equifax and authors' calculations

Triple-difference dropping COVID years – credit outcomes

	Risk Score	90+ Delinquent Share, Total	Num. Inquiries (12mo)
High-risk × Treated × Post	14.63***	0.0461***	-0.444***
	(6.33)	(10.79)	(-16.27)
Mean	702.1	0.0643	1.798
N	31756004	28918835	20377322
Household FE	Yes	Yes	Yes
Zip code-quarter FE	Yes	Yes	Yes
Err. Cluster	State-quarter	State-quarter	State-quarter
R-Squared	0.902	0.721	0.534

Source: New York Fed Consumer Credit Panel/Equifax and authors' calculations

Triple-difference dropping COVID years – spending outcomes

	Overall	Food	Non-Food	Essential	Non-Essential
High Risk Zip Code × Treated × Post	119.8***	52.42***	6.899	49.50***	9.816
	(2.82)	(5.11)	(0.53)	(4.08)	(1.01)
High Risk Zip Code × Treated	-183.9*	-56.19**	-18.76	-42.84	-32.11
	(-1.83)	(-2.30)	(-0.71)	(-1.56)	(-1.28)
Mean	1964.0	660.1	452.0	751.1	361.0
N	171199	171618	171618	171618	171618
Household FE	Yes	Yes	Yes	Yes	Yes
State-quarter FE	Yes	Yes	Yes	Yes	Yes
Nielsen Weights	Yes	Yes	Yes	Yes	Yes
Err. Cluster	State-quarter	State-quarter	State-quarter	State-quarter	State-quarter
R-Squared	0.768	0.775	0.765	0.778	0.744

t statistics in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Triple-difference with WI and UT – debt balance outcomes

	Total Debt	Average Loan Size	Num. Accounts
High-risk × Treated × Post	-1918.6***	490.1***	-0.679***
	(-26.46)	(5.83)	(-38.26)
Mean	10721.5	3499.4	3.436
N	19928410	17424810	19928410
Household FE	Yes	Yes	Yes
Zip Code-quarter FE	Yes	Yes	Yes
Err. Cluster	State-quarter	State-quarter	State-quarter
R-Squared	0.745	0.547	0.845

Source: New York Fed Consumer Credit Panel/Equifax and authors' calculations

Triple-difference with WI and UT – credit outcomes

	Risk Score	90+ Delinquent Share, Total	Num. Inquiries (12mo)
High-risk × Treated × Post	22.34***	0.0408***	-0.431***
	(14.41)	(9.60)	(-15.91)
Mean	719.7	0.0519	1.376
N	19928410	18112142	11161996
Household FE	Yes	Yes	Yes
Zip Code-quarter FE	Yes	Yes	Yes
Err. Cluster	State-quarter	State-quarter	State-quarter
R-Squared	0.903	0.742	0.507

Source: New York Fed Consumer Credit Panel/Equifax and authors' calculations

Triple-difference with WI and UT – spending outcomes

	Overall	Food	Non-Food	Essential	Non-Essential
High Risk Zip Code × Treated × Post	109.7***	26.40**	11.70	20.07	18.03
	(3.48)	(2.41)	(0.91)	(1.59)	(1.65)
High Risk Zip Code × Treated	-824.3***	-193.5	-168.5***	-207.1	-154.8***
	(-3.65)	(-1.31)	(-3.94)	(-1.38)	(-4.05)
Mean	2050.2	753.1	494.6	853.1	394.6
N	109791	108909	108909	108909	108909
Household FE	Yes	Yes	Yes	Yes	Yes
State-quarter FE	Yes	Yes	Yes	Yes	Yes
Nielsen Weights	Yes	Yes	Yes	Yes	Yes
Err. Cluster	State-quarter	State-quarter	State-quarter	State-quarter	State-quarter
R-Squared	0.760	0.764	0.755	0.769	0.727

t statistics in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Triple-difference with alternative weighting

	Overall	Food	Non-Food	Essential	Non-Essential
High Risk Zip Code × Treated × Post	109.4***	25.88**	12.00	19.55	18.34*
	(3.52)	(2.38)	(0.94)	(1.56)	(1.69)
High Risk Zip Code × Treated	-272.0***	-92.56***	15.06	-78.42**	0.917
	(-3.45)	(-2.66)	(0.60)	(-2.20)	(0.04)
Mean	2148.5	772.0	522.9	883.6	411.3
N	216493	214228	214228	214228	214228
Household FE	Yes	Yes	Yes	Yes	Yes
Quarter FE	Yes	Yes	Yes	Yes	Yes
Err. Cluster	State-quarter	State-quarter	State-quarter	State-quarter	State-quarter
Adjusted Nielsen Weights	Yes	Yes	Yes	Yes	Yes
R-Squared	0.752	0.752	0.749	0.756	0.731