

Competition in a Consumer Loan Market:

Payday Loans and Overdraft Credit

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Abstract

Using variation in payday lending restrictions over time and across states, we study competition in the market for small, short-term consumer loans. We find that banks and credit unions reduce overdraft credit limits and fees when payday credit, a possible substitute, is prohibited. These findings suggest that depositories respond to payday loan bans by taking less risk, bouncing checks that they would have otherwise covered. The decline in overdraft fees is surprising when viewed in isolation, but sensible given that depositories incur lower credit losses as they limit overdraft coverage. We find some evidence that credit unions' overdraft activities are more profitable when payday loans are unavailable, consistent with decreased competition. In addition to characterizing the impact of prohibiting payday lending, a common state policy change in recent years, our findings illuminate competition in the small-dollar loan market.

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I. Introduction

This paper studies competition between two very different looking financial intermediaries offering similar credit services. On the one side are mainstream banks and credit unions that supply overdraft credit whenever they cover checks or other transactions that would have overdrawn depositors' accounts. Depository institutions earned an estimated \$36 billion on deposit account fees in 2006 (GAO 2008), three quarters of which are estimated to be overdraft and bounced check fees (FDIC 2008). On the other side are payday lenders who advance cash against customers' personal checks for about two weeks, providing the check-writer with \$50 to \$1000 of credit in the interim. An estimated 19 million households tapped the \$50 billion dollar payday loan market in 2007 (Stephens 2008).

Both types of credit are controversial, and as a result are increasingly regulated. Payday lenders have long been maligned for high prices, while depositories have come under fire more recently for the high cost of overdraft credit. Fifteen states now prohibit payday loans via usury limits or outright bans. In 2009 both houses of Congress considered legislation limiting the price and frequency of overdraft charges (H.R. 3904 and S. 1799), and in July 2010 the Federal Reserve issued new rules requiring customers to opt-in to overdraft coverage of ATM and debit transactions.

Much of the literature on payday credit studies the effect of credit access on household financial distress.¹ Our focus is different; we ask firstly whether payday lending influences the pricing and provision of short-term, small dollar credit at depositories. While it has been casually observed that overdraft credit providers compete with payday lenders, we know of no hard

¹ See Morse (2011), Morgan et al. (2012), Melzer (2011), Skiba and Tobacman (2008a), Carrell and Zinman (2008), Zinman (2010), Stoianovici and Maloney (2008), Wilson et al. (2008), and Campbell et al. (2008).

evidence that payday credit availability affects overdraft credit terms.² Secondly, if such competition exists, how is it manifest? Do depositories capitalize on enhanced market power by raising overdraft fees when payday loans are no longer available? Do they extend less overdraft credit when no longer pushed by a competitor? Given that many states prohibit payday credit, these are important questions.

Our analysis uses data from a national survey of banks and credit unions to measure the effects of payday lending on overdraft fees and credit limits. We estimate the effects through two different identification schemes, designed to avoid estimation problems created by the endogenous location decisions of payday lenders. The first, following Morgan, Strain and Seblani (2012), compares how overdraft terms change as states switch from allowing to prohibiting payday credit, or vice versa. The second, following Melzer (2011), focuses on states that prohibit payday credit, and compares terms at institutions located near the border of a state that allows payday credit with terms at institutions located further away. The identifying assumption for the first scheme is that legal changes within states are independent of overdraft terms. The identifying assumption for the second scheme is that the composition of depositors and intermediaries in border areas is independent of payday laws in neighboring states. Importantly, the identifying assumptions of these two models are different, if not completely independent, which strengthens the overall research design.

We find that depository institutions change their overdraft credit programs along two margins when payday credit is less available. Surprisingly, they lower prices: both models imply that overdraft fees are roughly 5% lower when payday lenders are absent. At the same time, they provide less generous overdraft coverage at both the intensive and extensive margin; institutions

² Stegman (2007) notes that banks earn bounced check and overdraft fees by serving the payday loan customer base, and Bair (2005) observes that depository institutions offer a payday loan alternative through fee-based overdraft protection programs.

are less likely to offer “bounce protection” programs, and those still offering bounce protection lower their credit limits. These decreases are substantial: we estimate a 6% decrease in the frequency of bounce protection and a 12% decrease in overdraft credit limits.

We take these facts – which establish competition between payday lenders and overdraft credit providers, and characterize the impact of payday loan prohibitions – to be our main contribution. Given the agreement in findings across the two models, we find it unlikely that an omitted political variable, such as political pressure to restrict consumer credit, is responsible for these correlations. In falsification exercises, we also show that our two measures of payday credit access are unrelated to unemployment rates, credit card loan balances and credit card loss rates. These results are useful in reducing the concern that the main findings are driven by an omitted economic variable, such as the demand for credit or the riskiness of credit, which might be correlated with payday loan availability.

We argue that overdraft prices decline when payday loans are prohibited because overdraft providers sustain lower credit losses as they reduce credit limits. Explaining why overdraft limits change as they do is more difficult; we highlight two possible interpretations. First, competition from payday lenders may motivate banks and credit unions to extend more overdraft credit. Depositories earn a similar fee for a bounced check as for a paid overdraft, so limiting overdraft credit sacrifices little revenue as long as customers continue to bounce checks.³ However, because depositors can use payday loans to avoid bounced checks (Morgan et al. 2012), the opportunity cost of limiting overdraft credit increases when payday loans are available. Accordingly, some depositories may find it optimal to provide more generous

³ Nearly all banks (more than 95% in our sample) charge at least as much for a bounced check as for a paid overdraft, despite the absence of credit losses on bounced checks. This pricing relationship is due to a regulatory friction: overdraft credit is exempt from state usury restrictions and Truth in Lending Act disclosures in part because regulators deem there to be no *incremental* charge for credit as long as an institution’s overdraft fee does not exceed its bounced check fee (70 FR 9127 (Feb. 24, 2005)).

overdraft coverage when they face payday loan competition and less coverage when payday loans are prohibited.⁴ Another interpretation is that the composition of overdraft customers changes when payday lenders exit. If the former payday borrowers who switch to overdraft credit are riskier than the original pool of overdraft credit users and difficult to distinguish, depositories may find it optimal to reduce credit limits.⁵ Lacking depositor-level data, we are unable to distinguish between these two interpretations.

The rest of the paper proceeds as follows. Section II compares overdraft and payday credit and makes the case, based on prices and usage patterns, that they are potential substitutes. Section III describes the exit and entry of payday lenders that constitute the “experiments” we use to study overdraft and deposit account terms. Section IV presents the regression results on overdraft terms, and Section V extends the analysis to overdraft revenues, credit losses and profits. Section VI includes results from falsification exercises and Section VII offers further interpretation of the results. Section VIII concludes by discussing implications for consumer welfare.

II. Overdraft Credit and Payday Credit

This section describes the two main players in the small-dollar loan market and compares the pricing and usage of their services.

II.1. Overdraft Credit

When presented with a transaction that overdraws a customer’s account, a bank must decide whether to make the payment, thereby extending credit to the depositor, or reject the item,

⁴ High search and switching costs may explain why inter-bank competition is not sufficient to push overdraft credit supply to the level observed when payday lenders are present. Search costs are high because depositories were discouraged (until the passage of the Electronic Funds Transfer Act in 2009) from advertising their product unless they also disclosed usage fees on customer statements. Switching costs are high because depositors may have arranged direct deposit and automated bill payments with their current bank; even assuming depositors know that overdraft protection terms are better at a nearby bank, switching costs may outweigh the savings.

⁵ The change in overdraft fees in this interpretation seems ambiguous, as a riskier pool of borrowers would warrant higher prices absent the reduction in credit limit.

returning it unpaid. Traditionally, banks made those decisions on an *ad hoc* basis, but in the mid-to late-1990s financial advisory firms began marketing trademarked computer algorithms designed to automate and optimize these decisions. Under such programs, banks enroll nearly all depositors for credit up to a limit and pay every overdraft transaction as long as the account balance remains within the credit limit.

The FDIC's (Federal Deposit Insurance Corporation) recent study of bank overdraft programs reveals how ubiquitous overdraft credit programs have become (FDIC 2008); roughly 70 percent of banks with assets over \$250 million now operate automated "bounce protection" programs of the type we study.

While some overdrafts are undoubtedly accidental and therefore not affected by payday loan availability, we maintain for several reasons that payday loans and overdrafts are potential substitutes for some depositors. First, overdraft protection is widely available, as there is little credit underwriting beyond screening based on the age of the account (FDIC 2008).⁶ Second, the costs of payday and overdraft credit are similar; the median fee charged by depository institutions *per* overdraft was \$27 in 2007 (FDIC 2008), which is comparable to the typical fee on a \$180 payday loan. In fact, given the additional fee of \$20 to \$30 often assessed by the recipient of the bad check, payday loans are often cheaper than bouncing a check. Third, the usage patterns of overdraft and payday credit are also quite similar, with repeated borrowing common for both types of credit (Table 1). This similarity suggests overlap in the customers using these two types of credit.

⁶ Depositories also provide an overdraft line of credit (LOC) to some depositors, but this service is of less interest when studying payday lending. An overdraft LOC is an opt-in service charging interest comparable to credit card rates, and almost always conditional on credit approval that would exclude payday borrowers (FDIC 2008, Table V-2). Bounce protection, by contrast, is the opt-out (default) choice, typically applied without a credit check (FDIC 2008, Table V-2).

Overdrafts generate substantial revenue for depository institutions by any number of measures. For the median bank studied in FDIC (2008), bounced check and overdraft fee income accounted for 43 percent of noninterest income and 21 percent of net operating income. Banks and credit unions, particularly the latter, are surprisingly reliant on such revenue (Table 2).

Supplying overdraft credit is not without risks or costs, however. Among the institutions surveyed by the FDIC, overdraft credit losses represent 8.5% of overdraft-related fee income and 12.6% of gross losses on all loans and leases (FDIC 2008). Depository institutions closed 30 million accounts between 2001 and 2005 for “recidivist” check bouncing, and the trend is upward (Campbell et al. 2008). The average loss *per* bad account in 2007 was \$310 (FDIC 2008).

The academic literature on overdraft credit is small but growing. Fusaro (2008 and 2010) analyzes prices and demand, Fusaro (2010) and Stango and Zinman (2011) study the role of consumer inattention, and Hannan (2006) examines the relationship between prices and local banking market structure.

II.2. Payday Credit

Payday lending also emerged in the mid to late 1990s as a variation on a check cashing transaction. Customers receive a short-term cash advance by exchanging a post-dated personal check for cash, paying a \$50 fee for \$350 of credit in the typical transaction. At maturity, two to four weeks later, the loan is repaid when either the lender cashes the check or the borrower repays in cash.

Payday credit underwriting is minimal; applicants must prove that they have a checking account and a job. The checking account prerequisite ensures that substitution between payday loans and overdrafts is possible, provided that the customer’s bank offers overdraft protection. The prerequisite also makes checking accounts and payday credit partial complements, implying

positive correlation in the individual demand for each. Given a deposit account, however, payday credit and overdraft credit are substitutes, implying negative correlation in their individual demand.

The controversy over payday lending has led to a large literature investigating how payday credit access affects a variety of outcomes: crime and foreclosure (Morse 2011), bounced check volumes and complaints against lenders and debt collectors (Morgan et al. 2012), difficulty paying bills (Melzer 2011), bankruptcy (Skiba and Tobacman 2008a; Stoianovici and Maloney 2008), Air Force reenlistment (Carrel and Zinman 2008), expected well-being (Zinman 2010), virtual well-being (Wilson et al. 2008), and involuntary account closings (Campbell et al. 2008). The findings from that literature are mixed, with some studies concluding that payday credit ameliorates financial hardship and others concluding the opposite. None of the literature studies how payday credit access affects the price of substitute forms of credit, as we do.

III. Entry and Exit by Payday Lenders as “Experiments”

The controversy over payday credit has led to considerable variation in the state laws governing it. With a few exceptions, Northeastern states have barred entry of payday lenders by strict enforcement of usury limits. Seven additional states have closed markets, outright or indirectly *via* prohibitive usury limits, while one has sanctioned and safe harbored the practice. The appendix documents the regulatory differences in detail. Using those differences, we define two separate indicators of payday credit availability: *Allowed* and *Access*.

$Allowed_{sy}$ equals one for institutions located in a state s where payday credit is allowed in year y , and zero otherwise. Because our regressions include state fixed effects, the variation that identifies the effect of *Allowed* comes from states that switch from allowing to prohibiting payday credit, or vice-versa. Over our sample period six states and the District of Columbia

switched from allowing to prohibiting, while one state, New Hampshire, switched from prohibiting to allowing.⁷ Given the prevalence of prohibiting events in our sample, the regression analysis will measure the effect of prohibiting payday lending. However, for ease of comparison with the subsequent model we code the main dependent variable as whether payday lending was allowed rather than prohibited.

Allowed will deliver unbiased estimates of the effect of payday credit access as long as the political economy behind changes in *Allowed* does not separately influence, or respond to, overdraft market conditions. It is natural to question this identifying assumption. State legislators may target payday and overdraft markets at the same time, for example pressuring banks in their state to lower overdraft fees while also prohibiting payday lending. Law changes may also respond to economic conditions, perhaps with prohibitions instituted during better economic times as documented regarding usury laws in the 19th century (Benmelech and Moskowitz 2010). These concerns motivate us to analyze a separate measure of payday credit access and to examine in falsification exercises whether credit market and economic conditions are correlated with *Allowed*.

The second availability measure is a sequence of distance-based indicators. *Access_X_Y_{cy}*, is a county-year level indicator equal to one if an institution is located in a county whose center is within X and Y miles of a state that allows payday lending (and zero if not). For example, *Access_0_10* equals one if an institution is in a county located 10 miles or less from a state that allows payday loans, and zero otherwise. *Access_10_20* and *Access_20_30* are defined analogously. The omitted category is *Access_30_plus*.

For *Access* to be an effective measure of payday credit access, it must be that depositors in border areas borrow in nearby states. Melzer (2011) cites anecdotal evidence that households

⁷ These six states are Georgia, Maryland, North Carolina, Pennsylvania, Oregon and West Virginia.

in prohibiting states borrow across state borders and documents that payday lenders cluster at such borders, as one would expect if they faced demand from across the border.

Note that *Access* varies within state, but only in states that prohibit payday lending.⁸ Its effect is identified by comparing overdraft terms at institutions relatively near states that allow payday credit to terms at more remote institutions. The identifying assumption is that the distance between institution i and a state where payday credit is allowed is exogenous with respect to overdraft terms at institution i , a different assumption than needed for *Allowed*. The former assumption requires, firstly, that payday credit regulations in bordering states are uncorrelated with characteristics of the overdraft market across the border, and secondly, that payday credit availability does not alter the composition of depositories near the border. To weaken the latter condition we control for the institution type, its size (log assets), and the concentration of the local deposit market.

Access is helpful because it isolates different variation than *Allowed*; importantly, it excludes variation due to home state regulations. Any difference-in-difference model that uses a limited number of law changes, as our model with *Allowed* does, is subject to the critique that the model captures a spurious relationship between law changes and the dependent variable. *Access* eliminates that concern, since it is doubtful that a spurious result would agree across the two models. *Access* also reduces the concern that political forces jointly affect payday laws and overdraft prices, as there is little reason to believe that legislators in nearby states directly influence the pricing decisions of banks located outside of their state. Furthermore, to the extent that political decisions correlate among adjacent states, the state-year fixed effects in the *Access* regressions prevent this source of variation from affecting the *Access* coefficients. Despite these

⁸ The 13 states that prohibited payday lending some time during the sample period include the District of Columbia and the seven states that changed laws as well as Connecticut, Massachusetts, New Jersey, New York and Vermont.

advantages, *Access* is still subject to the critique that payday laws may be correlated with economic conditions, in this case conditions in the nearby state that spill across the state border. For that reason, we examine the correlation between *Access* and local economic conditions.

The institutional and county characteristics defined by *Allowed* and *Access* differ in a few ways (Table 3). States with changes in *Allowed* have higher proportions of Hispanics and blacks, and relatively more savings banks than commercial banks. Savings banks are also over-represented (relative to commercial banks) in counties without access to payday credit (*Access_0_10* = 1). Unemployment rates are significantly lower in those counties as well. Importantly, our regression analysis controls for those differences by including institution and county-level controls.

IV. How Do Overdraft Terms Vary With Payday Loan Availability?

IV.1. Data

The data on overdraft prices and credit limits are from Moebs Services (sic), a research and consulting firm focused on financial services. For their overdraft pricing survey, Moebs draws a random sample of institutions – stratified by region, asset size and institution type – and calls a branch close to each institution’s main office to assess fees and services for customers at that location.⁹

The full space of data spans roughly 20,000 branch-year observations, half on commercial banks, 40 percent on credit unions, and 10 percent on savings banks. There are two variables of interest: *Fee*, the fee charged per overdraft event, and *OD Limit*, the maximum overdraft balance allowed under overdraft protection. *Fee*, measured in constant (2008) dollars,

⁹ Many banks with regional or national branch networks are chartered separately in each state. Moebs samples from the population of chartered institutions, so a single bank holding company might be sampled multiple times in a given year, across separately chartered subsidiaries.

is observed at banks from 1995 to 2008, and at credit unions from 1999 to 2008. Average and median *Fee* are \$25 and \$26, but some institutions charge above \$50. *OD Limit* is observed in four years – 2004 through 2008, excluding 2006. The average reported credit limit is \$514.

We match the Moebs survey data with assets for each institution reported with the FDIC and NCUA (National Credit Union Administration). We also use the FDIC’s Summary of Deposits database to calculate the HHI (Herfindahl–Hirschman Index) of bank deposit market concentration for each county and year.¹⁰ County characteristics including median income, racial composition, home ownership, population, and percent urban population, are from the 2000 Census. Unemployment rates, by county and year, are from the Bureau of Labor Statistics’ Local Area Unemployment Statistics.

IV.2. Findings with *Allowed*

We estimate the impact of payday credit availability using difference-in-difference regressions of the form:

$$(2) Y_{icsy} = \alpha + a_s + a_y + \beta Allowed_{sy} + \theta HHI_{cy} + \vec{\gamma} Cnty_{cy} + \vec{\pi} Inst_{iy} + \varepsilon_{icsy}.$$

Y_{icsy} represents *Fee* or *OD Limit* at institution i in county c , state s , at year y . The fixed effects (a_s and a_y) control for differences in the mean of Y across states and years. HHI measures bank deposit market concentration in each county-year. $Cnty$ is a vector of eight county-level control variables, including the unemployment rate, which varies across years.¹¹ $Inst$ controls for the natural log of assets and institution type (with dummy variables): savings bank, credit union, or commercial bank (the omitted category). The data are a repeated cross-section rather than a

¹⁰ NCUA does not collect the equivalent data for credit unions so credit union market shares cannot be calculated.

¹¹ The county-level Census controls are cubics in median income, population and percent urban population; percent black, white, Hispanic and Asian; percent home ownership and percent foreign born.

panel, so institution fixed effects are not feasible. The regressions are estimated by ordinary least squares, and observations are clustered by state in calculating Huber-White robust standard errors.

Table 4 reports the regression estimates. The results indicate that access to payday credit is associated with higher overdraft fees and credit limits; the coefficient on *Allowed* is positive and significantly different from zero in both *Fee* regressions. The baseline difference-in-difference model, without county and institution controls, implies that overdraft fees are higher by \$1.09 when payday credit is allowed. Adding county and institution controls raises the estimated effect to \$1.31, a 5 percent change relative to the average overdraft fee of \$25.¹² *Allowed* also has a positive and significant coefficient in both *OD Limit* regressions. In the second model, the coefficient on *Allowed* of 63.1 implies that overdraft limits are 12% higher (relative to the average limit of \$500) when payday credit is available.

Before discussing the results, we document very similar findings using an entirely different measure of payday credit availability.

IV.3. Findings with *Access*

The regression model using *Access* is:

$$(3) Y_{icsy} = \alpha + a_{sy} + \vec{\beta} \mathbf{Access}_{cy} + \vec{\gamma} \mathbf{Cnty}_{cy} + \delta \mathbf{BORDER}_c + \theta \mathbf{HHI}_{cy} + \vec{\pi} \mathbf{Inst}_{icsy} + \varepsilon_{icsy}.$$

Apart from replacing *Allowed* with *Access*, model (3) differs from (2) in two ways. First, model (3) includes a state-year fixed effect (instead of state and year fixed effects) to exclude variation in *Access* created by the state-level changes in payday availability captured by *Allowed*. Second, some specifications of (3) include *Border*, a dummy indicating whether an institution is located

¹² The estimated coefficient on *Allowed* is also stable when county dummy variables are used in place of the *Cnty* vector (results not reported).

in a county within 25 miles of a state border. *Border* controls for general differences between institutions located near a state border and interior counties. To improve precision of the estimates we include all observations in the regression sample, but the identifying variation in *Access* comes from institutions in the thirteen states that prohibit payday lending at some time during the sample.

Table 5 reports the regression estimates. For overdraft fees, the results with *Access* are very similar to those with *Allowed*, both in direction and magnitude. Given the type and size of institutions and other controls, overdraft fees are \$1.48 higher when payday credit is available within 10 miles. Access beyond ten miles does not significantly affect overdraft prices.¹³ The coefficients on *Access_0_10* also do not appear to be driven by differences in institutions or economic conditions in border areas; adding *Border* and other county covariates actually increases the estimated effect of *Access_0_10*. The results for *OD Limit* display no consistent pattern between proximity to payday lending and overdraft limits. However, given the large standard errors on the *Access* coefficients, the results do not rule out a substantial effect.¹⁴

To summarize our main results: we find robust evidence that banks and credit unions reduce overdraft credit prices and when payday lending competition is either absent or more distant. In addition, we find that overdraft credit limits decline when payday loans are prohibited, though they show no relationship with our measure of distance to payday lending competition in the cross-section.

¹³ F-tests reject equality between the coefficients on *Access_0_10* and *Access_10_20* (p-value 0.08), and between the coefficients on *Access_0_10* and *Access_20_30* (p-value 0.02).

¹⁴ Since a number of law changes occur between 2004 and 2008, the identifying variation in *Allowed* is not dramatically reduced because of the limited time sample. However, the identifying variation in *Access* comes from all sample years, so it is reduced dramatically by the sample reduction.

IV.4. Robustness

Table 6 shows that the findings above are robust to alternative functional forms, a continuous analog of *Access*, and sample restrictions that exclude geographically dispersed banks.

Panel A shows results for a log-linear model with the natural logarithm of *Fee* or *OD Lim* as the dependent variable. For *Log Fee*, the estimated effect of *Allowed* and *Access* is between four percent and six percent, similar to the main results. For *Log OD Lim*, *Allowed* corresponds to a 16.9 percent increase, which is slightly larger than the baseline estimate of 12 percent. As in the baseline model, the estimated effect of *Access* on *Log OD Lim* is imprecise and insignificant. This analysis confirms that the nominal to real price adjustment does not meaningfully change the results.

Columns 5 and 8 show results for model (3) using a continuous measure, *LogDistance*, instead of *Access*. A one log point increase in the distance to a state that allows payday credit decreases overdraft fees about 50 cents. As with the main *Access* regressions, the *OD Limit* results are imprecisely estimated and statistically insignificant.

The last two columns of Panels B and C show that the main findings are stable when the sample is restricted to institutions that have a large proportion of deposits (at least 50 percent) in the state or county of the surveyed branch. These results confirm that the effects of *Allowed* and *Access* are not driven by large banks that operate across multiple states or counties. For such institutions, it is less plausible that payday loan availability in the area of the surveyed branch influences overdraft and checking account terms, which are possibly set uniformly across the entire branch network.

IV.5. Findings with Credit Union Regulatory Data

In this section we validate the findings on overdraft limits using additional data on overdraft activities reported by credit unions in their regulatory filings (Call Reports). NCUA mandates detailed disclosure on overdraft programs: credit unions must report whether they offer bounce protection or overdraft lines of credit, and if so, they must report the aggregate amount of unused commitments under each program. Banks are not required to report such data. In the analysis discussed below, all *Allowed* regressions include not only state fixed effects but also institution fixed effects; because of the panel nature of these data, this form of difference-in-difference analysis is feasible.

Consistent with our findings in the survey data, the results in Table 7 show that credit unions reduce overdraft coverage along two dimensions when they compete with payday lenders. First, credit unions are less likely to offer bounce protection when payday loans are unavailable. The coefficients on *Allowed* and *Access_0_10* are similar, at roughly 2.5 percentage points, with the coefficient on *Allowed* significant at the 5 percent level. Given that 37% of credit unions offer bounce protection during the sample period, this effect equates to a 6-7 percent change in the likelihood of offering bounce protection. Second, among credit unions that offer bounce protection programs, unused overdraft protection commitments decline when payday loans are prohibited. Unused commitments are lower by roughly \$300,000, or 10 percent relative to the \$2.9 million average, when payday loans are unavailable. This change is consistent with our finding that overdraft limits decline – holding borrowing constant, lower limits will translate into lower unused commitments.¹⁵

¹⁵ In fact, we find that overdraft loan balances decline (results not reported), so the decrease in unused commitments cannot be driven entirely by increased borrowing following payday loan prohibitions.

These changes appear to be specific to the bounce protection program, with which payday loans compete most directly; as shown in columns 3 and 5, changes in the availability of overdraft lines of credit and changes in unused commitments under those lines are small and statistically insignificant. This insignificant finding for overdraft lines of credit addresses the concern that depositories happen to reduce credit supply broadly when payday loans are prohibited. Indeed, the change in supply is very specific to the overdraft product for which payday loans are the likely substitute, which suggests that we are measuring a response to payday lending *per se*.

V. Fee Income, Losses and Profits from Deposit Accounts

To complete the picture of how payday lending affects bank overdraft activities we examine the components of profits using Call Report data. Banks and credit unions report fee income earned on deposit accounts (*Fee Income*), which includes account maintenance fees, ATM fees, and fees charged on overdrafts and bounced checks. They also report overdraft credit losses in a residual loan loss category (*Loan Losses Other*), as well as pre-tax profits (*Operating Income*). Our analysis uses semi-annual data, covering June 1995 through December 2008 for credit unions and June 2001 through December 2008 for banks.¹⁶ We aggregate each variable to the state level for *Allowed* regressions and the county level for *Access* regressions, based on the headquarters location of the bank.

We use *Fee Income* as a proxy for overdraft revenue and test whether revenue increases or decreases with payday loan availability. Given that the average price per overdraft attempt is 5% higher when payday loans are available, we would expect overdraft revenues to be higher as well if the number of overdraft attempts also increases. As in model (2), we use a difference-in-difference approach, with aggregate *Fee Income* at the state level regressed on *Allowed*, state

¹⁶ Bank Call Report data for *Loan Losses Other* is only available as of June 2001.

fixed effects, time fixed effects and two time-varying controls, personal income and the unemployment rate. Estimation results are reported in the first column of each panel in Table 8. In neither case is fee income significantly related to *Allowed*. For banks, the coefficient on *Allowed* of 2.5 suggests modestly higher revenues in the presence of payday lending: \$2.5 billion or 2.5% relative to average fee income of \$100 billion. For credit unions, *Allowed* is associated with a \$3.3 million increase in fee income, roughly 10% relative to the average of \$38.2 million. In both cases, but particularly for banks, there are wide confidence intervals around these estimates.

Next, we consider loan losses in the “other loans” category that includes overdraft credit. Among banks, we find no relationship between losses and *Allowed*, perhaps because of measurement error in the residual loss category. However, for credit unions, we find a positive and significant coefficient on *Allowed*, suggesting that credit unions bear additional credit losses as they expand overdraft protection. As shown in the second column of Panel A, loan losses at the state level are \$6.4 million higher when payday lending is allowed, an increase of roughly 35% relative to the \$17.8 million average across all states.

Finally, we consider profitability. For credit unions we find that the ratio of loan losses to fee income increases with *Allowed*. This suggests higher profitability in overdraft activities following prohibitions; for every dollar of fee income earned, credit unions give up a smaller share to defaults, roughly 20% less than when payday loans are available. Based on point estimates, *Operating Income* also declines with *Allowed*, very modestly at banks and more significantly credit unions. However, these findings are not statistically significant.

VI. Falsification

As noted earlier, it is important to consider whether our findings result from an underlying correlation between payday loan laws and economic conditions. For example, if payday loan availability coincides with higher demand for credit or higher default risk among borrowers, overdraft prices may increase with *Access* and *Allowed*, but not due to payday lending *per se*. Notably, these conditions would have to change over time to confound the effect of *Allowed*, and spill across state borders to confound the effect of *Access*. Nevertheless, to examine this concern we run three falsification exercises that test whether payday availability is correlated with unemployment rates, credit card loan balances and credit card loss rates. For loans and loss rates we focus on credit unions, since those are the institutions for which we find correlations between overdraft-related items and payday loan access. We aggregate across all credit unions located in the state for *Allowed* regressions, or in the county for *Access* regressions. The results, shown in Table 9, show no statistically significant relationship between these variables and either measure of payday loan availability.

VII. Discussion

We conjecture that overdraft prices decline when payday loans are prohibited because overdraft lenders choose to reduce overdraft coverage and sustain lower credit losses as they do so. The ancillary findings using credit union regulatory data agree with this interpretation – overdraft credit losses fall along with credit limits when payday loans are less available. The pattern in overdraft pricing across institutions also agrees with this interpretation, as credit

unions with bounce protection programs charge higher overdraft prices (\$2.28, or 10%, more per overdraft) than credit unions that pay overdraft items on an *ad hoc* basis.¹⁷

We acknowledge that there are alternative explanations for the decline in overdraft prices, but argue that these explanations fail to account for the full set of facts. One hypothesis is that the marginal overdraft borrower is more price elastic when payday loans are unavailable, which causes overdraft providers to reduce mark-ups (Chen and Riordan 2008). While an increase in demand elasticity might explain the price decrease, it cannot explain the depository's choice to supply less credit. Another hypothesis is that denying borrowers access to expensive payday debt causes depositors' financial position to improve. If so, falling overdraft prices may reflect reduced demand for overdraft credit or decreased costs (credit losses). Yet we find no evidence for decreases in the quantity and profitability of overdraft credit, as one would expect with a decline in demand. Finally, the explanation citing decreased risk of overdraft credit begs the question of why depositories supply less credit to safer borrowers by decreasing bounce protection and overdraft credit limits. While we cannot rule out the possibility that some combination of these alternatives plays a role in the price decrease, we focus on the two responses outlined in the introduction as the most parsimonious explanations.

VIII. Conclusion

Our introduction posed two questions: do payday lenders compete with mainstream financial intermediaries in the small-dollar loan market, and if so, how is the competition manifest? We answer those questions by studying whether payday loan prohibitions affect the terms on overdraft credit, an apparent substitute for payday credit supplied by depository institutions. Consistent with the notion that payday lenders and mainstream depositories compete

¹⁷ We merge the Moebs data on overdraft prices and the credit union regulatory data to estimate the price difference by type of overdraft offering, controlling for local market characteristics, institution type and institution size (regression results are not reported in the tables, but are available by request).

for borrowers, we find that payday loan prohibitions affect overdraft credit terms. Surprisingly, depositories lower overdraft prices by roughly 5% when payday loans are prohibited. However, they also reduce overdraft credit supply quite dramatically and incur fewer credit losses. We estimate a 12% reduction in overdraft credit limits a 6% reduction in propensity to offer bounce protection following payday loan prohibitions.

Because we find similar results using models with different, if not orthogonal, identifying assumptions, we are fairly confident that our findings do not reflect an omitted economic or political variable. Identifying why lenders choose to cut back overdraft coverage is more difficult. We highlight two interpretations. One interpretation is that competition from payday lenders motivates depositories to supply more overdraft credit by raising the opportunity cost of *not* covering an overdraft. Another interpretation is that depositories face a riskier pool of borrowers following payday loan prohibitions, as depositors who previously borrowed at payday lenders seek overdraft credit instead. To mitigate credit risk, overdraft providers reduce borrowing limits. With depositor- or transaction-level information on overdrafts, one could distinguish between those two interpretations. That would be a worthwhile pursuit for future research.

On the ultimate question of whether access to payday credit is welfare improving, our findings have mixed implications. The changes in overdraft credit terms that follow payday loan prohibitions have offsetting effects on consumer welfare – decreases in prices are beneficial, but decreases in credit limits may be detrimental. Depositors for whom sufficient overdraft credit is available are better off because of the decline in overdraft prices. In contrast, depositors for whom overdraft credit limits bind may be harmed: they pay lower prices, but get access to less credit and bounce more checks as a result. Finally, credit unions appear to be better off, as they

move to an equilibrium where credit losses decrease and revenues are no lower despite the decline in overdraft prices.

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Table 1: The Distribution of Deposit Overdrafts and Payday Loans in 2006

Overdrafts			
<i># of overdrafts per year</i>	<i>% of depositors</i>	<i>% of overdrawers</i>	<i>Annual fees incurred (\$)</i>
0	75.0	-	0
1 – 4	12.0	48.0	64
5 – 9	5.0	20.0	215
10 – 19	4.0	16.0	451
20 or more	4.9	19.6	1610

Source: FDIC (2008, p. IV, Executive Summary points 2,3,4). "Annual fees incurred" is the average amount of fees incurred by the customers in each borrowing range.

Payday Loans		
<i># of payday loans per year</i>	<i>% of borrowers</i>	<i>Annual fees incurred (\$)</i>
1 – 4	39.8	109
5 – 9	24.0	306
10 – 19	26.8	634
20 or more	9.3	1049

Source: Veritec Solutions, Inc. Based on data for payday borrowers in Florida and Oklahoma from September 2005 through August 2006. "Annual fees incurred" is calculated by multiplying average fee per loan (\$43.70) by the midpoint of each borrowing range (or 24 loans in the final category).

Table 2: Importance of Overdraft Revenues to Depository Institutions

	<i>Overdraft (OD) Revenue (\$ billions)</i>	<i>Net Operating Income (NOI) (\$ billions)</i>	<i>OD Revenue/NOI (percent)</i>
<i>Banks</i>	26.1	\$145.8	17.9
<i>Savings Banks</i>	3.5	21.9	16.0
<i>Credit Unions</i>	3.5	5.8	60.4
<i>Total</i>	33.1	173.7	19.1

Source: Moebs Services (<http://www.moebs.com/Default.aspx?tabid=125>) using FDIC and NCUA 2003 Call Reports and 5300 Reports

Table 3: Average Institution and County Characteristics, by Change in *Allowed* and *Access_0_10*.

Reported are means and number of observations (N). *Allowed* = 1 for institutions in states allowing payday lending, 0 otherwise. *Access_0_10* indicates whether payday loans are available within ten miles of center of county where the institution is located. For stratification by *Access_0_10*, means are given only for observations in states that prohibit payday loans.

Institution	No Change in <i>Allowed</i>	Change in <i>Allowed</i>	Diff. significant at 5%	<i>Access_0_10</i> = 0	<i>Access_0_10</i> = 1	Diff. significant at 5%
	(N = 17,837)	(N = 2,375)		(N = 2,830)	(N = 391)	
Credit Union	0.41	0.41		0.44	0.49	
Commercial Bank	0.47	0.45	*	0.30	0.36	*
Savings Bank	0.12	0.14	*	0.26	0.15	*
Total Assets†	2,409,000	2,739,000		3,874,000	1,824,000	
County	(N = 1,750)	(N = 264)		(N = 199)	(N = 38)	
Median Income	36,900	37,400		42,800	42,700	
Population	126,500	132,600		283,400	198,700	
Percent urban	0.49	0.51		0.64	0.60	
Home ownership	0.73	0.72		0.69	0.71	
Percent white	0.82	0.81		0.83	0.84	
Percent black	0.07	0.13	*	0.08	0.09	
Percent hispanic	0.07	0.03	*	0.05	0.03	
Percent foreign born	0.04	0.03		0.06	0.05	
County-Year	(N = 7,675)	(N = 1,114)		(N = 931)	(N = 155)	
Unemployment Rate‡	0.052	0.052		0.050	0.046	*
HHI	0.21	0.21		0.17	0.18	

† N = 17,762 for No Change in *Allowed*, N = 2,373 for Change in *Allowed*, N = 2802 for *PaydayAccess_0_10* = 0.

‡ N = 7,764 for No Change in *Allowed*.

Table 4: How Payday Credit Bans Affect Overdraft Fees and Limits

Reported are OLS regression estimates (robust standard errors clustered by state). *Allowed* = 1 for institutions located in states allowing payday credit, zero otherwise.

Dependent Variable (mean):	<i>Overdraft Fee (24.98)</i>		<i>Overdraft Limit (514.2)</i>	
	(1)	(2)	(3)	(4)
<i>Allowed</i>	1.09*	1.31**	57.1**	63.1**
	(0.62)	(0.52)	(25.8)	(28.5)
<i>HHI</i>		-0.29		4.33
		(0.99)		(89.7)
<i>CreditUnion</i>		-2.38***		41.5*
		(0.38)		(21.8)
<i>SavingsBank</i>		-1.22***		-96.8**
		(0.24)		(44.7)
<i>LogAssets</i>		0.96***		36.4***
		(0.09)		(9.5)
State and Year FEs?	Y	Y	Y	Y
County Controls?	N	Y	N	Y
Observations	15,072	15,040	2,751	2,749
R ²	0.19	0.32	0.04	0.07

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 5: How Distance to Payday Credit Affects Overdraft Fees and Limits

Reported are OLS estimates (robust standard errors clustered by county). *Access_X_Y* equals 1 if the institution is located in a county whose center is within X and Y miles of a state that allows payday lending.

Dependent Variable (Mean):	<i>Overdraft Fee (24.98)</i>		<i>Overdraft Limit (514.2)</i>	
	(1)	(2)	(3)	(4)
<i>Access_0_10</i>	1.20** (0.56)	1.48*** (0.55)	-4.81 (98.0)	-41.1 (94.3)
<i>Access_10_20</i>	0.14 (0.60)	0.23 (0.66)	67.3 (236.2)	20.4 (217.1)
<i>Access_20_30</i>	-0.18 (0.70)	-0.09 (0.58)	-147.5 (132.3)	-176.6 (133.0)
<i>HHI</i>		-0.02 (0.67)		37.7 (80.7)
<i>CreditUnion</i>		-2.39*** (0.21)		46.5 (36.2)
<i>SavingsBank</i>		-1.10*** (0.21)		-96.1* (57.8)
<i>LogAssets</i>		0.95*** (0.05)		38.0*** (10.7)
<i>Border</i>		-0.32* (0.18)		-14.9 (21.2)
State-Year FEs?	Y	Y	Y	Y
County Controls?	N	Y	N	Y
Observations	15,072	14,995	2,751	2,745
R ²	0.24	0.37	0.06	0.09

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 6: Robustness

Results are provided for several variations on the basic empirical models from Tables 4 and 5. Regressions in Panel A vary functional form, using the log of *Fee* or *OD Lim* as the dependent variable. Columns 5 and 8 use an alternative measure of distance to payday lending: *LogDistance*, log of the distance to the nearest allowing state, replaces the *Access X Y* dummies. Finally, the last two columns in Panels B and C report results of the baseline model estimated on a restricted sample that excludes geographically dispersed banks (those with less than 50% of deposits in the state or county of the surveyed branch). Robust standard errors are reported in parentheses, with observations grouped by state in *Allowed* regressions and by county in *LogDistance* and *Access* regressions.

Sample:	Panel A				Panel B			Panel C		
	Full Sample	Full Sample	Full Sample	Full Sample	Full Sample	> 50% deposits in state	> 50% deposits in county	Full Sample	> 50% deposits in state	> 50% deposits in county
Dep. Variable (Mean):	<i>Log Fee</i> (3.19)		<i>Log OD Lim</i> (6.06)		<i>Overdraft Fee</i> (24.98)			<i>Overdraft Limit</i> (514.2)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
<i>Allowed</i>	0.061** (0.026)		0.169*** (0.05)			1.29** (0.55)			57.8* (29.0)	
<i>Access_0_10</i>		0.044** (0.021)		0.01 (0.11)			1.23** (0.56)			-19.9 (96.2)
<i>LogDistance</i>					-0.48* (0.26)			11.3 (35.5)		
State-Year FEs?	N	Y	N	Y	Y	N	Y	Y	N	Y
State and Year FEs?	Y	-	Y	-	-	Y	-	-	Y	-
County Controls?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Institution Controls?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
<i>HHI</i> ?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
<i>Border</i> ?	N	Y	N	Y	Y	N	Y	Y	N	Y
Observations	14,827	14,783	2,749	2,745	14,902	13,509	11,137	2,702	2,628	2,314
R ² /Pseudo-R ²	0.25	0.30	0.08	0.11	0.37	0.31	0.32	0.09	0.07	0.09

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 7: Bounce Protection and OD Lines of Credit, Offers and Unused Commitments

Reported are OLS estimates for regressions of overdraft credit supply on *Allowed* and *Access*. The regression sample covers credit unions, which are required to disclose this information in their regulatory filings. The unit of observation is the credit union-period (with semiannual observations). Observations begin in 1995 for *OD LOC Commitments*, 2004 for *OD LOC Offered*, 2005 for *OD Protection Commitments* and 2006 for *OD Bounce Protection Offered*. Robust standard errors are reported in parentheses, with observations grouped by state in *Allowed* regressions and by county in *Access* regressions.

Dependent Variable: (Mean)	<i>OD Bounce Protection Offered</i> (0.37)		<i>OD Protection Commitments (unused)</i> (2860.9)		<i>OD LOC Offered</i> (0.37)		<i>OD LOC Commitments (unused)</i> (899.9)	
<i>Allowed</i>	0.024** (0.011)		305.2* (176.3)		0.010 (0.009)		39.2 (104.0)	
<i>Access_0_10</i>		0.024 (0.024)		44.7 (847.8)		0.001 (0.030)		-158.0 (568.1)
State-Year FEs?	N	Y	N	Y	N	Y	N	Y
State and Year FEs?	Y	-	Y	-	Y	-	Y	-
Institution FEs?	Y	N	Y	N	Y	N	Y	N
County unemployment rate?	Y	Y	Y	Y	Y	Y	Y	Y
County controls?	N	Y	N	Y	N	Y	N	Y
<i>HHI?</i>	Y	Y	Y	Y	Y	Y	Y	Y
<i>LogAssets?</i>	Y	Y	Y	Y	Y	Y	Y	Y
Observations	49,764	46,818	18,601	17,679	85,847	81,836	279,695	266,249
R ²	0.75	0.34	0.90	0.12	0.81	0.34	0.78	0.08

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 8: *Allowed* and Fee Income, Losses and Profits

Reported are regression results examining the relationship between *Allowed* and state-level aggregate income and losses at banks and credit unions. Dollar values are in millions. Robust standard errors are reported in parentheses, with observations grouped by state.

Panel A: Credit Unions				
Dependent Variable: (Mean)	<i>Fee Income</i> (38.2)	<i>Loan Losses</i> <i>Other</i> (17.8)	<i>Loan Losses</i> <i>Other/</i> <i>Fee Income</i> (0.42)	<i>Operating</i> <i>Income</i> (42.4)
<i>Allowed</i>	3.3 (3.5)	6.4*** (1.9)	0.09* (0.05)	-10.2 (6.5)
State-Year FEs?	N	N	N	N
State and Year FEs?	Y	Y	Y	Y
State unemployment rate?	Y	Y	Y	Y
State personal income?	Y	Y	Y	Y
Log of total assets?	Y	Y	Y	Y
Observations	1,428	1,122	1,122	1,428
R ²	0.98	0.94	0.63	0.66
Panel B: Banks				
Dependent Variable: (Mean)	<i>Fee Income</i> (100.9)	<i>Loan Losses</i> <i>Other</i> (2.99)	<i>Loan Losses</i> <i>Other/</i> <i>Fee Income</i> (0.04)	<i>Operating</i> <i>Income</i> (536.6)
<i>Allowed</i>	2.5 (15.2)	-0.24 (0.56)	0.004 (0.01)	-21.0 (135.7)
State-Year FEs?	N	N	N	N
State and Year FEs?	Y	Y	Y	Y
State unemployment rate?	Y	Y	Y	Y
State personal income?	Y	Y	Y	Y
Log of total assets?	Y	Y	Y	Y
Observations	816	816	816	816
R ²	0.91	0.52	0.19	0.82

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 9: Falsification

Reported are results for falsification exercises examining the relationship between payday access measures and unemployment rates, total credit card loans and credit card loss rates (at credit unions). Observations are at semi-annual frequency, at the county level in *Access* regressions and at the state level in *Allowed* regressions. Dollar amounts are in millions. The *Access* regression for loss rate excludes outlying observations (loss rates below the 1st percentile and above the 99th percentile). Robust standard errors are reported in parentheses, with observations grouped by state in *Allowed* regressions and by county in *Access* regressions.

Dependent Variable:	<i>Unemployment Rate</i>		<i>Loans</i>		<i>Loss Rate</i>	
	<i>(pct)</i>		<i>Credit Card</i>		<i>Credit Cards</i>	
(Mean)	(4.79)	(5.59)	(427.5)	(12.7)	(1.07)	(1.03)
<i>Allowed</i>	0.41 (0.42)		-8.8 (55.4)		-0.08 (0.09)	
<i>Access_0_10</i>		-0.25 (0.15)		2.2 (2.7)		0.17 (0.11)
State-Year FEs?	N	Y	N	Y	N	Y
State and Year FEs?	Y	-	Y	-	Y	-
Unemployment rate?	-	-	Y	Y	Y	Y
Personal income?	-	-	Y	Y	Y	Y
County Controls?	N	Y	N	Y	N	Y
<i>Border?</i>	N	Y	N	Y	N	Y
Observations	1,428	89,407	1,428	42,406	1,122	21,124
R ²	0.72	0.48	0.94	0.82	0.61	0.09

* significant at 10%; ** significant at 5%; *** significant at 1%

APPENDIX A: PAYDAY LOAN REGULATIONS

Summary of Coding for *Allowed*:

The Moebs survey of checking account fees and services was conducted in December of 2006, and in June for every other year. Five states prohibited loans throughout the sample period (*Allowed* = 0): CT, MA, NJ, NY and VT. Seven states changed from allowing to prohibiting payday lending between 1995 and 2008 (*Allowed* = 0 beginning in the year given in parentheses): MD (2002), GA (2004), NC (2006), WV (2006), DC (2008), OR (2008) and PA (2008). One state changed from prohibiting to allowing payday lending between 1995 and 2008 (*Allowed* = 1 beginning in the year given in parentheses): NH (2000). The remaining states allowed loans throughout the sample period (*Allowed* = 1).

States that prohibited payday lending throughout 1995-2008

New Jersey and New York forbid payday loans *via* check cashing laws that prohibit advancing money on post-dated checks (N.J. Stat. 17:15A-47 and NY CLS Bank 373) and usury limits (N.J. Stat. 2C:21-19 and NY CLS Penal 190.42). Massachusetts banned payday loans through a usury limit on small loans made or brokered in the state (ALM G.L.c.140 §96 and CMR 209 26.01). Connecticut prohibited lending *via* a cap on check cashing fees (Conn. Agencies Reg. § 36a-585-1) and small loan interest rates (Conn. Gen. Stat. 36a-563). Vermont prohibited payday lending through a usury limit (8 V.S.A. § 2230 and 9 V.S.A. § 41a).

We confirmed by reading 10-K filings and company websites that the largest multistate payday store operators – Ace Cash Express, Advanced America, Cash America, Check into Cash, Check ‘N Go, Money Mart and Valued Services – did not operate payday loan stores in these five states.

States that prohibited payday lending between 1995 and 2008¹⁸

Maryland banned payday lending through restrictions on fees charged by check cashers (MD Financial Institutions Code § 12-120) and small loan interest rates (MD Commercial Law Code § 12-306), and finally passed anti-loan brokering legislation (MD Commercial Law Code § 14-1902), effective June, 2002 to eliminate the agency payday lending model, whereby payday lenders operated as agents, arranging loans for out-of-state banks.

Georgia banned payday lending with a law that took effect in May, 2004 (O.C.G.A. § 16-17-1).

Payday lenders operated under the agent model in North Carolina and West Virginia until 2006. All remaining lenders agreed to exit North Carolina in March, 2006, after facing a series of suits filed by the state Attorney General (see NC Department of Justice press release). First American Cash Advance, the last payday lender in West Virginia, operated under the agent model until July, 2006 (see press release from WV Attorney General). North Carolina prohibits payday lending through a 36% interest rate cap on small loans (N.C. Gen. Stat. § 53-173). West Virginia prohibits payday lending by limiting fees on check cashing, prohibiting payday check cashing (W. Va. Code § 32A-3-1) and imposing a usury limit on small loans (W. Va. Code § 47-6-5b).

The District of Columbia prohibited payday lending in November, 2007, by limiting fees on check cashing and prohibiting post-dated check cashing (D.C. Code § 26-317 and 26-319).

Oregon placed a *de facto* ban on payday lending in July, 2007, by imposing a 36% interest rate cap as well as restrictions on loan renewals (ORS § 725.622).

Payday lending was ostensibly banned throughout the sample period in Pennsylvania via a cap on small loan interest rates (P.A. 7 P.S. § 6201-6219), but the agent model was permitted through a law that sanctioned loan brokering (P.A. 73 P.S. § 2181-2192). Some lenders ceased operations in the state in mid-2006, after the FDIC placed restrictions on their bank lenders (Sabatini, 2006). However, Advance America, the largest national payday lender, did not stop lending and close its Pennsylvania stores until December, 2007 (See Advance America 9/07 press release).

New Hampshire’s small loan interest rate ceiling acted as a *de facto* ban on payday loans until it was removed in January, 2000 (1999 NH ALS 248), and payday lenders entered thereafter.

¹⁸ We have not captured every law change with *Allowed*. We include those that were binding, as confirmed through press releases, news stories and the public filings of the largest payday loan operators. In the case of one law sanctioning payday credit in Rhode Island (R.I. P.L. 2001, Ch. 371, § 4), we could not confirm the date payday lenders entered; according to a supervisor in the Division of Banking, check cashers began offering payday on transactions prior to the July 2001 law change. We do not count Rhode Island as a state with a change in *Allowed*.