EFFECTS OF GOVERNMENT LEGISLATION AND REGULATION OF PAYDAY LOANS

IN CANADA:

AN ECONOMIC ANALYSIS

By

William B. Kluska

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This thesis by William B. Kluska

is accepted in the present form by the

Department of Economics

as satisfying the thesis requirements for the degree of

Bachelor of Arts with Honours

Approved by the Thesis Supervisor

Dr. Andrew Davis

Date

Approved by the Head of the Department

Dr. Burc Kayahan

Date

Approved by the Honours Committee

Dr. Jun Yang

Date

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Table of Contents

Acknowledgements	vii
List of Tables	xi
List of figures	xiii
Abstract	xv
1. Introduction and Literature	1
2. Payday Loans Market in Canada	9
3. Legislation	19
4. Methodology and Results	27
4.1 Data and Methodology	27
4.2 Issues with Data Availability	29
4.3 Variable Selection of First Specification	31
4.4 Regression Analysis of First Specification	
4.5 Variable Selection of the Second Specification	
4.6 Regression Analysis of the Second Specification	55
4.7 Combined Specification Analysis	65
5. Conclusion	67
6. Appendix	69
7. References	73

List of Tables

Table 1: Variable Selection Reasoning (1st Specification)	33
Table 2: Characteristics of a Payday Loan Borrower (1st Specification)	
Table 3: Variable Explanation (1st Specification)	41
Table 4: Independent Variable Selection Reasoning (2 nd Specification)	50
Table 5: Effect of Weighted Interest Rate Caps on Household Bankruptcy Rat	es (2 nd
Specification)	56
Table 6: Variable Results Explanation (2 nd Specification)	59

List of figures

Figure 1: Payday Loan Operation Development	.12
Figure 2: Provincial Share of Total Payday Loan Operations	.13
Figure 3: Percentage of Repeat Loans in Nova Scotia (2010 – 2016)	.15
Figure 4: Nova Scotia Payday Default Rate v. National Non-Mortgage Default Rate.	.16

Abstract

Almost everyone has unexpected personal financial difficulties at times. Low income or high credit risk individuals may be limited in their available options to smooth out and manage the impacts of these shocks. Many such households have limited access to traditional forms of credit, such as credit cards and lines of credit, or have maxed out these alternatives. The payday loans market is one option to mitigate the adverse effects of these shocks. However, the interest rates attached to these loans are significantly higher than traditional forms of lending. The costs of payday loans have raised questions about whether access to this form of credit is beneficial for consumers. I look to answer whether access to payday loans is welfare enhancing or detrimental within the Canadian market.

1. Introduction and Literature

A growing body of economic literature looks to analyze the net benefit of payday loans by comparing the option value attached to access to payday loans to the high cost associated with these loans. There is no unambiguous answer to whether the benefit of increased access to credit outweighs the cost (Meltzer 2011).

The reasons for use of a payday loan can be simplified into two main categories. The first reason is that borrowers simply do not have enough savings available to handle a personal financial shock (Stegman 2007). This can be something as simple as a necessary car repair required to maintain employment, or as dire and complex as requiring additional funds in order to prevent eviction or foreclosure. Secondly, a borrower may be forced to use a payday loan from a lack of alternative forms of credit. Not all consumers have access to a credit card or other forms of lending vehicles. Also, credit information about borrowers has increased, which has increased the selectiveness of lending institutions (Davis and Kim 2017).

A lack of savings can be divided into three subcategories. First, many payday loan borrowers are considered to be of low or moderate income; hence they simply may not have the ability to save (Stegman 2007). Their regular income may be stretched across all expenses, such that a small change in their personal finances can have serious effects. Second, their lack of savings can also be attributed to poor financial literacy (Stegman 2007), and a lack of understanding of how to save for the future and prepare some form of cushion to handle an unexpected shock (Ausubel 1991). Finally their lack of savings can be due to myopic time preferences. The borrower can have a time discounting rate that puts their preference for higher consumption in the current period at a level that is unsustainable (Jones and Mahajan 2015). In simple terms, the individual is living beyond their means.

The second main reason for the low income individual to require a payday loan is based on a lack of solid alternative forms of credit. Most low income individuals will not go to a payday loan as their first source for credit borrowing; rather they look to a payday loan as a last resort. The lack of a reasonable credit alternative can be attributed to a variety of different factors. Davis and Kim explain that recent changes in access to information about borrowers has pushed many lowincome borrowers out of the credit card market entirely as the risk profile associated with some of these borrowers is higher than credit institutions are willing to accept (Davis and Kim 2017). Additionally, the issue of myopic time preferences can also affect a borrower's access to alternative credit options as many payday loan borrowers have maxed out all of these alternatives.

Given the variety of factors impacting borrowers' decisions to use payday loans, the economic literature has struggled to reach a consensus in their assessment of the benefits and costs associated with payday loans, as both are considered to be very subjective and ambiguous in magnitude (Morse 2011). Difficulty also arises from the lack of information on how borrowers use these funds, as well as the factors causing them to engage in these borrowing activities.

Instead of looking at measures of the direct impact of payday loans and whether their usage directly improves the average borrower, many authors look to

2

measure the impacts associated with simple access to these loans and whether improving access translates into welfare-enhancing effects.

Meltzer uses proximity to payday loan facilities to evaluate the impact on five hardship measures, specifically delays in needed health care, difficulty paying rent, mortgage and utility bills, household food insecurity, lack of telephone service, and moving out of one's home due to financial difficulties (Meltzer 2011). His paper concludes that improved access to credit can ease immediate financial distress, but can exacerbate hardship among individuals with forecasting or self-control problems, who borrow to increase current consumption, but suffer in the future due to a large debt service burden.¹

Kurban's analysis focuses on lower income communities in the southern United States (Kurban 2014). He identifies payday loan access benefits related to the ease and speed associated with borrowing relatively small amounts when compared to borrowing or attempting to borrow from traditional sources. However, overall he finds that the ease of borrowing translated to repeat borrowing. He concludes that the high interest rate revenue from the repeat borrowing adversely impacts both the borrowers and the community. He observes that the profits generated are transferred out of the community to the benefit of shareholders elsewhere, rather than being reinvested in the community's economy.

Morse found that the availability of payday loans are welfare enhancing in California following a natural disaster, but counters this benefit with the concern

¹ His conclusion also coincides with that of O'Donoghue and Rabin 2006.

that "... the availability of cash from payday loans may tempt individuals to overconsume." (Morse 2011)

Although there is no consensus in the literature, there is more robust evidence supporting a negative impact of access to payday loans.² As the preceding examples demonstrate, a common recurring theme within all the literature reviewed is that borrowers may be myopic. While most authors discuss this issue from a qualitative perspective, Jones and Mahajan crafted an experiment in a "natural" setting, attempting to quantify the average time-discounting preference among lowincome households. They present a sample of tax filers the option to save their tax refunds in an approved, liquid, savings vehicle. If they agree, they receive an incentive bonus. If they follow through with saving the refund for nine months, they receive an additional incentive. A second group of tax filers were presented with the option to save their refunds in an approved, but binding or illiquid, savings vehicle. Based on the results of their research, Jones and Mahajan conclude that the average annual discounting rate is 164% among low-income earners. In other words, until you offered a 164% annual rate of return for saving for one year, the average lowincome earner would choose to spend the money, rather than save it.

² Taken from Meltzer 2011 "Two studies detect negative effects: (Skiba and Tobacman 2008) find greater rates of chapter 13 bankruptcy filings among payday borrowers, and (Carrell and Zinman 2008) find declines in job performance and readiness among Air Force personnel stationed near payday lenders. Three studies find benefits of payday loan availability: (Morse 2011) finds lower foreclosures following natural disasters; (Morgan and Strain 2008) find lower rates of bounced checks in Georgia and North Carolina before payday loan bans; and (Zinman 2010) identifies deterioration in subjective assessments of financial well-being after Oregon restricts payday lending. In a field experiment in south Africa, (Karlan and Zinman 2010) also find that improved credit access increases rates of employment and improves food security."

This can weaken the negative correlation between welfare-enhancement and increased access to credit as it becomes difficult to determine if the high interest rates are causing exacerbating hardship or if it is myopic spending that pushes them further into financial trouble.

This paper looks to add to the current body of economic research by focusing on the changes in government legislation and regulation and its specific impact within the Canadian market. In this paper I conduct a multiple regression analysis, utilizing data from a number of Canadian household surveys and administrative data on the nature of the payday loans industry. I estimate whether access to payday loans affects household bankruptcy rates, and investigate what types of borrowers use payday loans. My identification strategy for estimating the effect of access to payday loans is based on exploiting political discontinuities in payday loans regulation across provinces. I use data from the Consumer Financial Capability Survey to estimate the effects on bankruptcy rates and the Survey of Financial Security to outline the characteristics of payday loan borrowers.

In comparing interest rate restrictions across Canada, I find that relaxing interest rate caps exhibit positive correlation with payday loan usage, indicating that credit rationing is a significant factor as interest rate caps are restricted. This means that as interest rates increase more borrowers use payday loan services. I suggest this is due to an increased supply of payday loans when the interest rate is relaxed. This allows more individuals with higher credit risks to use a payday loan. One suggestion to combat the high cost of payday loans is to enforce usury laws and cap the interest rates at an annual rate of 60%. Stegman suggests that enforcing usury laws may force high-risk borrowers who are unable to obtain a loan at that rate, into the illegal or underground lending market (Mayer 2012).

I believe this correlation also reflects the desperation of some payday loan borrowers. Individuals who have no alternatives to borrow may look to a payday loan as an alternative source of credit regardless of the interest rate. However, when interest rates are relaxed and the supply of payday loans is increased, more aggressive advertising practices can take place, which can also contribute to a higher correlation between relaxed interest rate caps and payday loan usage.

I also find evidence that relaxing interest rate caps among provinces is positively correlated with household bankruptcy rates. By combining the results of my two specifications I suggest that the probability that a household declares bankruptcy, given that they use a payday loan, is positively correlated with relaxed interest rates.

The issue of continuous borrowing and over borrowing exacerbates hardship among borrowers further. The capacity of a borrower to acquire a loan amount above a feasible level for them to repay on time can force them into a debt burden cycle that is extremely difficult to recover from (O'Donoghue and Rabin 2006). This can lead to an issue of continuous borrowing where a borrower is forced to rely on regular loans to cover the previous loans and debt service costs. This has led to various regulations to curb the problem of over borrowing and repetitive loans. I find that borrowers who engage in repetitive loans are 9.85% more likely to declare bankruptcy, than individuals who do not enter the payday loans market. However, solving the issues of over borrowing and continuous borrowing is difficult.

6

Implementing percentage of income caps can push borrowers out of the market entirely and move them to underground and illegal sources (Stegman 2007). Percentage of income caps are restrictions on the amount in which a borrower can borrow given their income. For example, in British Columbia a borrower cannot take out a loan that exceeds 50% of their net pay per paycheck. Additionally, forcing lenders to stop offering loans to repeat borrowers can put borrowers into a financially worse position than before they took out the loan (Meltzer 2011).

The rest of this paper is divided into the following sections. First, I review the payday loans market within Canada, outlining the history and structure of the market. I highlight current statistics using personally collected data along with aggregate government data. I identify areas that may be of concern both currently and in the future. Next, I review the Canadian legislation pertaining to payday loans and its evolution over the last 30 years. I explore the differences in provincial legislation and the impact that these discontinuities have on the market. Third, I present the details of the estimation methodology and results of the analysis. Finally, I conclude with policy recommendations to assist in shaping legislation to reduce opportunities for market failures to dominate, which means that the market in its current form may have solutions available that would make borrowers better off without making anyone else worse off.

2. Payday Loans Market in Canada

A payday loan is a loan between \$100 and \$1,500 that is to be paid back at the time of the borrower's next paycheck. It is designed as an emergency bridge loan to allow the borrower to pay some immediate cost to prevent some dire consequence. Payday loans first came into Canada in the early 1990's. They are a variation from a practice called "salary buying" which first became popular in the late 19th century (Birkhead 1941). Salary Buying was a process in which a lender would purchase a future salary of a borrower at a discount in order to provide the borrower with the funds immediately. The process of salary buying became illegal in the 1970's when the majority of the loans were offered through criminal organizations and loan sharks. Additionally the interest charges associated with salary buying were above the legal limit of 60% annually. Payday loans are different from salary buying in a few different ways, which will be further discussed in the legislation section of this paper. However, the two primary differences are that a payday loan has a restriction of how much can be borrowed relative to the borrower's earnings, and the fee associated with the loan is to be paid at the time of payment. With salary buying, there was no restriction on the amount of the salary that could be borrowed, and the interest was deducted from the amount lent immediately.

From the 1990's to 2006 payday loans remained relatively unregulated and not legislated. The usury law of Canada and its ambiguous interpretation is one of the main reasons why payday loans have been able to maneuver outside the restriction of 60% annual interest (Antle 1994). Where the payday loans are of a small amount and for a short term they have been able to avoid these laws and operate more freely. In 2006 the Criminal Code of Canada was amended with Bill C-26 to specifically include payday lending operations and create a base set of restrictions to be imposed on their practices. These restrictions did not enforce the traditional usury laws, but rather set restrictions on amounts that can be loaned, and a maximum loan period based upon the borrower's pay schedule. The amendment also left it open for each province to impose individual regulation and legislation based upon their provincial requirements.

Since 2006, the payday loan industry has drastically increased operations within Canada. Based on personal research into the business registrations of each enterprise in each provincial registry, I determined that there are currently over 150 distinct payday-lending operations within Canada with over 1,400 locations across the country. Based on a scan of legislation in each province, all provinces have created some form of customized legislation and regulation of the payday loans industry – except for Newfoundland.

In addition to the expansion of physical locations of payday lending operations, online payday lending has become a significantly larger portion of the industry since 2009, which has forced many provinces to amend their legislation to include online lending practices. Based on my review of new business registrations, in each province, the number of payday lending start-up operations has grown each year since 1995 with few exceptions.

In 2005, concerns regarding pending legislation restrictions likely acted as a deterrent for many start-ups as indicated in the Figure 1: Payday Loan Operation

10

Development. 2009 was the most active year for payday loan operation start-ups. This was mainly due to the increase of online payday lending operations and the lack of legislation regarding online lending. After 2009, the payday lending operations began to amalgamate. Economies of scale became apparent as national brands emerged.

Currently there are only 2 payday lending organizations present in every province: Money Mart and Cash Advance. Each company has taken an opposite approach to expansion. Based on a review of business registrations, I identified a significant number of companies that were acquired by Money Mart, but did not see the same pattern with Cash Advance. Cash Advance appears to have built its organization through construction and expansion of its own stores with relatively minimal mergers and acquisitions. Money Mart appears to have focused predominately on acquiring payday lending operations that are successful in provinces and locations that they have minimal or no previous presence.



Figure 1: Payday Loan Operation Development

Source: Personally collected data from provincial business registries

Much of the economic literature has explored the significance of location of payday lending operations. The issue of added convenience within low-income communities has been difficult to quantify, as these individuals are the ones most likely to be in need of additional access to credit. One might expect that the provinces with the highest populations would have the greatest number of payday loan operations, however, looking at personally collected data on the number of operations within each province, British Columbia and Nova Scotia seem to have the highest number of payday lending operations per capita. This is likely due to the probability of lower income individuals in Nova Scotia and the higher cost of living associated with British Columbia.



Figure 2: Provincial Share of Total Payday Loan Operations

Source: Personally collected data based on active 2016 provincial business registries.

The marketing practices of the payday lending operations within Canada have been focused heavily around individuals who may have poor budgeting or lack needed credit to maintain consumption habits. The main emphasis of payday lending marketing is getting cash immediately regardless of the reason. They also focus on the use of an administrative fee rather than a rate of interest, stating \$15-\$25 per \$100 lent (depending on the province).

The fact that these corporations focus their advertising on those who might be considered to have myopic time preferences³, rather than true emergencies, might be construed to be encouraging borrowing that is not welfare-enhancing.

A large concern regarding payday-lending operations in Canada is the propensity for payday loan borrowers to engage in continuous or repetitive borrowing. Most provinces do not track the borrowing habits of payday loan users. In fact, only Nova Scotia has mandated that all payday-lending operations within the province must be tracked and data sent to the provincial government for further analysis. Alberta has implemented legislation to enforce similar tracking to start in 2017.

From the aggregate data available from Service Nova Scotia (Figure 3: Percentage of Repeat Loans in Nova Scotia (2010 – 2016)), it is apparent that concerns about habitual lending expressed in other papers, are justified in Nova Scotia, despite the specific legislation in place to prevent continuous or habitual lending practices. Since 2014, there has been an increase of as much as 20% in repeat loans over first time loans. Additionally, 29.65% of all repeat loans were loans granted to borrowers who have used payday loans 8 or more times within the year of recording.

³ "Myopic time preferences" refers to individuals who will look for any reason to increase consumption today, even if the cost of servicing the debt is extremely high. They prefer to consume significantly more today and may not consider the lack of consumption with which they would be faced in the future.



Figure 3: Percentage of Repeat Loans in Nova Scotia (2010 - 2016)

Source: Service Nova Scotia Payday Loan Aggregates

The tendency of habitual lending adds to the concern that these borrowers have fallen into a difficult financial cycle, where the initial loan may have been for some form of financial or consumption shock, but the continuous nature of their borrowing habits may indicate a higher chance of default.



Figure 4: Nova Scotia Payday Default Rate v. National Non-Mortgage Default Rate

Sources: Aggregate default rate from Service Nova Scotia and Default rate of national nonmortgage debt provided by TransUnion Canada

Again using Nova Scotia aggregate data, Figure 4 shows the default rate of payday loans is almost three times larger than the default rate of any other nonmortgage debt within Canada. Though this comparison is not robust, it does indicate a large concern regarding payday loan borrowers' ability to repay the loans without requiring additional payday loans to cover regular expenses.⁴

The average amount borrowed is approximately \$436. An interesting question that arises from the average amount borrowed is what proportion of the borrowers is borrowing at the maximum allowed amount based on income

⁴ This comparison lacks robustness, as non-mortgage default rates for just Nova Scotia were not available. Payday loan default rates from other provinces were not available either.

percentage allowances. Unfortunately this question cannot be answered at the time of this paper as this data is not collected at a national level. Nova Scotia is the only province, which mandates the collection of this data.

Payday lending operations are traditionally not managed within the community in which they are operating. Most owners and managers of payday lending operations tend to live outside of the area in which they operate (Kurban 2014). This leads to another concern of capital flight where income is shifted out of the province or country, which creates additional negative impact for the province and community. In Nova Scotia in 2015, the estimated amount of fees on granted payday loans was approximately \$20.68 million dollars. If these loans were not made within Nova Scotia it is possible that these funds would have been spent in some other fashion locally and resulted in more economic stimulus within the province.

3. Legislation

Previous to 2006, payday loans were mainly unregulated and had no legislation that specifically stipulated interest rate restrictions or to whom operations could lend. As stated previously payday loans are a variation of a practice called "salary buying" where individuals with irregular income could purchase future salary payments at a discounted rate. These services started initially to serve as an alternative to banks who would not offer small loans for short periods of time.

However, salary-buying operations quickly became a popular lending option of criminal organizations and loan sharks. In the years of the Great Depression almost all of the salary-buying practices were offered through loan sharks and criminal organization (Talai 2014).

The concerns of salary-buying operations were similar to those existing today with payday loans, in that it is easy for borrowers to enter into a cycle of debt that is extremely difficult to exit, and that the cost of servicing the debt obtained, outweighs the actual loan borrowed.

The pressure to implement usury laws was more heavily weighted on the risk of physical harm that borrowers had from lack of payment. If a borrower could not pay at the time in which the loan was due, the criminal operation would threaten, harm or even kill the delinquent borrowers. The act of salary-buying and loan sharking did not become illegal in Canada until the 1970's (Government of Canada Department of Justice 2015). This criminal offense was implemented through the usury laws indicating a maximum lending rate of 60%. This continued as the law until the Criminal Code of Canada was amended in 1989 to include S 347 where it is a criminal offense to enter into an agreement or arrangement to receive interest at a criminal rate, as well as a criminal offense to receive payment or partial payment of interest at a criminal rate (Antle 1994).

The process of cheque cashing started to become popular in the 1980's as a way around these usury laws. The process of cheque cashing was a service where a customer would present a post-dated cheque and an organization would cash the cheque immediately for a fee. This was seen as a different type of operation from salary-buying or loan sharking as the terms were not discussed in interest but rather in administrative fees.

In the early 1990's, this process transformed into payday lending services, where borrowers would present employment records, to gain access to a future paycheque immediately, for the cost of an administrative fee. This remained the process of payday lending until it gained extreme popularity in the early 2000's. The federal government was called upon to amend the Criminal Code to include paydaylending operations into the existing usury laws.

In 2006, the federal government introduced Bill C-26, an Act to amend the Criminal Code. The Bill defined a payday loan as "An advancement of money in exchange for a post-dated cheque, a pre-authorized debit or a future payment of a similar nature but not for any guarantee, suretyship (form of insurance), overdraft protection, or security on property and not through a margin loan, pawn broking, a line of credit or credit card." The government set limitations on the dollar amount

20
restrictions as well as time horizons of the payday lending operations, specifically a limit of \$1,500 per loan at a maximum time of 62 days.

The legislation also explicitly allowed each province the autonomy to implement personalized regulation as they saw fit. The Bill made no indication of limitations of interest on the loans or enforcement of the 60% annual rate as mentioned from previous sections of the law. In my opinion the Bill was left in a state of ambiguity that makes it difficult to establish firm restrictions for the payday lending operations within Canada.

There is an easy interpretation that prevents current financial institutions from entering this market, as they would be subjected to the 60% annual rate, while non-depository institutions could avoid such regulation. Additionally, no mention of continuous or over-borrowing restrictions existed within the legislation, which allows borrowers the opportunity to enter into a worrisome cycle of debt.

In 2007, both Manitoba and Saskatchewan implemented the first provincial legislation regarding payday-lending operations within their provinces. The focus of their legislation was centered on education, and creating a time frame to which a borrower could exit the loan without penalty or being charged a fee.

In Saskatchewan, restrictions were placed on continuous borrowing, preventing borrowers from entering into a roll-over loan immediately. A roll-over loan was defined as "...the extension or renewal of a payday loan that imposes additional amounts, fees, rates, penalties or other charges on the borrower, other than the interest mentioned in clause 14.2.a, and includes an advancement under a new payday loan agreement to pay out an existing payday loan." Instead, borrowers

had to wait one business day from the time of payment of the preceding loan, in order to apply for another.

No restrictions were initially placed on interest rates or the proportion of their income they were allowed to borrow. This opened up borrowers to issues of over-borrowing and punitive interest rates. It was not until 2012 that restrictions on interest and borrowing percentages were implemented. Saskatchewan implemented an interest rate cap of \$23 per \$100 borrowed and proportion restrictions of 50% of the borrowers net pay.

A larger concern is also raised with the restrictions of information required to gain access to a payday loan in Saskatchewan; lenders are not allowed to run a credit check on the borrower to approve or deny the loan; as well as they are not allowed to view banking information of the borrower other than to set up a preauthorized payment. The restrictions of this clause undermine the ability for the payday lender to observe if a coinciding loan is in existence for the borrower and allows borrowers to engage in multiple payday loans at the same time.

Manitoba focused on implementing both interest rate restrictions as well as proportion of income restrictions in 2007. They set the interest rate cap at \$17 per \$100 borrowed and the percentage of income could not be greater than 30% of the borrower's net pay. However, they allowed for rollover loans to be available in their province, setting a cap at an additional 5% or \$22 per \$100 borrowed. Restrictions on information gathering of borrowers were also existent within the legislation, however, more in the way of preventing credit checks to be done. Lenders were allowed to see bank statements in order to mitigate simultaneous borrowing. In my

opinion, the legislation of this Province is also ambiguous. There are no mentioned penalties if the lender allows for simultaneous borrowing unless they are attempting to take out multiple loans from the same lender.

From the education standard, both provinces mandated specific information be included in each loan application, highlighting the annual percentage rate of the loan (APR) as well information regarding effective budgeting and a warning that payday loans are high interest loans. There are pages of legislation highlighting the size and requirements of signs indicating these warnings from placement within the store and online, to requiring initials and signatures on applications highlighting an understanding of the attached interest rate. These education requirements were the most consistent across all provinces.

Ontario and New Brunswick were the next provinces to offer regulation and legislation of payday lending. As seen in Manitoba and Saskatchewan, the focus again was on education and forced marketing of interest rate standards. Both Ontario and New Brunswick implemented an interest rate restriction of \$21 per \$100 borrowed, but New Brunswick indicated that the rates can be changed, and would be monitored by the Utility and Review board. Both provinces restricted roll over loans from being available, and set "cool off" periods between loans (1-2 business days). Ontario also set an allowance of 2 business days to cancel the loan without penalty or a requirement to give reasoning for cancellation.

Nova Scotia, British Columbia and Alberta implemented regulations in 2009, but Nova Scotia has been the most active province in continuously updating and amending payday-lending regulation. Nova Scotia set a mandate within their

regulation that utility and review board was to meet every 2-4 years to review payday-lending operations and make changes as needed, without requiring bill proposals and amendments to provincial legislation. Nova Scotia has used this mandate to modify interest rates imposed on payday lending operations as well as make changes as the market has changed. In 2009 interest rates on payday loans were capped at \$31 per \$100 borrowed, but changed to \$25 per \$100 borrowed in 2011, and \$22 per \$100 borrowed in 2015. Additionally, in 2011 Nova Scotia used this mandate to allow them to implement additional restrictions on online payday lending operations, requiring them to register for a permit of operation within the province in order to operate legally.

Nova Scotia is also the only province currently to require payday-lending operations to send data regarding their loans to the provincial government for further analysis. The data-sharing requirement is as follows: "Total value of payday loans provided in Nova Scotia, the number of payday loan agreements entered into, the number of repeat loan agreements entered into, the average size and term length of payday loans, and the total value of payday loans that have gone into default and have been written off." However, Nova Scotia is still lacking legislation on rollover loans as well as proportional lending restrictions.

British Columbia has a maximum interest rate of \$23 per \$100 borrowed and has a restriction on proportion of income of 50% of net pay. However, one of the largest differentiating factors for British Columbia is the allowance for continuous borrowers an opportunity to pay back the third subsequent loan over three pay periods (if they are paid bi-weekly, semi monthly, or a more frequent basis) or two pay periods (if they are paid monthly or less frequently). This restriction could be extremely helpful in eliminating the major issue of continuous lending.

Prince Edward Island is the most recent province to implement legislation and regulation of payday loans. PEI implemented restrictions in 2015. Prince Edward Island has a similar broad approach to many of the other provinces. The include educational requirements for lending operation and specify sign size and marketing requirements for ensuring the APR is posted effectively, as well as restrictions on roll-over loans and cooling off periods. Their interest rate restriction is capped at \$25 per \$100 borrowed.

Many provinces have updated regulations since their initial implementation. Specifically in 2009 and again in 2011, most provinces included some form of additional regulation for online payday lending operations. Alberta has been the most recent province to implement additional payday-lending regulation. In 2016 they updated regulations, taking into consideration all other provincial legislation that has previously been implemented. The biggest change in the most recent legislation is the mandate that payday-lending data be tracked and shared with the province for further analysis. They have implemented the strictest interest rate cap of \$15 per \$100 borrowed (previously \$23 per \$100 borrowed). They have explicitly restricted roll-over loans, but allow for continuous borrowing after a mandated cooling off period. However, they have implemented an interest restriction of 60% annually on all loans, which effectively caps the number of continuous loans that a borrower can engage in. They have also mandated education requirements to providing information to borrowers.

Quebec and Newfoundland are the only remaining provinces that do not have payday lending regulation or legislation, but for opposite reasons. Quebec does not have payday lending regulations because they have stricter provincial usury laws that cap any loan interest at 35% annually. This effectively eliminates paydaylending operations within Quebec. However, Quebec still has payday lending operations located within the province, but they are located on the borders of the province and can only lend to Quebec residents outside of the province.

Newfoundland has simply not implemented any form of regulation of payday loans and allows the federal restrictions to guide operations within the province. The most likely benefit for a lack of overwhelming payday usage within the province is the sprawl across the province. Almost half of the residents of Newfoundland do not live in the larger areas of Corner Brook and St. John's, which means that the markets in those areas are likely the only areas of interest for payday lending operations. The effective market rate of interest for Newfoundland payday lending operations is \$25 per \$100 borrowed. (Based on personally collected data)

4. Methodology and Results

4.1 Data and Methodology

I utilized information from two separate household surveys to analyze the effects of government legislation on payday loans.⁵ The first survey used was the Survey for Financial Security, (SFS), which was conducted in three waves by Statistics Canada. Only the data sets from 2005 and 2012 were used in the specification, as the survey did not measure payday loans in the 1999 dataset. The intention of the SFS was "...to collect information from a sample of Canadian families on their assets, debts, employment, income and education. This helps in understanding how families' finances change because of economic pressures." In total there were 12,003 observations in the survey data during these collection periods. The survey was designed for cross sectional sampling of the data and was conducted via telephone. This survey passes the requirement of relevancy enough to be used within my specifications as it allows for a greater description of the characteristics of a payday loan borrower and how changes within price caps of interest rates can affect individuals with relevant characteristics.

The second survey used was the Canadian Financial Capability Survey, which was conducted in 2008 and again in 2014. It was conducted by Statistics Canada, and

⁵ Two other surveys were also considered; The Survey of Consumer Finances, and the Survey of Labour and Income Dynamics. Both were discounted as unusable relative to measuring payday loan impacts. The Survey of Consumer Finances ended its collection in 1999 and had no mention of payday lending or cash advance usage. The Survey of Labour and Income Dynamics was focused on employment statistics and did not touch on debt or access to credit in any manner

was intended "...to collect information that will illuminate the degree of knowledge that Canadians have concerning financial decision-making. In other words, how Canadians understand their financial situation, the financial services available to them and their plans for the future." The survey had a combined 22,204 observations during the collection periods. The survey was conducted via telephone and was designed for cross sectional sampling of the data. This survey also passes the requirement of relevancy as declaring bankruptcy can be considered a weak welfare measurement and the independent variables used allow for a reasonable discussion of effects of bankruptcy rates.

4.2 Issues with Data Availability

It can be difficult to empirically quantify the effects of payday lending within Canada. Data that is relevant and useful can be scarce and various endogeneity concerns cannot be addressed completely, meaning that unobserved variables can change the dynamic of any specification and make it difficult to establish a robust relationship between the independent and dependent variables. One example of such an endogeneity problem is reasoning for using a payday loan. This variable is unobserved but can dramatically change the dynamic of any specification used to measure the impacts of payday loans.

A large impediment to analyzing the effects of government legislation on payday lending is the lack of information collected to assess borrowing usage and intent. As stated previously, Nova Scotia is currently the only province that tracks payday lending operations within the province, but the data is not sufficient to determine if the payday loan is used to satisfy the borrowers' time discount preference, or if the borrowers are forced into this market due to a lack of proper substitutes, and would otherwise behave rationally.

My intention to cleanly identify the effects of government legislation of payday lending on the welfare of borrowers within this market is impeded by a lack of information on borrowing. Borrowing intentions can be difficult to quantify even if observed because the data itself may be biased by self-reporting problems. Instead measurements of welfare would be a reasonable substitute under the assumption of rational borrowers. If a survey was conducted that asked respondents

if they were without basic welfare needs and whether payday loans were used to satisfy these requirements, it would create a more robust picture of the effects of payday loans on borrowers. Additionally, questions related to spending intentions could be tracked in order to establish time preferences of borrowers. For example asking why a borrower is looking to use a payday loan. The combination of these variables would allow further analysis of payday loans and their benefits.

4.3 Variable Selection of First Specification

In my first specification, I use the Survey for Financial Security in an attempt to analyze the type of borrower that would engage in payday lending activities. The survey includes more questions relating to the personal characteristics and income dynamics than are presented in the Canadian Financial Capability Survey. However, there are no welfare measures within the SFS that would allow for its independent analysis as the main specification. Instead the purpose of this specification is to see why a consumer might choose to enter into the payday loans market. I look to combine the results of this specification with my second specification to tell a more dynamic story of borrowers within the payday loans market.

The dependent variable of this specification is a binary variable that takes the value of 1 if a respondent used a payday loan in the past three years and 0 otherwise. Selection of independent variables was based on three distinct characteristic categories and each variable's inclusion is explained in Table 1. First, categories that assisted in the determination of personal attributes were selected such as age, education, total non-mortgage debt,⁶ and main source of income. Secondly, variables that illustrated financial challenges of potential borrowers were included, such as number of credit cards the respondent has, whether they pay their credit card balance at the end of every month, whether they have an RRSP savings vehicle, and

⁶ The inclusion of total non-mortgage debt was used as a substitute for income, as they are highly correlated. On average, you cannot obtain higher levels of debt without higher levels of income. After-Tax income was considered, but was determined to be statistically insignificant.

whether they have a monthly budget. Finally, variables related to direct decisions of use of a payday loan are considered such as: whether the respondent been refused a credit card, and the interest rate cap of the loan in their province.

Variable	Explanation for Inclusion in Model	
Age of Major Income Earner	Age was included in the specification as a control for	
	individuals facing different financial issues at different points	
	in the life cycle. It is a continuous variable that can only be	
	positive.	
Number of Credit Cards	The number of credit cards was included as it indicates	
	individuals with multiple alternative forms of credit to	
	payday loans. If economic expectations hold, then individuals	
	with more alternatives for credit will be less likely use payday	
	loans. It is a continuous variable that can have any value	
	including 0	
	Education was included to help establish the personal	
	characteristics of the potential borrower but also can act as a	
Education Level	proxy for financial literacy. Individuals who are more	
	educated tend to have better financial literacy on average. It	
	measures education in years and is a continuous variable.	

Table 1: Variable Selection Reasoning (1st Specification)

Paying credit card balances off each month was included as it **Pays Credit Card Balance Each** controls for income effects of credit access. It is a dummy Month variable where the base group is that a borrower does not pay off their credit card balance each month. Having been refused a credit card was included to identify Has Been Refused a Credit individuals who are without a substitute to payday loans. It is Card a dummy variable where the base group has not been refused a credit card. Having an RRSP was included as it is expected that individuals who can afford to have an RRSP likely are of a higher income Has an RRSP or engage in some form of rational savings, which may prevent payday loan usage. It is a dummy variable where the base group does not have an RRSP Maintains a regular monthly budget was included as a variable that provides insight into the savings habits of potential borrowers. Borrowers who maintain a regular **Maintains a Regular Monthly** monthly budget may be forced into the payday loans market Budget due to structural financial problems rather than myopic consumption habits that cause them to be more risky. It is a dummy variable where the base group does not maintain a

regular monthly budget

Total non-mortgage debt was included both as a proxy forincome as increases in debt are highly correlated withTotal Non-Mortgage Debtincreases in income. But also as an indicator of limitedalternative forms of credit to payday loans. It is a continuousvariable that can have any positive value.

Including a quadratic function of total non-mortgage debtTotal Non-Mortgage Debtwas included as it establishes the linear nature of paydaySquaredloan usage among different income groups. It is a continuous
variable.

Main source of income as a government transfer was included to control for usage of payday loans among extremely low-income groups. This group contains Main Source of Income: individuals who do not work and are not retired, where their Government Transfers main source of income is some form of government subsidy or transfer payment. It is a dummy variable where the base group is individuals whose main source of income is not obtained through government transfers.

The interest rate cap was included to control for priceInterest Rate Caprestrictions of payday loans. This is a continuous variable thatis determined by provincial regulation.

Alberta		
Saskatchewan		
Manitoba	Brovincial Dummy Variables	
Ontario	Provincial Duriting Variables.	
Quebec	BC is used as the base group. Can take the value of 0 or 1	
New Brunswick		
Nova Scotia		
Prince Edward Island		
Newfoundland		

4.4 Regression Analysis of First Specification

$$\begin{split} Payday_{i} &= \beta_{0} + \beta_{1}Age_{i} + \beta_{2}Age_{i}^{2} + \beta_{3}NumberofCCs_{i} + \beta_{4}Education_{i} \\ &+ \beta_{5}PaysCCBalance_{i} + \beta_{6}RefusedCC_{i} + \beta_{7}HasRRSP_{i} \\ &+ \beta_{8}HasBudget_{i} + \beta_{9}TotalDebt_{i} + \beta_{10}TotalDebt_{i}^{2} + \beta_{11}MSINCGov_{i} \\ &+ \beta_{12}InterestCap_{i} * RefusedCC_{i} + \beta_{13}Saskatchewan_{i} \\ &+ \beta_{14}Manitoba_{i} + \beta_{15}Ontario_{i} + \beta_{16}Quebec_{i} + \beta_{17}PEI_{i} \\ &+ \beta_{18}NovaScotia_{i} + \beta_{19}NewBrunswick_{i} + \beta_{20}Newfoundland_{i} + \varepsilon_{i} \end{split}$$

I utilized a linear probability model for this regression, as I was looking to explain the strength of the relationship between the independent variables and the probability that an individual would use a payday loan.⁷ The results of this specification are presented in Table 2. They indicate that as interest rates increase, the probability that someone who has been refused a credit card uses a payday loan also increases. I speculate that this is due to a relaxing of restrictions of the payday lending operations related to who qualifies for a payday loan. As permissible interest rates increases increases payday lending operations are willing to lend to risker borrowers.

This distinction includes both individuals with myopic consumption habits as well as individuals with incomes below the traditional acceptance rate for payday

⁷ I used White's correction of standard errors to correct for heteroscedasticity automatically present within the regression. I expected heteroscedasticity to be present as $Var(U_i|Income_i) \neq Constant$.

lending institutions.⁸ These results indicate that credit rationing takes place within the payday lending market. Though the potential supply for payday loans is nearly infinite, lending institutions will ration based upon the riskiness of the borrower. Using Equation 4.1⁹ and holding all other variables constant, at the national payday loan interest rate average of 19% a borrower who has been refused a credit card is 12.89% more likely to use a payday loan than someone with an alternative source of credit. Where as a borrower who has been refused a credit card that lives in Alberta with an interest rate of 15% is 8.77% more likely to use a payday loan than someone with an alternative source of credit. These results support the credit-rationing hypothesis from the increased probability of payday loan usage through increases in interest rates.

$$Payday_i = 1.0304 * InterestRateCap_i * RefusedCCard_i - 0.0669$$

* RefusedCCard_i

Equation 4.1

Provincial dummy variables are included within the specification to account for regional differences not accounted for by other variables. This can include legislative differences that are difficult to quantify such as borrowing totals as a percentage of income. However, interest rate restrictions are the highest correlating variable for determining payday loan usage among provinces.

⁸ Information on these income limits was not available and is based upon internal credit offering guidelines at each payday loan institution. The only limitations that are known are the loan amount as a percentage of income restriction implemented within various provinces. This restriction could not be effectively applied to the specification to draw any meaningful conclusion about these borrowers.

⁹ Equation 4.1 comes from the results of the first specification.

	Dependant Variable:	Binary Usage of Payday Loans in
	Observations: 12,003	Past 3 Years
		(1)
Age of Major Income Earner		-0.001
		(0.0002)
Number of Credit Cards		-0.005
		(0.002)
Education Level		-0.005
		(0.001)
Pays Credit Card Balance Each Month	ı	-0.027
		(0.004)
Has Been Refused a Credit Card		-0.067
		(0.017)
Has an RRSP		-0.0174
		(0.004)
Maintains a Regular Monthly Budget		0.001
		(0.003)
Total Non-Mortgage Debt		-8.83E-08
		(1.37E-08)
Total Non-Mortgage Debt Squared		4.11E-14
		(8.45E-15)
Main Source of Income: Government	Transfers	-0.011

Table 2: Characteristics of a Payday Loan Borrower (1st Specification)

	(0.005)
Interest Rate Cap * Refused Credit Card	1.030
	(0.155)
Alberta	0.006
	(0.006)
Saskatchewan	-0.024
	(0.007)
Manitoba	0.001
	(0.008)
Ontario	-0.005
	(0.005)
Quebec	-0.027
	(0.004)
Prince Edward Island	-0.022
	(0.010)
Nova Scotia	-0.018
	(0.008)
New Brunswick	-0.028
	(0.007)
Newfoundland	-0.025
	(0.008)
White's Standard Error Correction Applied	Y

Note: This table reports OLS estimation results for a linear probability model regression of various characteristics that may effect a borrowers decision to use a payday loan. Interest rate caps are used as an exogenous variable. Inclusion of certain variables that are statistically insignificant is based on economic value associated with the variable. Standard Errors are in parentheses.

Table 3 outlines the results each independent variable and their impact on the dependent variable.

Age of Major Income Earner	The age of the major income earner was statistically significant
	at the 5% level of significance. It shows a negative correlation
	between age and the probability of payday loan usage. This is
	to be expected as older individuals likely have some form of
	accumulation of wealth and the reliance on payday lending is
	less.
Number of Credit Cards	The number of credit cards that an individual has is negatively
	correlated with payday loan usage and is statistically significant
	at the 5% level of significance. This variable is highly correlated
	with income as individuals with more income, traditionally have
	more alternatives of credit available to them. With more
	alternatives of credit available, the reliance on the payday loans
	market reasonably would shrink, which is represented in the
	results.

 Table 3: Variable Explanation (1st Specification)

Education level of the respondent was found to be negatively correlated and statistically significant at the 5% level of significance. This variable is economically important as we can assume that individuals with higher levels of education would also show higher levels of financial literacy on average. This would indicate that higher educated individuals would not enter the payday loans market due to the extremely high fees attached to the loans.

Paying credit card balances off each month was negatively correlated and statistically significant at the 5% level of significance. This variable is highly correlated with income as individuals with higher levels of income can afford to pay off the balance each month. This variable is still important economically as it can indicate a desire of borrowers to not hold onto debt for longer than they need to.

Having been refused a credit card is correlated with the probability of using a payday loan and is statistically significant Has Been Refused a Credit Card Card correlation due to the involvement of an interaction term with interest rates.

Having an RRSP savings vehicle is negatively correlated with the probability of using a payday loan and is statistically significant at the 5% level of significance. This variable indicates that individuals who maintain a RRSP are likely able to afford personal financial shocks through their saving decisions. As well it is likely that individuals with higher levels of income are more likely to have a RRSP so this variable does have a correlation to income as well.

Maintaining a regular monthly budget is positively correlated with payday loan usage but is statistically insignificant at all levels of significance. This indicates economically that individuals to which maintain a budget above a certain income Maintains a Regular Monthly threshold are not likely to use a payday loan as they also likely Budget have alternative forms of credit. As well individuals below a certain threshold that maintain a monthly budget simply cannot afford to cover personal financial shocks as they likely do not have alternative forms of credit and thus are forced into the payday loans market through desperation.

Total non-mortgage debt is negatively correlated and statistically significant at the 5% level of significance. However, the impact is incredibly small, indicating that large swings in **Total Non-Mortgage Debt** consumer debt would be required to it to affect a borrowers decision to use a payday loan service. The debt variable is also highly correlated with income and therefore takes a quadratic distribution shape.

The quadratic function of total non-mortgage debt is positively correlated and statistically significant at the 5% level of significance. This variable is inline with economic expectations, as individuals with access to alternative forms of credit will use those until they have been maxed out. Once they have been **Total Non-Mortgage Debt** maxed out we see the probability of using a payday loan increase. However, this is only representative of individuals within certain income groups as higher income groups have a significantly lower probability of using a payday loan, where as income groups of extremely poor individuals cannot get approved for any credit including payday loans.

Squared

	An individual whose main source of income is through
	Government transfers is negatively correlated and statistically
Main Source of Income:	significant at the 5% level of significance. This is an indication
Government Transfers	that individuals whose main source of income is through
	government transfers do not meet the income requirements to
	qualify for payday loans on average.
	The interaction term of interest rate cap and refused credit
	card is positively correlated with payday loan usage and is
Interest Pate Cap * Polysod	statistically significant at the 5% level of significance. This is
Credit Card	likely an indication that as the interest rates increase, the
Credit Card	supply of credit available also increases as the payday lending
	institutions are more likely to lend to individuals with higher
	credit risk profiles.
Alberta	Alberta is positively correlated with payday loan usage but is
	statistically insignificant at all levels of significance. This
	indicates that provincial differences between British Columbia
	and Alberta are not significant for payday loan usage.
Saskatchewan	Saskatchewan is negatively correlated with payday loan usage
	and is statistically significant at the 5% level of significance. This
	indicates that residents of Saskatchewan are less likely to use a
	payday loan than a resident of British Columbia.

Manitoba	Manitoba is positively correlated with payday loan usage but is
	statistically insignificant at all levels of significance. This
	indicates that provincial differences between British Columbia
	and Manitoba are not significant for payday loan usage.
	Ontario is negatively correlated with payday loan usage but is
Ontonia	statistically insignificant at all levels of significance. This
Ontario	indicates that provincial differences between British Columbia
	and Ontario are not significant for payday loan usage.
	Quebec is negatively correlated with payday loan usage and is
	statistically significant at the 5% level of significance. This
Quebec	indicates that residents of Quebec are significantly less likely to
	use a payday loan than British Columbia.
New Brunswick	New Brunswick is negatively correlated with payday loan usage
	and is statistically significant at the 5% level of significance. This
	indicates that residents of New Brunswick are less likely to use
	a payday loan service than residents of British Columbia.
Nova Scotia	Nova Scotia is negatively correlated with payday loan usage and
	is statistically significant at the 5% level of significance. This
	indicates that residents of Nova Scotia are less likely to use a
	payday loan service than residents of British Columbia.

	Prince Edward Island is negatively correlated with payday loan
Prince Edward Island	usage and is statistically significant at the 5% level of
	significance. This indicates that residents of Prince Edward
	Island are less likely to use a payday loan service than residents
	of British Columbia.
Newfoundland	Newfoundland is negatively correlated with payday loan usage
	and is statistically significant at the 5% level of significance. This
	indicates that residents of Newfoundland are less likely to use
	payday loans than residents of British Columbia.

4.5 Variable Selection of the Second Specification

In my second specification, I use the Canadian Financial Capability survey in an attempt to analyze the probability of declaring bankruptcy for payday loan borrowers. The dependent variable of this regression was a binary variable that takes the value of 1 if the respondent has ever declared bankruptcy otherwise 0.

I used independent explanatory variables that fell into three categories. First, I selected variables of personal attributes such as age brackets and education dummy variables. These variables were important in isolating the impact caused through financial literacy and changes in spending and savings habits through different age categories. Second, I selected variables of financial challenges, such as whether the respondent had difficulty maintaining a monthly budget, or if the respondent had one or more bills to which they had a late fee, and whether the respondent had access to a credit card. These variables were important in isolating other causes of potential bankruptcy available within the specification. Finally, I selected variables that pertained to payday loan usage such as if the respondent had used a payday loan once in the past three years or if they had engaged in multiple payday loans. Additionally, I added population weighted interest rate caps as an exogenous variable indicating political discontinuities between provinces. Meaning that interest rates can act as an imposed price restriction that can determine if usage of payday loan at different rates of interest impacts the probability of a household declaring bankruptcy. The interest rate caps are weighted due to the data set including region specific data and not provincial, this weakens the robustness of the specification but not enough to prevent its usage. Each variable is explained in its inclusion within the specification within Table 4.

Annual income Is between 32k and	Annual income brackets were included in the
55k (<i>INC32to55</i>)	specification as a control for impacts on different
Annual Income is between 56k and	income levels. Individuals in each bracket may face
80k (<i>INC56to80</i>)	completely different financial shocks that would drive
Annual Income is between 80k and	them to declare bankruptcy. Each variable is a dummy
119k (<i>INC81to119</i>)	variable that takes the value of 1 when applicable
Annual Income is above 120k	otherwise 0. The base group is income below \$32,000
(INC120up)	annually.
Age between 25 and 34	
(AGE25to34)	
Age between 35 and 44	
(AGE35to44)	Age brackets were included in the specification as a
Age between 45 and 54	control for individuals facing difference financial issues
(AGE45to54)	
Age between 55 and 59	at different points in the life cycle. Each bracket is a
(AGE55to59)	dummy variable that takes the value of 1 when
Age between 60 and 64	applicable otherwise 0. The base group is individuals
(AGE60to64)	
Age between 65 and 69	between the age of 18 and 24.
(AGE65to69)	

 Table 4: Independent Variable Selection Reasoning (2nd Specification)

Age above 70 (AGE70up)

Education level brackets were included to help establish the personal characteristics of individuals but also act as Has College Diploma (COLLEGE) a proxy for financial literacy. Individuals who are more educated tend to have better financial literacy on average. Each variable is a dummy variable that takes the value of 1 when applicable otherwise 0. The base Has University Degree (UNIDeg) group is individuals with less than a college diploma (Including some college, completion of high school and some high school) Base group variables were also tested individually but were found to be too highly Has Graduate Degree (Grad) correlated with each other, hence why they were included into one group. Has a Credit Card was included into the specification to indicate alternative forms of credit access for the Has a Credit Card (CCard) borrower It is a dummy variable that takes the value of 1 if applicable otherwise 0. Has Struggled To Maintain a Budget was included to control for individuals who may have structural financial Has Struggled To Maintain a Budget issues or myopic time preferences. It is a dummy (BUDSTRG) variable that takes the value of 1 if applicable otherwise

0.

Has a Late Fee on One Bill was included to control for Has a Late Fee on One Bill individuals who may have financial budgeting issues and difficulties paying all bills. It is a dummy variable that takes the value 1 if applicable otherwise 0.

Has a Late Fee on More than One Bill (LateFee2)

(LateFee1)

Has a Late Fee on More than One Bill was included to control for individuals who may have serious issues with paying all bills and can account for possible myopic time preferences. It is a dummy variable that takes the value 1 if applicable otherwise 0.

Total Debt Less than 50k (DEBTLESS50) Total Debt between 50k and 99k (DEBT50to99) Total Debt between 100k and 149k (DEBT100to149) Total Debt between 150k and 199k (DEBT150to199) Total Debt between 200k and 249k (DEBT200to249) Total Debt above 250k (*DEBT250up*)

Total debt brackets were included as an indicator of limited alternative forms of credit to payday loans. As debt amounts increase it would be expected that borrowers may struggle with the increased debt service burdens and turn to alternative forms of credit and be more likely to declare bankruptcy. Each variable is binary and takes the value 1 if applicable otherwise 0.

Has used a Payday Loan service once in the past 12 months (Payday1)

Has used a Payday Loan service once in the past 12 months was included to indicate the correlation between payday loans and bankruptcy probabilities. It is a dummy variable that takes the value of 1 if applicable otherwise 0.

	Has Used a Payday Loan Service more than once in the
Has Used a Payday Loan Service	Past 12 months was included as an indicator of the
more than once in the Past 12	possible correlation between continuous borrowing and
months (<i>ReppDay</i>)	the probability of bankruptcy. It is a dummy variable
	that takes the value of 1 if applicable otherwise 0.
	Log of Population Weighted Interest Rate Caps was
	included as a price variable of payday loans. A log
	function was used to capture the non-linear
Log(Population Weighted Interest	relationship between interest rates and payday loan
Rate Caps) (Log(WLEGCAP))	usage, as borrowers at the margins are less likely to use
	a payday loan at a higher price. It is population
	weighted, as the data sample was not sorted by
	province, rather by region. It is a continuous variable.

4.6 Regression Analysis of the Second Specification

$$\begin{split} Bankruptcy_{i} &= \beta_{0} + \beta_{1}INC32TO55_{i} + \beta_{2}INC56TO80_{i} + \beta_{3}INC81TO119_{i} \\ &+ \beta_{4}INC120UP_{i} + \beta_{4}AGE25to34_{i} + \beta_{5}UAGE35to44_{i} + \beta_{6}AGE45to54_{i} \\ &+ \beta_{7}AGE55to59_{i} + \beta_{8}AGE60to64_{i} + \beta_{9}AGE65to69_{i} + \beta_{10}AGE70UP_{i} \\ &+ \beta_{11}College_{i} + \beta_{12}University_{i} + \beta_{13}GraduateDeg_{i} + \beta_{14}CCard_{i} \\ &+ \beta_{15}Budstrg_{i} + \beta_{16}Latefee1_{i} + \beta_{17}Latefee2_{i} + \beta_{18}Debtless50_{i} \\ &+ \beta_{19}Debt50to99_{i} + \beta_{20}Debt100to149_{i} + \beta_{21}Debt150to199_{i} \\ &+ \beta_{22}Debt200to249_{i} + \beta_{23}Debt250up_{i} + \beta_{24}Payday1_{i} \\ &+ \beta_{25}Reppday_{i} + \beta_{26}Log(WLegCap_{i}) + \varepsilon_{i} \end{split}$$

I utilized a linear probability model for this regression.¹⁰ The results of this specification are presented in Table 5. They indicate that holding all other variables constant, the probability of declaring bankruptcy dramatically increases once a borrower uses a payday loan. I speculate that there are two partial effects at play, which can be explained by the results of the specification. First, borrowers at the margin are deterred from entering the payday loans market when interest rates increase, as it is more costly to obtain a payday loan with higher interest rates. Secondly, the supply of loans is likely to increase due to the allowance of higher risk individuals likely inflates the probability of declaring bankruptcy for payday loan users, as these

¹⁰ I used White's correction of standard errors to correct for heteroscedasticity automatically present within the regression. I expected heteroscedasticity to be present as $Var(U_i|Income_i) \neq Constant$.

borrowers are more desperate. I attempted to interact these terms to confirm these speculations, the results were statistically insignificant but the relationship was positively correlated with bankruptcy rates. Additionally, a lack of other independent variables available within the survey prevented the ability to control for all possible financial characteristics that might strengthen the relationship between interest rate caps interacted with payday loan usage and the probability of bankruptcy. Instead I rely on the results of the first specification to comment on the relationships between payday loan usage and bankruptcy probabilities outlined in the second specification.

Dependant Variable:	
	Binary Household Declaring Bankruptcy
Observations: 22,204	
_	(1)
	(-)
Annual income Is between 32k and 55k	0.0105
	(0.0059)
Annual Income is between 55k and 80k	0.008
	(0.006)
Annual Income is between 80k and 119k	-0.0197
	(0.0059)
Annual Income is above 120k	-0.0147
	(0.0061)
Age between 25 and 34	0.030
	(0.0071)
Age between 35 and 44	0.0539
	(0.0070)

 Table 5: Effect of Weighted Interest Rate Caps on Household Bankruptcy Rates (2nd Specification)
0.0715
(0.007)
0.069
(0.008)
0.0523
(0.0078)
0.042
(0.0078)
0.0167
(0.0062)
0.0158
(0.0055)
-0.0007
(0.0004)
-0.0258
(0.004)
-0.0794
(0.007)
0.0524
(0.0047)
0.0607
(0.009)
0.1077
(0.0214)
0.0368
(0.0048)
0.0356
(0.0079)
0.037
(0.0087)
0.0272
(0.009)

Total Debt between 200k and 249k	0.024
	(0.0098)
Total Debt above 250k	0.028
	(0.008)
Has used a Payday Loan service once in the past 12 months	0.2105
	(0.0407)
Has Used a Payday Loan Service more than once in the Past	
12 months	0.0985
	(0.0217)
Log(Population Weighted Interest Rate Caps)	-0.0053
	(0.0017)
White's Standard Errors Correction Applied	Y

Note: This table reports OLS estimation results for a linear probability model regression of various characteristics that may affect the probability of an individual declaring bankruptcy. Population weighted interest rate caps are used as an exogenous variable. Inclusion of certain variables that are statistically insignificant is based on economic value associated with the variable. Standard Errors are in parentheses.

The relationship of each independent variable to the dependent variable was in line with previous economic expectations, such as increasing education was negatively correlated with bankruptcy rates. Financial challenge independent variables were also in line with economic expectations, as having access to a credit card was negatively correlated with bankruptcy rates as well as variables dealing with financial struggles were positively correlated. Repeat payday borrowing was also positively correlated with bankruptcy rates indicating that individuals who enter into cycles of debt can find it difficult to exit. The impact of repeat borrowing was smaller than borrowing only once. This likely indicates that individuals who are unable to pay back the initial payday loan are forced out of the payday loan market to which they are more likely to declare bankruptcy. The fees attached to the repeat payday loans are significantly higher but the difference between these variables may indicate borrowers who are not at the extreme level of credit risk who pay the higher fees. Each independent variables impact on the dependent variable is explained in further detail within Table 6.

	Income between \$32,000 and \$55,000 is positively
	correlated with the probability of declaring bankruptcy but is
Annual income Is between 32k	only statistically significant at the 10% level of significance.
and 55k (INC32to55)	This can possibly be caused by a lack of credit alternatives for
	individuals within this income bracket.
Annual Income is between 56k and 80k (INC56to80)	Income between \$56,000 and \$80,000 is positively
	correlated with the probability of declaring bankruptcy but is
	statistically insignificant at all levels of significance.
	Income between \$80,000 and \$119,000 is negatively
	correlated with the probability of declaring bankruptcy and is
	statistically significant at the 5% level of significance. This
Annual Income is between 80k	suggests that controlling for other factors such as education,
and 119k (INC81to119)	once an individual's income reaches a certain point they are
	less likely to declare bankruptcy as they likely have enough
	income to live within their means.

Table 6: Variable Results Explanation (2nd Specification)

Annual Income is above 120k Income above \$120,000 is negatively correlated with the

(INC120up)	probability of declaring bankruptcy at the 5% level of
	significance.
Age between 25 and 34	
(AGE25to34)	
Age between 35 and 44	
(AGE35to44)	
Age between 45 and 54	All age brackets are positively correlated with bankruptcy
(AGE45to54)	rates at the 5% level of significance. However, the highest
Age between 55 and 59	positive correlation occurs within the age bracket of 45 to 54.
(AGE55to59)	This likely indicates a quadratic relationship between age and
Age between 60 and 64	bankruptcy rates.
(AGE60to64)	
Age between 65 and 69	
(AGE65to69)	
Age above 70 (AGE70up)	
	Having a college diploma is positively correlated with
	declaring bankruptcy at the 5% level of significance. This
	indicates that individuals with only a college education likely
	still lack enough proper financial literacy to manage their
Has College Diploma (COLLEGE)	finances appropriately. Additionally this can mean that it may
	be more difficult for these individuals to obtain higher levels
	of employment, which would provide higher levels of
	income.

	Having a university degree is negatively correlated with
	declaring bankruptcy but is statistically insignificant at all
	levels of significance. This indicates that individuals with a
Has University Degree (UNIDeg)	university likely centre at the margin for the probability of
	declaring bankruptcy.
	Having a graduate degree is negatively correlated with
Has Graduate Degree (Grad)	declaring bankruptcy and is statistically significant at the 5%
	level of significance.
	Having a credit card is negatively correlated with declaring
	bankruptcy and is statistically significant at the 5% level of
Has a Credit Card (CCard)	significance. This indicates that individuals who have access
	to another form of credit from payday loans do not have to
	enter this market.
	Struggling to maintain a hudget is positively correlated with
	Struggling to maintain a budget is positively correlated with
Has Struggled To Maintain a	declaring bankruptcy and is statistically significant at the 5%
Budget (BUDSTRG)	level of significance. This indicates that individuals who may
	suffer from forecasting problems and myopic time
	preferences are more likely to declare bankruptcy.

	bankruptcy.
Has a Late Fee on One Bill (LateFee1)	one bill to become past due are more likely to declare
	level of significance. This indicates that individuals who allow
	declaring bankruptcy and is statistically significant at the 5%
	Having a late fee on one bill is positively correlated with

	Having a late fee on more than one bill is positively
Has a Late Fee on More than One Bill (LateFee2)	correlated with declaring bankruptcy and is statistically
	significant at the 5% level of significance. This indicates that
	individuals who allow multiple bills to become past due are
	more likely to declare bankruptcy.

Total Debt Less than 50k

(DEBTLESS50)

Total Debt between 50k and 99k

(DEBT50to99)

Total Debt between 100k and

149k (DEBT100to149)

Total Debt between 150k and

199k (DEBT150to199)

Total Debt between 200k and

249k (DEBT200to249)

Total Debt above 250k

(DEBT250up)

All total debt brackets are positively correlated with declaring bankruptcy and are statistically significant at the 5% level of significance. The variable with the highest correlation to the probability of declaring bankruptcy was total debt between \$100,000 and \$149,000.

	Having used a payday loan service is positively correlated
Has used a Payday Loan service	with the probability of declaring bankruptcy at the 5% level
once in the past 12 months	of significance. This indicates that individuals who participate
(Payday1)	within the payday loans market are more likely to declare
	bankruptcy.
Has Used a Payday Loan Service	Having used a payday loan service multiple times is positively
more than once in the Past 12	correlated with the probability of declaring bankruptcy at the
months (ReppDay)	5% level of significance.
	Population weighted interest rate caps are negatively
	correlated with the probability of declaring bankruptcy at the
Log(Population Weighted	5% level of significance. This indicates that individuals at the
Interest Rate Caps)	margin are less likely to enter the payday loans market when
(Log(WLEGCAP))	prices increase. However, desperate borrowers will still
	suffer the higher probability of bankruptcy, as they have no
	alternatives.

4.7 Combined Specification Analysis

From the combination of the two specifications, I find no evidence that increased access to payday loans is beneficial for borrowers. My first specification indicates that as interest rates increase the supply of payday loans increases to include higher risk borrowers. Combined with the conclusions from the second specification that usage of payday loans increases the probability of declaring bankruptcy it is hard to distinctively establish any positive benefit. However, from the data that is available, lack of access to credit is also unable to be determined to be a better option for these borrowers. Many borrowers would rather pay significantly higher fees and run the risk of declaring bankruptcy than experience a number of negative effects from lack of access to credit. The probability of declaring bankruptcy from increased access to credit is positively correlated but rational borrowers may still prefer the added risk of bankruptcy to the negative welfare effect of having a vehicle repossessed or face eviction.

5. Conclusion

Utilizing political differences in payday loan regulation and legislation I investigate whether low or moderate-income individuals benefit from increased access to credit. The market for payday loans within Canada is one that is of particular interest, because for many of these borrowers this is the only source of credit available. Changes in legislative policy have a direct effect on a borrower's access to credit, which can translate into positive or negative economic effects. It shows a negative economic effect through the high costs associated with these loans and the tendencies for these borrowers to engage in habitual borrowing. It shows a positive economic effect through increased access to credit, which can provide some borrowers credit that they previously did not have access to.

Measuring the overall welfare contribution of payday loan access is difficult; instead I investigate a specific measure of welfare: the probability of declaring bankruptcy. This is partly due to a lack of data available to measure payday loan effects in Canada. I combine the results of this investigation with an investigation into the characteristics of payday loan borrowers. Combining the two specifications I am able to comment on changes in supply of borrowers based on changes in access to payday loans as well as the potential welfare effects that these changes can have. From this analysis, I believe there are recommendations for policy to possibly improve overall welfare of borrowers.

Two policy recommendations flow out of my analysis. First, to improve measurements of the impacts of payday lending within Canada, each province

should implement policy to track and share payday lending usage data. This would allow provincial governments to quantify the effects of payday lending operations better and create more effective policy. Second, due to the high probability of payday loan borrowers relying on regular payday loans to manage required expenses, changes to continuous borrowing policies are recommended, specifically allowance of longer payment schedules to pay off the payday loans. If legislation increases restrictions on interest rates, that may be counter-productive because it will lead to increased credit rationing, meaning more borrowers will be excluded from the market, and unable to obtain needed funds. If legislation reduces the percentage of take-home pay that payday operations are permitted to lend, that may not provide borrowers with sufficient funds needed to address a financial shock. As a result, this still pushes people out of the solution offered by payday operations. A third policy option is to impose a payment schedule that requires payday loans to be repaid evenly over two or more pay periods, thereby making the loan repayment more affordable. This should reduce the number of repeat loans required to meet routine expenses.

6. Appendix

This is the data usage license I obtained in order to access the various household surveys used for my specifications. All of this data was used for the purpose of my thesis and not for financial gain.

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DATA SUPPLIED: Canadian Financial Capability Survey PUMFs (2008 & 2014); Survey of Financial Security (1999, 2005, 2012); Survey of Labour and Income Dynamics (1993-2011)

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