

Do Consumers Need More Protection from Small-Dollar Lenders? Historical Evidence and a Roadmap for Future Research

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Abstract

In recent years, small-dollar credit products have received considerable attention from pundits, commentators, reformers, legislators, and regulators. Much of this attention involves a debate over the proper policy response to borrowers' experiences with these products. In this paper, we summarize the current debate and discuss the contributions of scholars that inform the debate with regard to four small-dollar credit products: pawn loans, vehicle title loans, payday loans, and cash installment loans from finance companies. In our review of the literature, we underscore that pawn, vehicle title, payday, and cash installment borrowers fit the description of those whom consumer credit models predict benefit from these products. Moreover, many studies find that consumer use of small-dollar credit products is, at worst, generally innocuous, though there are findings of heterogeneity in borrowers' experiences. This heterogeneity is a source of the disagreement surrounding these credit products and a source of difficulty in crafting the proper policy response.

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I. INTRODUCTION

Millions of American consumers borrow billions of dollars each year from pawn, vehicle title, payday, and small-dollar cash installment lenders.¹ These loans carry high finance charges relative to loan size, and are generally for short periods of time. The borrowers often have an urgent need for funds, but limited ability to repay and few alternatives. The relatively high finance charges and the difficult circumstances of the borrowers have attracted the attention of many pundits, commentators, reformers, legislators, and regulators. A significant portion of the attention is devoted to policy debate regarding if, and how, policy makers should regulate these credit products.

At the heart of the policy debate is widespread disagreement over whether these products are helpful or harmful to borrowers, and more specifically, why some borrowers have poorer outcomes than others. This disagreement leads to additional questions about whether some borrowers make systematic mistakes in their understanding of small-dollar credit products, the alternatives to these credit products, or their own future behavior. The purpose of this paper is to introduce new generations of scholars and policymakers to this policy debate, present an economic model by which to consider it, and summarize the existing literature that attempts to resolve it with respect to pawn, vehicle title, payday, and cash installment credit.

This paper serves as a springboard from which scholars and policymakers can jump into the academic literature surrounding these products and learn about the workings of these four small-dollar credit products. We describe the historical evolution of these products, the users of these products, and the empirical findings relevant to the current policy debates. In so doing, we

¹ \$74 billion in 2016. Source: Center for Financial Services Innovation (CFSI) December 2017 Report. According to the 2017 FDIC Unbanked/Underbanked Supplement to the CPS, 1.7 percent of all households used payday loans, 1.4 percent of all households used pawnshop loans, and 1.4 percent of all households used vehicle title loans in 2017.

summarize large parts of the academic literature for each product, and identify some unresolved questions for further research.

The remainder of the paper is organized as follows. First, we provide a short description of these credit products and the current issues in the debate surrounding them. For readers who are unfamiliar with pawn, vehicle title, payday, and cash installment loans, we recommend Appendix A of this paper and Miller (2018) for more detailed descriptions of these credit products. After the description of the products and the policy debate surrounding them, we discuss the historical evolution of these products with an emphasis on the historical issues relevant to the current debate. We then discuss economic models of consumer credit decisions, emphasizing the decision processes assumed by economic models and deviations thereof. We move on to present evidence both for and against these theories of consumer behavior. Finally, we discuss the current regulatory environment of these products and highlight hypotheses on which future researchers should focus to shed light on the debate.

II. A Brief Description of the Products and the Current Debate

Small dollar credit products typically involve straightforward transactions. In a pawn transaction, for example, the consumer exchanges possession of a tangible item to the pawnbroker for cash (typically around \$100-150 to be repaid in one month). At the end of the agreed upon term, the consumer can extend the length of time to repay the loan by paying a fee, redeem the pawned item by paying a fee in addition to the sum originally advanced by the pawnbroker, or the borrower can simply abandon the item. Vehicle title loans are similar to a pawn loan. A consumer pledges the title to a vehicle for cash from the title lender. The loan amount averages about \$1,000, to be repaid in one month, and the consumer has the same three

options facing consumers who deliver an item to a pawnbroker. But, unlike a pawn transaction, the vehicle remains in the consumer's possession. In both pawn and vehicle title transactions, borrowers pledge current *wealth* stored in the value of the collateral.

Payday and cash installment loans are unsecured loans allowing the borrower to pledge future *income*, rather than current *wealth*. In a typical payday loan, a borrower writes a check payable to the lender in exchange for cash (typically around \$375). The lender agrees not to cash the check until the date specified in the loan agreement.² Cash installment loans are small, closed-end cash loans from finance companies (\$1,000 on average to be repaid in six months to one year). Unlike pawn, vehicle title, and payday loans, cash installment loans are repaid in periodic, equal payments. These payments consist of interest and an amount that reduces the principal owed. The borrower's payment performance is commonly reported to mainstream credit bureaus.³

-- Insert Table 1 About Here --

Pawn, vehicle title, payday, and cash installment loans, which are the subject of this study, are the primary sources for small, short-term cash loans available in the market today.⁴

² In most cases, a payday borrower authorizes the lender to initiate an automated clearing house (ACH) debit of her checking account for the amount due. The amount owed is debited from the borrower's account upon maturity of the loan if the borrower does not redeem the loan in cash prior to its maturity date.

³ Johnson and Johnson (1998) report an average pawn loan size of \$110 in today's dollars. The National Pawnbrokers website states that the average pawn transaction is for \$150. A 2015 Pew Charitable Trusts report states that the typical vehicle title loan amount is for \$1,000. About half the cash installment loans in the data discussed by Durkin, Elliehausen, and Hwang (2017) had maturities in the 13-24-month range. Half the loans were made for amounts less than \$1,000, and three-fourths of the loans were made for amounts less than \$2,000. According to nonPrime101, the median online payday loan size is \$400, compared to a median loan size of \$350 for storefront payday loans.

⁴ In Appendix A, we describe variations of these products like vehicle and payday installment loans. Small-dollar consumer credit is also now available through mobile applications, like *Earnin* and *Activehours*. Durkin et al. (2014) also includes discussions of refund anticipation loans and subprime credit cards. Tax refund anticipation loans have largely disappeared because of faster tax refund processing and bank regulatory agency supervisory guidelines discouraging such loans. The rent-to-own product is an operating lease with a purchase option, not credit. However, after making a specified number of payments, the consumer owns the item. For further discussion of these products, see Durkin et al. (2014), chapter 8. Consumer litigation funding is another relatively new and innovative form of consumer credit, but the principal is often larger than those of the small-dollar consumer credit products discussed in this paper.

Yet, as shown in Table 1, they compose only a small fraction of the consumer credit originated in the United States each year.⁵ For comparison, in 2017, lenders originated \$406 billion of consumer credit through credit cards, \$585 billion of consumer credit through automobile loans, \$135 billion of consumer credit through student loans, but only \$75 billion in small-dollar credit products.⁶ This relatively small market share is unsurprising given that these products are, by definition, “small-dollar” loans. Still, the small market share does not belie their importance to the millions of Americans that use these products each year. Many of these users live from paycheck-to-paycheck and have insufficient discretionary income or liquid assets to absorb a financial shock—stemming either from an income disruption or unexpected expense. Moreover, these users often find it difficult, or impossible, to borrow from mainstream lenders.⁷

Despite the small size of pawn, vehicle title, payday, and cash installment loans, these products receive a considerable amount of critical attention from policy makers, consumer advocates, and scholars. Critics of these products argue that urgent need makes users vulnerable to accepting contract terms that can cause financial harm. Critics point to the high annual

⁵ The term “consumer credit” includes all forms of non-business loans not collateralized by real estate or specific financial assets. Modern forms of consumer credit include credit cards, student loans, direct loans, sales-financing of automobiles and consumer durables, and personal loans (a category that includes small installment loans). Pawn, vehicle title, and payday loans are also consumer credit.

⁶ Data for small-dollar debt is available from the Center for Financial Services Innovation (CFSI), December 2017 Report. Data for credit card debt, automobile debt, and student loan debt is available from the CFPB at <https://www.consumerfinance.gov/data-research/consumer-credit-trends/>.

⁷ See the data presented in Table 3 discussing the credit experiences of small-dollar credit users using data from the 2015 National Financial Capability Study by the FINRA Investor Education Foundation in consultation with the U.S. Department of the Treasury and President Obama’s Advisory Council on Financial Capability. Small-dollar credit borrowers are more likely than those who do not use small-dollar credit to carry balances on credit cards, pay fees associated with borrowing, be rejected for loans, and not apply for mainstream credit for fear of rejection. See similar claims made about small-dollar borrowers on page 2 of the Consumer Financial Protection Bureau’s final rule for payday, vehicle title, and certain high-cost installment loans at https://files.consumerfinance.gov/f/documents/201710_cfpb_final-rule_payday-loans-rule.pdf. Miller (2016) claims payday loans are used most frequently by credit constrained consumers with few other borrowing opportunities. Webster (2012) lists a variety of sources reporting the credit constraints and credit needs of small-dollar borrowers.

percentage rates (APRs) on small-dollar loans, a consequence of the finance charges on these loans being large relative to the loan amount.⁸

Critics of payday loans contend that repaying the principal and relatively large finance charge on the next payday (commonly in about two weeks from loan origination) is difficult for consumers with little discretionary income in their budgets (see Pew 2012 and Center for Responsible Lending 2013, for examples). In such cases, borrowers might roll over the loan. That is, they pay an additional finance charge with little or no reduction in principal in order to extend the due date of the loan. Borrowers might roll over their payday loans several times, each time paying a finance charge, before repaying the loan (or defaulting).⁹ In these cases, the cost of the payday loan turns out to be far higher than initially anticipated; and in cases of many rollovers, the finance charge can even exceed the amount of the initial loan. In sum, some borrowers "... find themselves unable to meet their budgetary needs on the next payday, take additional loans, and get caught up in a never-ending cycle of high fees and interest." (Schaaf 2001, p. 346)

Similar concerns are expressed for other small-dollar credit products. Like payday loans, single-payment vehicle title loans and pawn loans might be difficult for borrowers to repay when the loan matures. Small installment loans might initially be easier to repay. To the extent that small installment loans are renewed, this action suggests to critics that these borrowers pay additional finance charges and remain indebted longer than expected.

⁸ See, for example, the claims of Center for Responsible Lending (2013) that high APRs on payday loans contribute to the creation of a "debt treadmill" for borrowers and the concerns of Pew (2012) that such high APRs are not a viable solution for cash constrained borrowers.

⁹ In addition, a borrower might incur overdraft charges if the payday lender attempts to cash the borrower's check to obtain repayment and the borrower does not have sufficient funds in the account. Frequent overdrafts can jeopardize continued access to a checking account.

Critics further argue that consumers are ill-equipped to make decisions on high-rate credit use: borrowers generally are not aware of the APRs for small-dollar products and are, therefore, not able to evaluate alternatives to these credit products. Critics also contend that that payday loan borrowers are overly optimistic about their ability to repay the debt: when they are deciding to obtain a payday loan, borrowers expect to pay off their loans faster than the actual time it takes them to repay the loan. Critics argue that, as a result, these borrowers underestimate the cost of using small-dollar high-rate credit to satisfy a financial need.

As an example of the claims of the critics, consider the Military Lending Act in 2006, which placed a federal cap of 36% APR on loan rates to military personnel and their families. The Department of Defense report claims that these “predatory lenders [pawn, vehicle title, payday, and small-dollar cash installment lenders] seek out young and financially inexperienced borrowers,” make loans based “not on the borrower’s ability to repay,” “obfuscate the comparative cost of their product with other options available to the borrower,” and “encourage extensions through refinancing and loan flipping” (Department of Defense 2006, p. 4).¹⁰ Further, they claim that “predatory lending undermines military readiness” and that education is not sufficient to protect service members from the practices of small-dollar lenders (Department of Defense 2006, p. 9).

Similarly, in a 2018 rule for payday, vehicle title, and certain installment lenders (which has since been reversed), the Consumer Financial Protection Bureau (CFPB) states, “The Bureau is concerned that lenders that make covered short-term loans have developed business models... failing to assess consumers’ ability to repay their loans according to their terms” (Consumer Financial Protection Bureau 2018, p. 3).

¹⁰ See the Report on Predatory Lending Practices Directed at Members of the Armed Forces and Their Dependents provided by the Department of Defense at https://archive.defense.gov/pubs/pdfs/Report_to_Congress_final.pdf.

In a 2012 report on payday lending, The Pew Charitable Trusts (Pew) states that their findings “raise serious concerns about the current market’s ability to provide clear information that enables consumers to make informed decisions” (The Pew Charitable Trusts 2012, p. 2).¹¹ Similarly, a 2015 Pew report on vehicle title lending claims, “payments exceed most title loan borrowers’ ability to repay – so the large majority of loans in this market are renewals” (The Pew Charitable Trusts 2015, p. 1).

The small-dollar credit industry does not dispute that finance charges are high relative to the amount borrowed. To profit from making these small-dollar loans, the finance charge relative to the amount borrowed must be high. Larger, long-term loans with lower relative finance charges are not comparable to small-dollar credit products, they argue (Webster 2012, Miller 2016). Larger, long-term loans have lower interest rates than small-dollar high-rate products, but the dollar amount of their finance charges is significantly greater. Supporters of small-dollar credit products point out that consumers who live from paycheck-to-paycheck face some hard choices when they experience an income or expense shock. For example, consumers might be faced with other costly outcomes, such as overdraft fees, credit card late fees, utility reconnect fees, and non-sufficient funds (NSF) and merchant bad-check fees. These costs are generally stated in dollars. Industry contends that the finance charge is the relevant price of these products, not the APR. They argue that borrowers are keenly aware of the finance charge and can readily compare the dollar cost of the finance charge with the dollar costs of alternatives. In addition, they point out that typical payday loan fees are smaller than overdraft fees, credit card late fees, utility reconnect fees, and NSF and merchant bad-check fees.

¹¹ The Pew Charitable Trusts published a series of reports titled “Payday Lending in America” available at <https://www.pewtrusts.org/en/research-and-analysis/articles/2014/12/payday-lending-in-america>.

Regarding payday loan rollovers, industry cites survey evidence suggesting that many payday loan borrowers do consider their ability to repay their loans. In one survey, by far most payday loan borrowers said the terms of the transaction were clear and recognized that they would not have sufficient funds in their monthly budget to repay the loan in one pay period. In another survey, most borrowers who used a payday loans indicated that it did not take more time than expected to repay the loan. Only about a third of borrowers said that they needed more time than expected to repay the loan.¹²

Moreover, supporters also point to administrative data showing that more than half of payday loan sequences are short (three or fewer payday loans). They note that such frequencies seem inconsistent with a “never-ending cycle of high fees and interest.” (Miller 2016).

At the root of the policy debate between critics and supporters of small-dollar credit is a disagreement about the rationality of small-dollar credit borrowers. Scholars, consumer advocates, and policy makers often differ in the lenses through which they view borrowers’ decisions, and this disagreement leads to different conclusions about the proper policy response to small-dollar credit. For example, consider the claims made by the Department of Defense (2006) in support of the Military Lending Act. The Department of Defense claims that small-dollar lenders take advantage of inexperienced borrowers, mask relative costs of credit, and encourage extensions. Implied by these arguments is that borrowers are not well informed. That is, these borrowers make decisions that, on balance, are not beneficial for them in the short or long run.

Other models assume that borrowers exhibit full or bounded rationality. Full rationality assumes that borrowers collect comprehensive information on products and suppliers in the market, weigh alternatives, and choose the best alternative. Bounded rationality assumes that

¹² See Levy and Sledge (2012).

borrowers collect information on a limited set of characteristics, focus on the most important characteristics, and choose an alternative that is good enough.¹³

Scholars analyze small-dollar borrowers' behaviors in light of the predictions of the models, examining whether borrowers exhibit behavior consistent with or deviating from rationality.¹⁴ Reviewing the literature for small-dollar credit products, we discuss a model of small-dollar credit decision processes and the evidence for and against rationality of small-dollar borrowers in more detail in later sections of this paper.

In the next section, we discuss the historical evolution of small-dollar credit markets, highlighting the similarities between the current policy debate and the historic policy debate surrounding borrowers' experiences with small-dollar credit products. Ironically, early twentieth century critics of small-dollar lenders eventually concluded that increasing legitimate small-dollar lending was necessary to reduce illegal lending (loan sharking). This conclusion led to the drafting of the Uniform Small Loan Law, and its widespread acceptance laid the foundation for modern small-dollar credit markets.

III. HISTORICAL PERSPECTIVE ON THE CURRENT DEBATE

The modern system of consumer credit in the United States was born in the early twentieth century, catalyzed by reform efforts to make it possible to lend small amounts legally, which brought capital into small-dollar loan markets, and by growing acceptance of financing automobiles, radios, refrigerators, and other consumer durables. Consumer credit did exist before the twentieth century, however. As Calder (1999) explains, “in the Victorian era saving,

¹³ For additional discussion on the distinction between irrationality and bounded rationality in the context of consumer protection policy, see Vickers (2003), Pappalardo (2012), and Pappalardo (forthcoming).

¹⁴ For discussions and findings related to behavioral theories of borrower behavior in the context of small-dollar credit, see Bar-Gill and Warren (2008), Mann (2013), Bertrand and Morse (2011), Zinman (2014), Carter and Skiba (2012), Agarwal and Bos (2019), and Fritzdixon, et al. (2014).

frugality, and self-denial were ideals practiced by *some*, popular with *many*, but only in retrospect credited to *all*,” (p. 38). Pawnbrokers, illegal lenders, and merchants were common sources of consumer credit in earlier centuries.¹⁵ Usury laws in colonial America, carried over in the British tradition, did exist, but these laws were routinely ignored.¹⁶

Pawnbrokers operated in the United States as early as 1657 in New York City. By the early nineteenth century, the American pawnbroking industry was well established, particularly in urban areas with sufficient demand to support the industry. Families of industrial wage earners, represented most frequently by their female members, were the primary borrowers. Pawn borrowers would leave clothing, jewelry, musical instruments, bedding, furniture, and other household items in the possession of the pawnbroker in exchange for cash. The average pawn loan then was small, typically five dollars or less. Because the fixed costs of operating a pawn business are high relative to the size of these small advances, pawnbroker rates were high, typically 25 percent per month, or 300 percent annualized.

Small-dollar, non-pawn lenders began operating as early as the middle of the nineteenth century and charged rates above the legal limits. These illegal lenders, or loan sharks, operated out of the public eye, making loans for ten to forty dollars over short periods.¹⁷ Additionally, small-dollar, non-pawn lenders exploited legal exceptions to usury laws through practices like salary buying. Salary buying works as it sounds. A buyer purchases an individual’s next paycheck for a discount. The courts ruled that salary buying was not subject to usury laws because purchasing future income did not involve a loan. Pawnbrokers, salary buyers, and

¹⁵ Scholars interested in a more extensive history of these products should reference Calder (1999) and Durkin, et al. (2014), among other sources.

¹⁶ Patterson (1898 pg. 160-161)

¹⁷ These lenders were not the racketeer loan sharks, which entered the lending business in the 1920s.

lenders that ignored usury laws (loan sharks) were the primary source of credit for working class families in the latter half of the nineteenth century.¹⁸

Another source of consumer credit in the nineteenth century was merchant financing of the sale of consumer durables by installment payments. Like salary buyers, merchants offering this type of credit were not subject to usury laws. Courts had ruled that merchants could legally charge two separate prices: a cash price and a time price. Commonly referred to as the “time price” legal doctrine, the courts ruled that installment sales were not loans and that the difference between the cash price and the time price was not interest. Therefore, installment sales were not subject to usury laws.

By the 1880s, concern about high interest rates, harsh terms, and abusive collection practices led to an outcry for stricter laws to ban these types of credit. Nevertheless, the early twentieth century reform efforts were largely ineffective. Some lenders simply altered credit products to circumvent laws, and others operated outside of the law altogether. The inability of legislation alone to eliminate these credit products, somewhat ironically, led to an increasingly widespread belief that best way to eliminate loan sharks was to increase the availability of these products.

Calder (1999) reports that Arthur Ham and the Russell Sage Foundation led the fight to legalize the small-loan industry because they believed “the problems of the small borrower would only be addressed when a new small-loan industry based on remedial principles was freed from the impossible burden of the usury laws” (p. 126-127). “Thus, they paired their negative strategy of attacking the loan sharks with a positive strategy to put remedial lending societies in their place” (p. 129).

¹⁸ See Durkin et al. (2014), Calder (1999), and Rogers (1975).

By the early twentieth century, the Russell Sage Foundation began working with states to enact effective legislation to establish a system of regulated small-dollar lenders. Under a new set of small-loan laws, newly licensed lenders formed the American Association of Small Loan Brokers (AASLB). Remedial lending societies suspended their operations or were sold to these newly licensed lenders. The AASLB and the Russell Sage Foundation worked together to draft the Uniform Small Loan Law in 1916. The purpose of the legislation was to serve as a model for states to follow as they crafted small-loan laws.

Considering the costs and risks of small-dollar cash lending, the reformers concluded that demand for small-dollar loans could not reasonably be satisfied at rates less than 3.5 percent per month (42 percent per annum), a rate six times higher, on average, than the existing rate caps. By 1932, twenty-five states had passed some version of the Uniform Small Loan Law. Collectively, these laws allowed a legal small-loan industry to emerge. About half of the operations of former loan sharks became legal lenders who operated under these new laws (Hodson 1919).

These consumer credit reforms built the foundation for modern consumer credit markets. In the decades following the consumer credit reforms of the early twentieth century, patchwork legislation among states created an institutional class of lenders devoted exclusively to small-dollar consumer credit. Banks often had higher limits on loan amounts and lower ceilings on interest rates than consumer finance companies; thus, small-dollar loans were often unprofitable for banks.¹⁹ Therefore, small-dollar loans became almost exclusively the product of small-dollar lenders.

Loan-sharks-turned-legitimate lenders and pawnbrokers are the forerunners of the small-dollar consumer credit market. Small-dollar credit products are sometimes referred to as “fringe

¹⁹ See pages 494-496 in Durkin et al. (2014) for examples of state regulations of the various consumer credit products and institutional classes. See also Rogers (1975).

products from fringe banking institutions” by scholars like Caskey (1991, 1994, 2005) or “alternative financial services” (AFS) by others.

Small-dollar lending boomed in the late 1970s and increased in momentum through the 1980s. Caskey (1994) argues that the primary cause of the boom was the decline in bank account ownership, particularly among low-income, minority, young, and less-educated households. Borrowers became increasingly unable to pass the credit screening procedures of mainstream credit institutions. Credit worthiness and bank account ownership declined as a result of socioeconomic changes, specifically falling real incomes and savings rates of lower-income Americans in the 1980s. Increasing fees for low-balance bank accounts exacerbated this problem. To satisfy a growing demand in the small-dollar credit markets, entrepreneurs created or expanded small-dollar credit institutions. The 1980s and 1990s witnessed the birth of two new, now prevalent, forms of small-dollar consumer credit: payday lending and vehicle title lending.

The American payday loan industry developed in the 1990s, although some scholars note the similarities between payday lending and the early twentieth century practice of salary buying.²⁰ The payday industry grew rapidly through the turn of the century. By 2005, payday loan and check cashing stores nationwide outnumbered McDonald’s, Burger King, Sears, J.C. Penney, and Target stores combined.²¹

Vehicle title lending was born in the late 1980s and also resembles a historic, but rare, credit arrangement: the pawning of a vehicle.²² Calder (1999) notes that, although it was

²⁰ See Caskey (1994 pg. 31), Chessin (2005), and Stegman (2007) for examples. Not all salary loans were single-payment loans. Describing the salary loan transaction, C.W. Wassum, *Salary Loan Business in New York* (1908), wrote: “The necessary papers are signed, by which he [the customer] agrees to pay a certain amount each week until the debt is cancelled.” (p. 15).

²¹ See Stegman (2007) and Karger (2005).

²² Caskey (1997).

unusual, automobiles were sometimes used as the collateral for a pawn loan. Payday and vehicle title loans, alongside pawn and cash installment loans, are now the primary small-dollar products in the consumer credit market.

This summary of the evolution of small-dollar consumer credit highlights that the debate over whether and how policy makers should increase or decrease access to small-dollar credit arises time and time again. This debate is not easily resolved because determining the welfare effects of small-dollar credit access requires an understanding of consumers' entire sets of objectives and constraints, which are not easily observed. Further, the experiences of the early twentieth century, when lenders often ignored or exploited loopholes in usury laws, highlight the complexity of restricting access to small-dollar credit.

In the remainder of this paper, we discuss the relevant models of consumer choice to frame the debate, discuss the empirical evidence shedding light on this debate, and develop testable hypotheses for others to take the analysis forward.

IV. ECONOMIC AND PSYCHOLOGICAL MODELS FOR CONSUMER CREDIT CHOICE

Economic models provide predictions of outcomes of decisions, but they generally do not explain decision processes. Thus, economic models are useful for identifying types of consumers who might benefit from availability of credit and outcomes associated with credit use. Economic models, however, do not provide insight on the extent to which decisions are thoughtful and deliberative.

The Economic Model: Intertemporal Choice

Consumers typically use credit to finance the acquisition of expensive consumer durables (household investment). Consumers also use cash loans to cover temporary shortfalls in income or increases in expenses. The decision rule is the same in both cases. A durable is utility increasing if the present value of benefits exceeds the cost of acquiring the durable. Use of cash loans is utility increasing if the present value of the additional consumption, or the avoidance of a penalty for nonpayment of expenses, exceeds the expenditure financed by the loan. These decision rules follow from Fisher's (1907 and 1930) model for intertemporal decision-making. With that model, Fisher demonstrated that borrowing to increase current consumption, whether accompanied by investment or not, can be utility maximizing.²³

Extensions of Fisher's model show that his conclusions regarding credit use are valid when institutional characteristics of credit markets are taken into account. Hirshleifer (1958) extended Fisher's model to include cases where the borrowing rate is greater than the lending rate and where the marginal borrowing rate increases as the amount of borrowing increases. Juster and Shay (1964) examined cases in which borrowers are subject to rationing by primary lenders but are able to obtain additional high-rate credit from supplemental lenders. In each of these cases, utility increasing outcomes involving borrowing are possible. In Juster and Shay's model, primary lenders (banks and credit unions, for instance) generally require equity and avoid high-risk borrowers. Supplemental lenders (unsecured cash lenders, for example) offer small amounts of credit at relatively high rates. Rationing may occur at the rate charged by primary lenders with no additional borrowing from supplemental lenders. A second rationing outcome

²³ Fisher's model also provided optimal outcomes that involved investment and saving.

occurs when the borrower exhausts availability of credit from primary lenders and borrows from supplemental lenders at higher rates than those available from primary lenders.²⁴

Characteristics of Rationed Consumers

Juster and Shay's (1964) extensions predict characteristics of consumers who are credit constrained that might rationally use supplemental credit products. These consumers tend to be young and have growing families. In addition, they have low or moderate incomes and have not accumulated large amounts of liquid assets. Also, because of their early life-cycle stage, rationed consumers may have accumulated few durables.

Some studies have estimated rates of return for different household durables. They find that rates of return can be quite large at high levels of utilization. See, for example, Poapst and Waters (1964), Dunkelberg and Stephenson (1975). Because of high projected durable utilization rates, they tend to have relatively high rates of return from investment in household durables. Rationed consumers tend to rely heavily on credit to finance household investment. Low levels of liquid asset holdings and disposable income after necessary expenses tend to limit their ability to pay cash to acquire household durables. Heavy use of credit may make obtaining additional debt difficult. As a consequence, rationed consumers may be forced to turn to higher-rate credit when additional funds are needed.

Developments in Consumer Credit Markets

Consumer credit markets have changed considerably since Juster and Shay's study. Advances in information availability and in the technology to manage and analyze large amounts of information have improved lenders' ability to assess risk. Credit reporting through credit

²⁴ For additional discussion of the models, see appendix B or Durkin et al. 2014, chapter 3.

reporting agencies (credit bureaus) is now close to comprehensive. Thus, credit reports generally reflect a consumer's complete credit history, making information in credit reports more useful for predicting future payment performance.

In addition, the development of credit bureau scores has made statistical credit evaluation available to all lenders. Such changes have loosened the credit limits of primary lenders. Equity requirements have also relaxed, as terms to maturity have lengthened for most closed-end installment credit, and down payment requirements have also been reduced. Thus, today many consumers are more able to finance a greater proportion of their household investment through primary lenders.

Higher-rate credit products from supplemental lenders have also proliferated. Unsecured credit is now widely available through bank credit cards, and many borrowers today use bank credit cards in much the same way as Juster and Shay described borrowers using cash installment loans (see Bizer and DeMarzo 1992, Brito and Hartley 1995). Competition has extended the availability of bank credit cards to many consumers who in the past would have had difficulty qualifying for them.

Because bank card rates are generally lower than cash installment rates, unsecured credit is now available to more consumers at a lower cost than in the past. There also are various "subprime" versions of credit cards and vehicle financing. Such products are mostly used by those who exhibit greater amounts of credit risk than mainstream consumers. These subprime products allow consumers to finance a larger share of the value of household durable goods and services, borrow more heavily against future income, and obtain credit despite previous problems repaying debts.

Nevertheless, new short-term credit products have emerged alongside the cash installment industry that has existed for decades and the pawn lenders prevalent for centuries. The payday lending industry allows consumers to obtain an advance on their next paycheck, and vehicle title lenders offer small loans secured by consumers' vehicles. Short-term credit products may facilitate the accumulation of household assets even when they are not used directly to finance household investment. The availability of short-term credit may reduce consumers' vulnerability to unexpected expenses or reductions in income when consumers use relatively large amounts of debt to finance household investment. Many consumers do not have enough cash on hand to cover a \$400 shortfall of funds, and for those who do, strong precautionary considerations might even make them reluctant to draw on their cash reserves.²⁵ Although these short-term credit products may be very costly relative to the loan amount, consumer losses resulting from a lack of liquidity may be quite large. Thus, short-term products may also expand the opportunities for rationed consumers to finance household investment.

Consumer Decision Process

Fisher's investment model (1907, 1930) as extended by Hirshleifer (1958) and Juster and Shay (1964) entails estimating future cash savings from investment in durables and comparing the rate of return for different levels of investment with an appropriate discount rate, which for many consumers would be a borrowing rate. The theory requires that consumers are well

²⁵ A Google search for the term, "Can't cover \$400 shortfall" on November 3, 2019 returned 377,000 hits. The outcry that "40 percent of Americans cannot cover a surprise \$400 expense," has received considerable political attention. The source of this misinformation seems to be the 2018 Report on the Economic Well-Being of U.S. Households published by the Board of Governors of the Federal Reserve System. This report states that 61 percent of adults would cover a \$400 unexpected expense using cash (or cash equivalents). Instead of concluding that roughly 40 percent cannot do so, the report makes it clear that many of the remaining 4 in 10 adults would cover the expense by carrying a credit card balance or borrowing from friends or family. The report also clarifies that some people who have \$400 in available cash would choose to borrow in order to preserve their cash for other expenses, as Katona (1975) finds. The report states that twelve percent of adults would not be able to cover the expense by any means.

informed about choices available in the market. This requirement implies that consumers exhaustively search for information about prices and characteristics of both product and financing as well as extensively evaluating alternatives.²⁶

Consumers' actual decision processes are quite different from that suggested by economic theory. Empirical studies of consumers' decision processes find that consumers do not collect comprehensive information. Consumers may rely on past information searches and experience when they are satisfied with previous choices. They may simplify by focusing on a limited set of characteristics (Mueller and Katona 1954, Day and Brandt 1973, Shay and Brandt 1979, Monti et al. 2012).²⁷ To evaluate alternatives, consumers frequently use heuristics; rules of thumb enable individuals to make decisions quickly using limited information (Simon 1990, Borges, et al. 1999). They may stop the decision process when they find a satisfactory alternative (Katona 1975, Simon 1986).

The empirical evidence also shows that consumers are more deliberative when the situation warrants. Information searches and product evaluation tend to be more extensive for decisions that involve large expenditures, commitment for long periods of time, products with which the consumer is unfamiliar, and unsatisfactory previous choices (Katona 1975).

Heuristics and biases. The role of heuristics is contested. The heuristics and bias program in psychology attributes numerous systematic violations of statistical or logical rules (cognitive biases) to the use of heuristics in answering questions involving risk (Kahneman 2011). Alleged failures of consumers to repay credit card debt and payday loans as initially planned is attributed

²⁶ Consumers' information need not include every alternative available in the market. The process of collecting and evaluating choices can be limited by search costs (Stigler 1961).

²⁷ These studies are based on analyses of representative consumer survey data using a model of decision-making from psychology as a framework. For a recent exposition of the model, see Blackwell, Mineard, and Engel (2006).

to an optimism bias (Ausubel 1991 and Bar-gill and Warren 2008, respectively). Overlooking certain fees (late fees, overdraft fees and over limit fees, for example) is attributed to a salience bias (Bar-Gill 2004) in which individuals are more likely to focus on items or information that are more prominent and ignore those that are less so. Discounting distant utilities more than proximate utilities is attributed to present bias (Meier and Sprenger 2007).²⁸ Evidence of such biases is mostly from small experimental studies using convenience samples and is not robust.²⁹

Fast and frugal heuristics. The fast and frugal heuristics research program proposes that heuristics might work well in specific situations. In a theoretical analysis, Bendor, Kumar, and Sigel (2009) indicates a satisficing heuristic (choose an action if it previously satisfied aspirations; search otherwise) produces optimal long-term outcomes in some situations and higher-valued but not optimal outcomes in others. Limited empirical evidence suggests that heuristics might perform about as well as rules based on extensive information and weighing of alternatives. Borges et al. (1999) found that stock portfolios chosen on the basis of firm name recognition (availability heuristic) performed better than portfolios run by fund managers and portfolios chosen randomly, for example. DeMiguel, Garlappi, and Uppal (2009) found that portfolios dividing assets equally among available assets (1/N heuristic) performed out of sample as well as mean-variance optimal portfolios.³⁰

²⁸ Deviation from the behavior predicted by economic theory is sometimes attributed to borrower irrationality in behavioral economics, but it can also be explained by traditional information economics and the costs of searching for and understanding information relevant to borrower decisions. See Pappalardo (forthcoming) for additional discussion of this ambiguity in the context of consumer protection.

²⁹ Experimental findings are sensitive to the format of the problem and experimental procedures. Changing the format of the question or implementing different experimental procedures can make cognitive biases to disappear (see Plott and Zeiler 2007, for example). No generally accepted theory explains why cognitive biases occur or what causes them to disappear. For further discussion, see Durkin et al. (2014), chapter 4 or Gigerenzer (2018).

³⁰ Heuristics are often specific to certain environments. Environmental characteristics that favor the 1/N heuristic include high uncertainty, a large number of assets, and a short estimation period (Gigerenzer 2008).

Heuristics and consumers' credit decisions. In the area of consumer credit, the literature suggests that many consumers rely on a monthly payment heuristic. The heuristic involves finding a term to maturity that produces a monthly payment that fits in a consumer's budget and choosing the one that has the lowest monthly payment among the alternatives within that term. Juster and Shay demonstrate that this heuristic is consistent with utility maximization for rationed consumers. Mors (1965) and Durkin and Elliehausen (2011) argue that a monthly payment heuristic works well in cases where product and credit are obtained jointly. And summarizing findings of many studies in experimental economics, Smith (1991) concluded that individual decisions based on limited information and using heuristics produce prices and allocations that converge quickly to the neighborhood of optimal equilibrium values.

Juster and Shay (1964) argued that consumers can calculate the benefits from household investment by estimating cash savings plus the difference in convenience over the market alternative or by the reduction in labor required to produce the services without the durable asset. It seems likely that consumers can make such calculations, even if with some difficulty and imprecision. That many do so at least implicitly seems plausible.

Survey evidence shows, however, that many consumers do not understand financial concepts (Campbell 2016, Elliehausen 2019). These consumers obviously do not calculate a rate of return or present value when making household investment decisions. This deficiency can be mitigated by the use of heuristics, such as the lowest monthly payment heuristic, which performs well for rationed consumers and for decisions involving joint purchases of product and credit.³¹ Moreover, as mentioned, estimated rates of return for household investment are quite high, especially when levels of utilization are high. Poapst and Waters (1963) argued that the

³¹ In the case of a joint purchase, a monthly payment heuristic works well because it reflects the cost of the total package. The allocation of costs between product and credit prices is irrelevant.

attractiveness of such household investment is often so high that calculations are hardly necessary.

Unlike decisions for long-term cash installment loans, decisions for short-term payday, vehicle title, and pawn loans do not require difficult financial mathematics to make informed decisions. The consequences of failing to cover shortfalls in income and meet contractual obligations are generally expressed in dollar amounts, which can be compared directly with the dollar finance charge. Because of the short time period, discounted cash flows are little different from undiscounted cash flows and would rarely lead to a different decision (Durkin and Elliehausen 2017). Nevertheless, serious questions remain about some consumers' ability to manage these credit products (Campbell 2016).

In sum, consumers often do not consider all information available in the market nor deliberately evaluate each alternative. Consumers simplify, take shortcuts, and use heuristics, which may not always be optimal but nevertheless may be an economical and effective means for achieving desired goals. While most economists and psychologists agree that cognitive errors occur, the extent to which these phenomena impair actual decisions in markets is not at all clear. Findings of numerous studies of actual behavior in markets are consistent with predictions of economic theory.³² At this time, neither existing behavioral evidence nor conventional economic evidence supports a general conclusion that consumers' credit decisions are not purposive and deliberate or that markets do not work reasonably well.³³

Implications of the Model of Small-Dollar Credit Use

³² For a review of the evidence, see Elliehausen (2010); Durkin et al. 2014, chapter 4; or Durkin, Elliehausen, and Zywicki (2014).

³³ In an article summarizing results of numerous studies in experimental economics, Smith (1991) concludes that evidence consistently indicates that individual decisions based on limited information and using heuristics converge quickly to the neighborhood of equilibrium prices and allocations.

Evaluating individual decisions on small-dollar credit use is not generally possible. Individual circumstances vary widely, and unanticipated events may influence outcomes.³⁴ It is possible, however, to test whether characteristics of consumers who use such credit markets align with the characteristics predicted by economic theory of consumers who rationally might use small-dollar credit markets. Findings that consumers using small-dollar credit understand the products and exhibit thought and deliberation in their decisions would also provide evidence of rationality in small-dollar credit decisions.

It might never be the case that borrowers are fully informed or make decisions that are perfectly consistent with the rational choice model. Becoming fully informed about small-dollar credit products (or any product for that matter) and all of the alternatives is costly. Borrowers face time constraints, wealth constraints, and cognitive constraints. Borrowers rationally search for information about products up to the point where the expected marginal benefit of additional information is equal to the expected marginal cost, including the costs associated with cognitive efforts. Borrowers could exhibit “bounded rationality” in the terms of Simon (1990) and Vickers (2003) or be “reasonably informed” in the terms of Pappalardo (2012).

V. EVIDENCE OF RATIONAL SMALL-DOLLAR CREDIT DECISIONS: BORROWER CHARACTERISTICS AND DECISION-PROCESSES

In this section, we examine whether pawn, vehicle title, payday, and cash installment borrowers exhibit characteristics of rationed consumers. That they exhibit characteristics of rationed borrowers does not itself imply that their behavior is rational, but these borrowers are the ones whom economic theory predicts could benefit from availability of additional credit from

³⁴ Campbell (2016) discusses a model for regulatory intervention in a market in which some financially unsophisticated consumers make mistakes and financially sophisticate consumers do not.

high-rate sources. In contrast, theory suggests that unrationed borrowers generally would not find high-rate credit to be beneficial. We further discuss whether they understand the products and deliberate in their decisions. These findings help inform the discussion of the policy issues in these markets.

Borrower Characteristics

Tables 2-4 include information about the users of pawn loans, payday loans, and vehicle title loans using data from the 2015 National Financial Capability Study by the FINRA Investor Education Foundation. Table 2 includes the demographic characteristics of the borrowers. Table 3 includes borrowers' use of other sources of consumer credit. The focus of both tables is whether borrowers exhibit the characteristics of rationed consumers, or those which economic theory predicts rationally use small-dollar credit products. Demographic and economic characteristics for cash installment loan borrowers are not included because no borrower-specific data are available for cash installment loan borrowers.

Table 4 includes the use of each credit product. The question regarding the reason for using a small-dollar credit product rather than a bank loan is from the 2011 FDIC Unbanked/Underbanked CPS Supplement, which did not include vehicle title loans. The questions regarding the purpose and alternatives of use are from the Pew reports, which do not include pawn loans.

-- Insert Table 2 About Here --

-- Insert Table 3 About Here --

-- Insert Table 4 About Here --

Relative to those who do not use small-dollar credit products, the users of pawn, vehicle title, and payday credit are disproportionately younger, lower income, more likely to be in a life-cycle stage with children in the household, and more likely to experience credit constraints. Their life-cycle and income characteristics are consistent with being credit constrained. They heavily use mainstream credit and experience or perceive credit rationing by creditors. In summary, they exhibit characteristics consistent with those of the rationed consumer. We describe the characteristics of the borrowers and the literature associated with these borrowers separately for each credit market below.

Pawn Loan Borrowers. Until the 2009 FDIC Unbanked/Underbanked Supplement to the CPS, there were no nationally representative customer-specific data for pawn borrowers. Prior to the availability of these data, author surveys by Johnson and Johnson (1998) and Caskey (1991, 1994, 1997) were the primary sources of demographic information on pawn borrowers. While their surveys are not nationally representative, these scholars laid the foundation on which the modern understanding of the pawn borrower is built. More recently, Avery and Samolyk (2011) clarify the modern understanding of the pawn borrower using the 2009 CPS supplement. Additionally, Bos et al. (2012) use the administrative records of a large national payday lender, consisting of 9.5 million loans made in Florida and Texas from roughly 1995 to 2004, to describe not only the demographic characteristics, but also the items pawned, loan-to-value ratios, and more.

The findings from these studies form the mosaic of what we know about the typical American pawn borrower. Pawn borrowers, compared to average Americans, are more likely to be male, non-white, young, unmarried, less educated, and to have children in the household.

Furthermore, they are disproportionately likely to be low-income, unemployed, disabled, and renters rather than owners of their homes.

As shown in Tables 3 and 4, pawn borrowers are often in worse financial condition than individuals who do not use small-dollar credit products (measured by spending-to-income ratio, difficulty paying bills, experiencing a large drop in income, and access to an emergency fund). They are also more likely to experience or perceive credit rationing than those who do not use small-dollar credit products. Pawn borrowers' characteristics presented in the tables, and those found by the scholars mentioned previously, are consistent with those of rationed consumers as described by Juster and Shay (1964).

Pawn borrowers are often in worse financial condition than those who use vehicle title loans or payday loans. They have lower incomes, more difficulty paying bills, less access to emergency funds, and higher spending relative to income than vehicle title and payday borrowers. Pawn borrowers are also less likely to use auto loans, student loans, and credit cards than vehicle title and payday borrowers.

According to data from the 2011 supplement to the CPS presented in Table 4, 59 percent of pawn borrowers do not qualify or find it too difficult and slow to qualify for a bank loan. Another 18 percent patronize pawnshops because banks do not offer small-dollar loans. Moreover, 14 percent of pawn borrowers find pawnshops more convenient, comfortable, or trustworthy than banks. Thus, pawn loan borrowers are not typically customers of more mainstream credit institutions because of their poor credit histories, unique needs for small-dollar credit, or personal preferences for pawnshops.³⁵

³⁵ Pawnshops have been criticized by some scholars and journalists as providing a means by which criminals sell stolen property. Glover and Larrubia (1996), Hammond (1997), and Fass and Francis (2004) use pawn records from three unique cities and note that the most prolific pawners are more likely to have criminal records, often related to burglary, theft, or a related offense. Furthermore, d'Este (2014) uses fluctuations in gold prices as a quasi-natural

Vehicle Title Loan Borrowers. The 2015 National Financial Capability Study paints a nationally representative picture of vehicle title borrowers, the data from which are presented in Tables 3 and 4. However, the nationally representative data for these borrowers are only recently available, and much debate in the earlier academic literature surrounds who uses vehicle title loans and for what purpose. Zywicki (2010) classifies vehicle title loan borrowers as belonging to one of three categories: small business owners in need of short-term working capital, moderate-income borrowers with poor credit histories, and unbanked and/or low-income consumers.³⁶

There is some ambiguity in identifying reasons for the use of fringe, or small-dollar nonbank options. As Caskey (1994) explains,

Even some customers who use fringe “banks” (quotes added) out of necessity could be discretionary users from another perspective. Although they might have no short-run alternatives to fringe “banks,” this situation could be a result of earlier choices. A customer who, for example, squanders his paycheck on non-necessities may need to turn to a pawnshop later in the month to help pay the rent. (p. 78)

experiment to show the number of pawnshops in a county is positively related to the number of larcenies and burglaries in the same county but not to other crimes. Because of this concern, many jurisdictions require pawnshops to regularly report pawned items to local law enforcement and restrict the immediate sale of items purchased by pawnbrokers. Moreover, the pawnbrokers risk losing the collateral if it is identified as stolen and even criminal prosecution if it can be proven that the pawnbroker knowingly accepted stolen property. According to the National Pawnbrokers Association (NPA), less than one-half of one percent of pawned merchandise is identified as stolen.

³⁶ Small business owners, like landscapers and painters, might pawn the title of their vehicle to pay for materials needed for a job or to make payroll between customer payments. Zywicki (2010) cites industry claims that small businesses constitute 25-30 percent of their vehicle title loan borrowers. Lender surveys of over 1,000 title loan borrowers in New Hampshire, New Mexico, Kansas, Virginia, and Oregon show that 20 percent are small business owners. Additionally, Hawkins (2012) finds in borrower surveys that 25 percent of borrowers report being small business owners. Fritzdixon, Hawkins, and Skiba (2014) find that 16 percent of title loan borrowers in Idaho, Georgia, and Texas are self-employed, although only six percent cited business expenses as a reason for procuring a loan. The nationally representative Pew (2015) report on vehicle title loans shows that 13 percent of borrowers are self-employed. This is a few percentage points higher than the national average for all Americans, which has been less than 10.5 percent since 2011 according to the Bureau of Labor Statistics (BLS). However, only five percent of respondents in the Pew survey report borrowing for business expenses.

Zywicki (2010) cites the claims of the American Association of Responsible Auto Lenders (AARAL) that the typical borrower has a household income of more than \$50,000 annually. Citing a study prepared for the New Mexico legislature, Zywicki (2010) also argues that 30 percent of individual borrowers in New Mexico make more than \$50,000 per year, and 41 percent earn between \$25,000 and \$50,000. Similarly, a study by the state of Illinois found that 55 percent of borrowers earn more than \$40,000 annually, and over 30 percent earn more than \$50,000 annually. Therefore, Zywicki (2010) claims that moderate-income borrowers with poor credit histories are another class of vehicle title loan borrower.

Martin and Longa (2011) and Martin and Adams (2012) contest these claims. Citing surveys of lenders in Albuquerque, NM, the authors show the average annual income of title loan borrowers ranges from \$20,116 to \$27,719, which is far below the median income in Albuquerque. Additionally, they cite an Illinois regulators' report from 1999 that the average income for vehicle title loan borrowers in Illinois is \$19,808—far below the median income in Illinois.³⁷ Fox and Guy (2005) report that, on average, title loan borrowers in Missouri earn between \$22,000 and \$26,000 annually.³⁸

Of the contributors to this debate surrounding the income of the average vehicle title borrower, none uses a nationally representative sample. The nationally representative data in Table 2 show that 52 percent of borrowers have an annual household income exceeding \$50,000.

³⁷ Consumer Credit Division, Illinois Department of Financial Institutions, Short Term Lending: Final Report, 23-25, <http://www.idfpr.com/dfi/ccd/pdfs/Shortterm.pdf>.

³⁸ See Jean Ann Fox & Elizabeth Guy, Driven into Debt: CFA Car Title Loan Store & On-Line Survey, Consumer Fed., https://www.texasfairlending.org/wp-content/uploads/2013/01/2005-Consumer-Federation-of-America.-Car_Title_Loan_Report_111705.pdf

Furthermore, vehicle title loan borrowers are equally likely to have incomes below \$25,000 as individuals who use no small-dollar credit products.³⁹

While the debate over whether vehicle title loan borrowers are moderate income is, at least partially, semantics, Table 2 shows that vehicle title loan borrowers have higher incomes than pawn and payday borrowers. They are also more similar to the average American in education, employment status, marital status, home ownership, and race/ethnicity than pawn and payday borrowers.⁴⁰ Demographic differences between vehicle title loan borrowers and borrowers of other alternative credit products likely result from the requirement for car ownership and the lack of a requirement for a bank account, which payday loans require.

Despite some similarities to those who do not use small-dollar credit products, vehicle title borrowers are more likely to express difficulty paying bills, experience a recent and large drop in income, and spend more relative to income than those who do not use small-dollar credit products. They are also less likely to have an emergency fund than those who do not use small-dollar credit products. Vehicle title borrowers are more likely to have auto loans, student loans, balances on their credit cards, and constraints on credit from mainstream sources, as shown in Table 3. Therefore, despite being in better financial condition and facing fewer credit constraints than pawn and payday borrowers, vehicle title loan borrowers also exhibit the characteristics of a rationed consumer.

Table 4 shows the purpose of use, and alternatives to use, of vehicle title loans from the 2015 Pew auto title lending report. According to the Pew report, 52 percent of vehicle title loan borrowers use the funds to pay recurring expenses. Unexpected/emergency expense is cited by

³⁹ Source: The 2015 National Financial Capability Study by the FINRA Investor Education Foundation in consultation with the U.S. Department of the Treasury and President Obama's Advisory Council on Financial Capability.

⁴⁰ Data from 2015 National Financial Capability Study and the 2017 FDIC Supplement to the CPS support these claims but are not included in the table in order to save space.

25 percent of borrowers and “something special” is cited by 17 percent of borrowers as the reason for borrowing. Gift and medical expenses are cited as reasons for borrowing by 13 percent and 8 percent of survey respondents, respectively.⁴¹

If vehicle title loans were not an option, 81 percent of respondents indicate that they would cut back on expenses. However, most respondents also report that they would borrow money from another source, including family/friends, a bank/credit union, a credit card, or an employer. Further, 57 percent would sell/pawn their possessions, and 62 percent would delay paying bills, which can result in a late fee. These responses make clear that vehicle title loan borrowers are aware of alternative credit options and, without the vehicle title credit, would likely resort to another form of credit.

Payday Loan Borrowers. According to the data presented in Table 2, payday borrowers are younger, lower income, more likely to have children in the household, and in worse financial condition than those who do not use small-dollar credit products. Table 3 shows that, relative to those who do not use small-dollar products, payday borrowers are more likely to have an auto loan, a student loan, a credit card balance, and credit constraints from mainstream credit institutions. Like pawn and vehicle title borrowers, payday borrowers exhibit the characteristics of rationed consumers.⁴²

⁴¹ Fritzdixon, Hawkins, and Skiba (2014) similarly find that rent/mortgage, utilities, and car repair are the most commonly cited reasons for obtaining a vehicle title loan in their survey of borrowers from Texas, Idaho, and Georgia.

⁴² Caplan et al. (2017) note that descriptive statistics might be misleading regarding which characteristics increase the likelihood of an individual using a payday loan. After controlling for other characteristics, the authors find that payday borrowers are not more likely to be female, younger, unmarried, Hispanic, or low income as the literature suggests. They are, however, more likely to be African-American, lack a college degree, rent rather than own their home, and receive social assistance.

Borrowers in the payday lending industry often lack alternative credit options. Payday borrowers are four times more likely than are all adults to have filed for bankruptcy (Elliehausen 2009). According to a survey of payday loan borrowers by Elliehausen (2001), 75 percent had been turned down for credit or received less credit than they applied for in the past five years. Dobbie and Skiba (2013) show that payday borrowers are credit constrained, consuming 39 to 44 cents per dollar of additional credit compared with 10 to 14 cents for the typical credit card user. Using the 2008 tax rebate as a natural experiment, Bertrand and Morse (2009) find a persistent decline in payday borrowing following a tax rebate among a large portion of borrowers who borrow from payday lenders to bridge infrequent, unexpected gaps between pay periods.

For many borrowers, credit constraints force them to patronize payday lenders rather than banks. According to the data from the 2011 CPS Unbanked/Underbanked Supplement presented in Table 4, more than 50 percent of payday loan users (more than 69 percent for unbanked users) patronized a payday lender because they did not qualify for a bank loan or because the qualification process for payday lenders was easier. Approximately 20 percent, however, use payday loans because their banks simply do not provide small-dollar loans. Additionally, 13 percent responded that payday loan locations are more convenient than banks.

Also in Table 4, the 2012 Pew survey shows that 24 percent of borrowers use payday loans to cover a special or unexpected expense, while 69 percent borrow to finance recurring expenses, such as rent and utilities.⁴³ When asked about alternatives if payday loans were unavailable, 81 percent of respondents stated they would cut back on expenses. Most respondents indicate that they would borrow from another source including family/friends, a bank/credit union, a credit card, or an employer. Further, 62 percent said they would delay

⁴³ See the Pew report titled, “Payday Lending in America: Who Borrows, Where They Borrow, and Why,” available at https://www.pewtrusts.org/-/media/legacy/uploadedfiles/pcs_assets/2012/pewpaydaylendingreportpdf.pdf.

paying some bills, which can result in a late fee. Other common alternatives for paying bills absent access to payday loans include bouncing checks and bank overdraft loans, both of which might be costlier than finance charges on a payday loan. Morgan, et al. (2012) show that payday loan access decreases the number of bounced checks. Paying late fees on bills is another alternative to payday loans. Desai and Elliehausen (2017) show that bans on payday loans increase delinquencies, albeit by small amounts.

Cash Installment Loan Borrowers. Although small-dollar cash installment loans have existed for a century, scant academic research exists on this market, especially recently. The biggest obstacle to studying this market has been access to data. Researchers have typically relied on surveys to study this traditional cash installment loan market (Durkin and McAlister 1977; Miller 2015). The last comprehensive study of the cash installment lending market was the National Commission on Consumer Finance (1972). Until 2017, the most recent study of this market was Durkin and McAlister (1977), who study the cash installment lending industry in Texas. While the raw data with which to populate Table 2 are unavailable, Durkin and McAlister find that roughly 77 percent of borrowers in Texas and 38 percent of borrowers at six nationwide companies have incomes below \$36,749 in 2015 dollars. Roughly, 5.7 percent of borrowers in Texas and 29 percent of borrowers at six nationwide lenders had incomes above \$55,133 in 2015 dollars.⁴⁴

Recently, the American Financial Services Association (AFSA), the trade association for the cash installment loan industry, collected data from its members on their loan portfolios. Durkin, Elliehausen, and Hwang (2017) provide an overview of the AFSA data set. These data

⁴⁴ We adjusted the income numbers from Durkin and McAlister (1977) using CPI data from June 1970 and June 2015 made available by the Federal Reserve Bank of St. Louis.

do not provide borrower-specific information with which to populate Tables 3 and 4. However, Durkin, Elliehausen, and Hwang report that findings from the AFSA survey are consistent with the rationed borrower theory of Juster and Shay (1964). That is, the borrowers in the AFSA survey are unable to obtain all their credit from banks or other primary lenders. Durkin, Elliehausen, and Hwang report that more than 85 percent of the loans are subprime, based on credit scores.

Evidence on Decision Processes for Small-Dollar Credit Use

A few researchers have used survey methods to study consumers' decision processes for use of small-dollar credit. The most extensive data on decision processes are for payday loans, but limited data are also available for cash installment loans, pawn loans, and vehicle title loans.

Small Consumer Finance Loan Decisions. In 1972, Durkin (1975), conducted a study of consumers obtaining very small high-rate cash installment loans in Texas.⁴⁵ The maximum loan size for these loans was \$100 (about \$600 in constant 2018 dollars), and the maximum term to maturity was six months. Data were from lender files and a borrower survey.

The most frequently cited reasons for using these loans were to pay old bills or consolidate debts, pay medical expenses, and purchase or repair an automobile. Together, these three responses accounted for nearly 40 percent of reported reasons. Other responses included paying utility bills, purchasing food, and paying taxes or insurance. As an unplanned expense or reduction in income at the beginning of the month could trigger a shortfall of funds for recurring expenses later in the month, respondents might report a proximate event as the reason for

⁴⁵ Durkin's work was part of the full report of the National Commission on Consumer Finance. Chapter 301-F, subchapter 201; formerly Article 3.16 loans. Durkin and McAlister (1977) provided a similar analysis of borrowers obtaining larger, Chapter 342-E, subchapter 201, consumer finance loans.

borrowing. Thus, attributing credit use for regular expenses to improvidence is not necessarily appropriate, especially for consumers whose moderate means cause them to live from paycheck to paycheck.⁴⁶ Regardless of the underlying problem, these responses suggest that many borrowers faced an urgent need for funds, a circumstance that research indicates is associated with limited decision processes (Blackwell, Miniard, and Engel 2006).

Information from lender files included the annual percentage rate and finance charge, which, when compared with reported values from the survey, permitted an assessment of the awareness of credit costs. Only 2 percent of borrowers were able to report an interest rate that indicated that they were aware of the APR. Nearly a third of borrowers reported rates that were too low, and the remaining borrowers were unable to provide an APR. In contrast, two-thirds of borrowers reported a finance charge that indicated that they were aware of the charge. Thirty-eight percent reported the exact amount of the finance charge; another 8 percent reported an amount that was close (plus or minus 20 percent) to the exact amount; and 20 percent reported an accurate finance charge for a different contract (which might have been a refinancing that occurred between the sampling and interview dates) or a generalized price (\$34 per \$100 borrowed for six months, for example).⁴⁷ Nearly all of the remaining one-third said that they did not know the finance charge or reported amounts that were too high or too low.

The relatively high level of awareness of the dollar finance charge suggests that many consumers might have considered the finance charge in their credit decision.⁴⁸ Even if they did

⁴⁶ The Pew (2012) report on payday loans states that “most borrowers use payday loans to cover ordinary living expenses over the course of months, not unexpected emergencies over the course of weeks.” It is possible, therefore, that some borrowers experience income disruptions that cause insufficient cash flow to cover ordinary living expenses.

⁴⁷ Similarly, in a survey of installment borrowers, Levy and Sledge (2012) find that 32 percent report that installment loans were more or less expensive than they expected, implying that the majority of borrowers found their expectations were accurate.

⁴⁸ Consumers using very small, short-term consumer finance loans had a greater level of awareness of the finance charge than consumers using mainstream credit, which involve larger dollar amounts and shorter terms to maturity

not use information on finance charges to shop for credit, concluding that these consumers made uninformed decisions does not seem tenable.⁴⁹ The lack of awareness of APR suggests that these consumers were unlikely to have used the APR in making their decisions.⁵⁰

Well more than half of borrowers were aware that cash installment loans from finance companies were more expensive than bank loans. The decision to borrow from a finance company apparently was often influenced by consideration of credit availability. Of the borrowers who said that cash installment loans were more expensive than bank loans, about half reported that they borrowed from a finance company because they could not get a similar loan from a bank. Nearly a fourth of borrowers reported that they had actually been turned down by a bank or finance company in the past five years.

Consumers obtaining very small cash installment loans generally evaluated their purchase decision positively. When asked, 85 percent of borrowers said that the loan was worth it. Most borrowers gave reasons related to the need for funds as the reason for their satisfaction. Of those who said that the loan was not worth it, about half cited the high price as the reason for dissatisfaction. Seventeen percent of dissatisfied borrowers reported difficulty getting out of debt as the reason for dissatisfaction, but these borrowers accounted for just 3 percent of all borrowers.

than small consumer finance loans. In another study for the National Commission, Day and Brandt (1973) found that a little more than half of consumers using mainstream credit products were able provide estimates of the finance charge.

⁴⁹ The Pew (2012) report on payday lending states that their findings raise concerns about the market's ability to provide clear information to enable borrowers to make informed decisions. The Department of Defense (2006) criticizes small-dollar lenders for obfuscating the costs of their products relative to alternative products. Similarly, Bar-Gill and Warren (2008) suggests that payday loans can impose substantial costs on borrowers who are imperfectly informed.

⁵⁰ Durkin (1975) hypothesized that respondents might have disregarded the APR as unimportant because they did not understand APRs and saw no relationship between the APR and the finance charge. APRs for small, short-term loans magnify the influence of high operating costs, which are largely independent of the loan amount or term to maturity. APRs are generally very high even when the finance charges are small. See Mors (1965) or Durkin and Elliehausen (2017) for discussion.

The practice of renewing existing loans has been controversial. Small-dollar lenders are accused of forcing renewals on borrowers by high-pressure sales practices or requiring repayment in a period shorter than the borrower can afford.⁵¹ Durkin (1975) found that renewals were common among very small cash installment borrowers in Texas. Borrowers who renewed loans almost universally reported a desire for more cash was a reason for renewing. Only a small percentage of borrowers mentioned loan manager persuasion as a factor in their decision to renew. The data provide little evidence that loan contract terms were intended to make loans unaffordable. Nearly all loans had maturities that result in minimum or near-minimum payments for a given loan size. Three-fourths of consumers assessed the payment size on their renewals as about right.⁵²

More recent data from an Internet survey examined the issue of renewals for several small consumer finance products (Levy and Sledge 2012).⁵³ Most cash installment loan users appeared to be aware of their ability to repay the debt. About three-fourths of respondents who had a cash installment loan reported that they repaid the loan by the end of the original term, and by far most said that they took about the expected time or less to repay their loan. However, a considerable percentage of cash installment loan users renewed or refinanced their loans, and a little less than one-fifth of respondents who had cash installment loans reported that they took longer than the expected time to repay the loan.

⁵¹ See the concerns voiced by the CFPB in the final payday, vehicle title, and high-rate cash installment loan rule that short-term lenders have developed business models that fail to assess borrowers' ability to repay. The report in support of the Military Lending Act by the Department of Defense (2006) also claims that loans are not made on the basis of borrowers' abilities to repay. The Pew reports on vehicle title lending (2015) and payday lending (2012) express similar criticisms.

⁵² A larger share of new borrowers (82.0 percent) assessed the payment size on their loan as about right.

⁵³ Interviews were conducted with 1,000 respondents who had household incomes less than \$75,000 and who used a small-dollar credit product in the past 12 months. What constituted a renewal and the expected time taken to repay the loan were self-defined by the respondent. For discussion of ambiguities in defining these events, see Mann (2013).

In sum, many cash installment loan borrowers appeared to be knowledgeable about the cost of such credit and provided some evidence of thoughtfulness. Most borrowers used small consumer finance loans because they had an urgent need and believed that they did not have better alternatives. They were aware of the finance charge and were thereby able to make informed decisions on this dimension, regardless of whether they shopped or had alternative sources of credit. As the loan term is short, the finance charge (an undiscounted sum of scheduled interest payments) is an appropriate measure of cost. The time value of money has a negligible effect in estimating the net benefit of using short-term credit to relieve an urgent need.⁵⁴ Borrowers generally evaluated their decisions positively, saying that the loan was worth it because it provided needed funds.⁵⁵

Payday Loan Decisions. Elliehausen and Lawrence (2001) surveyed a representative sample of payday loan borrowers at companies belonging to the storefront payday industry trade association. These companies operated about half of all offices of companies offering payday loans at that time. The survey results indicate that consumers often used payday loans to address urgent needs. Nearly two-thirds of payday loan borrowers reported that they obtained their most recent new advance (not renewal) because of an unexpected expense or shortfall in income.

Like the cash installment loan borrowers, payday loan borrowers were generally aware of finance charges but not APRs. Based on rates available in the market, 95.7 percent or more payday loan borrowers reported a finance charge for their most recent payday loan that can be

⁵⁴ For discussion of the use of the finance charge as a measure of the costs of short-term loans, see Durkin and Elliehausen (2017).

⁵⁵ Evidence on closed-end credit users' search behavior was broadly similar between 1977 and 1997. However, reported searching for APR information was greater in 1997 than two decades earlier (perhaps due to greater familiarity with Truth in Lending disclosures). See Durkin and Elliehausen (2011, chapter 7). These findings are for a larger set of credit users than the small high-rate consumer finance borrower set interviewed in Durkin (1975), but the broad similarity in these consumers' behavior in the years between 1977 and 1997 suggests that Durkin's 1972 findings could still be relevant.

considered accurate.⁵⁶ In contrast, only 20 percent of borrowers were able to report an accurate APR, although by far most borrowers recalled receiving information on the APR. That payday loan borrowers are aware of finance charges but not the APR in their decisions suggests that they primarily consider the finance charge in making their payday loan decisions. Again, as payday loans are short term, the finance charge is an appropriate measure of the price of such credit.⁵⁷

Bertrand and Morse (2011) conducted an experimental study of the effect of supplemental dollar finance charge and APR disclosures on payday loan use by borrowers of a large, multi-state payday lender. The finance charge disclosure presented total finance charges for continuous payday loan and credit card use over several time periods. The APR disclosure provided median APRs for several different types of credit. Both disclosures were generic. They were not specific to the borrower's circumstances. The dependent variable was a dummy variable indicating whether the borrower obtained a payday loan during the borrower's pay cycle, which was based on the company's administrative data. Their statistical analyses indicated that receipt of the supplemental dollar finance charge disclosure was consistently associated with

⁵⁶ Because actual finance charges and APRs were not known, consumers' knowledge of costs was assessed based on awareness zones, a well-established practice for assessing awareness when actual values are not available (see Durkin 2000). An awareness zone is a range of finance charges or APRs that are available in the market. Respondents who report a value that falls within the awareness zone are classified as aware. Elliehausen and Lawrence used a range of ceiling rates per \$100 of credit and reported the dollar loan amount to calculate narrow and somewhat wider awareness zones for payday loan finance charges and APRs.

⁵⁷ The convention of stating interest rates on an annual basis is generally appropriate for long-term loans (term to maturity of one year or more) with regular scheduled periodic payments, but whether an annualized rate is appropriate for short-term loans is questionable. The usual approach for annualizing short-term rates assumes a series of periodic renewals for the entire year, but this assumption does not reflect the typical behavior of consumers using short-term credit. Consumers generally do not owe short-term debts for an entire year. Theorists have recognized this consideration. Marshall (1920), for example, argued that annualizing interest charges on short-term credit does not make sense:

...there are men in London, and Paris, and probably elsewhere, who make a living by lending money to costermongers. The money is often lent at the beginning of the day for the purchase of fruit, etc., and returned at the end of the day, when the sales are over, at a profit of ten per cent: there is little risk in the trade, and the money is seldom lost. Now a farthing invested at ten per cent a day would amount to a billion pounds at the end of the year. But no one can become rich by lending to costermongers; because no one can lend much in this way. (p. 488).

Neither the annualized interest charges cited by Marshall (£1 billion) nor the annualized rate of interest (3,650 percent) for such lending seem very useful.

less payday borrowing (about 11 percent). The supplemental APR disclosure generally had a smaller effect than the finance charge disclosure and was not statistically significant. These findings are consistent with the conclusion that the consumers consider finance charges but not APRs in their payday loan decisions. Whether the supplemental finance charge disclosure improved borrowers' decisions is not known.⁵⁸

Thirty-eight percent of borrowers reported that they considered another source of credit before obtaining their most recent payday loan, and nearly all of that subset considered a depository institution or a finance company. That payday loan borrowers considered these sources is not surprising, since their ownership of a checking account and relatively frequent use of mainstream credit suggest that they are familiar with these sources. In contrast, less than 1 percent considered a pawnbroker, and 3 percent considered an automobile title loan company. Thus, pawnbroker and automobile title loans do not appear to be very close substitutes to payday loans in the minds of payday loan borrowers.

Although some payday loan borrowers considered other credit sources, many borrowers had experiences that suggest that they would have had difficulty obtaining mainstream credit. Consumer survey data analyzed by Elliehausen and Lawrence (2001) found that nearly three-fourths of payday loan borrowers had been turned down or received less credit than they requested in the previous five years. Fifteen percent of borrowers had filed for bankruptcy in the previous five years, and a fourth of borrowers had a delinquency of 60 days or more on a mortgage or consumer credit in the previous year. Examining merged payday lender/credit bureau data, Bhutta, Skiba, and Tobacman (2015) found that shopping for and failing to obtain mainstream credit surged around the time of payday loan applications.

⁵⁸ Bertrand and Morse also tested a supplemental disclosure that provided generic distribution information on the frequency of renewals. This supplemental disclosure also had a small effect and was not generally statistically significant.

A little more than half of payday loan borrowers have bank credit cards (Elliehausen and Lawrence 2001). Of the borrowers with bank credit cards, more than half said that they refrained from using a bank card in the past year because their credit limit would have been exceeded. Analyses of databases containing merged payday loan company and depository institution records suggest that some consumers might have had sufficient available credit or bank deposits to avoid more costly payday loans (Agarwal, Skiba, and Tobacman 2009, Carter, Skiba, and Tobacman 2011).⁵⁹ In Bhutta, Skiba, and Tobacman's (2015) merged lender/credit bureau database, nearly 90 percent of payday applicants had no available credit on their credit cards, and 90 percent had less than \$300 of available credit just before applying for a payday loan. On balance, the data suggest that payday loan borrowers have few alternatives.

Many payday loan borrowers surveyed by Elliehausen and Lawrence obtained a small number of payday loans in the previous 12 months. A little more than a third of payday loan borrowers had four or fewer loans, and 17 percent had five to eight payday loans in the past 12 months. Assuming a two-week average term for payday loans, these borrowers had outstanding payday loans for at most 2 or 3 months, respectively over the past 12 months. However, many other borrowers used payday loans frequently. Twenty three percent of borrowers had 14 or more payday loans in the past 12 months. Again, assuming a two-week average term, these high-frequency borrowers had outstanding payday loans for 7 months or more over the past 12 months.

The length of time borrowers need to repay payday loans varies greatly. Whereas a little more than a fourth of payday loan borrowers' longest sequence of consecutive loans (new loan and renewals until the loan is paid off) was two weeks (on average, one loan) or less, and 57

⁵⁹ A strong precautionary saving motive provides one explanation for simultaneous use of credit and liquid asset holding (Katona 1975). Gross and Souleles (2002) have suggested that consumers have a target utilization rate for credit cards, which preserves a liquidity reserve of available credit.

percent of borrowers' longest sequence of consecutive loans was six weeks (about three loans) or less, some borrowers had lengthy sequences. Nine percent of borrowers had longest sequences of 9 to 13 weeks (about 4 to 6 loans, on average), and 10 percent had longest sequences of 14 or more weeks (more than 7 loans).

Obtaining a relatively large number of payday loans during the year, renewing existing loans frequently, and having long sequences are expensive but not necessarily evidence of a problem. Consumers living from paycheck to paycheck can experience several unexpected emergencies during a year, causing them to need funds more frequently than initially expected. Such frequent payday loan use, however, might not have helped some borrowers manage their finances, and might have exacerbated the difficulties of others.

Elliehausen and Lawrence (2001) also questioned payday loan borrowers about their satisfaction with their most recent payday loan. They found that by far most borrowers were satisfied with the loan. The most frequent reasons for satisfaction were that the process was fast and convenient and that needed funds were available quickly. Of the 12 percent of borrowers who were dissatisfied, 62 percent cited the high price as the reason for dissatisfaction. Difficulty of getting out of debt (which might indicate that borrowers did not understand that the product is designed for short-term use) and lack of information about the product were rarely mentioned as reasons for dissatisfaction.

One difficulty attributed to the payday product is that its single-payment feature and relatively high finance charge make repayment difficult.⁶⁰ As a consequence, many consumers are believed to underestimate the amount of time they will need to extinguish payday debt. Observations of frequent renewals and long payday loan sequences have been interpreted as

⁶⁰ For example, see Pew Charitable Trusts (2013), Center for Responsible Lending (2013), and CFPB (2013).

evidence of an optimism bias that causes borrowers underestimate the time to repay payday loans.

For example, Skiba and Tobacman (2008) find that over half of payday borrowers default on a payday loan within a year of their first loans, and often do so after having already paid 90 percent of the original loan's principal in interest alone. The authors describe payday borrowers who default at moderate rates after some costly delay as naïve quasi-hyperbolic discounters, meaning borrowers are present-biased and falsely assume that their future selves will maximize today's preferences.

A recent paper addressed this alleged difficulty. Mann (2013) surveyed payday advance borrowers of a large multistate payday lender at the time of loan origination about their expectations about repaying the loan. He then compared borrowers' responses with their actual behavior. Borrowers generally were not surprised when they needed to renew a payday loan at maturity. Most borrowers expected that they would continue borrowing after the initial loan and that borrowing would continue for more than two weeks beyond the original due date of the initial loan. Borrowers predicted the final repayment date reasonably accurately. About 60 percent predicted within one pay period when they would be free of debt. Responses did not provide evidence of an optimism bias in borrowers' assessment on their ability to repay loans. Prediction errors were unbiased and were symmetric around an average of about zero.

The Levy and Sledge (2012) survey also asked respondents who used payday loans whether they took the expected time to repay their payday loan. A little more than two-thirds of respondents reported that they took about the expected time or less to repay their loan, and nearly a third reported that they took longer than expected to repay their loans. Again, most users of a

small-dollar product appear to be aware of their ability to repay the loan, but a considerable minority borrows longer than expected.

Conclusions about the payday loan decision are similar to those about the cash installment loan decision. Most borrowers used payday loans because they had an urgent need and had few alternatives. More than half of borrowers used payday loans over relatively short time intervals consistent with the design of the product, although some had multiple renewals and long payday loan sequences. Borrowers were aware of the dollar cost of payday loans, and most assessed the time it would take to repay accurately. By far most borrowers evaluated their decision to use payday loans positively, generally because the process provided needed funds quickly and conveniently. These findings suggest understanding of the product and deliberation in payday loan decisions, which are consistent with views of rational behavior.

Vehicle Title Loan Decisions. Evidence on title loan borrowers' decisions is limited. Fritzdixon, Hawkins, and Skiba (2014) interviewed over 450 borrowers of a title loan company in three states. The interviews focused on three aspects of their decision process: (1) overconfidence, (2) time preference, and (3) limited decision processes. Regarding overconfidence, they compared the distribution of borrowers' responses about their expectations for the time they would take to repay the loan completely with the distribution of actual repayments in one of the states for which data were available. Note that unlike Mann's (2013) payday study, Fritzdixon, Hawkins, and Skiba (2014) do not observe the outcomes of borrowers in their sample. Rather, they compare responses to available aggregate data on the distribution of the actual months to repay for all title loan borrowers in the state. The authors found that distributions of survey respondents' months to repay and aggregate months to repay for all borrowers were roughly

similar. However, the percentage of borrowers expecting to repay in one month was lower (by 7 percentage points) and the percentage of survey respondents expecting to repay in six or more months was greater (by 8 percentage points) than the percentages of aggregate months to repay in these intervals. Fritzdixon, Hawkins, and Skiba (2014) interpreted these findings as evidence that some title loan borrowers are overconfident in their ability to repay. They argued that the overconfidence is “not severe” and concluded that “people are relatively good at predicting their ability to repay,” (p. 1042).⁶¹ These conclusions rely on survey respondents from the title loan company not differing systematically from the borrowers of all of the companies in the three states, which might not be the case if, for example, title loan companies differ in their willingness to accept risky applicants. Fritzdixon, Hawkins, and Skiba (2014) also found that borrowers who previously borrowed through a title loan company show signs of learning about their repayment behavior through experience. Expected one-month and six-or-more-month repayment period percentages are closer to aggregate months to repay for previous borrowers than for new borrowers.

Next, regarding time preferences, Fritzdixon, Hawkins, and Skiba (2014) asked questions related to respondents’ time preferences between receiving a smaller reward immediately and a larger reward one month later, and consumers were asked to respond what their current decision and their decision six months later would be. Time-consistent choices would involve taking immediate (or delayed) rewards both currently and in six months. Two-thirds of respondents’ choices were time consistent. That is, they chose either the proximate or delayed reward in both the immediate and six-month time frames. Impatient individuals choose the proximate reward in both time frames, and patient individuals choose the delayed reward in both time frames.

⁶¹ This conclusion is consistent with Levy and Sledge’s (2012) findings on the expected repayment experience of title loan borrowers. About two-thirds of borrowers reported that they repaid their title loan in the expected time or less.

Whether patient (37 percent of respondents) or impatient (30 percent of respondents), time consistency is a feature of rational inter-temporal choice in economics. Of the time-inconsistent choices, present bias—choosing the proximate reward immediately and the delayed reward in six months—has raised the most concern.⁶² Present bias might lead an individual to delay earlier plans to repay a title loan when the loan matures and instead renew the loan for another term. Nineteen percent of respondents' choices suggested that they were present biased.⁶³

Finally, Fritzdixon, Hawkins, and Skiba (2014) discuss limited decision processes in title lending. They noted a finding from the behavioral literature that consumers often simplify the decision process by focusing on product features that are most important to them. They observed that advertisements emphasized ready availability of funds and a quick and easy origination process. These characteristics are ones that consumers using other small-dollar loans cited as reasons for satisfaction with their small-dollar loans. Advertisements generally did not mention the finance charge, APR, the time to repay the debt, or that failure to repay will result in seizure of the vehicle. While some observers (including Fritzdixon, Hawkins, and Skiba) might attribute the exclusion of these terms to shrouding, a more straightforward explanation might be that firms emphasize the terms that they believe will attract borrowers when the amount of information that firms can present to potential borrowers is limited.⁶⁴

Levy and Sledge's (2012) survey suggests that many title loan borrowers were not surprised by the cost or time to repay. More than half of title lender borrowers reported that the

⁶² The concern of Bar-Gill and Warren (2008), the Pew reports on payday lending (2012) and vehicle title lending (2015), and others are primarily that borrowers might misestimate their ability to repay and roll over loans frequently. Critics interpret this behavior as irrational and evidence of present-bias (or hyperbolic discounting). See the discussion of hyperbolic discounting in Section II of this paper.

⁶³ Present bias could explain why some consumers choose a closed-end installment loan over revolving credit. The closed-end contract precommits them to a set schedule to retire the debt. Otherwise, a present-biased consumer might delay repaying the debt by repeatedly making only minimum payments. For discussion, see Prelec and Loewenstein (1998). Few studies have considered future bias (Takeuchi 2011).

⁶⁴ Shrouding is intentional marketing that focuses consumers' attention on attractive-seeming product characteristics and conceals important characteristics that might be detrimental. See Gabaix and Laibson (2006).

cost of the title loan was about the expected amount or less; and, as mentioned, by far most respondents repaid the debt in about the expected time or less.

In sum, available evidence suggests that most title loan borrowers' decisions included behavior consistent with informed and thoughtful decision processes. Vehicle title loan borrowers predict their own repayment behavior reasonably well and learn through experience about their own behavior. Most borrowers' preferences are not present biased, which, if they were, would lead them to mispredict their willingness to save over the course of the month to repay the loan. And, as they report that the cost of their title loan is about the expected amount or less, title loan borrowers appear to be aware of the cost of the loans.

Pawn Loan Decisions. Evidence on pawn loan decisions is largely limited to borrowers' assessments of their ability to obtain needed funds from other, less expensive sources. Johnson and Johnson (1998) surveyed 1820 customers of nine pawnshops in six different states. Many of their analyses compared responses for three types of customers: (1) Active borrowers were consumers who borrowed from a pawnshop in the previous 12 months, (2) inactive borrowers were consumers who borrowed from a pawnshop sometime in the past but not in the previous 12 months, and (3) shoppers were consumers who never borrowed from a pawnshop. That they recently chose to borrow from a pawnshop suggests that active borrowers likely would find borrowing from mainstream lenders difficult. The shoppers and much smaller inactive borrower categories serve as comparison groups.

Johnson and Johnson (1998) found that active borrowers were less likely than inactive borrowers and shoppers to have risk-related characteristics that would help them obtain credit from mainstream lenders. Active borrowers had smaller percentages of homeownership (26

percent compared to 39 percent for inactive borrowers and 44 percent for shoppers), bank account ownership (64 percent compared to 73 percent for inactive borrowers and 81 percent for shoppers), and bank card holding (27 percent compared to 42 percent for inactive borrowers and 46 percent for shoppers).

Active borrowers were less successful than inactive borrowers or shoppers in obtaining credit. About a third of each type of customer reported applying for credit in the previous 12 months. Half of active borrowers who applied for credit were approved. Significantly more inactive borrowers and shoppers who applied for credit were approved (69 and 63 percent, respectively).

Successful efforts to borrow indicate that active borrowers had greater difficulty in obtaining low-rate mainstream credit. Customers were asked about the sources from which they had obtained credit in the previous 12 months. Active borrowers were more likely to have borrowed from relatives or friends and cash installment lenders, and less likely to have borrowed from banks, than inactive borrowers and shoppers. Like pawn loans, cash installment loans are also high-rate credit products. Responses to Levy and Sledge's (2012) survey suggest that substantial majorities of customers using pawn loans and cash installment loans were not surprised by the cost (81 percent and 74 percent, respectively, reported that the loan was about the same or less than they expected).

Levy and Sledge (2012) found that about 70 percent of pawn borrowers redeemed pawned items in the expected time or less. They also recorded a high level of satisfaction with the pawn loan product and found that only 10 percent of borrowers declared that they would not use a pawn loan again.⁶⁵

⁶⁵ Carter and Skiba (2012) recorded possible use of pre-commitment to redeem pawned items. Using loan-level data from a Texas pawnshop, they found that borrowers were more likely to redeem items to which they were

The limited available evidence for pawn borrowers' behavior indicates that borrowers demonstrate an accurate understanding of their alternative credit options. Pawn borrowers predict and attempt to constrain their own future behavior. Further, the majority of pawn borrowers have accurate expectations for the costs and time frame required for repayment. Thus, pawn borrowers, like the other borrowers already discussed, exhibit thoughtfulness and understanding in their use of pawn credit.

VI. CONSUMER PROTECTION POLICY ISSUES

In the previous two sections, we observe that pawn, vehicle title, payday, and installment borrowers fit the description of those whom the model predicts will benefit from small-dollar cash credit access: early family life-cycle stage with relatively high returns on household investments, but low levels of discretionary income or liquid asset holdings. Furthermore, many consumers using small-dollar credit products appear to be, on balance, aware of features of the product and exhibit some evidence of deliberation. A minority of borrowers, however, fail to predict their repayment behavior accurately, and experience frequent renewals and long small-dollar credit life cycles. In this section, we examine the current body of scholarly research that seeks to assess benefits or harm from use of small-dollar cash credit. We also discuss regulatory approaches for improving consumer decisions.

Are Consumers Helped or Harmed by Small-Dollar Cash Products?

John Caskey (2012) has argued that the “big question” surrounding small-dollar cash loans is whether these products “on net, exacerbate or relieve customers’ financial difficulties,”

sentimentally attached (such as wedding rings, class rings, heirloom jewelry) than other items. They argued that borrowers chose to pawn sentimental items as a means of self-control, knowing that their emotional attachment provides a strong incentive to redeem the item.

(p. 1). Evaluating how successfully scholars answer the big question of the payday loan literature at that time, Caskey reviewed the work of scholars aimed at answering this question and concluded that the literature did not provide a definitive answer to the question. Scholars found contradictory results, which led to different public policy implications.

Since Caskey's review, scholars have conducted numerous studies attempting to assess benefits or harm from small-dollar cash loans. Although insights from many of these studies are useful, Caskey's big question is still unresolved. Studies by Zinman (2010), Morgan et al. (2012), Morse (2011), Wilson et al. (2010), Karlan and Zinman (2009), Edmiston (2011), Bhutta (2014), Butta et al. (2015), and Carter and Skimmyhorn (2017), for example, find generally harmless, or positive, welfare effects of payday loans. In contrast, studies by Carrell and Zinman (2014), Melzer (2011), and Skiba and Tobacman (2009) find generally negative welfare effects of payday loans.

While Caskey (2012) addresses the welfare effects of payday loans, the big question surrounding the welfare effects of pawn, vehicle title, and installment loans is largely unanswered in the literature on small-dollar cash lending, which is considerably less developed than the payday literature.⁶⁶

The strongest research design for assessing benefits and harm would be an experimental design, where researchers could randomly grant access to pawn, vehicle title, payday, or installment loans to applicants while randomly denying access to these products to other applicants (and ensuring that they do not use a substitute product). Then, researchers could

⁶⁶ Though the pawn literature is largely silent on the welfare effects of pawn loans, a few scholars address the welfare effects of pawn loans to some degree in recent studies. Using Swedish pawn data, Bos et al. (2016) find no evidence that borrowing from a pawnbroker helped borrowers avoid arrears outside the pawn credit market.

observe various financial welfare effects of these products.⁶⁷ However, such studies are rarely feasible because they require the participation of a lender and the ability to restrict borrowers' access to substitute products from other lenders. The public policy debate surrounding these products largely hinges on quasi- experimental designs. A brief summary of the major studies and their findings follows.

Welfare Effects of Payday Loans. To measure the welfare effects of payday loan access, several studies exploit state-level bans on payday lending, whether explicit bans, or implicit bans through interest rate caps below the threshold necessary for payday lenders to operate profitably. Zinman (2010) examines the 2006 imposition of a 150 percent APR interest rate cap in Oregon in a quasi-experimental study of the effects of payday loan access on borrowers. Using borrowers in the neighboring state of Washington as a comparison group, Zinman finds that the interest rate cap reduced access to credit and worsened borrowers' financial conditions, as measured by employment and subjective assessments.

Morgan, et al. (2012) considers changes to state laws in eight states and Washington D.C. to assess the effects of payday loan access on borrowers. The authors assume changes in payday loan laws are exogenous, an assumption that the authors confess might be untenable, thus limiting the authors' abilities to make causal claims. Using difference-in-differences regressions, they find that payday loan access decreases the number of bounced checks, increases Chapter 13 bankruptcy filings, and decreases borrower complaints to the FTC.⁶⁸ They conclude that access to payday loans provides access to a lower-cost alternative to over-drafting. Further, because

⁶⁷ Studying non-financial welfare measures is also helpful in determining the net welfare effects of payday loan access. For example, Cuffe and Gibbs (2017) find payday loan restrictions decrease liquor sales.

⁶⁸ Morgan, et al. (2012) measure complaints regarding harassment by lenders and debt collectors using monthly data from calls to the FTC hotline (1-877-FTC HELP) from January 1998 to December 2008.

payday loan access is associated with increased Chapter 13 bankruptcy filings and decreased complaints against lenders and collectors, the authors speculate that payday loan availability affords borrowers access to formal bankruptcy rather than informal bankruptcy (i.e., where a borrower just stops paying bills).

Using a regression discontinuity design to identify individuals' access to payday loans, Skiba and Tobacman (2009) also find that access to payday loans increases Chapter 13 bankruptcy filings. As the consequences of filings depend on individual circumstances, the authors acknowledge that the welfare implications of increased Chapter 13 bankruptcy filings "depend on difficult-to-estimate parameters like private and social net costs of bankruptcy filings," (p. 26).

Comparing institutions located within states with bans on payday lending, Melzer and Morgan (2015) find that banks and credit unions that are located further from bordering states that allow payday lending reduce overdraft coverage limits. Additionally, they present some evidence that credit unions' overdraft activities are more profitable where payday loans are unavailable due to distance from states allowing payday loans. Both findings suggest that prohibitions on payday lending decrease competition.

Melzer (2011) also uses the distance from state borders where payday lending is available as a measure of payday loan availability. He finds that payday loan access leads to increased difficulty paying a mortgage, rent, and utilities and that payday loan access leads to more individuals delaying medical and dental care.

Like Melzer (2011), Bhutta (2014) exploits within-state variation in payday loan access due to proximity to neighboring states that allow payday lending. Bhutta's analysis of credit bureau data indicates that payday loan access had little effect on consumers' financial health, as

measured by credit scores, new delinquencies, and the likelihood of overdrawing credit lines. Using a regression discontinuity design, Bhutta et al. (2015) found that payday loan borrowers had relatively low credit scores before obtaining a payday loan, were experiencing financial difficulties at the time they applied for a payday loan, and returned to pre-payday borrowing credit score levels after their payday application. They observed this pattern for both marginally approved and marginally rejected applicants. Differences between marginally accepted and marginally rejected applicants were negligible.⁶⁹

Carrell and Zinman (2014) use variations in state laws and randomly assigned military postings as a quasi-experiment to test the effect of payday loan access on military performance. The authors find that payday loan access decreases military performance, as measured by reenlistment eligibility and the occurrence of Unfavorable Information Files. They find that the negative effects of payday loan access are strongest among first-term Air Force personnel in nonfinancial occupations stationed in areas with high rates of unemployment.

Alternatively, Carter and Skimmyhorn (2017) find no adverse effects on military performance resulting from payday loan access. In fact, their results suggest that payday restrictions for military members could adversely affect military members. Carter and Skimmyhorn argue that, relative to Carrell and Zinman (2014), their study has fewer data limitations, a more accurate measure of payday loan access (individual level rather than aggregate data), more outcomes over several time periods, and multiple identification strategies. They find no evidence of the Department of Defense's claim in support of the MLA that "predatory lending undermines military readiness" (Department of Defense 2006, p. 9).

⁶⁹ Edmiston (2011) finds that restricted payday access forces individuals to seek more costly forms of credit and decreases the credit standing of consumers. That individuals who lack access to payday loans might find alternative sources of credit can help explain the negligible differences in marginally accepted and rejected applicants in Bhutta et al. (2014).

Zaki (2016) also uses examines the effects of payday loan access using data from military sources, but unlike Carrell and Zinman (2014) and Carter and Skimmyhorn (2017), Zaki examines consumption behavior rather than military readiness. She uses the payday loan restrictions of the Military Lending Act as a quasi-experiment in which military personnel lost access to payday loans in October 2007. Using sales data from on-base grocery and department stores, the author finds that payday loan access relieves liquidity constraints by allowing military personnel to smooth food consumption between paychecks. Though, payday loan access also leads to more alcohol and electronics purchases. She concludes that there might be significant heterogeneity in the population, meaning some individuals are present-biased, though a significant portion of the population is forward-looking and self-controlled.

Morse (2011) uses natural disasters in California from 1996-2002 as a natural experiment to test whether access to payday loans mitigates or worsens financial distress. Morse finds that payday loan access for distressed borrowers mitigates increases in foreclosures resulting from natural disasters and decreases the occurrence of larceny. That a two-week loan averaging \$300 to \$400 used by a very small proportion of the population could significantly influence outcomes from natural disasters as well as property crime rates seems incredible. Geographic proximity or accounting for differences in a limited set of economic or social variables is unlikely to eliminate entirely the effects of other influences on outcomes.

Two studies are based on experimental designs. With cooperation from a small-dollar lender in South Africa, Karlan and Zinman (2009) conducted an experimental study in which the lender randomly approved applicants who would normally be denied for being just below the approval threshold. The authors find positive and statistically significant effects of approval on several measures of financial well-being and no effect on credit scores in the following two

years. In a laboratory experiment, Wilson et al. (2010) find that, on average, payday loan access helps subjects absorb expenditure shocks and survive financially.

If one were to conclude, like many of these studies find, that payday loan access is generally beneficial or harmless, it is important to note that these studies summarize the average treatment effects of payday loan access. In other words, though payday loan access could be *generally* harmless, there might still be some individuals who are harmed by having access to payday loans.

In other words, there is heterogeneity in the welfare effects of small-dollar loan access. Individuals who are present-biased or overly optimistic might over-borrow. Individuals who lack information about alternative credit options might not select the optimal form of credit. The Pew (2013) report shows that 48 percent of borrowers say payday loans mostly help borrowers, while 41 percent of borrowers say payday loans mostly hurt borrowers.⁷⁰ Levy and Sledge (2012) find that most borrowers are aware of their ability to repay payday loans, but some borrowers take longer to repay than they expected.

Though we highlight from the literature that borrowers fit the description of those who benefit from access to small-dollar loans and that borrowers are generally thoughtful about their credit decisions, an area for future research is identifying characteristics of those who are harmed by access to small-dollar loans and examining their decision-making processes and constraints. Progress in identifying, for example, which borrowers are present-bias and what information can be provided to improve their decision-making might help financial regulators better balance the benefits and costs of regulating access to small-dollar credit products. As noted by Campbell (2016), which is a current benchmark of thinking in consumer protection for small-dollar credit,

⁷⁰ For storefront payday borrowers only, 60 percent say payday loans mostly help borrowers, and 31 percent say payday loans mostly harm borrowers. For online payday loan borrowers only, 40 percent say payday loans mostly help borrowers, and 49 percent say payday loans mostly harm borrowers.

there is a “difficult tradeoff between the benefits of regulation to households that make mistakes, and the costs of regulation to other financial market participants” (Campbell 2016, p.48).

Competition, Regulation, and Credit Availability

Governments have long regulated credit terms and lending practices to prevent lenders from taking advantage of borrowers’ need and weak bargaining power. In the United States, regulations intended to protect consumers in credit transactions include the following:

1. *Direct regulation of the market conduct of firms offering products or services.* This set of regulations includes state and federal requirements or restrictions on lenders’ sales practices and use of personal characteristics in credit decisions, debt collectors’ behavior, and credit bureaus’ record keeping.⁷¹
2. *Direct regulation of product content.* This approach regulates the terms of credit contracts. Interest rate ceilings and maximum maturity terms have long been used at the state level. The federal government’s Credit Practices Rule regulates creditor remedies to consumer defaults. The federal Military Lending Act limits rates to 36 percent for military personnel, but the federal government has largely avoided interest rate ceilings.⁷²

The economic model of a competitive market provides that prices and quantities of

⁷¹ Many credit laws at the state level are on this “conduct” approach. Notable federal laws, and their updates, include the Fair Credit Reporting Act of 1970, the Equal Credit Opportunity Act of 1974, and the Fair Debt Collection Practices Act of 1978.

⁷² The issue of an interest rate cap swirled in deliberations and discussions for years in the 1960s. For example, it is featured in a 1967 floor debate between the co-sponsors of the Truth in Lending Bill, Senators William Proxmire (D Wisconsin) and Frank Lausche (D Ohio). See <http://www.ilsdc.org/assets/TILAdocs/tila-lh-cr-1967-01-31.pdf>. Representative Leonor Sullivan (D Missouri), an ardent consumer advocate, introduced HR 11601 to the House Banking and Currency Committee. Sullivan’s bill incorporated the Senate bill and included four additional provisions to the Senate’s version of the Truth in Lending Bill, including an 18 percent annual rate ceiling on all credit transactions in the United States. The House amended the bill to exclude the interest rate cap, but included language to establish the bipartisan National Commission on Consumer Finance. The vote was 383-4. President Johnson signed the Truth in Lending Act into law in May 1968.

products available in the market reflect the marginal cost of producing the products. Both consumers and producers are price takers. If price exceeds marginal cost, producers will expand production until price equals marginal cost. If marginal cost exceeds price, producers will contract production. Competition ensures the lowest possible price for a product.

When a firm has market power, it can raise the price above the marginal cost without losing all of its customers. When this behavior occurs, the price is too high and the quantity produced is too low. The belief that borrower need and lack of bargaining power gave lenders market power provided a justification for regulation of credit terms and lender behavior.

Whether such regulation is effective for controlling market power is questionable. In a theoretical paper, Blitz and Long (1965) examined the use of rate ceilings to remedy market power under different supply and demand conditions. Generally, a rate ceiling resulted in the same or lower levels of borrowing. High-risk borrowers were not able to borrow at all. Lower-risk borrowers were sometimes, but not always, better off under rate regulation. In one case examined by Blitz and Long (1965), borrowing was greater and interest rates were lower. This outcome is closer to a competitive outcome than the other cases that Blitz and Long (1965) considered. High-risk borrowers were able to pay less than their unregulated rate and were able to borrow, but they could not borrow as much as they would like at the regulated rate. Risk-free borrowers would pay a higher rate in this case. The main beneficiaries would be low-risk borrowers in the middle, who would pay less and borrow more.

Blitz and Long (1965) were skeptical that regulators possessed the analytical capabilities to assess supply and demand conditions in credit markets that would enable them to set rate ceilings in a way that would reduce market power and produce more competitive outcomes.

Instead, they suggested that it would be far simpler for regulators to work toward making the market more competitive.

Blitz and Long's (1965) theoretical findings are supported by empirical analyses of the personal loan market conducted for the National Commission on Consumer Finance (1972). Staff analyses indicated that low rate ceilings were associated with less credit. The number and dollar volume of loans were lower and rejection rates were higher in states with low rate ceilings than in states with high rate ceilings. This finding is consistent with low rate ceilings rationing high-risk consumers. Low rate ceilings also did not generally lower borrowing costs. While rates clustered near the rate ceiling in states with low rate ceilings that are below market rates, considerable percentages of loans had rates much lower than rate ceilings in states with high rate ceilings. This finding suggests that lower-risk consumers pay market prices when ceilings are above market prices.

The National Commission found that more competitive market structures were associated with greater credit availability. The number and dollar volume of loans was larger in less concentrated markets than in more concentrated markets. The National Commission noted that competition across different institutional types of lenders was in many states inhibited by institutional differences in rate and loan size limits. Such regulatory restrictions often prohibited or made unprofitable loans by an institution type outside of the specific loan size segment authorized for that lender type.⁷³ Also inhibiting competition in the small-dollar segment of the market was restrictive convenience and advantage licensing, which required consumer finance companies to show that it is to the convenience and advantage of the public to open an office.⁷⁴

⁷³ For a graphical presentation illustrating this form of segmentation, see Rogers (1975), pp. 119-21.

⁷⁴ The argument for restricting entry in the small loan market was that free entry would lead to excessive competition. Lenders would open too many offices, which in a crowded market would operate at an inefficient small

The National Commission on Consumer Finance concluded that “free and fair competition is the ultimate and most effective protector of consumers.” In addition to antitrust policy concerning mergers and acquisitions, the National Commission recommended elimination or relaxation of rate ceilings and the elimination of entry barriers (including restrictive loan size limits and convenience and advantage licensing).⁷⁵

More recent discussions of rate ceilings include Peterson and Falls (1981), Villegas (1989), Zywicki (2009), and Zinman (2010). Villegas finds that low rate ceilings reduce the quantity of credit available to low- and middle-income households. Zinman (2010) shows that binding interest rate ceilings harm consumers with high debt service burdens, because decreasing access to credit might preclude refinancing of debt, which leads to increased foreclosures, defaults, and bankruptcies. Peterson and Falls (1981) and Zinman (2010) find that these borrowers are forced to shift into more expensive substitutes for installment loans. A shift into products such as check overdrafts and pawnshops worsens the financial conditions of borrowers. Zywicki (2009) contends that imposing more regulations on payday lenders will make consumers worse off, and do little to protect consumers from concerns of over-indebtedness and high-cost lending. He argues that unintended consequences, such as shifting borrowers into more expensive credit products, can occur because of heavy restrictions on payday lenders.⁷⁶

The debate over the merits of interest rate ceilings will surely continue as long as disagreement remains about the welfare effects of small-dollar credit access. To those who are particularly motivated by the poor outcomes experienced by some borrowers, interest rate ceilings represent an appropriate consumer protection, perhaps regardless of the costs to those

scale. Lenders’ efforts to increase office loan volumes would cause lenders to make imprudent loans. For discussion of these arguments, see Johnson (1968).

⁷⁵ See the December 1972 Report of the National Commission on Consumer Finance, pages 136-138.

⁷⁶ Durkin, Elliehausen, Staten, and Zywicki (2014) present a detailed discussion of the theoretical and empirical evidence on rate ceilings.

who benefit from small-dollar credit access. To others, interest rate ceilings restrict credit access to those with already limited credit options. Further research on the heterogeneous welfare effects of small-dollar credit will inform the debate over the merits of interest rate ceilings.

The Role of Disclosures

Beyond concerns about borrowers' need and weak bargaining power is a question of whether free markets, if left to themselves, will provide consumers with adequate information to make informed decisions. This concern has provided a third justification to regulation:

1. *Improving the flow of information.* This approach to regulation mandates disclosures intended to improve the quantity and quality of information provided to consumers. The federal Truth in Lending Act (TILA) of 1968 is the most prominent of information remedies in the consumer credit area. Key requirements of the TILA are disclosures for an effective interest rate (the annual percentage rate) and the dollar amount of interest (the finance charge), which standardized information on credit costs provided to consumers. Before the TILA, consumers lacked adequate credit cost information needed to make informed decisions.⁷⁷ The four small-dollar loan products are subject to Truth in Lending. Their customers receive disclosures stating TILA dollar finance charge and annual percentage rates.

Disclosures have several advantages over regulation of credit terms and lender behavior. First, disclosure requirements are compatible with market forces. The marketplace already

⁷⁷ At the federal level, the core approach to consumer financial protection is mandatory information disclosure. In addition to the disclosures required by The Truth in Lending Law of 1968, federal statutes mandate specific disclosures include the areas of bank deposits, electronic funds transfers, securities purchases, privacy policies, credit reporting, mortgage lending, and consumer credit prices and terms. For an extended discussion of information remedies for consumer financial products, see Durkin and Elliehausen (2011).

provides incentives for firms to disclose favorable price and product information. Required disclosures in a standard format help highlight the features of the best products and expose the inadequacies of the poorer ones. Second, if the consumer's problem in the marketplace is lack of information on product prices and features, disclosure of information seems more reasonable than directly regulating product prices or features. Providing information does not require regulators to know consumers' needs or preferences. With disclosures, consumers can decide for themselves what product best suits their needs. Third, federal disclosure requirements can often be layered on top of existing state consumer protection regulations without forcing changes to long-standing legal approaches of individual states. Finally, providing disclosures often has a relatively low cost, both in terms of market disruption and expenditures for implementation and enforcement.

That said, requiring disclosures is not a panacea for all problems confronting consumers – that is, requiring disclosures cannot relieve all of the decision-making constraints faced by borrowers that cause them to behave differently than the perfectly rational borrower. Discussing information disclosures in Truth in Lending, Rohner (1996) succinctly addresses limitations of disclosure policy: “Nothing in TILA compels consumers to read, understand, and respond to its disclosures. There is no TILA elixir to cure consumer illiteracy, innumeracy, or plain disinterest. TILA cannot force economic rationality into a consumer's consciousness. About all that can be expected is that adequate amounts of credit cost information are available, at appropriate times, in a more or less standardized vocabulary and understandable format, so that consumers wanting to use it can do so.” (p. 114)

Rohner's (1996) analysis suggests several considerations for disclosure policies intended to facilitate consumers' decisions. First, information must be accessible at the time it is most

useful. Information usually would be most useful during the typical shopping period, before the decision is made. Disclosures at the time a transaction is completed can be useful for other purposes but normally would not provide help in the decision process. Second, consumers must be able to understand the information. Having the information available does not mean that the consumers can comprehend the information. Expecting consumers to comprehend complex financial concepts is unrealistic. However, while consumers might not know how to calculate APRs, finance charges, or monthly payments, they likely understand that, other things equal, lower APRs, finance charges, and monthly payments are better than higher ones. More complex financial concepts—the effect of prepaid finance charges on the APR when a loan is repaid before maturity, for example—are unlikely to be understood and therefore provide little promise for improving decision processes. Third, information should be relevant. Providing information that consumers do not consider relevant risks impairing consumers’ information processing capacity. Irrelevant information can divert attention from important features or suggest by its disclosure that a feature should be considered.

As we have already discussed, Bertrand and Morse (2011) conducted an experimental study of the effect of supplemental dollar finance charge and APR disclosures on payday loan use by borrowers of a large, multi-state payday lender. They find that receipt of the supplemental dollar finance charge disclosure resulted in less payday borrowing (about 11 percent). The supplemental APR disclosure did not have any effect on payday borrowing. This finding is consistent with the idea that borrowers consider finance chargers but not APRs in their payday loan decisions, and it highlights the importance of Rohner’s second and third consideration mentioned above. That is, effective disclosures must provide information that consumers understand and that consumers actually use in their decisions to borrow from small-

dollar lenders. Designing disclosures that enhance consumers' ability to make utility-increasing decisions requires an understanding of consumers' cognitive abilities and decision processes. Taking these factors into account can produce more effective disclosures and avoid mistakes.

Two recent experimental studies by Federal Trade Commission (FTC) economists provide evidence on the usefulness of empirical research for designing disclosures. The first study (Lacko and Pappalardo 2004) concerned a policy proposal to add broker compensation to current mortgage cost disclosures. The test examined the effect of the proposed disclosure on consumers' ability to assess mortgage costs. Broker compensation is included in the current disclosure form but is not identified separately. It is not needed to assess mortgage cost. The authors find that disclosure of mortgage broker compensation reduced recent mortgage borrowers' ability to identify less expensive loans.

In a later study, Lacko and Pappalardo (2007) compared a prototype mortgage disclosure form with the current form. The prototype disclosures were based on focus group interviews, the agency's experience in designing consumer disclosures, and problems in deceptive lending cases investigated by the FTC. The principles for designing the form were that it should contain information on key terms, the format and language should be easily understood, and less important information should be excluded. They found that after viewing the current mortgage disclosures, many respondents could not identify basic loan attributes. One-half of respondents could not correctly identify the loan amount, and one-fifth of respondents could not identify the APR, the amount of cash due at closing, or the monthly payment. The authors compared recent mortgage borrowers' understanding of the prototype mortgage disclosures for simple and complex mortgages. They found large improvements in understanding of both the simple and complex mortgage disclosures. The responses of subprime borrowers were similar to those of

prime borrowers, suggesting that the difficulty lies with the disclosure, not the borrowers.

Federal Laws Regulating Small-Dollar Credit Products

Federal regulations largely apply for all types of household credit and generally are the same in all states. Information on effects of federal disclosure laws is focused on cost disclosures. Elliehausen and Lawrence's (2001) finding that payday loan borrowers generally were able to state accurate dollar finance charges on their most recent loans but were largely unaware of annual percentage rates suggests that payday loan borrowers view the finance charge, not the annual percentage rate, as the cost of credit. That borrowers could not recall the annual percentage rate on their most recent loans despite reporting that they received the disclosure suggests that they did not consider the annual percentage rate to be important. Bertrand and Morse's (2011) experimental finding that receipt of a supplemental dollar finance charge disclosure resulted in less payday wing is consistent with the view that borrowers consider finance charges in their decisions. Whether reliance on the dollar finance charge as a measure of cost is evidence of a problem is not clear. The time value of money has a negligible effect in short-run decisions, and many theorists have argued that an annualized interest rate is not useful for such decisions.⁷⁸

State Laws Regulating Small-Dollar Credit Products

State laws regulate interest rates, fees, length of loans, and other term of small-dollar nonbank credit products. A summary of these laws, by state, appears in appendix Table A2. The

⁷⁸ For discussion, see Durkin and Elliehausen (2017).

lesson in Table A2 is that the scope of state regulations is quite broad, and each state has its own set of detailed regulations.⁷⁹

Summary of Studies of the Regulations of Small-Dollar Credit Products.

Researchers examining the effects of regulations typically examine the effects of federal or state laws. In this section, we highlight and summarize much of the literature studying regulations for each of the four small-dollar credit products.

Pawn Loans. As shown in Table A2, pawnbroking is legal in all 50 states and the District of Columbia. The pawn industry is also subject to 15 federal regulations in the United States, including the Truth in Lending Act (TILA) and the Military Lending Act (MLA).⁸⁰ Moreover, many states and municipalities govern the pawn industry through licensing requirements, reporting requirements to local law enforcement, and more.⁸¹

Interest rate restrictions, regulations on the resale of collateral, and requirements to report to local police date as far back as 1812 in New York City.⁸² Carter and Skiba (2012), report that 40 states and the District of Columbia place some restrictions on interest rates, a number that has grown to 45 based on data in Table A2. Shackman and Tenney (2006) listed 10 states with requirements to return excess profit to the borrower upon sale of the borrower's collateral. As shown in Table A2, this number is now five. Much of the scholarly research surrounding the pawn industry measures the effects of industry regulations on pawn credit availability. Scholars

⁷⁹ In addition, state laws frequently change. Therefore, we believe the data shown in Table A2 is as accurate as the sources have provided. Nonetheless, errors in Table A2 are still possible.

⁸⁰ See the National Pawnbrokers Association website at https://assets.nationalpawnbrokers.org/2018/02/FAQ_2018.pdf

⁸¹ The National Pawnbrokers Association provides a summary of state laws at <https://www.nationalpawnbrokers.org/state-pawn-shop-laws/>

⁸² Caskey (1994 pg. 20).

measure pawn credit availability using the number of pawnshops per capita, pawnshop store hours, loan amounts relative to collateral values (LTVs), and individual survey responses indicating pawn borrowing. Caskey (1991) and Shackman and Tenney (2006) find that interest rate caps decrease the number of pawnshops per capita. Shackman and Tenney (2006) also show that requirements to return excess profits from the sale of pawn collateral is associated with decreased store hours. Further, in a survey conducted by the Shackman and Tenney, they ask pawnshops what amount they are willing to loan on a piece of jewelry with a \$200 resale value.⁸³ Using survey responses, they find, as do Johnson and Johnson (1998), that interest rate restrictions decrease loan-to-value ratios.

The unbanked/underbanked supplement to the Current Population Survey (CPS supplement) provides the most reliable and comprehensive data on the use of pawn credit. Using data from the CPS supplement, Avery and Samolyk (2011) find that the number of pawnshops and pawn usage increase as fee ceilings increase, allowing pawnshops to charge higher prices. Because Avery and Samolyk have individual-level responses indicating pawn usage, their results do not rely on the assumption of the previous research that fewer stores implies decreased access to pawn credit. Therefore, their findings buttress earlier findings that interest rate caps (i.e., fee restrictions in the pawn industry) restrict access to credit. Unfortunately, this nationally representative data set cannot answer loan-level questions, like the effect of interest rate caps on loan-to-value ratios, because it does not include questions specific to the terms of pawn transactions.

Regulations in other credit markets also affect the pawn industry. Carter (2015) examines the relation between pawn usage and restrictions on the ability to roll over payday loans and

⁸³ The authors surveyed 12,116 pawnshops and received roughly 300 responses. The authors note that pawnshops in more regulated jurisdictions responded at higher rates.

finds that the credit products are complements, not substitutes. Littwin (2009) tests the substitution hypothesis, which states that restricting one form of credit results in borrowers using other credit products. Littwin's findings concerning low-income borrowers, however, suggest that pawnshops and rent-to-own stores likely function as complements to, rather than substitutes for, credit cards.

Vehicle Title Loans. The title loan industry is regulated by governments at the federal, state, and local levels. Through the Truth-in-Lending Act (TILA) and the Military Lending Act (MLA), the federal government requires lenders to disclose finance charges as an APR, and prohibits lenders from charging more than 36 percent APR to military members and their dependents. Most recently, the CFPB rule, which was finalized January 16, 2018, but was delayed, requires title lenders to consider the consumer's ability to repay prior to loaning money, among other requirements. Because vehicle title loans are asset-based, the CFPB requirement to consider repayment ability might be particularly onerous. Hawkins (2015) argues that new CFPB regulations favor large lenders, who are more likely to comply with federal regulation but also are more likely to charge higher prices and target racial minorities in advertising.⁸⁴

In addition to federal regulation of the industry, title lending is also regulated at the local level.⁸⁵ For example, Peña (2014) details the municipal regulations on title lenders in Austin, Dallas, El Paso, and San Antonio. These municipalities require lenders to retain complete loan records for three years, provide forms in the consumer's language of preference, refer consumers to non-profit agencies for financial education, and cap loan values based on income and the vehicle's value among other things. In some states, like Georgia, municipalities have the

⁸⁴ Hawkins (2015) examines the store-front and online advertising of payday and title lenders in Houston, TX.

⁸⁵ See Peterson (2012).

authority to license lenders.⁸⁶ Most of the regulation of the title lending industry, however, occurs at the state level.

Differences across state laws lead to differences in vehicle title loan transactions. Auto title lenders legally operate in 24 states. Of these states, six permit only title pawn loans, 13 allow title pawn and title installment loans, and five permit only title installment loans.⁸⁷ While many states do not explicitly ban title loans, they often use interest rate caps to make it unprofitable for title lenders to operate.⁸⁸ Hawkins (2012) suggests that a 200 percent APR is required for title lenders to operate profitably. States also restrict title loans through caps on loan amounts, which might be based on a percentage of the borrower's income or a percentage of the vehicle's value.⁸⁹ Moreover, some states place limitations on the term of the loan and number of rollovers.⁹⁰ Many state statutes do not explicitly authorize title lending nor specify whether the

⁸⁶ Georgia's state law allows municipalities to license lenders. Ga. Code Ann. sec. 44-12-136(b)(4). See Fritzdixon, Hawkins, and Skiba (2014).

⁸⁷ See <https://www.federalregister.gov/documents/2017/11/17/2017-21808/payday-vehicle-title-and-certain-high-cost-installment-loans#footnote-180-p54490>. Interestingly, our source for title lending lists 16 states where vehicle title lending is allowed.

⁸⁸ Hawkins (2012) suggests 200 percent APR is required for title lenders to operate profitably (referencing the findings of a National Consumer Law Center webinar). Alabama, Georgia, Mississippi, and New Hampshire cap monthly interest rates between 15 and 25 percent. Tennessee caps interest rates at 2 percent per month but allows a fee of up to 20 percent of the original principal. Ala. Code sec. 5-19A-7(a); Ga. Code Ann. sec. 44-12-131(a)(4); Miss. Code Ann. sec. 75-67-413(1); N.H. Rev. Stat. Ann. sec. 399-A:18(I)(f); Tenn. Code Ann. sec. 45-15-111(a).

⁸⁹ Mississippi, New Mexico, and Tennessee cap loan amounts at \$2,500. Missouri caps loan amounts at \$5,000. Illinois caps loan amounts to \$4,000, or 50 percent of the borrower's gross monthly income. Wisconsin caps the loan amount to 50 percent of the vehicle's value and caps the total loan at \$25,000. Arizona, Idaho, South Dakota, and Utah have no limitations on loan amounts. Miss. Code Ann. sec. 75-67-415(f); N.M. Stat. Ann. sec. 58-15-3(A); Tenn. Code Ann. sec. 45-15-115(3); Mo. Rev. Stat. sec. 367.527(2); Ill. Admin. Code tit. 38; sec. 110.370(a); Wis. Stat. sec. 138.16(1)(c); (2)(a); Ariz. Rev. Stat. Ann. sec. 44-291(A); Idaho Code Ann. sec. 28-46-508(3); S.D. Codified Laws sec. 54-4-44; Utah Code Ann. sec. 7-24-202(3)(c).

⁹⁰ Delaware, Georgia, Idaho, Illinois, Mississippi, Missouri, Nevada, New Hampshire, Tennessee, and Utah permit rollovers. Idaho and Tennessee limit loan terms to 30 days but allow automatic rollovers and mandate principal reductions starting with the third rollover. Virginia bans rollovers and requires a minimum term of 120 days. Del. Code Ann. tit. 5 sec. 2254 (rollovers may not exceed 180 days from date of fund disbursement); Ga. Code Ann. sec. 44-12-138(b)(4); Idaho Code Ann. sec. 28-46-506(1) & (3); Ill. Admin. Code tit. 38; sec. 110.370(b)(1) (allowing refinancing if principal is reduced by 20 percent); Miss. Code Ann. sec. 75-67-413(3); Mo. Rev. Stat. sec. 367.512(4); Nev. Rev. Stat. sec. 604A.445(2); N.H. Rev. Stat. Ann. sec. 399-A:19(II) (maximum of 10 rollovers); Tenn. Code Ann. sec. 45-15-113(a); Utah Code Ann. sec. 7-24-202(3)(a); Va. Code Ann. sec. 6.2-2216(F).

lender has recourse against the borrower.⁹¹ In these states, lenders report that they almost never seek deficiency judgments.⁹² As shown in Table A2, nine states require all or a portion of any surplus from the sale of the vehicle to be returned to the borrower.⁹³

Hawkins (2012) finds that title lenders often restructure loans in response to state regulations. For example, in Kansas, if title loans are structured as open-ended credit, these loans are not subject to the 36 percent interest rate cap in Kansas. In Texas, lenders operated as Credit Service Organizations, or organizations providing credit-repair services that were not bound by state usury limits. Alternatively, title lenders can simply provide loan amounts that are just above the loan amount that is governed by rate caps.

Zywicki (2010) states that entry barriers are low and that there is no evidence of abnormal or persistent economic profits resulting from a market failure in the title loan industry. Therefore, like the National Commission on Consumer Finance, he argues that competition leads to lower prices. Zywicki (2010) notes that usury regulations, like interest rate ceilings, force consumers to substitute a less desirable loan product. Furthermore, he argues that borrowers, who are likely already credit constrained, find themselves with even fewer credit options.

Payday Loans. Like the consumer credit markets discussed already, the payday industry is subject to the federal regulations of the Truth in Lending Act (TILA) and the Military Lending Act (MLA). As shown in Table A2, 18 states and Washington D.C. ban payday loans. Skiba

⁹¹ Delaware, Florida, Idaho, Nevada, South Carolina, Tennessee, Utah, Virginia, and Wisconsin are non-recourse states. Del. Code 5-22-V sec. 2260; Fla. Stat. sec. 33.537.012 (5) (2016); Idaho Code 28-46-508 (2); NRS 604A.455-2; S.C. Code of Laws sec. 37-2-413(5); Tenn. Code Ann. sec. 45-15-115 (2); Utah Code Ann. sec.7-24-204(1); Va. Code sec. 6.2-2217.A & E; and Wis. Stats. 138.16(4)(f).

⁹² See Zywicki (2010).

⁹³ Arizona, Delaware, Idaho, Missouri, Tennessee, Utah, Virginia, and Wisconsin require 100 percent of the surplus to be returned to the borrower. Mississippi requires 85 percent of the surplus to be returned to the borrower. Ariz. Rev. Stat. Ann. sec. 47-9608(A)(4); Del. Code Ann. tit. 5, sec. 2260; Idaho Code Ann. sec. 28-9-615(d); Mo. Rev. Stat. sec. 408.553; S.D. Codified Laws sec. 54-4-72; Tenn. Code Ann. sec. 45-15-114(b)(2); Utah Code Ann. sec. 7-24-204(3); Va. Code Ann. sec. 6.2-2217(C); Wis. Stat. sec. 138.16(4)(e); Miss. Code Ann. sec. 75-67-411(5).

(2012) argues that outright bans of payday lending ignore the benefits that access to credit offers. Skiba (2012) also argues that restrictions on payday loan rollovers might benefit consumers. Payday loan rollovers are permitted in 11 of the 33 states that allow payday lending, and each of these states limits the number of rollovers. Moreover, local governments regulate payday lending, including municipalities in Texas and Oregon.⁹⁴

At least 11 states that once authorized payday lending have restricted or banned payday lenders in recent years, including North Carolina (2001), Georgia (2004), Ohio (2008), Washington D.C. (2008), Virginia (2009), Washington (2009), Colorado (2010), Arizona (2010), Delaware (2013), South Dakota (2016), and New Mexico (2017). As we discuss in the previous section, scholars often use changes to state payday regulations to determine whether payday loans benefit or harm borrowers.⁹⁵

Stegman (2007), Barr (2004), and Caskey (2002; 2005) discuss the evolution of payday regulations and the industry structure. In the late 1990s, as some states began to limit loan fees, the payday lending industry adopted the “rent-a-bank” model. Payday lenders partnered with banks in states without usury restrictions. The 1978 Supreme Court ruling upholding the National Bank Act and the Depository Institutions and Regulation and Monetary Control Act of 1980 allowed banks to charge interest rates allowed by the state where they are chartered. As a result, payday lenders arranged “bank” loans from banks not constrained by rate ceilings until bank regulators discouraged this practice through supervisory guidance. Other approaches for

⁹⁴ Source: Bureau of Consumer Financial Protection, Final Rule, “Payday, Vehicle Title, and Certain High-Cost Installment Loans, 11/17/2017, <https://www.federalregister.gov/d/2017-21808/p-82>.

⁹⁵ Source: Bureau of Consumer Financial Protection, Final Rule, “Payday, Vehicle Title, and Certain High-Cost Installment Loans, 11/17/2017, <https://www.federalregister.gov/d/2017-21808/p-64>.

avoiding state rate restrictions include offering payday loans via the internet, or through credit service organizations or credit repair services that are exempt from state usury laws.⁹⁶

Cash Installment Loans. Although not shown explicitly in Table A2, no state bans this product outright. Moreover, one can see that, for most states, the regulations on the maximum interest rate allowed and maximum maturity are quite detailed and specific.⁹⁷

Research into this product has been stale since the 1972 National Commission on Consumer Credit report was released. The lack of research into this product was likely largely due to the lack of reliable data. Recently, however, the American Financial Services Association (AFSA), the trade association for the cash installment loan industry, collected data from its members on their loan portfolios. Two papers have emerged from this data set. The first one, Durkin, Elliehausen, and Hwang (2017), provides an overview of the AFSA data set. They report that the number of loans varies across states. States with relatively low interest rate ceilings have relatively fewer loans.

A rational economic response by installment lenders who are constrained by rate caps is to make larger loans. Larger loans generate sufficient interest income to cover operating costs and provide the appropriate risk-adjusted rate of return on equity. As installment lenders migrate to making larger loans, a so-called “credit desert” emerges for loans smaller than those needed

⁹⁶ Barr (2004) notes that despite increasing competition among payday lenders for retail space, customer service, and convenience for customers, prices remain high. DeYoung and Phillips (2013) and Flannery and Samolyk (2005) find that prices tend to drift toward legislated price ceilings, which they interpret as evidence of implicit collusion among lenders. The rate ceiling serves as an anchor toward which lenders migrate. Furthermore, Stegman (2003, 2007) argues that legal challenges lead to consolidation in the industry, which could lead to higher prices.

⁹⁷ We note that this product was born of the collaboration between progressives and capitalists that resulted in model legislation known as the Uniform Small Loan Law of 1916. As a result, various states have had 100 plus years to hone their regulations regarding aspects of this product.

by lenders to break even.⁹⁸ To illustrate a loan desert, consider a \$100 loan in 1916. At the time, lenders could charge a 3.5 percent monthly rate, which is a 42 percent APR. Many state legislatures, however, have not increased allowable rates. As Black and Miller (2016) show, 40 states currently have interest rate caps equal to or less than 42 percent. The \$100 loan size in 1916 dollars translates to a \$2,315 loan in 2014 dollars. In an important investigation, Durkin, Elliehausen, and Hwang (2017) restate some results of the National Commission on Consumer Finance (1972) cost study and report that a \$2,100 loan (in 2013 dollars) has a 42 percent breakeven APR. As a result, if a consumer wants to borrow an amount less than \$2,100, traditional installment lenders faced with a 42 percent APR cap will not make the loan. The consumer would have to use other credit sources.

The second study, Lukongo and Miller (2019), presents evidence from the borrower's perspective. Lukongo and Miller (2019) studies how Arkansas residents, in the face of a binding interest rate cap, obtain installment loans from finance companies. Author conversations with AFSA personnel confirm that no installment lenders operate in the state of Arkansas. Lukongo and Miller (2019) study the extent to which Arkansas residents drive to six bordering states to take out small-dollar installment loans as well as the acquisition costs of these loans. In addition, Lukongo and Miller (2019) document that driving distance matters. About 95 percent of the installment loans held by Arkansas residents are concentrated in Arkansas counties that border counties in other states.

VII. CONCLUSION

⁹⁸ A "credit desert" might well be the intention of regulators who want to limit the supply of, and hence access to, installment loans below a certain dollar amount.

This paper provides a springboard to scholars and policymakers seeking to learn about the workings of four small-dollar, non-bank-supplied credit products. These products are pawn loans, vehicle title loans, payday loans, and cash installment loans. We describe the users of these products, and the scholarly findings on whether these products are mostly helpful or harmful to borrowers and the decision processes of borrowers who use these products. We summarize the academic literature and the policy debates surrounding each of these products. More importantly, perhaps, we identify unresolved questions for further research.

We present relevant economic models of consumer credit use from the literature and argue that borrowers who use these small-dollar markets fit the description of those whom economic theory predicts rationally use them. Measuring the welfare effects of small-dollar credit use to support or refute the predictions of the model is difficult. Though, many studies find that the average treatment effect of small-dollar credit access is generally harmless, there is considerable heterogeneity in outcomes among borrowers. Similarly, studies suggest that *most* borrowers understand small-dollar credit products and accurately predict their own repayment behavior. Yet, some borrowers mis-predict their own repayment behaviors and have particularly poor outcomes relative to others.

The ambiguity surrounding these findings explains the disagreement among policymakers, scholars, and others regarding the proper policy response to small-dollar short-term credit. Current policy responses range from outright bans to unrestricted operation of small-dollar credit products. Explicit or implicit bans of small-dollar credit products might be depriving borrowers of much needed credit, or they might be protecting borrowers from harmful effects of being unable to escape debt.

Scholars can help inform future policy decisions by engaging the literature devoted to these products and adding to the mosaic of findings presented in this paper. What is the distribution of outcomes for small-dollar credit borrowers? Why do some borrowers have poor outcomes relative than others? What product or borrower characteristics predict these poorer outcomes? Which borrowers accurately predict their own repayment behavior? What information do borrowers use in their small-dollar decision processes that could be used to improve outcomes? What policy response(s) can protect borrowers from very poor outcomes without restricting credit access to those who might benefit from it?

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Table 1: Dollars Borrowed, by Product

Dollars Borrowed (in billions)	2016	2017 (est.)
Cash Installment Loan	\$18	\$20
Pawn Transaction	\$14	\$14
Vehicle Title Loan	\$ 6	\$ 7
Payday Loan (Online)	\$15	\$15
Payday Loan (Storefront)	\$20	\$18
Total Small-Dollar Credit	\$74	\$73
<i>Credit Card Loans Originated in U.S. (for comparison)</i>	<i>\$415</i>	<i>\$406</i>
<i>Automobile Loans Originated in U.S. (for comparison)</i>	<i>\$591</i>	<i>\$585</i>
<i>Student Loans Originated in U.S. (for comparison)</i>	<i>\$130</i>	<i>\$135</i>

Source: Center for Financial Services Innovation (CFSI), December 2017 Report. CFSI cites data from "Alternative Financial Services: Innovating to Meet Customer Needs in an Evolving Regulatory Framework" by John Hecht, Stephens, Inc. 2014, and statements by John Hecht for Jefferies, Inc., 2015 - 2016. In addition, for pawn, payday, and installment loans, CFSI estimates are based on publicly traded industry leaders' annual and quarterly report data (2009-2017), market share data, and figures reported by the National Pawn Brokers Association. For payday, rollovers are counted as discrete volume. For Title lending CFSI estimates are based on state-specific title loan incidence, volume, and revenue data reported by regulatory agencies in CA, IL, NM, TN, TX, and VA (2009-2016 as available); 2016 Revenue Data from the Center for Responsible Lending "Payday and Car Title Lenders Drain \$8 Billion in fees Every Year," (2017), footprint of auto title lending locations and proportion of states offering installment and single-payment models for all states where the practice is legal sourced from "Driven to Disaster: Car Title Lending and Its Impact on Consumers," Center for Responsible Lending (2013); additional data on proportional use of installment and single-payment auto title sourced from "Payday and Auto Title Lending in Texas, Market Overview and Trends 2012 - 2015," Texas Appleseed (2016). Rollovers counted as discrete volume. Data for credit card debt, automobile debt, and student loan debt is available from the CFPB at <https://www.consumerfinance.gov/data-research/consumer-credit-trends/>.

Table 2: Demographics of Consumer Credit Users, by Product

	Pawn Loan Customers	Vehicle Title Loan Customers	Payday Loan Customers	No High-Rate Products
Age				
18 – 24 years old	14%	15%	14%	9%
25 - 34 years old	26%	33%	31%	15%
35 - 44 years old	22%	22%	23%	15%
45 – 54 years old	20%	15%	16%	19%
55 – 64 years old	13%	9%	11%	19%
More than 65 years old	5%	6%	6%	22%
Life Cycle				
<45, married, has children	33%	45%	40%	22%
<45, married, no children	1%	1%	1%	1%
<45, not married, no children	3%	3%	3%	2%
>45, married, has children	10%	11%	9%	17%
>45, married, no children	8%	10%	8%	33%
>45, not married, no children	14%	8%	11%	15%
Any age, not married, has children	31%	22%	29%	11%
Approximate Annual Household Income (\$1000s)				
Less than \$15	21%	9%	13%	10%
\$15 - \$24	19%	11%	14%	10%
\$25 - \$34	16%	14%	15%	10%
\$35 - \$49	16%	15%	16%	14%
\$50 - \$74	16%	23%	21%	21%
\$75 or more	12%	29%	22%	36%
Financial Condition				
Spending equal to or greater than income	73%	68%	71%	52%
Not difficult to pay bills	18%	33%	24%	56%
Had a large drop in income in last 12 months	44%	42%	43%	17%
Had an emergency fund	22%	44%	33%	53%

Source: The 2015 National Financial Capability Study by the FINRA Investor Education Foundation in consultation with the U.S. Department of the Treasury and President Obama's Advisory Council on Financial Capability.

Table 3: Consumer Credit Use, by Product

	Pawn Loan Customers	Vehicle Title Loan Customers	Payday Loan Customers	No High-Rate Products
Use of other sources of consumer credit (within household)				
Has an auto loan	30%	52%	42%	30%
Has a student loan	42%	52%	52%	23%
Has a credit card	56%	80%	73%	83%
Credit Card Experience (Percent of Cardholders)				
Carried a balance	65%	57%	64%	43%
Made a minimum payment	63%	52%	61%	25%
Paid a late fee	39%	34%	40%	8%
Paid over limit fee	27%	31%	34%	3%
Obtained a cash advance	35%	34%	36%	6%
Alternative credit sources in last 12 months (within household)¹				
Applied for credit from credit card, personal loan, or line of credit from bank	17%	24%	19%	9%
Rejected or given less than desired	9%	7%	11%	2%
Didn't apply for fear of rejection	25%	18%	26%	4%

Source: The 2015 National Financial Capability Study by the FINRA Investor Education Foundation in consultation with the U.S. Department of the Treasury and President Obama's Advisory Council on Financial Capability. ¹This data for alternative credit sources in the last 12 months is from the June 2017 CPS Unbanked/Underbanked Supplement. Respondents are asked if anyone in the household has borrowed from a pawnshop, vehicle title lender, and payday lender in separate questions. Respondents who answered, "Yes" are considered customers of these industries. The data for comparison in column four is for all American adults.

Table 4: Customer's Use of AFS Products

Reasons for Use Rather Than Bank¹	Percent of Pawn Loan Customers	Percent of Vehicle Title Loan Customers	Percent of Payday Loan Customers
Easier and faster to qualify than bank	42%		41%
Banks do not make small-dollar loans	18%		20%
Do not qualify for a bank loan	17%		15%
More convenient hours or location	11%		12%
Feels more comfortable than a bank	2%		1%
Do not trust banks	1%		1%
Other	9%		8%
Purpose of Use²			
Recurring Expenses		52%	69%
Unexpected/Emergency Expense		25%	16%
Something Special		17%	8%
Other		4%	5%
Alternatives to Use²			
Cut back on expenses		81%	76%
Delay paying some bills		62%	51%
Borrow from family/friends		57%	55%
Sell/pawn personal possessions		57%	52%
Get loan from bank/credit union		44%	55%
Use a credit card		37%	34%
Borrow from employer		17%	23%

¹The 2011 FDIC Unbanked/Underbanked CPS Supplement includes the question regarding reason for AFS use rather than a bank, but does not include title loans. ²The purpose of use and alternatives to use questions are from the 2012 Pew Payday Lending Report and 2015 Pew Auto Title Lending Report.

Appendix A: Descriptions of Pawn, Vehicle Title, Payday, and Cash Installment Credit Products, and their Regulation, by State

In this appendix, we provide a detailed description of each type of loan. Table A1 summarizes the similarities and differences among pawn, vehicle title, payday, and cash installment loans. Table A2 lists, by state, some of the regulations imposed on these four markets.

Pawn Loans

In a pawn transaction, the consumer offers a tangible item to the pawnbroker. The pawnbroker generally asks whether the consumer wants to sell or pawn the item. If the consumer wishes to pawn the item, the parties negotiate the amount that the pawnbroker will advance on the item. The consumer delivers possession of the item to the pawnbroker in exchange for the agreed-upon cash amount. The pawnbroker also gives the consumer a pawn ticket that precisely details the terms of the transaction and the cost of redemption. In a typical pawn transaction, to redeem the pawned item, the consumer must pay a fee, which can include interest, storage, and other fees, in addition to the sum originally advanced by the pawnbroker. The maximum allowable fees vary according to state law.⁹⁹ Today, the most commonly pawned items are jewelry, televisions, and other consumer electronic goods.¹⁰⁰

A pawn loan is not complicated, as shown in the following example. Suppose a person brings a professional-model, but used, saxophone to a pawnshop. The pawnbroker assesses the pawn value of the horn at \$150, approximately half of its market value (which, in turn, could be

⁹⁹ In Mississippi, for example, the Pawn Shop Act sets these amounts: “A pawnbroker may contract for and receive a pawnshop charge in lieu of interest or other charges for all services, expenses, cost and losses of every nature not to exceed twenty-five percent (25%) of the principal amount, per month, advanced in the pawn transaction.” Mississippi Pawn Shop Act § 75-67-313 (2013).

¹⁰⁰ See Carter and Skiba (2012).

less than its sentimental value to the borrower). Assume that, in the state where the pawn transaction occurs, all allowable fees amount to 25 percent per month. If the pawnbroker charges the maximum amount allowed by law, at the end of one month the borrower has three choices: (1) abandon the property and keep the \$150, (2) extend the pawn another month by paying \$37.50 ($0.25 \times \150), or (3) pay \$187.50 and reclaim the saxophone. If the borrower chooses the first option, the ownership of the saxophone transfers to the pawnbroker, who can sell it for its market value.

Although they are called “pawn loans,” a pawn transaction is not a loan according to the modern understanding of a loan. The consumer has no obligation to repay the sum obtained in the pawn transaction. The pawnbroker does not report the borrower’s performance on the transaction to a credit-reporting agency. The terms of a pawn transaction depend only on the estimated value of the pawned item. Thus, borrower characteristics, like income, employment, credit history, and banking relationship, are irrelevant. The pawnbroker has no recourse if the borrower abandons the pawned item. In fact, author discussions with a pawnbroker revealed that a borrower’s repayment history does not deter the pawnbroker from engaging in a new transaction with the borrower with different pawns. One can view a pawn transaction, therefore, as a sale with a renewable, month-to-month repurchase agreement.

Because the pawnbroker takes physical possession, the pawnbroker must protect pawned items. The pawnbroker is liable for the replacement value of any pawned item that is lost, stolen, or damaged.¹⁰¹

Pawnbrokers incur other costs. Pawnbroker personnel must be trained to be able to assess the market value of a wide variety of items such as jewelry, appliances and equipment,

¹⁰¹ This fact historically encouraged consumers to pawn items to be stored. Calder (1999) describes the pawning of suits to be stored until Sunday and tools to be stored during periods of unemployment.

electronics, firearms, musical instruments, tools, and many other goods. Because a borrower is unlikely to redeem an item worth less than the loan amount, a pawnbroker who advances too much on an item faces the likelihood of a loss on the transaction if the item is not redeemed. Pawnbrokers and their personnel must also be able to identify and note defects in pawned items, distinguish genuine items from imitations, register items with the local police as needed to prevent the “fencing” of stolen property, and be watchful that the borrower does not substitute an item of lesser value for one that is inspected. Consequently, fees are large relative to the amount financed.

Vehicle Title Loans

Vehicle title lending expands the traditional pawn transaction to larger amounts. Today, the most common vehicle title transaction is best thought of as a single-payment vehicle title pawn transaction, or loan. In many ways, this transaction works like an ordinary pawn transaction, with one major exception—the lender has a lien on the vehicle title, but the borrower keeps possession of the vehicle. Vehicle title loans cover a wide range of vehicles. Under various state laws, the word “vehicle” includes automobiles, motorcycles, mobile homes, pickup trucks, vans, or any other vehicle that can be operated on public highways and streets. Similar to a pawn transaction, a common vehicle title loan is a straightforward one-month, single-payment agreement where the title lender advances a cash amount and gives the borrower three options, as shown in the following short example. Suppose a citizen in Georgia brings a used Chevrolet pickup truck to a vehicle title lender. The lender inspects the vehicle and looks up values for similarly equipped vehicles. Suppose this particular vehicle has a wholesale-appraised value of

about \$6,000, and the lender extends \$2,500 to the Georgian.¹⁰² Assuming the lender imposes the maximum charges allowable by state law, at the end of the month the Georgian has three choices: (1) extend the loan for another month by paying the title lender \$625—that is, 25 percent of \$2,500—(2) pay \$3,125 and have the lien removed from the vehicle’s title, or (3) decide to allow the transfer of ownership of the vehicle to the title lender.

To obtain a vehicle title loan, the borrower must have a clear title to the vehicle and must allow the title lender to place a lien on the vehicle. These requirements limit the borrower to only one title loan per vehicle at one time. The borrower often does not need to provide a credit history. Historically, lenders did not have to verify income, employment, and credit history.¹⁰³

Unlike a pawn transaction, the borrower transfers the title of the vehicle to the title lender, but the borrower retains possession of the vehicle. Like pawn transactions, vehicle title loan transactions are non-recourse. That is, the title lender cannot demand repayment of the cash advanced. Instead, if the borrower chooses option (3) and defaults on the loan, the title lender can repossess the vehicle and begin the process of selling it. If the vehicle is sold for less than the amount owed, the borrower does not have to make up the difference unless state law allows the lender to go to court and receive an order, or judgment allowing the lender to collect the deficient amount from the borrower. This court order is called a deficiency judgment. Not all states allow for deficiency judgments. In states where deficiency judgments are allowed, however, they are

¹⁰² In Georgia, state law is silent concerning the maximum size of the loan. Georgia’s Pawnbroker Act states, in part, “Unless otherwise agreed, a pawnbroker has upon default the right to take possession of the motor vehicle. In taking possession, the pawnbroker or his agent may proceed without judicial process if this can be done without breach of the peace. . . . During the first 90 days of any pawn transaction or extension or continuation of the pawn transaction, a pawnbroker may charge for each 30-day period interest and pawnshop charges which together equal no more than 25 percent of the principal amount advanced.” Pawnbroker Act, GA Code § 44-12-3-5 (2015).

¹⁰³ A CFPB rule finalized in 2017 required title lenders to verify borrowers’ ability to repay based on their income, expenses, and other debt, but this portion of the rule was later rescinded. See <https://www.consumerfinance.gov/about-us/newsroom/consumer-financial-protection-bureau-releases-notice-proposed-rulemaking-payday-lending/>

rare (Zywicki 2010). Moreover, if the vehicle is sold for more than the outstanding amount owed, the borrower can receive a portion of the excess sale proceeds, as allowed by state law.

The typical vehicle title loan amount is \$1,000 at a 25 percent fee over 30 days.¹⁰⁴ At the end of 30 days, the borrower can discharge the debt by paying the title lender \$1,250. The Pew Charitable Trusts (2015) reports that a vehicle title loan is paid in full in roughly three months, on average.¹⁰⁵ Because the title lender does not take physical possession of the collateralized vehicle, the lender does not incur storage costs. In the event of default, however, the lender incurs costs to repossess, store, and sell the vehicle. Hawkins (2012) reports that these expenses are often significant relative to the value of the average collateralized vehicle. Zywicki (2010) notes that in as many as 50 percent of defaults, vehicles are not repossessed because mechanical failure or damage to the vehicle makes repossession not worthwhile for the lender.

Vehicle title loans are asset-based loans—the loan amount is based on the value of the car rather than the income of the borrower.¹⁰⁶ This feature allows borrowers to pledge their current wealth rather than future income. Loan sizes vary from 20-55 percent of the value of the car, but the average loan size is 25 percent of the car’s resale value (Pew 2015; Zywicki 2010).

There is a relatively new, understudied type of vehicle title loan, which is best thought of as a “vehicle title installment loan.” The major difference between a traditional vehicle title loan and a vehicle title installment loan is the repayment method agreed to at inception. A traditional vehicle title is a single-payment loan, while a vehicle title installment loan is an installment loan. A March 2015 survey by Pew Charitable Trusts shows that 91 percent of title loan borrowers favor vehicle title installment loans rather than single-payment title loans. Nevertheless, vehicle title installment loans are rare, even in the limited number of states where they are permitted:

¹⁰⁴ See <http://www.pewtrusts.org/~media/assets/2015/03/autotitleloansreport.pdf>

¹⁰⁵ See <http://www.pewtrusts.org/~media/assets/2015/03/autotitleloansreport.pdf>

¹⁰⁶ See Martin and Adams (2012).

Arizona, California, Delaware, Florida, Georgia, Idaho, Illinois, Kansas, Louisiana, Minnesota, Missouri, Nevada, New Mexico, South Carolina, Texas, Utah, Virginia, and Wisconsin. Despite the availability of title installment loans in Texas and New Mexico, single-payment title loans compose 85 percent and 87 percent of the total title loans outstanding for each state, respectively. Single-payment title loans make up 83 percent of the portfolio of TMX Finance, a company with 13.4 percent of the title loan stores in the U.S. in 2012.¹⁰⁷ Because vehicle title installment loans are so new, the academic literature (and this paper) focus on single-payment vehicle title transactions.

Storefront Payday Loans

While pawn and vehicle title borrowers pledge current *wealth*, payday borrowers pledge future *income*. Payday lending's roots can be traced back to "salary buying" in the late nineteenth and early twentieth centuries. The modern version of this product emerged in the early 1990s (Barr 2004; Chessin 2005).

Typically, a payday loan is a short-term, single-payment loan. In a traditional payday loan, a borrower writes a check to a lender in exchange for a short-term cash loan due when the borrower receives his next paycheck.¹⁰⁸ The lender agrees not to cash the check until a date specified in the loan agreement.

Payday loans generally have a maturity of 30 days or less. A typical payday loan of \$375 for two weeks at \$15 per \$100 borrowed would have a finance charge of \$56.25. The annual

¹⁰⁷ See Pew Charitable Trusts (2015)

¹⁰⁸ Payday loan payments are frequently processed electronically rather than by depositing a physical check, but for simplicity and clarity, we describe the basic model in terms of a physical check.

percentage rate for this loan would be $100 \times \$15/\$100 \text{ borrowed} \times 365/14$ fourteen-day periods in a year = 391.07 percent.¹⁰⁹

A payday loan with installment payments is a relatively new product. It has some features of a traditional installment loan, but these loans are offered by payday lenders. The term of these loans runs from four to twelve months. Like a traditional installment loan, installment-style payday loans amortize fully using equal installment payments. If the borrower makes all the payments the loan is fully paid. Unlike a traditional installment loan, there is little involvement of credit-reporting agencies. Single-payment and installment-style payday loans are also offered by online lenders.

To obtain a payday loan, lenders require borrowers to have a checking account, provide proof of regular income, show valid identification, and be at least 18 years old. Payday lenders generally do not require a mainstream credit report, but they might have access to credit reports for subprime borrowers through a payday credit reporting company such as Clarity Services, Inc., or CoreLogic Teletrack.¹¹⁰

A payday loan borrower can either repay the loan in cash at maturity or allow the lender to cash the borrower's check.¹¹¹ In some states, the borrower may renew the loan by paying an additional finance charge at maturity. If allowed by state law, borrowers may have the option to pay the finance charge on their debt at the end of the period and roll over the loan for another

¹⁰⁹ See Meltzer (2011) and the survey by The Pew Charitable Trusts at http://www.pewtrusts.org/~media/legacy/uploadedfiles/pes_assets/2012/pewpaydaylendingreportpdf.pdf.

¹¹⁰ Experian acquired Clarity Services, Inc., in 2018. Before then, single payment payday lenders did not report credit information to mainstream credit reporting bureaus, because these mainstream bureaus do not allow payday lenders to report items such as late payments and delinquencies on single payment payday loans. To our knowledge, the operations of Experian and Clarity are separately run. Thus, data on single payment payday loans are reported to Clarity, but not to Experian's traditional credit reporting channel. If a payday lender offers an installment payment product, these loans could be reported through the mainstream credit reporting channels.

¹¹¹ If the borrower does not have sufficient funds in the account, the borrower will likely pay a non-sufficient funds (NSF) fee. Frequent overdrafts could lead to an involuntary account closure, which could impact the individual's future access to banking services.

period. In states where direct rollovers are not allowed, borrowers may still re-borrow on the same day or after a mandatory cooling-off period depending on state law.¹¹² We discuss the issue of payday rollovers in greater detail in a later section.

Payday lenders operate in many U.S. states. According to the National Conference of State Legislatures, thirty-eight states have specific statutes that allow for payday lending. Eleven jurisdictions do not have specific payday lending statutory provisions and/or require lenders to comply with interest rate caps on consumer loans.¹¹³

Payday lenders often incur costs that might make them less profitable, on average, than more mainstream lenders. For example, Huckstep (2007) notes that, because borrowers select lenders based on convenience, payday lenders must keep longer business hours and operate at a higher density of stores than mainstream lenders. Therefore, operating costs for payday lenders are high relative to revenue (75 percent for pure payday lenders). Flannery and Samolyk (2005) find that wages and occupancy costs account for 50 percent of store operating costs, and loan losses constitute 23 percent of store operating costs. Huckstep (2007) notes that loan losses of pure payday lenders amount to 25 percent of outstanding loans, whereas loan losses for commercial lenders amount to just over 5 percent of outstanding loans. Therefore, Huckstep (2007) finds that mainstream commercial lenders earn profit margins that are three times the percentage for pure payday lenders and concludes that high profits for payday lenders “may be more myth than reality” (p. 231).

Cash Installment Loans

¹¹² In a report describing the frequency of payday loan rollovers, the CFPB defines rollovers to include direct rollovers and re-borrowing within a 14-day window following the repayment of a loan. See the CFPB’s report at https://files.consumerfinance.gov/f/201403_cfpb_report_payday-lending.pdf

¹¹³ National Conference of State Legislatures (website), “Payday Lending State Statutes,” January 23, 2018, <http://www.ncsl.org/research/financial-services-and-commerce/payday-lending-state-statutes.aspx>.

Cash installment loans are small, closed-end cash loans from finance companies that are repaid in periodic installments of principal and interest (hereafter “cash installment loans”). As do payday loan borrowers, borrowers using cash installment loans from finance companies pledge future income. Cash installment loans differ from typical payday, pawn, and auto title loans discussed earlier. A cash installment loan is repaid in a series of payments.

Unlike mortgages or sales financing, a cash installment loan is not tied to the purchase of any specific good. Borrowers can use the proceeds from a cash installment loan in any manner they wish. Like mortgages and sales financing, a cash installment loan has (1) a set number of equal payments that fully amortize the debt after the borrower makes the last payment and (2) payments consisting of interest and an amount that reduces the principal owed.

For example, suppose a consumer wants to borrow \$1,000 from a finance company. As of 2019, a common APR cap for cash installment loans is 36 percent.¹¹⁴ The terms of the loan are 12 months, an APR of 36 percent (3 percent per month), no fees, and no ancillary products. The following two equations are used to calculate the monthly payment for a cash installment loan:

$$\text{Amount Borrowed} = \text{Monthly Payment} \times \left[\frac{1 - \frac{1}{(1+r)^T}}{r} \right]$$

In this example, the monthly percentage rate is 36 percent divided by 12, or 3 percent. To calculate the monthly payment, then,

¹¹⁴ For a table of interest rate caps by state for cash installment loans, see Harold Black and Thomas W. Miller Jr., “Examining Some Arguments Made by Interest Rate Cap Advocates,” in *Rethinking Financial Regulation: Enhancing Stability and Protecting Consumers*, ed. Ben Klutsey and Hester Peirce (Arlington, VA: Mercatus Center at George Mason University, 2016).

$$\$1,000 = \text{Monthly Payment} \times \left[\frac{1 - \frac{1}{(1 + .03)^{12}}}{0.03} \right]$$

and

$$\text{Monthly Payment} = \$100.46.$$

The total of interest and principal payments is $\$100.46 \times 12$, or $\$1,205.52$. Because the consumer is borrowing $\$1,000$, this means there is only $\$205.52$, or 20.552 percent of $\$1,000$ in interest charged on the loan. Importantly, note that the interest paid over the life of the loan is not $\$360$ (i.e., $0.36 \times \$1,000$). The lower $\$205.52$ interest payment is because the amount owed each month declines, or amortizes, over the length of the loan.

The latest paper to estimate the gross revenue and expenses of finance companies is by Chen, Elliehausen, and Wicks (2018), who present the results of a 2015 survey of finance companies. Chen, Elliehausen, and Wicks (2018) report that gross revenue (finance charges) of personal finance companies in 2015 was $\$29.20$ per $\$100$ of outstanding credit. Operating expenses, $\$20.82$ per $\$100$ of outstanding credit, accounted for 71 percent of gross revenue. The data suggest that origination and collections were labor intensive, which gave rise to relatively high salary and wage expenses (30 percent of finance charges). Losses and additions to loss reserves, $\$5.88$ per $\$100$ of credit outstanding were significant expenses (20 percent of finance charges), Chen, Elliehausen, and Wicks (2018) argue that because many of the activities performed to originate loans, process payments, and collect delinquent accounts do not vary much by loan size, finance charges must be large relative to loan size to cover lenders' costs and provide a normal return on investors' funds.

Table A1: Summary of Product Descriptions

Loan Source	Mainline Consumer Loan Product	Collateral / Pledge	Typical Loan Length	Loan Process	Mainstream Credit Check or Report to Bureau	Federal Regulator
Pawn loan	Non-recourse secured loans	Wealth, pawned item	One month, renewable	Negotiation about value of item pawned	No check, no report	CFPB (rule-writing and enforcement), FTC (enforcement)
Vehicle title pawn	Non-recourse secured loans	Wealth, vehicle	One month, renewable	Negotiation about vehicle value	No check, no report	CFPB (rule-writing and enforcement), FTC (enforcement)
Vehicle title installment	Installment loan, secured	Wealth, vehicle	4-12 months	Negotiation about vehicle value, verifiable income	No check, no report	CFPB (rule-writing and enforcement), FTC (enforcement)
Payday loan, single-payment	Single-payment loans, unsecured	Future income	Two weeks; rollovers depend on state law	Verifiable income; checking account, 10 percent rejection	No check, no report	CFPB (rule-writing and enforcement), FTC (enforcement)
Payday loan, installment	Installment loans, unsecured	Future income	4 to 6 months 6 to 12 months	Verifiable income; checking account	No check, no report	CFPB (rule-writing and enforcement), FTC (enforcement)
Cash installment loan	Traditional installment loan, generally secured	Future income or wealth (collateral)	By contract. Range is usually 6-24 months	Detailed underwriting process, 40-60 percent rejection	Extensive credit check, reports performance to bureau	CFPB (rule-writing and enforcement), FTC (enforcement)

Table A2: Some Small-Dollar State Laws, by Product.

Panel A. Pawn Loan Laws, by State

State	Allowed?	Maximum Loan	Summary, Approximate Interest / Fees	Surplus to Customer
Alabama	Yes	None	25%/mo; Lost Ticket, \$5	No
Alaska	Yes	\$500	20%/mo. Max + \$5 Finance Fee	No
Arizona	Yes	None	16%/1st 2mos 6% thereafter; + service charge	No
Arkansas	Yes	None	No Limit. Rates are set by competition.	No
California	Yes	None	See Notes ¹	No
Colorado	Yes	None	20%/mo. Max + \$5 Finance Fee	No
Connecticut	Yes	None	From 2%/mo. to 5%/mo., depending on amount.	No
Delaware	Yes	None	30%/mo. ; no origination fees	No
Florida	Yes	None	25%/mo. Maximum	No
Georgia	Yes	Local Ordinance	25% per first three 30-day periods	No
Hawaii	Yes	None	20%/mo. Maximum	No
Idaho	Yes	None	8% - 10%/mo.	No
Illinois	Yes	None	3% interest and 17% fees total	No
Indiana	Yes	None	Max service charge, 20% of loan; plus APR of 36%	No
Iowa	Yes	None	No limit	No
Kansas	Yes	\$5,000	10%/mo. Maximum	No
Kentucky	Yes	None	2% + 20% Storage	No
Louisiana	Yes	None	10% + 10% storage cost (each month)	No
Maine	Yes	None	25% for the first \$500, then 20%	No
Maryland	Yes	None	not specific for pawn transactions	No
Massachusetts	Yes	None	State law varies 3%, 5% or 9% by location, most areas 5%	Yes
Michigan	Yes	None	3%/mo + \$1 per mo Storage	No
Minnesota	Yes	None	20%--30%/mo.	No
Mississippi	Yes	None	25%/mo. Maximum	No
Missouri	Yes	None	2% per day + Storage/No Limit	No
Montana	Yes	None	20%/mo.	---
Nebraska	Yes	None	No Limit	No

Nevada	Yes	None	13%/mo + \$5 Ticket Charge	No
New Hampshire	Yes	None	20%/mo. Max.	No
New Jersey	Yes	None	3.7%/mo + 8% storage fee; \$4.00 max	Yes
New Mexico	Yes	\$2,500	10%/first mo, 4%/mo after	No
New York	Yes	None	See Notes ²	Yes
North Carolina	Yes	None	2%/mo + 20%/mo fee, first mo to \$100	No
North Dakota	Yes	\$1,000	30%/mo	No
Ohio	Yes	None	6%/mo + \$6/mo storage	No
Oklahoma	Yes	\$25,000	Sliding Scale: up to \$150, 20%/mo; \$1,000 to \$25,000, 3%/mo	No
Oregon	Yes	None	3%/mo; Set-up Fee 10%; Storage Fee 5%	No
Pennsylvania	Yes	None	30%/mo. Maximum	Yes
Rhode Island	Yes	None	Sliding scale, for amts>\$50: 5%/mo < 3 mos; 2.5%/mo > 3 mos	Yes
South Carolina	Yes	\$2,000	Sliding scale based on amount: 0.5%/ per mo to 25%/mo	No
South Dakota	Yes	None	No Max Fees	No
Tennessee	Yes	None	2% + 20% Fees (22%/mo. max)	No
Texas	Yes	\$16,750 w APR 12%	Sliding Scale: 1%--20%/mo.	No
Utah	Yes	None	Sliding scale: 7% to 20%/mo.	No
Vermont	Yes	None	---	No
Virginia	Yes	None	5%--10%/mo. + storage fees and service fees	No
Washington	Yes	None	3% sliding scale	No
West Virginia	Yes	None	20%/mo.	No
Wisconsin	Yes	\$150/item	3%/mo. To 25%/mo.	No
Wyoming	Yes	\$3,000	20%/mo. Max. No fees.	No
Washington, DC	Yes	None	5% Flat Rate	No

Source: <https://nationalpawnbrokers.org/state-pawn-shop-laws/>. Notes: ¹ CA: varies + Loan setup fee of \$5 or 3%, whichever is less, and storage fee. ² NY: 4% + ticket charge, storage (2%), transportation (1%) and insurance (1%).

Table A2, Cont.*Panel B. Vehicle Title Loan Laws, by State*

State	Allowed?	Maximum Loan	Interest / Fees	Surplus / Deficiency
Alabama	Yes	Statue is Silent	25%/mo.	Lender keeps surplus
Alaska	No			
Arizona	Yes	Statue is Silent	Graduated ¹	Lender gets deficiency, borrower gets surplus.
Arkansas	No			
California	No			
Colorado	No			
Connecticut	No			
Delaware	Yes	Statue is Silent	No Cap	Borrower gets surplus. No deficiency balance.
Florida	No			
Georgia	Yes	Statue is Silent	Graduated ¹	Lender keeps surplus
Hawaii	No			
Idaho	Yes	Up to retail value of vehicle	No Cap	Borrower gets surplus, no deficiency balance
Illinois	Yes	\$4,000 or up to 50% of monthly income	No Cap	Statue is Silent
Indiana	No			
Iowa	No			
Kansas	No			
Kentucky	No			
Louisiana	No			
Maine	No			
Maryland	No			
Massachusetts	No			
Michigan	No			
Minnesota	No			
Mississippi	Yes	\$2,500	25%/mo.	Borrower gets 85% of surplus, no deficiency
Missouri	Yes	\$5,000	No Cap	Can pursue deficiency balance, must pay surplus
Montana	No			
Nebraska	No			
Nevada	Yes	Up to fair market value of vehicle	No Cap	No deficiency balance
New Hampshire	Yes	\$10,000	25%/mo. plus lien fee	Statue is Silent
New Jersey	No			
New Mexico	Yes	\$2,500	No Cap	Statue is Silent
New York	No			
North Carolina	No			
North Dakota	No			

Ohio	No			
Oklahoma	No			
Oregon	No			
Pennsylvania	No			
Rhode Island	No			
South Carolina	No			
South Dakota	No			
Tennessee	Yes	\$2,500	1/5 loan + 2%/months	No deficiency balance, borrower gets surplus
Texas	Yes	No cap	10% interest cap; no fee limit	Statue is Silent
Utah	Yes	One loan at a time, up to fair mkt. vehicle val.	No Cap	No deficiency balance, borrower gets surplus
Vermont	No			
Virginia	Yes	Up to 50% of fair market value of vehicle	Graduated ¹	No deficiency balance, surplus to borrower
Washington	No			
West Virginia	No			
Wisconsin	Yes	Up to 50% value of vehicle; \$25,000 max	No cap	No deficiency balance, surplus to borrower
Wyoming	No			
Washington, DC	No			

Source: Consumer Federation of America. consumerfed.org/financial-services/. Notes: Graduated¹ AZ: 17%/mo < \$501; 15% per mo \$501 to \$2,500; 13%/mo \$2,501 to \$5,000; 10%/mo > \$5,000. GA: 25%/mo. 1st 3 months, 12.5% after; + lien fee. VA: 22%/mo up to \$700, 18%/\$701 to \$1400; 15%/\$1401 and up + lien fee.

Table A2, Cont.*Panel C. Payday Loans, by State*

State	Allowed?	Maximum Loan	Interest Fees	Loan Length / Terms	Rollovers Permitted
Alabama	Yes	\$500	\$17.50	10 to 31 days	One
Alaska	Yes	\$500	\$15 + \$5 Fee	14 days min.	Two
Arizona	No				
Arkansas	No				
California	Yes	\$300	\$17.65	31 days max.	No
Colorado	No				
Connecticut	No				
Delaware	Yes	\$1,000	No Cap	Less than 60 days	Four
Florida	Yes	\$500	\$10 + \$5 Ver. Fee	7 to 31 days	No
Georgia	No				
Hawaii	Yes	\$600	\$17.65	32 days max.	No
Idaho	Yes	\$1,000	No Cap	None Specified	Three
Illinois	Yes	\$1,000	\$16.50	13 to 45 days	No
Indiana	Yes	\$605 or 20% of GI	\$15.00	14 days min.	No
Iowa	Yes	\$500	\$16.67	31 days max.	No
Kansas	Yes	\$500	\$15.00	7 to 30 days	No
Kentucky	Yes	\$500	\$18.65	14 to 60 days	No
Louisiana	Yes	\$350	\$30.12	Less than 60 days	No
Maine	No				
Maryland	No				
Massachusetts	No				
Michigan	Yes	\$600	\$15.45	31 days max.	No
Minnesota	Yes	\$350	Stepped to 6% plus \$5	30 days max.	No
Mississippi	Yes	410/*500	\$20.00	30 days max.	No
Missouri	Yes	\$500	1,955% APR	14 to 31 days	Six. Prin. reduced 5% ea. Time
Montana	No				
Nebraska	Yes	\$500	\$17.65	34 days max.	No
Nevada	Yes	25% of GI	No Cap	35 days max.	Yes, w/proceeds of new loan

New Hampshire	No				
New Jersey	No				
New Mexico	Yes	25% of GI	---	120 Days; 4 equal pmts.	Yes. Rollovers are new loans.
New York	No				
North Carolina	No				
North Dakota	Yes	\$600	\$20.68	60 days max.	One
Ohio	Yes	\$1,000	28% APR + \$30 maint. Fee	91 days to one year	No
Oklahoma	Yes	\$500	\$15.46	12 to 45 days	No
Oregon	No				
Pennsylvania	No				
Rhode Island	Yes	\$500	\$10.00	13 days min.	One
South Carolina	Yes	\$550	\$15.40	31 days max.	No
South Dakota	Yes	\$500	36% APR	Not specified	Four
Tennessee	Yes	\$500	\$17.65	31 days max.	No
Texas	Yes	Not Specified	---	Up to 180 days	---
Utah	Yes	No Limit	No Cap	10 weeks max.	Not specified
Vermont	No				
Virginia	Yes	\$500	\$26.38	Min of 2 pay periods	None
Washington	Yes	\$700 or 30% of GI	\$15.00	7 to 45 days	No
West Virginia	No				
Wisconsin	Yes	\$1,500 or 35% of GI	No Cap	90 days max.	One
Wyoming	Yes	No Limit	\$30.00	1 calendar month	No
Washington, DC	No				

Source: Consumer Federation of America. <https://paydayloaninfo.org/state-information>

Table A2, Cont.*Panel D. Cash Installment Loan Laws, by State*

State	Maximum Interest Rate	Maximum Maturity	Max. Loan
Alabama	Loans < \$2,000, add-on Interest: 15% to \$750, 10% of the excess to \$1999.99; loans \$2,000 and over de-regulated	36 mos and 15 days if loan is > \$300, 24 mos and 15 days if loan is \$300 or less	< \$2,000
Alaska	36% up to \$850; + 24% of the excess to \$10,000; as agreed on loans \$10,001 to \$25,000	24.5 mos.< \$1,000; 48.5 mos. \$1,001 to \$2,500; 60.5 mos. \$2,501 to \$5,000; As agreed \$5,001 to \$25,000	\$25,000
Arizona	36% of the Loan principal < \$3,000; 24% on the remainder to \$10,000	24 mos. 15 days < \$1,000; 36 mos. 15 days \$1,001 to \$2,500; 48 mos. 15 days \$2,501 to \$4,000; 60 mos. 15 days \$4,001 to \$6,000; over \$6,001: as agreed	\$10,000
Arkansas	17% simple interest for all loans	No Specific Provisions	None Specified
California	< \$2,500: 2.5%/mo to \$225; 2%/mo \$226 to \$900; 1.5%/mo \$901 to \$1,650; 1%/mo \$1,651 to \$2,500; \$2,500 to \$10,000, 36% APR	< \$500, 24 mos and 15 days; \$500 to \$1,499, 36 mos and 15 days; \$1,500 to \$2,999, 48 mos and 15 days; \$3,000 to \$4,999, 60 mos and 15 days	None Specified
Colorado	Greater of: A) 36% up to \$1,000 plus 21% of the excess up to \$3,000 plus 15% of the remainder to \$75,000; OR B) 21% on the entire balance up to \$75,000	\$1,000 or less, 25 mos; Over \$1,000, 37 mos	\$75,000
Connecticut	< \$5,000: APR cannot exceed max. MLA APR (36% in 2018); \$5,000 to \$15,000: an APR not exceeding 25% (as calc under MLA) Exempt: Loans secured by motor vehicles (lower rates).	\$1,000 or less, 24 mos and 15 days; Over \$1,000 to \$1,800, 36 mos and 15 days; Over \$1,800, 72 mos and 15 days	\$15,000
Delaware	As agreed upon by contract	No Specific Provisions	20% of capital stock and surplus
Florida	30% of principal up to \$3,000 plus 24% of the remainder up to \$4,000; 18% of the remainder up to \$25,000	No Specific Provisions	\$25,000
Georgia	Up to \$3,000 Add-on or Discount Interest: 10% per year of face amount of the contract	36 mos and 15 days	\$3,000
Hawaii	Interest Bearing: 24% simple	48 months	\$25,000
Idaho	None Specified	No Specific Provisions	None Specified

Illinois	to \$1,500, 99% TILA APR; Handling fee range from \$1,500 to \$1,600: \$69/mo to \$124/mo from \$3,900.01 to \$4,000	Loan must fully amortize with a min. term of 6 consecutive equal payments over a period of 180 days or more to maturity	\$4,000, but pmts must be < 22.5% of gross mo inc
Indiana	Greater of: A) 36% of principal to \$2,000 plus, 21% of the excess to \$4,000 plus 15% to \$57,200; or B) 25% simple on the entire balance	\$1,140 or less, 25 mos; Over \$1,140 to \$4,000, 37 mos; Over \$4,000, No limit	\$57,200
Iowa	36% to \$3,000 plus; 24% of the excess to \$8,400 plus; 18% of the remainder to \$30,000; If Amount Financed > \$10,000, 21%	No Specific Provisions	\$57,200
Kansas	36% to \$860 plus; 21% of the remainder up to \$25,000	\$300 or less, 25 mos; over \$300 to \$1,000, 37 months	\$25,000
Kentucky	Prin. < or = \$3,000, 36% on entire balance; Prin. > \$3,000 24% on entire balance up to \$15,000	60 mos and 15 days for \$3,000 or less; 120 mos if loan exceeds \$3,000	\$15,000
Louisiana	36% of principal to \$1,400 plus 27% on the excess up to \$4,000 plus 24% on the excess up to \$7,000 plus 21% on the remainder	No Specific Provisions	None Specified
Maine	30% of prin. up to \$2,000 plus 24% of the excess to \$4,000 plus 18% on the remainder to \$8,000; Amt Financed > \$8,000 , 18% on entire balance to \$57,200	No Specific Provisions	\$57,200
Maryland	24% of the unpaid principal balance	30 mos and 15 days to \$700; 36 mos and 15 days \$701 to \$2,000; 72 mos and 15 days over \$2,000	\$25,000
Massachusetts	23% < \$6,000; 20% \$6,001 to \$25,000	No Specific Provisions	\$25,000
Michigan	25% per year	No Specific Provisions	None Specified

Minnesota	Greater of: A) 33% of principal balance up to \$1,238 plus 19% on the excess to \$100,000, OR B) 21.75% on the entire balance	No Specific Provisions	\$100,000
Mississippi	36% of amount financed up to \$1,000 plus 33% on the excess up to \$2,500 plus 24% on the excess up to \$5,000. If amount financed > \$5,000, 14% on the entire balance	No Specific Provisions	None Specified
Missouri	As agreed upon by contract	Unsecured loan of \$500 or less, minimum term 14 days, maximum term 31 days	None Specified
Montana	As agreed by contract, not to exceed 36% APR.	21 mos. for < \$300; 25 mos. \$301 to \$1,000; 48 mos. \$1,001 to \$2,500; Over \$2,500 no limit.	None Specified
Nebraska	24% of principal to \$1,000 plus 21% on the remainder to \$24,999.99	36 mos, to \$3,000, 145 months over \$3,000 to \$24,999.99	\$24,999.99
Nevada	None Specified	No Specific Provisions	None Specified
New Hampshire	36% APR according to Reg Z. up to \$10,000	No Specific Provisions	\$10,000
New Jersey	Licensed Lenders 30%; Unlicensed Lenders 16%	Loan to \$1,000, 36 mos and 15 days; \$1,001 to \$2,500, 48 mos and 15 days; \$2,501 to \$5,000, 60 mos and 15 days; \$5,001 to \$10,000, 84 mos and 15 days; loans over \$10,000, 120 mos and 15 days	\$50,000
New Mexico	As agreed upon by contract--up to 175% TILA APR	No Specific Provisions	\$5,000
New York	25% APR to \$25,000	No Specific Provisions	\$25,000
North Carolina	30% to \$4,000 plus; 24% of the excess to \$8,000 plus; 18% of the remainder to \$10,000; Principal > \$10,000: 18% on the entire balance to \$15,000	Must be between 12 and 96 months	\$15,000
North Dakota	Loans \$1,000 to \$35,000 6-mo Tbill rate + 5.5%, floor 7%; Loans < \$1,000 Stepped down starting at 2.5% on amt not over \$250	< \$1,000 24 1/2 mos; over \$1,000 to \$35,000, no provisions	\$35,000

Ohio	28% of the principal to \$1,000; 22% of the remainder to \$5,000	Minimum term: 1 year; No maximum term.	\$5,000
Oklahoma	Greater of: A) 27% to \$2,910 plus, 23% of the excess to \$6,200 plus, 20% of the remainder to \$55,800 OR B) 25% simple	to \$1,560: 37 mos; \$1,560 to \$5,200: 49 months; > \$5,200: no limit.	\$57,200
Oregon	Greater of: A) 36% APR or B) 30% above 90-Day commercial paper at FRB San Francisco; up to \$50,000	No Specific Provisions	\$50,000
Pennsylvania	Discount Interest: \$9.50 per \$100 per year to 48 mos; \$6.00 per \$100 per year for remainder of term up to \$25,000	7 years and 15 days	\$25,000
Rhode Island	36% of the principal balance to \$300 plus 30% of the excess to \$800 plus 24% of the remainder to \$5,000	25 months if principal is \$1,000 or less; 60 months over \$1,000 to \$5,000	\$5,000
South Carolina	\$150 or less; \$2.50 per mo, plus 7% fee, max \$56; Add-On: \$150.01 to \$720; 25% \$720.01 to \$1,200, 18%; \$1,200.01 to \$2,400, 12% plus 7% fee, max \$56; \$2,400.01 to \$7,500; 9%/yr on entire balance, plus 5% fee, max \$200	\$1,110 or less, 25 mos; over \$1,110 to \$3,700, 37 mos; over \$3,700, no limit	\$92,500
South Dakota	36% APR including ancillary products, fees, and taxes.	No Specific Provisions	None Specified
Tennessee	30% up to and including \$5,000; 24% on amt > \$5,000; < \$100: 7.5% nominal deducted in advance, not to exceed effective rate of 18%	to \$300, 24 mos; \$300-\$1,000 36 mos; \$1,000 and over 120 mos	10% of capital and surplus

Texas	Add-on Interest: \$18 per \$100 per year to \$2,130 plus, \$8 per \$100 per year on the remainder to \$17,750 OR Simple Interest 30% of the principal up to \$3,550 plus, 24% of the excess up to \$7,455 plus, 18% of the remainder up to \$17,750	37 mos, \$1,500 or less; 49 mos \$1,501 to \$3,000; 60 mos > \$3,000	\$17,750
Utah	As agreed upon by contract	No Specific Provisions	\$57,200
Vermont	The greater of A) 24% on outstanding balance to \$1,000 plus; 12% on the remainder, OR B) 18% on the entire outstanding balance	No Specific Provisions	None Specified
Virginia	36% of principal up to \$2,500; Any rate agreed to by contract > \$2,500	No Specific Provisions	None Specified
Washington	25% Simple Interest	3 years and 15 days if add-on method is used	None Specified
West Virginia	31% to \$2,000; 27% \$2,001 to \$10,000; loans over \$10,000: 18% on entire balance	No Specific Provisions	\$10,000
Wisconsin	As agreed upon by contract	On loans of \$3,000 or less, 24 months and 15 days if principal is \$700 or less, 36 months and 15 days if principal is over \$700	None Specified
Wyoming	The Greater of: A) 36% of principal up to \$1,000 plus 21% of the excess up to \$75,000; or B) 21% on the unpaid principal balance up to \$75,000	25 mos. < \$300; 37 months \$301 up to \$1,000; over \$1,000 no limit	\$75,000
Washington, D.C.	24% per year simple interest of principal to \$25,000	No Specific Provisions	\$25,000

Source: American Financial Services Association

Appendix B. The Historical Underpinnings of Intertemporal Choice

Fisher's Basic Model

The analytical framework underlying households' acquisition of durables and use of credit is Irving Fisher's (1907, 1930) model for investment decisions. The model relates the interest rate to investment opportunities and time preference for consumption. The basic idea of Fisher's model is that individuals can lend current income or borrow against future income at a single interest rate to obtain a time pattern for consumption that is preferred to the time pattern for receipt of income. Productive investment opportunities (which would include consumer durable assets) permit individuals to invest current income to obtain higher future income (or savings in the costs of acquiring an asset from a commercial service).

The optimal amount of investment is obtained when the rate of return on investment just equals the interest rate used to discount future income. If individuals prefer greater current consumption than allowed by the remaining current income after making the optimal amount of investment, they borrow to obtain preferred levels of current and future consumption. Fisher's model demonstrates that the optimal investment decision with borrowing opportunities can involve greater levels of investment, together with a more highly valued intertemporal pattern of consumption, than the optimal investment decision without borrowing opportunities. This important result counters a still existing belief that credit use is profligate.

Extensions for Institutional Characteristics of Credit Markets

Subsequent studies relaxed Fisher's assumption of a single discount rate. Hirshleifer (1958) and Juster and Shay (1964) extended Fisher's model to account for observed institutional characteristics of credit markets. Hirschleifer's extensions consider interest rates that are higher for borrowing than for lending.

Hirshleifer's model indicates that the appropriate rate for discounting future income from investment would be the borrowing rate, lending rate, or some rate in between (which entails neither borrowing nor lending). Borrowing tends to occur when productive investment opportunities have relatively high returns. In circumstances in which borrowing is required to reach the optimum amount of investment, the borrowing rate is the correct rate to use because the decision on the margin involves a balancing of the cost of borrowing against the return from further investment. The lending rate would be irrelevant because the lending rate is lower than the lowest marginal investment rate of return.

When productive opportunities have relatively low returns, the borrowing rate exceeds available rates of return on investment. In this case, the investment decision involves balancing the cost of lending against the return from further investment. In the third case, rates of return lie in between borrowing and lending rates, and the optimal investment decision involves balancing an individual's rate of time preference against the rate of return for investment.

With this extension, Hirshleifer shows that allowing the borrowing rate to be greater than the lending rate does not invalidate Fisher's finding that borrowing opportunities can enable an individual to obtain a greater level of investment and a more highly valued intertemporal pattern of consumption than would be possible without borrowing opportunities.

In a further extension, Hirshleifer considered marginal borrowing rates that increase as the amount of borrowing increases. This extension reflects the observation that lenders require compensation for default risk as the amount of credit increases but does not produce any fundamental change in the investment decision. When borrowing is required to reach the optimum amount of investment, the decision involves balancing of an increasing cost of borrowing and the return from further investment.

Juster and Shay's extensions account for contract terms that reflect the unwillingness of many consumer lenders to finance the entire cost of consumer durables and for the existence of specialized lenders offering small amounts of unsecured credit at relatively high interest rates.

Consumer credit is generally offered on an installment basis, with a fixed repayment schedule of periodic (typically monthly) payments. Because the funds for repayment depend on the consumer's uncertain ability to save future income, lenders commonly limit the amount of credit and the repayment term. They limit the amount of credit by requiring an initial down payment and require a repayment term that is less than the economic life of the asset. Thus, the consumer begins with equity in the asset, and the equity grows over time as payments are made.

Because the asset being financed can secure the loan (especially in vehicle financing), the borrower's equity in the asset provides an incentive for the borrower to repay the loan because its loss in the event of default would be costly (Azzi and Cox (1976), Barro (1976), Benjamin (1978)). Juster and Shay designated lenders whose equity requirements limit the amount of credit as primary lenders. Because the equity requirements reduce default risk, loans from primary lenders tend to have relatively low interest rates.

Consumers who prefer greater leverage than primary lenders are willing to offer may be able to borrow from supplemental lenders, which provide additional credit at rates higher than primary market rates. Supplemental lenders' willingness to extend additional credit is limited by the consumers' income available to service debt (credit cards, cash installment loans, and payday loans) or in some cases the market value of some other asset securing the loan (vehicle title and pawn loans). Consumers may sequentially increase leverage from additional lenders that are willing to accept greater default risk (Bizer and DeMarzo (1992)), but the amounts are limited

because ultimately no lender will make loans that are certain to default (Jaffee and Modigliani (1969)).

Juster and Shay's analyses produced two types of outcomes, an equilibrium outcome and a rationing outcome. Consider a simple example in which there are two borrowing rates, a lower rate charged by primary lenders and a higher rate charged by supplemental lenders. Both lenders have an absolute limit on the amount that can be borrowed. The consumer invests in durables until the rate of return on investment is equated with the discount rate, which in a situation involving borrowing is the rate charged by primary lenders. The amount borrowed does not exceed the limit set by primary lenders, and the rate of return on investment, discount rate, and rate of time preference are equal.

Rationing outcomes occur when the consumer is unable to equate the rate of return on investment, discount rate (which in the case of borrowing is the borrowing rate), and rate of time preference. In a first rationing outcome, the consumer is able to equate the rate of return on investment and the rate of time preference. However, the absolute limit on the amount of credit available from primary lenders creates a discontinuity in market opportunities for borrowing, thus preventing the consumer from taking advantage of potentially utility-increasing investments. Rationing prevents a consumer from borrowing further at a lower rate, and the return on investment is not sufficiently high to justify borrowing at the next higher available rate.

A second rationing outcome occurs when the consumer exhausts the availability of credit at the lower rate charged by primary lenders and borrows at the higher rate. In this case, the rate of return on investment is less than the consumer's rate of time preference. The rate of time preference may be equal to the higher rate charged by supplemental lenders or greater than the

higher rate if the amount of borrowing exceeds the supplemental lenders' limit. Again, rationing prevents the individual from taking advantage of potentially utility-increasing investments.