Federal Reserve Bank of Philadelphia

Working Papers
Research Department

WP 20-06
February 2020
https://doi.org/10.21799/frbp.wp.2020.06

# Debt Collection Agencies and the Supply of Consumer Credit

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**ISSN:** 1962-5361

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February 2020

forthcoming in the *Journal of Financial Economics*

**Abstract**

This paper finds that stricter laws regulating third-party debt collection reduce the number of third-party debt collectors, lower the recovery rates on delinquent credit card loans, and lead to a modest decrease in the openings of new revolving lines of credit. Further, stricter third-party debt collection laws are associated with fewer consumer lawsuits against third-party debt collectors but not with a reduction in the overall number of consumer complaints. Overall, stricter third-party debt collection laws appear to restrict access to new revolving credit but have an ambiguous effect on the nonpecuniary costs that the debt collection process imposes on borrowers.

Keywords: household finance, consumer credit, creditor rights, contract enforcement, debt collection, law and finance

JEL Classification: D12, D18, G18, G20, K35

*China Europe International Business School (CEIBS), 699 Hongfeng Road, Pudong, Shanghai 201206, China. E-mail: viktar.fedaseyeu@ceibs.edu. I greatly benefited from very helpful comments by G. William Schwert (the Editor), an anonymous referee, Pierluigi Balduzzi, David Chapman, Thomas Chemmanur, Ethan Cohen-Cole, Carlo Favero, Nicola Gennaioli, Cliff Holderness, Edith Hotchkiss, Bob Hunt, Richard Hynes, Darren Kisgen, Alan Marcus, Don Morgan, Jeffrey Pontiff, Jun (QJ) Qian, Jonathan Reuter, Dubravka Ritter, Ronnie Sadka, Antoinette Schoar, Andrei Shleifer, Philip Strahan, Hassan Tehranian, Peter Tufano, Stephanie Wilshusen, as well as seminar participants at Bocconi University, Boston College, the Federal Reserve Bank of Philadelphia, the Norwegian School of Economics and Business Administration, and Southern Methodist University, as well as conference participants at the Household Finance Workshop at the NBER Summer Institute, the Financial Management Association meetings, and the Western Finance Association meetings. I am particularly grateful to Philip Strahan (my dissertation advisor) and Bob Hunt for their advice and encouragement. I am grateful to Don Morgan for having kindly provided the data on consumer complaints used in Morgan, Strain, and Seblani (2012). I am also grateful to Jack Gordon for having provided access to consumer lawsuits data from WebRecon LLC. Access to TransUnion data for this project was provided through the Payment Cards Center at the Federal Reserve Bank of Philadelphia. I kindly acknowledge the hospitality of the Consumer Finance Institute at the Federal Reserve Bank of Philadelphia, where I was a visiting scholar while working on this project, as well as of Bocconi University and Belarusian Economic Research and Outreach Center (BEROC). All remaining errors are my own. This paper supersedes "Debt Collection Agencies and the Supply of Consumer Credit" by Viktar Fedaseyeu, Federal Reserve Bank of Philadelphia Working Paper 15-23, June 2015. Disclaimer: This Philadelphia Fed working paper represents preliminary research that is being circulated for discussion purposes. The views expressed in these papers are solely those of the authors and do not necessarily reflect the views of the Federal Reserve Bank of Philadelphia or the Federal Reserve System. Any errors or omissions are the responsibility of the authors. No statements here should be treated as legal advice. Philadelphia Fed working papers are free to download at www.philadelphiafed.org/research-and-data/publications/working-papers/.

# 1. Introduction

Revolving debt (commonly known as credit cards) is one of the largest types of unsecured consumer credit in the United States, with 43.9% of American families carrying credit card debt in 2016, for a total of $891.5 billion outstanding.[1] As with any debt, the willingness of lenders to provide credit card loans relies on the presence of enforcement mechanisms that allow creditors to pursue a defaulting borrower's income and assets (Djankov, Hart, McLiesh, and Shleifer, 2008). Between 2001 and 2014, on average 9.95% of outstanding credit card debt was more than 90 days delinquent, compared with 8.29% for student loans and 3.74% for mortgage loans.[2] This relatively high default rate implies that debt enforcement mechanisms may be particularly important for revolving debt.

Once a credit card loan is in default, lenders typically initiate the process of debt collection. It involves attempts to obtain repayment from defaulting borrowers and can be of two types: in-house debt collection (in which creditors try to collect the debt on their own) or third-party debt collection (in which creditors outsource debt collection to third-party agencies). Initially, most creditors start collecting on their delinquent accounts in-house and, if unsuccessful, later transfer these accounts to third-party agencies (Federal Trade Commission, 2009). These third-party agencies then contact borrowers and attempt to obtain repayment from them on behalf of the creditors. Most debt collection agencies work on commission and retain a portion of the amount they collect for the creditors.

The activities of third-party debt collectors affect millions of borrowers: The proportion of American consumers with at least one account in third-party collections has not fallen below 9% since the end of 2001 (the earliest date for which the corresponding data from

[1] Sources: Bricker, Dettling, Henriques, Hsu, Jacobs, Moore, Pack, Sabelhaus, Thompson, and Windle (2017); Board of Governors of the Federal Reserve System, G.19 series — Consumer Credit.

[2] Source: *The Quarterly Report on Household Debt and Credit*, Federal Reserve Bank of New York, various editions. Until the third quarter of 2012, the delinquency rate on credit card loans exceeded that of every other type of consumer credit. After the third quarter of 2012, student loans have had a higher delinquency rate than credit card loans.

the *Quarterly Report on Household Debt and Credit* by the Federal Reserve Bank of New York are available) and stood at 13.48% at the end of 2014 (see Figure 1).[3] Relatedly, American consumers file more complaints about third-party debt collectors than about any other industry.[4] In a 2014 report, the Consumer Financial Protection Bureau (CFPB) stated that "debt collection constitutes one of today's most important consumer financial concerns, as indicated by the more than 200,000 consumer complaints that Federal agencies received in 2013 about the conduct of debt collectors" (Consumer Financial Protection Bureau, 2014, p. 2). In response to these concerns, the CFPB is in the process of preparing a new set of rules for the debt collection industry, with the issuance of a Notice of Proposed Rulemaking in May 2019 (Consumer Financial Protection Bureau, 2018).

While third-party debt collection affects a substantial number of borrowers, there is relatively little research on this topic. Hunt (2007) gives an overview of the debt collection industry and provides details about its institutional structure and regulatory environment. Hynes (2008) examines the process of debt collection in state courts and finds that debt collection litigation is pervasive, that consumers who are sued by creditors and debt collectors are drawn predominantly from lower-income areas, and that very few consumers file for bankruptcy once they are sued. Dawsey, Hynes, and Ausubel (2013) document that personal bankruptcy filing rates are lower in states that allow borrowers to sue creditors that use abusive debt collection practices in-house. Relatively little is known, however, about the impact of third-party debt collectors on creditors' ability to recover delinquent debt and on their willingness to provide unsecured loans in the first place. The aim of the current paper is to provide systematic evidence on this issue by investigating whether the strictness of state laws that regulate third-party debt collectors affects credit market outcomes.

[3]Source: *The Quarterly Report on Household Debt and Credit*, Federal Reserve Bank of New York, various editions. These are not yearly figures; accounts may remain in third-party debt collection for several years. In addition to revolving credit, these figures include third-party debt collectors collecting on other types of debt (medical bills, student loans, etc.).

[4]Source: Consumer Financial Protection Bureau (2014).

To measure the strictness of third-party debt collection laws, I collect, from state statutes, state-level restrictions on third-party debt collectors. These restrictions range from licensing and/or bonding requirements imposed on third-party debt collection firms to declaring certain debt collection practices unlawful and/or making violations of debt collection laws a criminal offense. By counting the number of restrictions, this paper constructs an index of the strictness of third-party debt collection laws, which varies both across states and over time. The mean value of this index in the sample is 3.46 (with a standard deviation of 2.04), and it ranges from 0 in the most lenient states (such as South Dakota) to 8 in the strictest state (Idaho). The empirical analysis in this paper then studies whether the value of the index of third-party debt collection restrictions is related to the number of third-party debt collectors and credit market outcomes such as the recovery rates on credit card loans and the number of new credit cards being opened.

One potential difficulty in estimating the effect of third-party debt collection laws on revolving credit is that the strictness of such laws may itself depend on credit availability. For example, Delaware and South Dakota, two states generally regarded as bank friendly, also impose very few restrictions on third-party debt collectors (South Dakota imposes none, while Delaware imposes a licensing fee). Accordingly, many banks locate their credit card operations in these states. One useful feature of third-party debt collection laws is that they changed over time, with different states changing their laws in different years. This makes it possible to estimate the effect of third-party debt collection laws on credit market outcomes in a difference-in-differences framework. The key identifying assumption underlying this empirical strategy is that changes in the strictness of third-party debt collection laws are unrelated to other determinants of credit market performance and supply. This paper performs an analysis of the determinants of third-party debt collection laws and finds little empirical evidence that changes in third-party debt collection laws are related to plausible

determinants of credit supply (such as state-level unemployment and GDP growth).

Laws that make it more difficult for third-party debt collectors to operate should reduce their number. Indeed, higher values of the index of third-party debt collection restrictions (corresponding to a larger number of restrictions imposed on third-party debt collectors) result in fewer third-party debt collectors per capita. A 1 point increase in the value of the index of third-party debt collection restrictions decreases the number of third-party debt collectors per million people by about 15% of the sample mean (29% of the sample standard deviation). The decrease in the number of third-party debt collectors may indicate that lenders shift debt collection in-house in response to stricter third-party debt collection laws (thus substituting first-party collectors for third-party collectors), and indeed this paper finds some evidence of such substitution. Note, however, that creditors always have the option of collecting in-house, and the decision to use a third-party agency therefore indicates that creditors expect to recover more, on the net, via third-party debt collection than by collecting in-house. Therefore, the transfer of debt collection back in-house suggests that creditors have to choose a less effective collection process in response to the tightening of third-party debt collection laws.

To study the pattern of recovery rates, this paper uses regulatory filings from credit unions. While credit unions are not necessarily representative of larger financial institutions, they may lack the scale to establish in-house debt collection operations and therefore may be more likely rely on third-party debt collectors that are the focus of this paper.[5] If having fewer third-party debt collectors makes it harder for lenders to collect unsecured debts, stricter third-party debt collection laws should reduce the recovery rates on such debts. Indeed, a 1 point increase in the value of the index of third-party debt collection restrictions decreases

[5]During the sample period (from 2000 to 2014), credit unions provided on average 7.4% as much revolving debt as commercial banks. While not necessarily applicable to all lenders, the results in this paper are likely to have relevance for creditors that rely on third-party debt collectors, such as hospitals and utilities. Indeed, according to the 2013 ACA Top Collection Markets Survey, the top three debt collection markets (by volume) are hospital health care (47.2%), utilities (13.7%), bank and finance (11.1%).

credit union recovery rates on charged-off credit card loans by about 7% of the sample mean (16% of the sample standard deviation). In turn, the less effective debt enforcement associated with stricter third-party debt collection laws appears to reduce the number of new revolving lines of credit. In a representative sample of U.S. consumers with credit reports, the number of new revolving lines of credit falls by about 2% of the sample mean (7% of the sample standard deviation) for a 1 point increase in the value of the index of third-party debt collection restrictions. Thus, stricter third-party debt collection laws reduce the effectiveness of contract enforcement in consumer credit markets and decrease the availability of new revolving debt, although the latter effect is modest.

While stricter third-party debt collection laws may reduce credit availability, they do not necessarily reduce consumer welfare. On the one hand, credit access may alleviate economic hardship by enabling borrowers to smooth their consumption (e.g., Morgan and Strain, 2007; Karlan and Zinman, 2010; Zinman, 2010; Morse, 2011). On the other hand, credit access may prompt some consumers to borrow too much, which may be due to behavioral biases including limited self-control and limited foresight (e.g., Laibson, Repetto, and Tobacman, 2007; Bar-Gill and Warren, 2008; Heidhues and Kőszegi, 2010; Campbell, Jackson, Madrian, and Tufano, 2011; Melzer, 2011; Nakajima, 2013).[6] Separately, debt collection may impose nonpecuniary costs on borrowers, and these costs may sometimes be substantial, as indicated by the high number of consumer complaints and lawsuits against debt collectors (Morgan, Strain, and Seblani, 2012). Since stricter third-party debt collection laws reduce the number of third-party debt collectors, they could also plausibly reduce such nonpecuniary costs. Indeed, stricter third-party debt collection laws are associated with fewer consumer lawsuits against third-party debt collection firms, and the effects are economically sizable: A 1 point increase in the value of the index of debt collection restrictions decreases the number of law-

[6]This may be particularly relevant for consumers with low financial sophistication, which can lead to borrowing at excessively high interest rates (Lusardi and Tufano, 2009; Hastings, Madrian, and Skimmyhorn, 2013).

suits against third-party debt collectors by about one sample standard deviation. However, there is no correspondent decrease in the total number of consumer complaints against debt collectors. Thus, stricter third-party debt collection laws may or may not actually reduce the nonpecuniary costs imposed on borrowers by the debt collection process.

Even though using changes in third-party debt collection laws to estimate their effect on revolving credit can address some endogeneity concerns, these concerns can never be completely eliminated with nonexperimental data. To assuage them, this paper contains a variety of robustness checks. First, changes in third-party debt collection laws are rather infrequent and do not appear to be clustered in time, suggesting that they are unlikely to be related to transitory changes in credit conditions. Second, the outcome variables in adopting and nonadopting states follow similar trends prior to law changes. Third, the effect of third-party debt collection laws on credit market outcomes is not driven by the 2007–2009 financial crisis or outliers and is robust to a variety of samples and specifications. Fourth, these laws do not have a significant effect on placebo outcomes related to general credit conditions.

The main contribution of this paper is in enhancing our understanding of debt enforcement in consumer credit markets by studying a mechanism that has received relatively little attention in the literature. Overall, the impact of third-party debt collection laws on credit access documented here is consistent with a broad literature on law and finance, which finds that creditor rights are an important determinant of financial markets development (e.g., La Porta, Lopez-de-Silanes, Shleifer, and Vishny, 1998, 2000; Djankov, McLiesh, and Shleifer, 2007). While the focus of this paper is on debt collection, it is not the only contract enforcement mechanism in consumer credit markets. Other such mechanisms include bankruptcy proceedings, garnishment (the right of creditors to deduct money directly from borrowers' monetary compensation), and asset repossession. These mechanisms are undoubtedly important. For example, Gropp, Scholz, and White (1997) show that high levels

of bankruptcy exemptions reduce credit availability and redistribute credit toward high-asset households, while Berkowitz and Hynes (1999) and Lin and White (2001) find mixed evidence on the effect of bankruptcy exemptions on mortgage acceptance rates. White (2007) argues that the growth in revolving debt is the primary reason for the rise in bankruptcy filings and that bankruptcy policies that favor creditors must be accompanied by changes in credit market regulations designed to prevent overborrowing. Barth, Gorur, Manage, and Yezer (1983) show that restrictions on garnishment reduce the availability of personal loans, while Dawsey and Ausubel (2001) and Agarwal, Liu, and Mielnicki (2003) document that creditor friendly garnishment laws increase the likelihood that borrowers will file for bankruptcy. Assunçao, Benmelech, and Silva (2014) use a 2004 credit reform in Brazil to show that increasing the liquidation value of collateral leads to an expansion of credit to riskier borrowers, which suggests that the lenders' ability to repossess assets is a crucial factor in credit supply.

The rest of this paper is organized as follows. Section 2 describes legal framework, the data, and hypotheses. Section 3 reports empirical results. Section 4 contains robustness tests. Section 5 concludes. Appendix A describes variables sources and definitions, while Appendix B contains a brief summary of changes in debt collection statutes. A separate online appendix provides some institutional details of the debt collection process as well as further robustness tests.

## 2. Legal framework, data and hypotheses

### *2.1. Regulation of third-party debt collectors*

The activities of third-party debt collectors in the United States are regulated by a federal law, the Fair Debt Collection Practices Act of 1977 (FDCPA). The FDCPA exempts the

original creditors from its coverage and applies to third-party debt collectors and creditors who bought the defaulted debt from an original creditor for the purpose of debt collection. The FDCPA prohibits certain types of "abusive and deceptive" conduct when attempting to collect debts, such as repeatedly contacting consumers by phone "with intent to annoy, abuse, or harass any person at the called number," or threatening arrest or legal action that is either not permitted or not actually contemplated. It also limits whom the collector can contact for the purposes of collecting a debt and when such contact can take place.

Unlike many other federal statutes, the FDCPA establishes a floor on consumer protection from third-party debt collectors and permits states to adopt their own laws if they provide greater consumer protection than the federal law. Furthermore, while the state of incorporation governs the regulation of interest rates that banks with a national charter can offer, the relevant jurisdiction for creditor remedies and debt collection laws is the state in which the consumer resides (or resided when he or she opened the account). When a financial institution attempts to collect debts owed to it, the applicable law is the collection law of the state where the consumer resides regardless of the state where the financial institution is based. Thus, changes in state laws that affect third-party debt collection have the potential to affect the operations of third-party debt collection firms and, by extension, credit market outcomes at the state level.

Forty-three states have adopted their own laws that regulate third-party debt collection. These state laws differ in some important respects that limit the operations of third-party debt collectors beyond the restrictions specified in the FDCPA. Some states (Arizona, for example) require third-party debt collection agencies to obtain a license, while others (California, for example) do not. Some states (Arkansas, for example) require third-party debt collection agencies to post bonds with state regulators before commencing debt collection activities, while others (Iowa, for example) do not. States also differ in the responsibili-

ties they assign to state debt collection regulators and in the powers those regulators are granted. Some states (Florida, for example) allow attorneys general or special debt collection regulatory bodies to impose civil penalties on violators of debt collection laws.

To quantify the strictness of third-party debt collection laws, I construct, from state statutes, an index of third-party debt collection restrictions. Initially, each state is assigned a value that is the sum of the following six indicator variables that represent broad restrictions on third-party debt collection activities this state had as of January 1999: 1) whether the state had a special board or commission that regulated third-party debt collection activities; 2) whether the state imposed licensing requirements on third-party debt collectors; 3) whether the state imposed bonding requirements on third-party debt collectors; 4) whether the state declared certain abusive debt collection practices unlawful; 5) whether the state granted consumers a private right of action against third-party debt collectors; and 6) whether the state made violations of third-party debt collection laws a criminal offense. Many of the debt collection practices prohibited by state law overlap with federal law (e.g., the prohibition on using obscene or profane language); however, explicitly writing these prohibited practices into state law may be important since it creates the possibility to prosecute third-party debt collectors engaged in such practices in state courts (in addition to federal courts) and to demand compensation under state law. Some prohibited practices are unique to state law. North Dakota, for example, makes it a violation to "fail to truthfully account for moneys belonging to or collected from another."[7] By providing a private right of action, some states explicitly allow consumers to bring lawsuits against third-party debt collectors that violate state debt collection laws. In other states, violations of state third-party debt

[7]There are other examples of states declaring certain debt collection practices unlawful. For instance, in 2009 Arkansas wrote the list of practices listed in the FDCPA as unfair, harassing, or abusive into state law (e.g., outlawed the use of threat, repeated phone calls). Similar provisions were adopted by Pennsylvania in 2000 and Rhode Island in 2007. The state of Washington defines prohibited conduct in a manner similar to the FDCPA but contains some unique provisions, which were expanded in 2011: e.g., Washington prohibits third-party debt collectors from using services that block their phone number from displaying on a debtor's phone and limits the ability of third-party debt collectors to communicate with borrowers via text messages.

collection laws can be prosecuted only by a designated state official (such as the Attorney General). In this regard, violations of state third-party debt collection laws should be distinguished from violations of other state laws. For example, an unlicensed third-party debt collector may engage in conduct violating the state's civil laws that allow the injured party to bring a lawsuit. In this case, the violation of the licensing statute is subject to public action initiated by the designated state official, while violations of the civil laws are subject to private action.

The map in Figure 2 shows the level of the index of third-party debt collection restrictions in different states in 1999, with darker areas representing more restrictions on third-party debt collectors. As noted previously, Delaware and South Dakota have very few restrictions on third-party debt collectors and are marked with light shades on the map. It also appears that the strictness of third-party debt collection laws has a geographical pattern, with bordering states often having similar levels of restrictions and with Southern and Western states imposing the greatest number of restrictions. The origin of this pattern may be due to a variety of factors (such as states' political philosophy and general attitudes toward credit, which are likely to be somewhat similar in bordering states). To the extent that these factors are not time-varying, including state fixed effects in the analysis will absorb their influence. This, however, requires time-series variation in third-party debt collection laws. An important feature of these laws, therefore, is that they indeed changed over time. Furthermore, these changes appear to be unrelated to other plausible determinants of credit market performance and supply (see Section 3.1).

Between 1999 and 2014, there have been 38 changes in third-party debt collection laws in 22 states, of which seven changes loosened restrictions on third-party debt collectors and 31 changes tightened such restrictions.[8] Panel A of Table 1 lists the number of changes in

[8]The sample period in this paper covers 2000–2014 (this is the longest period for which all variables used in the subsequent analysis are available). In order not to overlook any changes that occurred immediately prior to the start of the sample period,

third-party debt collection laws in each year between 1999 and 2014, and Panel B reports the value of the index of third-party debt collection restrictions for each state in 1999 and 2014. In constructing the index, every change in third-party debt collection laws is classified as either a tightening (in which case, 1 is added to the index) or as a loosening (in which case, 1 is subtracted from the index).[9] As a result, a higher value of the index indicates a more restrictive environment for third-party debt collectors. The mean value of the index in the sample is 3.46, with a standard deviation of 2.04 (reported in Table 2).

Each legal change used to construct the index is assigned the same weight. While potentially reducing the amount of variation in the index of third-party debt collection restrictions, this approach avoids subjective judgment about the relative strengths of various legal changes and makes the index transparent and easily reproducible. This approach may also be conservative, since by treating all law changes in the same way, it underestimates the role of more important changes (which should have a pronounced impact on credit market outcomes) while overestimating the role of less important changes (whose impact should be less pronounced).[10]

### *2.2. Bankruptcy and garnishment laws*

The ability of unsecured creditors to pursue delinquent debtors is limited by not only the effectiveness of the debt collection process but also by bankruptcy law and garnishment law, and it is therefore important to control for the effect of these laws in the analysis.

changes in third-party debt collection laws are coded from 1999 onward. Of 38 such changes, 35 occurred between 2000 and 2014 (29 tightenings and six loosenings). See Appendix B for details.

[9]The construction of the index accounts for all changes in third-party debt collection laws that occurred between 1999 and 2014, other than technical changes such as renamings. For example, in 2003, Florida renamed its Department of Financial Regulation the Office of Financial Regulation. This change is not included in the index.

[10]States did not change their laws uniformly, and it is sometimes virtually impossible to determine the precise relative impact of each law change. Consider the following three examples of the tightening of third-party debt collection laws. In 1999, Oregon made violations of debt collection laws a criminal offense. In 2004, Georgia allowed class action lawsuits against unlicensed debt collection activity. In 2010, Florida authorized its attorney general to take action against third-party debt collectors and increased the amount of administrative fines from $1,000 to $10,000. It is fairly straightforward to see that each of these changes made third-party debt collection laws stricter. However, it is unclear whether administrative fines in Florida should have a smaller or larger impact than class action lawsuits in Georgia or criminal punishment in Oregon.

Garnishment is a legal order that enables creditors (and third-party debt collectors) to collect a proportion of the debtor's property in the possession of a third party. The most common form of garnishment is wage garnishment, which refers to the process of deducting funds directly from a person's monetary compensation to satisfy his/her creditors.

The ability of creditors (and third-party debt collectors) to garnish wages is limited by federal and state law. Federal law limits wage garnishment to the lesser of 25% of disposable income or the amount by which disposable income exceeds 30 times the federal minimum wage, but some states offer greater protection to their residents. Wage garnishment is currently not allowed in four states: Pennsylvania, North Carolina, South Carolina, and Texas. In these four states, garnishment is allowed only for special types of debt such as tax-related debt. In all other states, a third-party debt collector can file a lawsuit against a borrower and, having obtained a judgment against the borrower, garnish wages. To the extent that third-party debt collectors rely on garnishment, the two can be complements in the process of recovering debts. However, third-party debt collectors often rely on persuasion and try to obtain at least some repayment without filing a lawsuit, since the latter involves additional costs. In this case, the two can be substitutes: When garnishment laws are debtor-friendly, creditors may have to rely more on third-party debt collectors.

State garnishment laws have changed little over time, with only seven such changes occurring during the sample period. Consistent with prior literature (e.g., Dawsey and Ausubel, 2001; Agarwal, Liu, and Mielnicki, 2003), this paper uses the proportion of income exempt from garnishment to account for the effect of garnishment laws. The mean share of income exempt from garnishment in the sample is 78.91%, with a standard deviation of 7.49% (reported in Table 2).

Personal bankruptcy allows individuals to discharge their unsecured debts in return for giving up their nonexempt assets (under Chapter 7) or to retain their assets but repay a

portion of their debts over a three- to five-year period (under Chapter 13). Bankruptcy exemptions change quite frequently (there have been 128 such changes during the sample period). Most of the time, these changes involve cost of living adjustments, which typically happen at regular intervals mandated by state law. In Alaska, for example,"the dollar amounts [...] change [...] according to and to the extent of changes in the Consumer Price Index for all urban consumers for the Anchorage Metropolitan Area compiled by the Bureau of Labor Statistics, United States Department of Labor (the index). The dollar amounts change on October 1 of each even-numbered year if the percentage of change, calculated to the nearest whole percentage point, between the index for January of that year and the most recent index used to change the exemption amount, is 10 percent or more [...]" (Alaska Stat. § 09.38.115 (a)(b)).

This paper collects the level of both homestead exemption and nonhome personal property exemption for each state during the sample following the procedure described in Berkowitz and Hynes (1999) and Lin and White (2001).[11] Some states offer unlimited homestead exemptions to their residents. In such cases, the value of the homestead exemption is coded as $1 million, which is consistent with the amount used in prior literature (e.g., Berkowitz and Hynes, 1999; Lin and White, 2001).[12] Some states allow their residents to choose between a uniform federal bankruptcy exemption and the state's exemption level. In these cases, it is presumed that the borrowers use the highest of the two exemption values. To control for the influence of bankruptcy laws, the dollar amount of the combined real bankruptcy exemption (home and nonhome) is included as a control variable in the analysis, with the nominal values of bankruptcy exemptions converted into 2010 dollars using the consumer price index (CPI) obtained from the Bureau of Labor Statistics. The average level of the

[11]Some states allow their married residents who file jointly to double certain bankruptcy exemptions. Since the data used in this paper do not have information on the marital status of borrowers, the analysis uses exemptions available to singles.

[12]The amount of $1 million is greater than the maximum limited homestead exemption in the sample ($550,000).

combined real bankruptcy exemption in the sample is $213,500, with a standard deviation of $357,400 (in 2010 dollars).

### *2.3. Variables and sample construction*

The data used in this paper come from several sources: statistics derived from representative snapshots of consumer credit bureau files (compiled by TransUnion), County Business Patterns series collected by the U.S. Census Bureau, credit union Call Reports (financial reports filed by credit unions with their regulator, the National Credit Union Administration), and a database of consumer lawsuits against third-party debt collectors (compiled by WebRecon, LLC, a data analytics firm). As noted previously, the relevant jurisdiction for creditor remedies is the state where the consumer resides (or resided when he or she opened the account). Thus, for the analysis in this paper, it is important to measure outcome variables in the states where borrowers reside. TransUnion, which is one of the three largest consumer reporting agencies in the United States, collects data on, among other things, the amount of various types of consumer credit in each state. The credit bureau data used in this paper are based on large quarterly representative snapshots drawn from the credit histories on file with TransUnion (access to TransUnion data for this project was provided through the Payment Cards Center at the Federal Reserve Bank of Philadelphia). Each credit history contains variables on the amount of revolving, installment, auto, and mortgage borrowing, as well as consumer repayment behavior and credit scores. TransUnion then aggregates these variables at various levels of geography. This paper uses the state-level data set because the main explanatory variable is a state-level index of debt collection restrictions.

Because third-party debt collectors are typically hired to collect unsecured debts, changes in debt collection laws should primarily affect the availability of unsecured credit. The type of unsecured credit that this paper studies is revolving credit, which comprises accounts that

are conventionally known as credit cards.[13] Revolving borrowing is a sequential process. The creditor first decides whether to open a revolving account and determines its credit limit. The cardholder is then allowed to borrow up to this credit limit over multiple periods, with the actual amount borrowed and repaid each period largely at the discretion of the cardholder. Once they pay off the balance, cardholders may borrow this amount again. Since credit card agreements generally do not have a terminal date and can last for several years, the total amount of revolving debt outstanding may not quickly adjust to changes in the legal environment. Rather, changes in the legal environment are likely to affect new issuance activity first. Thus, this paper estimates the effect of changes in debt collection laws on new revolving accounts.

The number of new revolving lines of credit, normalized by the number of consumers with a credit report, averages 119.03 per 1,000 consumers.[14] The average amount actually borrowed on such accounts (which is termed "balance of revolving lines of credit") is $1,835.67 in the sample. In some tests, this paper compares the impact of debt collection laws on revolving debt with their impact on secured debt, namely, auto loans and mortgages, and the respective variables are also obtained from TransUnion. Auto loans are loans secured by motor vehicles, while mortgage loans are loans secured by real estate. The average number of new auto and mortgage loans (per 1,000 consumers) in the sample is 6.98 and 8.77, respectively. The TransUnion data also contain variables that describe delinquencies, such as the number of borrowers who are delinquent on their revolving debt and the amount of delinquent debt, as well as the number of consumers who have accounts in collection. In

[13] In the TransUnion data, revolving debt also includes some small home-equity lines of credit. However, according to TransUnion, debt other than credit cards constitutes less than 10% of the total reported amount of revolving debt.

[14] This statistic implies a significant amount of credit card issuance during the sample period and is comparable with the data on credit card issuance from other sources. Based on the Federal Reserve Bank of New York (FRBNY) Consumer Credit Panel/Equifax, over the period 1999–2013, approximately 120 million new revolving accounts were opened each year. For the purposes of making comparisons with the data analyzed in this paper, over this period, about 120 new revolving accounts were opened per 1,000 consumer per quarter, which is very similar to the statistics obtained from TransUnion. Source: Calculated by Avraham Peled of the Consumer Finance Institute of the Federal Reserve Bank of Philadelphia using data from the FRBNY Consumer Credit Panel/Equifax.

the sample, the average number of borrowers who are 60 days or more past due on their revolving debt is 5.62 (per 1,000 people). The average amount due on revolving debt that is 60 or more days delinquent (which is termed "amount of revolving debt past due") is $559.66 per borrower. The share of consumers with at least $100 ever placed for collection is 32.93%. This figure is higher than that reported by the Federal Reserve Bank of New York in the *Quarterly Report on Household Debt and Credit*, which is largely due to the fact that the *Quarterly Report on Household Debt and Credit* reports third-party collections on file within the last 12 months rather than at any point during the credit history. The 32.93% figure is comparable to the recent estimates by the Consumer Financial Protection Bureau, which reports that between 2004 and 2018, the percentage of consumers with at least one account in third-party collection fluctuated between 27% and 34% (Consumer Financial Protection Bureau, 2019).

To study the effect of state laws on credit pricing and recovery rates, one needs to obtain these measures at the state level. This is challenging, since financial institutions do not disaggregate their financial reports by jurisdiction and since TransUnion data do not contain information on credit pricing or recovery rates. To address this challenge, I supplement the credit bureau data with credit union Call Reports. The use of credit union data is motivated by two primary considerations. First, changes in state laws are most likely to affect lenders that do not provide credit across state lines, and credit unions indeed appear to be local credit providers: On average, 93.7% of all credit unions have branches in a single state.[15] This local focus is the result of legal requirements that allow credit unions to lend only to their members,

[15]The data on credit union branches are available from 2010 onward. During this period, on average 93.7% of all credit unions have branches within a single state, with a high of 95.1% in 2010 and a low of 92.5% in 2014. Since data on credit union branches are not available prior to 2010, this paper uses the number of branches in 2010 as a proxy for the number of branches prior to 2010. This approach seems conservative: Given that over time there has been a slight *decrease* in the number of credit unions with branches in a single state, some credit unions that had branches in multiple states in 2010 are likely to have had branches in a single state prior to 2010. The main sample used in this paper is restricted to credit unions with branches in a single state (constructed by using branches in 2010 as a proxy for branches before 2010). However, the results are robust to using all credit unions, regardless of the location of their branches (these results are reported in the online appendix).

who must have a well-defined common bond (employer, location, or profession).[16] Second, credit unions' small size implies that they are less likely to have internal debt collection departments and may therefore rely more heavily on third-party debt collectors.

Between 2000 and 2014, credit unions provided on average 7.4% as much revolving credit as commercial banks.[17] Consistent with the findings in Bar-Gill and Bubb (2011) and Bubb and Kaufman (2013), credit unions charge lower average interest rates than commercial banks: During the sample period, commercial banks charged an average interest rate of 13.06% on their credit cards,[18] and credit unions charged an average of 11.15%.[19] Of course, credit unions may react differently to changes in third-party debt collection laws than other lenders such as commercial banks.[20] While the results on recovery rates reported in this paper may not generalize to large lenders, they are likely to apply to creditors that rely on third-party debt collectors, such as hospitals and utilities. In the sample studied here, the average recovery rate on charged-off unsecured credit card loans is 15.88%. In some placebo tests, this paper uses credit unions' deposit rate as an outcome variable, which averages 0.34% in the sample.

Data on third-party debt collectors are available from the U.S. Census Bureau's County Business Patterns. It is an annual census based on administrative records, which contains (among other things) the number of third-party debt collection establishments and the number of employees at those establishments.[21] The main measure of third-party debt collector

[16]The Pentagon Federal Credit Union and the Navy Federal Credit Union are excluded from the analysis because they provide credit across state lines. Further, all credit unions that contain the word "air" in their title (such as he American Airlines Credit Union) are also excluded, since credit unions established by airlines and could serve a customer base across state lines. The exclusion of such credit unions (133 credit unions out of a total of 13,448) does not have a significant impact on the results.

[17]Source: Board of Governors of the Federal Reserve System, G.19 series — Consumer Credit.

[18]Source: Board of Governors of the Federal Reserve System, G.19 series — Consumer Credit.

[19]These differences may be due in part to the legal differences between banks and credit unions. Both state and federal laws give the customers of credit unions ownership rights (both control rights and residual financial claims). For example, federal law requires federal credit unions to be managed by a board of directors elected annually by members. The statute governing federal credit unions is codified at 12 U.S.C. §1751 *et seq.*

[20]In the online appendix, I estimate the effect of third-party debt collection laws on recovery rates in a sample of small banks. In that sample, the estimates have the expected sign and similar magnitude but are not statistically significant.

[21]The County Business Patterns series tracks third-party debt collectors under the code 561440 of the North American Industry Classification System (NAICS), which comprises firms engaged in collecting payments and then remitting the payments

density used in this paper is the number of employees in third-party debt collection firms in a given state divided by that state's population (in million people).[22] The sample average number of third-party debt collectors per 1 million people is 415.05. In some years, the data on the number of third-party debt collectors are suppressed for privacy reasons. In such cases, County Business Patterns reports the lower and upper bounds of debt collection employment. Such observations are excluded from the main sample; however, the results are also robust to using midpoints of the intervals reported in County Business Patterns.

While the employment of first-party debt collectors is not tracked in the County Business Patterns, the total employment of all debt collectors (across all industries) at the state level is tracked in the Occupational Employment Statistics (OES) available from the U.S. Bureau of Labor Statistics. Thus, one can calculate the total number of first-party debt collectors by subtracting the number of third-party debt collectors from the total number of debt collectors. The measure of first-party debt collector density is then constructed in the same manner as the measure of third-party debt collector density described previously. First-party debt collector density averages 838.22 in the sample, implying that third-party debt collectors represent approximately one-third of the total debt collection employment.

Data on consumer lawsuits against third-party debt collectors are obtained directly from WebRecon, LLC, a data analytics firm. WebRecon uses proprietary data algorithms to identify lawsuits related to debt collection in state and federal courts. Importantly, WebRecon's data set enables one to identify not only the parties of each lawsuit but also the instances in which lawsuits are filed under state law (which is the focus of this paper). Because state courts do not have uniform reporting requirements, the data on consumer lawsuits against

collected to their clients. Further, note that a single debt collection agency can have several establishments in one or several states, but the survey does not aggregate information at the agency (firm) level.

[22] An alternative measure of debt collector density can be constructed by using the number of debt collection establishments. The estimated impact of changes in debt collection laws on the number of debt collection establishments (reported in Section 4) is much smaller than their estimated impact on the number of employees in third-party debt collection firms and is not statistically significant. This is not surprising, since it may be easier for debt collection firms to adjust the number of employees rather than the number of establishments.

third-party debt collectors filed in state courts are available for a relatively restricted sample. The average number of lawsuits filed against third-party debt collectors is 0.25 per 1 million people. Data on consumer complaints against debt collectors come from Morgan, Strain, and Seblani (2012), from Freedom of Information Act requests filed with the FTC and from the FTC's Sentinel data set (access to the latter two data sources was provided through the Consumer Finance Institute at the Federal Reserve Bank of Philadelphia).

To account for local economic conditions and the business cycle, the regression specifications presented in this paper include state-level unemployment rate, personal income and personal income growth, as well as the prices of homes, health care and utilities. The state-level unemployment rate is obtained from the U.S. Bureau of Labor Statistics and averages 6.01%. Data on personal income come from the U.S. Bureau of Economic Analysis. The sample average real personal income is $39,220 annually, and real income growth averages 0.99% per annum. House prices are from the U.S. Federal Housing Finance Agency (Bogin, Doerner, and Larson, 2019), health-care expenditures are from the Henry J. Kaiser Family Foundation, while the cost of utilities is proxied by the cost of electricity obtained from the U.S. Energy Information Administration. Finally, to account for local political conditions as a possible determinant of changes in debt collection laws, the paper constructs two indicator variables that describe the party composition of the state's legislative and executive branches. The first dummy variable indicates whether the Republican Party holds the majority of seats in the state's legislature; in states with bicameral legislatures (which is the case for most states), this variable is set to 1 when each of the two chambers is controlled by the Republican Party. Similarly, a separate indicator variable is set to 1 when the state's governor is Republican.

The sample period covers 2000–2014 (the longest period for which all variables used in the analysis are available). Following the example of Jayaratne and Strahan (1996), who

study the effect of bank branching restrictions on economic growth, all years in which debt collection laws were changed are removed from the sample. This exclusion is imposed because most changes in debt collection laws occurred in the middle of the year, and it is therefore unclear whether the value of the index before or after the change should be used in these cases.[23] Delaware and South Dakota are excluded from the analysis because these two states have some of the most favorable banking laws in the U.S. and are therefore home to many national credit card banks.[24] Finally, the observations with suppressed data on third-party debt collection employment are excluded from the main sample as well. This step also removes the District of Columbia because the data on third-party debt collectors there are suppressed in all years. The resulting annual sample contains 656 observations for 48 states.[25] Since the TransUnion variables are available at quarterly frequency, there are 2,624 quarterly observations for these variables (corresponding to 656 annual observations for other variables). The main analysis presented in this paper uses quarterly regressions when the dependent variable comes from TransUnion data and annual regressions for all other variables.[26] Summary statistics for the sample are reported in Table 2. Panel A reports statistics for the variables that describe debt collection laws as well as bankruptcy and garnishment laws, Panel B reports statistics for the variables that describe the amount of credit and borrower characteristics, and Panel C reports statistics for the other variables. The details on variables construction are provided in Appendix A. All nominal variables are converted to 2010 dollars using the CPI.

[23]The results of this paper hold when the years in which changes occurred are included in the sample, with the value of the index in those years coded as the weighted average of the index values before and after the change, where the weights are given by the number of months until changes in third-party debt collection laws come into effect. See Section 4.

[24]The results remain quantitatively and qualitatively unchanged when Delaware and South Dakota are included in the analysis. See Section 4.

[25]Fifteen years of data for 48 states translates into a theoretical maximum of 720 annual observations. Of the 38 law changes documented in Appendix B, 35 occurred between 2000 and 2014, which leaves 685 observations after excluding these years. Twenty-nine of these 685 observations have suppressed data on debt collectors, which leaves 656 observations in the main annual sample.

[26]The results are similar if the analysis is performed on annualized data; see Section 4.

*2.4. Hypotheses*

Stricter third-party debt collection laws make it more difficult for third-party debt collectors to collect (by restricting third-party debt collection practices) or more costly for them to operate (by imposing licensing and bonding requirements and by establishing penalties for unlawful behavior).[27] As a result, stricter third-party debt collection laws may reduce recovery rates that third-party debt collectors can obtain and may also reduce their number, either because higher operating costs force some third-party debt collectors out of business or because lenders substitute first-party debt collectors for third-party debt collectors. In sum, third-party debt collection laws should have two effects on third-party debt collectors. First, stricter regulations should reduce the number of third-party debt collectors. Second, they should also decrease the recovery rates that third-party debt collectors can obtain.[28]

Recovery rates in the data are not broken down separately for third-party debt collectors and in-house debt collectors. However, by decreasing the recovery rates that third-party debt collectors can obtain, stricter third-party debt collection laws should lower aggregate recovery rates as well. The direct effect of stricter third-party debt collection laws on creditors is to reduce the repayment amounts that they receive on the debts outsourced to third-party agencies. This may also prompt creditors to retain more debt collection in-house, thus

[27]By law, a collection firm must follow the legal requirements of the state in which the debtor resides, regardless of the state in which the collection firm itself is located. However, it may be more difficult to enforce the state law when the firm is located out of state. Therefore, the ability of debt collection agencies located in one state to collect on debtors who reside in a different state may blunt the impact of debt collection laws and introduce a downward bias in the estimates reported here. I attempt to ascertain the extent of interstate collection by asking the Consumer Finance Institute at the Federal Reserve Bank of Philadelphia to provide assessments of interstate debt collection from their contacts in the debt collection industry. In summary, some states require third-party debt collectors to have a physical presence in the state, but such requirements are not particularly onerous. The agencies that find it economically feasible can therefore establish a handful of call centers that collect across the entire United States. However, only a few large debt collection agencies appear to have the economies of scale that enable them to do it. When asked whether debt collection agencies can collect across different states, one contact responded: "The biggest issue is not 'can you,' it's 'can you do it effectively?' Unless you are willing to staff for 16+ hours, you probably won't get the penetration into some states that are 'time zone' challenged relative to the agency's location." Since 90% of debt collection firms have fewer than 50 employees, it is unlikely that the issue of interstate collection significantly affects the results reported here. In fact, one reason why most collection firms are so small may be that the variation in state law is sufficiently important that firms need to specialize in the laws of the state where the debtor resides.

[28]The probability of being contacted by a debt collector has likely changed over time due to technological changes in the debt collection process (such as improvements in communication technology). Since these technological changes are aggregate in nature and not specific to a particular state, time fixed effects should absorb their effect.

substituting in-house collections for third-party collections. Note, however, that creditors always have the option of collecting in-house, and the decision to use a third-party agency therefore indicates that creditors expect to recover more, on the net, via third-party debt collection than by collecting in-house. Therefore, the transfer of debt collection back in-house suggests that creditors have to choose a less effective collection process in response to the tightening of third-party debt collection laws.[29]

Because creditors' willingness to lend depends on the likelihood of repayment, lower recovery rates resulting from stricter third-party debt collection laws should reduce credit supply. This may lead to fewer openings of credit cards.[30]

## 3. Results

This paper estimates difference-in-differences (fixed effects) models of the following form:

$$Y_{it} = \alpha + \beta \text{Index}_{it} + \eta' \text{Controls}_{it} + \mu_i + \gamma_t + \varepsilon_{it}, \tag{1}$$

where $Y_{it}$ is the value of the dependent variable in state $i$ in year $t$, and $\text{Index}_{it}$ is the corresponding value of the index of third-party debt collection restrictions. In addition to the index of third-party debt collection restrictions, all models include a vector of state dummies, $\mu_i$, that absorb unobservable time-invariant heterogeneity across states, and year dummies, $\gamma_t$, that control for macro factors common to all states. Some specifications also include unemployment rate, real income per capita and real income growth (to control for general

[29] Creditors choose which accounts they outsource to third-party debt collectors. It may be that, for some types of accounts, in-house debt collection generates higher recovery rates than third-party debt collection. These accounts should not be affected by third-party debt collection laws, since the creditors can always use in-house debt collectors for such accounts.

[30] The impact of third-party debt collection laws on revolving credit is the net effect of their impact on credit supply and demand. While stricter laws should lower credit supply, their impact on credit demand may go in the opposite direction. This is because stricter third-party debt collection laws reduce the probability that the debt will have to be repaid, all else being equal. Thus, the estimates of the effect of such laws on revolving credit reported in this paper potentially represent a lower bound on the supply response.

economic conditions and account for the local business cycle), the percentage of income exempt from garnishment, and the combined real bankruptcy exemption (to account for state-level protections offered to consumers who default). To account for arbitrary correlation between observations within the same state, standard errors are clustered by state (Bertrand, Duflo, and Mullainathan, 2004).

### *3.1. The determinants of third-party debt collection laws*

By exploiting changes in third-party debt collection laws over time, this paper uses a difference-in-differences approach to estimate the effect of these laws on revolving credit. This approach contrasts changes in outcome variables in the states that adopt new third-party debt collection laws and in the states that do not adopt such laws. In applying this framework, it is important to consider carefully the "experiment" created by changes in third-party debt collection laws and the extent to which this experiment approximates the ideal case of such changes being exogenous to the credit cycle.

First, consider the time-series pattern of changes in third-party debt collection laws. As Panel A of Table 1 shows, these changes are distributed rather evenly across years, consistent with the idea that they are driven by idiosyncratic state-level factors rather than nationwide trends. The only exception is the financial crisis of 2007–2009, when there was a moderate spike in the number of changes in third-party debt collection laws. This is perhaps not unexpected, and the results of this paper hold also after excluding 2007–2009 from the analysis. Additionally, the fact that changes in third-party debt collection laws are infrequent is consistent with the idea that they are not directly related to short-term changes in credit conditions.

In terms of the nature of changes in third-party debt collection laws, a relatively large share of such changes involves states adjusting the levels of various payments imposed on

third-party debt collectors: licensing fees, bonds, and administrative fines. Of the 38 changes in debt collection laws between 1999 and 2014, 19 either instituted such payments or modified their amounts, often substantially. For example, the average bond amount is $8,750 before a law change and almost triples to $25,000 afterward, with licensing fees almost doubling from $341.67 before a law change to $625 afterward.[31] These changes primarily account for accumulated inflation and are therefore unlikely to be driven by transitory changes in the credit cycle.

Anecdotally, there is little evidence to suggest that states change third-party debt collection laws in response to changes in credit market conditions. In the few instances when state legislatures provide explicit statements of purpose behind changes in third-party debt collection laws, such statements typically refer to updating the amounts of bonds and licenses to account for accumulated inflation. For example, the statement of purpose authorizing the 2001 law change in North Carolina reads, in part: "An Act to update the bond requirements for collection agencies [...]" In other instances, the legislatures refer to using bonds to protect the customers of debt collection agencies (and not necessarily borrowers). For example, the 1999 law change in Idaho was instituted to "increase the amount of the bond required (from $5,000 to $15,000) in order to afford greater protection to collection agency customers."

Of course, the willingness of states to regulate third-party debt collectors may be related to credit market conditions even if the laws themselves do not explicitly mention credit markets. Indeed, state legislatures may be more willing to take on the debt collection industry during economic downturns, since this may help protect voters from unwanted collection calls at a time when such calls may be most sensitive. Relatedly, high unemployment rates may affect the borrowers' ability to repay, and could therefore have a direct impact on credit supply.

[31] Some states impose separate fees on each establishment of a third-party debt collection agency or levy fees on individual debt collectors. While some of these fees are small, most third-party debt collection agencies are also small: 90% of such firms have fewer than 50 employees. For reference, the average revenue per establishment was $2,364,336 in 2007 and $2,659,946 in 2012 (Source: U.S. Census Bureau, Economic Census, various years).

Political ideology may also play a role in the adoption of debt collection laws. The Republican Party is generally thought of as being business-friendly and may therefore be less willing to institute stringent restrictions on debt collectors. Thus, it is important to investigate whether changes in third-party debt collection laws are related to various economic, credit market, political, and social conditions of the state. These results are reported in Table 3.

Panel A of Table 3 reports regressions of the year-on-year change in the index of third-party debt collection restrictions on unemployment rate, personal income, income growth, the prices of housing, health care and utilities, as well as on dummy variables indicating the party in control of the state's legislature and the governorship. In these regressions, a tightening of third-party debt collection laws is represented by the year-on-year change equal to 1, while a loosening of third-party debt collection laws is represented by the year-on-year change equal to $-1$. Panel B reports similar regressions, only in this case the dependent variable is a dummy equal to 1 whenever debt collection laws change (i.e., both loosening and tightenings are denoted by 1). In both panels, there is little evidence that social, political, and economic conditions have a significant impact on the timing of changes in third-party debt collection laws. The only statistically significant coefficient is that on personal income in column 2 of Panel B, but even this coefficient loses significance in the specification that includes all other variables.

Local news coverage around the time that states adopt changes in third-party debt collection laws provides some anecdotal evidence that these changes may be triggered by idiosyncratic factors unrelated to changes in credit market conditions. For example, in March 2012, several newspapers in North Dakota ran exposés about a debt collection scam. In fact, the Attorney General of North Dakota (Wayne Stenehjem) warned the state's residents about con men posing as collectors of payday loans and other debts.[32] Subsequently (in 2013),

[32]See, for example, "Payday loan scam returns to ND," *The Center Republican*, March 15, 2012.

North Dakota tightened its debt collection laws. Similarly, *The Star Tribune* newspaper in Minnesota revealed some questionable practices at debt collection firms in its investigative series "Hounded," which ran in 2010 (Minnesota made changes to its debt collection laws in 2011).[33] Admittedly, the link between newspaper articles and the changes in third-party debt collection laws may be indirect. However, it seems plausible that newspaper coverage may raise public awareness about third-party debt collection, which in turn may prompt state legislators to act.

### *3.2. The impact of third-party debt collection restrictions on the number of debt collectors and on credit card recovery rates*

Stricter third-party debt collection laws should reduce the number of third-party debt collectors. The empirical tests of this hypothesis are reported in Table 4, which shows the effect of third-party debt collection laws on the number of third-party debt collectors (in columns 1 and 2), on the number of first-party debt collectors (in columns 3 and 4), and on the total number of debt collectors (in columns 5 and 6).

As expected, stricter third-party debt collection laws result in fewer third-party debt collectors. The corresponding coefficient is negative, statistically significant, and economically sizable: In the specification that includes all controls, a 1 point increase in the value of the index of debt collection restrictions reduces third-party debt collector density by 62.812, or 15% of the sample mean (29% of the sample standard deviation).

Creditors may respond to stricter third-party debt collection laws by moving debt collection in-house. Indeed, the point estimates in columns 3 and 4 of Table 4 suggest that approximately one-third to one-half of the reduction in third-party debt collection is moved in-house, but the estimates are noisy. Relatedly, the impact of third-party debt collection

[33]See, for example, "HOUNDED: Local debt collector to pay $1.75 million," *The Star Tribune: Newspaper of the Twin Cities*, October 22, 2010.

laws on the total number of debt collectors (examined in columns 5 and 6 of Table 4) is not statistically significant, and its magnitude (while negative and economically sizable) is smaller, relative to the impact of third-party debt collection laws on the number of third-party debt collectors. Taken together, these results suggest that creditors may indeed shift some debt collection in-house in response to the tightening of laws regulating third-party debt collection.

Table 5 examines the effect of third-party debt collection laws on credit card recovery rates. In the specification in column 2 (which is estimated on the full sample of credit unions and includes all controls), a 1 point increase in the value of the index of debt collection restrictions reduces recovery rates by 1.038 percentage points, or 7% of the sample mean (16% of the sample standard deviation) of recovery rates.[34]

Changes in the laws that regulate third-party debt collectors should have a larger impact on credit providers that are more likely to rely on third-party debt collectors. It seems plausible, for example, that smaller credit providers are less likely, compared with large financial institutions, to have the scale to manage collection operations in-house. To investigate, I estimate the effect of third-party debt collection laws on recovery rates for large credit unions and small credit unions separately. Credit unions with total assets below the average value of total assets of all credit unions in a given year are classified as small, and all other credit unions are classified as large. The results, reported in the last four columns of Table 5, show some evidence that third-party debt collection laws have a stronger impact on small credit unions. The point estimates obtained in the subsample of large credit unions are smaller and less statistically significant, although they retain the expected sign also in this subsample. Statistically, however, the hypothesis that the coefficients on the index of third-party debt

[34]Note that an increase in protection against garnishment has a negative effect on recovery rates and a positive effect on third-party debt collector density. When the share of income exempt from garnishment increases, it should lower recovery rates (which would explain the negative coefficient of garnishment on recovery rates). To compensate, creditors may try to hire more third-party debt collectors (which would explain the positive coefficient of garnishment on the third-party debt collector density).

collection restrictions are equal in the two samples is not rejected at conventional levels.

Apart from recovery rates, third-party debt collection laws may have an effect on the borrowers' likelihood to default. If stricter laws make it harder for third-party debt collectors to operate, such laws should reduce the borrowers' likelihood of being collected upon. As a result, borrowers may become more likely to default and/or may default on larger amounts. This is what the estimates reported in Table 6 suggest: In the specification that includes all controls, a 1 point increase in the value of the index of third-party debt collection restrictions increases delinquencies on revolving debt by 0.199, or 4% of the sample mean (11% of the sample standard deviation). Similarly, the amount of delinquent debt, per delinquent borrower, rises by $44.655, or 8% of the sample mean (8% of the sample standard deviation).[35]

### *3.3. The impact of third-party debt collection restrictions on new revolving credit*

The focus of this section is whether third-party debt collection laws have an impact on credit availability. The first two columns of Table 7 show regressions of the number of new revolving lines of credit on the index of third-party debt collection restrictions. The estimated effect of third-party debt collection restrictions on the number of new revolving lines of credit is negative and statistically significant but modest in terms of its economic magnitude. In the specification that includes all controls, a 1 point increase in the value of the index of debt collection restrictions reduces the number of new revolving lines of credit per 1,000 consumers by 1.849 new accounts per quarter, or about 2% of the sample mean (7% of the sample standard deviation).

Third-party debt collection restrictions appear to have a larger impact on third-party debt

[35]These results also help alleviate concerns associated with recovery rates constructed from credit union data. The variables describing delinquencies are constructed using a representative random sample of U.S. consumers and are therefore not subject to the institution location vs. individual location mismeasurement issue.

collectors and on recovery rates (documented in the previous section) than on the number of new accounts. This is expected, given that recovery rates are not the only determinant of credit availability. It may be useful to compare the impact of third-party debt collection laws with other regulations that have been shown to affect consumer credit. Gropp, Scholz, and White (1997) find that the probability of a consumer being turned down for credit or discouraged from borrowing is 5.5 percentage points higher in states with unlimited bankruptcy exemptions than in states in the bottom quartile of the exemption distribution (in their sample, 17.3% of households were denied credit or discouraged from borrowing). Berkowitz and Hynes (1999) study the effect of bankruptcy exemptions on the availability of mortgage loans and find that quadrupling the homestead bankruptcy exemption would lead to a decrease in the probability of mortgage denial by about 10 basis points in states with low exemption levels and by about 2 percentage points in states with high exemption levels, with these changes representing 0.6% and 13% of the sample average denial rate, respectively. Lin and White (2001) find that applicants who live in states with unlimited bankruptcy exemptions are 2 percentage points more likely to be denied a home purchase loan and 5 percentage points more likely to be denied a home improvement loan than applicants who live in the states whose exemptions are in the lowest quartile of the exemption distribution, with these figures representing 13% and 17% of the average sample denial rate for home purchase and home improvement loans, respectively. To compare these figures with the estimates reported in the current paper, note that increasing the index of third-party debt collection restrictions by one sample standard deviation implies a decrease in the number of new accounts by about 3% of the sample mean.

Columns 3 and 4 of Table 7 report regressions that estimate the impact of third-party debt collection laws on the balance of new revolving lines of credit. The effect of third-party debt collection laws is negative and significant in the specification that excludes control

variables. However, the estimate goes down in magnitude and loses statistical significance after control variables are added to the regression. Since the number of new accounts is lower when third-party debt collection laws are stricter, while the effect on credit card balances is, if anything, negative, the overall effect of stricter third-party debt collection laws is to decrease the availability of revolving credit.

### *3.4. The impact of third-party debt collection restrictions on the pricing of revolving credit*

The ex-ante effect of third-party debt collection laws on pricing is ambiguous. On the one hand, the expansion of credit supply due to better debt collection may lead to lower interest rates. On the other hand, lenders may potentially be willing to expand the pool of borrowers by extending credit to riskier applicants when third-party debt collection is more effective. In this case, the average equilibrium interest rate may potentially go up if these new borrowers are charged higher interest rates commensurate with their risk characteristics. Thus, the effect of third-party debt collection restrictions on interest rates is an empirical question.

Existing empirical evidence on the responsiveness of interest rates to regulatory changes is mixed. Prior literature has documented substantial price stickiness in the credit card market (e.g., Ausubel, 1991; Calem and Mester, 1995; Knittel and Stango, 2003; Calem, Gordy, and Mester, 2006). More recent evidence in Bar-Gill and Bubb (2011) and Agarwal, Chomsisengphet, Mahoney, and Stroebel (2015) shows that regulatory limits on certain credit card fees instituted by the 2009 Credit Card Accountability Responsibility and Disclosure Act did not lead to an offsetting increase in interest rates. However, Hsu, Matsa, and Melzer (2014) find that more generous unemployment insurance expands credit access and reduces mortgage interest rates.

The last two columns of Table 7 report the effect of third-party debt collection restrictions on the pricing of revolving credit. The estimates suggest credit card interest rates do not

appear to react to changes in third-party debt collection laws.

### *3.5. The impact of third-party debt collection restrictions on existing revolving balances and the riskiness of the pool of borrowers*

Revolving credit contracts allow consumers to borrow over multiple periods, with the actual amount borrowed and repaid each period largely at the discretion of the borrower. Since such credit contracts generally do not have a terminal date and can last for several years, the total amount of revolving debt outstanding may not quickly adjust to changes in the legal environment. In fact, existing revolving lines are likely to be subject to strong demand-side effects because consumers are likely to rely more on their existing revolving lines if they face difficulty obtaining new credit. To the extent that credit card contracts are sticky, lenders may not be able to immediately adjust credit limits and/or close existing revolving lines to compensate for this. As a result, balances on existing revolving lines may go up if such demand effects dominate. Indeed, columns 1 and 2 of Table 8 show that tighter third-party debt collection laws appear to increase balances on existing revolving lines, suggesting that demand-side effects may indeed dominate in this case.

The last two columns of Table 8 report the effect of third-party debt collection restrictions on borrowers' credit quality (proxied by the average of a proprietary credit score developed by TransUnion). As note previously, changes in third-party debt collection laws may change the composition of borrowers, since lenders may be willing to extend credit to riskier applicants when debt collection is more effective. However, there seems to be little evidence that the borrowers' credit quality changes in response to changes in third-party debt collection laws.

*3.6. The impact of third-party debt collection restrictions on measures of consumer welfare*

Complaints and lawsuits against third-party debt collectors are frequent (Consumer Financial Protection Bureau, 2014), suggesting that the debt collection process may impose nonpecuniary costs on borrowers over and above their ability to access credit markets. It is possible, at least in principle, that stricter third-party debt collection laws, while limiting consumers' access to credit, may alleviate such nonpecuniary costs. It is important to recognize that perfect empirical proxies for nonpecuniary costs are currently unavailable. Following the pioneering work of Morgan, Strain, and Seblani (2012), who are the first to use consumer complaints to investigate consumer welfare, this paper uses consumer complaints against first- and third-party debt collectors as well as consumer lawsuits to proxy for such nonpecuniary costs. Further, this paper uses the share of consumers with accounts in third-party collection as a direct measure of the intensity of third-party debt collection activities.

When there are fewer third-party debt collectors, borrowers should be less exposed to third-party debt collection generally and to harsh third-party debt collection in particular. This latter effect should reduce the number of lawsuits that consumers file against third-party debt collectors as well as the share of consumers being collected upon. The first two columns of Table 9 report estimates of the impact of third-party debt collection laws on consumer lawsuits against third-party debt collectors. While the data on consumer lawsuits are available for a relatively short time period, the results are suggestive and the estimates are economically large. In the specification that includes all controls, a 1 point increase in the value of the index of third-party debt collection restrictions reduces the number of lawsuits against third-party debt collectors by 0.25 lawsuits per 1 million people. This decrease is as large as the sample mean of the number of lawsuits against third-party debt collectors. Columns 3 and 4 of Table 9 confirm that stricter third-party debt collection laws reduce the

number of consumers being collected upon, likely because stricter laws reduce the number of third-party debt collectors.

In terms of aggregate welfare, however, it is more important to consider consumers' exposure to harsh debt collection practices from all debt collectors and not from just third-party debt collectors. The last two columns of Table 9 investigate this issue by reporting the effect of third-party debt collection restrictions on consumer complaints against all debt collectors. There is little evidence that third-party debt collection laws have a substantial impact on the total number of consumer complaints. Thus, while stricter third-party debt collection laws appear to reduce some of the nonpecuniary costs of debt collection (proxied by the number of lawsuits against third-party debt collectors), they increase others, leaving the net effect unclear.

### *3.7. The impact of different types of third-party debt collection restrictions on credit market outcomes*

As noted previously, changes in third-party debt collection laws are not uniform, and it is possible that different types of restrictions may have different effects on credit market outcomes. An important policy question, therefore, is whether some types of restrictions matter more than others. To investigate, the analysis in this section splits changes in third-party debt collection laws into two broad categories: licensing restrictions and prohibited practices. The first category includes adjustments to licensing and bonding requirements such as modifications of the amount of license fees and/or bonds, clarifications as to which types of third-party debt collection establishments (or debt collection employees) need to be licensed and/or when bonds need to be posted, as well as changes in the amount of information that needs to be provided to the licensing body during the license application process. The second category includes laws that define the conduct deemed unlawful and/or

modify the state's and/or consumers' ability to prosecute third-party debt collectors under state law (e.g., through civil penalties).

Table 10 shows the estimated impact of the two types of changes in third-party debt collection laws on credit market outcomes, where Panel A reports the results for third-party debt collector density, Panel B reports the results for credit card recovery rates, and Panel C reports the results for the number of new revolving lines of credit. It appears that licensing requirements have the largest estimated impact on credit market outcomes. One possible explanation is that many prohibited practices are included in the FDCPA, which provides some uniformity across states. Individual states, therefore, may have a greater ability to affect credit market outcomes by changing licensing and bonding requirements (which are not included in the FDCPA) than by changing the definition of prohibited practices. However, the results in Table 10 are subject to the caveat that the two types of changes often overlap (i.e., states may adopt law changes that affect both licensing requirements and prohibited practices simultaneously). Because there are not very many law changes during the sample period, it is challenging to cleanly separate the impact of provisions whose adoption may overlap.

## 4. Robustness tests

This section reports the results of several robustness tests. The first set of robustness tests is reported in Table 11, which shows the sensitivity of the effect of third-party debt collection laws to alternative samples and specifications. Each row in Panel A of Table 11 presents the results from three separate regressions of the specified dependent variable on the index of third-party debt collection restrictions, state and year fixed effects, and the full set of controls (similar regressions for other dependent variables are reported in the online appendix). For

each regression, only the coefficient on the index of third-party debt collection restrictions and the corresponding standard error are reported. For reference, the top row of Panel A reports estimates from baseline regressions presented in Table 4, Table 5, and Table 7.

### *4.1. Parallel trends tests*

The key assumption underlying a difference-in-differences analysis is that of parallel trends, i.e., that the states that changed their third-party debt collection laws and states that did not would have followed parallel trends in the absence of such changes. The first test of this assumption is presented in row (2) of Panel A of Table 11, which reports the results of regressions that include state-specific linear time trends in the specification. This specification picks up the effect of changes in third-party debt collection laws on outcome variables over and above their time trends within individual states. Since the time series dimension of the data is relatively short and the inclusion of time trends relies on the ability to precisely estimate these trends, this specification is rather demanding of the data. In this specification, the estimates of the effect of third-party debt collection laws on new revolving lines and on recovery rates retain their economic significance (even though the latter loses statistical significance), while the estimate of the effect on the number of third-party debt collectors falls in both economic and statistical significance.

Graphical evidence on the parallel trends assumption is presented in Figure 3 and Figure 4. These figures plot the evolution of the main outcome variables (the number of third-party debt collectors per 1 million people, the average recovery rate on credit card loans, and the number of new revolving lines of credit per 1,000 consumers) around changes in third-party debt collection laws (three years prior and three years after each change).[36] Figure 3

[36]To make the graphs directly comparable, they are constructed using annual data. Thus, the number of new revolving lines is converted to annual frequency by calculating the average of the four quarterly observations every year. Similar graphs for other dependent variables are reported in the online appendix.

is constructed for changes that tightened third-party debt collection laws, and Figure 4 is constructed for changes that loosened third-party debt collection laws. Not all law changes have data available three years prior and three years after the change, and some law changes overlap within a three-year period (for example, in Maine in 2006 and 2009). Therefore, to maintain a consistent sample, the figures include only nonoverlapping law changes with sufficient data. Specifically, to be included in the parallel trends analysis, a law change must satisfy two conditions. First, the data on all of the main outcome variables must be available for three years prior and three years after the change. Second, there must be no other changes in the same state in the three years before and three years after the change. These two requirements result in 16 law changes in the parallel trends analysis, of which 14 changes tightened third-party debt collection laws and two changes loosened them. The evolution of the outcome variables around each of these changes is then compared with the evolution of the outcome variables in unaffected states, i.e., the states that did not change their third-party debt collection laws during the sample period. To be included in the unaffected group, a state must have no missing data for the years in which law changes (in affected states) occurred.

Consider Connecticut, for example. It changed its third-party debt collection laws thrice: in 2002, in 2009, and in 2014. The 2002 and 2014 changes are excluded from the parallel trends analysis because there are not enough data available before the 2002 change and after the 2014 change. The 2009 change is included in the parallel trends analysis, with year 2009 being assigned event date 0, year 2006 being assigned event date –3, year 2007 being assigned event date –2, etc. The value of each of the three main outcome variables in Connecticut in 2006, 2007, 2008, etc. is then compared with its average value across the 23 unaffected states in, respectively, 2006, 2007, 2008, etc. Figure 3 and Figure 4 then plot the evolution of the average values in affected and unaffected states in event time (in the Connecticut example,

unaffected states' average in 2006 is assigned event date –3, unaffected states' average in 2007 is assigned event date –2, etc.).

The picture that Figure 3 and Figure 4 paint is generally consistent with adopting and nonadopting states following parallel trends prior to law implementation. There appears to be a pre-existing trend (in both affected and unaffected states) in the panel that shows the evolution of new revolving lines around the implementation of third-party debt collection laws, which may lend credence to the concern that an omitted factor may explain both the laws' adoption and the changes in revolving lines. However, the fact that the trend doesn't appear to be much stronger in the adopting states, along with the analysis of law determinants presented previously, helps alleviate such concerns. Also note that, consistent with the results reported previously, the effect of third-party debt collection laws on credit supply is smaller than their effect on third-party debt collectors and on recovery rates.

*4.2. Other robustness tests*

The strictness of third-party debt collection laws has a geographical pattern, with bordering states often having similar levels of third-party debt collection restrictions. To the extent that the determinants of this pattern are not time-varying, including state fixed effects in the analysis will absorb their influence. Another way to address this pattern is to include census region × year fixed effects. As row (3) of Table 11 shows, the estimate of the effect of third-party debt collection laws on the number of third-party debt collectors is robust to including census region × year fixed effects. However, the estimates of the effect of these laws on other outcome variables, while retaining the expected signs, fall substantially in terms of their economic magnitudes and lose statistical significance in the specification with census region × year fixed effects.

As Panel A of Table 1 shows, there was a moderate spike in the number of third-party

debt collection laws adopted during the financial crisis in 2007 and 2009. To rule out the possibility that the results presented previously are driven by these changes, the robustness check reported in row (4) of Table 11 excludes 2007–2009 from the analysis. The resulting estimates are similar to the baseline in terms of their magnitude and statistical significance.

The main analysis in this paper excludes Delaware and South Dakota because these states have favorable banking laws and because of the large number of credit card operations located in them. The specification reported in row (5) of Table 11 uses the sample that includes these states, and the resulting estimates remain similar to the baseline.

Row (6) of Table 11 studies the sensitivity of the results to including the years in which third-party debt collection laws changed. As mentioned previously, most law changes occur in the middle of the year. Therefore, including the years with law changes into the analysis produces ambiguity about whether the value of the index before the law change or after the law change should be used in such cases. Row (6) uses the sample that includes the years with law changes and codes the value of the index of debt collection restrictions in those years as the weighted average of the index values before and after the change, where the weights are given by the number of months until changes in third-party debt collection laws come into effect.[37] The resulting estimates are again similar to the baseline.

Row (7) of Table 11 uses the sample that includes years with suppressed data on third-party debt collectors. Since the exact number of third-party debt collectors is unavailable in such cases, this specification uses the midpoints of the upper and lower bounds reported in County Business Patterns. The estimates of the effect of third-party debt collection laws on the number of third-party debt collectors and on credit market outcomes remain robust.

Row (8) re-estimates the effect of third-party debt collection laws on recovery rates by excluding credit unions located in border counties. This is done to address potential concerns

[37] In years in which more than one bill was adopted during the year (as in Maine and North Carolina in 2009), the number of months until the earliest effective date is used as the weight.

that may arise because credit unions sometimes define their membership requirements quite broadly. For example, they may permit people to join not only if they live in a particular area but also if they work there. A sample that consists only of credit unions from inner counties should minimize the effect of commuters who live in one area but may borrow from credit unions in a different area. The resulting estimate is in line with the main specification, thus mitigating the above concerns.

Row (9) estimates the effect of third-party debt collection laws in a sample of community credit unions, which are least likely to lend across state lines. By law, community credit unions must serve "a single, geographically well-defined local community, neighborhood, or rural district where individuals have common interests and/or interact" (National Credit Union Administration, 2003, p. 61). Charter requirements for community credit unions further specify: "Although [...] state boundaries are well-defined areas, they do not meet the requirement that the proposed area be a local community" (National Credit Union Administration, 2003, p. 61). Thus, community credit unions are most likely to be local lenders that serve consumers residing in a compact area within state boundaries. Even though the number of such credit unions is rather small (17.9% of credit unions during the sample period), the effect of third-party debt collection laws remains robust also in this restricted sample.

The test reported in row (10) of Table 11 converts the number of new revolving lines to an annual frequency by calculating the average of the four quarterly observations every year. Again, the results are consistent with the baseline. Overall, the estimates appear to be rather stable across various samples and specifications.

The specification reported in Row (11) of Table 11 uses the number of third-party debt collection establishments rather than the number of third-party debt collection employees as a measure of third-party debt collector density. The estimated impact of changes in

third-party debt collection laws on the number of establishments is much smaller than their estimated impact on the number of employees and is not statistically significant. This is not surprising, since it may be easier for third-party debt collection firms to adjust the number of employees rather than the number of establishments.

Panel B of Table 11 provides further evidence that the relation between third-party debt collection laws and credit market outcomes is not driven by general credit market conditions. This panel estimates the effect of third-party debt collection laws on two placebo outcomes: the deposit rate and mortgage delinquency rate. These variables are likely to respond to general changes in credit market conditions but are unlikely to be related to third-party debt collection laws. As the estimates in Panel B of Table 11 suggest, there is indeed little evidence that third-party debt collection laws have a substantial impact on these placebo outcomes.

A second set of placebo tests, reported in Table 12, uses a placebo index of third-party debt collection restrictions along with the actual index of third-party debt collection restrictions. To construct the placebo index, each state that experienced a change in third-party debt collection laws during the sample period (i.e., an affected state) is matched with a state that did not experience any changes in third-party debt collection laws during the sample period (i.e., an unaffected state), based on geographical proximity and the similarity of credit conditions as of 2000.[38] The placebo index is constructed under the assumption that the changes in debt collection laws occurred not in the affected states but rather in the

[38]The procedure used to match affected states to unaffected states is as follows. Each affected state is matched to the bordering unaffected state that, among all bordering unaffected states, was most similar to the affected state in terms of the number of new revolving lines of credit as of 2000. If an affected state has no bordering unaffected states or if all bordering unaffected states had been matched to other affected states, then this affected state is matched to the geographically closest unaffected state (this last step is used in only five cases: Georgia, Hawaii, North Dakota, Rhode Island, and Washington; Hawaii is matched with Alaska because these two states do not border any other U.S. state and had similar levels of new revolving lines of credit in 2000). The resulting matches are as follows (the first state in each pair is an affected state, and the second one is the corresponding unaffected state): Arkansas—Oklahoma, Colorado—Wyoming, Connecticut—Massachusetts, Florida—Alabama, Georgia—West Virginia, Hawaii—Alaska, Idaho—Montana, Illinois—Wisconsin, Indiana—Kentucky, Louisiana—Mississippi, Maine—New Hampshire, Maryland—Virginia, Minnesota—Iowa, Nevada—Arizona, North Carolina—South Carolina, North Dakota—Nebraska, Oregon—California, Pennsylvania—Ohio, Rhode Island—New Jersey, Tennessee—Missouri, Utah—New Mexico, and Washington—Kansas.

corresponding unaffected states. Thus, the value of the placebo index remains unchanged in the affected states but changes in the unaffected states as if they experienced the same changes in their debt collection laws as the corresponding affected states. Since in reality the unaffected states did not change their debt collection laws, the placebo index should have no effect on the outcome variables. Indeed, placebo law changes do not appear to have a significant impact on credit market outcomes.[39]

## 5. Conclusion and discussion of welfare

This paper examines contract enforcement in consumer credit markets by studying the role of third-party debt collectors. It finds that stricter third-party debt collection laws reduce the number of third-party debt collectors and decrease recovery rates on delinquent credit card loans. This, in turn, leads to a modest reduction in the number of new revolving lines of credit (commonly known as credit cards).

While stricter third-party debt collection laws appear to modestly reduce the availability of unsecured credit, the impact of such laws on consumer welfare is ex ante ambiguous since access to credit may help consumers smooth consumption (thus increasing consumer welfare) but may also induce them to borrow too much (thus reducing consumer welfare). Further, the debt collection process itself may impose nonpecuniary costs on borrowers if debt collectors use harsh collection practices. This paper finds that, while stricter third-party debt collection laws reduce the number of lawsuits against third-party debt collectors, these laws appear to have little effect on the total number of consumer complaints. Thus, the net aggregate effect of third-party debt collection laws on consumer welfare is ambiguous.

[39] Additional robustness checks are reported in the online appendix.

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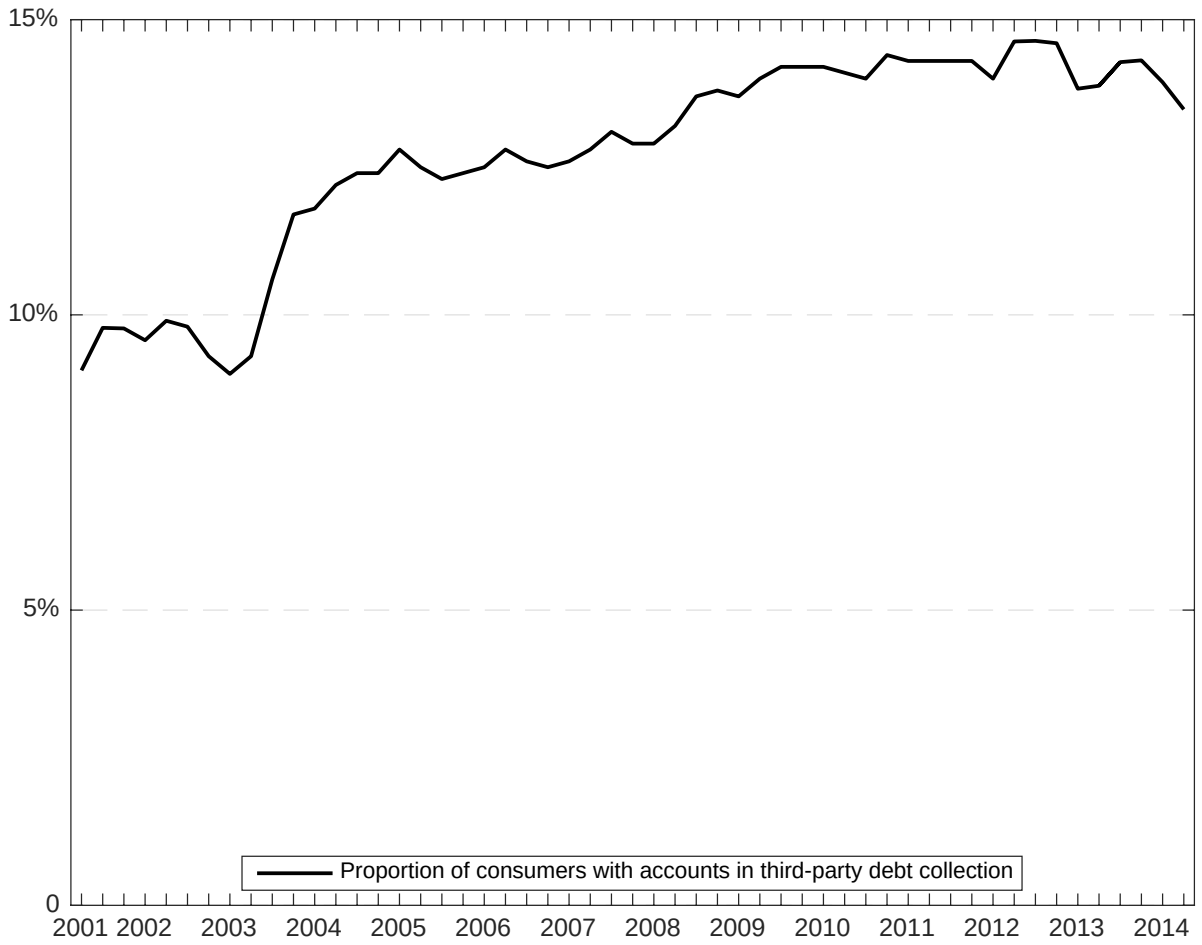



**Fig. 1.** Proportion of consumers with accounts in third-party debt collection.
This figure depicts the percentage of U.S. consumers with at least one account reported as being collected by third-party debt collectors. Source: *The Quarterly Report on Household Debt and Credit*, Federal Reserve Bank of New York, various editions.

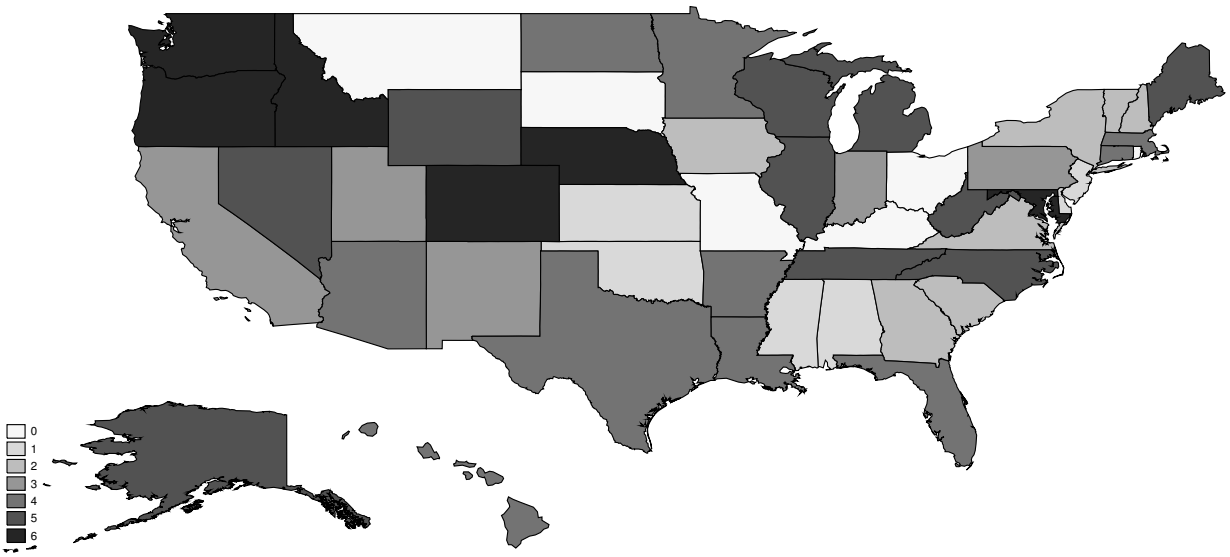



**Fig. 2.** Strictness of debt collection laws in 1999.
This map depicts the value of the index of debt collection restrictions as of January 1, 1999 (with Alaska and Hawaii placed below the contiguous U.S.). Darker areas represent stricter debt collection laws (imposing more restrictions on third-party debt collectors).

**Table 1**
Index of third-party debt collection restrictions.
Panel A shows the number of changes in third-party debt collection laws in each year between 1999 and 2014. Panel B shows the value of the index of third-party debt collection restrictions for each state in 1999 and 2014. The following 22 states changed their third-party debt collection laws between 1999 and 2014: Arkansas, Colorado, Connecticut, Florida, Georgia, Hawaii, Idaho, Illinois, Indiana, Louisiana, Maine, Maryland, Minnesota, Nevada, North Carolina, North Dakota, Oregon, Pennsylvania, Rhode Island, Tennessee, Utah, and Washington. The value of the index in Florida and Maine is the same in 1999 and 2014 because each of these states adopted two changes in their third-party debt collection laws, one of which loosened restrictions on third-party debt collectors and one of which tightened restrictions on third-party debt collectors (see Appendix B for details).

**Panel A: The number of changes in debt collection laws by year**

| Year | Number of changes | Year | Number of changes |
|---|---|---|---|
| 1999 | 3 | 2007 | 4 |
| 2000 | 2 | 2008 | 1 |
| 2001 | 3 | 2009 | 4 |
| 2002 | 2 | 2010 | 1 |
| 2003 | 2 | 2011 | 3 |
| 2004 | 2 | 2012 | 1 |
| 2005 | 2 | 2013 | 3 |
| 2006 | 3 | 2014 | 2 |

**Panel B: The value of the index of debt collection restrictions by state**

| State | Index value in 1999 | Index value in 2014 | State | Index value in 1999 | Index value in 2014 |
|---|---|---|---|---|---|
| Alabama | 1 | 1 | Montana | 0 | 0 |
| Alaska | 5 | 5 | Nebraska | 6 | 6 |
| Arizona | 4 | 4 | Nevada | 5 | 7 |
| Arkansas | 4 | 5 | New Hampshire | 2 | 2 |
| California | 3 | 3 | New Jersey | 1 | 1 |
| Colorado | 6 | 4 | New Mexico | 3 | 3 |
| Connecticut | 4 | 7 | New York | 2 | 2 |
| Delaware | 1 | 1 | North Carolina | 5 | 7 |
| Florida | 4 | 4 | North Dakota | 4 | 7 |
| Georgia | 2 | 3 | Ohio | 0 | 0 |
| Hawaii | 4 | 5 | Oklahoma | 1 | 1 |
| Idaho | 5 | 8 | Oregon | 5 | 7 |
| Illinois | 5 | 7 | Pennsylvania | 3 | 4 |
| Indiana | 3 | 4 | Rhode Island | 0 | 2 |
| Iowa | 2 | 2 | South Carolina | 2 | 2 |
| Kansas | 1 | 1 | South Dakota | 0 | 0 |
| Kentucky | 0 | 0 | Tennessee | 5 | 3 |
| Louisiana | 4 | 3 | Texas | 4 | 4 |
| Maine | 5 | 5 | Utah | 2 | 3 |
| Maryland | 6 | 7 | Vermont | 2 | 2 |
| Massachusetts | 4 | 4 | Virginia | 2 | 2 |
| Michigan | 5 | 5 | Washington | 6 | 7 |
| Minnesota | 4 | 6 | West Virginia | 5 | 5 |
| Mississippi | 1 | 1 | Wisconsin | 5 | 5 |
| Missouri | 0 | 0 | Wyoming | 5 | 5 |

## Table 2

Summary statistics.

This table reports summary statistics. All nominal variables are converted to 2010 dollars using the CPI. Index is the state-level index of third-party debt collection restrictions; Garnishment is the percentage of income exempt from garnishment (%); Exemption is the real homestead bankruptcy exemption plus real nonhome bankruptcy exemption ($10,000); New revolving lines is the number of new revolving lines of credit, per 1,000 consumers; New revolving balance is the average real balance (the amount borrowed) of new revolving lines of credit ($); New auto loans is the number of new auto loans, per 1,000 consumers; New mortgage loans is the number of new mortgage loans, per 1,000 consumers; Delinquencies on revolving debt is the number of borrowers with a 60-day delinquency on revolving debt, per 1,000 consumers; Delinquencies on mortgage debt is the number of borrowers with a 60-day delinquency on mortgage debt, per 1,000 consumers; Amount of revolving debt past due is the average total amount due of revolving trades 60 days or more past due, per delinquent revolving borrower ($); Existing revolving balance is the average balance of active revolving lines of credit ($); Credit score is the average consumer credit score (a proprietary credit score developed by TransUnion); Recovery rate is the average recovery rate on charged-off unsecured credit card loans by credit unions (%); Interest rate is the average interest rate charged by credit unions on unsecured credit card loans (%); Deposit rate is the average interest rate offered by credit unions on their deposits (%); Third-party debt collector density is the number of third-party debt collectors, per 1 million people; First-party debt collector density is the number of first-party debt collectors, per 1 million people; Establishment density is the number of third-party debt collection establishments, per 1 million people; Lawsuits against debt collectors is the number of lawsuits filed against third-party debt collectors, per 1 million people; Share of consumers with accounts in collection is the share of consumers with at least $100 ever placed for collection (%); Complaints against all collectors is the number of consumer complaints filed against first- and third-party debt collectors, per 1 million people; Unemployment rate is the percentage of the labor force that is unemployed (%); House price index is the annual house price index (2000 is the base year with the index value set to 1); Medical costs are health care expenditures per capita ($1,000); Cost of utilities is the price of electricity (cents per kWh); Personal income is real personal income per capita ($1,000); Income growth is real personal income per capita in a given year minus real personal income per capita in the previous year, all divided by the real personal income per capita in the previous year (%); Legislature is Republican indicates that the Republican Party holds the majority of seats in the state's legislature (in each of the two chambers for bicameral legislatures); Governor is Republican indicates that the state's governor is Republican. There are 656 observations for the variables available at annual frequency, which include data for 48 states (Delaware and South Dakota excluded) from 2000 to 2014 and exclude years with suppressed data on debt collectors and years in which debt collection laws were changed. Accordingly, there are 2,624 observations for the variables available at quarterly frequency. There are fewer observations on First-party debt collector density, Complaints against all collectors, and on Lawsuits against debt collectors because of missing data.

| Variable | N | Mean | Median | Std. deviation |
|---|---|---|---|---|
| **Panel A: Variables describing debt collection laws and related laws** | | | | |
| Index | 656 | 3.46 | 4.00 | 2.04 |
| Garnishment | 656 | 78.91 | 75.00 | 7.49 |
| Exemption | 656 | 21.35 | 5.70 | 35.74 |
| **Panel B: Variables describing the amount of credit and borrower characteristics** | | | | |
| New revolving lines | 2,624 | 119.03 | 117.25 | 27.25 |
| New revolving balance | 2,624 | 1,835.67 | 1,628.63 | 803.60 |
| New auto loans | 2,624 | 6.98 | 6.50 | 2.87 |
| New mortgage loans | 2,624 | 8.77 | 7.80 | 4.61 |
| Delinquencies on revolving debt | 2,624 | 5.62 | 5.47 | 1.87 |
| Delinquencies on mortgage debt | 2,624 | 2.04 | 1.92 | 0.79 |
| Amount of revolving debt past due | 2,624 | 559.66 | 426.34 | 577.13 |
| Existing revolving balance | 2,624 | 2,086.53 | 2,005.90 | 525.20 |
| Credit score | 2,624 | 660.09 | 664.28 | 22.85 |
| **Panel C: Other variables** | | | | |
| Recovery rate | 656 | 15.88 | 15.18 | 6.32 |
| Interest rate | 656 | 11.15 | 10.99 | 0.80 |
| Deposit rate | 656 | 0.34 | 0.25 | 0.33 |
| Third-party debt collector density | 656 | 415.05 | 386.71 | 213.10 |
| First-party debt collector density | 654 | 838.22 | 816.78 | 345.10 |
| Establishment density | 656 | 17.50 | 16.61 | 6.41 |
| Lawsuits against third-party collectors | 101 | 0.25 | 0.18 | 0.24 |
| Share of consumers with accounts in collection | 656 | 32.93 | 32.87 | 8.70 |
| Complaints against all collectors | 611 | 271.93 | 244.25 | 179.78 |
| Unemployment rate | 656 | 6.01 | 5.60 | 2.04 |
| House price index | 656 | 1.30 | 1.25 | 0.24 |
| Medical costs | 656 | 6.19 | 6.14 | 1.49 |
| Cost of utilities | 656 | 10.59 | 9.70 | 3.79 |
| Personal income | 656 | 39.22 | 37.69 | 6.09 |
| Income growth | 656 | 0.99 | 1.08 | 2.28 |
| Legislature is Republican | 656 | 0.41 | 0.00 | 0.49 |
| Governor is Republican | 656 | 0.53 | 1.00 | 0.50 |

**Table 3**

Determinants of changes in third-party debt collection laws.

In Panel A, the dependent variable is the year-on-year change in the index of third-party debt collection restrictions. In Panel B, the dependent variable is the dummy variable set to 1 in state-years in which there are any changes in the index. All variables are as described in the text and in Table 2. All regressions are estimated using the main annual sample with the addition of state-years in which debt collection laws were changed, for a total of 691 observations. Standard errors clustered by state are reported in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

| **Panel A: The dependent variable is the year-on-year change in the index** | | | | | |
|---|---|---|---|---|---|
| Variable | (1) | (2) | (3) | (4) | (5) |
| Unemployment rate | -0.015 | | | | -0.008 |
| | (0.012) | | | | (0.016) |
| Personal income | | 0.011 | | | 0.009 |
| | | (0.009) | | | (0.012) |
| Income growth | | -0.007 | | | -0.007 |
| | | (0.008) | | | (0.008) |
| House price index | | | 0.001 | | 0.000 |
| | | | (0.001) | | (0.001) |
| Medical costs | | | 0.012 | | -0.022 |
| | | | (0.037) | | (0.036) |
| Cost of utilities | | | 0.007 | | 0.008 |
| | | | (0.011) | | (0.011) |
| Legislature is Republican | | | | -0.029 | -0.029 |
| | | | | (0.027) | (0.028) |
| Governor is Republican | | | | -0.015 | -0.015 |
| | | | | (0.020) | (0.020) |
| State fixed effects | Yes | Yes | Yes | Yes | Yes |
| Year fixed effects | Yes | Yes | Yes | Yes | Yes |
| Observations | 691 | 691 | 691 | 691 | 691 |
| Adjusted R-squared | 0.033 | 0.035 | 0.032 | 0.032 | 0.031 |
| **Panel B: The dependent variable is the dummy variable indicating a change in the index** | | | | | |
| Variable | (1) | (2) | (3) | (4) | (5) |
| Unemployment rate | -0.016 | | | | -0.004 |
| | (0.012) | | | | (0.015) |
| Personal income | | 0.015* | | | 0.010 |
| | | (0.009) | | | (0.013) |
| Income growth | | 0.003 | | | 0.004 |
| | | (0.008) | | | (0.008) |
| House price index | | | 0.001 | | -0.000 |
| | | | (0.001) | | (0.001) |
| Medical costs | | | 0.012 | | 0.045 |
| | | | (0.037) | | (0.037) |
| Cost of utilities | | | 0.007 | | 0.011 |
| | | | (0.011) | | (0.011) |
| Legislature is Republican | | | | 0.016 | 0.029 |
| | | | | (0.027) | (0.028) |
| Governor is Republican | | | | -0.022 | -0.017 |
| | | | | (0.020) | (0.019) |
| State fixed effects | Yes | Yes | Yes | Yes | Yes |
| Year fixed effects | Yes | Yes | Yes | Yes | Yes |
| Observations | 691 | 691 | 691 | 691 | 691 |
| Adjusted R-squared | 0.018 | 0.024 | 0.032 | 0.015 | 0.022 |

**Table 4**
Effect of third-party debt collection restrictions on debt collector density.
In columns 1 and 2, the dependent variable is the number of third-party debt collectors per 1 million people. In columns 3 and 4, the dependent variable is the number of first-party debt collectors per 1 million people. In columns 5 and 6, the dependent variable is the total number of debt collectors per 1 million people. All variables are as described in the text and in Table 2. The regressions are estimated using the main annual sample of 656 observations; there 654 observations on first-party debt collectors because of missing data. Standard errors clustered by state are reported in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

| | Third-party debt collector density | | First-party debt collector density | | Total debt collector density | |
|---|---|---|---|---|---|---|
| Variable | (1) | (2) | (3) | (4) | (5) | (6) |
| Index | -66.290*** | -62.812*** | 23.363 | 31.569 | -43.559 | -31.692 |
| | (19.130) | (20.250) | (46.269) | (46.662) | (50.627) | (49.463) |
| Unemployment rate | | -7.769 | | 36.389 | | 27.375 |
| | | (9.359) | | (34.799) | | (34.246) |
| Personal income | | -4.600 | | 25.942* | | 21.083 |
| | | (5.892) | | (13.081) | | (12.705) |
| Income growth | | 4.956** | | -7.623 | | -2.933 |
| | | (2.271) | | (6.434) | | (6.392) |
| Garnishment | | 10.817*** | | -13.443*** | | -2.579 |
| | | (2.010) | | (4.203) | | (4.408) |
| Exemption | | -0.387 | | -6.057** | | -6.487** |
| | | (0.971) | | (2.663) | | (2.823) |
| Frequency | Annual | Annual | Annual | Annual | Annual | Annual |
| State fixed effects | Yes | Yes | Yes | Yes | Yes | Yes |
| Year fixed effects | Yes | Yes | Yes | Yes | Yes | Yes |
| Observations | 656 | 656 | 654 | 654 | 654 | 654 |
| Adjusted R-squared | 0.815 | 0.816 | 0.579 | 0.594 | 0.693 | 0.704 |

**Table 5**
Effect of third-party debt collection restrictions on recovery rates.
The dependent variable is the average recovery rate on charged-off unsecured credit card loans by credit unions. In columns 1 and 2, the sample includes all credit unions. In columns 3 and 4, the sample is restricted to small credit unions (defined as credit unions with total assets below the average value of total assets of all credit unions in a given year). In columns 5 and 6, the sample is restricted to large credit unions (defined as credit unions with total assets above the average value of total assets of all credit unions in a given year). All variables are as described in the text and in Table 2. The regressions are estimated using the main annual sample of 656 observations; there are 652 observations in the sample of large credit unions because not all states have large credit unions in all years. Standard errors clustered by state are reported in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

| | Recovery rate, all credit unions | | Recovery rate, small credit unions | | Recovery rate, large credit unions | |
|---|---|---|---|---|---|---|
| Variable | (1) | (2) | (3) | (4) | (5) | (6) |
| Index | -1.447*** | -1.038** | -1.713** | -1.267** | -1.124* | -0.847 |
| | (0.524) | (0.515) | (0.670) | (0.633) | (0.650) | (0.675) |
| Unemployment rate | | -1.061*** | | -1.249*** | | -0.557* |
| | | (0.267) | | (0.348) | | (0.316) |
| Personal income | | -0.113 | | -0.216 | | -0.128 |
| | | (0.176) | | (0.219) | | (0.212) |
| Income growth | | 0.156 | | 0.207 | | -0.174 |
| | | (0.133) | | (0.150) | | (0.213) |
| Garnishment | | -0.621*** | | -0.702*** | | -0.283 |
| | | (0.120) | | (0.152) | | (0.209) |
| Exemption | | -0.054 | | -0.059 | | -0.062 |
| | | (0.035) | | (0.044) | | (0.038) |
| Frequency | Annual | Annual | Annual | Annual | Annual | Annual |
| State fixed effects | Yes | Yes | Yes | Yes | Yes | Yes |
| Year fixed effects | Yes | Yes | Yes | Yes | Yes | Yes |
| Observations | 656 | 656 | 656 | 656 | 652 | 652 |
| Adjusted R-squared | 0.542 | 0.565 | 0.473 | 0.497 | 0.435 | 0.437 |

**Table 6**
Effect of third-party debt collection restrictions on consumer delinquencies.
In columns 1 and 2, the dependent variable is the number of borrowers (per 1,000 consumers) who are 60 or more days past due on their revolving debt. In columns 3 and 4, the dependent variable is the average amount of revolving debt 60 or more days past due (per borrower). All variables are as described in the text and in Table 2. All regressions are estimated using the main quarterly sample of 2,624 observations. Standard errors clustered by state are reported in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

| | Delinquencies on revolving debt | | Amount of revolving debt past due | |
|---|---|---|---|---|
| Variable | (1) | (2) | (3) | (4) |
| Index | 0.267*** | 0.199*** | 64.419** | 44.655* |
| | (0.075) | (0.074) | (26.219) | (23.420) |
| Unemployment rate | | 0.014 | | 38.849*** |
| | | (0.031) | | (8.658) |
| Personal income | | -0.010 | | -12.506*** |
| | | (0.017) | | (4.070) |
| Income growth | | -0.042*** | | -0.113 |
| | | (0.016) | | (2.873) |
| Garnishment | | -0.027 | | -1.971 |
| | | (0.017) | | (3.444) |
| Exemption | | 0.024*** | | 0.642 |
| | | (0.006) | | (2.905) |
| Frequency | Quarterly | Quarterly | Quarterly | Quarterly |
| State fixed effects | Yes | Yes | Yes | Yes |
| Year fixed effects | Yes | Yes | Yes | Yes |
| Observations | 2,624 | 2,624 | 2,624 | 2,624 |
| Adjusted R-squared | 0.893 | 0.897 | 0.893 | 0.898 |

**Table 7**
Effect of third-party debt collection restrictions on revolving credit.
In columns 1 and 2, the dependent variable is the number of new revolving lines of credit per 1,000 consumers. In columns 3 and 4, the dependent variable is the average balance on new revolving lines of credit. In columns 5 and 6, the dependent variable is the average interest rate charged by credit unions on unsecured credit card loans. All variables are as described in the text and in Table 2. The quarterly regressions are estimated using the main quarterly sample of 2,624 observations; the annual regressions are estimated using the main annual sample of 656 observations. Standard errors clustered by state are reported in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

| | New revolving lines | | New revolving balance | | Interest rate | |
|---|---|---|---|---|---|---|
| Variable | (1) | (2) | (3) | (4) | (5) | (6) |
| Index | -1.937*** | -1.849*** | -129.613*** | -57.042 | -0.009 | -0.023 |
| | (0.623) | (0.608) | (42.842) | (38.005) | (0.052) | (0.049) |
| Unemployment rate | | -0.637** | | -124.650*** | | 0.056* |
| | | (0.310) | | (20.295) | | (0.029) |
| Personal income | | -0.651*** | | 58.334*** | | 0.028* |
| | | (0.173) | | (9.710) | | (0.016) |
| Income growth | | 0.264* | | 4.286 | | -0.001 |
| | | (0.137) | | (9.290) | | (0.011) |
| Garnishment | | -1.234*** | | -3.142 | | 0.054*** |
| | | (0.275) | | (10.493) | | (0.018) |
| Exemption | | -0.088 | | -3.897 | | 0.003 |
| | | (0.077) | | (4.980) | | (0.003) |
| Frequency | Quarterly | Quarterly | Quarterly | Quarterly | Annual | Annual |
| State fixed effects | Yes | Yes | Yes | Yes | Yes | Yes |
| Year fixed effects | Yes | Yes | Yes | Yes | Yes | Yes |
| Observations | 2,624 | 2,624 | 2,624 | 2,624 | 656 | 656 |
| Adjusted R-squared | 0.943 | 0.945 | 0.787 | 0.826 | 0.798 | 0.802 |

**Table 8**
Effect of third-party debt collection restrictions on existing revolving balances and on the pool of borrowers. In columns 1 and 2, the dependent variable is the average balance of active revolving lines of credit. In columns 3 and 4, the dependent variable is the average consumer credit score (a proprietary credit score developed by TransUnion). All variables are as described in the text and in Table 2. All regressions are estimated using the main quarterly sample of 2,624 observations. Standard errors clustered by state are reported in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

| | Existing revolving balance | | Credit score | |
|---|---|---|---|---|
| Variable | (1) | (2) | (3) | (4) |
| Index | 80.497*** | 53.228** | -0.634* | 0.066 |
| | (23.091) | (24.892) | (0.384) | (0.378) |
| Unemployment rate | | 57.898*** | | -1.482*** |
| | | (13.822) | | (0.189) |
| Personal income | | 22.744*** | | 0.526*** |
| | | (7.752) | | (0.123) |
| Income growth | | -20.060*** | | -0.026 |
| | | (5.415) | | (0.074) |
| Garnishment | | 19.198*** | | -0.907*** |
| | | (4.752) | | (0.131) |
| Exemption | | 6.801*** | | -0.041 |
| | | (1.783) | | (0.035) |
| Frequency | Quarterly | Quarterly | Quarterly | Quarterly |
| State fixed effects | Yes | Yes | Yes | Yes |
| Year fixed effects | Yes | Yes | Yes | Yes |
| Observations | 2,624 | 2,624 | 2,624 | 2,624 |
| Adjusted R-squared | 0.859 | 0.872 | 0.979 | 0.985 |

**Table 9**
Effect of third-party debt collection restrictions on measures of consumer welfare.
In columns 1 and 2, the dependent variable is the number of lawsuits (per 1 million people) filed against third-party debt collectors. In columns 3 and 4, the dependent variable is the share of consumers with accounts in collection. In columns 5 and 6, the dependent variable is the number of consumer complaints (per 1 million people) filed against first- and third-party debt collectors. All variables are as described in the text and in Table 2. The regressions are estimated using the main annual sample of 656 observations; there are fewer observations on consumer lawsuits and complaints because of missing data. Standard errors clustered by state are reported in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

| | Lawsuits against third-party debt collectors | | Share of consumers with accounts in collection | | Consumer complaints against all collectors | |
|---|---|---|---|---|---|---|
| Variable | (1) | (2) | (3) | (4) | (5) | (6) |
| Index | -0.257** | -0.240* | -0.564** | -0.543** | 2.086 | -2.885 |
| | (0.109) | (0.144) | (0.231) | (0.215) | (10.863) | (10.971) |
| Unemployment rate | | 0.082 | | 0.472*** | | 2.370 |
| | | (0.058) | | (0.100) | | (3.832) |
| Personal income | | 0.026 | | -0.014 | | -11.306*** |
| | | (0.039) | | (0.056) | | (3.825) |
| Income growth | | -0.018 | | -0.039 | | 1.851 |
| | | (0.023) | | (0.039) | | (1.954) |
| Garnishment | | 0.014 | | 0.927*** | | -0.936 |
| | | (0.019) | | (0.116) | | (1.936) |
| Exemption | | -0.014** | | -0.038*** | | -1.417 |
| | | (0.006) | | (0.012) | | (0.989) |
| Frequency | Annual | Annual | Annual | Annual | Annual | Annual |
| State fixed effects | Yes | Yes | Yes | Yes | Yes | Yes |
| Year fixed effects | Yes | Yes | Yes | Yes | Yes | Yes |
| Observations | 101 | 101 | 656 | 656 | 611 | 611 |
| Adjusted R-squared | 0.320 | 0.388 | 0.964 | 0.971 | 0.873 | 0.880 |

**Table 10**
Effect of different types of third-party debt collection restrictions on credit market outcomes.
This table reports the effect of two components of the index of debt collection restrictions on credit market outcome. In Panel A, the dependent variable is Third-party debt collector density. In Panel B, the dependent variable is Recovery rate. In Panel C, the dependent variable is New revolving lines. All variables are as described in the text and in Table 2. The regressions are estimated using the main sample of 656 annual observations in Panel A and Panel B and the corresponding 2,624 quarterly observations in Panel C. Standard errors clustered by state are reported in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

| **Panel A: The dependent variable is third-party debt collector density** | | | | | | |
|---|---|---|---|---|---|---|
| Variable | (1) | (2) | (3) | (4) | (5) | (6) |
| Licensing restrictions | -72.579*** | -67.173*** | | | -56.327** | -50.993** |
| | (21.557) | (22.411) | | | (22.449) | (22.740) |
| Prohibited practices | | | -67.589*** | -65.667** | -40.124 | -42.182 |
| | | | (24.676) | (26.680) | (25.217) | (26.611) |
| Control variables | No | Yes | No | Yes | No | Yes |
| Frequency | Annual | Annual | Annual | Annual | Annual | Annual |
| State fixed effects | Yes | Yes | Yes | Yes | Yes | Yes |
| Year fixed effects | Yes | Yes | Yes | Yes | Yes | Yes |
| Observations | 656 | 656 | 656 | 656 | 656 | 656 |
| Adjusted R-squared | 0.813 | 0.814 | 0.810 | 0.813 | 0.815 | 0.816 |
| **Panel B: The dependent variable is recovery rate** | | | | | | |
| Variable | (1) | (2) | (3) | (4) | (5) | (6) |
| Licensing restrictions | -2.584*** | -1.945*** | | | -2.857*** | -2.290*** |
| | (0.634) | (0.622) | | | (0.705) | (0.706) |
| Prohibited practices | | | -0.720 | -0.155 | 0.673 | 0.900 |
| | | | (0.669) | (0.670) | (0.720) | (0.757) |
| Control variables | No | Yes | No | Yes | No | Yes |
| Frequency | Annual | Annual | Annual | Annual | Annual | Annual |
| State fixed effects | Yes | Yes | Yes | Yes | Yes | Yes |
| Year fixed effects | Yes | Yes | Yes | Yes | Yes | Yes |
| Observations | 656 | 656 | 656 | 656 | 656 | 656 |
| Adjusted R-squared | 0.550 | 0.570 | 0.537 | 0.562 | 0.549 | 0.570 |
| **Panel C: The dependent variable is new revolving lines** | | | | | | |
| Variable | (1) | (2) | (3) | (4) | (5) | (6) |
| Licensing restrictions | -3.217*** | -3.118*** | | | -3.221*** | -3.088*** |
| | (0.761) | (0.758) | | | (0.841) | (0.819) |
| Prohibited practices | | | -1.561** | -1.459* | 0.009 | -0.085 |
| | | | (0.751) | (0.750) | (0.768) | (0.779) |
| Control variables | No | Yes | No | Yes | No | Yes |
| Frequency | Quarterly | Quarterly | Quarterly | Quarterly | Quarterly | Quarterly |
| State fixed effects | Yes | Yes | Yes | Yes | Yes | Yes |
| Year fixed effects | Yes | Yes | Yes | Yes | Yes | Yes |
| Observations | 2,624 | 2,624 | 2,624 | 2,624 | 2,624 | 2,624 |
| Adjusted R-squared | 0.944 | 0.946 | 0.943 | 0.945 | 0.944 | 0.946 |

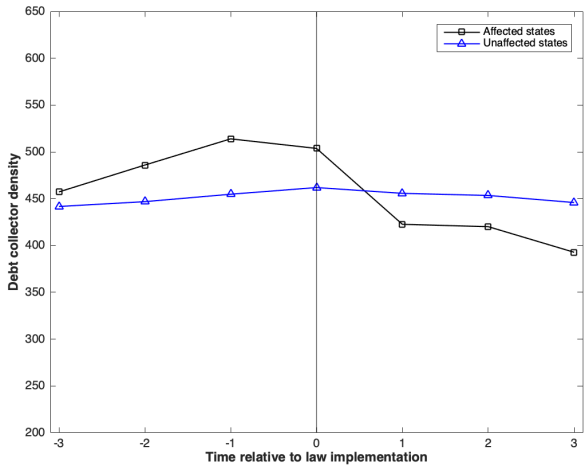
**Table 11**
Sensitivity to alternative samples and specifications, placebo outcomes.
Panel A reports variations on the baseline specification as indicated (see text for details). All variables are as described in the text and in Table 2. Regressions for Third-party debt collector density and Recovery rate are estimated at annual frequency; regressions for New revolving lines are estimated at quarterly frequency, with the exception of specification in row (10), which is estimated at annual frequency as indicated. The number of observations in each specification in Panel A is as follows: (1) 656 for annual regressions, 2,624 for the quarterly regression; (2) 656 for annual regressions, 2,624 for the quarterly regression; (3) 656 for annual regressions, 2,624 for the quarterly regression; (4) 524 for annual regressions, 2,096 for the quarterly regression; (5) 684 for annual regressions, 2,736 for the quarterly regression; (6) 690 for annual regressions, 2,760 for the quarterly regression; (7) 685 for annual regressions, 2,740 for the quarterly regression; (8) 643 for the annual regression, no quarterly regressions; (9) 631 for the annual regression, no quarterly regressions; (10) 656 for the annual regression, no quarterly regressions; (11) 656 for the annual regression, no quarterly regressions. Panel B reports estimates from regressions that use Deposit rate and Delinquencies on mortgage debt as the dependent variables. Standard errors clustered by state are reported in parentheses next to the coefficients in Panel A and below the coefficients in Panel B. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

**Panel A: Sensitivity to alternative samples and specifications**

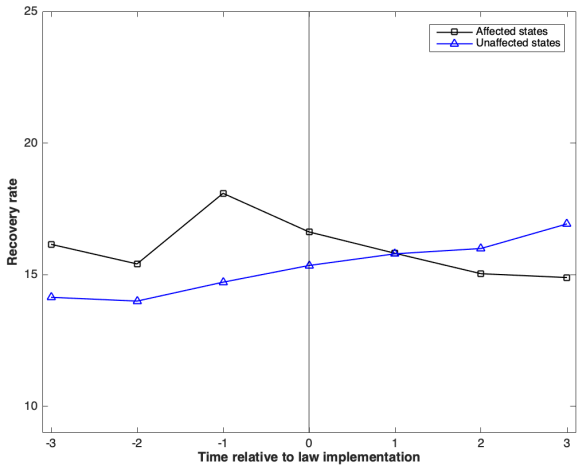
| | Coefficient on the index of third-party debt collection restrictions when the dependent variable is | | | | | |
|---|---|---|---|---|---|---|
| | Third-party debt collector density | | Recovery rate | | New revolving lines | |
| Specification | (1) | (2) | (3) | (4) | (5) | (6) |
| (1) Baseline specification | -62.812*** | (20.250) | -1.038** | (0.515) | -1.849*** | (0.608) |
| (2) Incl. state×time trends | -16.658 | (21.142) | -1.236 | (0.850) | -2.744** | (1.231) |
| (3) Incl. census region×year FEs | -59.611*** | (21.429) | -0.571 | (0.573) | -0.829 | (0.591) |
| (4) Excl. 2007–2009 | -65.675*** | (20.375) | -1.007* | (0.528) | -1.668*** | (0.621) |
| (5) Incl. Delaware and South Dakota | -58.548*** | (21.478) | -1.068** | (0.521) | -1.774*** | (0.607) |
| (6) Incl. years in which laws changed | -55.145*** | (18.163) | -1.228** | (0.482) | -1.474*** | (0.545) |
| (7) Midpoints of suppr. debt coll. data | -59.051*** | (20.846) | -1.338** | (0.590) | -1.969*** | (0.615) |
| (8) Excl. cr. unions in border counties | — | — | -0.938* | (0.547) | — | — |
| (9) Retain community cr. unions only | — | — | -2.731** | (1.246) | — | — |
| (10) Use annual freq. for New rev. lines | — | — | — | — | -1.911*** | (0.616) |
| (11) Use establishment density | -0.550 | (0.526) | — | — | — | — |

**Panel B: Placebo outcomes**

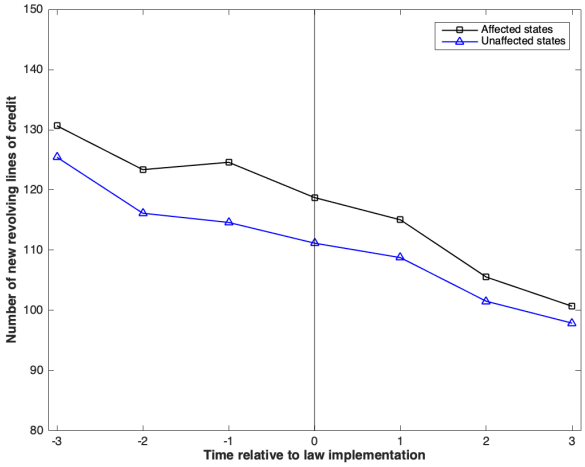
| | Deposit rate | | Delinquencies on mortgage debt | |
|---|---|---|---|---|
| Variable | (1) | (2) | (3) | (4) |
| Index | 0.029 | 0.033 | 0.066* | 0.019 |
| | (0.022) | (0.022) | (0.034) | (0.028) |
| Control variables | No | Yes | No | Yes |
| Frequency | Annual | Annual | Quarterly | Quarterly |
| State fixed effects | Yes | Yes | Yes | Yes |
| Year fixed effects | Yes | Yes | Yes | Yes |
| Observations | 656 | 656 | 2,624 | 2,624 |
| Adjusted R-squared | 0.600 | 0.608 | 0.843 | 0.873 |




**(a)** Third-party debt collector density

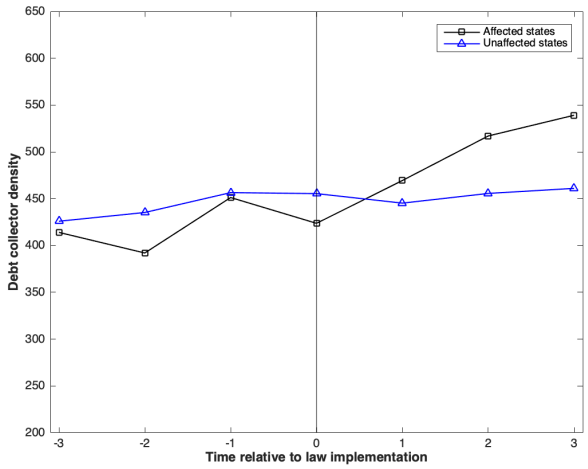



**(b)** Recovery rate

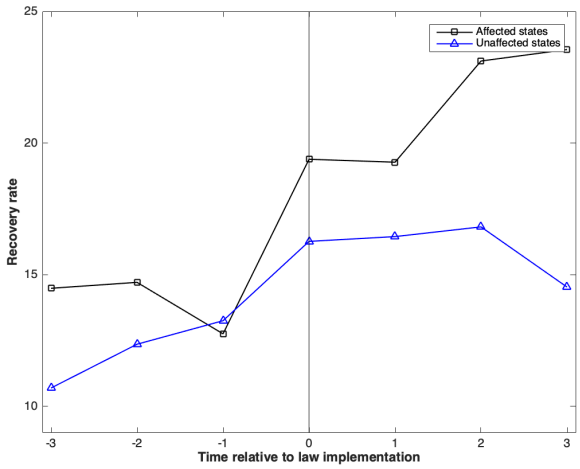



**(c)** New revolving lines

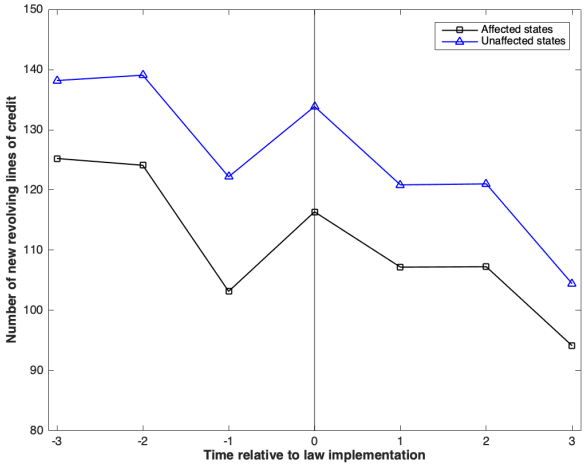
**Fig. 3.** Evolution of outcome variables around tightenings of third-party debt collection laws.
This figure depicts the evolution of Third-party debt collector density, Recovery rate, and New revolving lines variables three years prior and three years after tightenings of third-party debt collection laws. For affected states, 14 law tightenings that do not overlap with other law changes in the same state and have no missing data in the three years before and three years after the change are included. Twenty-three unaffected states that did not change their third-party debt collection laws during the sample period and have no missing data in the years when affected states changed their laws are included. See text for details. The graphs depict average values of the outcome variables in event time. Vertical lines indicate the date when the law change became effective. Values for affected states are marked with black squares; values for unaffected states are marked with blue triangles.




**(a)** Third-party debt collector density




**(b)** Recovery rate




**(c)** New revolving lines

**Fig. 4.** Evolution of outcome variables around loosenings of third-party debt collection laws.
This figure depicts the evolution of Third-party debt collector density, Recovery rate, and New revolving lines variables three years prior and three years after loosenings of third-party debt collection laws. For affected states, 2 law loosenings that do not overlap with other law changes in the same state and have no missing data in the three years before and three years after the change are included. Twenty-three unaffected states that did not change their third-party debt collection laws during the sample period and have no missing data in the years when affected states changed their laws are included. See text for details. The graphs depict average values of the outcome variables in event time. Vertical lines indicate the date when the law change became effective. Values for affected states are marked with black squares; values for unaffected states are marked with blue triangles.

**Table 12**
Effect of a placebo index of third-party debt collection restrictions.
In columns 1 and 2, the dependent variable is the number of third-party debt collectors per 1 million people. In columns 3 and 4, the dependent variable is the average recovery rate on charged-off unsecured credit card loans by credit unions. In columns 5 and 6, the dependent variable is the number of new revolving lines of credit per 1,000 consumers. All variables are as described in the text and in Table 2. The construction of the placebo index of third-party debt collection restrictions is described in the text. The regressions are estimated using the main sample of 656 annual observations in columns 1 through 4 and the corresponding 2,624 quarterly observations in columns 5 and 6. Standard errors clustered by state are reported in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

| | Third-party debt collector density | | Recovery rate | | New revolving lines | |
|---|---|---|---|---|---|---|
| Variable | (1) | (2) | (3) | (4) | (5) | (6) |
| Index | -52.603*** | -48.726*** | -1.594*** | -1.214*** | -1.857*** | -1.621*** |
| | (16.822) | (17.808) | (0.486) | (0.469) | (0.548) | (0.547) |
| Placebo index | 26.551 | 29.046 | 1.080 | 0.851 | -0.960 | -1.078 |
| | (22.230) | (21.597) | (0.800) | (0.832) | (0.964) | (0.948) |
| Unemployment rate | | -7.198 | | -1.125*** | | -0.665** |
| | | (9.297) | | (0.259) | | (0.306) |
| Personal income | | -3.044 | | -0.300 | | -0.573*** |
| | | (5.661) | | (0.191) | | (0.165) |
| Income growth | | 2.724 | | 0.171 | | 0.188 |
| | | (2.545) | | (0.132) | | (0.134) |
| Garnishment | | 13.160*** | | -0.578*** | | -1.207*** |
| | | (2.145) | | (0.129) | | (0.267) |
| Exemption | | -0.381 | | -0.063* | | -0.066 |
| | | (0.924) | | (0.033) | | (0.073) |
| Frequency | Annual | Annual | Annual | Annual | Quarterly | Quarterly |
| State fixed effects | Yes | Yes | Yes | Yes | Yes | Yes |
| Year fixed effects | Yes | Yes | Yes | Yes | Yes | Yes |
| Observations | 656 | 656 | 656 | 656 | 2,624 | 2,624 |
| Adjusted R-squared | 0.816 | 0.817 | 0.545 | 0.567 | 0.943 | 0.945 |

# Appendix A. Variables

**Table A.1**

Definitions and sources of variables.

| Variable | Definition | Source |
|---|---|---|
| Index | Index of third-party debt collection restrictions | State statutes |
| Garnishment | Percentage of income exempt from garnishment (%) | State statutes |
| Exemption | Real homestead bankruptcy exemption plus real nonhome bankruptcy exemption ($10,000) | State statutes |
| New revolving lines | Number of new revolving lines of credit, per 1,000 consumers | TransUnion |
| New revolving balance | Average real balance (the amount borrowed) of new revolving lines of credit ($) | TransUnion |
| New auto loans | Number of new auto loans, per 1,000 consumers | TransUnion |
| New mortgage loans | Number of new mortgage loans, per 1,000 consumers | TransUnion |
| Delinquencies on revolving debt | Number of borrowers with a 60-day delinquency on revolving debt, per 1,000 consumers | TransUnion |
| Delinquencies on mortgage debt | Number of borrowers with a 60-day delinquency on mortgage debt, per 1,000 consumers | TransUnion |
| Amount of revolving debt past due | Average total amount due of revolving trades 60 days or more past due, per delinquent revolving borrower ($) | TransUnion |
| Existing revolving balance | Average balance of active revolving lines of credit | TransUnion |
| Credit score | Average consumer credit score (a proprietary credit score developed by TransUnion) | TransUnion |
| Recovery rate | Average recovery rate on charged-off unsecured credit card loans by credit unions (%) | Credit union Call Reports (account 681 divided by account 680) |
| Interest rate | Average interest rate charged by credit unions on unsecured credit card loans (%) | Credit union Call Reports (account 521) |
| Deposit rate | Average interest rate offered by credit unions on their deposits (%) | Credit union Call Reports (account 599) |
| Third-party debt collector density | Number of third-party debt collectors per 1 million people | County Business Patterns |
| First-party debt collector density | Number of first-party debt collectors per 1 million people | Occupational Employment Statistics; County Business Patterns |
| Establishment density | Number of third-party debt collection establishments, per 1 million people | County Business Patterns |
| Lawsuits against debt collectors | Number of lawsuits filed against third-party debt collectors, per 1 million people | WebRecon, LLC |
| Share of consumers with accounts in collection | Share of consumers with at least $100 ever placed for collection (%); | TransUnion |
| Complaints against all collectors | Number of consumer complaints filed against first- and third-party debt collectors, per 1 million people | Morgan, Strain, and Seblani (2012); Freedom of Information Act requests, Consumer Sentinel database, U.S. Federal Trade Commission |
| Unemployment rate | Percentage of the labor force that is unemployed (%) | U.S. Bureau of Labor Statistics |
| House price index | Annual house price index (2000 is the base year) | U.S. Federal Housing Finance Agency |
| Medical costs | Health-care expenditures per capita ($1,000) | The Henry J. Kaiser Family Foundation |
| Cost of utilities | Price of electricity (cents per kWh) | U.S. Energy Information Administration |
| Personal income | Real personal income per capita ($1,000) | U.S. Bureau of Economic Analysis |
| Income growth | Real personal income per capita in a given year minus real personal income per capita in the previous year, all divided by the real personal income per capita in the previous year (%) | U.S. Bureau of Economic Analysis |
| Legislature is Republican | Indicates that the Republican Party holds the majority of seats in the state's legislature (in each of the two chambers for bicameral legislatures) | State legislatures, web search |
| Governor is Republican | Indicates that the state's governor is Republican | State governments, web search |

## Appendix B. Changes in Third-Party Debt Collection Laws

I use three sources to identify the statutes that regulate third-party debt collection in each state: 1) the National Consumer Law Center's publication *Fair Debt Collection* (various years), 2) the National List of Attorneys white papers with summaries of debt collection laws, and 3) Google search. Having identified relevant statutes, I then obtained the history of legislative changes that introduced or amended those statutes. Some states, after each section of their statutes, list individual laws that either enacted or amended a particular section. Some of the states that do not list relevant laws in their statutes publish annual correspondence tables of laws that affect particular statutes. For the remaining states, the list of relevant laws was obtained either by keyword search on the websites of those states' legislatures or via LexisNexis (LexisNexis also provides references to the legislative history). References to all changes in the debt collection statutes that occurred during the sample period are contained in at least one of the above sources.

The text of changes in debt collection laws was obtained either from the websites of state legislatures or from the HeinOnline database. Technical changes such as renamings were discarded, with all remaining changes codified into the index of debt collection restrictions described previously. A brief summary of these changes is presented here.

1. ARKANSAS: Effective April 10, 2009, Arkansas adopted a state Fair Debt Collection Practices Act, which introduced private remedies (including class action lawsuits) and added prohibited practices and various other provisions.

2. COLORADO: Effective July 1, 2000, Colorado repealed the requirement that every individual debt collector is obliged to be licensed (the requirement that debt collection agencies need to obtain a license was retained) and shortened the statute of limitations for violations of debt collection laws from two years to one year. Effective May 21, 2003,

Colorado limited the applicability of private remedies (violations of regulations issued by the collection agencies' board were limited only to administrative enforcement) and added an affirmative defense if the debt collector believed, in good faith, that the debtor was other than a natural person.

3. CONNECTICUT: Effective October 1, 2002, Connecticut clarified instances in which a license may be revoked and authorized the banking commissioner to proceed on bond to collect civil penalties; further, a new requirement was added that any change of location of a place of business shall require prior written notice to the commissioner; licensing fees were increased from $400 to $800. Effective October 1–5, 2009, Connecticut authorized the banking commissioner to deny a license based on certain convictions and increased the amount of bond from $5,000 to $25,000. Effective June 3, 2014, Connecticut authorized the banking commissioner to conduct criminal history records checks of each partner, member, officer, director and principal employee of a debt collection agency, expanded the coverage of the debt collection statutes to include debts bought after being charged off, added a requirement for separate licenses for the main office and each branch office of a debt collection agency, restricted the fee for the cost of collection not to exceed 15% of the total amount collected and accepted as payment in full satisfaction of the debt.

4. FLORIDA: Effective July 1, 2001, Florida put a limit on the aggregate amount of statutory damages that can be awarded in class action lawsuits against debt collectors and specified a two-year statute of limitations for debt collection violations. Effective October 1, 2010, Florida increased administrative fines for debt collection violations from $1,000 in total to $10,000 per violation; it also added a requirement that debt collectors maintain records and present them to the office of financial regulation and

authorized the attorney general to take action against debt collectors for violations involving debt collection.

5. GEORGIA: Effective May 1, 2004, Georgia explicitly authorized class action lawsuits against unlicensed debt collection activity.

6. HAWAII: Effective April 23, 2012, Hawaii increased fines for violations of debt collection laws from $1,000 in total to $5,000 per violation.

7. IDAHO: Effective July 1, 1999, Idaho increased the amount of bonds required from $5,000 to $15,000 (this state had an unusual provision requiring two bonds). Effective July 1, 2002, Idaho revised the definition of prohibited conduct and enabled the director of the Idaho Department of Finance to issue certain cease and desist orders; further, the monetary civil penalty increased from $1,000 to $2,500, and the director's authority to bring an action to enjoin certain violations was extended. Effective July 1, 2008, Idaho instituted licensing requirements and revised the powers of the director of the Department of Finance; further, a new civil penalty was added (courts were allowed to award the director $5,000 for each violation), and the amount of penalties that the director can impose increased from $2,500 to $5,000 per violation.

8. ILLINOIS: Effective December 31, 2005, Illinois increased fines that the Department of Financial and Professional Regulation may impose from $1,000 per licensee per complaint to $5,000 for a first violation and to $10,000 for a second or subsequent violation. Effective January 1, 2013, Illinois extended its debt collection statutes to debt buyers and stipulated that debt buyers can only collect on debt within the applicable statute of limitations.

9. INDIANA: Effective July 1, 2007, Indiana authorized the Secretary of State to conduct investigations into violations of debt collection laws and to issue orders, including cease

and desist orders. Further, the Secretary of State was authorized to impose a civil penalty of up to $10,000 for each violation.

10. LOUISIANA: Effective June 22, 2006, Louisiana clarified that debts assigned to a debt collection agency are valid and enforceable by the collection agency in court. Further, it allowed the collection agency to represent the original creditor in all instances for the purpose of collecting such debt, including the right to bring legal action to collect the debt.

11. MAINE: Effective February 22, 2006, Maine exempted licensed attorneys from bonding and licensing requirements for debt collection agencies. Effective June 3, 2009, and September 12, 2009 (via two separate bills), Maine increased license fees from $400 to $600, instituted some additional fees, and specified that debt collectors cannot bring legal action in court unless represented by an attorney or unless the debt collector is an attorney.

12. MARYLAND: Effective October 1, 2007, Maryland debt collection laws were extended to debt buyers and added a clause that a license may be revoked or suspended if any owner, director, officer, or partner of a debt collection agency violated debt collection law (before that, only the debt collection agency itself was covered). Further, the reasons for revoking a license were expanded.

13. MINNESOTA: Effective January 1, 2005, Minnesota clarified that individual collectors (and not just debt collection agencies) were subject to penalties if they engaged in prohibited practices. Effective January 1, 2011, Minnesota increased the amount of bond from $20,000 to $50,000 (plus an additional $5,000 for each $100,000 received in collections in the previous year, up to a total of $100,000).

14. NEVADA: Effective October 1, 2001, Nevada authorized administrative fines of up

to $10,000 on unlicensed debt collection agencies and reclassified violations of debt collection laws from misdemeanors into gross misdemeanors. Effective June 13, 2007, Nevada specified a procedure for debt verification that requires debt collection agencies to send certain documents to the debtor to verify the debt. Further, violations of the federal FDCPA were deemed violations of state debt collection laws; in addition, the upper bound on the initial registration fee that the Commissioner of Financial Institutions was authorized to charge was eliminated (the upper bound had been $600 prior to this change).

15. NORTH CAROLINA: Effective October 1, 2001, North Carolina increased the amount of initial bond from $5,000 to $10,000 and increased the maximum amount of bond upon renewal from $50,000 to $75,000 (nonresident collection agencies were required to post a second bond in the amount of $10,000); further, the definition of deceptive representation was clarified and expanded. Effective August 15, 2009, and October 1, 2009 (via three separate bills), North Carolina increased license application fees from $500 to $1,000, required collection agencies to notify the state Commissioner of Insurance of any convictions or administrative actions against them both within the state and in any other state, and increased civil penalties from $100 to $2,000 per violation to $500 to $4,000 per violation. Further, North Carolina increased the standard of evidence required to establish the amount and nature of debt when debt collectors initiate legal action against debtors.

16. NORTH DAKOTA: Effective March 17, 2003, North Dakota granted the Department of Financial Institutions the power of subpoena and reclassified violations of debt collection laws from misdemeanors to felonies. Effective April 18, 2011, North Dakota expanded the power of the state regulator and added new prohibited practices; further,

it instituted a minimum net worth requirement of $25,000 for debt collection agencies operating in the state. Effective April 8, 2013, North Dakota tightened licensing requirements by requiring debt collection agencies to provide more documentation (including a credit report and the criminal history in any jurisdiction) and prescribed that the Commissioner of Financial Institutions may engage with other states and the federal authorities in a multi-state information exchange system about debt collectors and their backgrounds.

17. OREGON: Effective October 23, 1999, Oregon made violations of debt collection laws a criminal offense. Effective January 1, 2006, Oregon authorized the Director of the Department of Consumer and Business Services to conduct investigations into debt collection violations and to serve orders.

18. PENNSYLVANIA: Effective June 26, 2000, Pennsylvania enacted the Fair Credit Extension Uniformity Act that wrote prohibited debt collection practices into state law and specified private remedies.

19. RHODE ISLAND: Effective July 7, 2007, Rhode Island adopted a state Fair Debt Collection Practices Act, which specified prohibited practices and private remedies and made violations of debt collection laws a criminal offense. Effective June 16, 2014, Rhode Island adopted a requirement that debt collection registration for each location of a debt collection agency must be renewed annually (instead of every three years) and increased licensing fees.

20. TENNESSEE: Effective July 1, 2004, Tennessee allowed collection agencies to take assignments of debts and to sue in their own name and specified procedural requirements as to how such suits can be initiated. Effective April 23, 2013, Tennessee abolished the requirement that each location manager of a debt collection agency should obtain a

separate license.

21. UTAH: Effective March 18, 1999, Utah introduced registration and registration fees for debt collection agencies.

22. WASHINGTON: Effective April 22, 2011, Washington expanded the list of prohibited practices and required debt collectors to provide itemization of the claim and debtor's payment history. Further, limits were introduced on debt collection agencies' ability to act upon debtors' bonds if the latter appear in court.

## Appendix C. Online Appendix

### *C.1. The Debt Collection Process*

Creditors turn to third-party debt collectors after a loan has been in default for a certain period of time (usually after 180 days for credit card loans). Most debt collection agencies work on commission, in which case, they return net proceeds to the original creditors. Such debt collection agencies are termed contingency collectors and do not legally own the debt. Contingency collectors receive a commission proportional to the amount they collect, and the average size of this commission was 28% in 2005.[1] Some debt collection firms purchase debt from original creditors, in which case, they obtain a legal title to the debt and retain all collection revenues they can generate on that debt. This activity is termed debt buying. Generally, creditors sell accounts to debt buyers after having tried (unsuccessfully) to collect on these accounts on their own and after hiring contingent debt collectors. This is reflected in the prices of the debt being sold, which average 4 cents on the dollar.[2]

The collection process is a human-intensive effort that requires debt collectors to constantly communicate with borrowers. This communication is usually established over the telephone and by mail. Sometimes collection may require face-to-face contact, but such cases are not common. Effective debt collection requires debt collectors to be familiar with the economic circumstances of the borrower, which is one of the reasons why the debt collection industry is geographically disperse and consists mostly of small firms, with 90% of debt collection firms having fewer than 50 employees.[3] The overall size of the debt collection industry, however, is significant. According to the latest industry survey available, the total amount collected in 2013 was $55.2 billion, $10.4 billion (or 19%) of which was retained as

[1]Source: *Collecting Consumer Debts: The Challenges of Change.* Workshop Report, Washington: Federal Trade Commission, February 2009, p.3.

[2]Source: *The Structure and Practices of the Debt Buying Industry.* Staff Report, Washington: Federal Trade Commission, January 2013, Table B1.

[3]Source: U.S. Census Bureau, Economic Census, 2007.

commissions.[4] As of March 2012, the industry employed 129,392 debt collectors.[5]

Debt collectors play an active role in retail credit markets by enforcing consumer credit contracts (primarily unsecured credit).[6] They contact millions of American consumers every year. In the last quarter of 2014, 13.48% of American consumers had at least one account being processed by debt collectors.[7] Further, third-party debt collectors generate more consumer complaints than any other industry. The Federal Trade Commission, which tracks consumer complaints, received 108,997 complaints about third-party debt collectors in 2010,[8] which represents 21% of all complaints received directly from consumers in 2010.[9] The amount of civil litigation against debt collectors is also significant. In 2009, there were 10,128 lawsuits filed by consumers against debt collection agencies,[10] which represents 5.4% of 185,900 original civil cases filed in the U.S. District Courts in 2009.[11] Thus, debt collectors are a visible presence in the lives of American households.

Debt collectors' compensation is customarily tied to the amount of collections they generate. Therefore, they have incentives to be persistent.[12] The extent to which debt collectors can be persistent is determined by state and federal law and by the way the law is enforced. Actions by federal and state regulators are a major concern and a topic of much discussion

[4]Source: *The Impact of Third-Party Debt Collection on the National and State Economies*. Technical Report, Ernst & Young, 2014. The 19% retained as commissions in 2013 is lower than the average commission rate of 28% reported in 2005, possibly due to the effects of the financial crisis.

[5]Source: U.S. Census Bureau, Economic Census, 2012.

[6]In the case of secured debt, the creditor can repossess the underlying collateral after debtors default. Therefore, third-party debt collectors are rarely involved in collecting on secured debt. For example, in the case of auto loans, creditors use repossession agencies ("repo men" as they are known colloquially). Those agencies are separate from debt collectors that are the focus of this paper. County Business Patterns track these two types of establishments in separate categories.

[7]Source: *The Quarterly Report on Household Debt and Credit*, Federal Reserve Bank of New York, various years.

[8]Note that while the Federal Trade Commission was administering consumer debt collection complaints during the sample period, the Dodd-Frank Wall Street Reform and Consumer Protection Act transferred this responsibility to the Consumer Financial Protection Bureau, which began accepting and compiling consumer debt collection complaints in July 2013.

[9]Source: Federal Trade Commission. Annual Report 2011: Fair Debt Collection Practices Act. Report to Congress, Washington: Federal Trade Commission, March 2011.

[10]Source: WebRecon, LLC, published by InsideArm.com (http://www.insidearm.com/daily/debt-collection-news/debt-collection/fdcpa-statistics-provided-by-webrecon/). Of the 10,128 lawsuits, 8,287 were filed under the Fair Debt Collection Practices Act, 1,174 under the Fair Credit Reporting Act, and 28 under the Telephone Consumer Protection Act. The remaining suits were filed under various other federal acts and state consumer statutes.

[11]Source: Judicial Business of the United States Courts, 2009. The total number of civil filings in 2009 was 276,397, which also includes removals from state courts, remands from courts of appeals, reopens, and transfers.

[12]Being persistent is not illegal, unless debt collectors violate the law.

in the debt collection community.[13] Collection agencies are sued regularly by state attorneys general,[14] and those lawsuits bring high uncertainty owing to the potentially large penalties that can be imposed. In one example, on May 28, 2010, a jury in Texas awarded $1.5 million in punitive damages against a debt collection agency, in addition to $50,000 in damages for mental anguish. The initial debt that the agency was trying to collect was only $200.[15]

Examples of debt collectors using unlawful practices are not uncommon; however, it is hard to establish their frequency relative to the total volume of the debt collection activity. At the same time, the large number of consumer complaints and lawsuits against debt collectors implies that the instance of illegal practices is not trivial. Without taking a stand on how prevalent illegal practices are, I list some of the practices mentioned during congressional hearings:[16]

- Phoning a debtor's parent, impersonating a government prosecutor, and requesting the parent to get the debtor to call about a criminal investigation regarding the debtor;
- Threatening the debtor and his or her parent with criminal charges for capital gains tax fraud unless the balance of the debt is put on the parent's credit card;
- Calling five to 15 neighbors in a brief period of time, informing them that the debtor is suspected of receiving stolen goods, and asking them to go to the debtor's home and request the debtor to call the collector. This is called a "block party." A variant is to hold an "office party" by calling the debtor's fellow employees;

[13] InsideARM.com, a leading online resource for debt collectors, regularly sends newsletters to its subscribers. In the first quarter of 2010, 59 newsletters were distributed, 30 of which discussed issues related to regulation, lawsuits involving collectors, and law enforcement matters.

[14] Former New York attorney general (and now Governor of New York) Andrew M. Cuomo, for example, started a statewide initiative in May 2009 to clean up the debt collection industry. As of May 2010, his office had shut down 14 debt collection companies and required others to reform their deceptive practices. Ten collectors were criminally prosecuted. Other recent actions against debt collectors were initiated by attorneys general in West Virginia and Colorado.

[15] *Allen Jones v. Advanced Call Center Technologies*. Source: InsideArm.com.

[16] The information in the bulleted list comes from the 1992 Congressional Hearings, and it may be the case that industry practices have changed since then.

- Soliciting postdated checks in order to later threaten criminal prosecution for passing bad checks;
- Threatening to report Latinos to immigration authorities and posing as an immigration officer; and
- Encouraging women to engage in prostitution and men to sell drugs to pay off a debt.[17]

It is therefore likely that debt collection laws are binding, at least for some debt collectors.

### *C.2. Additional Robustness Tests*

#### C.2.1. Robustness to the location of the financial institution

The relevant jurisdiction for creditor remedies is the state in which the borrower resides (or resided when he or she opened the account), and it is therefore important for the analysis in this paper to accurately measure the outcome variables at the state level. Since financial institutions do not disaggregate their data by jurisdiction, it is possible that an institution located in one state provides credit to consumers residing in another state(s). This, in turn, may potentially introduce a measurement error in the dependent variable.

To address the issue of financial institutions lending across state lines, this paper uses data on small local lenders (i.e., credit unions) that are likely to provide credit within state borders. Furthermore, the main results in the paper use a subsample of credit unions that have branches in a single state, which should mitigate the measurement error. As an additional robustness check, Table C.1 presents the results for the full sample of credit unions (in Panel A) as well as for the sample of only those credit unions that have branches in multiple states (in Panel B). The measurement error, if present, should be more severe in these two samples

[17]Source: The Fair Debt Collection Practices Act: Hearing before the Subcommittee on Consumer Affairs and Coinage of the Committee on Banking, Finance, and Urban Affairs, House of Representatives, 102nd Congress, second session, September 10, 1992. Washington: U.S. Government Printing Office, 1993.

(because these samples are most likely to include credit unions that could lend across state lines). The results reported in Panel A of Table C.1 are very similar to those reported in the main text (in which the sample was limited to credit unions with branches in a single state). One reason for this may be that the vast majority of all credit unions (93.7%) have branches in a single state.

It is worth noting that the results no longer obtain in the sample of credit unions with branches in multiple states, suggesting that institutions with operations in multiple states respond less strongly to law changes in a given state. It appears, therefore, that institutions with operations in multiple states may shift some of their lending across states lines in response to changes in third-party debt collection laws. One should be mindful of two caveats in interpreting these results, however. First, credit unions with branches in multiple states represent a minority of credit unions (6.3%). Second, while the estimates of the effect of third-party debt collection laws on credit card recovery rates in Panel B are much smaller than those in Panel A and are not statistically significant, one cannot reject the statistical hypothesis of their equality at conventional levels.

#### C.2.2. The effect of third-party debt collection restrictions on recovery rates at small banks

The sample used in the main text of the paper is limited to credit unions, since they are likely to be local lenders that provide credit within state boundaries. In Table C.2, a similar analysis is performed on a sample of small banks (defined as banks with deposits in a single state). While the magnitude of the effect of third-party debt collection restrictions on recovery rates in this sample is in line with the estimates obtained in the sample of credit unions, it is less precisely estimated. One potential reason for this may be that banks are more likely to have sufficient scale to operate in-house debt collection departments and therefore rely less on third-party debt collectors. It may also be that even small banks are

more likely to lend across state lines than credit unions.

#### C.2.3. Robustness to the exclusion of individual states and years

This section reports the results of two additional robustness tests. Table C.3 shows the estimates of the impact of third-party debt collection laws on the main outcome variables after excluding individual states, while Table C.4 shows the estimates of the impact of third-party debt collection laws on the main outcome variables after excluding individual years. In both cases, the estimates remain similar to the baseline specification reported in the paper, which suggests that the results are not driven by individual states or years.

#### C.2.4. The impact of third-party debt collection restrictions on secured credit

The analysis so far has focused on the impact of third-party debt collectors on unsecured credit. This is because third-party debt collectors are primarily engaged in collecting unsecured debts, since, in the case of secured credit, lenders can repossess the underlying collateral. Thus, third-party debt collection laws should have little direct effect on secured credit. However, third-party debt collection may have an indirect effect on secured credit because secured and unsecured credit are linked by household behavior. The two types of credit are also linked by their treatment in the bankruptcy system. For example, write-offs of unsecured debt in bankruptcy can improve repayment prospects on mortgages.

The ex ante effect of third-party debt collection laws on secured credit is ambiguous. Mitman (2016) shows that higher bankruptcy exemptions may result in higher interest rates on unsecured debt (because households' propensity to file for bankruptcy increases) and can therefore prompt households to decrease their demand for unsecured credit and increase their demand for secured credit. By a similar logic, more stringent third-party debt collection laws may increase the demand for unsecured credit (because borrowers' disutility from third-

party debt collection goes down) and may reduce the demand for secured credit. However, one might also expect a positive effect of third-party debt collection restrictions on secured credit because borrowers may have difficulty obtaining an unsecured loan when third-party debt collection laws become more stringent. To investigate, Table C.5 reports the effect of third-party debt collection laws on the number of new secured auto loans and mortgages. The estimated coefficients are negative but statistically insignificant.

#### C.2.5. Further sensitivity analysis

Figures 3 and 4 of the paper present graphical evidence on the validity of the parallel trends assumption for the three main outcome variables. Similarly, Figures C.1 and C.2 present graphical evidence on the validity of the parallel trends assumption for the other outcome variables. Finally, Table C.6 reports a sensitivity analysis for these variables.

**Table C.1**
Impact of credit union location.
This table reports the effect of third-party debt collection restrictions on different types of credit unions. The sample in Panel A includes credit unions with branches in multiple states as well as credit unions with branches in a single state. The sample in Panel B includes only those credit unions that have branches in multiple states. In both panels, in columns 1 and 2 the dependent variable is the average recovery rate on charged-off unsecured credit card loans by credit unions; in columns 3 and 4, the dependent variable is the average interest rate charged by credit unions on unsecured credit card loans. Standard errors clustered by state are reported in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

**Panel A: Unrestricted sample of credit unions**

| | Recovery rate | | Interest rate | |
|---|---|---|---|---|
| Variable | (1) | (2) | (3) | (4) |
| Index | -1.544*** | -1.168** | -0.011 | -0.022 |
| | (0.498) | (0.488) | (0.039) | (0.038) |
| Control variables | No | Yes | No | Yes |
| Frequency | Annual | Annual | Annual | Annual |
| State fixed effects | Yes | Yes | Yes | Yes |
| Year fixed effects | Yes | Yes | Yes | Yes |
| Observations | 656 | 656 | 656 | 656 |
| Adjusted R-squared | 0.582 | 0.606 | 0.837 | 0.841 |

**Panel B: Sample of credit unions with branches in multiple states**

| | Recovery rate | | Interest rate | |
|---|---|---|---|---|
| Variable | (1) | (2) | (3) | (4) |
| Index | -0.231 | -0.870 | -0.066 | -0.054 |
| | (0.977) | (1.004) | (0.132) | (0.137) |
| Control variables | No | Yes | No | Yes |
| Frequency | Annual | Annual | Annual | Annual |
| State fixed effects | Yes | Yes | Yes | Yes |
| Year fixed effects | Yes | Yes | Yes | Yes |
| Observations | 600 | 600 | 600 | 600 |
| Adjusted R-squared | 0.334 | 0.344 | 0.528 | 0.540 |

**Table C.2**
Effect of third-party debt collection restrictions on recovery rates at small banks.
This table shows the effect of third-party debt collection restrictions on recovery rates at small banks (i.e., banks that have deposits in a single state). The dependent variable is the average recovery rate on charged-off unsecured credit card loans by banks with deposits in a single state. Standard errors clustered by state are reported in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

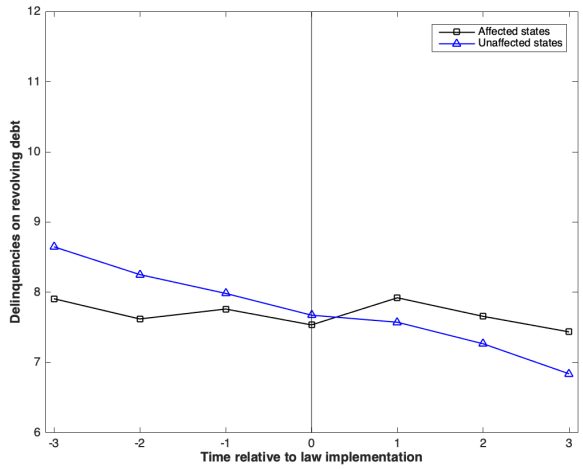
| | Recovery rate | |
|---|---|---|
| Variable | (1) | (2) |
| Index | -1.871 | -2.081 |
| | (2.732) | (2.694) |
| Unemployment rate | | -1.081 |
| | | (1.370) |
| Personal income | | -1.700* |
| | | (1.002) |
| Income growth | | 0.486 |
| | | (0.750) |
| Garnishment | | -2.230** |
| | | (0.878) |
| Exemption | | -0.093 |
| | | |
| Frequency | Annual | Annual |
| State fixed effects | Yes | Yes |
| Year fixed effects | Yes | Yes |
| | | |
| Observations | 646 | 646 |
| Adjusted R-squared | 0.213 | 0.214 |

**Table C.3**
Sensitivity of the effect of third-party debt collection restrictions to excluding individual states.
This table reports regression estimates from the baseline specifications reported in the paper, after excluding individual states as indicated. All variables are as described in the text and in Table 2. For Third-party debt collector density and Recovery rate, the regressions are estimated using the main annual sample of 656 observations, excluding the state specified in the corresponding row. For New revolving lines, the regressions are estimated using the main quarterly sample of 2,624 observations, excluding the state specified in the corresponding row. Columns 1, 3, and 5 report point estimates of the coefficient on the index of third-party debt collection restrictions. The corresponding standard errors, clustered by state, are reported in parentheses in columns 2, 4, and 6. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

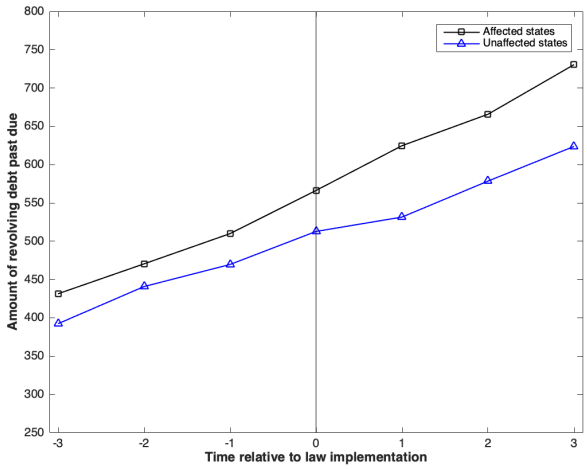
| | Coefficient on the index of third-party debt collection restrictions when the dependent variable is | | | | | |
|---|---|---|---|---|---|---|
| | Third-party debt collector density | | Recovery rate | | New revolving lines | |
| Excluded state | (1) | (2) | (3) | (4) | (5) | (6) |
| Arkansas | -63.948*** | (20.568) | -1.588*** | (0.478) | -2.179*** | (0.637) |
| Colorado | -58.074*** | (20.929) | -1.248** | (0.505) | -1.771*** | (0.635) |
| Connecticut | -63.599*** | (21.205) | -1.196** | (0.516) | -1.793*** | (0.644) |
| Florida | -64.557*** | (20.772) | -1.151** | (0.499) | -2.215*** | (0.626) |
| Georgia | -62.081*** | (20.474) | -1.262** | (0.502) | -1.809*** | (0.629) |
| Hawaii | -63.632*** | (20.375) | -1.287*** | (0.492) | -1.927*** | (0.626) |
| Idaho | -61.185*** | (21.532) | -1.037** | (0.523) | -1.826*** | (0.638) |
| Illinois | -65.248*** | (20.857) | -1.162** | (0.515) | -2.090*** | (0.643) |
| Indiana | -65.557*** | (20.149) | -1.284** | (0.501) | -1.985*** | (0.634) |
| Louisiana | -67.069*** | (21.394) | -1.021** | (0.512) | -1.904*** | (0.655) |
| Maine | -64.817*** | (20.741) | -1.101** | (0.494) | -1.706*** | (0.584) |
| Maryland | -60.786*** | (20.624) | -0.896* | (0.487) | -1.626*** | (0.627) |
| Minnesota | -51.614*** | (18.578) | -0.991* | (0.524) | -1.314** | (0.623) |
| Nevada | -62.655*** | (20.710) | -1.331*** | (0.460) | -1.932*** | (0.619) |
| North Carolina | -64.733*** | (20.653) | -1.135** | (0.505) | -2.400*** | (0.619) |
| North Dakota | -74.440*** | (20.271) | -1.222** | (0.509) | -2.214*** | (0.642) |
| Oregon | -63.573*** | (20.594) | -1.199** | (0.502) | -1.877*** | (0.639) |
| Pennsylvania | -64.432*** | (20.182) | -1.193** | (0.489) | -1.861*** | (0.619) |
| Rhode Island | -64.250*** | (20.544) | -0.985** | (0.450) | -1.833*** | (0.616) |
| Tennessee | -51.843** | (19.904) | -1.383*** | (0.529) | -1.863*** | (0.681) |
| Utah | -63.548*** | (20.414) | -1.142** | (0.485) | -1.895*** | (0.617) |
| Washington | -63.494*** | (20.597) | -1.128** | (0.497) | -1.965*** | (0.628) |

**Table C.4**
Sensitivity of the effect of collector debt collection restrictions to excluding individual years.
This table reports regression estimates from the baseline specification reported in the paper, after excluding individual years as indicated. All variables are as described in the text and in Table 2. For Third-party debt collector density and Recovery rate, the regressions are estimated using the main annual sample of 656 observations, excluding the year specified in the corresponding row. For New revolving lines, the regressions are estimated using the main quarterly sample of 2,624 observations, excluding the year specified in the corresponding row. Columns 1, 3, and 5 report point estimates of the coefficient on the index of third-party debt collection restrictions. The corresponding standard errors, clustered by state, are reported in parentheses in columns 2, 4, and 6. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

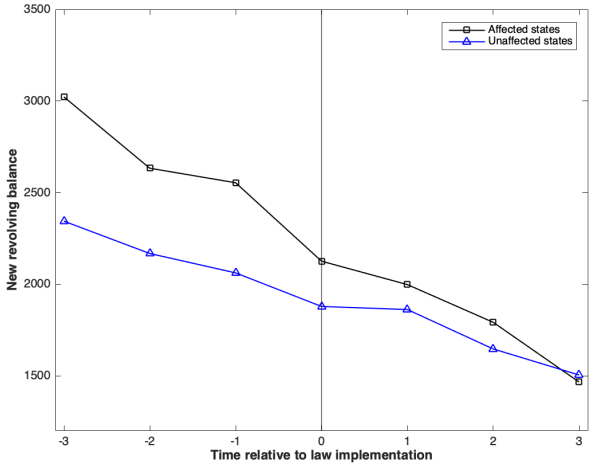
| | Coefficient on the index of third-party debt collection restrictions when the dependent variable is | | | | | |
|---|---|---|---|---|---|---|
| | Third-party debt collector density | | Recovery rate | | New revolving lines | |
| Excluded year | (1) | (2) | (3) | (4) | (5) | (6) |
| 2000 | -66.193*** | (22.572) | -1.597*** | (0.520) | -1.862*** | (0.613) |
| 2001 | -60.087*** | (21.526) | -0.997* | (0.521) | -1.976*** | (0.663) |
| 2002 | -55.976*** | (20.354) | -1.123** | (0.536) | -1.688*** | (0.650) |
| 2003 | -58.012*** | (18.810) | -1.198** | (0.518) | -1.751*** | (0.639) |
| 2004 | -62.251*** | (18.942) | -1.034** | (0.480) | -1.723*** | (0.607) |
| 2005 | -64.844*** | (20.807) | -1.062** | (0.485) | -1.855*** | (0.614) |
| 2006 | -63.224*** | (20.539) | -1.042** | (0.479) | -1.818*** | (0.612) |
| 2007 | -65.965*** | (20.537) | -1.177** | (0.496) | -1.879*** | (0.629) |
| 2008 | -63.108*** | (20.187) | -1.101** | (0.488) | -1.623*** | (0.586) |
| 2009 | -61.492*** | (20.021) | -1.149** | (0.496) | -1.879*** | (0.618) |
| 2010 | -61.406*** | (20.718) | -1.217** | (0.510) | -1.824*** | (0.626) |
| 2011 | -65.004*** | (20.792) | -1.180** | (0.505) | -1.845*** | (0.633) |
| 2012 | -63.936*** | (19.202) | -1.095** | (0.525) | -2.024*** | (0.645) |
| 2013 | -61.160*** | (20.075) | -1.265** | (0.516) | -1.875*** | (0.644) |
| 2014 | -71.931*** | (22.091) | -1.339*** | (0.493) | -2.133*** | (0.669) |



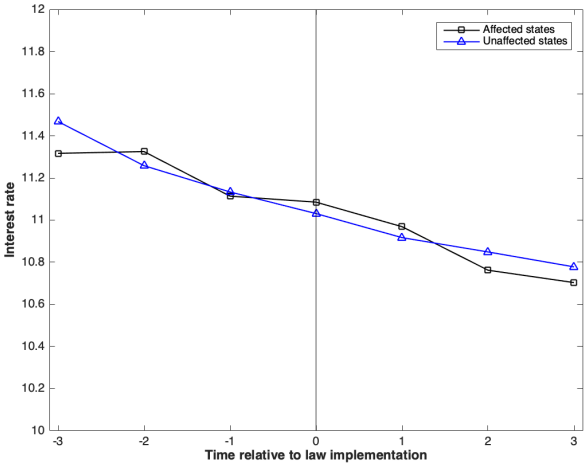

**(a)** Delinquencies on revolving debt




**(b)** Amount of revolving debt past due

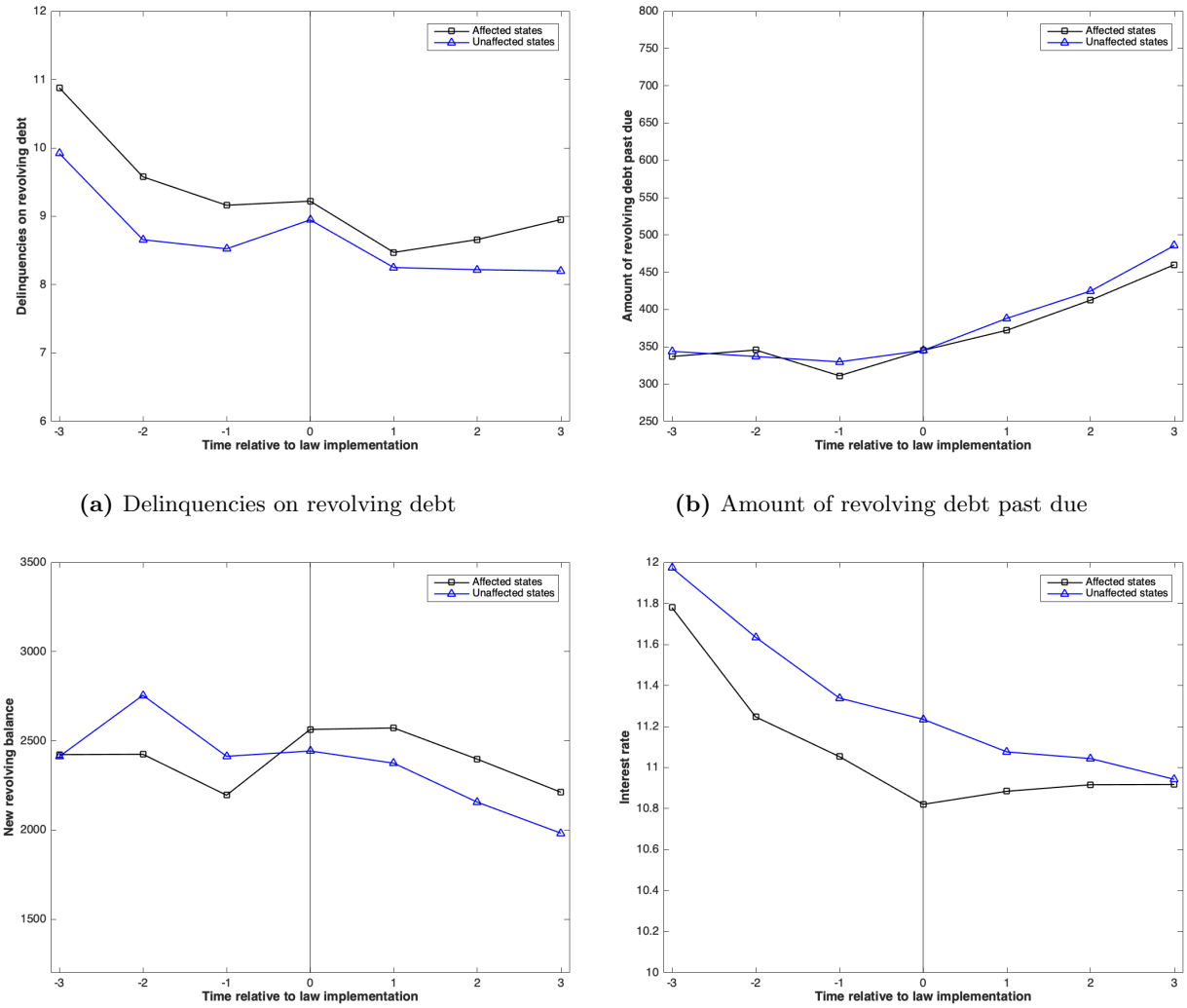



**(c)** New revolving balance




**(d)** Interest rate

**Fig. C.1.** Evolution of outcome variables around tightenings of third-party debt collection laws.
This figure depicts the evolution of Delinquencies on revolving debt, Amount of revolving debt past due, New revolving balance, and Interest rate variables three years prior and three years after tightenings of third-party debt collection laws. For affected states, 14 law tightenings that do not overlap with other law changes in the same state and have no missing data in the three years before and three years after the change are included. Twenty-three unaffected states that did not change their third-party debt collection laws during the sample period and have no missing data in the years when affected states changed their laws are included. See text for details. The graphs depict average values of the outcome variables in event time. Vertical lines indicate the date when the law change became effective. Values for affected states are marked with black squares; values for unaffected states are marked with blue triangles.




**(a)** Delinquencies on revolving debt

**(b)** Amount of revolving debt past due

**(c)** New revolving balance

**(d)** Interest rate

**Fig. C.2.** Evolution of outcome variables around loosenings of third-party debt collection laws.
This figure depicts the evolution of Delinquencies on revolving debt, Amount of revolving debt past due, New revolving balance, and Interest rate variables three years prior and three years after loosenings of third-party debt collection laws. For affected states, 2 law loosenings that do not overlap with other law changes in the same state and have no missing data in the three years before and three years after the change are included. Twenty-three unaffected states that did not change their third-party debt collection laws during the sample period and have no missing data in the years when affected states changed their laws are included. See text for details. The graphs depict average values of the outcome variables in event time. Vertical lines indicate the date when the law change became effective. Values for affected states are marked with black squares; values for unaffected states are marked with blue triangles.

**Table C.5**
Effect of third-party debt collection restrictions on secured credit.
In columns 1 and 2, the dependent variable is the number of new auto loans per 1,000 consumers. In columns 3 and 4, the dependent variable is the number of new mortgage loans per 1,000 consumers. All variables are as described in the text and in Table 2. All regressions are estimated using the main quarterly sample of 2,624 observations. Standard errors clustered by state are reported in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

| | New auto loans | | New mortgage loans | |
|---|---|---|---|---|
| Variable | (1) | (2) | (3) | (4) |
| Index | -0.318 | -0.269 | -0.600 | -0.321 |
| | (0.429) | (0.396) | (0.416) | (0.349) |
| Unemployment rate | | 0.033 | | -0.372*** |
| | | (0.177) | | (0.120) |
| Personal income | | 0.316*** | | 0.314*** |
| | | (0.090) | | (0.065) |
| Income growth | | 0.006 | | -0.020 |
| | | (0.037) | | (0.053) |
| Garnishment | | -0.190*** | | -0.168*** |
| | | (0.035) | | (0.035) |
| Exemption | | 0.009 | | -0.027 |
| | | (0.022) | | (0.028) |
| Frequency | Quarterly | Quarterly | Quarterly | Quarterly |
| State fixed effects | Yes | Yes | Yes | Yes |
| Year×quarter fixed effects | Yes | Yes | Yes | Yes |
| Observations | 2,624 | 2,624 | 2,624 | 2,624 |
| Adjusted R-squared | 0.782 | 0.803 | 0.832 | 0.852 |

**Table C.6**
Further sensitivity analysis.
This table reports variations on the baseline specification as indicated. All variables are as described in the text and in Table 2. Regressions for Interest rate are estimated at annual frequency; regressions for all other variables are estimated at quarterly frequency. The number of observations in each specification is as follows: Panel A (1) 2,624 observations; Panel A (2) 2,624 observations; Panel A (3) 2,096 observations; Panel A (4) 2,736 observations; Panel A (5) 2,760 observations; Panel A (6) 2,740 observations; Panel B (1) 2,624 for the quarterly regression, 656 for the annual regression; Panel B (2) 2,624 for the quarterly regression, 656 for the annual regression; Panel B (3) 2,096 for the quarterly regression, 524 for the annual regression; Panel B (4) 2,736 for the quarterly regression, 684 for the annual regression; Panel B (5) 2,760 for the quarterly regression, 690 for the annual regression; Panel B (6) 2,740 for the quarterly regression, 685 for the annual regression. Standard errors clustered by state are reported in parentheses next to the coefficients. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

**Panel A: Sensitivity to alternative samples and specifications**

| | Coefficient on the index of third-party debt collection restrictions when the dependent variable is | | | |
|---|---|---|---|---|
| | Delinquencies on revolving debt | | Amount of revolving debt past due | |
| Specification | (1) | (2) | (3) | (4) |
| (1) Baseline specification | 0.199*** | (0.074) | 44.655* | (23.420) |
| (2) Incl. state×time trends | 0.016 | (0.107) | 47.562 | (54.661) |
| (3) Excl. 2007–2009 | 0.196*** | (0.076) | 45.815* | (25.580) |
| (4) Incl. Delaware and South Dakota | 0.193*** | (0.073) | 47.787** | (23.417) |
| (5) Incl. years in which laws changed | 0.157** | (0.068) | 50.451** | (20.151) |
| (6) Extrapolate missing debt coll. data | 0.157** | (0.075) | 43.004* | (22.411) |

**Panel B: Sensitivity to alternative samples and specifications, continued**

| | Coefficient on the index of third-party debt collection restrictions when the dependent variable is | | | |
|---|---|---|---|---|
| | New revolving balance | | Interest rate | |
| Specification | (1) | (2) | (3) | (4) |
| (1) Baseline specification | -57.042 | (38.005) | -0.023 | (0.049) |
| (2) Incl. state×time trends | -4.074 | (68.934) | -0.055 | (0.079) |
| (3) Excl. 2007–2009 | -81.833** | (39.441) | -0.021 | (0.051) |
| (4) Incl. Delaware and South Dakota | -64.661* | (37.774) | -0.026 | (0.049) |
| (5) Incl. years in which laws changed | -61.617* | (33.222) | -0.024 | (0.040) |
| (6) Extrapolate missing debt coll. data | -47.197 | (37.803) | 0.031 | (0.055) |