

THE EFFECTS ON CONSUMERS FROM STATE-IMPOSED REGULATION OF THE PAYDAY LOAN MARKET

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Abstract

We analyze 15.6 million payday loans made to 1.8 million unique borrowers in 2013. We find that loan prices and loan sizes are generally not at state-mandated maximum levels. Using difference-in-means tests and non-parametric Wilcoxon Rank Sum tests for the 30 states in our sample, we find that loans per person in states with maximum loan size limits less than or equal to \$500 is higher than in states with maximum loan size limits greater than \$500. There is a simple explanation for this statistical relationship between loan-size limits and number of loans per person. If consumers are unable to borrow the amount needed at any given time, they will respond by increasing their loan volume to obtain the needed funds. The implication of this result is that state laws might interfere with optimal decisions that consumers make concerning the number of payday loans obtained. We analyze the effects of restricting the number of payday loans per borrower. Through a marginal effects analysis, we show that raising fee caps or raising loan amount caps predicts a smaller number of payday loans per borrower.

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I. Introduction

Many small-dollar lending products have come under increasing scrutiny, as legislators and regulators have limited consumer access to these products and, in some instances, banned or effectively abolished consumer access to them. Payday loans, the most common and popular of these products, have been the target of vociferous criticism and aggressive regulation of various types and degrees of severity, culminating in a 2017 final rule by the Consumer Financial Protection Bureau (CFPB) that would have severely restricted consumer access to payday loans.² According to the CFPB's own research before the 2017 rule was finalized, the rule, if enacted, would eliminate 59 to 80 percent of the number of payday loans.³ The regulatory landscape continues to change. The CFPB issued a notice in February 2019 to rescind parts of the 2017 final rule, and states have continued to regulate payday loans strictly and have in many instances tightened their regulations.⁴

In some states, regulation of payday loans targets particular aspects of the marketing and use of the product, such as limiting the number of loans a consumer may have outstanding simultaneously, requiring "cooling off periods" between successive loans, or requiring certain disclosures associated with the product. In many states, however, the regulations go further and

² Consumer Financial Protection Bureau. 2017. Payday, Vehicle Title, and Certain High-Cost Installment Loans. <https://www.consumerfinance.gov/policy-compliance/rulemaking/final-rules/payday-vehicle-title-and-certain-high-cost-installment-loans/>

³ Consumer Financial Protection Bureau. 2016. Supplemental findings on payday, payday installment, and vehicle title loans, and deposit advance products. <https://www.consumerfinance.gov/data-research/research-reports/supplemental-findings-payday-payday-installment-and-vehicle-title-loans-and-deposit-advance-products/>

⁴ Consumer Financial Protection Bureau. 2019. Payday, Vehicle Title, and Certain High-Cost Installment Loans <https://www.consumerfinance.gov/policy-compliance/notice-opportunities-comment/open-notices/payday-vehicle-title-and-certain-high-cost-installment-loans/>

impose substantive command-and-control-style regulation on the terms and conditions of the product, including limits on the size of the loan and the loan fee per one hundred dollars borrowed.

Since Bentham (1787), most economists have criticized usury ceilings as having counterproductive economic effects, especially for harming to those who are the purported beneficiaries of the legislation: low-income and higher-risk borrowers.⁵ Although the argument is complex, the traditional economic consensus on substantive regulation of consumer lending terms has boiled down to a basic proposition: in a competitive market, the price (i.e., interest rate) and other terms and conditions of a consumer loan (such as loan size and maturity) will be set by the forces of supply and demand just like any other good or service.⁶

Thus, although a usury ceiling can limit the interest rate that can be *charged* by the lender to make the loan, it cannot alter the underlying equilibrium *price* of the loan. As a result, where interest rates are capped by law, lenders and consumers will engage in a variety of circumvention strategies to evade the law's adverse impacts: adjusting non-regulated terms of the loan (such as evading usury ceilings on credit card interest rates by charging an annual fee or increasing other fees); bundling the credit with some other product with unregulated pricing (such as traditional retail store credit where losses on credit operations were recouped by increased prices on retail goods that were usually bought on credit, such as household appliances), or shifting to other less-preferred forms of credit (such as pawn shops), or even illegal loan sharks.⁷ Consumers who are

⁵ Black and Miller (2016) summarize research showing the effects of interest rate caps on consumers who are supposed to benefit from these price controls.

⁶ Durkin, et al. (2014), Chapter 11, contains a detailed summary of the history of state regulation of consumer credit, including interest rate caps.

⁷ Loan Sharking is an ongoing illegal activity, and the subject of academic research and articles in the popular press. An incomplete list of work in the area include, for example, Baker and Breitenstein (2010) who argue that interest rate caps pave the way for increased loan sharking; Goldstock and Coenen (1980) who detail the history of loansharking and the laws protecting consumers from illegal collection tactics; Seidl (1970) who argues for interest rate levels that allow legal lenders to compete with loan sharks. Loansharks are the subject of many popular press

unable to obtain all of the credit that they demand at the market price may end up incurring even greater costs such as bounced checks, eviction, or termination of utility services.⁸

Nevertheless, critics of payday loans argue that market failures exist. In particular, critics suggest that traditional forces of supply and demand do not work in the payday loan market to reduce prices to consumers and increase quality and variety. Critics argue that pricing and other terms of payday loans should not be left to the participants in the private market. Instead, to improve the operation of the market and consumer welfare, they urge the imposition of price ceilings, limits on loan sizes or number of loans, outright bans, and other substantive regulations.

The specific causes of the purported market failure are not clear: critics point to a myriad of factors such as the desperation of the borrowers (and hence a willingness to take any loan “on almost any terms offered”),⁹ ignorance of behavioral biases of consumers that lead them to fail to understand completely the full price of payday loans or available alternatives (CFPB 2017), or some unspecified market failure that encourages payday lenders to compete on margins other than price (such as convenience, speed of service, or some other margin that implicitly is assumed to be less valuable to consumers than price competition).¹⁰

Regardless of the cause of the alleged market failure, critics argue that regulation of loan fees and other terms of payday loans are necessary to correct these market imperfections. In addition, they seem to suggest that absent such regulation, payday lenders would exploit vulnerable and

articles like, “Inquiry is Begun on Loan Sharks; Underworld's Investment in Racket Is Put at Billion,” New York Times, December 2, 1964.

⁸ Representative articles on payday loans and consumer welfare include Bhutta, Goldin, and Homonoff (2016), Bhutta (2014), Morgan and Strain (2008), and Morgan (2007).

⁹ CFPB (2017) at p. 54554; Pew (2013) (reporting that 37% of surveyed payday loan customers would have taken out a loan on almost any terms offered).

¹⁰ CFPB (2017) at p. 54480; *see also* CFPB (2017) at 54493 (citing Pew (2015)) (noting that auto title lenders also compete on non-price margins).

unsophisticated consumers by charging excessive prices and forcing them into “debt traps,” i.e., long and unanticipated cycles of multiple rollovers.

These criticisms have taken on increasing regulatory urgency. For example, in its 2017 final rule to regulate payday loans and other high-cost loan products, the CFPB cites research by DeYoung and Phillips (2009) and Flannery and Samolyk (2005) to assert that, in states where payday loans are permitted by law but subject to price caps, loans “are almost always made at the maximum rate permitted” by law.¹¹

The CFPB also cites a study by the Pew Trusts that asserts that “in States with rate caps, firms lent at the maximum permitted rate, and that lenders operating in multiple States with varying rate caps raise their fees to those caps rather than charging consistent fees company-wide. The Pew study reports that in States with no rate caps, different lenders operating in those States charged different rates.”¹²

Based on these quotes from the 2017 Final Rule, the CFPB and other critics contend that “meaningful price competition” is absent from the payday loan market, and that absent fee caps, payday lenders presumably could force customers to pay high prices to obtain the loans.¹³

In this paper, we examine two overarching hypotheses. First, we examine whether there is a fundamental market failure in the market for payday loans driven by the perceived need of borrowers to take a loan at “almost any price,” as charged by the CFPB in its 2017 final rule. If so, then absent statutory fee ceilings, fees on payday loans would rise to exorbitant levels, and

¹¹ CFPB (2017) at p. 54480. DeYoung and Phillips (2009) actually state: “The percentage of payday loans carrying the maximum legal finance charge increased systematically from 69 percent in 2000 to 97 percent in 2006.”

¹² CFPB (2017) at p. 54480.

¹³ CFPB (2017) at p. 54601 (“Although in any given State there are a large number of lenders making these loans, located typically in close proximity to one another, the Bureau preliminarily found from existing research that there is generally no meaningful price competition among these firms. Rather, the Bureau stated that lenders generally charge the maximum possible price allowed in any given State.”). As a matter of economics, it is not clear what the CFPB means by the term “meaningful” price competition.

fees would fundamentally differ in states that regulate fees and those that do not. Moreover, borrowers would routinely be forced to borrow the statutory maximum loan amount permitted by law so that lenders can maximize their revenue. Second, we examine the effect of common regulations on payday loans to determine whether those regulations fundamentally alter the market equilibrium or simply make it more difficult for payday loan customers and lenders to provide the borrower's desired amount of funds.

We investigate whether payday lenders are attempting to maximize revenue by: 1) making loans at the maximum permissible fee per \$100 lent, or 2) making loans at the maximum permissible amount and/or 3) making loans at the maximum fee per \$100 lent and at the maximum loan amount. In particular, we examine whether payday lenders have influence over the price they charge for loans and whether they choose the size of the loan. If the payday lending market is a competitive one, payday lenders should not exhibit market power. A competitive payday loan market will set the loan amounts and the fees on loans.

Overall, in our sample we find that, contrary to the findings of previous research, in states with a statutory fee cap, about 30 percent of the payday loans are made at less than the statutory maximum fee per \$100. Excluding California, the state with the lowest loan amount cap, about 50 percent of the loans in the remaining states were made at less than the maximum allowable fee. Unlike previous studies, we also examine whether payday lenders routinely make loans at the maximum allowable amount. Overall, in our study, in states with a statutory loan amount cap, about 52.3 percent of the loans are made for an amount within \$50 of the cap, and 47.3 percent of the loans are made for amounts more than \$50 under the cap. Excluding California, these percentages are 36.8 and 62.6, respectively.

These findings suggest that there is no inherent market failure in the payday loan market. In the absence of regulated loan fees and loan amount sizes, the payday loan market would likely produce outcomes consistent with predictions of competitive markets. That is, loan fees and loan amount sizes would not rise inexorably.

For example, in the states without a statutory fee cap, 87 percent of the loans were made at observed fees of 21 percent or less per \$100 lent. Moreover, in the entire sample of 30 states, 89 percent of the payday loans are for amounts less than \$500—the most common loan amount cap. Second, we find an effect of state caps on maximum loan size: borrowers in states with lower caps on permissible loan size take out more loans, on average, than those in other states. We interpret this finding, combined with other findings, as an indication that borrowers have a demand for a certain amount of money and where state regulation prohibits them from borrowing their desired amount, they will take a larger number of loans until they have adequate funds to meet their needs. Regulation, therefore, does not appear to affect the underlying market equilibrium in terms of the amount that a borrower borrows, but simply raises search costs to the borrower of securing adequate funds to meet their needs.

We organize the paper as follows. In Section II, we describe how a typical payday loan works from a “bricks and mortar” lender. We also describe the dataset we use. In Section III, we discuss whether our data provides evidence of a market failure in the payday lending market. Specifically, we examine the percentage of payday loans that have a price equal to the fee cap and we examine the percentage of payday loans made for the loan amount cap. Section IV contains a discussion of the results of a series of statistical tests concerning legislated fee caps and loan amount caps and their association with the number of payday loans obtained, on average, per borrower. Our statistical tests conclude with a discussion of the results of examining

the interaction between fee caps and loan amount caps. Section V concludes.

II. The Workings of a Payday Loan and Data Description.

A. How a Payday Loan Works

A traditional store-front payday loan is a short-term, single payment loan. Nearly all payday loans are for an initial term of 30 days or fewer.¹⁴ In a traditional payday loan, a borrower writes a check to a lender in exchange for a short-term cash loan. The lender agrees not to cash the check until a date specified in the loan agreement.¹⁵

To obtain a payday loan, lenders generally require borrowers to have an active checking account, provide proof of income, show valid identification, and be at least 18 years old. Payday lenders generally do not require a traditional credit report, but they have access to credit reports for subprime borrowers, through companies like Experian.

Payday lending laws vary by state, but all states the lender to disclose the terms of the loan, including the loan amount and the APR. Lenders generally require the borrower to provide bank account access via the ACH or write a personal check for the loan principal plus a loan fee. State laws generally have specific language concerning the nature of this fee.

The loan agreement might allow the lender to withdraw (or attempt to withdraw) the sum owed from the borrower's bank account by cashing the borrower's check at the loan due date—regardless of whether the borrower has sufficient funds in the account. If the account does not contain sufficient funds, the bank will likely charge the borrower a non-sufficient funds fee.

¹⁴ Payday loans are also known as cash advance loans, delayed deposit loans, and deferred presentment loans.

¹⁵ Detailed descriptions of the payday lending industry and its primary product can be found in Elliehausen and Lawrence (2001), Durkin, et al. (2014), Pew (2013), CFPB (2017), and Miller (2019).

As an example, suppose the law allows a payday lender to charge a fee of up to \$20 per \$100 advanced to the borrower. Then, the borrower writes a check for \$240, and the lender advances \$200 to the borrower and keeps the check—which includes \$40 in fees. Assuming this loan is a two-week loan, the annualized interest rate is $\$40/\$200 \times 26 = 5.2$, or 520 percent.

In addition, payday loan borrowers have the option to roll over their loans. Suppose a borrower has a two-week payday loan, and at the end of two weeks, the borrower cannot pay the fee and principal. If the borrower makes the fee payment, the lender can extend the loan for another two weeks—depending on state law. As a result, payday loans can be extended beyond the original borrowing period. If the loan is rolled over, the borrower will pay fees than they originally agreed to.¹⁶

B. Data Description

The data for this project consists of about 95 million storefront payday loans from five payday lenders from January 2009 through May 2014.¹⁷ For each loan there is a unique customer ID, which allowed us to count the number of loans for each consumer.¹⁸ Other information included in the data are the loan size, the amount repaid, the repayment date of the loan, the initiation date of the loan, the loan's due date, the customer's reported monthly income, the Zip Code of where the loans was made, and the state where the loans are made.¹⁹

¹⁶ Some states regulate the number of times a loan can be rolled over. In addition, most states regulate the loan amount. The amount is either set as a flat amount or allowed to vary depending on the borrower's income (subject to a cap).

¹⁷ The data access is through Clarity Services Inc. by a June 2015 nondisclosure agreement signed by one of the authors. T. The production process of the research product(s) under the NDA is controlled exclusively by the authors.

¹⁸ Clarity Resources created this (approximately 20-digit customer ID to mask the identity of the customers).

¹⁹ Experian acquired Clarity Resources in March 2018. As a result, it is likely that the authors will not be able to access the data for any further analysis.

Although there are five full years of data, our analysis focuses on 2013. Because state laws change frequently, focusing on one year allows us to keep the regulatory environment (relatively) constant. To assemble a matrix of state laws concerning loan amount caps and allowable loan fees, we relied on the website maintained by the Consumer Federation of America (CFA).²⁰ Research assistants verified the allowable loan amounts and fee caps via the state law citation provided by the CFA. To the best of our knowledge, the allowable loan amounts and fee caps that we report in our paper accurately reflect the state laws in 2013.

By our tabulations, 33 states permitted payday lending in 2013. We have Clarity data for 30 of these states. The sample contains no data for Minnesota, Alaska, and Hawaii.²¹

Table 1 presents a summary of the data, sorted by the number of loans in each state. By state, Table 1 contains the fee cap per \$100, the loan amount cap, the total number of loans, the total principal borrowed, the number of unique borrowers, the average number of loans per person (the total number of loans divided by the number of unique borrowers), the average loan size (the principal borrowed divided by the number of loans), the average fee, and the median loan size. Overall, in 2013, about 1.76 million people took out 15.57 million loans to borrow approximately \$5.46B in face value, or about \$3,098 per person. The overall average size of a

²⁰ The CFA website is: <https://paydayloaninfo.org/state-information>.

²¹ The maximum allowable fee in Hawaii was \$17.65 per \$100 borrowed. For Alaska, in 2013, the maximum allowable fee was \$5 plus the lesser of \$15 per \$100 or 15%. For Minnesota, the rate cap is stepped. For amounts up to \$50, the allowable charge is \$5.50; for amounts from \$51 to \$100, the allowable charge is 10% plus \$5; for amounts from \$101 to \$250, the allowable charge is 7% plus \$5; for amounts from \$251 to \$350, the allowable charge is 6% plus \$5. The maximum loan amounts were \$350, \$500, and \$600, respectively, for Minnesota, Alaska, and Hawaii. Two states, Oregon and New York, did not allow for payday lending in 2013, but citizens of these states made 38,839 and 7,716 loans, respectively, in 2013. Because we are studying the effects of laws in states that allow for payday lending, we do not include these loans because we do not know where the citizens of Oregon and New York went to get a payday loan. These borrowers had to borrow in a state that allows payday lending. Zinman (2010) and Melzer (2011) document that people cross borders to take out payday loans. Lukongo and Miller (2019) document this effect for installment loans from finance companies.

payday loan in this sample is \$351, which means, on average, borrowers in the sample, obtained about 8.8 payday loans in 2013.

From Table 1, one can calculate that 29.5 percent of the loans in our sample are in California, and more than half are in four states (California, Florida, Michigan, and Texas). Further, about 80 percent of the loans are in ten states (California, Florida, Michigan, Texas, Missouri, Tennessee, Indiana, Ohio, Alabama, and Oklahoma). About 92.0 percent of the loans are in the first fifteen states listed (California through South Carolina), and about 8.0 percent of the loans are in the remaining fifteen states listed (Mississippi through Delaware).

III. Examining Whether there is a Market Failure in the Payday Lending Market

State legislatures are rarely explicit in articulating why they believe there is a market failure that justifies regulating payday loan terms. The CFPB's 2017 rulemaking, however, suggests at least two rationales. First, the CFPB suggests that payday loan customers are so desperate to borrow cash that they will obtain a payday loan on almost any terms. Second, the CFPB implies that payday loan customers suffer from a variety of supposed biases that prevents them from fully understanding the costs of payday loans.

Our data set allows us to test a variety of assertions about payday loans with an aim to determine whether the terms of payday loans are set by market dynamics, or whether these terms require regulation to control prices and other terms. Specifically, we provide evidence against three hypotheses about payday loan markets: Specifically: 1) We do not find that payday loans are generally made at the maximum statutory fee per \$100; 2) We do not find that payday loans are generally made at the maximum loan amount allowed by law, and; 3) We do find evidence

that market forces are able to set loan prices and amounts.

A. Percent of Loans Made at Maximum Fee Caps

In their national survey of payday loan customers, Eliehausen and Lawrence (2001) found that borrowers expressed concerns about the payday loan costs. Three quarters of respondents either strongly agreed or somewhat agreed with the statement: “The government should limit the fees charged by payday advance companies.” State legislatures share this sentiment. As shown in Table 1, for 30 of the states that permit payday lending, 20 place a limit on the dollar fee per \$100 lent. The permissible fees vary across the country. In Rhode Island, lenders can charge a maximum of \$10 per \$100 borrowed, while in Louisiana, the maximum permissible fee per \$100 lent is \$30.12. A natural research question is: what fee levels are observed in the payday loan market?

A common assertion of critics of payday lending is that payday lenders uniformly lend at the maximum fee cap permitted by law, which suggests that price competition is ineffective in the payday loan space.²² DeYoung and Phillips (2009) concluded that as many as 97% of payday loans are made at the statutory rate cap. In its Final 2017 Rule, the CFPB contends that payday loans are almost always made at the statutory rate cap.²³

²² It should be noted that it is not clear why price would be the only variable that would be relevant for determining the extent of competition in the payday loan market. Payday loan customers themselves report that they consider a variety of factors in deciding whether to take out a payday loan and which store to patronize. Although it is possible that a borrower might be able to save a dollar or two per \$100 borrowed (\$3-6 on a \$300 loan) it is not obviously irrational for a borrower to instead choose a payday lender that is faster (thus taking less time to process the transaction) or more convenient in terms of hours or location. Even a difference of 15-30 minutes of waiting or travel time would be relevant for such small margins in terms of opportunity costs. Stango (2012) notes that payday loan customers prefer payday loans compared to credit union loans across a variety of non-price attributes, including hours, the effect of default on one’s credit score, speed, and the ability to rollover payday loans.

²³ CFPB (2017) at p. 54480.

DeYoung and Phillips (2009) estimate the pricing determinants for 35,098 payday loans originated in Colorado between 2000 and 2006. They state: “The percentage of payday loans carrying the maximum legal finance charge increased systematically from 69 percent in 2000 to 97 percent in 2006.” Similarly, Flannery and Samolyk (2005), in discussing their regression results state: “... we observe a relatively tight range of fees charged, concentrated at or slightly below the maximum fee permitted by the state in which the payday loan company is operated.”²⁴ Using our data we can investigate:

HYPOTHESIS 1: Payday lenders nearly always lend at the highest permissible rate.

The CFPB and other critics of payday loans have asserted that because lenders in payday loan markets do not compete on price but compete on other margins (if at all) prices for payday loans invariably should rise to the maximum rate permitted by law. In our sample, we do not find evidence that supports Hypothesis 1.

To begin our investigation of Hypothesis 1, recall that the statutory fee cap is usually expressed in dollars per \$100 lent. For example, a statutory fee cap could be \$15 per \$100 lent, or 15 percent of the amount lent. We must calculate the observed fee percent, because the sample data does not contain the contractual fee. For each loan, the sample data includes the loan principal and the check amount, i.e., the amount of the loan and the amount paid back by the

²⁴ The proprietary data for Flannery and Samolyk (2005) were from payday stores for the calendar years 2002, 2003, and 2004. Flannery and Samolyk (2005) do not disclose where the stores are located. Concerning payday loan prices, they say, “Consistent with Stegman and Faris (2003), we find that payday advance stores tend to charge an effective APR near the applicable statutory limit.” In their study on the payday market in North Carolina, Stegman and Faris (2003) state, without providing evidence in their paper, that: “We also include the average APR in our revenue model, which, in the case of payday lending, is largely a function of loan term because most companies charge the maximum fees permitted by law.”

borrower. We calculate the observed fee as a percentage of the principal:

$$\text{Observed Fee Percent} = \frac{\text{Check Amount} - \text{Principal}}{\text{Principal}} \times 100$$

It is possible, therefore, that in the presence of other fees such as an origination fee or a late fee, that the observed fee would exceed the allowable borrowing fee per \$100. In fact, as shown in Table 2, we observe exactly this result in our sample in eight of the twenty states. In total, there are 528,176 loans, or about 4.1 percent of the total number of loans, where the observed fee exceeds the legislated fee cap per \$100 borrowed. About eighty percent of these loans are in Florida, and about eighteen percent are in Mississippi and Virginia—leaving about 2 percent in the other five states (Indiana, Kansas, Washington, Oklahoma, and Louisiana).²⁵

As shown in Table 2 which contains the 20 states with fee caps, about 8.35 million of the approximately 12.96 million loans, or 64.4 percent, have an observed fee within one percent of the statutory fee cap per \$100. This amount is much less than the 97 percent reported by DeYoung and Phillips (2009) and this amount differs from the results reported by Flannery and Samolyk (2005). Further, about 4.08 million loans, or 31.5 percent, have an observed fee less than one percent lower than the legislated fee cap.

The overall percentage of loans in our sample made at the rate caps is dramatically influenced by California. Subtracting California's 4.58 million loans from the total number of loans in Table 2 still leaves 8.37 million loans. Without California, 4.01 million loans, or 45.1%, had an observed

²⁵ Note that Oklahoma had two violations in the data, and Louisiana had one. It is possible that these three violations are data entry errors.

fee within one percent of the statutory maximum. By contrast, in California, 99.8% of the loans had an observed fee within one percent of the statutory maximum.

A relevant question is why are so many payday loans in California made at the maximum fee rate? We conjecture that the most likely explanation is California's low ceiling on maximum loan size, which is the smallest in the sample, only \$300.

The cost of making small-dollar loans is largely invariant to the size of the loan; for example, it takes a store employee roughly the same amount of time to process a payday loan of \$300 or \$1,000. This fact causes the costs of issuing the loan (and thus the percentage of the loan needed to cover those costs) to be higher relative to the size of the loan for smaller loans than for larger loans.²⁶ Thus, in a state such as California where the maximum loan size is low, a larger percentage of loans would be expected to be made at the statutory limit for fees. If payday loans are made close to or at the legal maximum for payday loan fees in California, these prices do not necessarily reflect a failure of competition.

Instead, what might be occurring is that an unrealistically low maximum loan rate makes it difficult to recover the costs of making the loan. Indeed, if researchers were to study only the California payday loan market, that state's uniquely low ceiling on maximum loan size would provide a misleading picture of payday loans across the country.²⁷

²⁶ This effect obviously would be magnified by differences in prevailing wage rates, rent, or other costs in different locations. For example, the operating costs of a payday loan store in California will be substantially higher relative to Nebraska or South Dakota, yet prevailing state fee caps generally do not reflect these underlying cost differences.

²⁷ For small-dollar installment loans, Durkin, Elliehausen, and Hwang (2017) show that one traditional way in which lenders have dealt with binding interest-rate ceilings has been to increase the minimum size of the loans they are willing to make. In this way, they can spread the costs of making the loan across a larger amount borrowed, which results in a lower calculated APR rate. Ironically, in this case, borrowers might borrow more than they would prefer. As a result, of the increased amount borrowed, borrowers actually pay a higher total costs for the loan, even though the calculated APR rate is lower.

The particular example of California suggests that the tendency in some states for most loans to be made at the legal maximum might result from an unusually low maximum loan amount— instead of a failure of competition in the market.

We do note, however, that there is a different result in Louisiana, which has the next lowest amount cap, \$350, but the highest mandated fee cap. In Louisiana, there are no loans made within one percent of the maximum allowable fee. None of the loans in Louisiana had an observed fee within one percent of the maximum permissible fee. Louisiana, however, has the highest permissible fee cap of \$30.12. As a result, lenders can compete along the price dimension.

A similar result concerning fee caps is observed in Wyoming, the state with the second highest permissible fee cap, \$30, but no limit on the maximum permissible amount lent. An analysis of the sample data for Wyoming and Louisiana (results available upon request) shows that 100 percent of the loans in Wyoming are made at a fee of less than or equal to \$20 per \$100 lent. In Louisiana, 93 percent of the loans are made at a fee of less than or equal to \$20 per \$100 lent, and 98 percent of the loans are made at a fee of less than or equal to \$23 per \$100 lent. In these two states, the fee cap of about \$30 is not binding.²⁸

In Virginia, the state with the third-highest rate cap shown, \$26.38, or 26.38 percent per \$100 borrowed, 35.6 percent of the loans with an observed fee greater than the statutorily-permitted amount. An analysis of the sample data (results available upon request) shows that about 61.5 percent of the loans have a fee that is, at most, \$26 per \$100 lent. About 2.9 percent are in the range of \$26.01 to \$27, and 31.0 percent are in the range of \$27.01 to \$28. The cumulative percent of the loans with a fee that is, at most, \$28 per \$100 lent is 95.4 percent.

²⁸ The average payday loan size in Wyoming is \$491, with a median of \$300. The median loan size is also \$300 in Louisiana, but the average payday loan size is \$282.

The loans in Virginia that exceed the average established by the state ceiling do not actually reflect violations of state law but might instead reflect the unusual nature of the cap established by Virginia law, which permits different caps for different-sized loans. Although \$26.38 is the *average* established for all loans under state law, as shown in Tables 1 and 2, Virginia law calculates the fee cap as 36 percent annual interest rate plus a \$5 verification fee, plus 20 percent of the loan. As a result, for a \$100, two-week payday loan, the cap is \$26.38. If, however, the payday loan has a 21-day term, the cap is \$27.07. Or, if \$88 is borrowed on a two-week loan, the cap is \$23.82, or a rate of \$27.06 per \$100. There are many other combinations of loan term and amount borrowed that places the observed fee at an amount greater than \$27 but less than or equal to \$28.²⁹

Thus, although many loans exceed the *average* cap as calculated under state law, those loans might not violate state law. For analytical simplicity purposes, however, we use the average for our calculations, but note that this likely results in an overestimation of the number of loans made at or above the legally-permissible rate cap in Virginia (and hence in the entire data set).

Table 3 presents observed fees for the nine states without a statutory rate cap, plus Missouri which has a rate cap of 1,955 percent APR cap. This APR translates to a fee per \$100 lent of about \$75—a rate about two and a half times higher than the next highest fee cap, which is \$30.12 in Louisiana. Given this fact, we did not include Missouri with the group of states with a statutory fee cap.³⁰ The states are listed by declining number of loans, and are shown in three

²⁹ For a \$100, two-week payday loan, $0.36 \times 14/365 \times \100 is \$1.38. Adding on 20 percent of the loan (\$20), and the \$5 verification fee results in a maximum fee of \$26.38. For a \$100, three-week payday loan, $0.36 \times 21/365 \times \$100 = \$2.07$, which results in a maximum fee of \$27.07 after adding on 20 percent of the loan (\$20) and the \$5 verification fee. Similarly, for an \$88, two week payday loans, $0.36 \times 14/365 \times \88 is \$1.22. Adding on 20 percent of the loan (\$17.60) and the \$5 verification fee results in a maximum fee of \$23.82, or a rate of $\$23.82 / \$88 = .2706$, which would be reported as \$27.06 per \$100 lent.

³⁰ Using the APR of 1,955 percent, a \$100 loan, and a 14-day term, the interest is: $\$100 \times 19.55 \times (14/365) = \74.99 .

groups, simply for readability. In addition, the total number of loans for these ten states, and the number of loans by eight fee categories appear in Table 3.

The implied fee cap of \$75 in Missouri is not binding. In Missouri, 80.1 percent of the loans made had an observed fee that ranged from 17 to 23 percent, with 7.5 percent of the loans carrying an observed fee of more than 23 percent. Overall, as shown in Table 3, 61.1 percent of the loans made in these ten “no-fee-cap” states had observed fees that lie in the 17 to 23 percent range, with only 4.4 percent greater than 23 percent. There are two states, however, that might skew these results.

In 2013, Ohio had a “dual-rate” structure for payday loans. Payday loans were capped at an APR of 28 percent, but Credit Service Organizations could charge the borrower additional fees. Our sample almost surely contains a mixture of loans that reflect one or both of these fee structures. Of the 700,295 loans in Ohio, 74.4 percent, or 521,020 loans, have a fee less than or equal to 10 percent. These Ohio loans comprise 92.8 percent of the loans in these ten states that have a fee less than or equal to 10 percent. When Ohio is removed from the loan totals, 83.7 percent of the loans made in the remaining nine states had fees that lie in the 17 to 23 percent range, with 5.4 percent greater than 23 percent.

Of the 783,307 loans in the sample for Texas, 85.3 percent, or 668,161 loans had fees greater than 19 percent, but less than 21 percent. This total represents 59.4 percent of all the loans in the sample in this range, which is 1,124,550 (when Ohio is excluded). Excluding Ohio and Texas, 75.2 percent of the loans made in the remaining eight states had fees that lie in the 17 to 23 percent range, with 7.8 percent greater than 23 percent.

From the results in Table 3, we infer that a fee cap of about \$23 per \$100 lent is largely non-binding in these ten states. Note that, as shown in Table 2, there are only three states with

statutory rate caps more than \$23 per \$100. Nevertheless, 31.5 percent of the loans in these twenty states are made with observed fees more than one dollar lower than the fee cap.

Excluding California, there are about 48.6 percent of the loans made with an observed fee that is more than a dollar lower than the statutory fee cap. Overall, we conclude that the results shown in Tables 2 and 3 are signs of a competitive market in payday loans with respect to the observed fees that borrowers pay.

B. Percent of Loans at State Maximum Amount Caps

In addition to regulating the dollar fee per \$100 lent, many states that permit payday loans also regulate the maximum size (principal amount) of a payday loan. The justification for this rule is unclear in many cases, but it likely relates to a notion of affordability: unsophisticated and desperate consumers might be forced to take out loans that will be unaffordable when the time comes to repay them. Thus, larger loans are more prone to being rolled over and incurring higher fees than loans of a smaller, and “more reasonable,” size. With our sample, we can investigate:

HYPOTHESIS 2: Payday lenders generally make loans for the maximum amount allowed.

As shown in Table 1, 27 of the 30 states in our sample have a restriction on the maximum size of payday loans. California has the lowest ceiling, a mere \$300, and Louisiana has the second lowest loan amount cap, \$350. As detailed in Table 1, the most common permissible loan amount cap is \$500, as 12 of the 27 states allow loan principal up to that amount. Mississippi has

a principal cap of \$410 (and a cap of \$500 when fees are included). South Carolina has a principal cap of \$550, while Michigan and North Dakota have loan principal caps of \$600.

A few states have somewhat higher maximum loan amounts reaching \$1,000 in Idaho, Illinois, and Delaware. Five states have an “either or” cap of a dollar amount, or a percent of gross monthly income. For example, the cap in Wisconsin is \$1,500 or 35% of gross monthly income. As will be discussed, however, few payday loans in our sample, about 0.54 percent, are for more than \$1,000.

In 2013, payday loans in Ohio were made under a model that allowed for Credit Services Organizations (CSO structure) to charge fees that augment the interest rate, capped by statute, charged by payday lenders.³¹

As a first look at Hypothesis 2, Table 4 contains fourteen columns. The columns are the percent of loans for less than \$100, the percent equal to \$100, the percent in nine loan size categories spanning \$100 ranges, from \$101 to \$200 to \$901 to \$1,000, and the percent of loans made for \$1,001 or more. Data is reported for California (\$300 amount cap), the combined twelve states with an amount cap of (\$500), the combined three states with an amount cap of (\$1,000), the combined set five states with a cap consisting, in part, of a percentage of gross monthly income, two states where the cap is specified as “no cap” (Utah and Wyoming), Texas, where the law is silent on the cap, and Ohio (with its CSO structure).

Overall, the evidence reported in Table 4 does not support the notion that most payday loans are made at the maximum amount allowed by law. There does seem to be, however, a minimum

³¹ In 2013, Ohio had a small-dollar loan law with an APR cap of 28 percent. At this APR, payday lending costs exceeds revenues. Therefore, loans were constructed under a system where a credit service organization could add on fees that made payday lending profitable. In 2018, Ohio passed a new payday loan law that changed the way CSOs could operate in the state. <https://www.ballardspahr.com/alertspublications/legalalerts/2018-08-01-ohio-enacts-restrictive-payday-lending-law>

amount set by market participants. In our 2013 sample of 15.57 million loans, only 218 loans were made for less than \$100 so the percentage reported rounds to zero in the seven rows. In addition, there were about 3.3 percent (515,125) made for exactly \$100.

In California, 16.9 percent of the loans were made for amounts up to \$200, while 83.1 percent were made for amounts within \$100 of the loan amount cap. In the twelve states with a \$500 cap, 51% of the loans were within \$100 of the cap. For these states for loan amounts over \$100, the remaining 45.9 percent of the loans were roughly distributed equally among the other three categories, 13.0 percent, 17.2 percent, and 15.6 percent.

For the three states with loan amount caps of \$1,000 (Idaho, Illinois, and Delaware), 18.6 percent of the loans were for amounts greater than \$500, with only 3.2 percent within \$100 of the cap.

For the five states with a loan amount cap set, in part, by the percentage of gross monthly income, 19.6 percent of loans were for amounts greater than \$500. The states without an amount cap in 2013 (Utah and Wyoming) as well as Texas had about one third of their loans over \$500. By contrast, Ohio stands out by having about 63.5 percent of payday loans for amounts greater than \$500.

In the entire sample, there were 84,113 payday loans for more than \$1,000, which represents 0.5 percent of all loans. Ohio had 49,258, which is about 7.0 percent of the payday loans in Ohio.

Texas had 34,713, which is about 4.4 percent of the payday loans in Texas. Nevada had 130 and Utah had 10.³²

³² In the raw data, there were some instances of loan amounts for more than the state's rate cap. For example, in Kansas, with a loan amount cap of \$500, there was one payday loan recorded for more than \$1,000. In Washington, there was also one payday loan for more than \$1,000. Washington, however, has a loan amount cap of \$700 or 30 percent of gross monthly income. It is possible, therefore that this particular loan did not violate the loan amount cap.

Table 5 contains some finer results about loan amount caps in the 19 states with fee caps.³³

Overall, the results shown in Table 5 do not support the notion that most loans are for amounts at or near the amount cap. In our sample, about half the loans are for amounts at least \$50 under the loan amount cap, and fully 40 percent are for amounts at least \$100 under the loan amount cap. By state, Table 5 contains the fee cap per \$100, the loan amount cap, the number of loans and the percentage of loans that fall into three categories: one category for loans more than \$99 under the amount cap, one category for loans \$49 under the amount cap to the amount cap, and one category in between. For example, for a state with a loan amount cap of \$500, the column titled “Num. Loans More than \$99 Under the Amt. Cap” represents loans up to \$400. The column titled “Num. Loans \$99 Under Amt. Cap to \$50 Under” are loans ranging from \$401 to \$450. The column titled “Num. Loans \$49 Under Amt. Cap to Amt. Cap” are loans ranging from \$451 to \$500.

The number of loans for this subset of amount_and-fee-cap states is about 12.9 million.

Excluding the two states with the lowest caps (California, \$300 and Louisiana, \$350), the total drops to about 8.3 million loans. As shown in Table 5, about 5.2 million loans, or 39.9 percent of the grand total of 12.9 million loans, are for amounts more than \$100 under the cap. Excluding California and Louisiana, the total is about 4.4 million loans, or 52.5 percent of the 8.3 million loans in the remaining states. In addition, there are about 1.2 million more loans, or 8.9 percent, for amounts more than \$50 under the cap, but less than \$100 under the cap. Excluding California and Louisiana, there are about 1 million loans in this category, or 12.5 percent of this subset.

Therefore, in total, about half the loans in the sample (48.8 percent) are for amounts more than

³³ Using the APR of 1,955 percent, a \$100 loan, and a 14-day term, the interest is: $\$100 \times 19.55 \times (14/365) = \74.99 , which is about two and a half times higher than the next highest rate cap per \$100 lent.

\$50 under the loan amount cap, when there is a fee cap in the state. Without California and Louisiana, this percentage is approximately two-thirds (65.0 percent).

In the sample, about half the loans (51.2 percent) are for amounts \$49 under the cap to the loan amount cap. This percentage drops to 34.9 percent excluding California and Louisiana. In California, with its \$300 cap, 80.7 percent of the loans are for amounts in the \$251 to \$300 range. By contrast, in Louisiana, with its \$350 cap, only 22.3 percent of the loans are in the \$301 to \$350 range.

From Table 1, recall that the median loan size in the entire sample equals the amount cap of \$500 in Florida, Oklahoma, and Virginia. In Table 5, the number of loans under \$401 were 26.5 percent, 35.7 percent, and 45.0 percent, respectively in these states. The percentage of loans in the \$451 to \$500 range were 70.4 percent, 60.8 percent, and 51.3 percent, respectively. No other state with a \$500 loan amount cap had more than half of the loans in the \$451 to \$500 range.

C. Competitive Forces in the Payday Loan Market

The fundamental concern that animates much criticism of payday loans is the claim that the market for payday loans does not “work” in the sense that the forces of supply and demand do not set the terms of payday loan prices. As noted, economists have long believed that prices for consumer credit products reflect an equilibrium price that emerges in a competitive market. What about payday loans? Specifically, absent regulation, would payday loan prices rise to an excessive level? Would loans amounts? Given our sample, we can investigate:

Hypothesis 3: Market forces do not constrain payday loan prices and loan amounts.

The crux of the argument for substantive regulation of payday loans is the belief that market forces do not work for these products because of some defect in market structure that dampens competitive forces. Or, the argument is made that because consumers are desperate and/or lack the sophistication to understand the consequences of their borrowing decision, consumers are willing to obtain a payday loan on almost any terms offered.³⁴

Using the data in Table 1, we ran an OLS regression for all 30 states with average dollar fee as the dependent variable and average loan size as the independent variable. As can be readily verified, the estimated intercept is \$26.17, with a t-stat (p-value) of 1.61 (0.1181). The estimated slope coefficient is 0.099, with a t-stat (p-value) of 2.36 (0.0253). The means are \$63.77 and \$381.46. Although the slope coefficient statistically differs from zero, the relationship between average dollar fees and average loan size is noisy. The adjusted R-square is only 0.136, suggesting a more complicated relationship exists. This suggestion is certainly plausible, given the wide array of payday loan regulations in these 30 states.

In Figure 1, we present a scatterplot of the relationship between the average loan size and the average fee charged on payday loans. Overall, therefore, it appears that despite the presence of statutory fee caps in 20 of the 30 states in our study, the average dollar fee rises in a statistically predictable way with the average loan amount. As can be seen in Figure 1, the dispersion of the average dollar fee grows with the average loan amount.

Of particular interest, however, is the state of Utah. In 2013, Utah did not cap the dollar fee nor did it cap the loan amount. Despite this lack of regulation, Utah plots comfortably within the overall distribution of average fees and average loan amounts. The average fee in Utah was

³⁴ The CFPB (2017) cites Pew (2013) at 54619 that found “that 37 percent of borrowers say they have been in such a difficult financial situation that they would take out a payday loan on almost any terms offered.”

\$88.68, which ranks 26th highest. The average loan amount in Utah was \$466.78, which again ranked Utah 26th highest. Dividing the average fee by the average loan size in Utah results in 19.0 percent, which ranks Utah 20th highest. In Utah, the market capped the fees at \$19 per \$100 lent. Looking at the data in Table 2, this rate places Utah between Kentucky and Mississippi. Thirteen of the thirty states in our sample have a dollar fee to dollar loan size ratio ranging from 17.0 percent to 21.0 percent, i.e., plus or minus two percent from observed loan fees in Utah, which did not limit fees or loan size in 2013. This finding suggests that supply and demand, appear to be able to set “reasonable” rates on payday loans.

The consequences of a \$500 loan amount cap can be assessed by comparing those results to the pattern of loans made in Utah, which places no limit on loan size. As shown in Table 4, in Utah, approximately 2/3 of loans (67.2 percent) are made for \$500 or less, meaning that 32.8 percent of the consumers borrowed more than \$500. Notably, however, even though Utah imposes no statutory ceiling on permitted loan size there appears to be a de facto market-imposed cap. Indeed, of the 89,099 Utah loans in our sample, only 10 loans were for more than \$1,000 and the largest was for \$1,089.

The Utah result suggests that the market prices and amounts for payday loans fall into the ranges of other states. Thus, even when there is no fee cap or loan amount cap, payday lenders and borrowers in Utah are not entering into loans at “unreasonable” or “large” fees or loan size. Despite the fact that lenders are trying to maximize profits, the competitive nature of the market appears to limit the prices paid by borrowers and also limits the loan size.

These results are consistent with the notion that lenders cannot routinely induce borrowers to borrow more than they could reasonably afford to repay. Moreover, it is not evident that borrowers were seeking to borrow as much as possible. Instead, the results for Utah suggests that

Utah consumers are likely borrowing as much as they need, but no more, and lenders in Utah are making some sort of assessment as to the borrower's repayment capacity and commitment.³⁵

D. Default by Loan Size and Loan Amount Caps

In this section, we assess the affordability of payday loans for those who use them. Mann and Hawkins (2007) argue that payday loans probably do not contribute substantially to financial distress. Mann and Hawkins (2007) note the relatively small size of payday loans, which we find to be \$351, on average. In addition, author discussions with payday lenders indicate that many payday loan companies do not typically bring suit to collect in the event of default, resulting in a costless default option for many borrowers. Finally, the principal owed on a payday loan is typically the full amount of the expected loss to the consumer—unlike credit cards, for example, which continue to accrue interest upon delinquency and default, often at a high penalty rate.³⁶ Regardless of their effect on bankruptcy, there is likely interest in the percentage of payday loans that are in default, and whether loan size relates to the default rate. The dataset allows for an examination of the relationship between loan amount caps and the percentage of loans that wind up in default. The dataset contains a field indicator for whether the loan is in default. As a result, for 2013, we can count the number of loans of a particular size per state, count the number of loans of this size in each state that were in default, and calculate the percentage of loans, by size, that were in default.³⁷

³⁵ This Utah result is consistent with the notion that loan amount caps are likely depriving consumers of desired levels of credit rather than protecting them from borrowing excessively, whether because of being forced by lenders or because of desperation or irrationality.

³⁶ Although a payday borrower's liability on the loan is capped by the amount owed, in some circumstances the borrower might be responsible for legal and other collection fees under the contract.

³⁷ We note that we cannot attribute default by unique borrower, nor can we track the relationship between default and the number of loans the unique borrower obtained. Also, we note that conversations the authors have had with

We first examine whether loan amount caps, on average, are able to protect consumers from financial distress. If, for example, larger loan are more likely to lead to consumer distress because of the inability to repay the loan, loan amount caps might be one way to reduce the likelihood of distress. In Panel A of Table 6, we separate the thirty states into two groups. One group contains the fifteen states with legislated loan amount caps of \$500 or less, and the other group contains the fifteen states with loan amount caps, if they exist, of more than \$500.³⁸

In Panel A of Table 6, we present the results for t-tests for equal means and for Wilcoxon rank sum tests. Because our sample size is 29, outliers could unduly influence the results of the well-known test for equal means. The Wilcoxon rank sum test is a nonparametric alternative to the two sample t-test. The Wilcoxon rank sum test is based solely on the order in which the observations from the two samples fall.

The results of the two-sample t-test of equal means and the Wilcoxon rank sum test are consistent. In all but one instance, we do not reject the null hypothesis that the average default percentage is equal between the Low Cap Amount States, Group 1, and the High Cap Amount States, Group 2. For loans in the \$401 to \$500 range, the default rate is higher in the Low Cap Amount states, 1.24 percent, than it is in the High Cap Amount states, 0.76 percent. The p-value for the test of equal means is 0.0770, and the p-value for the Wilcoxon Rank Sum test is 0.0389.

In Panel B of Table 6, we present the results for t-tests of equal means within the group of states, but across loan amount ranges. We have a set of consistent results. For both Low Cap States and High Cap States, loans made for less than \$100 have a lower default rate than loans in

small dollar lenders suggest that about twenty percent of the dollar value of loan inventory is written off in a year. The authors will investigate how the percent of loans in default that we observe in the data is consistent with such an inventory write down.

³⁸ We note that data for the State of Nebraska is missing. We do not know whether Nebraska had zero defaults in 2013 or whether there was an error in the coding. While it is possible that there is an error in the coding, there are loan defaults for Nebraska in other years of the data.

the \$201-\$300 range. In addition, loans made for less than \$100 have a lower default rate than loans in the \$401-\$500 range. The percent of loans in default for loans in the \$201-300 range are not statistically different than the percent of loans in default for loans in the \$401-\$500 range.

In the High Cap States, we report the percent of loans in default in the \$401-\$500 range is 0.84 percent. The percentage of loans in default for these states generally falls as the loan range increases. No loan amount range has a higher percentage of loans in default. We test whether the percent of loans in default in the \$401-\$500 range is equal to the percent of loans in default in the \$601-\$700 and in the \$801-\$900 range. In both tests, the percent of loans in default in the \$401-\$500 range is statistically larger. The fact that the average percent of payday loans in default decreases with loan size is consistent with the notion that payday lenders are doing some sort of underwriting and only make larger loans to people they judge, a priori, to be better risks. This finding is consistent with findings by Durkin, Elliehausen, and Hwang (2017).³⁹

As a policy consequence, a rule that limits payday loan size is unnecessary—the lenders are judging the riskiness of the loan. Imposing a loan amount limit can prevent consumers who are good risks from getting the credit they need from one loan.

In terms of information to assist in underwriting, payday lenders cannot report any information about payday loan borrowing history to the three largest nationwide consumer credit reporting agencies. It is likely, therefore, that storefront payday lenders do not consider traditional credit reports or traditional credit scores, when determining loan eligibility. After all, the lenders have a post-date check (or signed ACH) and access to information from sub-prime credit reporting agencies, which might include information on other financial obligations. In

³⁹ Durkin, Elliehausen, and Hwang (2017) found that \$500 installment loans had higher default rates than \$1,500 installment loans. Their explanation was that installment lenders would only lend small dollar amounts to people the lenders judged to be high risk. The higher default rates suggest that installment lenders were likely correct in their judgment that this group was a high risk.

addition, some state laws impose some requirements that lenders consider a borrower's ability to repay.⁴⁰

In Panel A of Table 6, about 45 percent of the cells for loans in the \$201-\$300 range have more than one percent of the loans in default. About 63 percent of the cells for loans in the \$401-\$500 range have more than one percent of the loans in default. In no cell does the percent of loans in default exceed 3.26 percent, the value for North Dakota in the \$401-\$500 range. The next highest percentage is 3.22 percent for California in the \$201-\$300 range. In all other cells, there are only two other cases where the percent of loans in default exceeds two percent.

Overall, the question to ask about the statistical differences that we find are economically significant. From these default results, it is questionable whether payday loans place an undue financial burden on borrowers. The borrowers who default on these payday loans likely default on many other debt obligations.

IV. Statistical Effects of State Laws

Our descriptive results suggest that there is no evident market failure in the payday loan market. Loan size and loan fees do not inevitably rise to the statutory maximum, which is consistent with the hypothesis that standard supply and demand characteristics determine the market equilibrium. What, then, is the effect of state laws and regulations on the market?

⁴⁰ The CFPB's Final Rule (2017) at page 54480 states: "For example, Utah requires lenders to make an inquiry to determine that the borrower has the ability to repay the loan, which may include rollovers or extended payment plans. This determination may be made through borrower affirmation of ability to repay, proof of income, repayment history at the same lender, or information from a consumer reporting agency. Utah Code § 7-23-401. Missouri requires lenders to consider borrower financial ability to reasonably repay under the terms of the loan contract, but does not specify how lenders may satisfy this requirement Mo. Rev. Stat § 408.500(7). Other States prohibit loans that exceed a certain percentage of the borrower's gross monthly income (generally between 20 and 35 percent) as a proxy for ability to repay. These states include Idaho, Illinois, Indiana, Montana, New Mexico, Oregon, Washington, and Wisconsin. Idaho Code §28-46-412(2), 815 Ill. Comp. Stat § 122/2-5(e), Ind. Code §24-4.5-7-402(1), Mont. Code Ann. §31-1-723(8), N.M. Stat. Ann. § 58-15-32(A), Or. Admin. Rule § 441-735-0272(d), Wash. Rev. Code § 31.45.073(2), Wis. Stat. §138.14."

One possibility is that, despite the findings of Part III, market dynamics establish the market equilibrium, state regulations can nevertheless improve consumer welfare by altering the overall equilibrium in the market. Alternatively, it might be the case that market regulations do not fundamentally change the characteristics of the market, but instead simply provide friction that interferes with the ability of borrowers and lenders to acquire the amount of credit they want at a market price.

In this section, we test the hypothesis of whether state law regulation actually changes the underlying supply and demand characteristics of the market or whether they simply change nominal behavior—thereby forcing circumvention efforts by borrowers and lenders to acquire their desired volume of credit at a the prevailing market price.

The Effects of State Legislation

Legislatures in many states set maximum payday loan sizes. The reason, we surmise, is that legislators want to protect consumers from overextending themselves with these loan products. Payday loans, however, are smaller than other types of consumer credit like auto loans, student loans, credit card debt, and sales financing for home appliances and furniture.

It is possible, however, that low maximum payday loan size could be harmful to consumers. If the maximum loan size is less than a consumer needs, and could reasonably afford, the inability to borrow the desired amount at the time of the loan might lead the consumer to turn to additional alternative sources of credit to gain the necessary funds—potentially including a second payday loan.

For example, consider a consumer who needs \$600 for a car repair. In a state with no payday loan amount cap or a payday loan amount cap of \$600 or higher, the consumer could borrow all

of the necessary funds at one time. By contrast, in a state such as California where the maximum loan amount is \$300, this consumer would have to take out two payday loans to obtain the necessary funds.

Moreover, in California virtually all loans are made at the statutory maximum fee. This results could be because of California's low ceiling on maximum loan size. By contrast, a lender making one loan of, say, \$600 may have greater flexibility to charge below the statutory fee cap—indeed, as noted, while 99.8% of all loans in California are made within one percent of the statutory rate cap, only 45.2% of all loans in the rest of the country made in states with fee caps are made within one percent of the statutory maximum. Thus, although maximum loan size ceilings might potentially serve a consumer protection purpose, by depriving consumers of the ability to borrow the full amount desired at the time, those ceilings could force consumers to do without funds, turn to other products to make up the difference, or even to seek access to a second payday loan from another lender. Each of these scenarios could result in the consumer paying more than would have been the case had he or she been permitted to borrow the desired amount from the payday lender.

The data contained in Table 4 clearly shows that consumers in states with extremely low ceilings on maximum rate size are rationed and unable to gain access to the full amount that they seek to borrow. In California, for example, 83.1 percent of all loans are made in the \$201 to \$300. Using data in Appendix B, in all other states combined, approximately 19.5 percent of all loans are made in the \$201 to \$300 range.

Equally significant for amounts less than \$200 the patterns of loan size are comparable for all other states as in California. For example, in our entire 2013 sample, about 3.3 percent of loans are for \$100 (in California, 3.9 percent) and in the entire sample about 13.9 percent of loans are

made in the \$101 to \$200 range (compared to 12.9% in California). This finding suggests that demand for particular loan size by consumers is not dramatically different in California than elsewhere, but that California payday loan customers are seeking access to larger loans than they can get under California's \$300 size ceiling.

A similar, but less pronounced effect is seen in the 12 states that limit loans to a maximum of \$500. In those states, about half (51.0 percent) of the payday loans are made for \$401 to \$500. On the other hand, this finding implies that just under half of payday loans are for less than the statutory maximum allowed amount. This finding suggests that payday loan customers are not invariably seeking to borrow the maximum permitted amount or that lenders are trying to induce consumer to borrow more than they want to.

A. Fee Caps and Loans per Person

Descriptive Discussion of Groups of States

The data in Table 1 can be split into two equal groups, sorting by the rate cap per \$100 borrowed. We classify Low Fee Cap States as those with a fee cap amount less than or equal to \$19 per \$100 borrowed, and classify High Fee Cap States as those with a fee cap amount greater \$19 per \$100. One can calculate that about 77 percent of the payday loans in our 2013 sample were in the Low Fee Cap States, as were about 67.4 percent of the borrowers. California is classified as a Low Fee Cap state. Excluding California, the Low Fee Cap States had about 68 percent of the loans and about 65 percent of the borrowers.

Using the data in Table 1, dividing the total principal borrowed by the number of loans results in an average payday loan of \$334 in the Low Fee Cap States. Dividing the total number of loans by the total number of unique borrowers results in 9.2 loans per unique borrower. Excluding

California, these numbers are \$394 and 8.7, respectively. In the High Fee Cap States, dividing the total principal borrowed by the number of loans results in an average payday loan of \$406. For these states, dividing the total number of loans by the total number of unique borrowers results in 7.8 loans per unique borrower. Overall, using the data in Table 1, the average payday loan size was \$351, and the number of loans per unique borrower was 8.8. Without California, these numbers are \$398 and 8.4, respectively.

In the Low Fee Cap States, the median loan size is at the amount cap of \$500 in three states: Florida, Oklahoma, and Virginia. The average loans size, however, is less than the cap in each of these states. This observation means that at least half the payday loans in these states were made at the loan amount cap, but not all loans were made at the loan amount cap. For each of the remaining twelve Low Cap States, we can conservatively conclude that at least half the loans were made for amounts less than the loan amount cap. In California, for example, half the payday loans were less than the median payday loan size of \$255, and the other half ranged from the median to the loan amount cap of \$300.

Seven of the High Fee Cap States have loan amount caps ranging from \$550 to \$1,500. In each, we can conservatively conclude that at least half the loans were made for amounts less than the loan amount cap. In our sample, we conclude that payday lenders do not tend to make loans at the maximum permissible loan amount.

In the two states without a loan amount limit, Utah and Wyoming, the median loan size was \$300 and \$400, respectively. The average loan amounts were for \$467 and \$491, respectively. This result is consistent with the notion that a competitive market can result in loan amounts that are higher, on average, than the overall sample, but more than half the loans in each state are for amounts far less than the average loan size.

Discussion of Statistical Tests between Groups of States

To compare differences between groups of Low Fee Cap and High Fee Cap states, we calculate, by state, the average Fee, Monthly Gross Income, average Loan Size, and Loans Per Person. As a measure of affordability in each state, we calculate the number of work hours needed to pay the average payday loan fee. In this calculation, we assuming a 40-hour work week, and four weeks per month, to calculate an average hourly wage. We then divide the average fee by this wage to calculate the work hours needed to pay the average payday loan fee.

In Table 7, we present the results for t-tests for equal means and for Wilcoxon rank sum tests. Because our sample size is 30, outliers could unduly influence the results of the well-known test for equal means. We therefore include results for the Wilcoxon rank sum test, a nonparametric alternative to the two sample t-test. The Wilcoxon rank sum test is based solely on the order in which the observations from the two samples fall. Figure 2, for example, shows the ranked loans per person for the 30 states in our sample. In Figure 2, the circles represent Low Fee Cap States, and the squares represent High Fee Cap States.

The results of the two-sample t-test of equal means and the Wilcoxon rank sum test are consistent. The average fee is smaller in the Low Fee Cap States (Group 1) than in the High Fee Cap States (Group 2). Comparing the two groups of states, the work hours needed to pay the average fee is lower in the Low Fee Cap states—which reflects the lower average fee in the Low Fee Cap states. Note, however, that the average monthly gross income and average payday loan amount are not different, statistically speaking, between the two groups. This result is consistent

with the argument that lenders in the High Fee Cap states are not making loans that are “more unaffordable” than lenders in the Low Fee Cap states.

The average loans per unique borrower is statistically different at the .09 level. The average number of loans per borrower in the Low Fee Cap states was 8.53, versus 6.81 in the High Fee Cap states. Incomes do not statistically differ between the two groups, but the average dollar fee is lower in the Low Fee Cap states, resulting in a relatively lower price of payday loans in the Low Fee Cap States. In turn, this difference in cost perhaps leads to more loans being purchased, on average, in the Low Fee Cap states compared to the High Fee Cap states.

The result that lower fee caps are associated with higher loan volumes per customer is striking—it suggests that restricting the loan fees increases the quantity demanded for those loans. From an economic perspective, the result is obvious and predictable. Reducing prices, *ceteris paribus*, increases quantity demanded. From a regulatory perspective, however, if the goal is to reduce loan volume per consumer, then lower fee caps counteract this goal by effectively subsidizing the demand for payday loans relative to competing alternatives, such as bank overdraft protection.⁴¹

Indeed, the difference is substantial—consumers take out approximately 1.7 more loans in Low Fee Cap states than High Fee Cap states. As a result, depending on the elasticity of demand for payday loans, and the difference between the market equilibrium fee and the statutory ceiling, consumers in some Low Fee Cap states could very well end up paying *more* in payday loan fees than consumers in states with higher fee caps, once the increase in loan volume is considered.

⁴¹ For example, Melzer and Morgan (2009) note that consumers generally choose rationally between payday loans and bank overdraft protection based on the size of the obligation to be covered and the distinctive characteristics of the two products’ price terms. To the extent that fee caps on payday loans reduce the relative costs of payday loans relative to bank overdraft protection, the break-even level between the two products will correspondingly change as well, thereby making payday loans a less-expensive alternative for some obligations that otherwise would be covered by overdraft protection. This will create a substitution effect toward payday loans that will reinforce the income effect associated with reducing the cost of payday loans, thereby leading to higher demand for payday loans.

B. Loan Amount Caps and Loans per Person

Descriptive Discussion of Groups of States

We can also split the data in Table 1 into two groups by the dollar amount cap. We classify Low Cap Amount States as those with a dollar amount cap less than or equal to \$500 and classify High Cap Amount States as those with a dollar amount cap greater than \$500. One can calculate that about 72 percent of the payday loans in our 2013 sample were in the Low Cap Amount States, as were about 67 percent of the borrowers. California is classified as a Low Cap Amount state. Excluding California, the Low Cap Amount States had about 60 percent of the loans and about 56 percent of the borrowers.

The average payday loan was for \$313 in the Low Cap Amount States, and the number of loans per unique borrower was 9.5. Excluding California, these numbers are \$366 and 9.1, respectively. In the High Cap Amount States, the average payday loan size was \$446, and the number of loans per unique borrower was 7.5. Overall, the average payday loan size was \$351, and the number of loans per unique borrower was 8.8. Without California, these numbers are \$398 and 8.4, respectively.

Combining the offsetting effects of average loan size and loan volume produces a startling result: the average amount borrowed by consumers in the Low Cap Amount states is not statistically different than the average amount borrowed by consumers in the High Cap Amount states. Using the data in Table 1, dividing the principal borrowed by the number of unique borrowers, by state, results in an average of \$3,139 in the Low Cap Amount states and an average of \$2,710 in the High Cap Amount states. The standard deviations are \$808 and \$1,412, respectively. Without California, the average is \$3,192 with a standard deviation of \$811. A difference in means test

results in a t-statistic of 1.02, with a p-value of 0.3162. Without California, the t-statistic is 1.14, with a p-value of 0.2661.⁴²

This finding, that the total amount borrowed is not statistically different between the Low Cap Amount and High Cap Amount states, is consistent with the notion that the demand for payday loans is invariant between the two groups. If so, the primary effect of state-imposed ceilings that limit the amount that can be borrowed per loan is that consumers living in Low Cap Amount states must obtain more payday loans to obtain their desired dollar level of credit than consumers living in High Cap Amount states.

As a result, at best, limits on loan size make it more inconvenient and difficult for consumers to obtain the same amount of credit in the Low Cap Amount states than for consumers living in High Cap Amount states. At worst, however, the positive transaction costs associated with obtaining a payday loan, i.e., the time spent traveling to the payday loan store and filling out paperwork, means that consumers living in the Low Cap Amount states could be paying *more* in total costs to obtain the same amount of credit as those consumers living in the High Cap Amount states.⁴³

In the Low Cap Amount States, the median loan size is at the amount cap of \$500 in three states: Florida, Oklahoma, and Virginia. The average loans size, however, is less than the cap in each of these states. This observation means that at least half the payday loans in these states were made at the loan amount cap, but not all loans were made at the loan amount cap. For each of the remaining twelve Low Cap Amount States, we can conservatively conclude that at least

⁴² Using grand averages results in similar average amount borrowed in a year. Dividing the total amount borrowed by the number of unique borrowers in the Low Cap Amount states results in an average amount borrowed, by unique borrower, of \$2,968 (\$3,320 without California). A similar calculation for the High Cap Amount states results in an average amount borrowed of \$3,363.

⁴³ In addition, if payday lenders charge a higher fee for smaller loans than they do for larger loans, this pricing structure imposes even more costs on consumers living in Low Amount Cap states.

half the loans were made for amounts less than the loan amount cap. In California, for example, half the payday loans were less than the median payday loan size of \$255, and the other half ranged from the median to the loan amount cap of \$300.

Seven of the High Cap Amount States have loan amount caps ranging from \$550 to \$1,500. In each, we can conservatively conclude that at least half the loans were made for amounts less than the loan amount cap.

In our sample, we conclude that payday lenders do not tend to make loans at the maximum permissible loan amount.

In the two states without a loan amount limit, Utah and Wyoming, the median loan size was \$300 and \$400, respectively. The average loan amounts were for \$467 and \$491, respectively. In these two states, the competitive market solution resulted in loan amounts that were higher, on average, than the average loan amount in the overall sample, \$351. In the case of Utah and Wyoming, however, more than half the loans in each state were for amounts much less than the average loan size, respectively, in each state.

Discussion of Statistical Tests between Groups of States

In Table 8, we present the results for t-tests for equal means and for Wilcoxon rank sum tests. Again, because our sample size is 30, outliers could unduly influence the results of the well-known test for equal means. We therefore include the results of the Wilcoxon rank sum test, a nonparametric alternative to the two sample t-test. The Wilcoxon rank sum test is based solely on the order in which the observations from the two samples fall. Figure 3, for example, shows the ranked loans per person for the 30 states in our sample. In Figure 3, the triangles represent Low Cap Amount states, and the circles represent High Cap Amount states.

The results of the two-sample t-test of equal means and the Wilcoxon rank sum test are consistent. The average loan size is smaller in the Low Cap Amount States (Group 1). Not surprisingly, the average fee paid per loan is also smaller in the Low Cap Amount States. The average monthly gross income is also smaller in the Low Cap States. Assuming a 40-hour work week and four weeks per month, we calculate how many work hours are need to pay the average fee. When the states are grouped by loan amount caps, the work hours needed to pay the average fee is not statistically different between Low Cap Amount and High Cap Amount states. A simple explanation of this result is that the Low Cap Amount states have lower average fees and lower income than the High Cap Amount states.

The average loans per unique borrower is higher in the Low Cap Amount states: 9.31 versus 6.27. This finding reinforces the earlier finds—restricting the amount a consumer can borrow does not change the underlying demand for credit by borrowers. Instead, the restriction simply forces borrowers to take out more loans in order to obtain their desired level of credit than consumers living in the High Amount Cap states.

C. Loan Amount Caps and the Distribution of Loans per Person

The number of payday loans that borrowers make in a year is the subject of intense debate discussion of concern to many who believe that the number of payday loans made by one person in a year should be limited. In fact, some states have “cooling off” periods and other ways to limit the number of payday loans a borrower can make in a year. Limiting the number of payday loans a borrower can take within a particular period was the central provision of the CFPB’s 2017 payday loan rule, which provided for strict limits on the ability of consumers to take out more than six loans in any 12-month period by any borrower, whether that borrower is

borrowing for personal or for business needs. Critics of the payday product argue that repeated borrowing is a sign of a “debt trap” from which people cannot escape and that taking more than six loans in a 12-month period evidences the presence of this harmful “debt trap.”

The Distribution of Loans per Unique Borrower, Discussion

In our sample, we are able to investigate how many borrowers made a certain number of loans in 2013. That is, we tabulated how many borrowers obtained one loan, two, three, and so on. Table 9 contains results for the entire sample, the fifteen Low Cap states, the fifteen High Cap states, the state of California, and the state of Utah. In Table 9, we express the distribution of the number of loans as a percentage of the total number of borrowers. For example, for the entire sample, 15.5 percent of the approximately 1.77 million unique borrowers made one payday loan in 2013, about the same number as in the Low Cap states (14.4 percent) and in California (14.6 percent). By contrast, 30.3 percent of the 18,809 unique borrowers in Utah made one payday loan, and 17.4 percent of the borrowers in the High Cap states made one payday loan. Across all five columns, about five percent of the unique borrowers made six payday loans.

We also present the cumulative percentage for the number of loans (that might show the effects of rounding). Cumulatively, six or fewer loans represents 50.9 percent of the total number of unique borrowers in the sample, 48.4 percent of the borrowers in the Low Cap States, and 48.3 percent in California. In the High Cap states six or fewer payday loans were obtained by 55.3 percent of the borrowers. Cumulatively, however, in Utah, 78.9 percent of the unique borrowers made six or fewer payday loans in 2013. Only three percent of the unique borrowers in the entire sample took out more than 26 payday loans. In California, six percent of the unique borrowers took out more than 26 payday loans. In Utah, only 0.8 percent of the unique borrowers took out more than 26 loans.

The implications of these findings highlights the inherently arbitrary nature of the CFPB's 2017 Rule, which used the number of loans taken out by a borrower in a 12-month period as a proxy for the welfare effect of those loans on consumers. Yet our results clearly demonstrate that a primary determinate of the difference in the number of loans a borrower takes between two states is largely a function of state laws that limit the amount a borrower can borrow at any given time. Yet, as shown above, consumers in states with low caps borrow the same total amount as borrowers in high-cap states. Thus, the welfare consequences of payday loan debt would seem to have little to do with the number of loans a consumer takes, except that it is more difficult for consumers in low-cap states to obtain their desired level of credit in low-cap states than high-cap states.⁴⁴

Recognizing this result points out the inherent irrationality and arbitrary nature of the CFPB using the number of loans as a proxy for consumer welfare effects. A payday loan customer in Utah will be substantially less likely to reach the CFPB's six-loan trigger than the identical consumer in a state with a strict limit on loan size. To be precise, as shown in Table 9, only 21 percent of Utah payday loan customers would be constrained by the CFPB's six-loan ceiling, whereas 51.6 percent of payday loan customers in Low Cap Amount states would be constrained by a six-loan ceiling. The differential effect of the CFPB's 2017 Rule imposing a six-loan threshold, therefore, has little to do with the different characteristics of borrowers in different states or the differential welfare effects of payday loans in different states.⁴⁵

⁴⁵ In addition, as noted above, consumers in states that impose stricter limits on permissible fees that can be charged also tend to demand more payday loans than those with less-binding fee restrictions everything else equal, likely because lower fee costs increases demand for payday loans by consumers.

Test of the Differences in the Distributions of the Number of Loans per Unique Borrower

To test whether the cumulative distributions show in Figure 4 come from the same distribution, we turn to the two-sample Kolmogorov-Smirnov test. Importantly, this test does not specify what that common distribution is (e.g., whether the distribution is normal or not normal). A shortcoming of the Kolmogorov–Smirnov test, however, is that it is not very powerful because it is devised to be sensitive against all possible types of differences between two distribution functions.

The observed Kolmogorov-Smirnov test statistic is the maximum distance between the two cumulative distributions. The approximate critical value, D_α , is given by

$$D_\alpha = c(\alpha) \sqrt{\frac{N_1 + N_2}{N_1 N_2}}$$

where, from published tables of critical values, $c(\alpha) = 1.63$ for a critical level of 0.01 (which we denote by ***), and 1.36 for a critical level of 0.05 (which we denote by **).

In Table 10 we report the observed Kolmogorov-Smirnov test statistic, and the number of observations in the two samples. We test the cumulative distributions shown in Figure 4 as well as the cumulative distributions of a few other states.⁴⁶

When comparing the cumulative distribution of California versus Utah, the maximum difference in the cumulative distributions is 0.3065, an amount judged statistically different at the 0.01 level. The value for $N_{\text{California}}$ indicates that there are 115 distinct number of loans categories, whereas the value of $N_{\text{Comparison}}$ indicates that there are 49 distinct number of

⁴⁶ Figure 4 presents the cumulative distributions out to 52 loans per borrower for California, Utah, and the group of twelve states that impose a \$500 cap. In the Kolmogorov-Smirnov test, we use the entire cumulative distributions.

loan categories in Utah. As a result, the critical value of D_α at the 0.01 level in this case equals 0.2781.

In Table 10, we see significant results when comparing the cumulative distribution for Utah versus four other cumulative distributions. We also see significant results when comparing the cumulative distributions for the two states without statutory loan amount caps (Utah and Wyoming) with four other cumulative distributions. When comparing Wyoming's cumulative distribution to the four other cumulative distributions, we find no significant results. Thus, it appears that the cumulative distribution in Utah is driving the result.

We test the cumulative distributions between the Low Cap Amount States and the High Cap Amount states and find no significant difference (unreported in Table 10). The overall conclusion is that the borrowers in Utah, facing no restrictions in loan amount caps or fee caps, generated a different cumulative distribution of the number of loans obtained than did the borrowers in California, Louisiana, Mississippi, and the combined twelve states with a \$500 loan amount cap. In addition, when tested against the cumulative distribution of the rest of the High Cap states, Utah's cumulative distribution is judged statistically different at the 5 percent level (not reported in Table 10).⁴⁷

D. The Effects of Mandating the Number of Payday Loans per year for a Borrower

The CFPB's (2017) long and complicated final rule will surely restrict both payday loan volume and revenue to the lenders. In turn, this reduction will constrict the supply of credit available to subprime borrowers. Professor Paige Skiba states: "The Consumer Financial Protection Bureau's changes to underwriting standards – such as the requirement that lenders

⁴⁷ The observed difference was 0.2497. The critical value at the 0.05 level is 0.2435.

verify borrowers' income and confirm borrowers' ability to repay – coupled with new restrictions on rolling loans over will definitely shrink the supply of payday credit, perhaps to zero.⁴⁸

In part, the CFPB Final Rule (2017) requires lenders to assess the ability of borrowers to repay a payday loan before lending money.⁴⁹ The CFPB (2017) acknowledges that, as a result, there will be a substantial reduction in the volume of payday loans, and a corresponding decrease in revenue—again, restricting credit to subprime borrowers. The CFPB estimates loan volume and revenue will decrease by 62 percent to 68 percent.⁵⁰

In addition to the ability to repay requirement, the CFPB (2017) rule includes an eventual cooling-off period between payday loans. In their Supplemental Report (2016), CFPB researchers report: “Payday loan volume and revenues would decline between 60% and 81-82% under a 30-day cooling-off period between loans. The decline in the number of loans would be similar, with decreases estimated between 59% and 80%.”⁵¹

The CFPB states that the results of two studies by Baines, et al. (2015 and 2016) are broadly consistent with the findings of the Bureau. Baines, et al. (2015 and 2016) estimate that the proposed final CFPB rule (2017) will result in total revenue reductions of 82 percent and 83

⁴⁸ Paige Marta Skiba, 2016, “Limiting access to payday loans may do more harm than good,” *The Conversation*, June 5. Available at: <https://theconversation.com/limiting-access-to-payday-loans-may-do-more-harm-than-good-60499>.

⁴⁹ Specifically, the CFPB states: “The rule identifies it as an unfair and abusive practice for a lender to make covered short-term or longer-term balloon-payment loans without reasonably determining that the consumers will have the ability to repay the loans according to their terms.”

⁵⁰ The CFPB (2017) at 54817 states: “The primary impact of this rule, prior to any reforms it may prompt in market practices, will be a substantial reduction in the volume of short-term payday and vehicle title loans (measured in both number and total dollar value), and a corresponding decrease in the revenues that lenders realize from these loans. Simulations based on the Bureau’s data indicate that payday loan volumes will decrease by 62 percent to 68 percent, with a corresponding decrease in revenue.”

⁵¹ “Supplemental findings on payday, payday installment, and vehicle title loans, and deposit advance products,” CFPB (June 2016), pg. 139. <https://www.consumerfinance.gov/data-research/research-reports/supplemental-findings-payday-payday-installment-and-vehicle-title-loans-and-deposit-advance-products/>

percent, respectively. The CFPB notes that these studies do not examine the Bureau's ability to repay (ATR) requirements.⁵²

Hackett (2016), however, conducts a complete simulation of the CFPB's proposed "ability to repay (ATR)" requirement by analyzing cash flow analysis and the cooling-off period requirement. Hackett (2016) finds that the effect of complying with the ATR requirement is a 90.5% to 92.7% reduction in volume, using the same "optimistic" assumptions that underlie [the estimated] CFPB 60% reduction."⁵³ Despite the studies that show the significant deleterious effects on the borrowers and lenders in the payday loan market, the CFPB issued its final rule in November 2017.

In its final rule, the CFPB (2017) also provides an alternative way for lenders to comply with the rule that results in a cap of six loans in a calendar year.⁵⁴ If policy makers cap the number of payday loans that borrowers can take out in a year, the effects on the payday market will also be significant. Our dataset allows us to examine the effects of capping the number of payday loans. Our dataset has the number of loans taken out and the number of borrowers who took out that number of loans. Table 11 contains our findings on capping the number of loans per person.

⁵² See CFPB (2017) at 54827. The studies cited by the CFPB are: Arthur Baines et al., "Economic Impact on Small Lenders of the Payday Lending Rules Under Consideration by the CFPB," Charles River Associates, (2015), available at <http://www.crai.com/publication/economic-impact-small-lenders-payday-lending-rules-under-consideration-cfpb>, and; Arthur Baines et al., "Economic Impact on Storefront Lenders of the Payday Lending Rules Proposed by the CFPB," Charles River Associates (2016), available at <http://www.crai.com/publication/economic-impact-storefront-lenders-payday-lending-rules-proposed-cfpb>.

⁵³ Hackett, Rick, 2016, "Evaluating CFPB Simulations of the Impact of Proposed Rules on Storefront Payday Lending," nonPrime101.com, white paper.

⁵⁴ The CFPB (2017) at 54473 states: "In addition, a lender is not allowed to make a covered short-term loan under the alternative requirements if it would result in the consumer having more than six covered short-term loans during a consecutive 12-month period or being in debt for more than 90 days on covered short-term loans during a consecutive 12-month period."

In Panel A of Table 11, we report the number of payday loans in our 2013 dataset as well as the number of unique borrowers. We calculate the average number of loans taken out by borrowers to be about 8.83.⁵⁵ In Panel B of Table 11, we report the projected number of loans under an array of loan caps, *ceteris paribus*.⁵⁶

In Panel B of Table 11, we see that the effects of a six-payday-loans-per-year cap results in a projected 49.9 percent reduction in the number of payday loans. The average number of loans is 4.40 per borrower, a decrease of about -50.2 from the observed average. If regulators wanted to set the average number of loans at about six per borrower, a number-of-loans cap of about ten projects to an average number of loans of 6.11. A number-of-loans cap at ten, however, still results in a decrease of about -30.4 percent in the number of loans, and a -30.9 percent decline in the average number of loans per person.

Currently, federal regulators, and some state legislatures, have focused on setting an arbitrary number of payday loans taken out by borrowers in a stated attempt to reduce financial distress. The results in this paper show that other factors, namely fee caps and loan amount caps, can influence the number of payday loans in a market. In the next section, we examine other ways for legislatures to influence the number of payday loans taken out by borrowers.

⁵⁵ We note that the number of loans and borrowers is higher in the entire dataset than for the 30 states studied. The higher numbers results because the overall data includes payday loans taken out by residents of Oregon and New York, two states that prohibit payday lending. The average number of loans, 8.78, is slightly lower for the entire dataset.

⁵⁶ To calculate the projected number of loans under a loan number cap, we proceed as follows. For example, suppose the loan amount cap is two. There were 275,813 unique borrowers in our data set who took out one payday loan and 178,852 unique borrowers who took out two payday loans. Thus, the number of loans made to these two sets of borrowers is 275,813 plus two times 178,813, which equals 454,665. There were 138,075 borrowers who obtained three payday loans, resulting in 414,225 loans. Under a two loan amount cap, however, the resulting number of loans is 138,075 borrowers times two loans, or 276,150. Under a two loan cap, we project these borrowers would reduce their borrowing by 138,075 loans, *ceteris paribus*. We continue this process of capping the number of loans for all other borrowers. A two-loan cap results in about 3.3 million loans, a reduction of 79 percent of the total number of loans in 2013.

E. The Interaction between Fee Caps and Loan Amount Caps

As shown in Table 1, in 2013 the states had various levels of fee caps and loan amount caps. In this section, we strive to provide a way for policymakers to observe the joint effects of these two caps on the number of loans obtained, on average, by payday loan borrowers across the states. If policy makers want to influence the number of payday loans obtained by payday borrowers, examining this interaction is crucial.

Description of the Data Set used in the Interaction Analysis

As can be tabulated from Table 1, seventeen states have a legislated fee cap and a legislated loan amount cap.⁵⁷ There are five states, Delaware, Indiana, South Dakota, Washington, and Wyoming that have one cap that is legislated and one cap that is not.

Looking first at fee caps, Indiana, Washington, and Wyoming have legislated fee caps, but Delaware and South Dakota do not. Accessing the data underlying Appendix A, we find that in Delaware and South Dakota, no loans are made for more than \$20 and \$23 per \$100, respectively. We therefore deem these amounts to be market-imposed fee caps and use these levels as fee caps for these two states.

In the group of five states, Delaware and South Dakota had statutes setting the loan amount cap: \$1,000 and \$500, respectively. Indiana and Washington allow for a calculated cap: either a flat amount, or one that is a percentage of gross income. Because we have data for the average gross income per payday loan borrower for each of these states, we can find the binding loan amount cap for these two states: \$492 for Indiana, and \$700 for Washington. Wyoming has

⁵⁷These states are Alabama, California, Florida, Iowa, Illinois, Kansas, Kentucky, Louisiana, Michigan, Mississippi, North Dakota, Nebraska, Oklahoma, Rhode Island, South Carolina, Tennessee, and Virginia.

not stated loan amount cap. By looking at the data underlying Appendix B, however, we find that no loans made in Wyoming were for more than \$1,000. As a result, we deem this level as a market-imposed loan amount cap, and set the loan amount cap for Wyoming at \$1,000.

Looking at Table 1, there are three states, Ohio, New Mexico, and Wisconsin that do not have statutes that directly state a fee cap or a loan amount cap. With respect to setting a fee cap for these states, we see that none of these states have an expressly stated fee cap. By once again looking at the data underlying Appendix A, however, we can deem some market-implied fee caps for these states. In Ohio, no loans were made for more than \$28 per \$100. In New Mexico, no loans were made for more than \$26 per hundred. In Wisconsin, no loans were made for more than \$22 per \$100 borrowed.

Ohio statutes are silent on the loan amount cap. For Ohio, using the data underlying Appendix B, we find that no payday loans in Ohio exceeded \$1,100. As a result, we deem this amount to be the market-imposed loan amount cap in Ohio. New Mexico and Wisconsin have loan amount caps that must be calculated. In New Mexico, the loan amount cap is 25 percent of Gross Income. Using the data we have for average gross income for payday borrowers, we deem the loan amount cap in New Mexico to be \$691. Similarly, the loan amount cap for Wisconsin is deemed to be 35 percent of Gross Income, or \$868.⁵⁸

In our analysis, however, we use three sets of states: the original set of seventeen states that impose a fee cap and a loan amount cap, a set of twenty-two states, which includes the previous seventeen states and adds five more that impose either a fee cap or a loan amount cap. For these states, we are able to infer a market-imposed cap for the missing cap. To this group of twenty two states, we add three more states that do not legislate a fee cap or a loan amount cap.

⁵⁸ The statute in Wisconsin calls for a loan amount cap of \$1,500 or 35 percent of gross income.

For these states, we are able to infer market imposed caps for fee caps and loan amount caps.

Twenty-five states comprise this last set.⁵⁹

Regression Specification and Results

We acknowledge that there are likely some socioeconomic controls that would ideally be added as control variables, but including each one comes at a cost of one degree of freedom.

Because we are dealing with loans, however, the likely most important control variable is income. The data set contains the monthly gross income for each payday loan borrower, which we average in each state. Table 7 contains these data.⁶⁰

For the three groups of states, we include an interaction term and estimate Equation (1) using OLS.

$$\begin{aligned} \text{Avg. Number of Payday Loans}_i &= \alpha + \beta_1 \times \text{Fee Cap}_i + \beta_2 \times \text{Amount Cap}_i + \\ &+ \beta_3 \times (\text{Fee Cap}_i \times \text{Amount Cap}_i) \\ &+ \gamma \times \text{Avg. Gross Monthly Income}_i + \varepsilon_i \end{aligned} \quad (1)$$

⁵⁹ In the remaining five states, Idaho, Missouri, Texas, Nevada, and Utah, the statutes do not limit fee caps. But, the data underlying Appendix A allows us to find that the maximum fee charged in Texas only, and it is \$22 per \$100 borrowed. In the other four states, we cannot observe the maximum fee charged for loans. For Texas, however, we cannot observe the maximum loan amount from the data underlying Appendix B. In Idaho and Missouri, there is a statute setting a loan amount cap: \$1,000 in Idaho and \$500 in Missouri. In Nevada, the loan amount cap is 25 percent of gross income, which we calculate to be \$693. Using the data underlying Appendix B, we find a market-imposed loan amount cap of \$1,000 in Utah. As a result of not having a combination of a statute or a market-imposed level for a fee cap or loan amount cap, we do not include these remaining five states in the analysis.

⁶⁰ Note that this average monthly gross income is not for the entire population of the state. It is only for payday loan borrowers who obtained a payday loan in 2013.

Table 12 contains the regression results for each of the groups of 25, 22, and 17 states, respectively. In all three regressions, the P-Value for the F-value shows that the model is statistically significant. In addition, the adjusted R-Square is 0.54, 0.50, and 0.77, respectively, which means the model explains at least half the variation in the dependent variable (average number of loans per person).

In regressions [1] and [2], which represent the groups of 25 and 22 states, the coefficients for Fee Cap and Amount Cap are both significant, and less than zero. For the Fee Cap, a negative coefficient means that, *ceteris paribus*, raising the Fee Cap results in a decrease in the number of payday loans made, on average, for borrowers—which is economically appealing. For the Amount Cap, a negative coefficient means that, *ceteris paribus*, raising the amount cap reduces the number of payday loans made, on average, for borrowers—which also makes sense economically. The interaction term is also statistically significant, and positive. The interpretation of this coefficient is best viewed within the context of the marginal effects analysis.

In regression [3], which is for the group of 17 states, the signs of Fee Cap and Amount Cap are positive and significant. In this regression, the interaction term is statistically significantly negative. We do note that in this group, most states have a fee cap of less than \$20 per \$100 borrowed and an amount cap of \$500 or less.

Interpretation of the Regression Coefficients

In Table 12, for each regression, we include the means of the independent variables, as well as the mean of the dependent variable. The estimated coefficients for the intercept and the regressors, can be used to generate an estimated number of loans per person for any set of values

of the independent variables. For example, it is well-known that using the means of the independent variables results in the mean of the dependent variable. Suppose the values for the loan amount cap and the fee cap were increased by one unit, but that the value of the monthly gross income was left at its mean. For the group of 25 states, these changes (and the change in the interaction term) results in an estimated loans per person of 6.55, a decrease of the average loans per borrower of 1.43, or 18 percent.

The results are similar for the group of 22 states and the groups of 17 states. Increasing the loan amount cap and the fee amount cap by one unit more than their average values results in a reduction of 1.12, or about 14 percent, in the predicted average number of loans for the group of 22 states. For the group of 17 states, the results are larger. Increasing the loan amount cap and the fee amount cap by one unit more than their average results in a reduction of 2.87 loans, or about 33 percent, in the predicted average number of loans. As shown in Table 11, this decline is similar to the predicted amount of imposing a number-of-loans-cap of 10 per borrower per year. The difference is, of course, that raising the fee caps and loan amount caps let the borrowers decide on how many loans to obtain.

Econometrically, we note that we have not calculated a confidence interval for these point estimates. Consequently, we are cannot be as confident in these predictions as we can be where we can, if fact, compute confidence intervals and test the statistical significant of the predicted changes. In the next section, we employ a technique that allows us to compute confidence intervals and test for statistical significance.

The Marginal Effects of Fee Caps and Loan Amount Caps

Taking the partial derivatives of Equation (1) with respect to Fee Cap and Amount Cap respectively gives

$$\frac{\partial \text{Avg. Number of Payday Loans}}{\partial \text{Fee Cap}} = \beta_1 + \beta_3 \times (\text{Amount Cap}) \quad (2)$$

and

$$\frac{\partial \text{Avg. Number of Payday Loans}}{\partial \text{Amount Cap}} = \beta_2 + \beta_3 \times (\text{Fee Cap}). \quad (3)$$

In this way, we can estimate the marginal effect on the average number of loans taken out if the Fee Cap (Amount Cap) changes by one unit given a level of the Amount Cap (Fee Cap). For example, using the regression coefficients in Table 12 from the set of 25 states, we estimate the change in the average number of payday loans is

$$-0.98 + .1649 \times 3 = -0.49,$$

if the Amount Cap is \$300 and the Fee Cap is increased by \$1 per \$100 lent.⁶¹ Table 13 contains the results marginal effects estimates. Panel A contains the estimates of the marginal effects of Fee Caps, and Panel B contains the estimates of the marginal effects of Amount Caps. Each Panel contains three sets of estimates using the groups of 25, 22, and 17 states, respectively. Each Panel contains the point estimate, as well as a 95 percent confidence interval. The confidence intervals are generated using the variance covariance matrix and a standard deviation

⁶¹ Note that the loan amount caps enter the regression equation as hundreds of dollars, i.e., \$3, not as the actual loan amount cap, i.e., \$300. Note further, that rounding the coefficient estimate for the Fee Cap, results in a slightly smaller number in Table 13.

multiplier from a t-Table with the appropriate number of degrees of freedom. In addition, we report the F-statistic and p-value for the test of the null hypotheses:

$$H_0: \beta_1 + \beta_3 \times (\text{Amount Cap}) = 0 \quad (4)$$

and

$$H_0: \beta_2 + \beta_3 \times (\text{Fee Cap}) = 0. \quad (5)$$

That is, we test for the statistical significance of changing one cap by one unit while holding the other cap constant at various levels. In Panel A of Table 13, for the Group of 25 and the Group of 22 states, we see that the null hypothesis (4) is rejected for Amount Caps of \$300, \$350, and \$400. Moreover, the effect of raising the Fee Cap by \$1 per \$100 lent diminishes (in absolute terms) as the Amount Cap grows. The size of the estimated marginal effects is nearly the same for both groups of states. For example, when the Amount Cap is \$300, raising the Fee Cap by \$1 per \$100 lent predicts a decrease in the average number of loans per person of -0.48 for the Group of 25 states, and -0.47 for the Group of 22 states. The marginal effect diminishes to -0.32 when the Amount Cap is \$400 for the Group of 25 states, and to -0.30 for the Group of 22 states.

For the Group of 17 States, the results are different. The null hypothesis (4) is rejected for Amount Caps \$400, \$500, and \$600. Moreover the effect grows (in absolute terms) as the Amount Cap grows. For example, when the Amount Cap is \$400, raising the Fee Cap by \$1 per \$100 lent predicts a decrease in the average loans per person of -0.21. By contrast, when the Amount Cap is \$600, raising the Fee Cap by \$1 per \$100 lent predicts a decrease more than three times larger, -0.74.

In Panel B of Table 13, for the Group of 25 and the Group of 22 states, we see that the null hypothesis (5) is rejected for fee caps \$15, \$16, \$17, \$18, \$19, and \$20.⁶² Moreover, the effect of raising the Amount Cap by \$100 diminishes (in absolute terms) as the Fee Cap grows. The size of the estimated marginal effects is nearly the same for both groups of states. For example, when the Fee Cap is \$15, raising the Amount Cap by \$100 predicts a decrease in the average loans per person of -1.76 for the Group of 25 states and -1.68 for the Group of 22 states. The marginal effect diminishes to -0.93 when the Fee Cap is \$20 for the Group of 25 states, and to -0.82 for the Group of 22 states.

For the Group of 17 States, the results are different. The null hypothesis (5) is rejected for all Fee Cap levels. Moreover the effect grows (in absolute terms) as the Fee Cap grows. For example, when the Fee Cap is \$15, raising the Amount Cap by \$100 predicts a decrease in the average loans per person of -0.85. By contrast, when the Fee Cap is \$25, raising the Amount Cap by \$100 predicts a decrease more about four times larger, -3.51.

Comparing these results to the results in Table 11 shows that raising Fee Caps and Amount Caps has a potentially large effect. In Table 11, the average number of loans without a systematic cap on the number of loans is 8.83. A number-of-loans cap of 26 payday loans per year results in an average number of 8.42 loans per person, a decrease of -0.41 loans per person. This decrease is about the same size as the predicted effect of increasing the Fee Cap by a dollar when the Amount Cap is \$300, \$350, or \$400.

⁶² We could also estimate effects for fee caps \$21, \$22, \$23, and \$24.

In Table 11, a number-of-loans cap of twelve payday loans per year results in an average number of 6.73 loans, or a decline of -2.10, from 8.83. This decline is within the confidence interval of raising the Amount Cap by \$100 when the Fee Cap is \$15 or \$16 per \$100 lent.⁶³

If lawmakers raised fee caps or loan amount caps in payday loan markets, each borrower can still choose how many payday loans to take out in a year. Raising fee caps and/or loan amount caps might well be, however, counterintuitive to policy makers who want to reduce the number of payday loans. Nevertheless, the results in this section show that the predicted marginal effects of raising fee caps or loan amount caps is consistent with the notion that there would be fewer payday loans, on average, per person.

V. Conclusion

In this paper, we analyze about 15.6 million payday loans obtained by about 1.8 million unique borrowers in 2013. Our data is from Clarity Services which gathered payday loan data from five “bricks and mortar” payday lenders that operated in 30 states. Using this data, we test several hypotheses about payday loans and their regulation.

In our study, we find no support for the claim that competition does not work in payday loan markets, or for the claim that the payday loan market is plagued by widespread market failure. We reach two general conclusions. First, we find that the fundamental terms of payday loans are largely set by the forces of supply and demand, including the price of the loan as well as the average size of the loans. This finding rebuts the notion that absent regulation, payday lenders would invariably set the price of payday loans at extortionate levels. We find that in

⁶³ Strictly speaking, note that the lower bound of the confidence interval for the Group of 22 states is only -2.00 when the fee cap is \$16 per \$100 borrowed.

states that impose no caps on payday loan fees, payday loan fees are similar to the fees in states that do limit fees.

We also find, contrary to previous research, many payday loans are made at fee levels below the maximum permitted by state law. In fact, we find that 31.5 percent of the loans are made at a fee level that lies at least one percent less than the permitted fee. Setting California aside, we find that 48.6 percent of the loans are made at a fee level at least one percent less than the permitted fee.

Second, we find that the presence of binding regulatory constraints does not change the fundamental underlying supply and demand characteristics or consumer behavior. Instead, they simply impose costs on consumers by making it more difficult for them to accomplish their desired level of borrowing. In particular, we find that where state laws impose limits on the permitted loan amount (frequently a \$500 maximum, but only \$300 in California) consumers do not respond by demanding less credit. Instead, we find that in states with lower caps on permitted loan size, consumers borrow statistically more often than consumers living in states with higher caps. If consumers are unable to borrow their desired amount because of limits on loan size, they respond by increasing their loan volume, i.e., the number of loans that they obtain. Obtaining multiple loans to meet desired needs is less efficient for consumers and imposes unnecessary transaction costs to secure the desired funds.

Overall, we find no evidence of a market failure in either loan prices or loan amounts and find no evidence that prevailing regulations, especially caps on permitted loan size, actually improve social welfare.

Our finding that the average number of loans is determined in part by the maximum permitted loan size is of particular interest in evaluating the CFPB's (2016) small-dollar loan

rule. Under that rule, the CFPB effectively imposed a six-loan limit on the number of payday loans that a consumer could obtain in any twelve month period.

Our findings show that higher borrowing frequencies could be induced by state laws that limit the permissible size of loans. Thus, by setting an arbitrary limit on the number of loans consumers could obtain, the CFPB's rule could have had dramatically different effects on residents of different states. For example, in our sample, a payday loan customer in Utah will be substantially less likely to reach the CFPB's six-loan trigger than the identical consumer in a state with a strict limit on loan size. To be precise, only 21 percent of Utah payday loan customers would be constrained by the CFPB's six-loan ceiling, whereas 51.6 percent of payday loan customers in Low Cap Amount states would be constrained by a six-loan ceiling.

Using a difference in means test, we find that the number of payday loans obtained, on average, in the Low Amount Cap states is higher than in the High Amount Cap states. This finding is buttressed by the non-parametric Wilcoxon Rank Sum Test. Moreover, state laws might also have an impact on the distribution of the number of payday loans obtained by unique user. We test the difference in the cumulative distributions between states with low amount caps and fee caps and states without loan amount caps. When we test the cumulative distributions between the Low Cap Amount States and the High Cap Amount states, however, we find no significant difference.

When comparing the cumulative distribution of payday loan usage in California versus Utah, we find they are statistically different at the 0.01 level. We also find that the distribution of payday loan usage in Utah is statistically significantly different that the cumulative distributions in Louisiana, Mississippi, and the group of twelve states with a \$500 loan amount cap. The overall conclusion is that the borrowers in Utah, facing no restrictions in loan amount caps or fee

caps, generated a different cumulative distribution of the number of loans obtained than did the borrowers in California, Louisiana, Mississippi, and the combined twelve states with a \$500 loan amount cap. In addition, when tested against the cumulative distribution of the rest of the High Cap states, Utah's cumulative distribution is judged statistically different at the 5 percent level.

If there is a concern about the number of loans consumers obtain, our findings, using a marginal effects analysis, suggest that one solution would be to persuade states to eliminate, or dramatically increase, their caps on permitted loan size. With higher caps on permitted loan size, consumers can meet their desired demand for credit with fewer, but potentially larger, loans instead of aggregating multiple smaller loans. We find a similar effect concerning the level of fee caps imposed. That is, holding amount caps constant, our analysis suggests that states can influence the number of payday loans obtained per person by raising the permitted fee cap.

Increasing loan amount caps can benefit some consumers. For example, in Utah and Texas, we find that approximately one-third of payday loans are for more than \$500. Higher loan amounts are not an option in states where consumers can gain access to only \$300 or \$500 at a time. Consumers that want more than the loan amount cap are forced to go without, turn to unlicensed lenders, or take out multiple payday loans. It is important to recognize that although consumers in Utah and Texas could borrow more, consumers in these states do not automatically gravitate toward the largest loan size available: two-thirds of the loans are for amounts less than \$500.

This finding is consistent with the notion that borrowers and lenders exercise some discretion in deciding loan size. In fact, when we measure the cost of a payday loan to consumers in terms of their gross monthly income, we find that payday loan prices across the sample tend to hover at a level equal to three to five hours of labor at the average monthly income.

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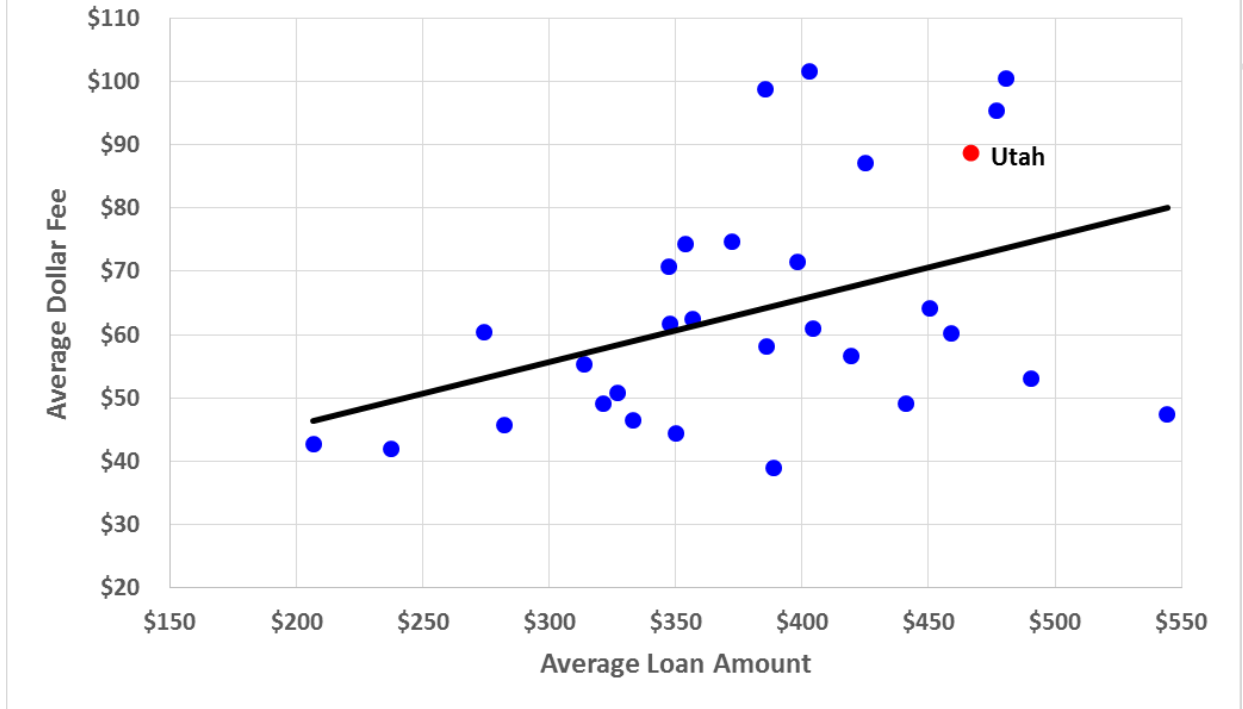
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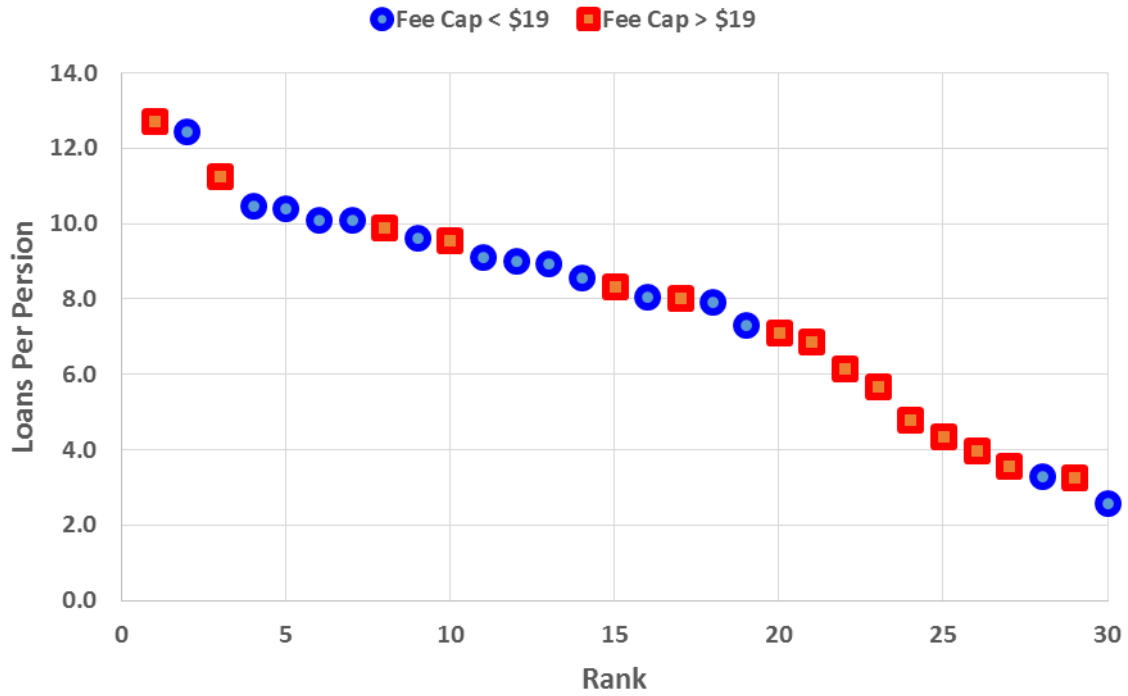
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Figure 1. Scatterplot of Average Loan Amount and Average Loan Fees



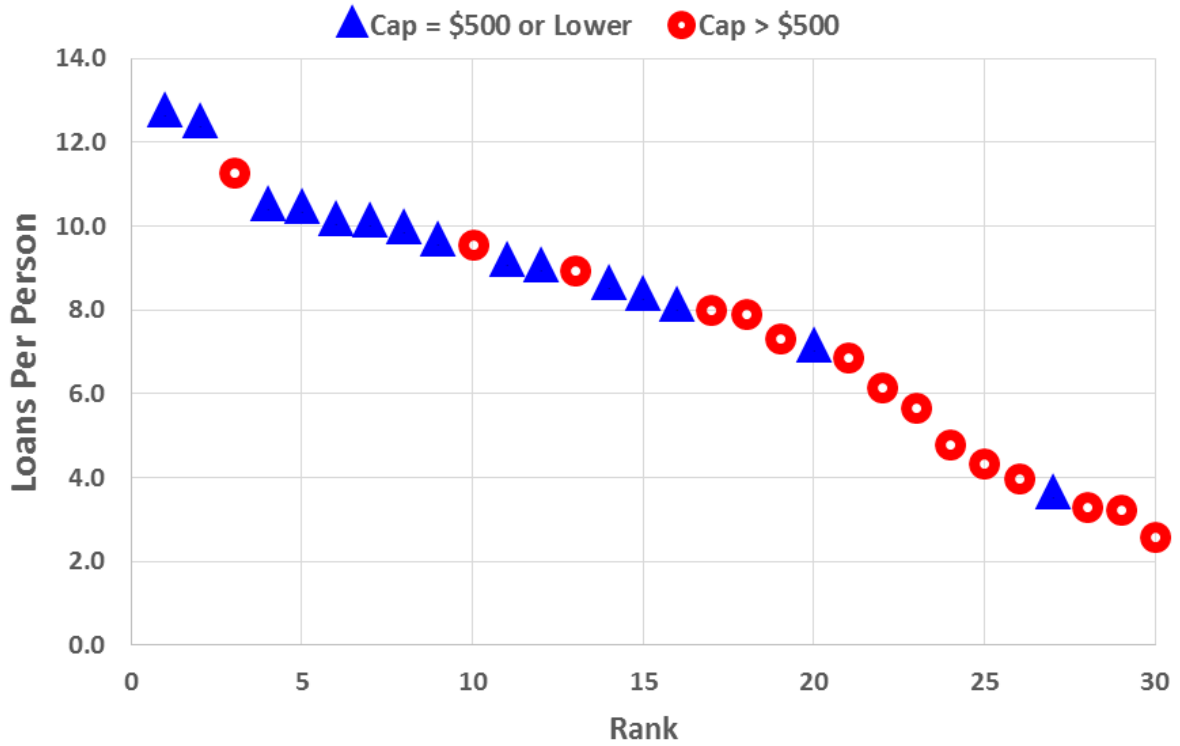
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Figure 2.
Ranked Loans per Person, 2013
by State Loan Fee Cap per \$100

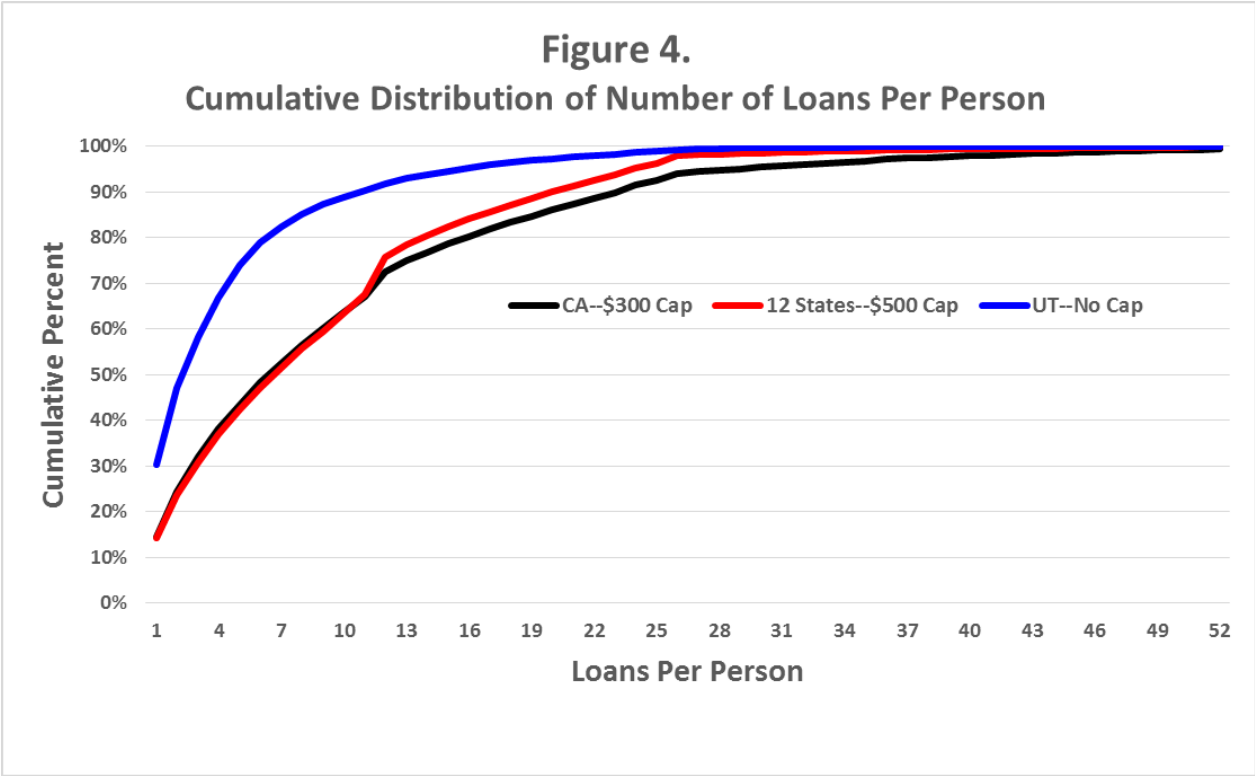


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Figure 3.
Ranked Loans per Person, 2013
by State Loan Amount Cap



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Table 1. Summary Data for Payday Loan Sample, 2013

State	Fee Cap Per \$100	Loan Amount Cap	Number of Loans	Principal Borrowed	Unique Borrowers	Loans Per Unique Borrower	Average Loan Size	Average Fee	Median Loan Size
CA	\$17.65	\$300	4,588,028	\$1,090,280,653	454,019	10.1	\$238	\$42	\$255
FL	\$10 + \$5 Ver. Fee	\$500	1,432,105	\$631,529,550	156,802	9.1	\$441	\$49	\$500
MI	\$15.45	\$600	1,332,230	\$611,617,615	148,980	8.9	\$459	\$60	\$500
TX	---	Not Specified	783,307	\$376,452,754	113,944	6.9	\$481	\$100	\$400
MO	1,955% APR	\$500	735,042	\$260,029,113	88,201	8.3	\$354	\$74	\$374
TN	\$17.65	\$500	718,951	\$231,045,724	74,570	9.6	\$321	\$49	\$350
IN	\$15.00	\$605 or 20% of GI	717,249	\$238,980,113	97,992	7.3	\$333	\$47	\$300
OH	---	CSO Structure	702,348	\$382,435,221	73,476	9.6	\$545	\$47	\$511
AL	\$17.50	\$500	661,360	\$235,750,625	73,396	9.0	\$356	\$62	\$380
OK	\$15.46	\$500	584,091	\$245,077,590	72,502	8.1	\$420	\$57	\$500
KS	\$15.00	\$500	488,041	\$188,340,131	46,630	10.5	\$386	\$58	\$400
LA	\$30.12	\$350	487,715	\$137,713,488	49,181	9.9	\$282	\$46	\$300
KY	\$18.65	\$500	418,628	\$145,574,358	48,820	8.6	\$348	\$62	\$350
IA	\$16.67	\$500	345,439	\$120,977,469	33,183	10.4	\$350	\$44	\$400
SC	\$15.40	\$550	327,897	\$132,556,183	41,405	7.9	\$404	\$61	\$450
MS	\$20.00	410/*500	289,482	\$59,858,516	22,766	12.7	\$207	\$43	\$200
NE	\$17.65	\$500	155,152	\$48,694,077	15,369	10.1	\$314	\$55	\$325
RI	\$10.00	\$500	152,814	\$59,418,375	12,258	12.5	\$389	\$39	\$450
VA	\$26.38	\$500	108,702	\$43,782,301	30,318	3.6	\$403	\$102	\$500
UT	No Cap	No Limit	90,200	\$42,103,884	18,809	4.8	\$467	\$89	\$400
ID	No Cap	\$1,000	77,172	\$29,749,441	12,539	6.2	\$385	\$99	\$300
NM	---	25% of GI	70,320	\$27,993,405	12,403	5.7	\$398	\$72	\$334
WA	\$15.00	\$700 or 30% of GI	60,856	\$27,414,270	18,418	3.3	\$450	\$64	\$433
NV	No Cap	25% of GI	60,828	\$25,858,953	7,588	8.0	\$425	\$87	\$390
WY	\$30.00	No Limit	54,580	\$26,778,100	4,842	11.3	\$491	\$53	\$300
IL	\$16.50	\$1,000	42,950	\$14,053,829	16,576	2.6	\$327	\$51	\$300
WI	No Cap	\$1,500 or 35% of GI	37,915	\$10,402,805	9,538	4.0	\$274	\$60	\$250
SD	No Cap	\$500	32,296	\$11,215,176	4,543	7.1	\$347	\$71	\$350
ND	\$20.68	\$600	10,997	\$4,095,195	2,533	4.3	\$372	\$75	\$400
DE	No Cap	\$1,000	5,598	\$2,669,810	1,722	3.3	\$477	\$95	\$400
		Total:	15,572,293	\$5,462,448,724	1,763,323	8.8	\$351		

Table 2. Percent of Loans within 1% of the Fee Cap in States with Statutory Fee Caps per \$100 Lent

State	Fee Cap per \$100	Loans	Observed Fee is more Than 1% Lower than Fee Cap		Observed Fee is within 1% of the Fee Cap		Observed Fee Greater than Fee Cap	
			Fee Cap	Percent	Fee Cap	Percent	Fee Cap	Percent
RI	\$10.00	152,814	0	0.0%	152,814	100.0%	0	0.0%
FL	\$10 + \$5	1,432,082	135	0.0%	1,009,056	70.5%	422,891	29.5%
IN	\$15.00	717,098	205,453	28.7%	507,875	70.8%	3,770	0.5%
KS	\$15.00	487,835	1,422	0.3%	484,927	99.4%	1,486	0.3%
WA	\$15.00	60,792	19,136	31.5%	40,922	67.3%	734	1.2%
SC	\$15.40	325,915	98,858	30.3%	227,057	69.7%	0	0.0%
MI	\$15.45	1,332,225	1,293,524	97.1%	38,701	2.9%	0	0.0%
OK	\$15.46	582,873	448,013	76.9%	134,858	23.1%	2	0.0%
IL	\$16.50	42,947	42,401	98.7%	546	1.3%	0	0.0%
IA	\$16.67	345,435	334,592	96.9%	10,843	3.1%	0	0.0%
AL	\$17.50	655,903	1,511	0.2%	654,392	99.8%	0	0.0%
CA	\$17.65	4,585,645	8,313	0.2%	4,577,332	99.8%	0	0.0%
NE	\$17.65	154,775	917	0.6%	153,858	99.4%	0	0.0%
TN	\$17.65	718,779	664,668	92.5%	54,111	7.5%	0	0.0%
KY	\$18.65	417,319	350,323	83.9%	66,996	16.1%	0	0.0%
MS	\$20.00	287,150	391	0.1%	226,035	78.7%	60,724	21.1%
ND	\$20.68	10,997	4,785	43.5%	6,212	56.5%	0	0.0%
VA	\$26.38	108,304	66,561	61.5%	3,175	2.9%	38,568	35.6%
WY	\$30.00	54,536	54,536	100.0%	0	0.0%	0	0.0%
LA	\$30.12	484,545	484,544	100.0%	1	0.0%	1	0.0%
Total:		12,957,969	4,080,083	31.5%	8,349,711	64.4%	528,176	4.1%
Total, w/o CA:		8,372,324	4,071,770	48.6%	3,772,379	45.1%	528,176	6.3%

**TABLE 3. PERCENT OF LOANS BY FEE RANGE IN STATES WITHOUT
A STATUTORY FEE CAPS PER \$100 LENT**

State	Loans	(Check Amount - Principal) / Principal							
		< 10%	10-15%	15-17%	17-19%	19-21%	21-23%	23-25%	> 25%
TX	783,307	4.0%	0.2%	0.1%	0.2%	85.3%	10.0%	0.0%	0.1%
MO	729,953	0.2%	0.1%	12.1%	19.8%	54.8%	5.5%	0.1%	7.4%
OH	700,295	74.4%	22.8%	0.8%	0.1%	0.3%	0.0%	1.0%	0.5%
UT	89,099	6.8%	5.8%	17.8%	38.6%	3.5%	17.2%	1.1%	9.2%
ID	76,986	0.1%	0.1%	0.1%	0.0%	58.2%	23.1%	0.0%	18.4%
NM	68,295	0.0%	0.0%	74.0%	0.0%	0.0%	0.0%	19.6%	6.3%
NV	60,549	2.2%	3.0%	0.8%	55.7%	2.9%	26.4%	0.6%	8.3%
WI	37,915	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
SD	32,285	0.0%	0.0%	0.0%	47.3%	1.9%	50.8%	0.0%	0.0%
DE	5,598	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%
Total:	2,584,282	561,177	169,453	161,838	230,406	1,126,550	222,059	21,988	90,811
	Percent:	21.7%	6.6%	6.3%	8.9%	43.6%	8.6%	0.9%	3.5%
	Cumulative Percent:		28.3%	34.5%	43.5%	87.0%	95.6%	96.5%	100.0%
Total,									
W/O OH:	1,883,987	40,099	9,459	155,890	229,509	1,124,785	221,929	15,288	87,028
	Percent:	2.1%	0.5%	8.3%	12.2%	59.7%	11.8%	0.8%	4.6%
	Cumulative Percent:		2.6%	10.9%	23.1%	82.8%	94.6%	95.4%	100.0%
Total, W/O									
OH and TX:	1,100,680	8,616	8,035	155,264	228,031	456,244	143,280	15,268	85,942
	Percent:	0.8%	0.7%	14.1%	20.7%	41.5%	13.0%	1.4%	7.8%
	Cumulative Percent:		1.5%	15.6%	36.3%	77.8%	90.8%	92.2%	100.0%

Check amount has Principal, Fee per \$100, and any other fees.

Table 4. Percent of Loans in Loan Size Categories

State: Borrowing Cap	< \$100	= \$100	\$101-\$200	\$201-\$300	\$301-\$400	\$401-\$500	\$501-\$600
California: \$300	0.0%	3.9%	12.9%	83.1%	0.0%	0.0%	0.0%
Louisiana: \$350	0.0%	3.6%	15.2%	58.9%	22.3%	0.0%	0.0%
Mississippi: \$410/\$500	0.0%	9.8%	50.8%	28.7%	7.7%	3.0%	0.0%
12 States: \$500	0.0%	3.1%	13.0%	17.2%	15.6%	51.0%	0.0%
3 States: \$550 or \$600	0.0%	2.4%	9.6%	14.6%	13.8%	15.0%	44.6%
3 States: \$1,000	0.0%	5.7%	22.5%	23.9%	15.8%	13.4%	6.6%
5 States: % of Gross Income	0.0%	3.8%	23.9%	23.3%	17.2%	12.2%	10.6%
Utah: No Cap	0.0%	3.7%	14.9%	19.1%	14.2%	15.4%	8.3%
Wyoming: No Cap	0.0%	2.4%	7.7%	40.6%	6.6%	9.7%	5.9%
Texas: Not Specified	0.0%	2.2%	14.7%	20.3%	14.8%	13.4%	8.5%
Ohio: CSO Structure	0.0%	0.5%	6.1%	10.1%	8.1%	11.7%	32.6%
Entire Sample, 30 States	0.0%	3.3%	13.9%	38.2%	10.6%	22.9%	7.5%
Cumulative Percent:	0.0%	3.3%	17.2%	55.5%	66.0%	89.0%	96.4%

State: Borrowing Cap	\$601-\$700	\$701-\$800	\$801-\$900	\$901-\$1,000	> \$1,001	Pct <= \$500	Pct > \$500
California: \$300	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%
Louisiana: \$350	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%
Mississippi: \$410/500	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%
12 States: \$500	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%
3 States: \$550 or \$600	0.0%	0.0%	0.0%	0.0%	0.0%	55.4%	44.6%
3 States: \$1,000	3.9%	3.1%	1.8%	3.2%	0.0%	81.4%	18.6%
5 States: % of Gross Income	7.4%	0.6%	0.3%	0.7%	0.0%	80.4%	19.6%
Utah: No Cap	6.0%	5.0%	3.1%	10.3%	0.0%	67.2%	32.8%
Wyoming: No Cap	4.3%	4.5%	3.3%	15.1%	0.0%	67.0%	33.0%
Texas: Not Specified	6.4%	5.2%	3.4%	6.5%	4.4%	65.5%	34.5%
Ohio: CSO Structure	7.9%	4.3%	9.8%	1.8%	7.0%	36.5%	63.5%
Entire Sample, 30 States	1.2%	0.6%	0.7%	0.6%	0.5%	89.0%	11.0%
Cumulative Percent:	97.6%	98.2%	98.9%	99.5%	100.0%		

The shaded cell denotes the range containing the amount cap.

**TABLE 5. STATES WITH FEE CAPS AND PERCENT OF
LOANS NEAR AMOUNT CAP**

State	Fee Cap Per \$100	Amount Cap	Number of Loans	Num. Loans More than \$99 Under		Num. Loans \$99 Under Amt. Cap to		Num. Loans \$49 Under Amt. Cap to	
				Amt. Cap	Percent	\$50 Under	Percent	Amt. Cap	Percent
RI	\$10.00	\$500	152,814	63,966	41.9%	88,848	58.1%	0	0.0%
FL	\$15.00	\$500	1,432,105	378,826	26.5%	44,847	3.1%	1,008,432	70.4%
KS	\$15.00	\$500	488,041	247,162	50.6%	18,132	3.7%	222,747	45.6%
OK	\$15.46	\$500	584,091	208,251	35.7%	20,964	3.6%	354,876	60.8%
IA	\$16.67	\$500	345,439	174,417	50.5%	171,022	49.5%	0	0.0%
AL	\$17.50	\$500	661,360	392,789	59.4%	25,966	3.9%	242,605	36.7%
NE	\$17.65	\$500	155,152	102,809	66.3%	52,343	33.7%	0	0.0%
TN	\$17.65	\$500	718,951	535,960	74.5%	182,991	25.5%	0	0.0%
KY	\$18.65	\$500	418,628	250,605	59.9%	16,437	3.9%	151,586	36.2%
VA	\$26.38	\$500	108,702	48,958	45.0%	3,955	3.6%	55,789	51.3%
MS	\$20.00	410/*500	289,482	280,835	97.0%	8,647	3.0%	0	0.0%
		Total:	5,354,765	2,684,578	50.1%	634,152	11.8%	2,036,035	38.0%
SC	\$15.40	\$550	327,897	176,694	53.9%	48,926	14.9%	102,277	31.2%
MI	\$15.45	\$600	1,332,230	689,447	51.8%	44,735	3.4%	598,048	44.9%
ND	\$20.68	\$600	10,997	5,609	51.0%	381	3.5%	5,007	45.5%
IN	\$15.00	\$605 or 20% of GI	717,249	618,005	86.2%	55,539	7.7%	43,705	6.1%
WA	\$15.00	\$700 or 30% of GI	60,856	42,128	69.2%	1045	1.7%	17,683	29.1%
IL	\$16.50	\$1,000	42,950	42,950	100.0%	0	0.0%	0	0.0%
		Total:	2,492,179	1,574,833	63.2%	150,626	6.0%	766,720	30.8%
CA	\$17.65	\$300	4,588,028	773,832	16.9%	111,621	2.4%	3,702,575	80.7%
LA	\$30.12	\$350	487,715	120,321	24.7%	258,499	53.0%	108,895	22.3%
		Grand Total:	12,922,687	5,153,564	39.9%	1,154,898	8.9%	6,614,225	51.2%
		w/o CA:	8,334,659	4,379,732	52.5%	1,043,277	12.5%	2,911,650	34.9%

TABLE 6. DIFFERENCE IN MEANS TESTS OF PERCENT OF LOANS IN DEFAULT, BY LOAN AMOUNT GROUP AND RANGE OF LOAN SIZE

Panel A. Differences in Default Rates, By Loan Size and Loan Amount Caps

\$AMT Cap	Group	State	<= \$100	\$101-\$200	\$201-\$300	\$301-\$400	\$401-\$500
\$300	1	CA	0.15%	0.33%	3.22%	.	.
\$350	1	LA	0.09%	0.49%	1.83%	0.33%	.
\$500*	1	MS	0.19%	0.84%	0.65%	0.28%	0.18%
\$500	1	AL	0.10%	0.52%	0.74%	0.49%	1.20%
\$500	1	FL	0.02%	0.10%	0.18%	0.18%	1.17%
\$500	1	IA	0.05%	0.31%	0.46%	0.41%	1.20%
\$500	1	KS	0.09%	0.37%	0.64%	0.52%	1.52%
\$500	1	KY	0.19%	0.70%	0.82%	0.47%	1.53%
\$500	1	MO	0.07%	0.37%	0.60%	0.51%	1.12%
\$500	1	OK	0.03%	0.20%	0.43%	0.44%	2.22%
\$500	1	RI	0.01%	0.12%	0.29%	0.33%	1.23%
\$500	1	SD	0.06%	0.67%	0.91%	0.64%	1.10%
\$500	1	TN	0.08%	0.48%	0.64%	0.70%	0.89%
\$500	1	VA	0.15%	0.37%	0.49%	0.49%	1.50%
\$500	1	NE
\$550	2	SC	0.01%	0.13%	0.23%	0.22%	0.29%
\$600	2	MI	0.04%	0.30%	0.61%	0.50%	0.62%
\$600	2	ND	0.06%	0.84%	1.36%	0.87%	3.26%
\$1,000	2	DE	0.04%	0.11%	0.29%	0.41%	0.52%
\$1,000	2	ID	0.10%	0.58%	1.03%	0.53%	0.44%
\$1,000	2	IL	0.24%	1.88%	2.19%	1.48%	1.81%
\$605 or 20% of GI	2	IN	0.04%	0.52%	0.54%	0.40%	0.28%
25% of GI	2	NM	0.16%	1.64%	1.53%	0.96%	0.73%
25% of GI	2	NV	0.10%	0.64%	0.86%	0.57%	0.53%
\$700 or 30% of GI	2	WA	0.03%	0.19%	0.29%	0.34%	0.31%
\$1,500 or 35% of GI	2	WI	0.32%	1.91%	1.43%	0.39%	0.14%
None	2	UT	0.24%	1.14%	1.77%	1.41%	1.53%
None	2	WY	0.05%	0.14%	0.53%	0.07%	0.12%
CSO Structure	2	OH	0.01%	0.04%	0.15%	0.08%	0.15%
Not Specified	2	TX	0.04%	0.68%	1.43%	0.77%	0.76%
T-Tests for Equal Means:							
		Mean_1	0.09%	0.42%	0.85%	0.45%	1.24%
		STDEV.S	0.06%	0.22%	0.78%	0.14%	0.47%
		N_1	14	14	14	13	12
		Mean_2	0.10%	0.72%	0.95%	0.60%	0.76%
		STDEV.S	0.10%	0.65%	0.64%	0.43%	0.84%
		N_2	15	15	15	15	15
		Calc. t-stat.	0.307	1.676	0.366	1.314	1.844
		P-Value	0.7613	0.1053	0.7168	0.2004	0.0770
Wilcoxon Rank Sum Test:							
(Non-parametric)							
		Sum Rank_1	203	179	187	156	182
		Sum Rank_2	203	227	105	195	118
		Expected	203	203	203	175.5	150
		Std. Error	20.1	20.1	20.1	18.7	15.5
		Calc. Stat.	0.000	1.191	0.794	1.041	2.066
		P-Value	1.0000	0.2336	0.4272	0.2980	0.0389

TABLE 6., CONT.

Loan Amount Range	Low Cap States			High Cap States		
	Mean	Standard Deviation	N	Mean	Standard Deviation	N
<= \$100	0.09%	0.06%	14	0.10%	0.10%	15
\$101-\$200	0.42%	0.22%	14	0.72%	0.65%	15
\$201-\$300	0.85%	0.78%	14	0.95%	0.64%	15
\$301-\$400	0.45%	0.14%	13	0.60%	0.43%	15
\$401-\$500	1.24%	0.47%	12	0.76%	0.84%	15
\$501-\$600				0.45%	0.43%	15
\$601-\$700				0.23%	0.24%	15
\$701-\$800				0.13%	0.15%	15
\$801-\$900				0.09%	0.10%	15
\$901-\$1,000				0.16%	0.21%	15
> \$1,000				0.04%	0.11%	15
Difference in Means:	t-stat	p-value		t-stat	p-value	
<= \$100 vs. \$201-\$300	3.617	(.0031)		5.092	(.0002)	
<= \$100 vs. \$401-\$500	8.331	(.0000)		3.029	(.0090)	
\$201-\$300 vs. \$401-\$500	1.552	(.1467)		0.673	(.5117)	
\$401-\$500 vs. \$601-\$700				2.358	(.0334)	
\$401-\$500 vs. \$801-\$900				3.074	(.0083)	

TABLE 7. T-tests for Equal Means and Wilcoxon Rank Sum Tests, States Grouped by Fee Cap per \$100

Fee Cap per \$100	Group	State	Average Fee	Average MO. Income	Average Loan Size	Work Hours to Pay Fee	Loans Per Person
\$10.00	1	RI	\$ 38.88	\$ 2,451	\$ 388.83	2.54	12.47
\$10 + \$5 Verify	1	FL	\$ 49.08	\$ 2,182	\$ 440.98	3.60	9.13
\$15.00	1	KS	\$ 58.11	\$ 2,378	\$ 385.91	3.91	10.47
\$15.00	1	IN	\$ 46.50	\$ 2,462	\$ 333.19	3.02	7.32
\$15.00	1	WA	\$ 64.19	\$ 2,828	\$ 450.49	3.63	3.30
\$15.40	1	SC	\$ 60.88	\$ 2,314	\$ 404.26	4.21	7.92
\$15.45	1	MI	\$ 60.27	\$ 2,239	\$ 459.09	4.31	8.94
\$15.46	1	OK	\$ 56.58	\$ 2,231	\$ 419.59	4.06	8.06
\$16.50	1	IL	\$ 50.77	\$ 2,502	\$ 327.21	3.25	2.59
\$16.67	1	IA	\$ 44.46	\$ 2,236	\$ 350.21	3.18	10.41
\$17.50	1	AL	\$ 62.43	\$ 1,898	\$ 356.46	5.26	9.01
\$17.65	1	CA	\$ 41.90	\$ 2,396	\$ 237.64	2.80	10.11
\$17.65	1	NE	\$ 55.33	\$ 2,329	\$ 313.85	3.80	10.10
\$17.65	1	TN	\$ 49.15	\$ 1,988	\$ 321.37	3.96	9.64
\$18.65	1	KY	\$ 61.73	\$ 2,104	\$ 347.74	4.69	8.57
\$20.00	2	MS	\$ 42.71	\$ 2,086	\$ 206.78	3.28	12.72
\$20.68	2	ND	\$ 74.72	\$ 2,075	\$ 372.39	5.76	4.34
\$26.38	2	VA	\$ 101.67	\$ 2,686	\$ 402.77	6.06	3.59
\$30.00	2	WY	\$ 53.06	\$ 3,119	\$ 490.62	2.72	11.27
\$30.12	2	LA	\$ 45.79	\$ 2,110	\$ 282.36	3.47	9.92
1,955% APR	2	MO	\$ 74.28	\$ 2,386	\$ 353.76	4.98	8.33
No Cap	2	DE	\$ 95.38	\$ 2,663	\$ 476.92	5.73	3.25
No Cap	2	ID	\$ 98.73	\$ 2,317	\$ 385.50	6.82	6.15
No Cap	2	SD	\$ 70.72	\$ 2,129	\$ 347.26	5.31	7.11
No Cap	2	NV	\$ 87.16	\$ 2,772	\$ 425.12	5.03	8.02
No Cap	2	UT	\$ 88.68	\$ 2,587	\$ 466.78	5.48	4.80
No Cap	2	WI	\$ 60.36	\$ 2,481	\$ 274.37	3.89	3.98
---	2	TX	\$ 100.42	\$ 2,334	\$ 480.59	6.88	6.87
---	2	OH	\$ 47.36	\$ 2,172	\$ 544.51	3.49	9.56
---	2	NM	\$ 71.50	\$ 2,763	\$ 398.09	4.14	5.67
T-Tests for Equal Means:							
		Mean_1	\$ 53.35	\$ 2,302.42	\$ 369.12	3.84	8.53
		STDEV.S	\$ 8.11	\$ 225.10	\$ 60.34	0.85	2.84
		N_1	15	15	15	15	15
		Mean_2	\$ 74.17	\$ 2,445.21	\$ 393.86	4.92	6.81
		STDEV.S	\$ 20.78	\$ 313.25	\$ 92.15	1.31	2.55
		N_2	15	15	15	15	15
		Calc. t-stat.	3.614	1.434	0.870	2.697	1.751
		P-Value	0.0012	0.1631	0.3921	0.0119	0.0913
Wilcoxon Rank Sum Test:							
(Non-parametric)							
		Sum Rank_1	168	207	208	177	271
		Sum Rank_2	297	258	257	288	194
		Expected	232.5	232.5	232.5	232.5	232.5
		Std. Error	21.56	21.56	21.56	21.56	21.56
		Calc. Stat.	2.991	1.183	1.136	2.574	1.785
		P-Value	0.0028	0.2370	0.2559	0.0101	0.0742

TABLE 8. T-tests for Equal Means and Wilcoxon Rank Sum Tests, States Grouped by Amount Caps

\$AMT Cap	Group	State	Average Fee	Avg. Gross MO. Income	Average Loan Size	Work Hours to Pay Fee	Loans Per Person
\$300	1	CA	\$ 41.90	\$ 2,396	\$ 237.64	2.80	10.11
\$350	1	LA	\$ 45.79	\$ 2,110	\$ 282.36	3.47	9.92
\$500*	1	MS	\$ 42.71	\$ 2,086	\$ 206.78	3.28	12.72
\$500	1	AL	\$ 62.43	\$ 1,898	\$ 356.46	5.26	9.01
\$500	1	FL	\$ 49.08	\$ 2,182	\$ 440.98	3.60	9.13
\$500	1	IA	\$ 44.46	\$ 2,236	\$ 350.21	3.18	10.41
\$500	1	KS	\$ 58.11	\$ 2,378	\$ 385.91	3.91	10.47
\$500	1	KY	\$ 61.73	\$ 2,104	\$ 347.74	4.69	8.57
\$500	1	MO	\$ 74.28	\$ 2,386	\$ 353.76	4.98	8.33
\$500	1	NE	\$ 55.33	\$ 2,329	\$ 313.85	3.80	10.10
\$500	1	OK	\$ 56.58	\$ 2,231	\$ 419.59	4.06	8.06
\$500	1	RI	\$ 38.88	\$ 2,451	\$ 388.83	2.54	12.47
\$500	1	SD	\$ 70.72	\$ 2,129	\$ 347.26	5.31	7.11
\$500	1	TN	\$ 49.15	\$ 1,988	\$ 321.37	3.96	9.64
\$500	1	VA	\$ 101.67	\$ 2,686	\$ 402.77	6.06	3.59
\$550	2	SC	\$ 60.88	\$ 2,314	\$ 404.26	4.21	7.92
\$600	2	MI	\$ 60.27	\$ 2,239	\$ 459.09	4.31	8.94
\$600	2	ND	\$ 74.72	\$ 2,075	\$ 372.39	5.76	4.34
\$1,000	2	DE	\$ 95.38	\$ 2,663	\$ 476.92	5.73	3.25
\$1,000	2	ID	\$ 98.73	\$ 2,317	\$ 385.50	6.82	6.15
\$1,000	2	IL	\$ 50.77	\$ 2,502	\$ 327.21	3.25	2.59
\$605 or 20% of GI	2	IN	\$ 46.50	\$ 2,462	\$ 333.19	3.02	7.32
25% of GI	2	NM	\$ 71.50	\$ 2,763	\$ 398.09	4.14	5.67
25% of GI	2	NV	\$ 87.16	\$ 2,772	\$ 425.12	5.03	8.02
\$700 or 30% of GI	2	WA	\$ 64.19	\$ 2,828	\$ 450.49	3.63	3.30
\$1,500 or 35% of GI	2	WI	\$ 60.36	\$ 2,481	\$ 274.37	3.89	3.98
None	2	UT	\$ 88.68	\$ 2,587	\$ 466.78	5.48	4.80
None	2	WY	\$ 53.06	\$ 3,119	\$ 490.62	2.72	11.27
CSO Structure	2	OH	\$ 47.36	\$ 2,172	\$ 544.51	3.49	9.56
Not Specified	2	TX	\$ 100.42	\$ 2,334	\$ 480.59	6.88	6.87
T-Tests for Equal Means:							
		Mean_1	\$ 56.85	\$ 2,239	\$ 343.70	4.06	9.31
		STDEV.S	\$ 16.27	\$ 202	\$ 64.37	1.01	2.18
		N_1	15	15	15	15	15
		Mean_2	\$ 70.67	\$ 2,508	\$ 419.28	4.56	6.27
		STDEV.S	\$ 19.05	\$ 283	\$ 72.51	1.33	2.58
		N_2	15	15	15	15	15
		Calc. t-stat.	2.135	3.000	3.019	1.157	3.487
		P-Value	0.0420	0.0057	0.0055	0.2572	0.0017
Wilcoxon Rank Sum Test:							
(Non-parametric)							
		Sum Rank_1	182	170	169	207	308
		Sum Rank_2	283	295	296	258	157
		Expected	232.5	232.5	232.5	232.5	232.5
		Std. Error	21.56	21.56	21.56	21.56	21.56
		Calc. Stat.	2.342	2.898	2.945	1.183	3.501
		P-Value	0.0192	0.0038	0.0032	0.2370	0.0005

Table 9. Distribution of Number of Loans

Number of Loans	Percent					Cumulative Percent				
	Entire Sample	Low Cap States	High Cap States	CA \$300 Cap	UT No Cap	Entire Sample	Low Cap States	High Cap States	CA \$300 Cap	UT No Cap
1	15.5%	14.4%	17.4%	14.6%	30.3%	15.5%	14.4%	17.4%	14.6%	30.3%
2	10.1%	9.6%	10.9%	9.8%	16.8%	25.6%	24.1%	28.4%	24.5%	47.1%
3	7.8%	7.4%	8.4%	7.5%	11.1%	33.4%	31.5%	36.8%	31.9%	58.1%
4	6.6%	6.3%	7.0%	6.3%	8.8%	40.0%	37.8%	43.8%	38.2%	66.9%
5	5.7%	5.5%	6.0%	5.3%	7.0%	45.6%	43.3%	49.8%	43.5%	74.0%
6	5.2%	5.1%	5.5%	4.8%	4.9%	50.9%	48.4%	55.3%	48.3%	78.9%
7	4.5%	4.3%	4.9%	4.2%	3.5%	55.3%	52.7%	60.2%	52.4%	82.5%
8	4.3%	4.0%	4.7%	4.0%	2.6%	59.6%	56.7%	64.9%	56.5%	85.0%
9	3.9%	3.7%	4.2%	3.6%	2.3%	63.5%	60.4%	69.0%	60.1%	87.3%
10	3.7%	3.6%	3.8%	3.5%	1.6%	67.1%	64.0%	72.8%	63.6%	88.9%
11	3.8%	3.8%	3.7%	3.6%	1.5%	70.9%	67.8%	76.6%	67.2%	90.4%
12	6.9%	7.0%	6.6%	5.3%	1.3%	77.8%	74.9%	83.2%	72.5%	91.7%
13	2.4%	2.5%	2.3%	2.4%	1.2%	80.2%	77.4%	85.5%	74.9%	92.9%
14	1.8%	1.9%	1.7%	1.9%	0.9%	82.0%	79.3%	87.2%	76.8%	93.8%
15	1.6%	1.7%	1.4%	1.8%	0.7%	83.6%	81.1%	88.6%	78.6%	94.5%
16	1.6%	1.7%	1.3%	1.7%	0.7%	85.2%	82.7%	89.9%	80.3%	95.2%
17	1.4%	1.5%	1.2%	1.5%	0.7%	86.6%	84.3%	91.1%	81.8%	95.9%
18	1.3%	1.5%	1.1%	1.5%	0.5%	87.9%	85.7%	92.2%	83.3%	96.4%
19	1.2%	1.4%	1.0%	1.4%	0.5%	89.2%	87.1%	93.2%	84.7%	96.9%
20	1.2%	1.4%	0.9%	1.4%	0.4%	90.4%	88.4%	94.0%	86.1%	97.2%
21	1.1%	1.3%	0.8%	1.3%	0.4%	91.4%	89.7%	94.8%	87.3%	97.6%
22	1.1%	1.2%	0.8%	1.3%	0.4%	92.5%	90.9%	95.6%	88.6%	98.0%
23	1.0%	1.2%	0.7%	1.3%	0.3%	93.5%	92.1%	96.2%	89.9%	98.3%
24	1.4%	1.6%	1.0%	1.8%	0.3%	94.9%	93.7%	97.2%	91.7%	98.6%
25	0.8%	1.0%	0.5%	0.9%	0.2%	95.7%	94.7%	97.7%	92.6%	98.9%
26	1.3%	1.5%	1.0%	1.4%	0.3%	97.0%	96.2%	98.7%	94.0%	99.2%
Total Borrowers:	1,775,180	1,182,558	580,767	454,019	18,809					
Borrowers with more than 26 loans:	52,459	44,854	7,604	27,305	154					
Pct.	3.0%	3.8%	1.3%	6.0%	0.8%					
Borrowers with more than 12 loans:	394,769	297,110	97,478	124,907	1,562					
Pct.	22.2%	25.1%	16.8%	27.5%	8.3%					
Borrowers with more than 6 loans:	872,316	610,272	259,634	234,932	3,967					
Pct.	49.1%	51.6%	44.7%	51.7%	21.1%					

Table 10. Distribution Comparison: Kolmogorov-Smirnov 2-Sample Tests

	States with No Cap (UT and WY)	Utah	Wyoming	Ohio	Texas
California: \$300 Cap	0.2249**	0.3065***	0.0994	0.0321	0.1298
N_California	115	115	115	115	115
N_Comparison	55	49	53	78	57
Louisiana: \$350 Cap	0.2642**	0.3459***	0.0913	0.0237	0.1671
N_Louisiana	78	78	78	78	78
N_Comparison	55	49	53	78	57
Mississippi: \$410 Cap	0.3285***	0.4100***	0.0702	0.0899	.2349**
N_Mississippi	101	101	101	101	101
N_Comparison	55	49	53	78	57
12 States Combined: \$500 Cap	0.2360**	0.3177***	0.1071	0.0258	0.1356
N_12_States	109	109	109	109	109
N_Comparison	53	49	53	78	57

** and *** denote significance at the 0.05 and 0.01 levels, respectively.

Table 11. Estimating the Effects of a Cap on the Number of Loans per Person

Panel A. Observed in 2013

	<u>Number of Loans</u>	<u>Number of Borrowers</u>	<u>Average Number of Loans per Borrower</u>
All Data	15,587,991	1,775,180	8.78
30 States	15,572,293	1,763,323	8.83

Panel B. Projected Under Number of Loans Cap, Ceteris Paribus

<u>Number of Loans Capped at:</u>	<u>Resulting Number of Loans</u>	<u>Number of Borrowers</u>	<u>Average Number of Loans per Borrower</u>	<u>Calculated Decline in loans, from 8.78</u>
2	3,274,547	1,775,180	1.84	-79.0%
4	5,777,502	1,775,180	3.25	-62.9%
6	7,808,368	1,775,180	4.40	-49.9%
8	9,473,670	1,775,180	5.34	-39.2%
10	10,839,690	1,775,180	6.11	-30.5%
12	11,940,536	1,775,180	6.73	-23.4%
26	14,942,652	1,775,180	8.42	-4.1%

Table 12. OLS Regression Results

	Dep. Var: Loans Per Borrower		
	[1]	[2]	[3]
Observations	25	22	17
Coefficients:			
Intercept	37.63	38.24	6.35
Standard Error	5.65	8.43	4.09
P-Value	(<.0001)	(.0003)	(.1461)
Fee Cap	-0.98	-0.99	0.85
Standard Error	0.30	0.34	0.16
P-Value	(.0040)	(.0091)	(.0002)
Amount Cap	-4.23	-4.27	3.13
Standard Error	0.80	0.79	0.65
P-Value	(<.0001)	(<.0001)	(.0004)
Amt Cap x Fee Cap	0.1649	0.1723	-0.2655
Standard Error	0.0375	0.0442	0.0378
P-Value	(.0003)	(.0012)	<.0001
Avg. Mo. Gross Inc.	-0.0021	-0.0025	-0.0022
Standard Error	0.0015	0.0022	0.0010
P-Value	(.1665)	(.2795)	(.0533)
F-Value	8.01	6.24	14.49
P-Value	(.0005)	(.0028)	(.0002)
R-Square	0.62	0.60	0.83
Adj R-Square	0.54	0.50	0.77
Means:			
Fee Cap	19.39	18.58	17.99
Amount Cap	6.06	5.68	5.18
Amt Cap x Fee Cap	121.16	106.84	91.57
Avg. Mo. Gross Inc.	2,353	2,337	2,247
Loans Per Borrower	7.98	8.19	8.70

Table 13. Estimated Marginal Effects

Panel A. Marginal Effects for Fee Cap

	How Loans Per Person		95 Percent Two-Tail		
	If Amt Cap is: (\$ per \$100)	Changes if Fee Cap Increases by \$1 per \$100	Confidence Interval	F-Value	P-Value
Group of 25 States	300	-0.48	-0.89	-0.07	11.81 (.0026)
	350	-0.40	-0.78	-0.02	9.99 (.0049)
	400	-0.32	-0.66	0.03	7.78 (.0113)
	500	-0.15	-0.43	0.13	2.65 (.1194)
	600	0.01	-0.22	0.24	0.02 (.8787)
Group of 22 States	300	-0.47	-0.93	-0.02	9.20 (.0075)
	350	-0.39	-0.80	0.02	7.77 (.0126)
	400	-0.30	-0.67	0.07	5.95 (.0260)
	500	-0.13	-0.43	0.17	1.63 (.2193)
	600	0.04	-0.20	0.29	0.20 (.6586)
Group of 17 States	300	0.05	-0.07	0.18	0.14 (.7181)
	350	-0.08	-0.18	0.02	0.55 (.4712)
	400	-0.21	-0.29	-0.14	6.66 (.0240)
	500	-0.48	-0.58	-0.38	25.25 (.0003)
	600	-0.74	-0.91	-0.58	20.42 (.0007)

Panel B. Marginal Effects for Amount Cap

	How Loans Per Person		95 Percent Two-Tail		
	If Fee Cap is: (\$ per \$100)	Changes if Amt. Cap Increases by \$100	Confidence Interval	F-Value	P-Value
Group of 25 States	15	-1.76	-2.35	-1.16	24.53 (<.0001)
	16	-1.59	-2.13	-1.06	23.57 (<.0001)
	17	-1.43	-1.91	-0.94	22.18 (.0001)
	18	-1.26	-1.71	-0.82	20.25 (.0002)
	19	-1.10	-1.51	-0.68	17.67 (.0004)
	20	-0.93	-1.33	-0.53	14.45 (.0011)
	25	-0.11	-0.63	0.42	0.20 (.6631)
Group of 22 States	15	-1.68	-2.20	-1.16	19.30 (.0004)
	16	-1.51	-2.00	-1.02	17.77 (.0006)
	17	-1.34	-1.82	-0.85	15.68 (.0010)
	18	-1.16	-1.66	-0.67	13.05 (.0021)
	19	-0.99	-1.51	-0.48	10.06 (.0056)
	20	-0.82	-1.38	-0.26	7.01 (.0169)
	25	0.04	-0.85	0.93	0.01 (.9147)
Group of 17 States	15	-0.85	-1.20	-0.50	7.09 (.0207)
	16	-1.12	-1.44	-0.79	16.82 (.0015)
	17	-1.38	-1.70	-1.06	30.85 (.0001)
	18	-1.65	-1.98	-1.31	41.42 (<.0001)
	19	-1.91	-2.28	-1.54	43.08 (<.0001)
	20	-2.18	-2.60	-1.76	39.49 (<.0001)
	25	-3.51	-4.26	-2.75	23.06 (.0004)

Appendix Table A. Number of Payday Loans by Observed Fees

Fee Cap Per \$100	State	Total Loans	(Check Amount - Principal) / Principal (NB: Check amount has Fee per \$100 and perhaps other fees)											
			LTE 9%	9-11%	11-13%	13-15%	15-17%	17-19%	19-21%	21-23%	23-25%	25-27%	27-29%	
<i>Panel A. States with Fee Caps</i>														
\$10.00	RI	152,814	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
\$10 + \$5	FL	1,432,082	0.0%	70.5%	25.9%	3.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
\$15.00	KS	487,835	0.1%	0.1%	0.1%	99.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	0.0%	0.1%
\$15.00	IN	717,098	0.0%	0.0%	13.4%	86.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
\$15.00	WA	60,792	0.2%	0.4%	0.6%	97.6%	1.0%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
\$15.40	SC	325,915	0.1%	0.1%	0.1%	30.0%	69.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
\$15.45	MI	1,332,225	0.0%	0.0%	47.7%	49.4%	2.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
\$15.46	OK	585,873	0.1%	0.0%	0.1%	76.7%	23.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
\$16.50	IL	42,947	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
\$16.67	IA	345,435	0.0%	0.0%	70.7%	24.1%	5.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
\$17.50	AL	655,903	0.1%	0.0%	0.0%	0.1%	0.0%	99.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
\$17.65	CA	4,585,645	0.0%	0.1%	0.0%	0.0%	0.0%	99.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
\$17.65	NE	154,775	0.2%	0.1%	0.2%	0.1%	0.1%	99.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
\$17.65	TN	718,779	0.0%	0.0%	0.1%	87.5%	4.8%	7.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
\$18.65	KY	417,319	0.1%	0.5%	0.2%	0.2%	0.1%	99.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
\$20.00	MS	287,150	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	80.0%	19.9%	0.0%	0.0%	0.0%	0.0%
\$20.68	ND	10,997	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%
\$26.38	VA	108,304	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.5%	4.2%	49.9%	9.3%	34.5%	1.1%
\$30.00	WY	54,536	8.8%	66.2%	2.5%	6.8%	1.5%	6.6%	7.7%	0.0%	0.0%	0.0%	0.0%	0.0%
\$30.12	LA	484,545	0.0%	0.0%	0.1%	51.7%	17.9%	7.6%	15.8%	4.4%	2.0%	0.4%	0.0%	0.0%
		12,957,969	9,518	1,206,218	1,352,954	3,385,413	589,228	5,893,581	321,944	83,290	63,720	13,138	37,415	1,550
			0.1%	9.3%	10.4%	26.1%	4.5%	45.5%	2.5%	0.6%	0.5%	0.1%	0.3%	0.0%
<i>Panel B. States without a Fee Cap:</i>														
1,955% APR	MO	729,953	0.0%	0.1%	0.0%	0.1%	12.1%	19.8%	54.8%	5.5%	0.1%	0.1%	0.1%	7.2%
No Cap	DE	5,598	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%
No Cap	ID	76,986	0.0%	0.1%	0.0%	0.1%	0.1%	0.0%	58.2%	23.1%	0.0%	0.0%	0.0%	18.4%
No Cap	SD	32,285	0.0%	0.0%	0.0%	0.0%	0.0%	47.3%	1.9%	50.8%	0.0%	0.0%	0.0%	0.0%
No Cap	NV	60,549	1.2%	1.7%	0.7%	1.7%	0.8%	55.7%	2.9%	26.4%	0.6%	0.7%	0.5%	7.1%
No Cap	UT	89,099	5.3%	2.8%	1.5%	3.1%	17.8%	38.6%	3.5%	17.2%	1.1%	1.5%	0.4%	7.3%
No Cap	WI	37,915	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%
---	TX	783,307	4.1%	0.1%	0.0%	0.0%	0.1%	0.0%	84.2%	11.6%	0.0%	0.0%	0.0%	0.0%
---	OH	700,295	59.7%	21.5%	11.4%	4.7%	0.8%	0.1%	0.3%	0.0%	1.0%	0.5%	0.1%	0.0%
---	NM	68,295	0.0%	0.0%	0.0%	0.0%	74.0%	0.0%	0.0%	0.0%	19.6%	6.3%	0.0%	0.0%
		2,584,282	436,024	155,057	81,554	37,517	161,365	229,064	707,857	177,730	21,976	9,975	1,935	77,816
			20.8%	7.4%	3.9%	1.8%	7.7%	10.9%	33.7%	8.5%	1.0%	0.5%	0.1%	3.7%

Appendix Table B. Number of Payday Loans by Loan Size Category

State	Loan Amount in Dollars, by Size Category												Row Total
	< 100	=100	101-200	201-300	301-400	401-500	501-600	601-700	701-800	801-900	901-1000	> 1001	
CA	1	180,108	593,723	3,814,196	0	0	0	0	0	0	0	0	4,588,028
LA	0	17,563	74,084	287,165	108,899	0	4	0	0	0	0	0	487,715
MS	0	28,265	147,130	83,174	22,266	8,647	0	0	0	0	0	0	289,482
AL	0	30,085	117,291	141,681	103,732	268,571	0	0	0	0	0	0	661,360
FL	0	24,828	86,673	133,954	133,371	1,053,279	0	0	0	0	0	0	1,432,105
IA	0	9,028	48,527	63,321	53,541	171,022	0	0	0	0	0	0	345,439
KS	0	17,929	60,347	88,380	79,683	240,879	77	65	92	152	436	1	488,041
KY	0	25,600	82,638	85,933	56,432	168,023	2	0	0	0	0	0	418,628
MO	86	25,921	122,020	154,873	129,712	302,376	22	11	4	5	12	0	735,042
NE	1	4,705	26,995	45,332	25,776	52,343	0	0	0	0	0	0	155,152
OK	0	11,548	46,355	77,686	72,661	375,840	1	0	0	0	0	0	584,091
RI	0	2,056	10,836	20,197	30,877	88,848	0	0	0	0	0	0	152,814
SD	0	979	5,335	7,278	7,276	11,428	0	0	0	0	0	0	32,296
TN	0	25,304	142,033	167,556	201,067	182,991	0	0	0	0	0	0	718,951
VA	0	2,921	10,452	18,991	16,594	59,744	0	0	0	0	0	0	108,702
SC	0	10,657	38,142	60,931	51,560	64,325	102,278	4	0	0	0	0	327,897
MI	0	28,581	120,186	181,712	177,782	181,186	642,783	0	0	0	0	0	1,332,230
ND	0	322	1,853	2,164	1,270	5,388	0	0	0	0	0	0	10,997
DE	0	250	729	954	891	874	454	325	338	215	568	0	5,598
ID	24	4,246	16,146	18,372	12,340	9,898	5,493	3,312	2,718	1,106	3,517	0	77,172
IL	0	2,689	11,443	10,660	6,657	6,111	2,350	1,261	788	991	0	0	42,950
IN	56	24,596	180,297	171,664	125,502	88,775	82,654	43,705	0	0	0	0	717,249
NM	18	2,941	14,980	15,886	11,053	8,917	5,518	3,319	3,114	1,218	3,356	0	70,320
NV	5	2,326	10,837	12,770	9,250	8,752	5,498	3,710	2,528	1,385	3,637	130	60,828
WA	1	1,957	8,345	10,434	9,167	7,343	4,881	18,603	14	22	88	1	60,856
WI	0	4,101	11,975	10,393	7,570	1,437	1,966	473	0	0	0	0	37,915
UT	12	3,340	13,429	17,211	12,780	13,878	7,502	5,395	4,533	2,796	9,314	10	90,200
WY	0	1,319	4,216	22,137	3,587	5,297	3,223	2,361	2,433	1,781	8,226	0	54,580
OH	0	3,661	42,856	70,791	56,679	82,350	229,027	55,654	30,414	68,788	12,870	49,258	702,348
TX	14	17,299	115,199	158,811	116,278	105,247	66,850	50,189	40,657	27,011	51,039	34,713	783,307
Column Total:	218	515,125	2,165,072	5,954,607	1,644,253	3,573,769	1,160,583	188,387	87,633	105,470	93,063	84,113	15,572,293
PCT of Total:	0.0%	3.3%	13.9%	38.2%	10.6%	22.9%	7.5%	1.2%	0.6%	0.7%	0.6%	0.5%	100.0%
Total, w/o CA:	217	335,017	1,571,349	2,140,411	1,644,253	3,573,769	1,160,583	188,387	87,633	105,470	93,063	84,113	10,984,265
PCT of Total:	0.0%	3.0%	14.3%	19.5%	15.0%	32.5%	10.6%	1.7%	0.8%	1.0%	0.8%	0.8%	100.0%