



## On payday lending: Identifying effective regulation measures

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### ABSTRACT

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Many governments adopt regulations designed to prevent consumers from participating in specific financial markets or to limit the negative externalities of such markets. However, relatively little effort has been put into determining the efficacy of such regulatory measures. In many cases, effectively comparing these regulatory measures is limited by variations in preferences and cultures across nationalities. However, the United States may represent a unique situation where preferences and cultures are more homogenous across state lines than across international boundaries. As such, a comparison of the efficacy of these laws may yield a better understanding of which measures prove more effective than others. One such financial market that has received such attention is the payday lending industry, which is part of the broader subprime credit market. In the United States, each individual state has its own laws regarding subprime lending. The analysis in this paper finds that while some legal regimes have a relationship to positive or negative outcomes among consumers, others seem to have no relationship at all.

**Contribution/Originality:** This work is original due to its Multi-Logit analysis quantifying the marginal effects of payday lending regulations on consumer behaviors.

## 1. INTRODUCTION

In the last quarter-century, payday lenders have provided short-term loans with high interest rates to individuals facing financial constraints. The rise of these lenders has been well documented, and their usefulness to society has been thoroughly debated, along with the value of other types of subprime lending. In the beginning, these lenders were relatively unregulated when compared to other financial institutions. However, more recently, states have begun exercising varying levels of control over these lenders through regulation. These regulations take various forms, including limiting the maximum amount that may be lent to consumers, limiting the costs of loans, controlling the length of loan terms, and many other forms.

For many adults, especially younger adults with lower levels of annual income or poor credit, payday lending represents the only form of credit available to them. In 2013, a little more than 4% of Americans reported having taken a payday loan (Bricker et al., 2014). Payday loans are effectively available to any consumer over the age of 18 with a job (Xiao & O'Neill, 2014). The Community Financial Services Association of America, the national trade organization for payday lenders, claims that more than 19 million Americans use their products (Community

Financial Services Association of America, n.d). These credit products are typically used by low-or middle-income households, minorities, or young people (Lawrence & Elliehausen, 2008). Consumers simply write a post-dated check or authorize an account debit payable on their next payday for the amount of the loan plus a fee. These loans generally have a two-week term, which can be rolled over into another term for an additional fee if the consumer is unable to pay off the loan on time (Consumer Financial Protection Bureau, 2014). The presence of comparatively elevated fees and an average loan amount of \$350 contribute to the expansion of the balance remaining by rollovers at outrageous rates (Montezemolo, 2013).

Due to lack of credit available to individuals most likely to use payday loans, calls for deeper or more effective regulations in the payday lending industry are common. In fact, many states have prohibited payday lending. Other states have regulated the profit from payday lending, effectively prohibiting it. No two states where payday lending is legal have identical regulatory regimes. If the goal of further regulation is to benefit consumers by protecting them from economic harm, then an analysis of the various types of regulation is essential for fully informed action. This paper examines how various types of regulation affect consumer financial well-being. By looking at each state's regulations and several measures of financial well-being, this paper is able to examine the impact of regulatory practices and thus help to determine which regulatory practices yield the best results.

The analysis in this paper shows that a complete prohibition of payday lending is beneficial in terms of consumers' financial well-being. However, in states where payday lending is legal, the prohibition of criminal prosecution for borrowers in default and prohibiting simultaneous loans are positively correlated with several measures of consumer financial well-being. On the other hand, increasing the minimum loan term, mandating repayment plans and waiting periods, and prohibiting loan rollovers all correlate with decreased levels of consumer financial well-being.

## 2. LITERATURE REVIEW

### 2.1. Consumer Well-Being

When consumers exhibit positive financial behaviors, their financial well-being increases (Xiao, 2016). However, when consumers exhibit negative financial behaviors, their financial well-being decreases (Xiao, 2016). A consumer's financial actions serve as the manifestation of their financial competence, which may be characterized as the aptitude to employ financial information and engage in favorable financial behavior with the aim of achieving financial objectives and enhancing financial welfare (Xiao, 2016). In order to improve consumer financial well-being, consumer financial education should focus on discouraging risky behaviors and encouraging financial self-efficacy (Xiao, 2015). However, Xiao (2016) states that consumers are most likely not fully informed or wholly rational, meaning that they cannot make rational choices even when information is available or can be obtained at little or no cost.

Consumer financial well-being can be defined as having enough resources to live a comfortable life according to an individual's preferences. Well-being is determined by objective and subjective measures. Objective measures include expenditures relative to income, debt levels, and net worth, while subjective measures include satisfaction with regard to lifestyle, income, savings, and debt, as well as others (Xiao, 2016). Debt is an especially good measure of financial well-being. Whether looking at indebtedness, access to credit, or debt-to-income ratios, debt has become an essential tool for consumers (Bricker, Kennickell, Moore, & Sabelhaus, 2012). Various subjective measures have been used to examine consumer financial well-being. According to the 2012 National Financial Capability Survey, nearly 25% of respondents were very satisfied with their current financial condition (FINRAAIEF, 2013). According to Easterlin (2006), financial satisfaction plays a larger role in life satisfaction than family, health, or work satisfaction. Many studies have been conducted on the subject, which indicates that financial well-being is directly tied to an individual's overall satisfaction (Xiao, 2016).

## 2.2. Regulation

Regulation can be defined as a government's attempt to control behavior, whether of the citizenry, corporations, or another government. It can take the form of price controls, licensing requirements, the provision of incentives, promoting fair competition, or mandating the disclosure of information (Xiao, 2015). Regulation designed to protect consumers can be divided into four subcategories: individual empowerment, collective empowerment, choice enlargement, and choice restriction (Friedman, 1991). Governments may choose to regulate consumer behavior, corporate behavior, or even governmental behavior as part of consumer protection regulation (Xiao, 2015). Consumer protection regulation affects either corporate relationships with the government (public consumer law) or corporate relationships with consumers (private consumer law). Public consumer law is designed to allow a government or governmental entity to protect consumers, while private consumer law is designed to allow consumers to protect themselves (Rustad, 2007). The efficacy of consumer regulation is constantly debated. One theory that is relevant in any study of regulatory systems designed to protect consumers through limiting choice is that of paternalism and its extension, libertarian paternalism. Paternalism refers to regulatory efforts that restrict the behavior of the regulated body. Libertarian paternalism refers to regulatory policies that do not limit choice or behavior but make those behaviors more consumer-friendly (e.g., disclosure) (Thaler & Sunstein, 2003, 2009).

Regulation of credit is a broad category, encompassing both the granting of credit and the collection of debt. Many of these regulations deal with ensuring that consumers entering into debt are fully aware of the terms of the agreement and the rates of interest that may be charged on the debt (Hong & Heck, 2003). Laws governing the interest rates that may be charged to a loan are known as usury laws. Historically, the determination and regulation of usury rates were predominantly carried out at the state level. Nevertheless, the efficacy of numerous state usury rates has been undermined by the ruling of Supreme Court in *Marquette* (1978). In *Marquette* (1978), the Court held that when a consumer enters into an agreement with a lender (most commonly credit card companies), the controlling usury rate is that of the lender's state (Marquette, 1978). As a result, some states raised their usury rates or abolished them in order to draw large lenders into their state. The removal of these price controls led to new opportunities for lenders and investors to make profits, gave millions of high-credit-risk Americans access to credit, and allowed millions of Americans of middle-credit-risk to borrow until they became high-credit risk (Lander, 2008). Recently, some states have been able to place regulations on smaller loans such as payday loans, title loans, or rent-to-own credit. These laws have not been tested fully in the courts but have been shown to be resilient (Lander, 2008).

## 2.3. Debt and Usury

Consumers may be able to improve their financial well-being through the use of credit, under the condition of consumer control. Access to credit may be an indicator of financial well-being because it may allow consumers to pay for current needs from future income sources. However, excessive debt is a sign of financial ill-being. While access to credit has positive and negative outcomes for consumers, research has shown that greater access to credit has been detrimental to households in the past three decades (Dynan, 2009). Debt also affects other aspects of life. Dew (2008) shows that high levels of debt are negatively correlated with marital satisfaction among newly married couples, which, in turn, is related to overall satisfaction. It's possible that subprime lenders are more likely to target consumers with high credit risk. One study shows that consumers with higher credit risks are more likely to respond to and accept credit offers with worse terms and, therefore, are much more likely to default (Ausubel, 1999). High-risk consumers may seek credit from local sources rather than engaging in an extensive search, which, in turn, could expose them to predatory lenders (Heitfield & Sabarwal, 2004). According to Campbell (2006), even where consumers pose lower credit risks, they still pay higher interest rates than their credit risk would call for. Individuals experiencing financial ill-being are more likely to use subprime debt products (Lander, 2008). Some

research has shown that this type of credit does not help consumers avoid financial ill-being or achieve financial well-being (Melzer, 2011) and may be associated with lower job performance (Carrell & Zinman, 2008). Other studies have indicated that elevated interest rates do not effectively reduce consumers' overall economic challenges. Instead, they tend to hinder the likelihood of loan repayment, hence impeding the consumers' capacity to afford various services (Melzer, 2011; Skiba & Tobacman, 2009). However, arguments made in other research are that either this is the only form of credit available for these consumers or that they may be forced to use other forms of credit that are even worse. This could lead to other consequences that affect overall well-being, such as utilities being turned off or a source of transportation being lost (Campbell, Jackson, Madrian, & Tufano, 2010).

Very little of the existing literature surrounding payday loans addresses the effect of those loans on consumer well-being using objective measures. There does not appear to be any literature on the effect that each state's payday lending laws have on the individual state's citizenry. This article attempts to identify any differences in the effects on well-being that each state's laws have. This paper attempts to add to the discourse surrounding the efficacy of these laws, which may be measured by their regulatory purpose and negative externalities. In order to do so, this article uses public data made available by the Federal Reserve Board.

### 3. DATA

This paper uses the 2016 Survey of Household Economics and Decision-Making (SHED), which the Federal Reserve Board has been conducting each year since 2013. It analyzes the effects of payday lending on consumer well-being. This survey is designed to track consumer decision-making in response to the financial crisis of the past decade. The survey also monitors trends in consumer behavior relating to household finances. The survey is nationally representative of adults in the United States, 18 and older. The survey selects potential respondents through address-based sampling, with final results yielding a sample size of 6,610 adults. The SHED attempts to generate longitudinal data by having respondents participate in the survey for consecutive years. Of the sample (6,610), 2,204 participated in both the 2015 and 2016 surveys, with the remaining 4,586 respondents participating in the 2016 survey only. The 2016 survey oversampled new respondents with incomes below \$40,000, with 1,547 of the respondents falling into this category. When the demographic proportions of the SHED are compared to other datasets, such as the Survey of Income and Programme Participation (SIPP), the American Community Survey (ACS), and the Current Population Survey (CPS), results appear to be consistent.

The SHED pays special attention to gathering data on household composition, employment, education, housing, socio-economic status, race, access to credit, and debt portfolio. In addition, the survey identifies each respondent's state of residence, allowing for the analysis of state-level effects. The survey contains many responses that can be used as subjective indicators of financial well-being: measurement of the desire to increase income through working more, satisfaction with current financial circumstances, comparison of current financial circumstances to the previous 12-month financial circumstances, comparison of the respondent's financial circumstances to his or her parents' financial circumstances, and satisfaction with living arrangements. There are also a multitude of responses to questions that can be used as objective indicators of financial well-being: income, credit availability, debt levels, debt usage, savings, and retirement account participation. The survey also includes specific questions regarding the use of subprime-credit products, including past use and the potential for future use in emergency situations. The variables contained in the SHED will primarily be used as dependent variables in the analysis, with households being the unit of observation. As payday loans can only be obtained by people with income, the analysis in this paper does not examine respondents whose households have no existing source of income. This paper includes individuals with household members in retirement or that are disabled because payday lenders consider social security and disability checks as reliable sources of income and will, therefore, lend to individuals receiving this type of income. This selection process leaves a sample size of 6,157. Table 1 shows the effects of removing households with no identifiable source of income. After removing households without income,

the sample becomes representative of US households with a source of income. In general, differences between the full and analysis samples are less than one percentage point. The largest differences appear to be a smaller number of respondents between the ages of 18 and 34, a smaller number of unmarried respondents, and a smaller number of respondents with an annual income less than \$30,000. This makes sense given that the SHED oversamples individuals living in poverty. Additionally, this paper does not analyze any effects on households without income, which in part explains the difference in the sample's proportion of households with income in the category of income less than \$30,000, the age category of 18 to 34, and married to unmarried. Individuals with \$0 annual income are excluded. The young, especially students, are more likely to be in a household with no income. Additionally, households with a single adult who is not currently retired, working, or disabled will not have any source of income, removing them from the analysis. This makes it more likely that households with a single adult would be removed than households with two married adults.

Table 1. Descriptive statistics of revised SHED.

Variable	SHED (N=6610)	Analysis sample* (N=6157)
Age by category	Sample	Sample (%)
18-34	0.1906	0.1631
35-44	0.1348	0.1358
45-54	0.1617	0.1645
55-64	0.2363	0.2438
65-74	0.1947	0.2064
75+	0.818	0.0864
Gender		
Male	0.4956	0.5011
Female	0.5044	0.4989
Marital status		
Married	0.6020	0.6365
Not married	0.3980	0.3635
Education		
Did not complete high school	0.0490	0.0442
High school	0.2855	0.2854
Some college	0.3271	0.3217
Bachelor's or higher	0.3384	0.3487
Income category		
Less than \$30,000	0.2926	0.2713
\$30,000 to \$60,000	0.2622	0.2646
\$60,000 to \$100,000	0.2073	0.2157
\$100,000 to \$150,000	0.1537	0.1590
\$150,000 to \$200,000	0.0607	0.0619
\$200,000 to \$250,000	0.0127	0.0131
More than \$250,000	0.0109	0.0115
Ethnicity		
White	0.7421	0.7567
Black	0.0923	0.0871
Hispanic	0.1044	0.0978
Other	0.0324	0.0309
Multiple	0.0289	0.0276

Note: \* Analysis sample shows new proportions of descriptive statistics after removing households with no source of income.

In order to determine the impact of state laws on consumer well-being, an additional data set was constructed by researching each state's laws surrounding payday lending. These factors can be used as explanatory variables to measure whether each state's rules regarding loan terms, maximum interest rates, maximum fees, maximum annual percentage rates, maximum rollovers, availability of repayment plans, waiting periods, use of criminal prosecution, or the legality of other sub-prime credit products have effects on consumer well-being. These data points allow for multiple layers of analysis. Payday lending is only one type of subprime credit. In states that prohibit payday lending but allow other sub-prime-credit products, the effects of a lack of payday lending will be less clear. Therefore, the depth of this paper's analysis may be affected by the availability of other subprime debt services, such as title lending or pawning services. The dataset used does not gather data regarding specific regulation of other types of subprime-credit but does tabulate if they are prohibited or legal within a given state. Thus, the availability of other subprime-credit products is included, but a broader analysis of the corresponding regulations is necessary to gain a fuller understanding of the effect of subprime-credit products on consumer well-being.

Table 2. State law explanatory variables.

Variable	Sample n=51
Payday lending legal	0.696
Multiple loans permitted	0.490
Rollovers permitted	0.265
No waiting periods	0.448
Repayment plans optional	0.299
Criminal prosecution permitted	0.534
Title lending permitted	0.394
Maximum loan amount	\$1406
\$0	0.291
\$1 to \$300	0.040
\$301 to \$500	0.346
\$501 to \$750	0.100
\$751 to \$1500	0.083
Greater than \$1500 <sup>+</sup>	0.144
Maximum loan term	49 Days
0 Days	0.286
1 to 30 days	0.057
31 to 60 days	0.407
61 to 120 days	0.064
More than 120 days	0.176
Minimum loan term	23 Days
0 Days	0.294
1 to 10 days	0.490
11 to 20 days	0.139
20 to 40 days	0.064
More than 40 days	0.020
Maximum APR*	448%
0%	0.289
1% to 300%	0.999
301% to 500%	0.334
501% to 1000%	0.121
Greater than 1000% <sup>2</sup>	0.156
Maximum number of loans	1.743
0 Loans	0.287
1 Loans	0.177
2 Loans	0.115
More than 2 loans	0.416
Max. number of rollovers	0.678
0 Rollovers	0.739
1 to 2 rollovers	0.144
3 to 4 rollovers	0.035
More than 4 rollovers	0.101

Note: \* = Maximum APR as calculated when accounting for legally permissible fees and interest combined.

Table 2 shows the explanatory variables that will be analyzed for their effect on consumer well-being. All states either explicitly allow or prohibit payday lending. However, some states that allow payday lending regulate it as a simple personal loan. With regulation so restrictive, it is hard to imagine payday lending in its current form being profitable. Additionally, comparing different states' regulations is difficult because of different loan terms or fee types. These differences make an apples-to-apples comparison difficult, and while payday lending generally does not apply interest to the loan but a fee, annual percentage rates (APRs) are the easiest way to compare different states' regulations. It is worth noting that many states do not have regulations that govern all of the explanatory variables. Therefore, it is assumed that if a variable is not regulated, the payday lender has no limit on a given variable and will maximize profits in all cases.

#### 4. MODEL

This paper uses both probit and ordered probit models to determine the impact of various aspects of payday regulation on several measures of consumer financial well-being. Models using ordered response analysis take into account the ordinal nature of various response variables. A dependent variable with three possible outcomes is separated into two thresholds; four possible outcomes are separated into three thresholds, and so on. The dependent variables for this paper are drawn from various subjects: overall satisfaction, additional sources of income, housing, credit health, credit availability, income, emergency preparedness, and financial stability. Each of the questions regarding these subjects has at least two possible outcomes, which are ordinal in nature, with as many as nine possible responses for some of the variables. The explanatory variables, as used in Equation 1, predict the probabilities of consumer financial well-being in the various dependent variable categories, as shown below.

$$\gamma_i^* = x_i\beta + \varepsilon_i \quad (1)$$

In this equation,  $\gamma_i^*$  represents the unobserved continuous level of consumer financial well-being for the  $i^{\text{th}}$  consumer,  $x_i$  represents all explanatory variables (including those variables describing the legal status of payday lending in person  $i$ 's state and control variables),  $\beta$  represents a vector of parameters to be estimated, and  $y_i$  representing a response to the SHED question. The thresholds for the responses are represented below:

$y_i = 0$  if  $\leq 0$ , indicating a response in the lowest category of well-being.

$y_i = 1$  if  $0 < y^* < \mu_1$ , indicating a response in the second lowest category of well-being.

$y_i = 2$  if  $\mu_1 \leq y^* < \mu_2$ , indicating a response in the third lowest category of well-being.

...

$y_i = n$  if  $\mu_{n-1} \leq y^* < \mu_n$ , indicating a response in the highest level of well-being category.

In the thresholds,  $\mu_1$  and  $\mu_2$  are jointly estimated threshold values that determine the financial well-being the respondent is expected to receive.

In order to gain a close approximation of effects on consumer financial well-being, this paper first estimates an ordered probit model to analyze a set of binary explanatory variables: the legality of payday lending, the legality of simultaneous loans, the legality of loan rollovers, the existence of mandatory repayment plans, the legality of criminal prosecution of borrowers in default, and legality of title lending. This paper then uses an ordered probit model to analyze the effects of a set of continuous explanatory variables: the maximum dollar amount that may be borrowed, the maximum and minimum length of the loan term, maximum APR, number simultaneous loans allowed, and number of loan rollovers allowed. Dummy variables are generated in each of these categories, with control variables for age, race, and education included.

The binary and continuous explanatory variables are introduced in such a way that an increase in the variable represents an increase in regulation. Therefore, for the binary explanatory variables, a positive coefficient would represent an increase in consumer financial well-being, while a negative coefficient would represent a negative

impact on consumer financial well-being. It is hypothesized that an increase in the binary explanatory variables will generate a positive coefficient, with the exception of the legality of payday lending as a whole. This would signify that an increase in regulation will have a corresponding increase in consumer financial well-being. The continuous explanatory variables are introduced in a manner analogous to the binary explanatory variables. A positive coefficient signifies a rise in consumer financial well-being, while a negative coefficient indicates a detrimental effect on consumer financial well-being. This study postulates that each of the continuous explanatory variables will exhibit varying degrees of regulation that might either be advantageous or disadvantageous to consumers. However, this paper hypothesizes that each of the continuous explanatory variables will have levels of regulation that are beneficial to consumers and levels of regulation that are not beneficial to consumers. For the continuous explanatory variables, it is expected that both high and low levels of regulation will serve as a detriment to consumer well-being, while moderate regulation will prove beneficial.

For example, a state with a maximum APR of 100% may serve as a detriment to consumers by limiting or eliminating their access to credit. True, an APR of 100% is low for payday lending, but it may not be profitable for lenders expecting certain levels of default, limiting consumer access to credit. On the other hand, a maximum APR of 750% may serve as a credit trap for consumers. Lenders would be more than happy to receive such a return on investment, creating an environment of easy access to credit. However, higher rates on payday loans may create an environment where borrowers are unable to stop borrowing once they have begun, forcing them to continue to use payday lending, even if initially they only intended to use the service once. Therefore, it may be that a range for each type of regulation exists that allows consumers access to credit at prices that do not create an environment that coerces consumers to continue borrowing simply to get by financially.

When performing ordered probit analysis, the coefficient allows for determining the sign of the relationship, but in order to calculate the magnitude of the relationship, the probability of each response should be examined. Calculating the probability of a respondent's answer to any given question requires the use of estimated threshold values. The probabilities for each response can be arrived at given the cumulative normal function, as seen below:

$$\text{Prob } [y = 0] = \varphi(-\beta'x) \quad (2)$$

$$\text{Prob } [y = 1] = \varphi(\mu_1 - \beta'x) - \varphi(-\beta'x) \quad (3)$$

$$\text{Prob } [y = 2] = \varphi(\mu_2 - \beta'x) - \varphi(\mu_1 - \beta'x) \quad (4)$$

...

$$\text{Prob } [y = n] = 1 - \varphi(\mu_{n-1} - \beta'x) \quad (5)$$

Where  $\beta'x$  is a set of specific values of the explanatory variable for the estimated coefficients ( $\beta$ ) and the threshold values ( $\mu$ 's). From a normal cumulative probability table and the equations above the expected probabilities of obtaining answers from respondents to any given question can be readily calculated. The impact of a continuous explanatory variable on probabilities of respondents answering a question can be evaluated from taking the partial derivative of the equations above. The coefficients in the ordered probit model can be interpreted after minor calculations seen below, noting that  $\phi$  is the normal density function and the sum of the marginal effect equals zero.

$$\partial \text{Prob } [Y = 0] / \partial_i = -\phi(\beta'x) * (\beta_2) \quad (6)$$

$$\partial \text{Prob } [Y = 1] / \partial_i = [\phi(-\beta'x) - \phi(\mu_1 - \beta'x)] * (\beta_2) \quad (7)$$

$$\partial \text{Prob } [Y = 2] / \partial_i = [\phi(\mu_1 - \beta'x) - \phi(\mu_2 - \beta'x)] * (\beta_2) \quad (8)$$

...

$$\partial \text{Prob } [Y = n] / \partial_i = \phi(\mu_{n-1} - \beta'x) * (\beta_2) \quad (9)$$

Given the analysis above, the ordered probit model allows for thorough analysis of the effects of payday lending regulation on consumer financial well-being. This analysis is examined at length in the following section where results of both probit and ordered probit analysis are found.

## 5. RESULTS

The dependent variables analyzed here are separated into five sub-topics: financial satisfaction, income volatility and spending, emergency preparedness, housing, and debt. Each subtopic contains at least three questions from the SHED that can be used as proxies for consumer financial well-being. Given the number of dependent and explanatory variables analyzed, it makes sense to look at the results of each sub-topic individually before making a more general analysis of the effects of regulating payday lending. Each table showing the relationships between the sub-topic and independent variables only shows those independent variables that have at least one relationship of statistical significance.

### 5.1. Financial Satisfaction

While financial satisfaction serves as a subjective indicator of financial well-being, most of the analysis performed in this paper finds few instances of the statistically significant correlation between payday regulation and financial satisfaction. This paper uses three questions posed in the SHED to look at how financial satisfaction is affected by the selected explanatory variables. The first question used reads, "Overall, which one of the following best describes how well you are managing financially these days?" The respondent has the choice of answering "finding it difficult to get by," "just getting by," "doing okay," or "living comfortably." The respondent may also refuse to answer. The second question reads, "Compared to 12 months ago, would you say that you (and your family living with you) are better off, the same, or worse off financially?" For this question, the respondent may select: "much worse off," "somewhat worse off," "about the same," "somewhat better off," or "much better off." Here again, the respondent may choose to refuse to answer the question. The third and final question used in this analysis reads, "Think of your parents when they were your age. Would you say you (and your family living with you) are better, the same, or worse off financially than they were?" The respondent had the options of answering "much worse off," "somewhat worse off," "about the same," "somewhat better off," "much better off," or "refuse to answer." The difference in these questions is that the first asks for a static assessment, while the second and third questions ask the client to compare a previous time period to the present. This difference is valuable because past experience informs opinions based on current experience.

Table 3 shows the marginal effects and standard deviations of all the explanatory variables used in this analysis. Looking at the marginal effects, one is able to see the magnitude of the correlative relationship between a measure of financial satisfaction and a one-unit increase in the regulatory variable. Looking at Table 3, it becomes apparent that prohibiting payday lending is correlated with increased levels of financial satisfaction (nearly.02) with current circumstances. This could be explained by greater numbers of consumers being able to leverage funds more effectively than those being stuck in debt trap situations. Another set of points worth noting is that mandatory waiting periods and repayment plans are both correlated with a decrease (nearly.02 for both) in consumers feeling they are financially better off than the household they grew up in.

### 5.2. Income Volatility and Expenses

Income volatility and how it relates to expenses serve as convenient objective measures of well-being. This paper analyzes all three measures in response to three questions. The first two questions deal with income volatility. The first asks if the respondent has had difficulty paying monthly expenses because of income volatility, and the second asks respondents to gauge the volatility of income over a 12-month period. The third asks respondents to estimate the difference between their annual income and expenses.

**Table 3. Marginal effects of payday regulation on financial satisfaction as an indicator of consumer financial well-being.**

Dependent variable (N=Sample)	Payday lending prohibited	Waiting periods mandatory	Repayment plans mandatory
	ME (Std. error)	ME (Std. error)	ME (Std. error)
Static financial satisfaction (N=6152)			
Finding it difficult to get by	-0.009** (0.004)	-0.004 (0.004)	-0.003 (0.004)
Just getting by	-0.011** (0.004)	-0.005 (0.005)	-0.004 (0.005)
Doing okay	0.001 (0.000)	0.000 (0.000)	0.000 (0.000)
Living comfortably	0.020** (0.009)	0.008 (0.009)	0.008 (0.010)
12 Month financial satisfaction (N=6149)			
Much worse off	-0.001 (0.002)	-0.002 (0.002)	-0.001 (0.002)
Somewhat worse off	0.004 (0.006)	-0.007 (0.006)	-0.004 (0.006)
About the same	-0.001 (0.001)	-0.002 (0.001)	-0.001 (0.001)
Somewhat better off	0.004 (0.006)	0.008 (0.006)	0.005 (0.007)
Much better off	0.002 (0.003)	0.004 (0.003)	0.002 (0.003)
Childhood financial comparison (N=6131)			
Much worse off	-0.002 (0.004)	0.008** (0.004)	0.008** (0.004)
Somewhat worse off	-0.003 (0.005)	0.011** (0.005)	0.011** (0.005)
About the same	-0.002 (0.003)	0.005** (0.002)	0.005** (0.003)
Somewhat better off	0.002 (0.003)	-0.007** (0.003)	-0.007** (0.004)
Much better off	0.005 (0.008)	-0.018** (0.009)	-0.018** (0.009)

Note: \*\* represents a statistically significant result with a p-value of .05 to .01.

Table 4 shows the marginal effects and standard errors for the analysis of the indicators of well-being discussed above. As can be seen, the legality of payday lending has statistically significant relationships with both measures of income volatility. The act of making payday lending illegal is correlated to an increase in the probability of lower income volatility being reported (approximately  $-0.02$ ), as well as a decrease in income volatility being the reason for difficulty paying monthly expenses (approximately  $-0.05$ ). Prohibiting simultaneous loans is correlated with a decrease in income volatility as well (approximately  $-0.04$ ). Prohibiting loan rollovers correlates to increases in consumers being able to keep their expenses lower than their incomes (approximately  $0.03$ ). An increase in the minimum loan term of ten days increases income volatility (approximately  $0.005$ ). In situations where multiple loans are permitted, increasing the number of loans permitted correlates with an increase in income volatility being the reason for difficulty paying for monthly expenses (approximately  $0.06$ ). Finally, the prohibition of title lending exhibits a positive correlation with the increase in income vitality, with an estimated coefficient of about  $0.02$ . Moreover, the aforementioned increase in income vitality is found to be a significant contributing factor to challenges faced by individuals in meeting their monthly financial obligations, with an estimated coefficient of around  $0.05$ .

### 5.3. Housing

Housing may be used as an indicator of consumer financial well-being. This paper uses three questions regarding housing to look at how regulating payday lending affects this aspect of well-being. The first question is used to determine the type of ownership of the respondent's residence, whether it is owned, rented, or occupied free

of expense. The second question asks respondents to identify the type of shelter they live in, with responses being an unattached single-family dwelling, an attached single-family dwelling, an apartment, a mobile home, or a boat, recreational vehicle, van etc. This question is an objective measure of living quarters, which can be highly correlated to well-being. The final question asks, “Do you [and or your spouse / and or your partner] expect to purchase a home in the next 5 years?” The possible responses to this question are “definitely no,” “probably no,” “probably yes,” “definitely yes,” “definitely yes,” or refusing to answer. This question allows for a subjective measure of well-being as it asks consumers to evaluate the probability of purchasing a home in a relatively short amount of time.

**Table 4. Marginal effects of payday regulation on expenses and income volatility as indicators of consumer financial well-being.**

Variable	Payday lending prohibited	Multiple loans prohibited	Rollovers prohibited	Title lending prohibited	Minimum loan term	Maximum number of loans
Income volatility (N=1774)	-0.053** (0.024)	-0.003 (0.025)	0.035 (0.034)	0.051** (0.022)	0.002 (0.005)	0.061*** (0.025)
Monthly income volatility (N=6123)						
Same each month	0.024** (0.012)	0.038*** (0.012)	0.002 (0.017)	-0.023** (0.011)	-0.005** (0.003)	-0.002 (0.013)
Some months higher or lower than usual	-0.013** (0.007)	-0.022*** (0.007)	-0.001 (0.009)	0.013** (0.006)	0.003** (0.001)	0.001 (0.007)
Varies quite a bit from month to month	-0.011** (0.006)	-0.017*** (0.005)	-0.001 (0.007)	0.010** (0.005)	0.002** (0.001)	0.001 (0.006)
Expenses (N=5962)						
Less than income	0.001 (0.012)	0.021* (0.012)	0.030* (0.017)	0.008 (0.011)	0.003 (0.003)	-0.001 (0.013)
Same as income	-0.000 (0.005)	-0.008* (0.005)	-0.012* (0.007)	-0.003 (0.004)	-0.001 (0.001)	0.000 (0.005)
More than income	-0.001 (0.008)	-0.013* (0.008)	-0.018* (0.010)	-0.005 (0.007)	-0.003 (0.002)	0.000 (0.008)

Note: \*\* represents a statistically significant result with a p-value of .05 to .01.

Table 5 shows the marginal effects and standard errors for the analysis of the indicators of well-being discussed above. Prohibiting payday lending is correlated with increases in households living in single-family homes (approximately .05) and increases in expectations of home purchases (approximately .04). Prohibition of multiple simultaneous loans, loan rollovers, and mandatory waiting periods are all correlated with increases in households living in single-family homes (approximately .02 for each). Mandatory repayment plans correlate with decreases in homeownership (approximately -.03). Increases in maximum loan amount by \$100 correlate with a decrease in homeownership (approximately -.0001). Increases in maximum loan term by 10 days correlate with increases in homeownership (approximately .002) and increases in expectation of home purchase (.005). Increasing the number of simultaneous loans permitted correlates with higher rates of homeownership (approximately .02). Prohibition of title lending correlates with increases in homeownership (.01) but also correlates with decreases in households living in single-family homes (-.02).

#### 5.4. Credit

Regulation of payday lending has high levels of correlation with various aspects of credit. Therefore, it is easier to examine these effects by separating the analysis into two topics: the effect on credit cards and the effect on various credit types. While the section regarding credit cards solely looks at credit cards, the section regarding various measures of credit health includes mortgage and student loan debt as well as the respondent's view of their own credit health.

Table 5. Marginal effects of payday regulation on housing as an indicator of consumer financial well-being.

Variable	Payday lending prohibited	Multiple loans prohibited	Rollovers prohibited	Waiting periods mandatory	Repayment plans mandatory	Title lending prohibited	Maximum loan	Maximum loan term	Maximum number of loans
Homeownership (N=6128)									
Owned	0.008 (0.008)	0.012 (0.009)	0.005 (0.012)	-0.006 (0.008)	-0.028*** (0.009)	0.015* (0.008)	-0.001* (0.000)	0.002* (0.001)	0.013 (0.009)
Being purchased	0.000 (0.001)	0.001 (0.000)	0.000 (0.000)	-0.000 (0.000)	-0.002** (0.001)	0.001* (0.001)	-0.000 (0.000)	0.000 (0.000)	0.001 (0.001)
Rent	-0.006 (0.006)	-0.009 (0.006)	-0.003 (0.009)	0.004 (0.006)	0.022*** (0.007)	-0.011* (0.006)	0.001* (0.000)	-0.001* (0.001)	-0.010 (0.007)
Other	-0.003 (0.003)	-0.003 (0.002)	-0.001 (0.003)	0.002 (0.002)	0.009*** (0.003)	-0.004* (0.002)	0.001* (0.000)	-0.001* (0.000)	-0.004 (0.003)
Housing type (N=6157)									
Single family home	0.050*** (0.011)	0.023** (0.011)	0.025* (0.015)	0.019* (0.011)	-0.007 (0.012)	-0.021** (0.010)	-0.000 (0.000)	0.003 (0.001)	0.023* (0.012)
Duplex	-0.008*** (0.002)	-0.004** (0.002)	-0.004 (0.002)	-0.003* (0.002)	0.001 (0.002)	0.003** (0.002)	0.000 (0.001)	-0.001 (0.000)	-0.004* (0.002)
Apt	-0.028*** (0.006)	-0.013** (0.006)	-0.014* (0.009)	-0.011* (0.006)	0.004 (0.007)	0.012** (0.006)	0.000 (0.000)	-0.002 (0.001)	-0.012* (0.006)
Mobile home	-0.013*** (0.003)	-0.006** (0.003)	-0.006* (0.004)	-0.005* (0.003)	0.002 (0.003)	0.005** (0.003)	0.000 (0.000)	-0.001 (0.000)	-0.006* (0.003)
Boat, RV, Van, etc.	-0.001*** (0.000)	-0.001** (0.000)	-0.001* (0.000)	-0.001* (0.000)	0.000 (0.000)	0.001** (0.000)	0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)
Home purchase (N=1522)									
Definitely not	-0.033* (0.018)	0.006 (0.018)	-0.010 (0.025)	0.020 (0.018)	0.006 (0.019)	0.019 (0.016)	0.000 (0.000)	-0.006*** (0.002)	0.010 (0.019)
Probably no	-0.003* (0.002)	0.001 (0.002)	-0.001 (0.003)	0.002 (0.002)	0.001 (0.002)	0.002 (0.002)	0.000 (0.000)	-0.001*** (0.000)	0.001 (0.003)
Probably yes	0.011* (0.007)	-0.002 (0.006)	0.003 (0.008)	-0.007 (0.006)	-0.002 (0.006)	-0.006 (0.005)	-0.000 (0.000)	0.002*** (0.001)	-0.004 (0.007)
Definitely yes	0.025* (0.014)	-0.005 (0.014)	0.008 (0.020)	-0.015 (0.013)	-0.004 (0.015)	-0.015 (0.013)	-0.000 (0.000)	0.005*** (0.002)	-0.008 (0.015)

Note: \* represents a statistically significant result with a p-value of .1 to .05.  
 \*\* represents a statistically significant result with a p-value of .05 to .01.  
 \*\*\* represents a statistically significant result with a p-value of less than .01.

### 5.5. Credit Cards

Credit card availability and usage are impacted by payday regulations. The first question used in this analysis asks whether the respondent has at least one credit card. The second question asks if the respondent currently has an outstanding unpaid balance. The third question examines if the respondent has been able to pay off any credit card debt in the previous 12 months. The fourth question asks a similar question: “do you currently have more, less, or about the same amount of credit card debt as you did 12 months ago?” The final question regarding credit cards asks, “In the past 12 months, how frequently have you carried an unpaid balance on one or more of your credit cards?” The available answers for this final question are “never carried an unpaid balance,” “once,” “some of the time,” “most or all of the time,” or refusing to answer the question.

Table 6 shows the marginal effects and standard errors for the analysis of the indicators of well-being discussed above. It is worth noting that the legality of payday lending has no statistically significant relationship with any of the measures of consumer financial well-being. Using ownership of at least one credit card as a general proxy for credit access it can be seen that mandatory waiting periods, repayment plans, increased annual loan cost, increased number of simultaneous loans, and maximum number of loan rollovers are all correlated to lower levels of credit access. Using the same measure, it can be seen that increasing the maximum loan term correlates with higher levels of credit access. Prohibiting criminal prosecution of borrowers in default correlates to lower levels of consumers carrying balances on their credit cards. Consumers’ ability to pay off credit cards correlates negatively with prohibiting title lending and positively increasing the number of simultaneous loans permitted. There exists a positive correlation between a decrease in consumer credit card debt and increase an increase in both the maximum and minimum loan length. There is also a positive correlation between the rise in the frequency of consumers carrying outstanding amounts on their credit cards and the increase in maximum loan terms. Conversely, there is a negative correlation between the aforementioned frequency and the prohibition of criminal prosecution of borrowers.

Table 6. Marginal effects of payday regulation on credit card debt as an indicator of consumer financial well-being

Variable	Payday lending prohibited	Waiting period mandatory	Repayment plan mandatory	Criminal prosecution prohibited	Title lending prohibited	Maximum loan term	Minimum loan term	Maximum annual cost	Maximum number of loans	Maximum number of rollovers
At least one credit card (n=6140)	-0.011 (0.009)	-0.014* (0.009)	-0.018* (0.010)	0.006 (0.008)	-0.005 (0.008)	0.002* (0.001)	-0.002 (0.002)	-0.003* (0.002)	-0.022*** (0.009)	-0.008* (0.004)
Outstanding credit card debt (n=5129)	-0.013 (0.015)	0.0066 (0.014)	0.012 (0.016)	-0.029** (0.014)	-0.001 (0.014)	0.001 (0.002)	0.003 (0.003)	0.000 (0.003)	0.005 (0.016)	0.009 (0.007)
Paid off credit card debt in past 12 months (n=2697)	0.015 (0.016)	0.013 (0.015)	0.018 (0.017)	-0.000 (0.014)	-0.030** (0.015)	0.003 (0.002)	-0.000 (0.004)	0.000 (0.003)	0.031* (0.017)	-0.005 (0.008)
Credit card debt relative to 12 months prior (n=2434)										
Less	-0.003 (0.017)	0.002 (0.017)	-0.022 (0.018)	-0.014 (0.016)	0.009 (0.016)	0.004* (0.002)	0.006* (0.004)	-0.004 (0.003)	0.005 (0.019)	-0.005 (0.008)
Same	0.0002 (0.001)	-0.000 (0.001)	0.001 (0.001)	0.001 (0.001)	-0.001 (0.001)	-0.000 (0.000)	-0.000 (0.000)	0.000 (0.000)	-0.000 (0.000)	0.000 (0.000)
More	0.003 (0.016)	-0.002 (0.016)	0.021 (0.017)	0.013 (0.015)	-0.009 (0.015)	-0.003* (0.002)	-0.006* (0.003)	0.003 (0.003)	-0.005 (0.018)	0.004 (0.008)
Carried CC balance in past 12 months (n=5128)										
Never	0.009 (0.013)	0.004 (0.013)	-0.002 (0.014)	0.028*** (0.012)	-0.005 (0.012)	-0.003** (0.002)	-0.003 (0.003)	0.000 (0.002)	-0.012 (0.014)	-0.009 (0.006)
Once	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.0000 (0.000)	0.000 (0.000)	-0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
Some of the time	-0.001 (0.002)	-0.001 (0.002)	0.000 (0.002)	-0.004*** (0.002)	0.001 (0.002)	0.001** (0.000)	0.000 (0.000)	0.000 (0.000)	0.002 (0.002)	0.001 (0.001)
Most of or all the time	-0.007 (0.011)	-0.003 (0.011)	0.002 (0.012)	-0.024*** (0.010)	0.004 (0.010)	0.003** (0.001)	0.002 (0.002)	0.000 (0.002)	0.010 (0.012)	0.007 (0.005)

Note: \* represents a statistically significant result with a p-value of .1 to .05.  
 \*\* represents a statistically significant result with a p-value of .05 to .01.  
 \*\*\* represents a statistically significant result with a p-value of less than .01.

Table 7. Marginal effects of payday regulation on various types of credit as indicators of consumer financial well-being.

Variable	Payday lending prohibited	Multiple loans prohibited	Rollovers prohibited	Waiting period mandatory	Repayment plan mandatory	Criminal prosecution prohibited	Maximum loan amount	Maximum loan term	Minimum loan term	Maximum number of loans
Missed mortgage payment(N=2619)	-0.008 (0.007)	-0.007 (0.006)	-0.004 (0.009)	0.001(0.007)	-0.004 (0.007)	-0.004 (0.006)	-0.001 (0.001)	-0.000 (0.001)	0.001 (0.001)	0.012** (0.006)
Forgone credit application(N=368)	0.033 (0.057)	-0.075 (0.060)	0.126* (0.073)	0.0002 (0.055)	-0.033 (0.060)	-0.034 (0.051)	0.000 (0.000)	0.008 (0.006)	0.036** (0.016)	-0.020 (0.065)
Respondent student loan(N=6129)	-0.002 (0.008)	-0.008 (0.008)	-0.015 (0.011)	-0.005 (0.008)	-0.017** (0.008)	0.001 (0.007)	-0.001* (0.000)	0.001 (0.001)	-0.001 (0.002)	0.003 (0.009)
Spouse student loan (N=3898)	0.000 (0.007)	0.015** (0.008)	0.009 (0.011)	-0.003(0.007)	-0.007 (0.007)	0.011* (0.007)	0.001* (0.0000)	0.001 (0.001)	-0.001 (0.002)	0.011 (0.007)
Behind on student loans(N=766)	0.024 (0.030)	-0.027 (0.031)	0.040 (0.045)	0.052* (0.031)	0.065* (0.036)	0.027 (0.028)	0.000 (0.000)	-0.008** (0.004)	0.012* (0.006)	-0.020 (0.034)

Note: \* represents a statistically significant result with a p-value of .1 to .05.  
 \*\* represents a statistically significant result with a p-value of .05 to .01.  
 \*\*\* represents a statistically significant result with a p-value of less than .01.

Table 8. Marginal effects of payday regulation on emergency preparedness as an indicator of consumer financial well-being.

Variable	Payday lending prohibited	Multiple loans prohibited	Waiting period mandatory	Repayment plan mandatory	Title lending prohibited	Maximum loan term	Maximum number of loans
Emergency fund (N=6135)	-0.014 (0.026)	-0.044*** (0.018)	-0.041** (0.020)	-0.027 (0.017)	0.025 (0.0174)	0.003 (0.002)	-0.053*** (0.021)
Availability of emergency funds (N=2933)	0.016 (0.013)	0.012 (0.013)	-0.001 (0.012)	-0.002 (0.013)	-0.022* (0.012)	0.000 (0.002)	0.003 (0.014)
Ability to cover monthly expenses (N=6121)	0.016 (0.011)	-0.002 (0.011)	-0.012 (0.011)	-0.026** (0.012)	-0.015 (0.010)	0.002* (0.001)	0.003 (0.012)

Note: \* represents a statistically significant result with a p-value of .1 to .05.  
 \*\* represents a statistically significant result with a p-value of .05 to .01.  
 \*\*\* represents a statistically significant result with a p-value of less than .01.

### 5.6. Various Types of Credit

Mortgages, student loans, and willingness to submit a credit application all implicate different inputs into consumer financial well-being. The SHED asks several questions regarding these inputs. First, the SHED asks “in the past 12 months, have you missed two or more payments on your mortgage?” The SHED then asks, “you indicated that you desired credit in the past 12 months but did not submit a credit application. Was this because you thought you might be turned down or denied credit?” The SHED also asks three questions regarding student loans including whether the respondent or respondent’s spouse has outstanding loans, and whether the respondent is behind on student loan payments.

Table 7 shows the marginal effects and standard errors of the analysis performed. Missing a mortgage payment only has a statistically significant relationship with the maximum number of simultaneous loans permitted, where an increase in the number of simultaneous loans permitted correlates with higher levels of consumers missing mortgage payments. Prohibited rollovers and increased minimum loan terms correlate to higher levels of credit applications foregone for fear of rejection. Mandatory repayment plans and increased maximum loan amounts correlate to lower numbers of respondents with outstanding student loans. Prohibiting loan rollovers, criminal prosecution of borrowers in default, and increased loan amounts correlate with increased levels of respondent spouses with outstanding student loans. Finally, mandatory waiting periods, repayment plans, and increased minimum loan terms all correlate to higher levels of respondents being behind on their student loans, while increased maximum loan terms correlate with decreased levels of respondents being behind on student loan payments.

### 5.7. Emergency Preparedness

Whether or not consumers are financially prepared for an emergency and how they would respond to or be fair in an emergency can be used as other measures of consumer financial well-being. The SHED asks three questions that can be used to measure these aspects of well-being. First, the SHED asks if the respondent has saved the equivalent of three months expenses. Second, if the respondent would be able to cover three months of expenses using any combination of borrowing, using savings, selling assets, or asking for help from family or friends. The third question asks if the respondent will be able to pay all their expenses in full this month.

Table 8 shows the marginal effects and standard errors of the analysis performed. Prohibiting multiple simultaneous loans, mandatory waiting periods, and increasing the number of simultaneous loans permitted all correlate to lower levels of consumers with a three-month emergency fund. The prohibition of title lending is associated with a decrease in the proportion of consumers who possess sufficient financial resources to sustain themselves for a period of three months in the events of a loss of their primary source of income. Making repayment plans mandatory correlates to lower levels of consumers being able to cover their expenses, while increasing the maximum loan term correlates with increased levels of consumers being able to cover their monthly expenses.

## 6. CONCLUSION

The results of this paper suggest that the most impactful type of regulation of payday lending appears to be a complete prohibition of payday lending. In states where payday lending is permitted, the regulatory focus on legality and the number of simultaneous loans have a significant positive correlation with lower levels of income volatility, higher levels of credit health, and positive housing outcomes. However, in states permitting payday lending, regulations that increase lender costs or limit consumer choice tend to be correlated with outcomes adverse to consumer financial well-being. Prohibiting rollovers, mandatory waiting periods, and mandatory repayment plans are examples of such regulations. Finally, while regulating maximum loan amounts, the term lengths of loans, loan cost, and the number of rollovers all have relationships of statistical significance with various indicators of consumer financial well-being (both positive and negative), the impacts are so small as to be negligible.

Specifically, the results of this study indicate that in states where payday lending is prohibited, consumers on average are more financially satisfied, experiences less income volatility, are more likely to live in a single-family home, and are more likely to purchase a home. There are no results in this study that indicate a negative outcome in such states that are statistically significant. However, for states that allow payday lending, but regulate it using measures designed to make it less profitable, there are statistically significant negative effects on measures of consumer well-being. This could be an indication that flat out prohibition of payday lending is better for the average consumer than other market interventions.

As legislatures explore whether and how to make payday lending more beneficial to consumers, the results of this paper may serve as a guide. If the state legislature desires higher rates of homeownership or lower levels of income volatility, it should enact regulations correlated to those measures of consumer financial well-being. This paper does not claim to be an exhaustive analysis, and opportunities for future research include using different measures of consumer financial well-being and analysis of other regulations on payday lending, such as zoning, licensing, and marketing.

By using this type of analysis of legal regimes, researchers can look at effects of regulation on consumer markets. Researchers interested in markets or regulations left to the individual states rather than implemented at a federal level within the United States or other confederation style countries. This allows for a more homogenous group of respondents who are treated differently by their corresponding local government. Markets that are regulated in this way in the United States include, financial institutions, insurance companies, the practice of law, consumer debt, and many more. It is the hope of the authors that this technique of inquiry be used to further examine the efficacy of consumer protection and regulation of industry.

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