The Impact of Payday Loans on Healthcare Choices & Physical Health

Achinteya Jayaram[1] and Hammad Shaikh[#]

[1]Pleasant Valley High School, Iowa
[#]Advisor

ABSTRACT

Healthcare economics and payday loans have been a significant challenge for the United States population for many years, with various papers finding broad connections between them. This paper focuses on one such connection: how payday loans impact the overall physical health of an individual. I have analyzed data from the National Longitudinal Surveys of Youth and the Payday Loans and Customer Service data source from Kaggle, and estimated regression models in order to find correlations between variables. Using this, I have found a direct connection between payday loans and healthcare choices: if people take out payday loans, they are more likely to be in a better state of physical health. Also, taking out a payday loan does not necessarily result in a visit to the doctor's office. In additional analysis, I find that racial minorities are most likely to take out payday loans. Lastly, I have highlighted the need for higher transparency around the fees/interest charged on payday loans.

Introduction

Health care costs have been a prevalent problem and a rising issue in the United States over the last few years. In the United States, generalized healthcare is not free for many. Most people have to pay a private insurance company, either through their work or individually, which in turn will cover a portion of their medical fees if the need arises.

Healthcare economics focuses on the broad choices that Americans make when it comes to healthcare, such as the number of times they should visit the doctor in a year. Nearly half of U.S. adults say they face difficulty in affording health care costs. About four in ten U.S. adults say they have delayed or gone without medical care in the last year due to cost. Dental services are the most common type of care adults report putting off due to cost. High health care costs disproportionately affect uninsured adults, Black and Hispanic adults, and those with lower incomes. Larger shares of U.S. adults in each of these groups report difficulty affording various types of care and delaying or forgoing medical care due to the cost. For example, at least six out of ten Black adults and Hispanic adults report difficulty affording health care costs compared to about four in ten White adults. Adults in households with annual incomes under $40,000 are more than three times as likely as adults in households with incomes over $90,000 to say it is difficult to afford their health care costs.[1]

Four in ten adults report having debt due to medical or dental bills including debts owed to credit cards, collections agencies, family and friends, banks, and other lenders to pay for their health care costs, with disproportionate shares of Black and Hispanic adults, women, parents, those with low incomes, and uninsured adults saying they have health care debt. A 2022 Kaiser Family Foundation (KFF) report found that people who already have debt due to medical or dental care are disproportionately likely to put off or skip medical care. Half of adults currently experiencing debt due to medical or dental bills say in the past year, cost has been a prohibition to getting the medical test or treatment that was recommended by a doctor.[2] One of these growing forms of debt is payday loans.

Payday loans in the United States are a form of non-collateral borrowing for financially stressed individuals with limited credit options. Nearly 12 million Americans take out, on average, $500 to $1000 in loans that are supposed to be paid back within two to four weeks, i.e., by the date of their next paycheck (Freeman 2015). If the borrowers are unable to repay the loan, the commitment "rolls over" and often causes "debt spirals", where the borrowers take out new loans to pay off previous ones, leading them to owe multiples of the principal in interest payments (Edmiston 2011). The cumulative costs of interest charges/fees on these payday loans result in the Annual Percentage Rate (APR) ranging between 300% to 600%. Unlike traditional forms of lending, payday lenders rarely conduct credit checks or evaluate one's ability to repay, and only require borrowers to show proof of identification, a bank account, and a source of earnings (Freeman 2015).

Payday lenders frequently target low-income, military, and minority communities, and are likely to be located mainly in African American and Latino neighborhoods (Li 2009). Payday lenders operate in 32 states today, while 18 states and Washington D.C either directly prohibit or cap rates through regulations. The Midwest has the highest percentage of payday loan users nationwide, with eight of the 12 states allowing payday lenders to operate with minimal restrictions (Pew 2022).

Clearly, the convergence of rising healthcare costs and the growing payday loan industry in the United States merit further investigation about the choices individuals and broader sections of U.S. demographics make when using payday loans, and whether taking out a payday loan impacts subsequent health outcomes. The main findings of this paper support this, as the regression variables find a positive correlation between payday loans and general health. With racial minorities, Black individuals have a much stronger relationship with these variables than Hispanic individuals.

The rest of the paper is organized as follows. The next section analyzes the existing literature to summarize key findings as well as gaps that I have tried to address through my research study. Section 3 describes the data from various sources, including the variables that are used in the context of the regression tables and graphs. Section 4 displays the said regressions and graphs, explain the results, and demonstrate how they support the hypothesis. Section 5 then concludes the paper and discusses avenues for future research.

Literature Review

There is extensive literature examining payday loans, individuals' financial health, and physical welfare. These papers can be divided into the following four categories: (1) Loans and Consumer Financial Health, which summarizes how payday loans directly impact financial health, (2) Financial Investments and Health, which explores how different states of physical health impact financial health, (3) The Economics of Payday Lending, which examines the factors driving individuals and families to take out payday loans, and (4) Overview of the Payday Loan Industry, which analyzes the benefits and challenges with payday loans and proposes potential solutions.

Under the first category of Loans and Consumer Financial Health, "Payday loans and consumer financial health" by Bhutta (2014) employs data on credit card record, annual census ZIP code business patterns data (ZCBP), and zipcode socioeconomics characteristics for various payday store locations. Bhutta adds to this literature by using individual-level credit record panel data, and exploiting geographic and temporal variation in access to payday loans arising from state lending laws, to study the effect of payday loans on financial health. Bhutta runs regressions using a sample of individuals most likely to use payday loans, and then runs the analysis on the subsample of individuals living in ZIP codes where payday lenders actually operate, or would operate were they not prohibited by state law. He tracks changes in financial health of people in states over time and

those taking advantage of law changes related to payday loans. The main finding of his study is that the availability of payday loans does not negatively impact financial health (i.e., credit score, new delinquencies). Another paper, "Portfolio Choice and Health Status" by Rosen (2004), employs data from the biennial Health and Research Surveys between 1992-1998 to look at households with people older than 51 years of age as of 1992. It categorizes their portfolios into different asset classes of safe, risky, and medium. The survey includes detailed information on health, cognitive status, and a variety of economic and demographic variables. The main findings are that physical health is a significant predictor of both the probability of owning different types of financial assets and the share of financial wealth held in each asset category. Households in poor health are less likely to hold risky financial assets, other factors (including the level of total wealth) remaining the same, and instead hold a larger share in safe assets. No evidence is found that the relationship between health status and portfolio allocation is driven by ''third variables'' that simultaneously affect health and financial decisions. "The Real Costs of Credit Access: Evidence from the Payday Lending Market" by Melzer (2011) uses geographic differences in the availability of payday loans to estimate the real effects of credit access among low-income households due to lack of money, such as the delay of needed health care; difficulty paying mortgage, rent and utilities bills; household food insecurity; and moving out of one's home due to financial difficulties. The paper presents empirical evidence that individuals who receive payday loans are likely to fall into further personal bankruptcy and find no proof that such loans alleviate poverty or economic hardship.

Under the second category of Financial Investments and Health, "Portfolio Choices and Mental Health" by Bogan (2013) uses data from the biennial waves of the Health and Retirement Survey (HRS) conducted between 1996-2008. It studies three groups of HRS households: households headed by single men, households headed by single women, and households of couples (where both partners' mental health is observed). The authors studied how mental health alters cognitive abilities, which would affect investment decisions. They analyzed the overall effect of cognitive limitations, memory complaints, depression, and psychiatric diagnoses (such as depression, anxiety, phobias, alcoholism, drug addiction, or obsessive compulsive disorder) on the probability of owning different types of financial assets and the share of financial wealth held in each asset category. They found that mental health may affect one's ability to regulate mood and emotion that could affect a person's ability to evaluate investment opportunities. They also reported that mental health may alter an individual's degree of risk aversion that has been shown to be an important determinant of portfolio choice; for example, an individual's motivation to invest for future returns. Finally, having any health shock, physical or mental, reduces productivity and increases medical spending, thereby reducing the availability of funds to invest.

Under the third category of The Economics of Payday Lending, "Healthy Bodies and Thick Wallets: The Dual Relation Between Health and Economic Status" by Smith (1999) discusses that poor health may restrict a family's capacity to earn income or to accumulate assets by limiting work or by raising medical expenses. It employs data from the National Center for Health Statistics, while calculating the median wealth arrayed against the head of household's 1984 self-reported general health status. The main findings show, first, the size of the association between health and one prominent economic status measure: household wealth. Next, it deals with how health influences economic status by sketching out reasons why health may alter household savings (and eventually wealth) and then providing estimates of the empirical magnitude of these effects. Lastly, it shifts attention to the other pathway—the links between economic status and health— and summarizes major controversies and evidence surrounding these issues.

Under the fourth category of Overview of the Payday Loan Industry, a study by Bourke (2012) reports that most of the 12 million payday loan users are 25-44 years old, are likely to be without a full college education, and earn less than $40,000 annually. African Americans and Hispanics are more likely – 3x and 1.5x respectively – than whites to take out a payday loan. A study by Jackson says although a payday loan is advertised as a short-term solution, an average borrower takes five months to pay off their loans as 80% of these loans are rolled over within the two-week timeframe.

Across these four categories, the main findings can be summarized as follows: there is general agreement that physical and mental health play a role in owning different types of financial assets, as well as the magnitude of total assets accumulation. However, there is contradictory evidence presented on the impact payday loans (which could be a tool for healthcare choices) have on an individual's financial health. Finally, this existing literature does not directly connect or present empirical evidence between payday loans and health care economics to an individual's general state of health. Also, these studies do not analyze the relative levels of satisfaction or complaints amongst different loan products. The next section will use data from various sources in order to find the relationship between payday loans/health care choices and state of physical health, as well as quantify satisfaction levels with loan products.

Data

To analyze the relationship between payday loans/healthcare economics and physical health, I have used data from the National Longitudinal Surveys of Youth (NLSY), specifically the NLSY97 1997-2019. The NLSY tracks various life experiences of American men and women over many years; the respondents in the NLSY97 survey were born between the years 1980-1984, which means they were between the ages of 17-24 when they initially answered in 1997. I also used the Payday Loans and Customer Service data gathered by the US Consumer Finance Complaints to analyze satisfaction levels with different loan products, such as payday loans. To better examine the role payday loans play, I use 2015 data from the NLSY to avoid outlier effects from the 2008 housing crisis and 2020 COVID-19 pandemic. The variables are run in a regression to track the correlation between them.

Payday Loans and Customer Service Dataset

The Payday Loans and Customer Service dataset from the US Consumer Finance Complaints uses around 500,000 data points from 2016 to answer questions regarding payday loans such as: How many complaints are for payday loans compared to other financial products? What issues do people have with payday loans? The frequency distribution of complaints by product is illustrated in Figure 1and the frequency distribution of issues with payday loans is illustrated in Figure 2.

Only 3,877 payday loan complaints are registered compared to 186,475 mortgage complaints. What does this mean? The complaint frequency appears to be consistent with the relatively small amount taken out for payday loans, as well as the ease of obtaining these loans versus mortgages and other loan products.
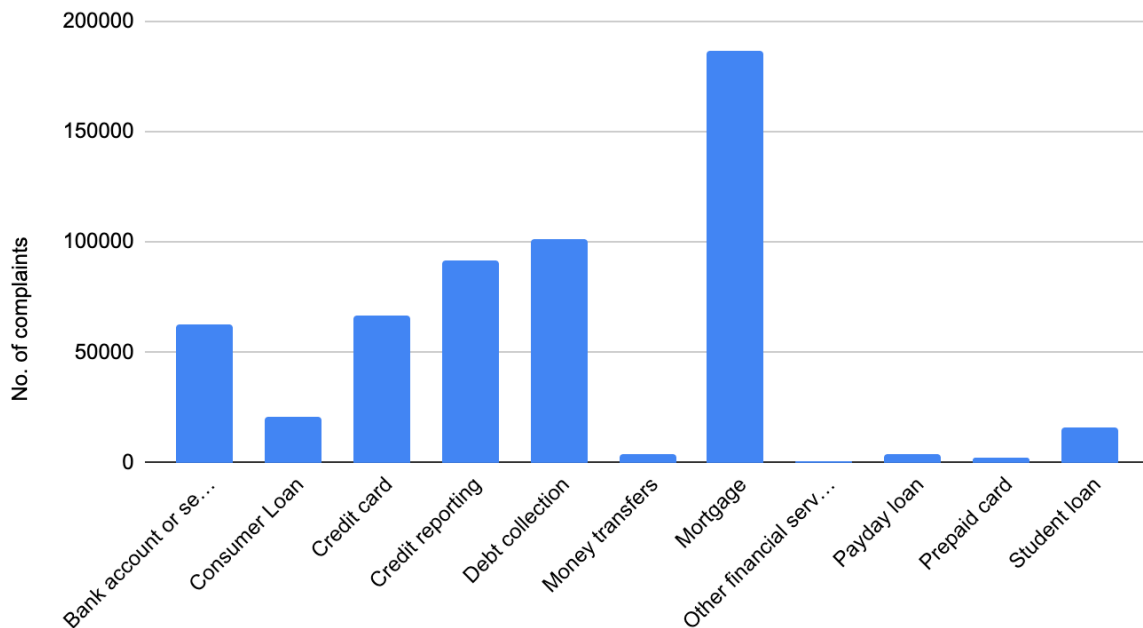
Complaints by Product

Figure 1. Shows the complaints by loan product. As shown, payday loans seem to be at the bottom of the list in terms of overall complaints, with a little under 3900 complaints.

Data retrieved from Kaggle: \url{https://www.kaggle.com/code/tmorrison/payday-loans-and-customer-service/report

The biggest complaint related to payday loans is being charged unexpected fees or interest. The main issues with payday loans are the critically high Annual Percentage Rate (APR) charges that can balloon up to 300-600% of the original loan when the borrowers do not pay back on time.
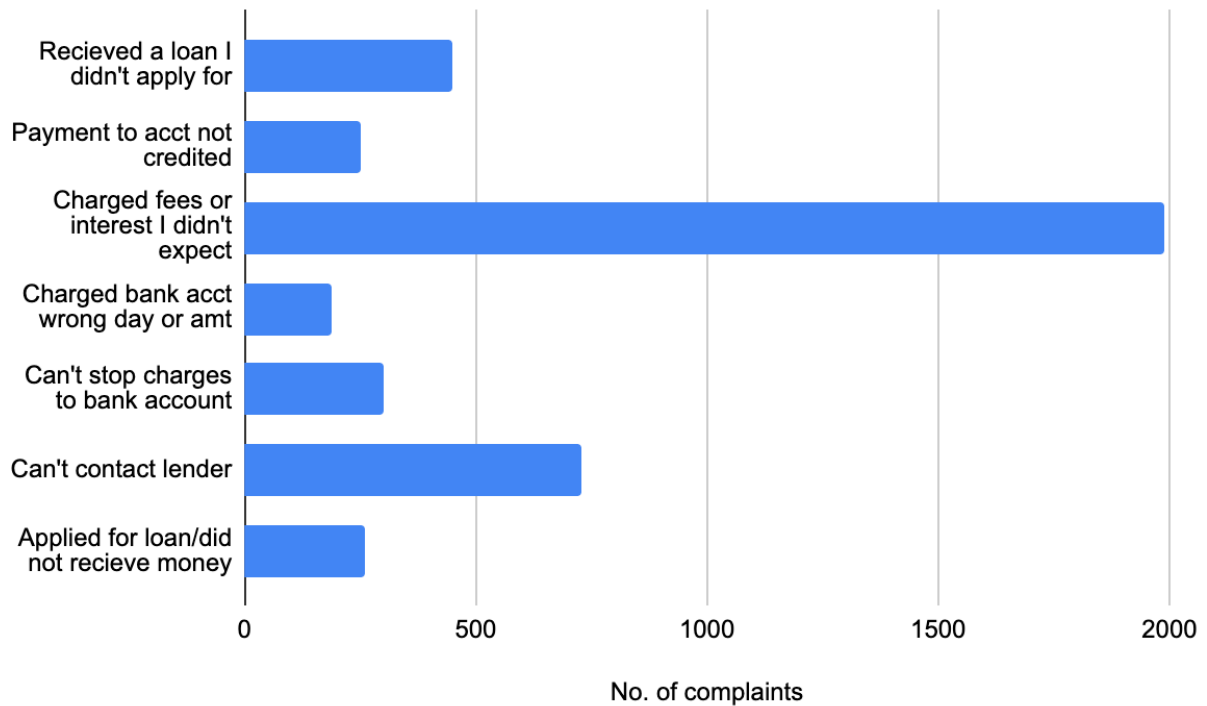
Figure 2: Shows the main issues with payday loans. As shown, the main problem with payday loans is the fees and interest that come with the quick pay-back period, which can trap people in debt for many months.

Many people are not aware of the additional fees or interest that accompany paying back a payday loan. People often take payday loans out as they are a convenient way of quick cash (only an ID and proof of income is required for many) and don't realize how much in fees they accumulate until it is too late.

National Longitudinal Surveys of Youth

Each respondent in the NLSY97 survey was asked for their birth date, yearly income, region of the country they lived in, gender, citizenship status, racial identity, general state of health, if they took out a payday loan or not in the past year, and how many times they went to the doctor's office for a checkup in the last year. The 2015 specific data was then compiled for the analysis.

The summary statistics of the variables from the NLSY used in the regression analysis are shown in Table 1.

Table 1: The variables used most often were GeneralHealth, which was the overall physical health of an individual, HadCheckup, which asked how many times an individual had gone to the doctor's office in the last year, PaydayLoan, which was if an individual had taken a payday loan out in the last year, and Black and Hispanic, which segmented the racial identity of the sample set.

	No. of observations	Mean	Standard deviation	Min	25%	50%	75%	Max
Age of mom at birth	8267.0	22.74	4.8979	1.0	19.0	22.0	26.0	63.0

Yearly income (in $)	4987.0	44181.51	35647.3434	0.0	22000.0	37000.0	56000.0	212641.0
Weight in pounds	6896.0	188.97	50.4087	7.0	153.0	180.0	215.0	510.0
General health (out of 5)	7092.0	2.36	0.9994	1.0	2.0	2.0	3.0	5.0
Limit paid at job because of health	7080.0	0.08	0.2744	0.0	0.0	0.0	0.0	1.0
No. of times injured in past year	7079.0	1.76	1.2719	1.0	1.0	1.0	2.0	5.0
Had checkup in past year	7087.0	0.64	0.4796	0.0	0.0	1.0	1.0	1.0
I(Female)	8984.0	0.49	0.4998	0.0	0.0	0.0	1.0	1.0
I(American)	8984.0	0.76	0.4242	0.0	1.0	1.0	1.0	1.0
I(Payday loan)	7089.0	0.02	0.1457	0.0	0.0	0.0	0.0	1.0
I(Black)	8984.0	0.26	0.4386	0.0	0.0	1.0	1.0	1.0
I(Hispanic)	8984.0	0.21	0.4084	0.0	0.0	0.0	0.0	1.0

Table 1 presents a set of summary statistics related to various aspects of an individual's life. People who took this survey had an average yearly income of about $44,000. They weighed just above the national average at 188 pounds, and were in a generally lower state of health at 2.36/5. On average, they were injured about 1.75 times in the last year, but only went to the doctor 64% of the time. The individuals taking the survey were evenly split gender wise (49% female), 75% had an American citizenship, 26% were Black, and 21% were Hispanic.

Empirical Analysis and Results

To measure if payday loans are affected by general health and minority racial status, I estimated the following regression:

$$TakePaydayLoan_i = \beta_0 + \beta_1 * GeneralHealth_i + \beta_3 * Black_i + \beta_4 * Hispanic_i + X'\gamma + \in_i$$

where the main coefficient of interest is $\beta 1$; TakePaydayLoan denotes if an individual took out a payday loan out or not; GeneralHealth evaluates the state of an individual's health, and Black and Hispanic represent if an individual is of a particular racial group. Control variables in X include parents' education, yearly income, gender, and others. This regression equation applies to both Figures 3 and 4.

Dep. Variable:	I(Payday Loan)	R-squared:	0.007
Model:	OLS	Adj. R-squared:	0.007
Method:	Least Squares	F-statistic:	17.20
No. Observations:	7082	Prob (F-statistic):	4.00e-11

	coef	std err	t	P> |t|	[0.025	0.975]
Intercept	-0.0073	0.005	-1.565	0.118	-0.016	0.002
General Health (out of 5)	0.0108	0.002	6.241	0.000	0.007	0.014
I(Black)	0.0127	0.004	3.110	0.002	0.005	0.021
I(Hispanic)	-0.0006	0.004	-0.130	0.897	-0.009	0.008

Figure 3: Investigation of whether general health and minority racial status are significant predictors for taking out a payday loan on a national scale.

The results show that a person's general health and being Black are statistically significant predictors of taking out a payday loan. I find that on average, an increment in general health (on a scale of 1-5) increases the propensity to take out a payday loan by 1.1 percentage points, controlling for minority racial status (p-value < 0.01). Additionally, I find that individuals who are Black are 1.3 percentage points more likely to take out a payday loan, controlling for their general health (p-value < 0.05). However, I do not find any evidence that Hispanic individuals have a higher propensity to take out a payday loan than non-Hispanic individuals (p-value > 0.1), controlling for general health.

Dep. Variable:	I(Payday Loan)	R-squared:		0.010	
Model:	OLS	Adj. R-squared:		0.008	
Method:	Least Squares	F-statistic:		5.563	
No. Observations:	1609	Prob (F-statistic):		0.000851	

	coef	std err	t	P> |t|	[0.025	0.975]
Intercept	-0.0109	0.010	-1.134	0.257	-0.030	0.008
General Health (out of 5)	0.0122	0.004	3.238	0.001	0.005	0.020
I(Black)	0.0194	0.009	2.157	0.031	0.002	0.037
I(Hispanic)	0.0035	0.014	0.255	0.799	-0.024	0.031

Figure 4: Investigation of whether general health and minority racial status are significant predictors for taking out a payday loan in the Midwest, i.e., if there are any differences from the dependencies at the national level.

The results show that a person's general health and being Black are statistically significant predictors of taking out a payday loan. I find that on average, an increment in general health (out of 5) increases the propensity to take out a payday loan by 1.2 percentage points, controlling for minority racial status (p-value < 0.01). Additionally, I find that individuals who are Black are 1.9 percentage points more likely to take out a payday loan, controlling for their general health (p-value < 0.05). However, I do not find any evidence that Hispanic individuals have a higher propensity to take out a payday loan than non-Hispanic individuals (p-value > 0.1), controlling for general health. In summary, at both the national level and in the Midwest (which amounts for a higher percent of payday loan users), I find that a person's general health and being black increase the likelihood of taking out a payday loan.

Next, to measure if taking out a payday loan and an individual's minority racial status affects the choice of going to the doctor's office, I estimated the following regression:

$$HavingCheckup_i = \alpha 0 + \alpha 1 * PaydayLoan_i + \alpha 3 * Black_i + \alpha 4 * Hispanic_i + X'\gamma + \in_i$$

where the main coefficient of interest is $\alpha 1$; HavingCheckup denotes if an individual went to the doctor's office or not; PaydayLoan evaluates if an individual took out a payday loan or not, and Black and Hispanic represent if an individual is of a particular racial group. Control variables in X include parents' education, yearly income, gender, and others. This regression equation applies to both Figures 5 and 6.

	coef	std err	t	P> |t|	[0.025	0.975]
Dep. Variable:	I(Had Doctor Checkup)			R-squared:		0.009
Model:	OLS			Adj. R-squared:		0.008
Method:	Least Squares			F-statistic:		21.05
No. Observations:	7076			Prob (F-statistic):		1.43e-13
Intercept	0.6108	0.008	76.493	0.000	0.595	0.626
I(Payday Loan)	-0.0447	0.039	-1.149	0.251	-0.121	0.032
I(Black)	0.1037	0.013	7.729	0.000	0.077	0.130
I(Hispanic)	0.0135	0.015	0.926	0.355	-0.015	0.042

Figure 5: Investigation of whether taking out payday loans and minority racial status are significant predictors for going to the doctor's office on a national scale.

The results show that taking a payday loan out is not a significant predictor, but being Black is for going to the doctor's office. I find that on average, a decrement in payday loans (out of 5) decreases the propensity to go to the doctor's office by 4.5 percentage points, controlling for minority racial status (p-value > 0.1). However, the relationship between a payday loan and a checkup are statistically insignificant. Additionally, I find that individuals who are Black are 0.4 percentage points more likely to go to the doctor, controlling for taking out payday loans (p-value < 0.05). However, I do not find any evidence that Hispanic individuals have a higher propensity for going to the doctor than non-Hispanic individuals (p-value > 0.1), controlling for taking out payday loans.

	coef	std err	t	P> |t|	[0.025	0.975]
Intercept	0.6184	0.014	43.367	0.000	0.590	0.646
I(Payday Loan)	-0.0827	0.081	-1.027	0.305	-0.241	0.075
I(Black)	0.1208	0.029	4.160	0.000	0.064	0.178
I(Hispanic)	0.0076	0.045	0.168	0.866	-0.081	0.096

Dep. Variable: I(Had Doctor Checkup) — R-squared: 0.011
Model: OLS — Adj. R-squared: 0.009
Method: Least Squares — F-statistic: 6.043
No. Observations: 1609 — Prob (F-statistic): 0.000433

Figure 6: Investigation of whether taking out payday loans and minority racial status are significant predictors for going to the doctor's office in the Midwest.

The results show that taking a payday loan out is not a significant predictor, but being Black is for going to the doctor's office. I find that on average, a decrement in payday loans (out of 5) decreases the propensity to go to the doctor's office by 8.3 percentage points, controlling for minority racial status (p-value > 0.1). Additionally, I find that individuals who are Black are 2.1 percentage points more likely to go to the doctor's, controlling for taking out payday loans (p-value < 0.05). However, I do not find any evidence that Hispanic individuals have a higher propensity for going to the doctor than non-Hispanic individuals (p-value > 0.1), controlling for taking out payday loans.

Discussion of Limitations

In both the data sets, I was only able to observe the binary choice of taking out a payday loan. I could not observe the amount of money taken out, and could not see whether the loan was allocated towards health care choices. Since my data were all "survey" data, there could be measurement errors since people may have made mistakes filling out the survey. There is also the issue of correlation versus causation. I tried to get at causality using multiple regressions by controlling for other factors. But, there are always going to be relevant factors that you cannot control for in the models. Experimental data would be ideal, but it is logistically and potentially unethical to randomize loans to people for such an experiment.

Conclusion

Payday loans and healthcare economics have both posed problems for individuals in the United States over many years. I find that payday loan borrowers are surprised by the fees/interest charged and there needs to be higher upfront transparency for this important driver of an individual's financial health. Various works of literature have connected payday loans to poor financial health, or financial health to physical health, but none have

found the connection between payday loans and physical health and/or healthcare choices. Through the regression analysis, I have found that there is a direct correlation in taking out payday loans and the general health of an individual. In particular, I find that an individual in good physical health is more likely to take out payday loans possibly to either continue to remain in good health, or to pay for other general household expenses such as utilities. I have also found that taking out a payday loan does not necessarily increase the odds of visiting the doctor's office, possibly because they use these loans for other household priorities. Amongst racial minorities, Black individuals are more likely to take out payday loans and go to the doctor's office than Hispanics. Finally, findings for the Midwest regarding payday loans and connections to physical health and doctor's visits are similar to those at the national level. For future work, more regressions can be conducted using other variables to specifically examine how payday loans and general health affect individuals' lives, such as education levels, other health variables (such as weight), gender, and more.

Acknowledgments

References

Bhutta, Neil (2014) "Payday loans and consumer financial health," Journal of Banking & Finance, 47, 230–242.

Bogan, Vicki L and Angela R Fertig (2013) "Portfolio choice and mental health," Review of Finance, 17 (3), 955–992.

Bourke, Nick, Alex Horowitz, and Tara Roche (2012) "Payday lending in Amer- ica: Who borrows, where they borrow, and why," Washington, DC: Pew Charitable Trusts. http://www. pewtrusts. org/uploadedFiles/wwwpewtrustsorg/Reports/Safe Small Dollar Loans/LOANS Payday% 20Lending% 20Report% 20Final web. pdf.

Edmiston, Kelly D (2011) "Could restrictions on payday lending hurt consumers?" Economic Review-Federal Reserve Bank of Kansas City, 63.

Freeman, Allison and Lucy Gorham (2015) "Literature Review on Payday Lending: Assessing its Harms and Benefits," Prepared for the Center for Responsible Lending by the UNC Center for Community Capital.

Jackson, Tom (2020) "How Payday Loans Work: Interest Rates, Fees and Costs," Library Catalog: www. incharge. org.

Li, Wei, Leslie Parrish, Keith S Ernst, and Delvin Davis (2009) "Predatory profiling: The role of race and ethnicity in the location of payday lenders in California," Available at SSRN 1531333.

Melzer, Brian T (2011) "The real costs of credit access: Evidence from the payday lending market," The Quarterly Journal of Economics, 126 (1), 517–555.

"Payday Loans Cost 4 Times More in States with Few Consumer Protections." Pew.org, 5 Apr. 2022.

Rosen, Harvey S and Stephen Wu (2004) "Portfolio choice and health status," Journal of Financial Economics, 72 (3), 457–484.

Smith, James P (1999) "Healthy bodies and thick wallets: the dual relation between health and economic status," Journal of Economic perspectives, 13 (2), 145–166.