

How Do Differences in State Regulations Affect the Payday Lending Industry?

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Abstract

Ten states and the District of Columbia prohibit the operation of payday loan stores, and thirty-one other states have imposed regulatory restraints on the controversial industry, ranging, for example, from caps on fees and loan amounts to the number of rollovers and renewals a borrower may execute. Given the importance of payday lenders to significant segments of the population, and the wide variation among state regulatory regimes, this paper attempts to assess the extent to which the concentration of payday lenders in a given county correlates to its regulatory environment, as well as to various financial and demographic variables. The paper employs a dataset that is unique to this area of study, obtained directly from each state's appropriate regulatory authority.

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Introduction

Payday loans are among the easiest small loans to obtain. The borrower typically needs only a checking account and documentation of steady income, either from a job or from government or other benefits. These loans are extremely short term; they are typically structured with a due date that coincides with the borrower's next payday, usually within two weeks. The borrower provides the lender, known as a payday lender², with either a postdated personal check for the loan amount and lending fee, or the authorization to electronically debit the checking account for the amount due. If the loan is not repaid on time, the lender can deposit the personal check or initiate an electronic withdrawal from the checking account.

Payday loans differ from bank loans because the borrower is charged a single flat fee, such as \$15 per \$100 offered, rather than recurring interest payments. The system is advantageous for the payday lender since the flat fees, when converted to interest rates, always exceed state usury rates. For this reason and others, however, the payday loan industry has engendered much debate, especially in recent years. Amid allegations that payday loans are not only usurious but predatory, payday lenders face operational restrictions in many states, although efforts are now underway in some of these states to roll back reforms.

The controversy centers on the fees payday lenders charge and their typical customer base. Consider the fees on payday loans in two states: In Indiana the allowable fee of \$15 for a \$100 loan on a fourteen-day payday loan is equivalent to an annual percentage rate of 390 percent. In Missouri a larger fee of \$75 for the same loan translates into an annual percentage rate of 1,950

² Payday lenders are also referred to as deferred deposit originators, and their product as payday advances, cash advances, deferred deposits, among other terms. While overdraft credit provided by banks is related to payday credit. Morgan, Strain and Seblani (2012) report that payday loans are typically cheaper than covered overdrafts.

percent.³ Certain consumer organizations, advocacy groups, and state attorneys general consider such high interest rates to be outrageous, a factor no doubt in the decision by some state governments either to ban the operation of payday loan stores or to impose much lower interest rate caps on these small loans. In addition, payday lenders are often subject to accusations that they engage in predatory lending by locating their stores in areas with higher concentrations of low-income or impoverished residents, who are unemployed, less educated, and disproportionately African American and Hispanic. Indeed, Ohio Senator Sherrod Brown voiced concern during a 2014 hearing of the Senate Banking Committee “that payday companies are marketing their high-cost loans to the very people who can least afford them, much like predatory mortgage lenders did in the run up to the housing crisis.”⁴

This paper examines the different regulatory restrictions on payday lenders operating in counties throughout the United States. The examination is based on county- and state-level data to emphasize differences in the regulatory environments that constrain the prices and other aspects of the loan products that the firms may offer. We also conduct an empirical analysis to determine the extent to which the numbers of payday loan stores correlate to state regulatory restrictions, as well as to the various demographic and economic characteristics of the neighborhoods in which they are located, in an attempt to address the concerns previously noted.⁵ Because we use data

³ The interest rates in both cases are calculated assuming that both loans are outstanding for a year and the fees are paid every fourteen days. Of course, the rates are much higher if one assumes a new loan is taken out every fourteen days and the same fees are charged.

⁴ See Douglas (2014, p.2).

⁵ Due to limited availability of data, the paper focuses on actual storefronts to the exclusion of online payday lenders. However, William H. Sorrell (2014, p.1), attorney general of Vermont, recently stated that “Online lenders nationwide (currently numbered at over 200) earned over \$18 billion dollars in income from high-interest, small-dollar loans made in 2012.” Yet, according to the Consumer Financial Protection Bureau (2013), these online payday loans still make up a minority of the total loan volume, and the loans are offered with fees equal to or higher than storefront loans. However, Appendix 1 does provide information on both in-state and online payday lenders. As the appendix shows, online payday lenders only account for 6.2 percent of all payday lenders. It should be noted that in the late 1990s some payday lenders began partnering with nationally chartered banks and that payday loans became “bank loans” because such banks were not subject to state-imposed fee caps or usury laws. However, the

obtained directly from state authorities, a new and unique finding among studies of the payday loan industry is that payday lenders operate more stores in states whose regulatory regimes are more lenient.

The remainder of the paper proceeds as follows. The next section provides a literature review. This is followed by an overview of the payday lending industry, with an emphasis on two issues in particular that arise when studying this industry. The third section presents and discusses our approach to analyzing some of the determinants of the location and concentration of payday lending stores. The last two sections summarize our results and address plans for future research on payday lending.

Selected Literature Review

The conclusions of much of the existing literature on payday lending reinforce the view that the industry is indeed predatory because it targets economically vulnerable and less educated individuals. To a lesser degree, other studies conclude that there are benefits associated with payday lending, such as fewer bounced checks and their associated fees, and fewer bankruptcy filings.

In a relatively early study, Stegman and Faris (2003) analyzed a database of 142 (165) payday lenders operating 807 (902) outlets for the year 1999 (2000) in North Carolina. Their data showed that over the two-year period there were double-digit increases in the number and value of deferred deposit checks, as well as the payday loan fees collected. Net charge-offs increased by 54 percent, reflecting the higher risk of such loans. Their results indicate that lower-income African

Federal Deposit Insurance Corporation took actions in 2003 and 2005 that, according to Stegman (2007, p. 179), “rendered the rent-a-bank model obsolete.”

Americans were more than twice as likely as white non-Hispanics to have taken out a payday loan. Of interest, they found that Hispanics were less likely than other groups to utilize payday loans. Older individuals were also less likely turn to payday lenders than were younger individuals. Furthermore, the results indicate that the number of banks and thrifts in a household's neighborhood had a small but significantly negative effect on the use of payday lenders.

Morgan and Strain (2008) perform an examination of payday lending focusing on Georgia and North Carolina, two states that banned the loans in 2004 and 2005, respectively. Based upon an analysis of data for returned checks at Federal Reserve processing centers from 1997 to 2007, complaints filed with the Federal Trade Commission (FTC) between 1997 and 2007, and bankruptcy filings between 1998 and 2007, they find that households in Georgia bounced more checks, complained more to the FTC about lenders and debt collectors, and filed for bankruptcy protection at a higher rate than did households in states that permitted payday lending. They also find that North Carolina households fared about the same. In a related nationwide study, Morgan, Strain and Seblani (2012) study the period between 1998 and 2008, finding some evidence that while bankruptcy rates decrease after payday loan bans, complaints against lenders tend to increase. Moreover, the authors report that their most robust finding is that returned check numbers and overdraft fee income at depository institutions increase after payday credit bans.⁶

In a more geographically limited study, Gallmeyer and Roberts (2009) conduct a study of payday lenders in the Front Range area (the populous eastern foothills of the Rockies) of Colorado. They perform an analysis of the sociodemographic characteristics of those communities, as

⁶ Changes in credit supply are proxied by two dummy variables, with 0 representing both before a state banned payday lending and also before a state passed enabling legislation for payday lending, and 1 in both cases after the banning and enabling changes. The authors rely on annual store counts obtained from Stephens Inc., an investment bank that tracks the payday lending industry.

measured by median household income, percentage of the population falling substantially below the federal poverty line, and the labor force composition. The authors find that payday lenders are more likely to concentrate in neighborhoods with lower income and moderate poverty, and with higher percentages of ethnic minorities, immigrants, young adults, the elderly, military personnel, and those working in non-management/non-professional occupations.

In a study limited to Oregon and Washington, Zinman (2010) uses data from two 2007 telephone surveys of 1,040 payday borrowers to examine some of the effects of restricting access to expensive credit. Oregon imposed a binding rate cap on such credit that year, whereas Washington did not. Zinman finds that access to payday loans declined in Oregon relative to Washington, suggesting that many borrowers in Oregon shifted into plausibly inferior substitutes, such as bounced checks. In a related and more recent study, Carrell and Zinman (2014) analyze the impact of payday loan access on three different measures of military job performance in thirty-five states that either allow or prohibit payday lending for the period 1995 to 2007. Their empirical results indicate that payday loan access adversely affects overall job performance, retention, and readiness.

Combining household survey data and county-level data for thirteen states, three of which prohibit payday lending, Melzer (2011) examines whether payday loan access mitigates financial distress, as some supporters of the industry claim. His results indicate that access to payday lending leads instead to increased difficulty paying mortgage, rent, and utilities bills, and to delays in needed health care.

Morse (2011) also examines whether payday lending exacerbates or mitigates financial distress. Specifically, she considers whether the adverse effects of natural disasters on home foreclosures and small property crimes are mitigated when individuals are able to utilize payday

lenders. Her analysis is based on data for California payday lenders at the ZIP code level over the period 1996 to 2002. In contrast to Melzer, however, she finds that payday lenders provide a positive service to individuals facing unexpected financial distress.

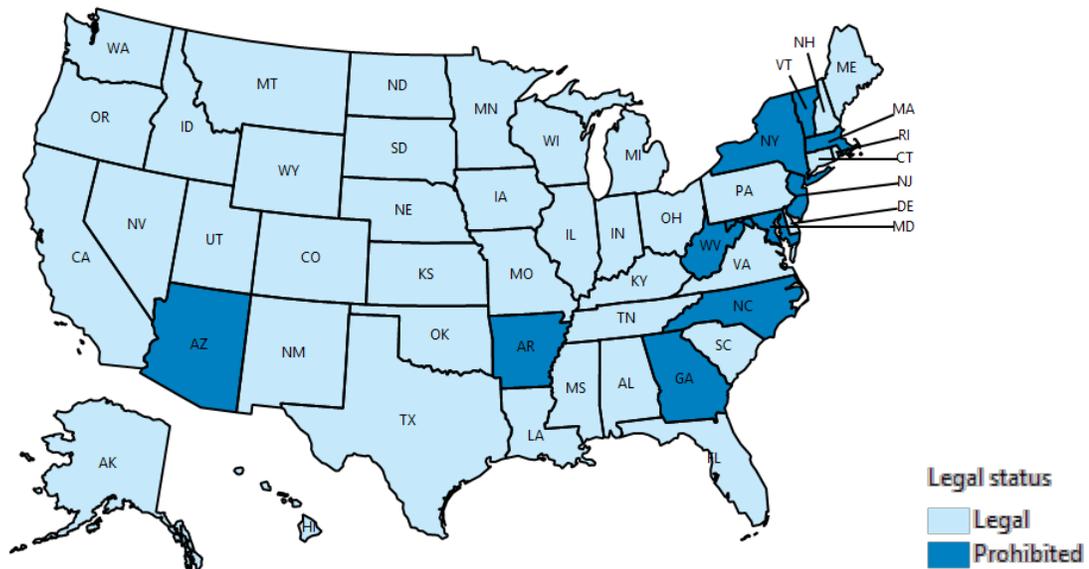
In another paper, Bertrand and Morse (2011, p.1889) in a study based on a survey of 100 stores of a large national payday lending chain over the period May to September 2008, conclude that "...getting consumers to think more long term about the adding up of the dollar costs over time, putting the loan in the context of comparative products to increase its evaluability, and, to a lesser degree, disclosing information on the typical profile of payday loan refinancing significantly reduces the frequency and amount of payday borrowing". Bhutta (2014), on the other hand, uses ZIP code data to analyze the socioeconomic factors correlated with concentrations of payday lenders. Unlike the two studies that find, respectively, negative and positive effects of payday loans on financial well-being, his empirical results indicate little connection in terms of such loans and credit scores, new delinquencies, or the likelihood of overdrawing credit lines.

Quite recently the Consumer Financial Protection Bureau (CFPB), established by the Dodd-Frank Act in 2010, has devoted attention to payday lending, with two white papers on the long-term use of short-term loans, evidenced by a pattern of repeatedly rolling over, i.e., re-borrowing (2013; Burke et al., 2014). In the 2013 paper, the CFPB finds that the median amount borrowed was \$350, with about a third of borrowers having six loans or less and a total dollar amount borrowed of \$1,500 during the year-long period. In the 2014 paper, using the same data as in the 2013 study, which includes information on over 12 million loans in 30 states, the CFPB found that approximately 80 percent of loans are renewed with another loan within fourteen days.

Overview of the Payday Lending Industry

In this and other studies of payday lenders, two important issues arise. First, one must identify in what states payday lenders can legally operate, and the regulatory environment of those states that do permit them. Appendix 1 provides the necessary information in this regard; ten states and the District of Columbia prohibit payday lenders. The states are Arizona, Arkansas, Georgia, Maryland, Massachusetts, New Jersey, New York, North Carolina, Vermont, and West Virginia, as shown in Figure 1.

Fig. 1 States that prohibit payday lending



Four states—Connecticut, Montana, New Hampshire, and Oregon—set maximum payday loan rates based on a finance charge for a fourteen-day \$100 loan; these rates are far below the typical payday lender rates and are clearly intended to deter the operation of payday lenders within their borders. The rates are as follows: Connecticut, 30 percent; Montana, New Hampshire, and Oregon, each 36 percent. At the other end of the spectrum, six states—Delaware, Idaho, Nevada, South Dakota, Utah, and Wisconsin—set no limits on the rates that may be charged for payday loans. In short, the sky’s the limit. Thirty of the remaining states that permit payday lending

explicitly specify that triple-digit rates may be charged (see Appendix 2 for this list). And Missouri specifies the highest maximum interest rate that may be charged at 1,950 percent.⁷ Figure 2 shows the fairly wide distribution of interest rates that payday lenders may charge in states, excluding the ten states in which payday lending is prohibited and two states for which no information about the APR is available, while Figures 3 and 4 provide information on the distribution of maximum number of outstanding loans at one time and the distribution of rollovers or renewals permitted.

Fig. 2 Distribution of maximum allowable interest rates

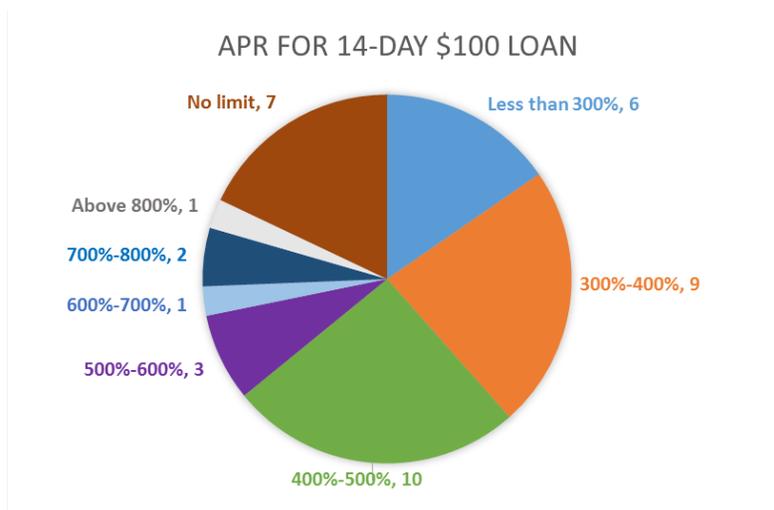
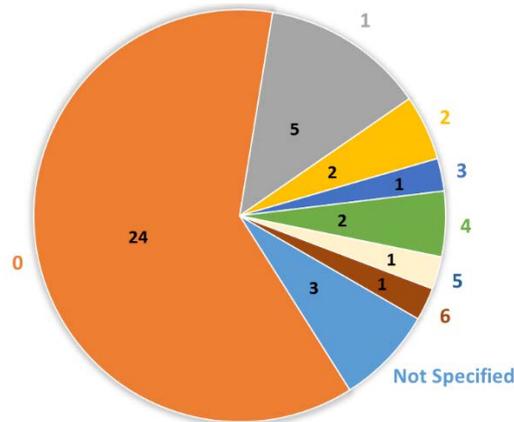


Fig. 3 Distribution of maximum number of outstanding loans at one time



⁷ As a result of the Talent-Nelson Amendment to the John Warner National Defense Authorization Act of 2007, a 36 percent annual percentage rate cap took effect on October 1, 2007, for all payday loans made to active-duty military borrowers.

Fig. 4 Distribution of rollovers or renewals permitted



Appendix 2 includes other interesting information about the regulatory constraints on the payday lending industry. There are, for example, limits on the loan amount in all but four states: Maine, Texas, Utah, and Wyoming. The lowest allowable maximum loan amount is \$300, in both California and Montana (no payday lenders are known to be operating in Montana), while the highest allowable maximum loan amount is \$50,000, in Oregon. The most frequent maximum loan amount allowed is \$500, found in eighteen states.⁸

In addition to limits placed on loan amounts, all but nine states specify the upper limits on the terms on these loans. Nineteen states have no specified minimum loan terms. Seventeen states specify a maximum loan term, but not a minimum. Of these states, Illinois specifies the longest allowable loan term, at 120 days, whereas Florida, Kansas, Michigan, New Hampshire, and Texas specify the shortest allowable loan term, at seven days. The most frequent maximum loan term is thirty-one days. Of note, Colorado specifies a minimum loan term of six months.

Regulations also specify the number of loans an individual may have outstanding at one time, and the number of times a loan may be rolled over. Eight states—Louisiana, Maine, Minnesota, Mississippi, Nevada, Utah, Wisconsin, and Wyoming—either do not specify or do not

⁸ Two states, Nevada and New Mexico limit the maximum loan amount to 25% of monthly gross income.

set a limit on the number of outstanding loans. Alabama does not limit the number of outstanding loans but instead limits the dollar amount outstanding at any one time. Most states limit simultaneous outstanding loans to one or two.

Twenty-four states prohibit rollovers altogether. Ten states, again listed in Appendix 2, allow between one and four rollovers, while Kansas, Maine, and Pennsylvania do not specify a limit. The Consumer Financial Protection Bureau finds that over 80 percent of payday loans are rolled over or followed by another loan within fourteen days (2014, p.4).

The second issue that arises in studies of payday lenders involves determining the number of firms operating in the different states. Unfortunately, no central database exists for such information, nor is such information readily available from the various state regulatory authorities. Nonetheless, estimates by Stephens Inc. (2013) indicate that there were 18,273 payday lending stores in 2012. A few fairly large firms, moreover, play a major role in the industry. Advance America, the largest such firm in the United States, was acquired in 2012 by Grupo Elektra, a corporation owned by Ricardo Salinas Pliego of Mexico. Advance America has roughly 2,400 stores throughout the United States. However, these are not exclusively payday lenders; some of the stores are pawnbrokers or offer check cashing and other services.

As of mid-2014, we were only able to identify the following firms as publicly traded entities: Cash America International (CSH), QC Holdings (QCCO), EZCORP Inc. (EXPW), First Cash Financial Services (FCFS), and DFC Global (DLLR). All of these firms engage not only in payday lending but offer other short-term financial services, such as pawn lending and check cashing. Cash America International has more than 1,000 stores; QC Holdings has about 500 outlets, while EZCORP Inc. has about 900 US outlets, with roughly 500 being financial service

stores. DFC Global operates in a number of countries, with about 293 outlets in the United States. And First Cash Financial has 309 U.S. stores and others in Mexico.

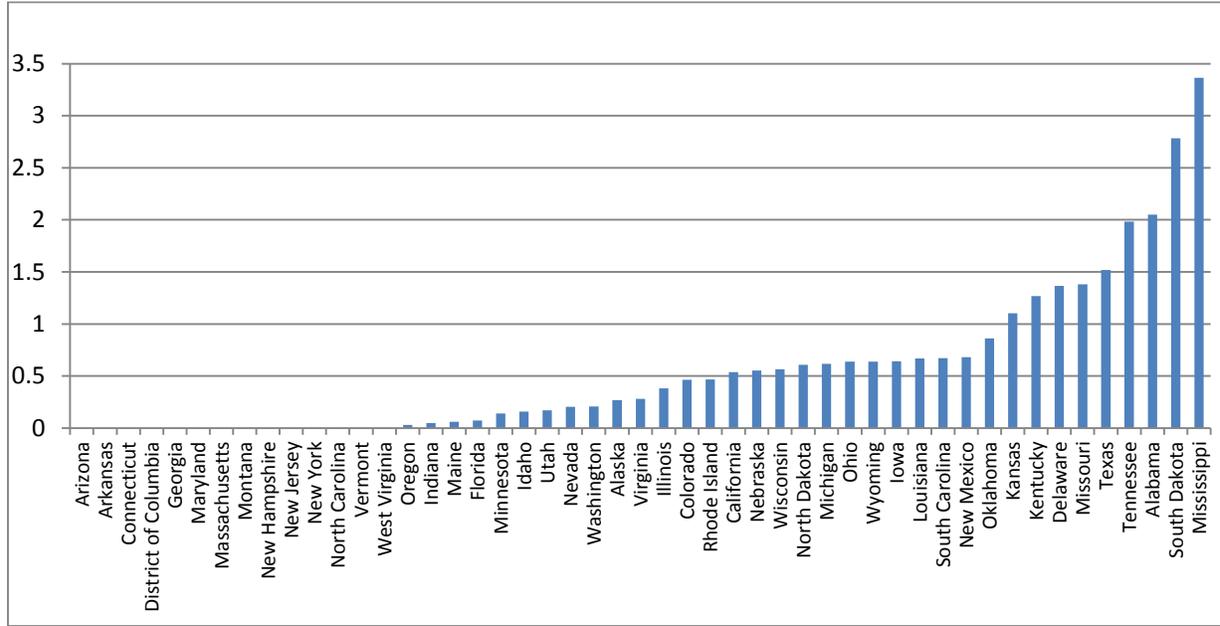
To obtain the number of US payday lending stores, one usually relies on a proxy measure for such firms. In this regard, Bhutta (2014) relies on two North American Industrial Classification System (NAICS) codes to capture payday lending firms. Specifically, the codes include (1) firms primarily engaged in making unsecured cash loans to consumers and (2) those that facilitate credit intermediation, including check cashing services and money order issuance services.⁹ These firms encompass non-depository consumer lending and other activities related to credit intermediation. Appendix 1 relies on these codes for its tally of the number of payday lenders for each state. (Numbers are included, even for the ten states and the District of Columbia that prohibit payday lending.) The total for all the states is 29,044.

We concluded, however, that the most reliable information could only be obtained from state regulatory authorities. We therefore contacted every state regulatory authority, requesting information on the number of payday lenders as well as the specific regulations governing operations in that state. As also seen in Appendix 1, based on this information from the regulatory authorities, the number for all states drops to 16,814, for a difference of 12,230. This means that using a proxy measure, such as the NAICS data, overstates the official number of such lenders by more than 12,000 firms. For those states that prohibit payday lending, the proxy measure includes 3,636 firms—even though the actual number of payday lenders is zero.

Figure 5 illustrates the distribution of in-state payday lenders by state. The greatest numbers are found in California, Tennessee and Texas, with each state having more than 1,000 payday lending stores. Texas leads the list, with 3,889, while Maine has the fewest, just eleven.

⁹ The codes are 522291 (consumer lending) and 522390 (other activities related to credit intermediation). Barth et al. (2015) follow Bhutta (2014) and therefore also rely on the two NAICS codes.

Fig. 6 Number of in-state payday lenders per 10,000 people



Empirical Model and Results

To address the issue of the concentration of payday lending stores per 10,000 people in counties, we specify the following model:

$$y_i = \alpha_i + \beta_1(\text{regulatory restrictions})_i + \beta_2(\text{financial factors})_i + \beta_3(\text{demographic factors})_i + \beta_4(\text{educational factors})_i + \varepsilon_i, \quad (1)$$

where y_i is the number of payday lending stores per 10,000 people; regulatory restrictions are various state limitations on the operations of payday lenders (to our knowledge these important variables have been excluded in previous studies); financial factors include income per capita, the poverty rate, and the unemployment rate; demographic factors include the percentages of the population that are African American, Asian, Hispanic, age 15 and under, and age 65-plus; educational factors include the percentages of the population that have a high school degree or higher and have a bachelor's degree or higher; ε_i is a random error term: and i indexes the 2,531

counties in our sample.¹⁰ Appendixes 1 and 2 provide the information on model's dependent and regulatory restriction variables, while Appendix 3 provides descriptive statistics for the same and other explanatory variables separately for all counties, those counties allowing payday lenders, and those counties prohibiting payday lenders.

Appendix 4 provides the simple correlations among the various variables used in our analysis. In this table, given the substantial variation in population among the different US counties, as already noted, the focus is on the number of payday lending stores per 10,000 people. Perhaps not surprisingly, the number of payday lending stores is positively and significantly correlated with the percentages of the population that are African American and age 15 and under (indicating a larger family size). The correlations between the number of payday lending stores and the percentages of the population that are white, Hispanic, Asian, and age over 65 are significantly negative. We also find that the correlations between the number of payday lending stores and the percentages of the population that have high school and bachelor's degrees are significantly negative, which also does not seem surprising.

Turning to the financial factors, we find a significant negative correlation between the number of payday lending stores and income per capita, while a significant and positive correlation exists between the number of stores and the poverty rate and unemployment rate. Again, neither of these correlations is surprising. At the same time, the number of payday lending stores is significantly negatively correlated with the maximum loan amount, but positively and significantly correlated with the remaining four regulatory restriction variables. This, in general, means that the number of stores is positively correlated with the leniency of regulations, a finding not previously

¹⁰ Our study is related to that of Prager (2009) and Barth et al. (2015), and several of the papers they discuss, but relies on more recent and official regulatory data, a somewhat different set of variables to explain the concentration of payday lending stores, and, most important, various restrictions on the operations of payday lenders in states.

reported in the literature due to the exclusion of information on the regulatory restrictions placed on payday lenders in those states allowing such firms.

Turning to the multivariate empirical results, the dependent variable employed is the number of in-state payday loan stores per 10,000 people in a county, as shown in Table 1.¹¹ The ordinary least squares results indicate that the percentage of the population that is African American is positively and significantly related to the number of payday lending stores.¹² However, the coefficient on the percentage that is Hispanic is significantly negative. Family size is not significant, but the percent of the population over age 65 is significantly negative.

¹¹ We use only data for in-state payday lenders because we cannot match online payday lenders to counties. As noted earlier, these lenders play a relatively small role both in terms of numbers and loan amounts in the entire industry.

¹² The variance inflation factors (VIFs) provided in the table indicate there is no problem with multicollinearity among the variables. However, due to multicollinearity between high school degree and bachelor's degree as well as between the unemployment rate and income per capita only high school degree and unemployment rate are included in the regressions. The results are unchanged when these two variables are replaced by bachelor's degree and income per capita, respectively.

Table 1: OLS and Tobit regressions: Number of payday lenders per 10,000 people on selected demographic and financial characteristics at county level for states that permit payday lending

	OLS	VIF	TOBIT
Constant	0.991 (0.0849)		10.119 (0.0895)
Black or African American	0.011 (<0.0001)	1.482	0.072 (0.0003)
Asian	-0.002 (0.8764)	1.477	-0.580 (0.0378)
Hispanic or Latino origin	-0.011 (0.0006)	1.427	-0.212 (0.0015)
Age under 15	0.014 (0.1447)	1.661	-0.125 (0.2852)
Age 65-plus	-0.018 (0.0115)	1.883	-0.698 (<0.0001)
High school degree or higher	-0.022 (<0.0001)	2.161	-0.499 (<0.0001)
Poverty rate	0.030 (<0.0001)	2.576	0.189 (0.0035)
Unemployment rate	0.002 (0.7550)	2.054	-0.218 (0.0318)
Maximum dollar loan amount	0.001 (<0.0001)	1.137	0.048 (<0.0001)
APR for fourteen-day \$100 Loan	0.038 (<0.0001)	1.924	0.582 (<0.0001)
Maximum number of outstanding loans at one time	0.105 (<0.0001)	1.195	1.276 (<0.0001)
Maximum number of rollovers or renewals	0.057 (0.0002)	1.946	0.484 (0.0714)
<i>Adjusted R²</i>	<i>0.272</i>		

The poverty rate enters with a significantly positive sign, which one might expect. Also, as one might expect, the percentage of the population with a high school degree or higher enters with a significantly negative sign. Further, the coefficient on the unemployment rate is not significant. With respect to the regulatory variables, the coefficients on the maximum loan amount, the APR and the maximum number of rollovers or renewals are all significantly positive. The coefficient on the maximum number of loans outstanding at one time is also positive and significant. In general, the regulatory variables again indicate that the concentration of payday lenders is greater in counties located in states with more lenient regulatory restrictions. This is a finding unique to our study and is based on new regulatory data obtained directly from state regulatory authorities.

Because some of the observations for the dependent variable are zero, the empirical model was re-estimated using a Tobit estimator. In this case, as shown in Table 1, two main differences emerge in the empirical results. All the significant variables based upon the OLS results are similarly significant when using the Tobit estimator. In addition, however, the percentages of the population that are Asian and Hispanic now enter with significantly negative signs. The unemployment rate also enters with a significantly negative sign, which is not unexpected since payday borrowers must have a steady source of income.¹³

Our results provide a strong finding that a more lenient regulatory environment governing the activities of payday lenders is associated with a greater concentration of payday lenders. If payday loans are indeed quite risky and primarily used for emergencies (which are presumably temporary), it seems that state regulatory authorities could allow relatively high interest rates but limit the maximum number of outstanding loans at one time and the maximum number of rollovers. Instead, our results indicate that the different regulatory restrictions are complements rather than substitutes.

Some Additional Results

The payday lending industry is a lightning rod for debate, with critics alleging that payday lenders prey on low-income and less financially literate individuals, frequently African Americans, and charge exorbitant interest rates for extremely short-term loans. Supporters, meanwhile, argue that these lenders fill a funding gap for individuals who would otherwise lack access to short-term

¹³ We also estimated the Tobit model omitting five states, Connecticut, Maine, Montana, New Hampshire and Oregon, due to the low allowable interest rates which raises questions about whether payday lenders actually operate in these states despite such firms not being explicitly prohibited. Indeed, in three of these states there are no payday lenders, while in the other two states there only 8 and 12 in-state payday lenders (see Appendix 1). The empirical results are unchanged after re-estimating the Tobit model when omitting these five states.

credit for unexpected financial needs. Despite several careful, empirical, and recent studies of payday lending, there is still no consensus on whether the industry provides a net gain in welfare to borrowers. Given the importance of these particular financial firms to significant segments of the population, there is always the need for more research to better understand their role in the financial system.

Appendixes 5 and 6 present some preliminary empirical results on the impact of restrictions on payday lending and on four outcome variables: property, burglary and larceny crimes as well as Chapter 7 bankruptcies. The results indicate that in counties in which payday lending is legal and where there is a greater number of payday lending stores there is a significantly negative relationship to the number of crimes for each of the three types of crimes. In the case of Chapter 7 bankruptcies, it is found that there is a significantly positive relationship between the number of bankruptcies and allowable payday lending as well as the number of payday lending stores. Interestingly, however, there is a significantly positive relationship between the number of bankruptcies and the APR for fourteen-day \$100 loan, while the relationship between both the number of bankruptcies and the maximum number of outstanding loans at one time and the maximum number of rollovers or renewals is significantly negative.

Conclusions

Overall, the empirical results indicate the following: (1) in both of the estimated regressions, a significantly positive relationship exists between the number of payday lending stores and the percentage of the population that is African American; (2) in both regressions, the percentage of the population that is Hispanic enters with a significantly negative sign; (3) the percentage of the population with a high school degree or higher is significantly negative in both

regressions; and (4) the poverty rate is significantly positive; (5) the percentage of the population that is Asian enters with a significantly negative sign in only the case of the Tobit estimation; and; (6) all of the regulatory restriction variables enter with significantly positive signs in both the OLS and Tobit regressions. Most important, our empirical results are consistent with the view that payday lenders are more concentrated in those counties located in states whose regulatory regimes are more lenient, a new finding that is unique to our study. This means that state regulatory authorities have the option to vary the different regulations to be more lenient with respect to some but not other regulations rather than being lenient with respect to all such regulations on the operations of payday lenders. For example, a state could allow a high interest rate but limit the loan amount or the number of rollovers or a combination of these restrictions to curtail the use of payday loans for other than short-term emergencies.

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Appendix 1: Legal status and number rate of payday lenders by state

State	Legal status	Data collected from regulators			Payday lenders based on NAICS* codes
		Number of payday lenders	Number in state	Number out of state (on-line)	
Alabama	Legal	997	980	17	1,035
Alaska	Legal	25	19	6	9
Arizona	Prohibit	0	0	0	436
Arkansas	Prohibit	0	0	0	36
California	Legal	2,033	2,010	23	2,427
Colorado	Legal	256	234	22	432
Connecticut	Legal	0	0	0	82
Delaware	Legal	347	123	224	126
District of Columbia	Prohibit	0	0	0	29
Florida	Legal	149	135	14	1,520
Georgia	Prohibit	0	0	0	1,208
Hawaii	Legal	N/A	N/A	N/A	41
Idaho	Legal	51	25	26	212
Illinois	Legal	503	488	15	1,248
Indiana	Legal	41	31	10	520
Iowa	Legal	195	195	0	212
Kansas	Legal	335	314	21	305
Kentucky	Legal	550	550	0	648
Louisiana	Legal	403	303	100	1,342
Maine	Legal	11	8	3	15
Maryland	Prohibit	0	0	0	232
Massachusetts	Prohibit	0	0	0	126
Michigan	Legal	617	609	8	555
Minnesota	Legal	81	74	7	132
Mississippi	Legal	1,013	998	15	1,004
Missouri	Legal	865	826	39	972
Montana	Legal	0	0	0	57
Nebraska	Legal	101	101	0	147
Nevada	Legal	91	55	36	316
New Hampshire	Legal	0	0	0	15
New Jersey	Prohibit	0	0	0	333
New Mexico	Legal	148	140	8	435
New York	Prohibit	0	0	0	685
North Carolina	Prohibit	0	0	0	524
North Dakota	Legal	47	41	6	22
Ohio	Legal	737	735	2	950
Oklahoma	Legal	338	323	15	977
Oregon	Legal	66	12	54	151
Pennsylvania	Legal	N/A	N/A	N/A	219
Rhode Island	Legal	52	49	3	53
South Carolina	Legal	311	311	0	1,348
South Dakota	Legal	408	227	181	110
Tennessee	Legal	1,283	1,259	24	1,370
Texas	Legal	3,889	3,827	62	4,623
Utah	Legal	81	47	34	320
Vermont	Prohibit	0	0	0	4
Virginia	Legal	225	225	0	577
Washington	Legal	153	139	14	293
West Virginia	Prohibit	0	0	0	23
Wisconsin	Legal	330	321	9	536
Wyoming	Legal	82	36	46	52
Total (excluding N/As)		16,814	15,770	1,044	29,044

* NAICS code refers to the North American Industry Classification System.

Source: Survey of state regulatory authorities and <http://www.census.gov>

Appendix 2: Regulatory restrictions on payday lenders

State	Legal status	Maximum loan amount (\$)	Minimum loan term (days)	Maximum loan term (Days)	Finance charge for 14-day \$100 loan (\$)	APR for 14-day \$100 loan (%)	Max. number of outstanding loans at one time	Rollovers or renewals permitted
Alabama	Legal	500	10	31	17.50	456.25	No limit	1
Alaska	Legal	500	14	Not specified	20.00	520.00	Not specified	2
Arizona	Prohibited	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Arkansas	Prohibited	N/A	N/A	N/A	N/A	N/A	N/A	N/A
California	Legal	300	0	31	17.50	456.25	1	0
Colorado	Legal	500	180	N/A	N/A	N/A	2.5	1
Connecticut	Legal	15,000 under small loan statute	N/A	N/A	17.00	30.03	N/A	N/A
Delaware	Legal	1,000	0	60	No limit	No limit	5	4
District of Columbia	Prohibited	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Florida	Legal	500	7	31	16.11	419.00	1	0
Georgia	Prohibited	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Hawaii	Legal	600	0	32	17.65	459.00	1	0
Idaho	Legal	1,000	0	Not specified	No limit	No limit	5	3
Illinois	Legal	1,000	13	120	15.50	403.00	2	0
Indiana	Legal	550	14	Not specified	15.00	390.00	2	0
Iowa	Legal	500	0	31	16.67	433.00	2	0
Kansas	Legal	500	7	30	15.00	390.00	2	Not specified
Kentucky	Legal	500	14	60	17.65	459.00	2	0
Louisiana	Legal	350	0	60	30.00	780.00	Not specified	0
Maine	Legal	None	Not specified	Not specified	20.96	43.00	Not specified	Not specified
Maryland	Prohibited	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Massachusetts	Prohibited	6,000	N/A	N/A	N/A	N/A	N/A	N/A
Michigan	Legal	600	7	31	15.00	390.00	2	0
Minnesota	Legal	350	0	30	15.00	390.00	Not specified	0
Mississippi	Legal	500	0	30	20.00	520.00	Not specified	0
Missouri	Legal	500	14	31	75.00	1,950.00	2.5	6
Montana	Legal	300	0	31	1.39	36.00	1	0
Nebraska	Legal	500	0	34	17.65	459.00	2	0
Nevada	Legal	25% of expected monthly gross income	0	35	No limit	No limit	Not specified	0

Appendix 2: Regulatory restrictions on payday lenders

State	Legal status	Maximum loan amount (\$)	Minimum loan term (days)	Maximum loan term (Days)	Finance charge for 14-day \$100 loan (\$)	APR for 14-day \$100 loan (%)	Max. number of outstanding loans at one time	Rollovers or renewals permitted
New Hampshire	Legal	500	7	30	1.38	36.00	1	0
New Jersey	Prohibited	N/A	N/A	N/A	N/A	N/A	N/A	N/A
New Mexico	Legal	25% of monthly gross income	14	35	16.00	417.00	2.5	0
New York	Prohibited	N/A	N/A	N/A	N/A	N/A	N/A	N/A
North Carolina	Prohibited	N/A	N/A	N/A	N/A	N/A	N/A	N/A
North Dakota	Legal	500	0	60	20.00	520.00	3	1
Ohio	Legal	500	31	Not specified	15.00	390.00	1	0
Oklahoma	Legal	500	12	45	15.00	390.00	1	0
Oregon	Legal	50,000	31	60	15.00	36.00	1	2
Pennsylvania	Legal	25,000	0	Not specified	\$9.50 per \$100 per year interest plus \$1.50 per \$50	N/A	Not specified	Not specified
Rhode Island	Legal	500	13	Not specified	10	260.00	3	1
South Carolina	Legal	550	0	31	15.00	390.00	1	0
South Dakota	Legal	500	Not specified	Not specified	Not specified	Not specified	2.5	4
Tennessee	Legal	500	0	31	17.65	459.00	3	0
Texas	Legal	Not specified	7	31	11.87	309.47	2.5	0
Utah	Legal	No limit	0	70	Not specified	No limit	Not specified	5
Vermont	Prohibited	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Virginia	Legal	500	28	Not specified	26.38	687.76	1	0
Washington	Legal	700	0	45	15.00	390.00	3.5	0
West Virginia	Prohibited	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Wisconsin	Legal	1,500	0	90	No limit	No limit	No limit	1
Wyoming	Legal	Not specified	0	30	30.00	780.00	No limit	0

Source: Survey of state regulatory authorities, authors and Consumer Federation of America (payadayloaninfo.org).

Appendix 3: Descriptive statistics for payday lenders and selected demographic and economic variables at county level

	Legal states					Prohibited states					All states				
	N	Minimum	Maximum	Mean	Std. Deviation	N	Minimum	Maximum	Mean	Std. Deviation	N	Minimum	Maximum	Mean	Std. Deviation
Number of payday lender stores	2,531	0.00	734	6.32	26.37	545	0	0	0.00	0.00	3,076	0	734	5.13	23.98
Number of payday lender stores per 10,000 people	2,531	0.00	7.35	0.74	1.04	545	0.00	0.00	0.00	0.00	3,076	0.00	7.35	0.60	0.99
% White	2,531	3.80	100.00	87.25	15.53	545	22.70	99.80	77.90	18.62	3,076	3.80	100.00	85.59	16.51
% Black or African American	2,531	0.00	86.20	8.00	13.56	545	0.00	74.80	17.63	17.55	3,076	0.00	86.20	9.70	14.81
% Asian	2,531	0.00	41.20	1.37	2.56	545	0.00	61.60	2.11	5.07	3,076	0.00	61.60	1.50	3.16
% Hispanic or Latino origin	2,531	0.00	98.30	8.86	14.24	545	0.00	82.70	6.27	7.87	3,076	0.00	98.30	8.40	13.37
High school education (%)	2,531	44.90	97.50	84.46	7.17	545	61.90	95.10	82.28	6.39	3,076	44.90	97.50	84.07	7.09
Bachelor's education (%)	2,531	3.70	72.80	19.38	8.46	545	5.60	59.50	19.83	10.14	3,076	3.70	72.80	19.46	8.78
% of population under age 15	2,531	0.00	34.80	19.24	3.13	545	0.00	27.00	18.83	2.75	3,076	0.00	34.80	19.17	3.07
% of population over age 65	2,531	3.80	44.50	16.18	4.40	545	4.00	33.20	15.23	3.74	3,076	3.80	44.50	16.01	4.31
Unemployment rate	2,531	0.00	27.2	8.38	3.89	545	0.00	21.90	9.90	3.05	3,076	0.00	27.20	8.65	3.80
Poverty rate	2,531	0.00	49.50	15.99	6.40	545	3.80	47.70	18.12	6.52	3,076	0.00	49.50	16.37	6.47
Income per capita	2,531	9,136	61,312	23,404	5,235	545	8,809	61,951	23,072	6,804	3,076	8,809	61,951	23,346	5,546

Note: This information is based on US Census Bureau Data for 2,531 counties in the U.S.

Appendix 4: Correlations among payday lenders and selected demographic and financial characteristics at county level for states that do not prohibit payday lenders

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
Payday loan stores per 10,000 people (1)	1																
White (2)	-0.24 (0.00)	1															
Black or African American (3)	0.32 (0.00)	-0.81 (0.00)	1														
Asian (4)	-0.07 (0.00)	-0.22 (0.00)	0.02 (0.32)	1													
Hispanic or Latino origin (5)	-0.06 (0.00)	-0.07 (0.00)	-0.10 (0.00)	0.14 (0.00)	1												
Age under 15 (6)	0.12 (0.00)	-0.22 (0.00)	0.02 (0.28)	0.01 (0.64)	0.29 (0.00)	1											
Age 65-plus (7)	-0.14 (0.00)	0.37 (0.00)	-0.21 (0.00)	-0.34 (0.00)	-0.21 (0.00)	-0.55 (0.00)	1										
High school degree or higher (8)	-0.28 (0.00)	0.33 (0.00)	-0.33 (0.00)	0.16 (0.00)	-0.42 (0.00)	-0.21 (0.00)	0.11 (0.00)	1									
Bachelor's degree or higher (9)	-0.14 (0.00)	0.02 (0.44)	-0.07 (0.00)	0.49 (0.00)	-0.01 (0.58)	-0.10 (0.00)	-0.25 (0.00)	0.58 (0.00)	1								
Poverty rate (10)	0.34 (0.00)	-0.48 (0.00)	0.41 (0.00)	-0.14 (0.00)	0.15 (0.00)	0.10 (0.00)	-0.11 (0.00)	-0.65 (0.00)	-0.38 (0.00)	1							
Unemployment rate (11)	0.23 (0.00)	-0.47 (0.00)	0.41 (0.00)	0.00 (0.81)	-0.01 (0.74)	0.07 (0.00)	-0.19 (0.00)	-0.41 (0.00)	-0.27 (0.00)	0.60 (0.00)	1						
Income per capita (12)	-0.26 (0.00)	0.19 (0.00)	-0.22 (0.00)	0.42 (0.00)	-0.08 (0.00)	-0.14 (0.00)	-0.06 (0.00)	0.63 (0.00)	0.75 (0.00)	-0.72 (0.00)	-0.43 (0.00)	1					
Maximum dollar loan amount (13)	-0.09 (0.00)	0.05 (0.02)	-0.09 (0.00)	0.03 (0.15)	0.17 (0.00)	-0.01 (0.46)	0.03 (0.19)	0.01 (0.67)	0.04 (0.06)	0.01 (0.61)	0.04 (0.04)	0.02 (0.36)	1				
Finance charge for 14-day \$100 loan (14)	0.13 (0.00)	0.06 (0.00)	-0.09 (0.00)	-0.04 (0.05)	-0.16 (0.00)	0.12 (0.00)	-0.01 (0.64)	0.09 (0.00)	-0.02 (0.25)	-0.03 (0.18)	-0.04 (0.03)	-0.06 (0.00)	-0.06 (0.00)	1			
APR for fourteen-day \$100 Loan (15)	0.16 (0.00)	0.04 (0.06)	-0.06 (0.00)	-0.05 (0.02)	-0.16 (0.00)	0.13 (0.00)	-0.01 (0.73)	0.06 (0.00)	-0.02 (0.25)	-0.01 (0.49)	-0.08 (0.00)	-0.07 (0.00)	-0.14 (0.00)	0.94 (0.00)	1		
Maximum number of outstanding loans at one time (16)	0.11 (0.00)	0.00 (0.83)	0.07 (0.00)	-0.09 (0.00)	-0.05 (0.02)	0.13 (0.00)	-0.05 (0.01)	0.05 (0.01)	-0.01 (0.73)	0.00 (0.86)	-0.06 (0.00)	-0.02 (0.33)	-0.03 (0.11)	0.39 (0.00)	0.35 (0.00)	1	
Maximum number of rollovers or renewals (17)	0.10 (0.00)	0.14 (0.00)	-0.17 (0.00)	-0.04 (0.03)	-0.11 (0.00)	0.09 (0.00)	0.06 (0.00)	0.15 (0.00)	0.05 (0.02)	-0.09 (0.00)	-0.15 (0.00)	-0.01 (0.56)	0.07 (0.00)	0.55 (0.00)	0.55 (0.00)	0.09 (0.00)	1

Note: p-values are in parentheses.

Appendix 5: OLS regressions: Number of various crimes per 10,000 people on selected demographic, financial characteristics, and legality or number of payday lending stores per 10,000 people at county level throughout the United States

	Property Crimes	Property Crimes	Burglary Crimes	Burglary Crimes	Larceny Crimes	Larceny Crimes
Constant	-335.249 (<0.001)	-291.580 (<0.001)	-5.921 (0.828)	-0.111 (0.997)	-323.081 (<0.001)	-289.039 (<0.001)
Black or African American	0.909 (<0.001)	0.926 (<0.001)	0.276 (<0.001)	0.286 (<0.001)	0.547 (<0.001)	0.559 (<0.001)
Asian	-1.420 (0.020)	-1.441 (0.017)	-0.557 (0.005)	-0.550 (0.006)	-0.820 (0.053)	-0.839 (0.045)
Hispanic or Latino origin	-0.120 (0.297)	-0.203 (0.075)	-0.029 (0.444)	-0.049 (0.191)	-0.061 (0.443)	-0.124 (0.117)
Age 65-plus	1.771 (<0.001)	1.519 (<0.001)	0.842 (<0.001)	0.791 (<0.001)	0.845 (<0.001)	0.652 (0.004)
High school degree or higher	-1.518 (<0.001)	-1.728 (<0.001)	-0.477 (<0.001)	-0.526 (<0.001)	-0.895 (<0.001)	-1.054 (<0.001)
Log of per capita income	48.596 (<0.001)	46.446 (<0.001)	4.752 (0.126)	4.565 (0.141)	41.784 (<0.001)	40.086 (<0.001)
Unemployment rate	2.884 (<0.001)	2.935 (<0.001)	1.200 (<0.001)	1.219 (<0.001)	1.638 (<0.001)	1.676 (<0.001)
Payday lending legal	-5.683 (0.102)		-2.282 (0.045)		-4.092 (0.090)	
Number of payday lending stores		-8.466 (<0.001)		-1.605 (<0.001)		-6.493 (<0.001)
<i>Adjusted R²</i>	<i>0.105</i>	<i>0.117</i>	<i>0.154</i>	<i>0.157</i>	<i>0.071</i>	<i>0.086</i>

Note: The FBI's Uniform Crime Reporting Program defines burglary as the unlawful entry of a structure to commit a felony or theft, larceny-theft as the unlawful taking, carrying, leading, or riding away of property from the possession or constructive possession of another, and property crimes as burglary, larceny theft, motor vehicle theft and arson.

Appendix 6: OLS regressions: Number of Chapter 7 bankruptcies per 10,000 people on selected demographic, financial characteristics, legality or number of payday lending stores per 10,000 people, and regulatory restrictions at county level throughout the United States

	Bankruptcies	Bankruptcies	Bankruptcies	Bankruptcies
Constant	-27.313 (0.007)	-28.975 (0.004)	-24.550 (0.016)	-25.877 (0.011)
Black or African American	-0.171 (<0.001)	-0.183 (<0.001)	-0.172 (<0.001)	-0.188 (<0.001)
Asian	0.001 (0.986)	-0.018 (0.765)	-0.027 (0.650)	-0.043 (0.468)
Hispanic or Latino origin	-0.153 (<0.001)	-0.140 (<0.001)	-0.149 (<0.001)	-0.136 (<0.001)
Age 65-plus	-0.446 (<0.001)	-0.425 (<0.001)	-0.458 (<0.001)	-0.430 (<0.001)
High school degree or higher	0.078 (0.039)	0.109 (0.004)	0.103 (0.006)	0.133 (<0.001)
Log of per capita income	3.661 (0.001)	3.668 (0.001)	3.231 (0.005)	3.230 (0.005)
Unemployment rate	0.832 (<0.001)	0.823 (<0.001)	0.797 (<0.001)	0.786 (<0.001)
Payday lending legal	2.001 (<0.001)		2.775 (<0.001)	
Number of payday lending stores		0.703 (<0.001)		0.670 (<0.001)
Maximum dollar loan amount			2.129E-5 (0.468)	4.254E-5 (0.145)
APR for fourteen-day \$100 Loan			0.228 (<0.001)	0.228 (<0.001)
Maximum number of outstanding loans at one time			-0.696 (<0.001)	-0.492 (<0.001)
Maximum number of rollovers or renewals			-0.596 (<0.001)	-0.626 (<0.001)
<i>Adjusted R²</i>	<i>0.167</i>	<i>0.166</i>	<i>0.183</i>	<i>0.179</i>

Note: The FBI's Uniform Crime Reporting Program defines burglary as the unlawful entry of a structure to commit a felony or theft, larceny-theft as the unlawful taking, carrying, leading, or riding away of property from the possession or constructive possession of another, and property crimes as burglary, larceny theft, motor vehicle theft and arson.