

Effects of Illinois' 36% Interest Rate Cap on Small-Dollar Credit Availability and Financial Well-Being

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Abstract

Economic theory predicts that a binding interest-rate cap decreases credit availability for high-risk borrowers. On March 23, 2021, Illinois imposed an all-in interest-rate cap of 36 percent per annum for loans under \$40,000 from non-bank and non-credit-union lenders. We use credit bureau data for Illinois and its neighboring state, Missouri, a state without any legislated interest-rate cap, to estimate the effects of the Illinois rate cap on unsecured installment loans. Using difference-in-differences-in-differences estimation, we find that the interest-rate cap decreased the number of loans to subprime borrowers by 44 percent and increased the average loan size to subprime borrowers by 40 percent. We examine the welfare effects of the loss of credit access using an online survey of short-term, small-dollar-credit borrowers in Illinois. Most borrowers answer that they have been unable to borrow money when they needed it following the imposition of the interest-rate cap. Further, only 11 percent of the respondents answered that their financial well-being increased following the interest-rate cap, and 79 percent answered that they wanted the option to return to their previous lender. Thus, the Illinois interest-rate cap of 36 percent significantly decreased the availability of small-dollar credit, particularly to subprime borrowers, and worsened the financial well-being of many consumers.

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I. Introduction

Disapprobation of high interest rates reflects a longstanding and widely held belief that lenders take advantage of needy individuals by charging high interest and imposing harsh terms. Interest-rate restrictions existed in the earliest credit contracts in antiquity and enjoyed the support of the Mosaic Law, Aristotle, Plato and later the Medieval Christian Church, and, perhaps surprisingly, Adam Smith among others.¹

In the US, interest-rate caps inherited from England permeated states' consumer-credit regulation until the late 20th century. When inflation led to high interest rates, these rates were often incompatible with the existing interest rate ceilings. As a result, many states relaxed their interest-rate caps to increase credit availability. More recently, proponents of rate caps have succeeded in reinstating interest rate caps, often with a maximum rate of 36 percent.

On March 23, 2021, the Predatory Loan Prevention Act became law in Illinois. The Act sets a 36 percent "all-in APR [also known as the Military Annual Percentage Rate (MAPR)] rate ceiling for "loans below \$40,000 for all consumer credit products from any person or entity that offers or makes a loan to a consumer in Illinois." In including non-credit charges in calculating the finance rate, an all-in rate ceiling is more restrictive than a Truth in Lending rate ceiling.

Banks and credit unions are exempt from the Illinois rate ceiling. The Act, however, prohibits lending under a bank partnership model or using other structured entities designed to evade the law. The act extends to lenders operating outside of Illinois who make loans to consumers in Illinois (e.g., online lenders). The act, however, does not apply to Illinois residents who travel out of state to enter a loan agreement.²

¹ Smith (1994 [1776]) argued that under a regulatory ceiling, lenders "universally prefer" "sober people" to "prodigals and projectors" and are able to discriminate accordingly.

² The law can be found at <https://www.ilga.gov/legislation/ilcs/ilcs5.asp?ActID=4088&ChapterID=67>. An overview of the law can be found at <https://www.consumerfinancemonitor.com/2021/03/25/>.

In this study, we document the effects of Illinois 36 percent interest-rate cap on borrowers in Illinois over four consecutive quarters: Q4 2020 through Q3 2021. We preselected Missouri as the comparison state for a natural experiment to measure the effects of the 36 percent interest-rate cap on credit availability in Illinois. The neighboring state of Missouri is, in many respects, like Illinois but has no legislated interest rate cap—making Missouri a natural comparison state to study the effects of the Illinois rate cap on Illinois consumers.

Economic theory predicts that an interest-rate cap, when binding, creates shortages, reduces gains from trade, and imposes search costs on consumers in competitive credit markets. High-risk borrowers, in particular, experience credit rationing as interest-rate caps prevent lenders from profitably extending credit to these individuals. Low-risk borrowers, on the other hand, might enjoy greater credit availability at lower rates.

This paper focuses on unsecured installment loans that are provided by banks, credit unions, and state licensed finance companies. We refer to these loans hereafter as unsecured installment loans.³ These loans are a fixture in the small-dollar installment loan industry, which was created a century ago by a collaboration between some state-regulated lenders and reformers that sought to eliminate disreputable high-rate lenders (i.e., “loan sharks”) and attract capital to regulated lending.⁴

Because of their small size, the costs of producing unsecured installment loans are high relative to loan size. Consequently, interest rates must be high on these loans to be profitable (National Commission on Consumer Finance 1972, Chen and Elliehausen 2020). Chen and Elliehausen (2020) estimate that a 36

³ A 36 percent interest-rate cap is generally not binding for many common forms of credit used by consumers, including credit cards, student loans, and auto loans because the prevailing market-determined interest rates for these products are below 36 percent.

⁴ The American Association of Small Brokers represented lenders in a few states that experimented with small loan laws regulating consumer lending. The main reform advocate was the Russell Sage Foundation. At that time, loan sharks charged high rates of interest that were illegal and often imposed harsh terms, but they were not the racketeer loan sharks that emerged later. For a complete description of the workings of small-dollar lending products, see, e.g., Miller (2018) and Bolen, Elliehausen, and Miller (2020). For a discussion of how the small-dollar installment lending industry was created, see Robinson and Nugent (1935), Calder (1999), Durkin, et al. (2014).

percent loan requires a loan size of about \$2,900 for lenders to breakeven. Illinois' 36 percent all-in APR is, therefore, likely to be binding on unsecured installment loans from finance companies and, in general, other forms of small-dollar consumer credit.

We focus on unsecured installment loans because lenders offering this small-dollar consumer credit product commonly use and report to traditional credit bureaus. Our county-level dataset consists of credit bureau data for Illinois and Missouri that include the number and average size of loans by VantageScore® credit score bucket for unsecured installment credit by three types of lenders: banks, credit unions, and finance companies. This dataset allows us to use a difference-in-differences-in-differences approach to study the impact of Illinois' newly imposed interest-rate cap. The key assumption of our study is that the credit experience of Missourians is an appropriate counterfactual for what the credit experience of Illinoisans would have been if the 36 percent interest rate cap had not been imposed. This assumption is known as the parallel trends assumption, and we provide evidence in support of this assumption in the results section of this paper.

In our sample, banks and credit unions supplied about 25 percent of the unsecured installment loans. Despite being explicitly exempt from the new Illinois law, banks and credit unions in Illinois did not materially increase their supply of these loans after the interest-rate cap was enacted. We find that there was a 44 percent decrease in the number of loans to subprime borrowers in Illinois, and the average loan size to subprime borrowers in Illinois increased by 40 percent. This increase in average loan size is consistent with the notion that a larger loan size is needed to make small loans profitable at a maximum rate of 36 percent.

We use a survey of short-term, small-dollar credit borrowers in Illinois to examine the welfare effects of the loss of credit access. In this survey of borrowers whose lenders ceased operations in Illinois due to the interest-rate cap, most borrowers say that their unsecured installment loan helped their financial situation at the time, that they lack alternative credit options, and that they would like the option

to return to their previous lender. Nearly 40 percent of respondents indicated that their financial well-being has declined since the imposition of the interest-rate cap, while only 11 percent of the respondents indicated that their financial well-being improved over the same period. Further, respondents indicated that they have faced difficult circumstances since the losing access to their lender, including paying bills late and generating fees, cutting back on everyday expenses, being contacted by debt collectors, skipping urgent appointments, and having utilities turned off. Thus, the contribution of our study is that the Illinois 36 percent interest-rate cap significantly decreased the availability of small-dollar credit and worsened the self-reported financial well-being of many consumers.

II. The Credit Product, its History, and Previous Literature

II-A. The Credit Product

As we discuss in a following section, the product for which we have credit bureau data is labeled, “unsecured installment loans.” Unsecured installment loans from lenders who report to traditional credit bureaus are an understudied source of non-bank small-dollar credit. Unsecured installment loans have equal payments that will fully amortize the debt when the borrower has made the last payment. That is, the payments consist of interest and an amount of principal that reduces the principal owed to zero.⁵

II-B. A Short History of Unsecured Installment Loans

A century ago, consumer advocates and capitalists jointly created the state-regulated industry for making small-dollar, nonbank installment loans through model legislation known as the Uniform Small Loan Law of 1916. The purpose of establishing this industry was to provide a lower-cost, legal alternative

⁵ In that way, unsecured installment loan payments are like the familiar sales finance credit, which finances the purchase of appliances, furniture, or vehicles. Unlike sales finance credit, however, borrowers can use the proceeds from an unsecured installment loan in any manner (such uses as emergencies, taxes, repairs, and utility payments are common examples).

to consumers, who were turning to illegal lenders, even then known as “loan sharks,” for small cash loans. A key feature of the law was to allow lenders to charge rates that enabled them to cover costs and earn a market return on invested capital.

The Uniform Small Loan Law of 1916 helped states frame legislation surrounding the small-dollar installment-loan industry. The allowable interest rate on small-dollar loans in the model legislation ranged from 36 to 42 percent per annum. Notably, this cap was significantly higher than the typical six percent usury rate that existed at the time under the laws of most states. The states have had 100 plus years to hone their regulations regarding aspects of this consumer credit product. Chapter 5 of Volume I of the CFPB’s (2021) Taskforce report details the history of small-dollar lending.⁶

II-C. Previous Literature on Interest Rate Caps and on Unsecured Installment Loans

As detailed, for example, in Durkin, Elliehausen, Staten, and Zywicki (2014), and Bolen, Elliehausen, and Miller (2022, 2020), capping interest rates has been popular with church authorities and governments for centuries. In the United States, regulations intended to protect consumers in credit transactions generally fall into two categories: regulating the conduct of firms in the credit marketplace or regulating the credit product terms. Conduct regulations include state and federal requirements or restrictions on the behavior of debt collectors, recordkeeping by credit bureaus, lenders’ sales practices, and the use of personal characteristics in credit decisions.⁷ Credit-product-terms regulations include state restrictions on interest rates, loan rollovers, and maximum maturity terms.

Historically, the states and the federal government have used different approaches to regulate

⁶ Volume I of the Taskforce Report contains an extensive summary of many aspects of consumer credit, including the extent and growth of consumer credit, the demand for and the supply of consumer credit, the historic development of consumer financial protection, and more. Volume II of the Taskforce Report contains 102 recommendations that can serve as a source of refutable hypotheses for future researchers.

⁷ Many credit laws at the state level apply to conduct. Notable federal laws, and their updates, include the Fair Credit Reporting Act of 1970, the Equal Credit Opportunity Act of 1974, and the Fair Debt Collection Practices Act of 1978.

credit contract terms. Interest-rate caps, maximum loan size, and maximum maturity terms have long been used at the state level. The federal government has largely avoided interest-rate caps, with the notable exception of the 36 percent cap in the Military Lending Act that applies to military personnel and their dependents.⁸

As we detail below, Blitz and Long (1965) provided a theoretical framework that predicts high-risk borrowers are more affected by binding interest-rate caps than low-risk borrowers. Blitz and Long's (1965) theoretical predictions are supported by empirical analyses of the personal loan market conducted for the National Commission on Consumer Finance (1972). Analyses indicated that low rate ceilings were associated with less credit obtained by higher-risk consumers. Bowsher (1974) states that interest-rate caps weigh most heavily on the riskiest credit seekers.

More recent work on the overall impact of rate ceilings includes Peterson and Falls (1981), Villegas (1989), and Zinman (2010). Villegas (1989) found that low interest-rate ceilings reduced the quantity of credit available to low- and middle-income households. Peterson and Falls (1981) and Zinman (2010) find that these borrowers are forced to shift into more expensive substitutes, worsening the financial condition of borrowers. McKernan, Ratcliffe, and Kuehn (2013) find that lower price caps and prohibitions lead to lower overall credit product use. Black and Miller (2016) summarize evidence that imposing interest-rate caps harms the very people the proponents of such laws seek to protect.

One set of identifiably risky borrowers is those with sub-prime credit scores. Sub-prime borrowers constitute a significant percentage of customers who use the unsecured installment loan product.

⁸ The issue of an interest rate cap swirled in deliberations and discussions for years in the 1960s. Notably, it is featured in a 1967 floor debate between the co-sponsors of the Truth in Lending Bill, Senators William Proxmire (D Wisconsin) and Frank Lausche (D Ohio). See <http://www.ilsdc.org/assets/TILAdocs/tila-lh-cr-1967-01-31.pdf>. Representative Leonor Sullivan (D Missouri), an ardent consumer advocate, had introduced HR 11601 sent to the House Banking and Currency Committee. Sullivan's bill incorporated the Senate's disclosure bill and added four additional provisions to the Senate's version of the Truth in Lending Act bill, including an 18 percent annual rate ceiling on all credit transactions in the United States. The House amended the bill to exclude the interest-rate cap but included language to establish the bipartisan National Commission on Consumer Finance. The vote was 383-4. President Johnson signed the Truth in Lending Act into law in May 1968.

Benmelech and Moskowitz (2010) find that imposing interest-rate restrictions hurts financially-challenged households. Rigbi (2013) summarizes results from the literature showing lower rate caps nearly always reduce the amount of credit extended, especially to high-risk borrowers.

As documented by Bolen, Elliehausen, and Miller (2020), no state bans unsecured installment loans. They also show that, for most states, the regulations on the maximum maturity, loan size, and interest rate allowed are quite specific. Interest-rate caps, however, affect the market for this product. Although the industry has existed for a century, scant academic research exists on this specific credit product.

Little direct research on this industry has been conducted since the publication of the 1972 report of the National Commission on Consumer Credit. The American Financial Services Association (AFSA) is the trade association for the traditional installment loan industry, which makes unsecured installment loans. The AFSA collected data from its members on their loan portfolios. Two papers emerged from this dataset. Durkin, Elliehausen, and Hwang (2017) provides an overview of the AFSA dataset. They report that states with relatively low interest-rate ceilings have relatively fewer loans. Lukongo and Miller (2022) study the effects of the constitutionally imposed 17 percent interest rate cap in Arkansas. They document that Arkansas residents use small-dollar installment loans from finance companies at a much lower rate than the residents in the six bordering states. Further, they show that nearly all the loans are made to residents in counties that border other states. Overall, their findings are consistent with the hypothesis that the interest rate cap in Arkansas restricts overall credit availability, especially for non-prime borrowers living in the interior counties of Arkansas.⁹

The aim of this paper is to examine the effect of the “all-in” MLA-type interest rate cap imposed in Illinois. To date, no study has examined the effect of such an “all-in” MLA-type interest rate cap on

⁹There are two other papers that study the industry, but they relied on survey data only (Durkin and McAlister [1977]; Miller [2015]).

unsecured installment loans. Carrell and Zinman (2014) however, conduct a quasi-experimental study to test the effect of access to another type of small-dollar loan, payday loans, on military performance. They conclude that payday loan access decreases military performance, as measured by reenlistment eligibility and the occurrence of Unfavorable Information Files. By contrast, Carter and Skimmyhorn (2017) find no adverse effects on military performance resulting from payday loan access. Carter and Skimmyhorn (2017) argue that, relative to Carrell and Zinman (2014), their study has fewer data limitations, a more accurate measure of payday loan access (individual level rather than aggregate data), more outcomes over several time periods, and multiple identification strategies. Carter and Skimmyhorn (2017) find no evidence of the Department of Defense's claim in support of the MLA that "predatory lending undermines military readiness" (Department of Defense [2006], p. 9). In fact, the Carter and Skimmyhorn (2017) results suggest that payday restrictions for military members could adversely affect military members.

III. Model

III-A. The Economic Effects of Interest Rate Regulation

Economic theorists have long recognized that administrative costs are incurred in lending, that administrative costs are high relative to loan amount for small loans, and that, for short-term loans, administrative costs are especially large relative to loan size. Lenders' administrative costs include costs for loan marketing, origination, servicing, and collection. In addition, lenders must be compensated for bearing risk, i.e., the costs of forbearance. For many consumer credit products, administrative costs are mostly fixed, in the short run, and quite large relative to the dollar amount borrowed. Consequently, the interest rate for small-dollar consumer loans must be high enough to cover the lender's costs plus a competitive return on the lender's investment.¹⁰

¹⁰ For a historical discussion of the role of administrative costs, see, for example, Marshall (1920), p.488, Böhm-Bawerk (1922, p.7), and Fisher (1930), Part II, Chapter IX, paragraph 2. Economic theorists historically recognized

Supply (based on costs) and demand determine the equilibrium interest rate and the amount of debt outstanding. Imposing an interest-rate cap below the equilibrium interest rate might prevent high-risk borrowers from obtaining as much credit as they desire or even exclude prospective borrowers entirely out of the market (Blitz and Long [1965], Jaffee and Modigliani [1969]). Moreover, because administrative costs are mostly fixed, interest-rate caps might cause smaller loan amounts to be unprofitable. Consequently, lenders might require borrowers to take larger loans, if these borrowers can qualify for larger loans.

To our knowledge, there have been no follow-on theoretical papers to Blitz and Long (1965) who provided an important and detailed basic theoretical analysis of the effects of interest-rate ceilings in a market for three categories of borrowers: riskless, low-risk, and high-risk. The risk that borrowers will be slow to repay or even default is commonly defined in recent years by credit bureau scores. In terms of our paper, we recast the Blitz and Long (1965) categories as credit score ranges: prime, near-prime, and subprime. Generally, prime borrowers are considered to pose negligible risk of default. Scores that fall below prime present increasingly higher risk to lender. Thus, near-prime borrowers pose some risk and subprime borrowers pose even more risk.

Blitz and Long (1965) show that interest-rate caps can affect lending to these risk categories differently in competitive and imperfectly competitive markets. They further show that interest-rate caps can affect the distribution of credit across risk classes of borrowers in ways that are difficult to predict. Some risk categories of borrowers can benefit, notably the riskless category, and others can be harmed.

For their analysis, Blitz and Long (1965) specified the loan interest rate as consisting of a base rate plus the premium for risk. In this environment, imposing an interest-rate cap can prevent riskier borrowers

that relatively high administrative costs require a high interest rate if small consumer loans are to be made in the market Fisher (1907), p. 209; Marshall (1920), p. 489.

from obtaining credit at an interest rate at or below the cap, thereby reducing the effective demand for credit overall.

Blitz and Long (1965) explored implications for the three risk categories in both competitive and imperfect markets. In a *competitive* market, the reduction in effective demand resulting from rationing riskier borrowers out of the market would reduce the base rate for low-risk borrowers. Thus, low-risk borrowers would face lower interest rates than they otherwise would and would borrow more.

In an *imperfect* market, the outcomes are more complicated. Blitz and Long found that the outcome is uncertain for the lower-risk borrowers—although reductions in credit availability for high-risk individuals remain. In an imperfect market, the effect of an interest-rate cap depends on three factors: the distribution of risks, borrowers' elasticity of demand, and lenders' marginal cost curve and elasticity of supply. For their analysis of the imperfect market case, Blitz and Long assumed that riskless, low-risk, and high-risk borrowers' demand for credit is identical.

They first analyzed the effect when (1) the rate cap does not change the base rate to riskless borrowers or the total amount of loans but (2) the rate cap is set at a level that makes lending to low-risk borrowers more profitable than lending to high-risk borrowers. In this situation, high-risk borrowers are rationed out of the market, and low-risk borrowers borrow more than they would borrow in the absence of an interest-rate cap. This outcome is similar to that in the competitive case. If the total amount of loans is unchanged, the additional amount borrowed by the low-risk borrowers is equal to the amount that high-risk borrowers would have borrowed in the absence of the rate cap.

Blitz and Long (1965) then considered the case in which the rate cap causes a decrease in the base rate paid by the riskless borrower.¹¹ Under this condition, the supply and demand equilibrium occurs at a

¹¹ Blitz and Long (1965) also examined a third imperfect market case that produced an increase in the total amount of credit, depending on the distribution of riskiness of borrowers and the various elasticities of demand and supply. In this situation, high-risk borrowers whose unregulated rate is higher than the rate cap might be able to pay a lower rate under regulation, but they would be unable to borrow as much as they would like. Risk-free borrowers, whose unregulated rate was below the rate cap, would now be forced to pay more. In this case, the low-risk borrowers in

lower risk-free rate and quantity of credit for riskless borrowers, but these borrowers could still borrow all they wanted based on their demand curve. In contrast, low-risk (but not riskless) borrowers would not be able to borrow as much as they desired at the regulated price. Once again, high-risk individuals would not be able to borrow at all. The total amount of credit in the market would be lower than in the absence of regulation. Altogether, the regulated outcome would reduce the profit of the lender, but the reduction in profit would come at the cost of a lower volume of lending, notably to high-risk borrowers and other low-risk, but not riskless, borrowers.¹²

III-B. Policy Implications

Blitz and Long (1965) were skeptical that regulatory authorities possessed the analytical capabilities to assess the supply and demand conditions, price elasticities, and cost conditions in credit markets to set interest-rate caps in a way that would reduce market power and produce competitive outcomes. They also noted that a lender's experience with borrowers provides information for assessing risk that might not be available to regulators.

Blitz and Long (1965) also pointed out that, in many situations, credit is provided in conjunction with the sale of goods, making circumvention of rate caps relatively easy. Blitz and Long (1965) suggested that working on ways to make credit markets more competitive might be simpler and more efficient than setting interest rate caps.

the middle would be the main beneficiaries of the regulation. They would be able to borrow more and pay a lower rate. Overall, with higher credit volume in the market and lower average interest rates, this outcome would be closer to a competitive outcome than to the unregulated imperfect market case, but the regulation would make some borrowers better off and others worse off.

¹² Boyes (1982) argues that the political demand for interest-rate caps is attributable to the benefits they create for riskless borrowers in the forms of increased access to credit at interest rates.

III-C. Theoretical Predictions for Empirical Investigation

There are three theoretical predictions made by Blitz and Long (1965) that we can investigate using our data. First, we can examine the number of loans made to subprime borrowers. Second, we can also examine the number of loans made to low-risk borrowers. Lending to these two groups of consumers might differ due to market structure. Finally, we can also investigate the prediction that the average dollar amount loaned will increase under an interest rate cap.

IV. Data

We use two datasets obtained under non-disclosure conditions that give us complete control of the research project: 1) quarterly credit bureau data collected by the American Financial Services Association (AFSA) to measure the effects of the 36 percent interest-rate cap on the number and size of unsecured installment loans in Illinois and Missouri and 2) Online Lenders Alliance (OLA) survey responses from borrowers who used short-term, small-dollar credit in Illinois from January 2019 through March 2021.

IV-A. Credit Bureau Data

The quarterly credit bureau dataset includes the total number and average size of consumer loans by county of the borrower's residence (where some rural counties are grouped together), by loan product, by the type of lender, and by pre-specified VantageScore® bins. The data include those loans that were originated and reported to the bureau from the fourth quarter of 2020 through the third quarter of 2021 where the borrowers' residence is in Illinois or Missouri.¹³

¹³ Illinois residents are able under the law to cross state borders to receive an unsecured installment loan from lenders located in other states at a rate exceeding the interest rate cap. This action would likely increase the number of loans in border counties relative to interior counties in Illinois. We find no evidence that border county residents have more access to unsecured installment credit relative interior county residents in Illinois in the credit bureau data. Regardless, Illinoisians crossing state borders to use unsecured installment credit would increase the number

Before obtaining data from the credit bureau, small rural counties were grouped with other neighboring small rural counties to provide more precise statistics for small rural counties. Table A1 and Table A2 in Appendix A describe the county groupings for Illinois and Missouri, respectively. Individual county data are available for the metropolitan areas of Illinois and Missouri, which include most residents in Illinois and Missouri. More than 75 percent of Illinois residents live in the Chicago area, and the dataset contains data for each county in this area. Another 12 percent live in other Metropolitan Statistical Areas for which we have individual county data. About 88 percent of Missouri residents live either in the St. Louis or Kansas City area. The dataset has individual county data for these two areas and Springfield, a Metropolitan Statistical Area that contains about 7 percent of Missouri residents.

Table 1 describes the fifteen VantageScore® bins present in the data, which we categorize into four familiar groupings: subprime, near-prime, prime, and no score. Subprime includes borrowers with VantageScores® below 600. Near-prime includes borrowers with VantageScores® ranging from 600 to 649. Prime includes borrowers with VantageScores® of 650 or more. No-score borrowers are those who do not have a VantageScore® and are, therefore, dropped from the statistical results section of this paper.¹⁴

There are three types of lenders included in the data: banks, credit unions, and other lenders. It is our understanding that “other lenders,” is composed largely of bricks-and-mortar personal finance companies and, to a lesser extent, online lenders.

Banks, credit unions, and some other installment lenders engage in a thorough underwriting process. That is, they evaluate the ability of the borrower to repay the loan. The lenders calculate the

of loans in Illinois, weakening the effects of the interest rate cap and making our estimates of the effects in Illinois due to the cap a lower-bound estimate.

¹⁴ No-score borrowers represent a small fraction of the number of borrowers in the credit bureau dataset. Because they are missing a VantageScore®, they cannot be classified as high-risk, low-risk, or no-risk borrowers. Therefore, they are removed from the dataset before performing any statistical tests, though their inclusion does not meaningfully change the results.

income and expense streams of their potential borrowers. They judge whether applicants would likely be able to make the loan payments. Depending on applicants' finances, credit score, and the overall state of the local economy, the underwriting process of "bricks and mortar" finance companies results in loans being made to about 40 to 60 percent of the applicants for such credit.¹⁵

Our focus is on how the imposition of the 36 percent interest-rate cap in Illinois at the end of the first quarter of 2021 affected the use of unsecured installment loans. Consumer usage of other small-dollar nonbank loan products could be affected by Illinois' interest-rate cap. Unsecured installment credit, however, is a product on which banks, credit unions, and other installment lenders report to the three major credit bureaus and, thus, observable in the credit bureau data.¹⁶

For the unsecured installment loan product, there are a total of 59 counties/county groupings in the data with three different lender types and fifteen VantageScore® bins, resulting in about 2,655 observations. Figure 1 shows aggregate data from Illinois in the fourth quarter 2020 and first quarter 2021, the two quarters in our data before the imposition of the 36 percent interest-rate cap in Illinois. It illustrates the number of unsecured installment loans originated by each lender type in each VantageScore® category before the interest-rate cap in Illinois.

Unsecured installment loans, especially those to borrowers with poor credit histories, are primarily originated by personal finance companies. Personal finance companies, or "other lenders," originated 68,783 unsecured installment loans to subprime borrowers, which is 90 percent of the total number originated to subprime borrowers. Personal finance companies originated 43,733 unsecured installment loans to near-prime borrowers (82 percent), 3,027 unsecured installment loans to borrowers

¹⁵ People who have been rejected by traditional installment lenders still have the need for credit. Alternative lenders that might be available to some consumers are an online lender, a payday lender, a pawn shop, or vehicle title lender. To our knowledge, most online lenders use proprietary automated computer models to streamline their underwriting process. This process likely includes data from subprime credit bureau data and perhaps traditional credit bureaus. Payday lenders have their own underwriting techniques. By contrast, pawn and vehicle title loans are secured loans. In addition, other small-dollar lenders exist who are not a direct part of our study because they typically do not report to traditional credit bureaus.

¹⁶ Note that our study does not include sales finance products, nor does it include credit card usages.

with no score (78 percent), and 56,207 loans to prime borrowers (59 percent). In terms of total dollars loaned, personal finance companies remain the primary source of unsecured credit, lending 86 percent of all dollars to subprime borrowers, 80 percent of all dollars to near-prime borrowers, 57 percent of all dollars to no-score borrowers, and 52 percent of all dollars to prime borrowers.

Similar to Figure 1, Figure 2 aggregates data from the fourth quarter 2020 and first quarter 2021 in Illinois but for the *average size* of unsecured installment loans originated by each lender type in each VantageScore® category before the interest-rate cap in Illinois. The average size of unsecured installment loans from banks is at least \$5,532 in each VantageScore® category. Finance companies, on the other hand, lend less than \$2,000, on average, to subprime and no-score borrowers and less than \$4,000, on average, to near-prime borrowers. Credit unions also lend smaller amounts, on average, relative to banks, but as previously discussed, they originate only a fraction of the number of unsecured installment loans originated by personal finance companies.

Personal finance companies are the primary source of unsecured installment loan credit for high-risk borrowers, i.e., those with low VantageScores®. In the rare circumstance where banks and credit unions originate unsecured installment loans to high-risk borrowers, banks and credit unions lend larger amounts (which might indicate some prior experience with, or knowledge about, these individuals). Therefore, although they are exempt from the requirements of Illinois' Predatory Loan Prevention Act, neither banks nor credit unions are common sources of small-dollar unsecured installment credit to high-risk borrowers. Banks might face reputation risk when lending to risky consumers at high rates, and bank regulators discourage risky lending by treating risky loans on safety and soundness grounds (payday/bank partnerships, tax refund anticipation loans, and deposit advance products, for example).

Together, banks and credit unions did not substantially increase the provision of small-dollar credit to high-risk borrowers after the imposition of the Illinois rate cap. Table 2 shows the number of unsecured installment loans made in Illinois to borrowers in the two quarters before the imposition of the

36 percent interest-rate cap in Illinois and in the two quarters after the imposition of the cap by lender type and VantageScore®.

Banks increased the number of unsecured installment loans to subprime borrowers by 1,746 loans. Credit unions *decreased* the number of unsecured installment loans to the same sample of borrowers by 1,175, resulting in a net increase of 571 loans from banks and credit unions. This increase offsets only a small percentage of the decrease in loans originated by other lenders to subprime borrowers, which is 20,797. Banks, however, did reduce the average size of unsecured installment loans to subprime borrowers from \$5,532 to \$2,508. Other lenders and credit unions, however, increased the average size of unsecured installment loans to subprime borrowers by \$998 and \$261 respectively. Near-prime and prime borrowers, meanwhile, experienced significant increases in the total number of loans originated (increases of 13,516 loans and 40,573 loans respectively) and in the average size of loans (increases of \$1,111 and \$1,095 respectively). We explore this topic more fully in Section V.

To summarize, the Predatory Loan Prevention Act in Illinois might only apply to other lenders, such as personal finance companies, but these companies are the primary source of small-dollar credit to high-risk borrowers both before and after the imposition of the 36 percent interest-rate cap. All lender types combined originated significantly fewer unsecured installment loans to subprime borrowers in Illinois in the six months after the imposition of the interest-rate cap than they originated in the six months prior to the imposition of the interest-rate cap, suggesting the 36 percent interest-rate cap is binding on unsecured installment lending.

IV-B. Survey Data

We use survey results to examine how the loss of credit access due to the Illinois interest-rate cap affected borrowers. The survey is of consumers who were known to have used short-term, small-dollar credit in Illinois from January 2019 through March 2021. The Online Lenders Alliance (OLA) prepared and

then conducted the survey from December 14 to December 31, 2021—that is, about nine months after the imposition of the rate cap.

The OLA sent hyperlinks by email to about 38,860 customers of four OLA member firms that ceased operations in Illinois after the imposition of the interest-rate cap. When the customers opened the hyperlink, they were directed to a website to complete the survey. The survey asked respondents to identify their age, gender, race, ethnicity, and personal income. The survey received responses from 699 individuals, 45 percent identified as white, 45 percent identified as black, 8 percent identified as two or more races, and 2 percent identified as Asian/Pacific Islander or American Indian/Alaskan Native. Eleven percent of respondents identified as Hispanic. Two-thirds of the respondents were female. Also, two-thirds of the respondents had annual personal incomes under \$50,000.¹⁷ Table 3 lists the survey questions asking respondents about their experience with online loans.

The respondents in the OLA survey data are not necessarily the same subjects represented in the AFSA credit-bureau data. We believe, however, that the OLA survey data is informative about the unsecured installment credit experiences of those whose credit experiences are most negatively affected by the Illinois interest-rate cap, subprime borrowers, and that the subprime borrowers in the AFSA credit-bureau dataset would likely have given similar responses to those given by OLA survey respondents.

The average credit score for customers of the institutions represented in the OLA survey is below 600 and falls into the subprime category in the AFSA credit-bureau dataset.¹⁸ The OLA survey responses show that respondents are disproportionately subprime. Of the OLA survey respondents, only 11 percent indicated that they strongly agree with the statement, “I am confident that I can receive approval for a

¹⁷ Percentages omit respondents who did not respond to the survey questions for race (17% of responses), gender (4% of responses), ethnicity (6%), and income (6%), respectively.

¹⁸ The survey did not ask borrowers to report their credit scores. Because the survey is anonymous, the precise credit scores of survey respondents are unavailable. The average credit score reported here is based on the average customer of the OLA institutions involved in the survey.

personal loan from my bank or credit union anytime I need it,” and 56 percent indicated they were unable to borrow money at least once in the nine months following the imposition of the rate cap in Illinois.

The average loan amount for customers of the institutions represented in the OLA survey is less than \$1,000.¹⁹ This amount most closely resembles the average loan size of the most subprime borrowers in the AFSA credit-bureau dataset (borrowers with VantageScores® below 500 borrow \$1,400 on average in the credit-bureau data). This amount is much lower than the average loan amount for prime borrowers, which is \$11,192.

Finally, the effect of the interest-rate cap on OLA survey respondents and subprime borrowers in the AFSA credit-bureau dataset is substantially identical. OLA survey respondents are selected from customers of online lenders who ceased operations in Illinois following the imposition of the interest-rate cap. Subprime borrowers in the AFSA credit-bureau dataset, as we will show in the following section, lost access to credit from their lenders in Illinois.

Because we believe the OLA survey data is representative of subprime borrowers in the AFSA credit-bureau dataset, we examine the OLA survey data to understand the welfare effects on subprime borrowers of losing access to credit. Because prime borrowers are unrepresented or underrepresented in the OLA survey data, however, we do not make any claims of the welfare effects of the interest-rate cap on prime borrowers.

¹⁹ The survey did not ask borrowers to report their loan amounts. Because the survey is anonymous, the precise loan amounts of survey respondents are unavailable. The average loan amount reported here is based on the average loan amount of the OLA institutions involved in the survey. The Consumer Financial Protection Bureau (CFPB) analyzed deposit accounts of several large depository institutions to observe ACH payment requests for several products including online unsecured installment loans. The CFPB report states that deposit accounts with one or more loans from an online lender make payments totaling, on average, \$2,164 in 18 months. Although the CFPB is unable to identify what portion of the payments is principal and what portion is payment of fees or interest. Nevertheless, the implied loan amount is much smaller than the average loan size for prime borrowers but like the average loan size for subprime borrowers in the credit-bureau dataset used in this paper. The CFPB report is available at https://files.consumerfinance.gov/f/201604_cfpb_online-payday-loan-payments.pdf.

V. Statistical Results

We use a difference-in-differences approach to estimate the effect of the 36 percent interest-rate cap on the number and average size of unsecured installment loans in Illinois. Difference-in-differences is an empirical technique for estimating the causal effect of some “treatment,” which, in this paper, is the 36 percent interest-rate cap in Illinois. To estimate the causal effect, we must first estimate the counterfactual. In other words, we need to estimate the number and average size of unsecured installment loans that *would have existed* in Illinois if the interest-rate cap had not been imposed. We estimate the counterfactual using Missouri, a neighboring state with no legislated limitations on interest rates.

The assumption underlying the estimation of the counterfactual is that the number and average size of unsecured installment loans in Illinois *would have followed* the same trend as in Missouri if the 36 percent interest-rate cap had not been imposed. This assumption is known as the parallel trends assumption, and it will be clarified by the figures presented in the proceeding analysis.

The precision of the estimates presented in the following sections are only as accurate as the underlying parallel trends assumption. There is no way to *know* precisely what would have happened to the number and average size of unsecured installment loans in Illinois if the 36 percent interest-rate cap had not been imposed. But we can examine whether the number and average size of unsecured installment loans followed parallel trends in Illinois and Missouri *before* the imposition of the 36 percent interest-rate cap. Evidence that the number and average size of unsecured installment loans in Illinois and Missouri followed parallel trends *before* the imposition of the 36 percent interest-rate cap supports the assumption that they *would have followed* parallel trends if the interest-rate cap had not been imposed. We find evidence supporting the parallel trends assumption in the following sections, and we depict it visually in Figure 5 and Figure 6 and present the results of formal test of the assumption in Table 8.

V-A. 2x2 Difference-in-Differences Analysis

We first estimate a 2x2 difference-in-differences regression equation for both the number and size of unsecured installment loans to make basic estimates of the effect of the 36 percent interest-rate cap. We collapse county, VantageScore®, lender, and quarterly data into state totals for Illinois and Missouri in two periods, a single pre-period and a single post-period for each state. With four observations, we estimate the following simple 2x2 difference-in-differences regression equation,

$$y_{st} = \gamma_s + \lambda_t + \delta D_{st} + \varepsilon_{st} \quad (1)$$

where s indexes states, and t indexes time. The regressor of interest, D_{st} , represents periods in Illinois where the 36 percent interest rate cap is in effect. Table 4 displays the results of this simple regression on both variables under study.

The total number of unsecured installment loans in Illinois in the six months before the imposition of the 36 percent interest-rate cap was 225,398. In Missouri, during the same time, there were 193,120 loans. In the six months following the imposition of the rate cap, the number of unsecured installment loans in Illinois was 259,260, an increase of 33,862 loans or 15 percent. In the same period, the number of loans in Missouri was 244,911, an increase of 51,791 loans or 27 percent. If we assume that the number of unsecured installment loans would have increased by the same amount in Illinois as it did in Missouri in the absence of the rate cap, then the rate cap decreased the number of unsecured installment loans in Illinois by 17,930 loans (or 8 percent relative to the number of loans in the six months prior to the imposition of the interest-rate cap), which is equal to the regression coefficient on D_{st} in the estimates of Equation (1) presented in the first column of Table 4.

The average size of unsecured installment loans in Illinois in the six months before the imposition of the 36 percent interest-rate cap was \$6,312. In these six months, the average loan size in Missouri was \$4,660. In the six months following the effective date of the interest-rate cap, the average size of

unsecured installment loans in Illinois was \$8,374, an increase of \$2,062 or 33 percent. In the same period, the average loan size in Missouri was \$5,134, an increase of \$474 or 10 percent. If we assume that the average size of unsecured installment loans would have increased by the same amount in Illinois as it did in Missouri, then the size of unsecured installment loans in Illinois increases by \$1,587, a 25 percent increase relative to the average loan size in the six months prior to the imposition of the interest-rate cap. This increase is the regression coefficient on D_{st} in the estimates of Equation (1). This coefficient appears in the second column of Table 4.

Figure 3 and Figure 4 illustrate the effect measured by the regression results presented in the tables above. Both figures use a single observation for each state in both the pre- and post-rate cap period. The figures illustrate the basic assumption of the difference-in-differences approach discussed earlier in this paper called the parallel trends assumption. That is, the number and average size of unsecured installment loans would have changed by the same amount in Illinois as in Missouri if the interest-rate cap had not been imposed. Thus, the counterfactuals for the number and average size of unsecured installment lending in Illinois are parallel to the number and average size of unsecured installment lending in Missouri respectively.

In Figure 3, the counterfactual number of loans (the estimated number of loans that would be originated in Illinois assuming parallel trends with Missouri) is more than the actual number of loans in Illinois in the post-rate cap period. The difference between the two lines in the post-rate cap period is 17,930 loans, or the coefficient on D_{st} in the first column of Table 4. In Figure 4, the counterfactual average loan size in Illinois, which follows a parallel path to the average loan size in Missouri, is less than the actual average loan size in Illinois in the post-rate cap period. The difference between the two lines in the post-period is \$1,587, or the coefficient on D_{st} in the second column of Table 4.

Because only two periods are depicted in Figure 3 and Figure 4, we cannot examine whether the number and average size of unsecured installment loans in Illinois and Missouri follow parallel trends prior

to the imposition of the 36 percent interest-rate cap. In a later subsection of results, we use all quarters of available data rather than collapsing to a single pre- and post-rate cap period. The results using all four quarters of data show that prior to the imposition of the interest-rate cap in Illinois, both the number and average size of unsecured installment loans in Illinois and Missouri follow parallel paths. Again, parallel trends *prior* to the imposition of the interest-rate cap provides support for the assumption that unsecured installment lending in Illinois and Missouri would have followed parallel trends if the interest-rate cap had not been imposed. But first, we add a third interaction term in the regression equation to test whether riskier borrowers are affected more significantly than less risky borrowers by the interest-rate cap.

V-B. 2x2 Difference-in-Differences-in-Differences Analysis

Borrowers with poor credit histories are subject to greater risk premiums and therefore are more likely to be affected by the 36 percent interest rate cap than borrowers with better credit histories. Therefore, we add a third dimension to our simple analysis presented in the preceding section. Adding a third dimension transforms our approach from a difference-in-differences approach to a difference-in-differences-in-differences (DDD) approach. Put simply, the DDD estimate measures the causal effect of the interest-rate cap in Illinois, but it allows the effect to vary by VantageScore® category. This approach allows us to examine whether borrowers with poor credit histories are more likely to lose access to unsecured installment credit than those borrowers with good credit histories as predicted by the theoretical economic model. We estimate the following difference-in-differences-in-differences equation,

$$y_{ast} = \gamma_{st} + \lambda_{at} + \theta_{as} + \delta D_{ast} + \varepsilon_{ast} \quad (2)$$

where s indexes states, t indexes time, and a indexes VantageScore® credit score categories. The regressor of interest, D_{ast} , represents VantageScore® categories in periods in Illinois where the 36 percent interest-rate cap is in effect.

The effects of the 36 percent interest-rate cap on the number of loans by VantageScore® are presented in Table 5 relative to the six-month pre-treatment period. The VantageScore® categories include prime borrowers (650-850), near-prime borrowers (600-649), and subprime borrowers (300-599). Illinois subprime borrowers lost 34,052 loans in the six months following the imposition of the interest-rate cap in Illinois (a 44 percent decrease). Illinois prime borrowers gained 19,238 loans in the six months following the imposition of the interest-rate cap in Illinois (a 20 percent increase). Illinois near-prime borrowers lost 3,115 loans in the same period (a 6 percent decrease). Thus, the net change in the number of unsecured installment loans is -17,929, as one would expect given our previous regression results that did not include VantageScore® categories.²⁰

These results highlight the heterogeneous effect of the 36 percent interest-rate cap on the number of loans measured as both a total number and in percentage terms. The number of loans to prime borrowers increased by 19,238. The number of loans to subprime borrowers, however, decreased by 34,052. Subprime borrowers experienced a decrease in the number of unsecured installment loans by 45 percent, while prime borrowers experienced a 20 percent increase.

Table 5 shows the estimated effect of the 36 percent interest-rate cap on average loan size by VantageScore® category relative to the six-month pre-treatment period. The average loan size for prime borrowers increased by \$815 (a 7 percent increase). The average loan size for near-prime borrowers increased by \$833 (a 21 percent increase). The average loan size for subprime borrowers increased by \$730 (a 40 percent increase). The marginal effect of the 36 percent interest-rate cap on average loan size is similar across VantageScore® categories in dollar terms. However, the effects of the 36 percent interest-rate cap are heterogeneous for the average loan size in percentage terms.

Subprime borrowers received much smaller loans on average before the imposition of the 36 percent rate cap. Therefore, the percentage change in loan size for subprime borrowers is markedly higher

²⁰ The sum of the marginal effects differs by one loan from the effect presented in Table 4 due to rounding.

than for prime borrowers. The average loan size for subprime borrowers increased by roughly 40 percent following the imposition of the interest-rate cap, compared to only a 7 percent increase in the average loan size for prime borrowers. Therefore, the effect of the rate cap on the average loan size in percentage terms is also heterogeneous. Borrowers with subprime VantageScore® (i.e., below 600), experienced the largest increase in average loan size in percentage terms.

V-C. State-level, Quarterly Difference-in-Differences-in-Differences Analysis

We then estimate the following difference-in-differences-in-differences regression equation using quarterly data. That is,

$$y_{ast} = \gamma_{st} + \lambda_{at} + \theta_{as} + \delta D_{ast} + \varepsilon_{ast} \quad (3)$$

where “a” indexes VantageScore® categories, “s” indexes states, and “t” indexes quarters. The regressor of interest, D_{ast} , represents VantageScore® categories in counties and quarters in Illinois where the 36 percent interest rate cap is in effect.

The omitted quarter from the regression results is the fourth quarter of 2020, the first quarter of the pre-treatment period. Therefore, changes in the number and average size of loans are measured relative to the number and average size of loans in the fourth quarter of 2020. Table 6 displays the estimated change in the number and average size of loans for each VantageScore® group relative to the fourth quarter of 2020. Prime borrowers gained 9,648 loans per quarter on average relative to the fourth quarter of 2020, and those loans were roughly \$960 larger on average. Near-prime borrowers lost 1,910 loans per quarter on average relative to the fourth quarter of 2020, and those loans were roughly \$1,003

larger on average. Subprime borrowers lost 16,886 loans per quarter on average relative to the fourth quarter of 2020, and those loans were roughly \$785 larger on average.²¹

Figure 5 displays the effects of the 36 percent interest-rate cap on the number of loans by VantageScore® category and quarter. The number of loans to prime borrowers increased in both quarters following the imposition of the cap. The number of loans to subprime borrowers decreased in the first quarter following the imposition of the interest rate cap and then appears to return to its previous slope without recovering the number of loans lost. The number of loans to near-prime borrowers decreased slightly in the first quarter following the imposition of the interest rate cap but then returned to roughly equal the counterfactual number of loans by the second quarter after the imposition of the interest-rate cap.

Figure 6 displays the effects of the 36 percent interest-rate cap on the average size of loans by VantageScore® category and quarter. The average loan size increased across all VantageScore® categories, though subprime borrowers experienced the largest percentage increase, shown by the sharp upward climb in the first quarter following the imposition of the interest-rate cap.

Figure 5 and Figure 6 provide a great visual of the key assumption in the difference-in-differences-in-differences estimates: the parallel trends assumption. The trends for both the number of loans and the average size of loans for all VantageScore® categories visually follow parallel paths prior to the 36 percent interest-rate cap in Illinois at the end of the first quarter of 2021. Parallel trends before the imposition of the rate cap support the assumption that unsecured installment lending in Missouri serves as a reasonable counterfactual for what unsecured installment lending would have been in Illinois if the cap had not been imposed.

²¹ We calculate the quarterly average change in the number and average size of loans by taking the simple mean of the two post-treatment (i.e. Q2 2021 and Q3 2021) coefficients for each VantageScore® category.

V-D. County-level, Quarterly Difference-in-Differences-in-Differences Analysis

Finally, we estimate the difference-in-differences-in-differences regression equation on the county-level quarterly data,

$$y_{iast} = \gamma_{st} + \lambda_{at} + \theta_{as} + \delta D_{ast} + X'_{iast}\beta + \varepsilon_{iast} \quad (4)$$

where i indexes counties, a indexes VantageScore® categories, s indexes states, and t indexes time in quarters. We estimate the effects of the 36 percent interest-rate cap in Illinois on the dependent variables (the number and average size of unsecured installment loans) both in absolute terms and in natural logs, or percentage terms.

X'_{iast} is a vector of county-, state-, and time-varying covariates. The regressor of interest, D_{ast} , represents VantageScore® categories likely to be affected in counties and periods in Illinois where the 36 percent interest-rate cap is in effect. X'_{iast} is a vector of county-, state-, and time-varying covariates. County-specific controls include population, median income, percent black, percent Hispanic, percent non-Hispanic White, and percent with a bachelor's degree or higher. We also control for state unemployment rates and per capita personal income.

Using county-level data allows us to estimate standard errors to determine if our estimates are statistically significant. We are primarily interested in two hypothesis tests using the standard errors produced by the difference-in-differences-in-differences estimates: 1) whether the estimated effects of the interest-rate cap on prime borrowers is statistically different from the estimated effect on near-prime and subprime borrowers and 2) whether the estimated effects of the interest-rate cap on prime, near-prime, and subprime borrowers are statistically different from zero. In other words, we care both about the relative impact of the interest-rate cap on each VantageScore® categories and the absolute impact on each VantageScore® category. Table 7 displays the estimated change in the number and average size of loans by county for each VantageScore® group relative to the fourth quarter of 2020. Standard errors are clustered by county. Statistical significance in Table 7 is determined by testing the second hypothesis listed

above – whether the estimated effects are statistically different from zero – though we discuss the results of both hypothesis tests in the proceeding paragraphs.

The first column of Table 7 displays the estimates of the effect of the 36 percent interest-rate cap on the number of unsecured installment loans by VantageScore® category. The interest-rate cap increased the number of loans to prime borrowers by 210.23 loans per county in the second quarter of 2021 and 290.59 per county in the third quarter of 2021, or by 250 loans per county per quarter on average. Though, this effect is not statistically different from zero.

The interest-rate cap decreased the number of loans to near-prime borrowers by 102.87 loans per county in the second quarter of 2021 and 61.21 per county in the third quarter of 2021, or by 82 loans per county per quarter on average. Though, again, this effect is not statistically different from zero. The effect on near-prime borrowers is, however, statistically different from the effect on prime borrowers.²² The 36 percent interest-rate cap decreased the number of unsecured installment loans to near-prime borrowers *relative to prime borrowers* by an average of 332 loans per county per quarter.

The interest-rate cap decreased the number of loans to subprime borrowers by 496.76 loans per county in the second quarter of 2021 and 538.18 per county in the third quarter of 2021, or by 517 loans per county per quarter on average. This effect is highly statistically significant. Moreover, the effect on subprime borrowers is statistically different from the effect on prime borrowers. The 36 percent interest-rate cap decreased the number of unsecured installment loans to subprime borrowers *relative to prime borrowers* by an average of 768 loans per county per quarter.

The second column of Table 7 displays the estimates of the effect of the 36 percent interest-rate cap on the number of unsecured installment loans by VantageScore® category *in percentage terms*. This estimate is produced by taking the natural log of the dependent variable and estimating the same

²² Unless we explicitly state otherwise in the text, statistical significance is not sensitive to the inclusion or exclusion of control variables, county fixed effects, or county random effects

regression equation. The 36 percent interest-rate cap decreased the number of unsecured installment loans by 48 percent for subprime borrowers and 21 percent for near-prime borrowers on average using the averages of the county and quarterly estimates displayed in the second column of Table 7.²³ Both estimates are statistically different from zero and statistically different from the estimated effect on prime borrowers, which is also approximately zero percent. Therefore, the 36 percent interest-rate cap significantly decreased the number of loans in percentage terms for both subprime and near-prime borrowers.

The third column of Table 7 displays the estimates of the effect of the 36 percent interest-rate cap on the average size of unsecured installment loans by VantageScore® category. The interest-rate cap increased the average size of loans to prime borrowers by \$1,108 in the second quarter of 2021 and \$1,398 in the third quarter of 2021, or by \$1,253 on average. The interest-rate cap increased the average size of loans to near-prime borrowers by \$1,108 in the second quarter of 2021 and \$1,398 in the third quarter of 2021, or by \$1,253 on average. The interest-rate cap increased the average size of loans to subprime borrowers by \$1,108 in the second quarter of 2021 and \$1,398 in the third quarter of 2021, or by \$1,253 on average. Each of these estimates is highly statistically significant. Though, the effect of the interest-rate cap on loan size for near-prime and subprime borrowers relative to prime is not statistically significant. So, the interest-rate cap increased loan sizes in absolute dollar terms by similar amounts regardless of VantageScore® category.

As we previously highlighted, however, the effect of in the interest-rate cap on loan size in percentage terms varies by VantageScore® category. The third column of Table 7 displays the estimates of the effect of the 36 percent interest-rate cap on the average size of unsecured installment loans by

²³ The percent change in each quarter is calculated as $100 \times (e^{\beta} - 1)$, where β is the estimate quarterly estimate presented in the second column of Table 7. For example, the percent change in the number of loans to subprime borrowers in the second quarter of 2021 is $100 \times (e^{-0.69} - 1)$, or 50 percent. We report the average quarterly percent change by taking the mean of the two quarterly estimates for each VantageScore® category.

VantageScore® category *in percentage terms*. This estimate is produced by taking the natural log of the dependent variable and estimating the same regression equation. The 36 percent interest-rate cap increased average loan sizes by 12 percent for prime borrowers, 25 percent for near-prime borrowers, and 31 percent for subprime borrowers on average. Not only are these estimates statistically different from zero, but the effects on near-prime and subprime borrowers are statistically different from the effects on prime borrowers. Therefore, the 36 percent interest-rate cap had a statistically significant effect on average loan sizes for all VantageScore® categories both in absolute terms and in relative terms.

The causal estimates depend on the validity of the underlying identification assumption: the parallel trends assumption. As we show above in Figure 5 and Figure 6, the trends for unsecured installment lending in Illinois and Missouri for each VantageScore® category follow parallel paths prior to the imposition of the rate cap. Further, we present in Table 8 tests of the parallel trends assumption using regression. The estimates are triple difference estimates, like the ones shown in Table 7, except they are limited to only the pre-treatment period. We have two periods of pre-treatment data, the fourth quarter of 2020 and the first quarter of 2021. The statistically insignificant estimates for the interaction of Illinois, the first quarter of 2021, and the VantageScore® categories support the validity of the parallel trends assumption.

VI. Examining the Welfare Effects of the 36 Percent Interest-Rate Cap Using Survey Data

VI-A. The Costs and Benefits of Imposing an Interest Rate Cap

Imposing the interest-rate cap in Illinois limited credit access to high-risk borrowers. We do not know the precise view of interest-rate-cap advocates, but perhaps for some, this result is the desired one. For example, the Department of Defense, in support of the interest-rate cap imposed by the Military Lending Act in 2006 (the act which inspired Illinois' Predatory Loan Prevention Act), asserts, without factual support, that "predatory lenders seek out young and financially inexperienced borrowers" and

make loans based “not on the borrower’s ability to repay” and that education is not sufficient to protect service members from the practices of predator lenders (Department of Defense 2006, p. 9). In a 2012 report, The Pew Charitable Trusts expressed doubts about consumers' ability to make informed small-dollar credit decisions due to the small-dollar credit market’s supposed inability to provide clear information (The Pew Charitable Trusts 2012). For some consumer advocates, interest-rate caps exist to protect borrowers who would otherwise be harmed by access to too much credit and excessive interest rates.

Arguments of consumer advocates, however, often ignore the benefits of credit access to many small-dollar credit borrowers. Most small-dollar credit users fit the description of those for whom economic theory predicts small-dollar credit access will be beneficial: access to credit might enable consumers to obtain a greater amount of household investment and a more highly valued pattern of consumption over time (Juster and Shay [1964]). For households with limited current income and high expected returns for household investment, even the use of relatively expensive types of credit can be utility increasing.

The facts that many borrowers understand the credit products they use, can accurately predict their own repayment behaviors, and report satisfaction with their small-dollar credit experience (Bolen et al. [2020], Durkin [1975]); these authorities suggest that such borrowers can make informed decisions and realize benefits from credit use. Some borrowers, however, do experience difficulties, which could be a consequence of uncertainty or ill-informed decision-making. The policy challenge is finding measures that improve consumers’ ability to make informed decisions without jeopardizing the availability of utility-increasing credit.

VI-B. Survey Results

In this section, we use the OLA survey results to examine how the loss of credit access due to the Illinois interest-rate cap affected borrowers. The OLA provided the raw data from the survey to us so that

we could calculate and summarize the results presented. Table 9 displays a summary of survey responses by race, ethnicity, gender, and income characteristics. Panel A of Table 9 presents a summary of the survey responses to questions regarding the purpose, alternatives, and satisfaction with respondents' unsecured installment loan experience. Roughly half of all respondents indicate that they are not confident that they can receive a personal loan from their bank at any time (32 percent indicate that they strongly disagree that they are confident that they can receive a personal loan from their bank at any time).

This perception of credit rationing is common among small-dollar consumer credit users. The 2015 National Financial Capability Study by the FINRA Investor Education Foundation in consultation with the U.S. Department of the Treasury and President Obama's Advisory Council on Financial Capability examined other small-dollar credit products. In that 2015 study of non-installment consumer credit products, 25 percent of pawn users, 18 percent of vehicle title users, and 26 percent of payday loan users did not apply for credit in the last 12 months because of fear of rejection.²⁴ In that same study, only 4 percent of individuals who did not use small-dollar consumer credit products reported that they did not apply for credit due to fear or rejection in the last 12 months. Thus, unsecured installment loan users in the OLA survey data are like users of other small-dollar consumer credit in their heightened perception of credit rationing relative to individuals who do not use these credit products.²⁵

As shown in Panel B of Table 9, the most common reason for obtaining a personal loan is to pay utilities, followed by debt consolidation, car payment/car repair, and rent/mortgage. Non-white respondents and low-income respondents are more likely to use unsecured installment credit for utility

²⁴ See the 2015 National Financial Capability Study by the FINRA Investor Education Foundation in consultation with the U.S. Department of the Treasury and President Obama's Advisory Council on Financial Capability and Bolen, Elliehausen, and Miller (2020). Further, most respondents in Durkin (1975) experienced or perceived credit rationing from other credit sources.

²⁵ Agarwal and Bos (2019) find that for pawn, the vast majority of pawn borrowers do not apply for mainstream credit before applying for pawn credit, but 93 percent of their loan applications would have been rejected by mainstream creditors anyway—suggesting that small-dollar credit borrowers' perceptions of credit rationing might be rational.

payments and less likely to use unsecured installment credit for debt consolidation relative to non-Hispanic white and high-income respondents, respectively. Of the 699 survey respondents, 93 percent indicate that their loan helped them manage their financial situation at the time of the loan, including 95 percent of non-white borrowers and 97 percent of borrowers with personal incomes below \$50,000 annually.

When asked how their financial well-being had been impacted since their previous lender stopped offering loans in Illinois, Panel C of Table 9 shows that 39 percent of the respondents replied that their financial well-being had declined. Respondents with incomes below \$50,000 annually were more likely to respond that their overall financial well-being had declined relative to higher-income respondents (49 percent vs. 32 percent). Only 11 percent of respondents replied that their financial well-being had improved.

Further, 79 percent of the respondents indicated that they would like the option to return to their previous lender if they had a funding need, including 88 percent of borrowers with personal incomes below \$50,000 annually, compared to 73 percent of higher-income borrowers. Nearly three-fourths of the respondents said that they were unable to pay one or more bills at least once since March 2021, including 77 percent of borrowers with personal incomes below \$50,000 annually, compared to 57 percent of higher income borrowers. Nearly 60 percent of borrowers report that they have been unable to borrow money when they needed it since March 2021.

When asked to select all situations that have occurred because they were unable to borrow money from a lender, the most common response (49 percent) was “I paid bills late and generated fees.” Roughly 30 percent of the respondents reported that they had borrowed money from family and friends, were contacted by a debt collector, and cut back on everyday expenses. Between 9 to 14 percent of respondents report pawning personal possessions, borrowing money from disreputable sources, skipping urgent appointments or expenses, losing utility services, and children being impacted. Other less common

responses include missing work, experiencing repossession of their vehicle, being in an unsafe situation, losing access to their checking account, facing legal action for bounced checks, and being evicted.

Racial and ethnic minorities are more likely to report utilities being turned off than non-Hispanic white respondents (16 percent vs. 5 percent). This result is consistent with the data reported previously that racial and ethnic minorities are more likely to use unsecured installment credit for utility payments relative to non-Hispanic white respondents (21 percent vs. 13 percent). Racial and ethnic minorities are also twice as likely to report missing work due to lost credit access. Female respondents are twice as likely to report children being adversely impacted due to lost access to their previous lender than male respondents (14 percent vs. 7 percent). Respondents with incomes below \$50,000 annually are more likely to report borrowing money from friends and family than higher-income respondents (40 percent compared to 21 percent).

These survey responses regarding consumer satisfaction with unsecured installment loans are consistent with other surveys of unsecured installment loan borrowers. A survey by Durkin (1975) of unsecured installment borrowers in Texas found that 85 percent of borrowers said their loan was worth it. A survey by Levy and Sledge (2012) finds that 60 percent of unsecured installment borrowers reported satisfaction with the credit product (reporting a 4 or a 5 on a scale of 1 to 5), while fewer than 10 percent report dissatisfaction (reporting a 1 or a 2 on a scale of 1 to 5). Levy and Sledge (2012) also found that 45 percent of installment loan users would use the product again without hesitation, and 39 percent would “maybe” use the product again “if I have no better options.” Only 14 percent reported that they would not use the credit product again.

Common reasons for using unsecured installment credit in Durkin (1975) include paying bills, consolidating debts, and paying medical expenses. These responses are, again, consistent with survey

responses discussed above, where borrowers indicate that without access to unsecured installment credit they paid bills late, were contacted by debt collectors, and skipped urgent appointments.²⁶

Thus, the evidence from the survey of Illinoisans by the Online Lenders Association (which, as we have shown, is consistent with other surveys of unsecured installment loan borrowers) suggests that the interest-rate cap harmed many Illinoisians who lost access to credit. Financial well-being declined when consumers experienced credit rationing.

VII. Conclusion

The supply of consumer credit is limited and shaped through ongoing legislative and regulatory action. Interest-rate caps are a common way that states regulate credit markets. Economic theory predicts that an interest-rate cap, like any price ceiling, creates shortages, destroys gains from trade, and gives rise to additional search costs.

Using credit bureau data, we find that in the six months following the imposition of the 36 percent interest-rate cap by the Illinois Predatory Loan Prevention Act, the number of unsecured installment loans in Illinois decreased by 17,930, or 8 percent relative to the number of loans in the six months prior to the imposition of the interest-rate cap). The number of unsecured installment loans in Illinois to prime borrowers increased by 19,238 loans (a 20 percent increase relative to the number of loans in the six months prior to the imposition of the interest-rate cap), while the number of unsecured installment loans to subprime borrowers decreased by 34,052 loans (a 44 percent decrease relative to the number of loans in the six months prior to the imposition of the interest-rate cap).

The average loan size, measured in dollars, increased by similar amounts across all borrowers.

²⁶ These findings for common uses of unsecured installment credit are consistent with the uses of other small-dollar credit products, including payday loans and vehicle title loans. The 2012 Pew Payday Lending Report and 2015 Pew Auto Title Lending Report indicate that common alternatives to payday and vehicle title loans include cutting back on expenses, delaying paying bills, borrowing from friends/family, selling/pawning possessions, borrowing from banks, using credit cards, and borrowing from employers.

Because subprime borrowers receive much smaller loans on average before the imposition of the 36 percent rate cap, however, the percentage change in loan size for subprime borrowers is markedly higher than for prime borrowers. The average loan size for subprime borrowers in Illinois increased by roughly 40 percent following the imposition of the interest-rate cap, compared to only a 7 percent increase in the average loan size for prime borrowers.

We examine the welfare effects of the loss of credit access using the results of an online survey of borrowers in Illinois. These borrowers were known users of short-term, small-dollar credit. This survey was aimed at borrowers in Illinois whose previous lenders no longer operate there following the effective date of the 2021 Predatory Loan Prevention Act. These borrowers answer that their financial well-being declined as a result of the 36 percent interest-rate cap.

Most respondents report being unable to borrow money (presumably from any source) when they needed it and were unable to pay one or more bills since March 2021. Further, nearly 40 percent of all respondents (including nearly 50 percent of racial/ethnic minority respondents and low-income respondents) answered that their financial well-being declined. Only 11 percent of respondents indicated that their financial situation had improved, while 39 percent of respondents reported that their financial well-being declined following the Predatory Loan Prevention Act. Nearly 80 percent of respondents answered that they would like the option to return to their previous lender, and more than 90 percent indicate that their previous loan had helped them manage their financial situation at the time of the loan. Thus, it is likely that the Illinois interest-rate cap of 36 percent worsened the financial well-being of many consumers.

The debate over the merits of interest-rate caps will surely continue. To some, interest-rate caps represent an appropriate consumer protection because some borrowers experience poor outcomes when they use small-dollar credit products. Others think that interest caps do not represent an appropriate consumer protection because rate caps can restrict credit access to those with already limited credit

options—thereby imposing costs on those who would benefit from access to small-dollar credit. Further research on the heterogeneous welfare effects of small-dollar credit will continue to inform the debate over the effects of interest rate caps on the well-being of consumers.

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Figure 1: Number of Unsecured Installment Loans by Lender Type and VantageScore® Range

Notes. Data aggregated for Illinois in fourth quarter of 2020 and first quarter of 2021 (prior to the interest-rate cap in Illinois). Subprime includes VantageScores 300-599. Near-prime includes VantageScores 600-649. Prime includes VantageScores 650-850.

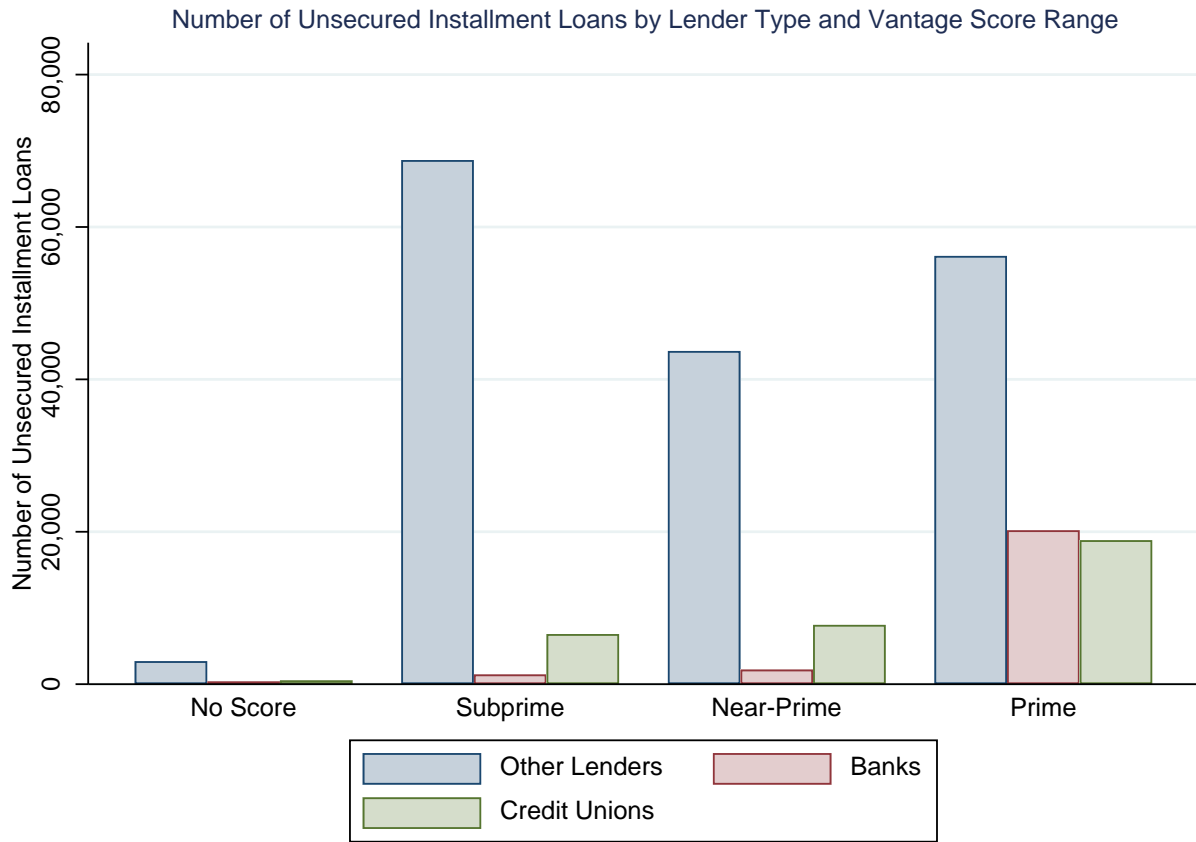


Figure 2: Average Size of Unsecured Installment Loans by Lender Type and VantageScore® Range

Notes. Data aggregated for Illinois in fourth quarter of 2020 and first quarter of 2021 (prior to the interest-rate cap in Illinois). Subprime includes VantageScores 300-599. Near-prime includes VantageScores 600-649. Prime includes VantageScores 650-850.

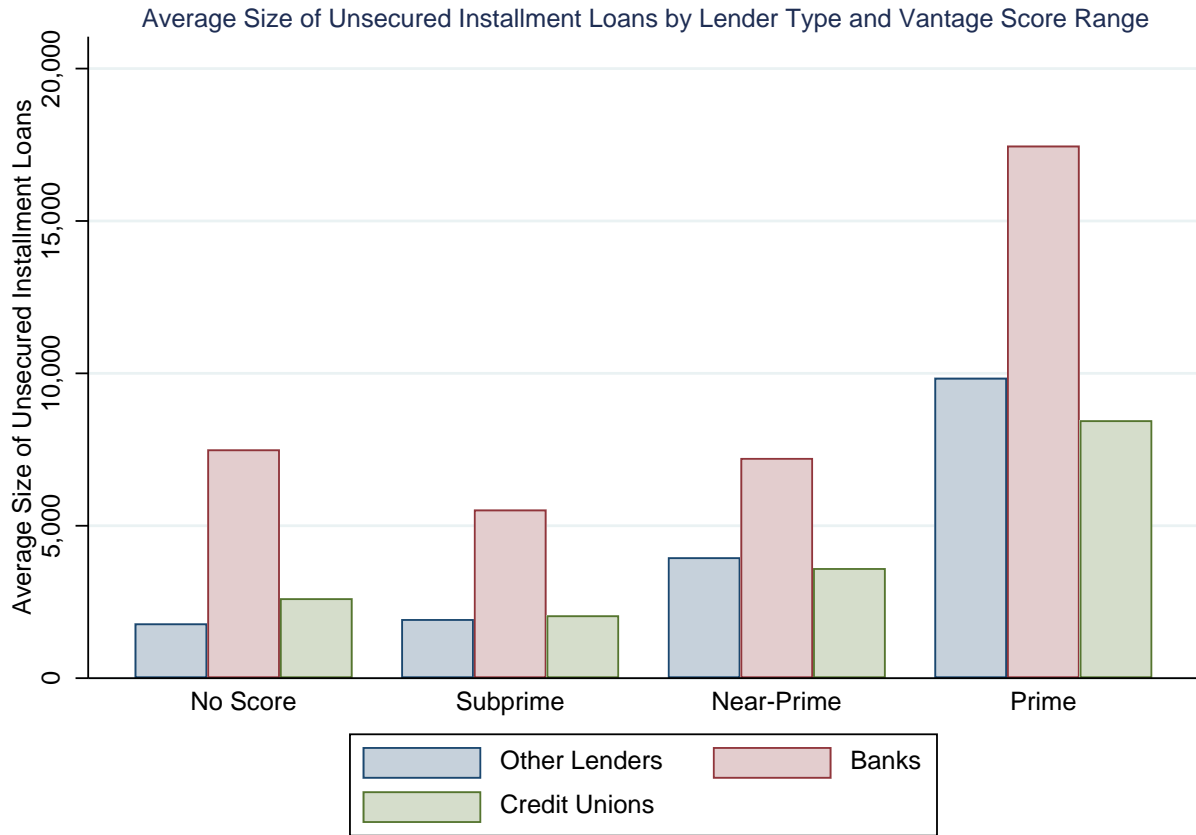
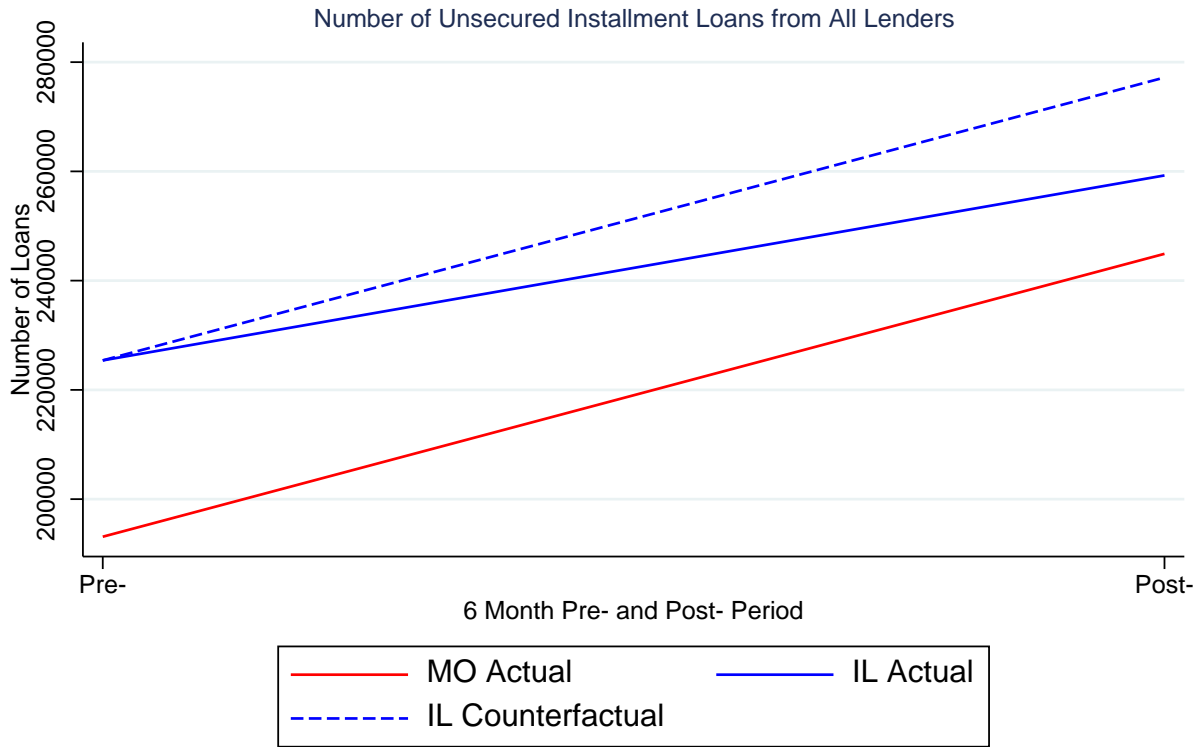


Figure 3: Number of Unsecured Installment Loans

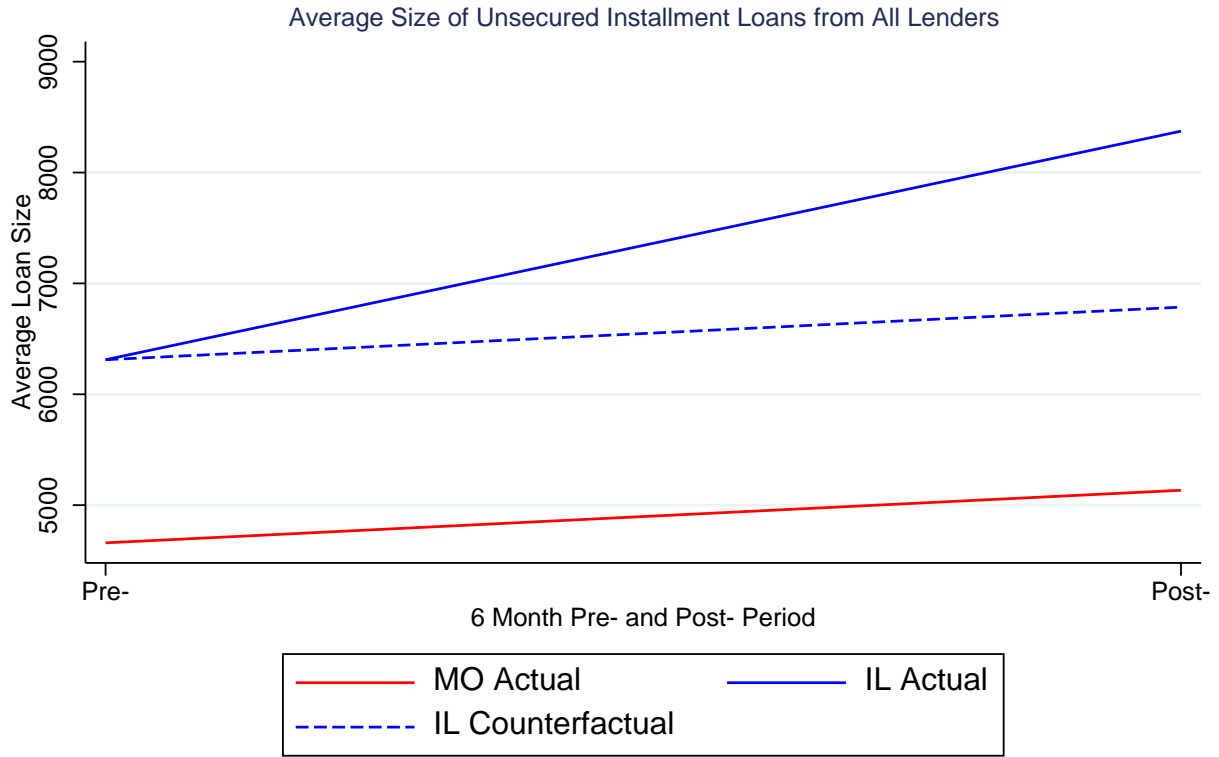
Notes. Credit Bureau data for Missouri and Illinois. Data include a single pre-treatment total for both Illinois and Missouri and a single post-treatment total for both Illinois and Missouri from all lenders in the credit bureau dataset. The pre-treatment period includes the six months prior to the 36 percent interest-rate cap in Illinois. The post-treatment period includes the six months following the rate cap. The rate cap was enacted in Illinois at the end of the first quarter 2021.



Note: Illinois counterfactual created under the assumption that the unsecured installment lending total would have increased by the same amount in IL as it did in MO in the absence of the 36% rate cap in IL.

Figure 4: Average Size of Unsecured Installment Loans

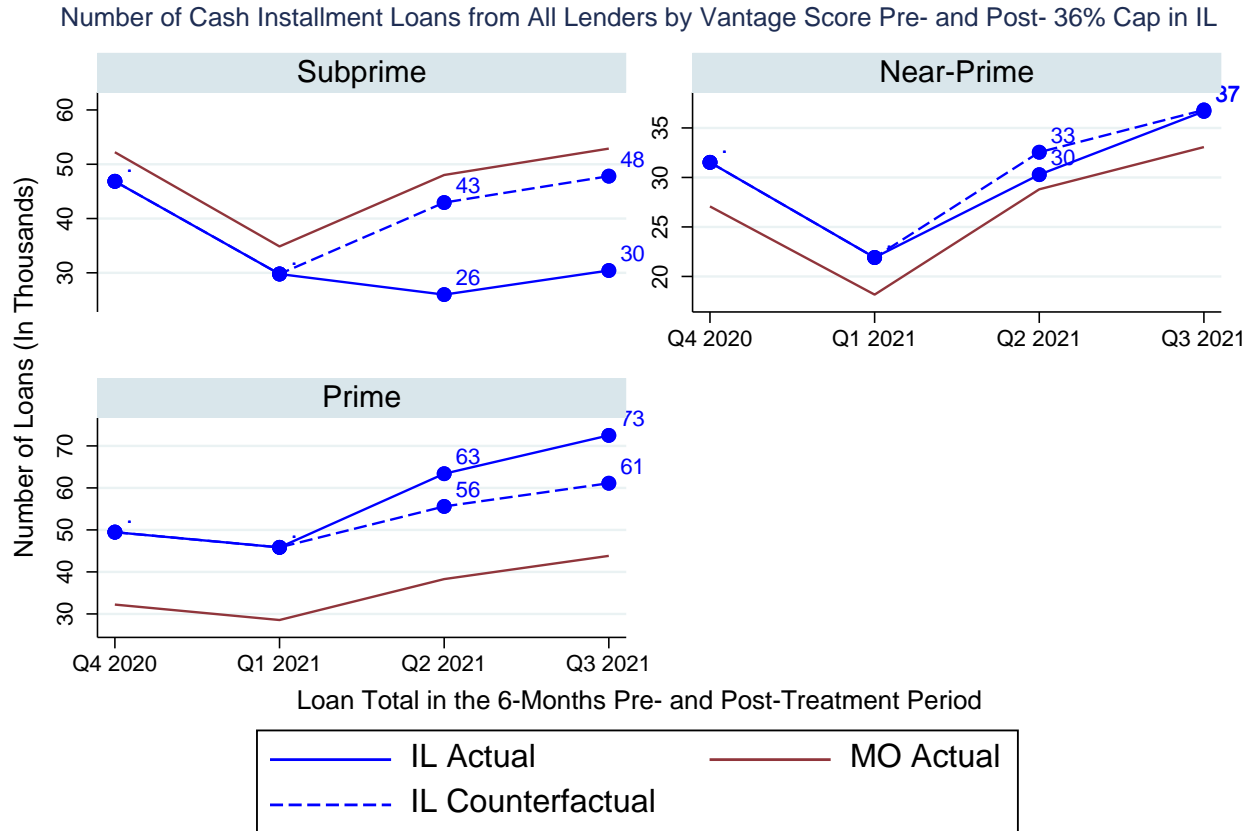
Notes. Credit Bureau data for Missouri and Illinois. Data include a single pre-treatment total for both Illinois and Missouri and a single post-treatment total for both Illinois and Missouri from all lenders in the credit bureau dataset. The pre-treatment period includes the six months prior to the 36 percent interest-rate cap in Illinois. The post-treatment period includes the six months following the rate cap. The rate cap was enacted in Illinois at the end of the first quarter 2021.



Note: Illinois counterfactual created under the assumption that the unsecured installment loan size would have increased by the same amount in IL as it did in MO in the absence of the 36% rate cap in IL.

Figure 5: Number of Unsecured Installment Loans

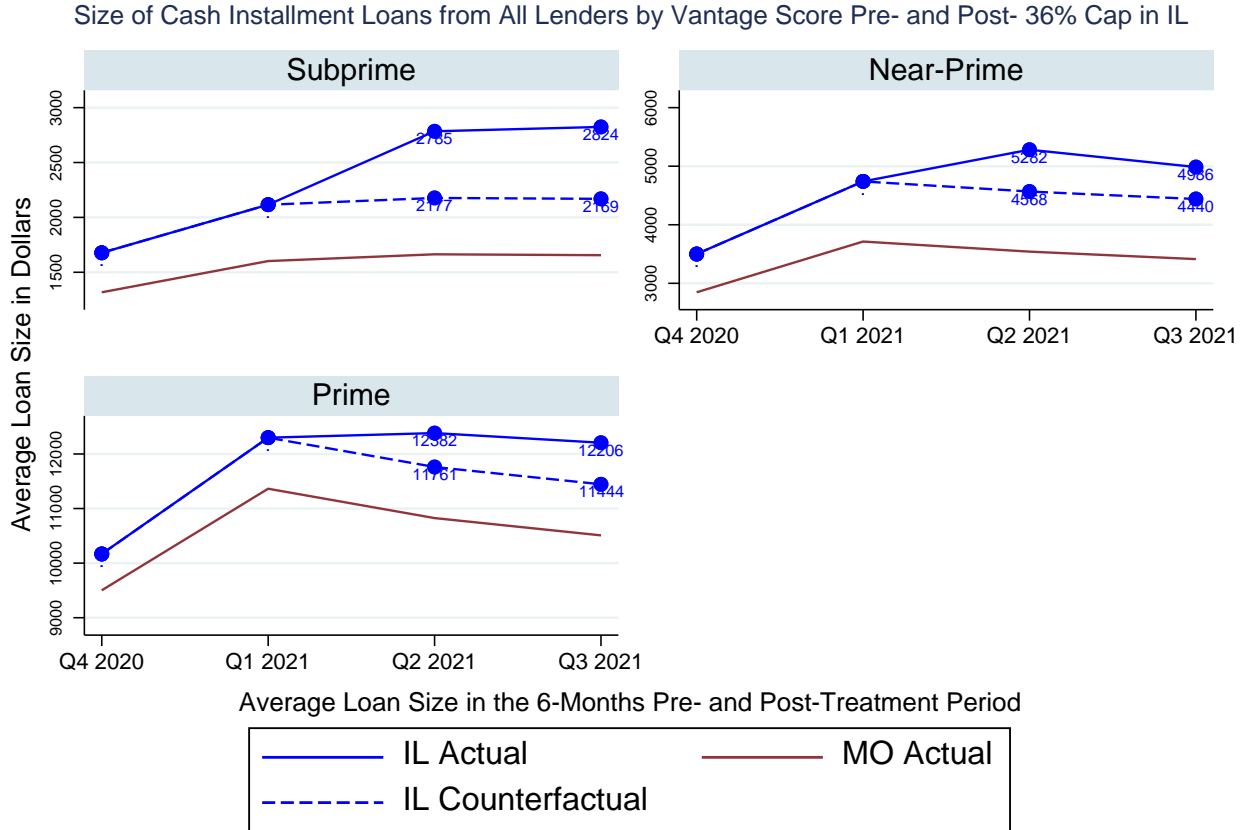
Notes. Credit Bureau data for Missouri and Illinois. Data include a single pre-treatment total for both Illinois and Missouri and a single post-treatment total for both Illinois and Missouri from all lenders in the credit bureau dataset. The pre-treatment period includes the six months prior to the 36 percent interest-rate cap in Illinois. The post-treatment period includes the six months following the rate cap. The rate cap was enacted in Illinois at the end of the first quarter 2021.



Note: VantageScore classification: 300-599 = subprime, 600-649 = near-prime, 650-850 = prime

Figure 6: Average Size of Unsecured Installment Loans

Notes. Credit Bureau data for Missouri and Illinois. The 36 percent interest-rate cap was enacted in Illinois at the end of the first quarter 2021. Credit bureau VantageScore® classification: 300-599 = subprime, 600-649 = near-prime, 650-850 = prime.



Note: VantageScore classification: 300-599 = subprime, 600-649 = near-prime, 650-850 = prime

Table 1: VantageScore® Bins

VantageScore® Range	Classification
300-499	Subprime
500-524	Subprime
525-549	Subprime
550-574	Subprime
575-599	Subprime
600-624	Near-Prime
625-649	Near-Prime
650-674	Prime
675-699	Prime
700-724	Prime
725-749	Prime
750-774	Prime
775-799	Prime
800-850	Prime
No Score	No Score

Table 2: Unsecured Installment Lending by Lender Type and VantageScore® in Illinois in the Six Months Pre- and Post- 36 Percent Interest-Rate Cap

Lender Type	Number of Unsecured Installment Loans Pre-36% Cap	Number of Unsecured Installment Loans Post-36% Cap
Subprime (all lenders)	76,644	56,418
Banks	1,279	3,025
Credit Unions	6,582	5,407
Other Lenders	68,783	47,986
Near-prime (all lenders)	53,439	66,955
Banks	1,920	3,562
Credit Unions	7,786	7,566
Other Lenders	43,733	55,827
Prime (all lenders)	95,315	135,888
Banks	20,204	29,490
Credit Unions	18,904	21,783
Other Lenders	56,207	84,615
Lender Type	Avg. Size, in \$, of Unsecured Installment Loans Pre-36% Cap	Avg. Size, in \$, of Unsecured Installment Loans Post-36% Cap
Subprime (all lenders)	1,848	2,806
Banks	5,532	2,508
Credit Unions	2,061	2,322
Other Lenders	1,940	2,938
Near-prime (all lenders)	4,009	5,120
Banks	7,226	5,604
Credit Unions	3,613	4,268
Other Lenders	3,966	5,204
Prime (all lenders)	11,193	12,288
Banks	17,471	16,819
Credit Unions	8,463	9,387
Other Lenders	9,854	11,456

Table 3: Online Lenders Alliance Survey Questions

Notes. The survey is of consumers who used short-term, small-dollar credit in Illinois from January 2019 through March 2021. The Online Lenders Alliance (OLA) conducted this survey from December 14 to December 31, 2021. Four OLA member firms, each of whom ceased operations in IL after the imposition of the interest-rate cap, sent hyperlinks to about 38,860 consumers. There were 699 responses to the survey.

Survey Question
Have you ever taken out a loan from [previous lender's company name]?
What was the primary reason you needed to take out the loan? If other, please specify.
Did your loan help you manage your financial situation that you were facing at the time?
Please respond to the following statement: I am confident that I can receive approval for a personal loan from my bank or credit union anytime I need it.
Since [previous lender's company name] stopped offering loans in Illinois, how has your overall financial wellbeing been impacted?
If you had a funding need, would you like the option to go back to [previous lender's company name]?
Since March 2021, how often were you unable to pay one or more bills?
Since March 2021, have you been unable to borrow money from a lender when you needed it?
Which of the following situations have occurred because you were unable to borrow money from a lender? Select all that apply.

Table 4: 2x2 Difference-in-differences Results

Notes. Credit Bureau data for Missouri and Illinois. Data include a single pre-treatment total for both Illinois and Missouri and a single post-treatment total for both Illinois and Missouri from all lenders in the credit bureau dataset. The pre-treatment period includes the six months prior to the 36 percent interest-rate cap in Illinois. The post-treatment period includes the six months following the rate cap. The rate cap was enacted in Illinois at the end of the first quarter 2021. Regression results are fully saturated and, thus, produce no estimates of variance.

Dependent Variables:	Number of Unsecured Installment Loans from All Lenders	Avg. Size of Unsecured Installment Loans from All Lenders
Illinois	32,279	1,652
Treatment Period	51,792	474
Illinois × Treatment Period	-17,930	1,587

Table 5: 2x2 Difference-in-differences-in-differences

Notes. Credit Bureau data for Missouri and Illinois. Data include a single pre-treatment total three VantageScore® categories (prime, near-prime, and subprime) for both Illinois and Missouri and a single post-treatment total for three VantageScore® categories (prime, near-prime, and subprime) for both Illinois and Missouri from all lenders in the credit bureau dataset. The pre-treatment period includes the six months prior to the 36 percent interest-rate cap in Illinois. The post-treatment period includes the six months following the rate. The rate cap was enacted in Illinois at the end of the first quarter 2021. Regression results are fully saturated and, thus, produce no estimates of variance.

Dependent Variables:	Number of Unsecured Installment Loans from All Lenders	Avg. Size of Unsecured Installment Loans from All Lenders
Illinois × Treatment Period × Prime	19,238	815
Illinois × Treatment Period × Near-prime	-3,115	833
Illinois × Treatment Period × Subprime	-34,052	730

Table 6: State-level, Quarterly Difference-in-differences-in-differences

Notes. Credit Bureau data for Missouri and Illinois. Data include two quarterly pre-treatment totals for three VantageScore® categories (prime, near-prime, and subprime) for both Illinois and Missouri and two quarterly post-treatment totals for three VantageScore® categories (prime, near-prime, and subprime) for both Illinois and Missouri from all lenders in the credit bureau dataset. The pre-treatment period includes the six months before the 36 percent interest-rate cap in Illinois. The post-treatment period includes the six months following the rate. The rate cap was enacted in Illinois at the end of the first quarter 2021. Regression results are fully saturated and, thus, produce no estimates of variance. The omitted quarter is the fourth quarter of 2020, thus estimates for each VantageScore® category are relative to this earlier time period.

Dependent Variables:	Number of Unsecured Installment Loans from All Lenders	Avg. Size of Unsecured Installment Loans from All Lenders
Illinois × Q2 2021 × Prime	7,850	891
Illinois × Q2 2021 × Near-prime	-2,972	1,088
Illinois × Q2 2021 × Subprime	-16,674	761
Illinois × Q3 2021 × Prime	11,446	1,031
Illinois × Q3 2021 × Near-prime	-848	919
Illinois × Q3 2021 × Subprime	-17,098	809

Table 7: County-level and Quarterly Difference-in-differences-in-differences Results

Notes. Credit Bureau data for Missouri and Illinois. The pre-treatment period includes the six months before the 36 percent interest-rate cap in Illinois. The post-treatment period includes the six months following the rate cap. The rate cap was enacted in Illinois at the end of the first quarter 2021. Standard errors are clustered by county.

Dependent Variables:	Number of Unsecured Installment Loans from All Lenders	Natural Log of Number of Unsecured Installment Loans from All Lenders	Avg. Size of Unsecured Installment Loans from All Lenders	Natural Log of Avg. Size of Unsecured Installment Loans from All Lenders
Illinois × Q2 2021 × Prime	210	0.00	1,108***	0.10***
Illinois × Q2 2021 × Near-prime	-103	-0.26***	1,193***	0.26***
Illinois × Q2 2021 × Subprime	-497***	-0.69***	813***	0.32***
Illinois × Q3 2021 × Prime	291	0.00	1,398***	0.14***
Illinois × Q3 2021 × Near-prime	-61	-0.21***	1,008***	0.23**
Illinois × Q3 2021 × Subprime	-538***	-0.61***	774***	0.30***

Table 8: Testing the Parallel Trends Assumption Using Regression

Notes. Credit Bureau data for Missouri and Illinois. Regression estimates for the interaction of an Illinois indicator, VantageScore® categories, and time measured in quarters prior to the 36 percent interest-rate cap in Illinois. Statistically insignificant results support the parallel trends assumption.

Dependent Variables:	Number of Unsecured Installment Loans from All Lenders	Avg. Size of Unsecured Installment Loans from All Lenders
Illinois × Q1 2021	23.12	292.15
Illinois × Q1 2021 × Near-prime	6.39	-109.53
Illinois × Q1 2021 × Subprime	86.09	115.46

Table 9 Panel A: Perceptions of Credit Availability from Other Sources

Notes. Data are from a survey of individuals who took out an unsecured installment loan in Illinois between January 2019 to March 2021 from four online finance companies who stopped operating in the State of Illinois due to the 36 percent interest-rate cap. Percentages calculated excluding borrowers who declined to report their race, ethnicity, gender, or income. Responses do not total to 100% in some columns because responses such as "Don't Know" and "Prefer not to say" are omitted from this table due to space considerations.

Borrower demographics	I am confident that I can receive a personal loan from my bank at any time			
	Strongly agree	Somewhat agree	Somewhat disagree	Strongly disagree
All Responses	11%	14%	17%	32%
Black	13%	11%	16%	34%
Hispanic	21%	16%	8%	32%
All Other Racial Minorities	12%	15%	12%	24%
All Racial/Ethnic Minorities	14%	13%	14%	33%
Non-Hispanic White	7%	14%	21%	33%
Female	10%	14%	16%	36%
Male	13%	13%	19%	26%
Income < \$50,000	10%	12%	18%	37%
Income ≥ \$50,000	12%	20%	18%	29%
Racial/Ethnic Minority with Income <\$50,000	13%	12%	17%	34%
Female with Income <\$50,000	9%	13%	18%	38%
Racial/Ethnic Minority Female with Income <\$50,000	12%	14%	16%	37%

Table 9 Panel B: Unsecured Installment Loan Usage

Notes. Data are from a survey of individuals who took out an unsecured installment loan in Illinois between January 2019 to March 2021 from four online finance companies who stopped operating in the State of Illinois due to the 36 percent interest-rate cap. Percentages calculated excluding borrowers who declined to report their race, ethnicity, gender, or income. Responses do not total to 100% in some columns because responses such as "Don't Know" and "Prefer not to say" are omitted from this table due to space considerations.

Borrower demographics	Primary reason for your personal loan (Top 4 responses listed)				Did your loan help your financial situation?	
	Utilities	Debt consolidation	Car expense	Rent/ Mortgage	Helped	Did Not Help
All Responses	18%	14%	14%	13%	93%	5%
Black	22%	9%	12%	14%	95%	4%
Hispanic	21%	15%	23%	13%	95%	5%
All Other Racial Minorities	11%	17%	17%	17%	97%	3%
All Racial/Ethnic Minorities	21%	11%	15%	14%	95%	4%
Non-Hispanic White	13%	19%	13%	11%	92%	5%
Female	17%	12%	13%	16%	95%	3%
Male	18%	19%	14%	7%	94%	5%
Income < \$50,000	20%	11%	16%	15%	97%	2%
Income ≥ \$50,000	15%	20%	10%	9%	91%	6%
Racial/Ethnic Minority with Income <\$50,000	23%	9%	16%	15%	97%	3%
Female with Income <\$50,000	18%	9%	15%	16%	97%	3%
Racial/Ethnic Minority Female with Income <\$50,000	24%	6%	15%	13%	98%	2%

Table 9 Panel C: Consequences of Losing Credit Access

Notes. Data are from a survey of individuals who took out an unsecured installment loan in Illinois between January 2019 to March 2021 from four online finance companies who stopped operating in the State of Illinois due to the 36 percent interest-rate cap. Percentages calculated excluding borrowers who declined to report their race, ethnicity, gender, or income. Responses do not total to 100% in some columns because responses such as "Don't Know" and "Prefer not to say" are omitted from this table due to space considerations.

Borrower demographics	Impact on Overall Financial Well-Being			Would you like the option to return to your previous lender?	
	Declined	Same	Improved	Yes	No
All Responses	39%	36%	11%	79%	9%
Black	38%	36%	14%	78%	10%
Hispanic	38%	29%	10%	87%	6%
All Other Racial Minorities	49%	37%	9%	91%	9%
All Racial/Ethnic Minorities	39%	34%	12%	81%	8%
Non-Hispanic White	40%	39%	7%	80%	9%
Female	42%	35%	9%	82%	8%
Male	36%	35%	13%	77%	8%
Income < \$50,000	49%	31%	6%	88%	4%
Income ≥ \$50,000	32%	40%	17%	73%	13%
Racial/Ethnic Minority with Income <\$50,000	47%	30%	8%	91%	4%
Female with Income <\$50,000	46%	32%	7%	89%	4%
Racial/Ethnic Minority Female with Income <\$50,000	44%	33%	9%	91%	4%

Table 9 Panel D: Consequences of Losing Credit Access

Notes. Data are from a survey of individuals who took out an unsecured installment loan in Illinois between January 2019 to March 2021 from four online finance companies who stopped operating in the State of Illinois due to the 36 percent interest-rate cap. Percentages calculated excluding borrowers who declined to report their race, ethnicity, gender, or income. Responses do not total to 100% in some columns because responses such as "Don't Know" and "Prefer not to say" are omitted from this table due to space considerations.

Borrower demographics	How often were you unable to pay bills?				How many times were you unable to borrow money?		
	4+	2-3	1	0	3+	1-2	0
All Responses	15%	39%	13%	25%	19%	37%	24%
Black	16%	37%	15%	23%	18%	32%	26%
Hispanic	14%	46%	12%	17%	17%	47%	23%
All Other Racial Minorities	15%	35%	15%	29%	9%	37%	31%
All Racial/Ethnic Minorities	16%	39%	15%	22%	17%	36%	25%
Non-Hispanic White	15%	39%	10%	28%	19%	42%	19%
Female	15%	40%	14%	24%	20%	37%	22%
Male	13%	39%	12%	25%	19%	37%	27%
Income < \$50,000	18%	44%	16%	16%	24%	39%	21%
Income ≥ \$50,000	13%	34%	10%	36%	14%	37%	23%
Racial/Ethnic Minority with Income <\$50,000	18%	42%	17%	14%	20%	39%	23%
Female with Income <\$50,000	18%	45%	16%	15%	23%	41%	20%
Racial/Ethnic Minority Female with Income <\$50,000	17%	44%	17%	14%	20%	41%	22%

Table 9 Panel E: Consequences of Losing Credit Access

Notes. Data are from a survey of individuals who took out an unsecured installment loan in Illinois between January 2019 to March 2021 from four online finance companies who stopped operating in the State of Illinois due to the 36 percent interest-rate cap. Percentages calculated excluding borrowers who declined to report their race, ethnicity, gender, or income. Responses do not total to 100% in some columns because responses such as “Don’t Know” and “Prefer not to say” are omitted from this table due to space considerations.

Borrower demographics	Paid bills late & generated fees	Skip/cut back everyday expenses	Borrowed from family/friends	Contacted by debt collector	Pawned personal possessions	Skip urgent appointments/expenses	Utilities turned off	Kids impacted	Borrowed from disreputable source
All Responses	49%	34%	32%	29%	14%	12%	11%	11%	9%
Black	47%	35%	36%	27%	15%	10%	16%	14%	9%
Hispanic	51%	36%	33%	32%	15%	12%	19%	10%	4%
All Other Racial Minorities	40%	29%	23%	29%	9%	9%	9%	6%	3%
All Racial/Ethnic Minorities	47%	34%	35%	28%	14%	11%	16%	12%	8%
Non-Hispanic White	53%	37%	29%	29%	14%	14%	5%	11%	10%
Female	53%	37%	36%	31%	13%	15%	11%	14%	9%
Male	45%	33%	26%	26%	14%	7%	13%	7%	10%
Income < \$50,000	56%	40%	40%	31%	17%	15%	14%	14%	9%
Income ≥ \$50,000	47%	29%	21%	27%	9%	9%	9%	10%	10%
Racial/Ethnic Minority with Income <\$50,000	54%	38%	42%	28%	16%	13%	19%	16%	8%
Female with Income <\$50,000	59%	40%	44%	31%	17%	17%	14%	16%	10%
Racial/Ethnic Minority Female with Income <\$50,000	56%	38%	47%	27%	17%	14%	18%	18%	9%

Table 9 Panel F: Since Losing Access to Your Previous Lender in March 2021

Notes. Data are from a survey of individuals who took out an unsecured installment loan in Illinois between January 2019 to March 2021 from four online finance companies who stopped operating in the State of Illinois due to the 36 percent interest-rate cap. Percentages calculated excluding borrowers who declined to report their race, ethnicity, gender, or income. Responses do not total to 100% in some columns because responses such as "Don't Know" and "Prefer not to say" are omitted from this table due to space considerations.

Borrower demographics	Missed work	Car repossessed	In unsafe situation	Checking account closed by bank	Legal action due to bounced check	Evicted
All Responses	6%	4%	3%	3%	1%	1%
Black	10%	4%	2%	3%	1%	1%
Hispanic	6%	5%	0%	3%	0%	0%
All Other Racial Minorities	3%	9%	11%	3%	3%	0%
All Racial/Ethnic Minorities	8%	5%	3%	3%	1%	1%
Non-Hispanic White	4%	2%	2%	2%	0%	0%
Female	6%	4%	2%	3%	1%	1%
Male	6%	4%	4%	3%	1%	0%
Income < \$50,000	9%	4%	4%	4%	2%	1%
Income ≥ \$50,000	3%	3%	1%	1%	0%	0%
Racial/Ethnic Minority with Income <\$50,000	11%	4%	4%	5%	1%	1%
Female with Income <\$50,000	8%	3%	4%	4%	2%	1%
Racial/Ethnic Minority Female with Income <\$50,000	11%	4%	3%	5%	1%	1%

Appendix A: Illinois and Missouri County Groupings

Table A1: Illinois County Groupings

Notes. Counties were grouped prior to obtaining data from credit bureau.

County Groups	Counties Included
Chicago-Will, IL	Will
Chicago-Cook, IL	Cook
Chicago-Dupage, IL	DuPage
Chicago-Kane, IL	Kane
Chicago-McHenry, IL	McHenry, Boone
Chicago-Lake, IL	Lake
Chicago-Kendall, IL	Kendall
Chicago-Small, IL	DeKalb, Grundy
St. Louis-Saint Clair, IL	St Clair
St. Louis-Madison, IL	Madison
St. Louis-Small, IL	Bond, Calhoun, Clinton, Jersey, Macoupin, Monroe
Peoria-Peoria, IL	Peoria
Peoria-Tazewell, IL	Tazewell
Peoria-Small, IL	Fulton, Marshall, Stark, Putnum, Bureau
Rockford, IL	Winnebago
Springfield, IL	Menard, Sangamon
Champaign-Urbana, IL	Champaign
Rock Island, IL	Henry, Mercer, Rock Island
Bloomington, IL	Bloomington, Woodford, Piatt
Ottawa, IL	LaSalle
Carbondale, IL	Jackson, Johnson, Williamson
Top Left, IL	Carroll, JoDaviess, Lee, Ogle, Stephenson, Whiteside
Middle Left 1, IL	Adams, Hancock, Henderson, Knox, McDonough, Warren
Middle Left 2, IL	Brown, Cass, Greene, Mason, Morgan, Pike, Schuyler, Scott
Middle 1, IL	Dewitt, Logan, Macon
Middle 2, IL	Christian, Clay, Effingham, Fayette, Marion, Montgomery, Moultrie, Shelby
Middle Right 1, IL	Ford, Iroquois, Livingston
Danville, IL	Vermillion
Kankakee, IL	Kankakee
Middle Right 2, IL	Clark, Coles, Crawford, Cumberland, Douglas, Edgar, Jasper, Lawrence, Richland
Bottom Left, IL	Franklin, Jefferson, Perry, Randolph, Washington
Bottom Right, IL	Alexander, Edwards, Gallatin, Hamilton, Hardin, Massac, Pope, Pulaski, Saline, Union, Wabash, Wayne, White

Table A2: Missouri County Groupings

Notes. Counties were grouped prior to obtaining data from credit bureau.

County Groups	Counties Included
NW MO, MO	Atchison, Gentry, Holt, Nodaway, Worth, Harrison, Mercer, Carroll, Grundy, Livingston
Buchanan area, MO	Andrew, Buchanan, Clinton, DeKalb, Daviess, Caldwell
Kansas City-Platte, MO	Platte
Kansas City-Clay, MO	Clay
Kansas City-Jackson, MO	Jackson
Kansas City-Cass, MO	Cass
Jackson extended, MO	Johnson, Lafayette, Ray
NE MO, MO	Adair, Charlton, Knox, Linn, Macon, Putnum, Schuyler, Scotland, Shelby, Sullivan, Clark, Lewis, Marion
NW St Louis, MO	Lincoln, Warren
St Louis-St Charles, MO	St. Charles
St Louis-St Louis City, MO	St. Louis city/
St Louis-St Louis, MO	St. Louis
W St Louis, MO	Franklin, Gasconade
St Louis-Jefferson, MO	Jefferson
Boone plus extended, MO	Boone, Callaway, Cole, Moniteau, Osage
ENE MO, MO	Monroe, Randolph, Ralls, Audrain, Pike, Montgomery
Central MO, MO	Cooper, Howard, Pettis, Saline
East Central MO, MO	Barton, Bates, Benton, Cedar, Dade, Henry, Hickory, Morgan, St Clair, Vernon
Greene plus extended, MO	Greene, Polk, Webster
Jasper/Newton, MO	Jasper, Newton
SW MO, MO	Barry, Lawrence, McDonald, Stone, Taney
Springfield-Christian, MO	Christian
S MO, MO	Carter, Douglas, Howell, Oregon, Ozark, Ripley, Shannon, Texas, Wayne, Wright
SE MO, MO	Bollinger, Butler, Dunklin, Madison, Mississippi, New Madrid, Pemiscot, Scott, Stoddard
ESE MO, MO	Cape Girardeau, Perry, St Francois, Ste Genevieve
Central SE MO, MO	Crawford, Dallas, Dent, Iron, Maries, Miller, Phelps, Reynolds, Washington
South Central MO, MO	Camden, Laclede, Pulaski