

# Predatory Lending?

Samuel G. Hanson and Donald P. Morgan\*

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## Abstract

Legislators are outlawing “predatory lending” without having defined it. We define predatory lending as a welfare *reducing* provision of credit and we show how that can happen if lenders dupe gullible households into *over*-borrowing and higher delinquency. We find little evidence of excessive debt or delinquency in states that allow payday loans or states with easier mortgage foreclosure, even for potential targets—households without college degrees, with uncertain income, or that smoke. Higher payday loan limits are associated with looser credit constraints for some of those households, and lower delinquency (for a very small subset), suggesting that payday lenders may raise welfare for less educated and risky households by increasing credit supply. Using a very small set of “found” data, we find that more payday lenders (and pawnshops) per capita is associated with lower payday loan rates and fees, suggesting that competition may obviate usury limits.

JEL Classifications:

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\*Harvard Business School and Federal Reserve Bank of New York, 33 Liberty Street, NY, NY 10011. don.morgan@ny.frb.org. The views in this paper do not necessarily represent those of the Federal Reserve System or Harvard University. Thanks to John Caskey, Gerhard Fries, Andreas Lehnert, Ryan Morgan (no relation to author), Karen Pence, and Ian Wallace for comments and assistance. Special thanks to Jean Ann Fox and Stephen Graves (for sharing data), the Stockholm Institute of Financial Research, and Song Han.

# 1 Introduction

“Predatory” is how reformers—consumer advocates, journalists, lawyers, legislators and some bank regulators—condemn lending practices in the booming subprime credit market. The alleged predators are sub-prime mortgage lenders and deferred deposit (“payday”) lenders. Their prey? The lower income, less educated, households representing the demand side of these consumer credit markets.

There seems to be no general definition of predatory lending<sup>1</sup>, but the usual criticism is of “unaffordable” credit—loans made at such high rates or in such large quantities that borrowers cannot afford to repay the credit without sacrificing their future standard of living, or in the worst case, their home. More particularly, predators are said to conceal finance charges, hide fees, and encourage overborrowing to earn extra interest charges, late payment penalties, and refinancing fees (“loan flipping”).

To economists, this predator-prey concept of credit seems foreign. If credit is so expensive that lenders are earning abnormal profits (given their risks and costs), why don’t new lenders enter the market to compete rates down to fair levels. “Unaffordable” credit also sounds peculiar; how can lenders profit if borrowers cannot repay?

This paper essays predatory lending from an economists’ perspective. We define predatory lending as a welfare *reducing* provision of credit. By “welfare,” we mean a household’s well-being (or utility). That definition seems general enough to cover some of the specific practices—overlending and overcharging, deception, targetting certain consumer segments—condemned by reformers. We show how households can be made worse off by a voluntary credit transaction if lenders deceive households about some variable that increases households’ demand for credit, like their income.

Information asymmetries are common in credit market models, but the usual assumption, at least in commercial lending, is that borrowers are the better informed party and that lenders have to screen and monitor to assess whether firms are creditworthy. The opposite asymmetry, as we assume here, does not seem implausible in the context of consumer lending.

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<sup>1</sup>For example, Senator Sarbanes: “Predatory lending... is a practice that is hard to define.” Or Senator Gramm: “There is no definition of predatory lending. I don’t know how we can hope to address the problem before we have decided what it is.” (American Banker, 8/24, 2000).

“Fringe” borrowers are less educated than mainstream borrowers (Caskey 2003), and many are first-time borrowers (or are rebounding from a failed first foray into credit). Lenders know from experience with large numbers of borrowers, whereas the borrower may only have their own experience to guide them. Credit can also be confusing; after marriage, mortgages are probably the most complicated contract most people ever enter. Given the subtleties involved with credit, and the supposed lack of sophistication of sub-prime borrowers, our assumption that lenders know better seems plausible.

While lenders might deceive households about several variables that influence household loan demand, we focus on income. We suppose that lenders exaggerate household’s future income in order to boost loan demand. Our borrowers are gullible, in the sense that they can be fooled about their future income, but they borrow rationally given their beliefs. Fooling borrowers is costly to lenders, where the costs could represent conscience, technological costs (of learning the pitch), or risk of prosecution. The upside to exaggerating borrowers’ income prospects is obvious—they borrow more. As long as the extra borrowing does not increase default risk too much, and as long as deceiving borrowers is easy enough, income deception and predatory—welfare reducing—lending may occur.<sup>2</sup>

After defining predatory lending, we try to detect it among payday lenders and subprime mortgage lenders. Payday lenders make very small, very short-term loans to mostly lower income households. Business is booming for payday lenders, but critics condemn payday lending, especially the high fees and frequent refinancings, as predatory. Many states prohibit payday loans, so we test for excess borrowing and higher delinquency in states with higher payday loan limits, especially for households that are potential *prey*: those without college degrees or with uncertain income. We use smoking as a third, more speculative, proxy for households with high, or perhaps hyperbolic discount rates. In general, high discounters will pay higher future costs for a given, immediate, gain in welfare. Smokers’ seem to fit

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<sup>2</sup>In an appendix, we also consider a credit *counseling* scenario where another lender can *correct* borrowers’ income beliefs, at some cost, and thereby raise borrower welfare (by reducing their borrowing). Credit counseling may deter predation, but it does not necessarily eliminate it. Credit counseling may not be profitable because it entails lending smaller amounts at a higher rate (because counseling is costly). Predation can occur in equilibrium if the welfare loss from predation is less than the cost (to a credit counselor) from eliminating the loss.

that description—they risk cancer and wrinkles in the future for seemingly small (to non-smokers), short-term gains in pleasure. High discounters will also have high demand for credit, all else equal, because they value the immediate consumption highly relative to the future costs (or repayment).<sup>3</sup> Extra borrowing by big discounters should not be confused as predatory, however, since the extra demand reflects households’ (impatient) preferences. The problem with the smoking proxy (hence ”speculative”) is that smokers may have hyperbolic, not just high, discount rates. Hyperbolic discount rates decline over time in a way that leads to procrastination and self-control problems (Laibson 1997). The hyperbolic discounter postpones quitting smoking, or repaying credit.<sup>4</sup> DellaVigna and Malmendier (2004) show credit card lenders and other merchants can manipulate hyperbolic discounters (who don’t recognize their self control problems) by offering products with front-loaded benefits and back loading costs. Without knowing whether smokers discount rates are merely high, or hyperbolic, we will not be able to say whether any extra debt for smokers in payday states is welfare reducing.

Essentially, we conduct a difference-in-difference analysis; first we look for differences in household debt and delinquency across payday states and non-payday states, then we test whether that difference is higher for potential prey. To ensure that any such differences are not merely state effects, we difference a third time across time by comparing whether payday-prey differences grew after payday lending was invented. That triple difference identifies any difference in debt and delinquency for potential prey in payday states after payday lending was introduced. We conduct similar tests for excess debt and delinquency in mortgage markets (though not subprime markets in particular).

Our findings seem mostly inconsistent with the hypothesis of predatory lending in states with higher payday limits and easier foreclosure. We *do* find that households with uncertain income in payday states have higher debt, but *not* higher delinquency. Just the opposite, in fact; households with uncertain income who live in states with unlimited payday loans have slightly *lower* delinquency rates and they are less likely to report being credit constrained

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<sup>3</sup>Smokers have flatter wage profiles and they are willing to trade more future earnings for a given increase in current earnings (Munasinghe and Sicherman 2000)

<sup>4</sup>Gruber and Mulainathan (2002), for example, find that high cigarette taxes increase welfare for people who are prone to smoking because high taxes help people commit not to smoke.

(i.e., denied credit or too discouraged to apply). We find some interesting differences for smokers, but those differences are harder to interpret in predatory terms without knowing *a priori* whether smokers discount rates are hyperbolic, or merely high, discounters.

Using a small set of data from different sources, we find that payday loan rates and fees decline significantly as the number of payday lenders and pawnshops increase. Reformers often advocate usury limits to lower payday loan fees but our evidence suggests that competition among payday lenders (and pawnshops) works to lower payday loan rates and fees.

Our paper has several cousins in the academic literature. Ausubel (1991) argues that credit card lenders exploit their more accurate assessments of household credit demand in their (lenders) marketing and pricing of credit cards. The predators in our model profit from their information advantage as well. Our concept of income delusion or deception also has a behavioral flavor, as well, hence our use of smoking as a proxy for (mis)-behavioral issues. Brunnermeier and Parker (2004), for example, imagine that households *choose* what to expect about future income (or other outcomes). High hopes give households' current "felicity," even if it distorts borrowing and other income-dependent decisions. Our households have high hopes for income, and they make bad borrowing decisions, but we do not count the current felicity from high hopes as an offset to the welfare loss from overborrowing. Our costly falsification (of household income prospects) and costly verification (by counselors) resemble Townsend's (1979) costly state verification and Lacker and Weinbergs' (1989) costly state falsification. The main difference here is that the falsifying and verifying comes before income is realized, not after.

More importantly, we hope our findings inform the current, very real-world debate, around predatory lending. The stakes in that debate are high: millions of lower income households borrow regularly from thousands of payday loan offices and subprime mortgage lenders around the country. If payday lenders and subprime lenders raise household welfare by relaxing credit constraints, anti-predatory legislation may lower it.

## 2 Predatory Concerns in Subprime Credit Markets

Concerns about predatory lending are centered around the booming subprime mortgage markets and deferred deposit (payday) lending.

### 2.1 Subprime mortgages

Subprime borrowers have FICO scores below 660 and range from “A-” borrowers, who may have a single 30 day delinquency on mortgage or installment debt in last year, to “D” borrowers that have recently declared bankruptcy (HUD, 2002). According to most estimates, however, most subprime borrowers are “A-” credits.

Subprime mortgage originations grew nearly *fivefold* (in dollar volume) between 1994 and 2001 (Figure 1). Foreclosure rates on subprime mortgages are many times higher than on prime mortgages, and the gap between them has widened (Figure 2). Subprime mortgage foreclosures rose to 8.0% between 1998:Q1 and 2001:Q2, when the economy was expanding, while foreclosures on prime mortgages fell to 0.4 percent. By the end of 2002, foreclosures on subprime mortgage were fifteen times higher than on prime mortgages.<sup>5</sup> Repossessions of mobile homes, whose buyers tend to be subprime, are also mounting (Figure 3).

Detractors see high and rising foreclosures as evidence that subprime lenders prey on subprime borrowers by selling credit at such high prices or in such large quantities that borrower foreclosure is virtually inevitable. The causality could run the other way, however: high foreclosure risk may justify the high interest rates. Distinguishing legitimate high risk, high cost credit from more odious practices is the challenge in detecting predatory lending.

### 2.2 Payday Advance Lenders

Payday advance lenders, also known as deferred deposit lenders, sell small, short-term, single-payment consumer loans to households (Elliehausen and Lawrence 2001). The borrower secures the loan with a post-dated personal check for the principal amount and finance

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<sup>5</sup>The opposite trends in subprime and prime mortgage foreclosures could also reflect the downgrading of marginal, prime borrowers.

charge. When the loan matures, usually 10-30 days later, the borrower buys the check back or the lender deposits it. The typical loan is about \$300.

Payday lending evolved from check cashing (Caskey 2003) much like lending generally evolved from the ancient money changing business (Ragan 1998). Check cashers turn checks, usually paychecks or government benefit checks, into cash for a fee. Once a check casher had developed a relationship with a customer, i.e., cashed paychecks repeatedly, lending against future paychecks was an obvious step.

Finance charges on payday loans range from \$15 to \$20 per \$100 borrowed. That translates into a high annual rate; if a borrower pays \$30 for a \$200 loan for 14 days, the annual interest rate is 390 percent.<sup>6</sup> High finance charges are the primary criticisms levied against payday advance lenders, and many states and cities limit finance charges. Critics of payday lending also criticize them for overlending, in the sense that borrowers often refinance their loans repeatedly, and for "targetting vulnerable consumers" such as women making welfare-to-work transitions (Fox and Mierzewski 2001) and soldiers (Graves and Peterson 2004).

A survey of 427 payday borrowers by Elliehausen and Lawrence (2001) revealed that the typical payday customer earns between \$25,000 and \$50,000 per year and is under 45.<sup>7</sup> Compared to the population at larger, payday customers are more likely to be divorced (23 percent of payday customers versus 13.8 percent of the population), more likely to be unmarried, with children (23.3 percent versus 12.4 percent), and less likely to have graduated college (19.4 percent versus 34.9 percent). Fifty six percent of the payday customers in the survey had a revolving credit card, but nearly the same fraction reported "maxing" out their

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<sup>6</sup>The annual finance charge is the periodic rate ( $\$30/\$200$ ) times the number of two week per periods per year (26).

<sup>7</sup>The sample in Elliehausen and Lawrence (2001) consists exclusively of customers of payday lenders belonging to the industry trade association, the Community Financial Services Association of America (CFSA). At the date of the survey (year end 2000), the CFSA had over 60 members who operated approximately 5,000 of the 10,000 payday offices nationwide. Because CFSA members are among the largest payday lenders and its members are expected to adhere to a set of "Best Practices" there are concerns that the survey may not be representative of the larger population of payday borrowers. In addition, significant non-response bias seems likely and the survey was largely unable to address refusals or other sources of non-response due to a brief survey window.

cards, hence their demand for other sources of credit.

Payday lending has boomed. The number of payday advance offices grew from 0 in 1990 to 14,000 in 2003 (Stegman and Harris 2003). The industry originated \$8 to \$14 billion in loans in 2000, implying 26-47 million individual loans. Rapid entry suggests the industry is profitable.

The rise of payday lenders has been the downfall of pawn brokers.<sup>8</sup> The number of pawn shops in the U.S. grew about six percent per year between 1986 and 1996, but growth essentially stalled from 1997 to 2003 (Caskey 2003). Prices of shares in EZ Corp, the largest, publicly traded pawn shop holder, were essentially flat or declining between 1994 and 2004, while Ace Cash Express share prices, a retail financial firm selling check cashing and payday loans, rose substantially over that period (Figure 4).

EZCorp CEO, Joseph Rotunday, blamed the dismal performance of pawnshops on payday lenders:

The company had been progressing very nicely until the late 1990s.... (when) a new product called payroll advance/payday loans came along and provided our customer base an alternative choice. Many of them elected the payday loan over the traditional pawn loan.<sup>9</sup>

Payday lending is heavily regulated (Table 1). As of 2001, eighteen states effectively prohibited payday loans (via usury limits), and most other states limit loan size, prices, and loan frequency per customer (Fox and Mierzwinski 2001). Payday lenders have circumvented usury limits by affiliating with national or state chartered banks, but the Comptroller of the Currency—the overseer of nationally chartered banks—recently proscribed such affiliations. The Federal Deposit Insurance Corporation (FDIC)—the overseer of state chartered banks—still permits payday lenders to affiliate with state banks, but under (recently) straightened circumstances (Graves and Peterson, 2005).

Concerns about predatory practices have mounted as these subprime markets have grown. Occurrences of “predatory lending” in the *American Banker* increased from essentially zero

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<sup>8</sup>Payday lenders triumphed over pawnshops even though the technological innovation, namely ebay—significantly reduced pawnshops foreclosure costs (Caskey 2003)

<sup>9</sup>Joseph Rotunda, as quoted by Caskey (2003), p.14.



per quarter in 1994 to over 500 per quarter in 2004:3 (Figure 5).

### 3 A Textbook Model with Predatory Lending

We define predatory lending as a welfare reducing provision of credit. Borrowers can be made worse by a credit transaction if lenders can deceive households into borrowing more than is optimal, given the households future income. The excess borrowing reduces household welfare, and may increase the risk of delinquency or foreclosure on assets.

We illustrate our concept of predatory lending using a standard model of household borrowing. The model has two periods: period zero (today) and period one (payday). Household income goes up and down periodically, but not randomly (for now): income equals zero today and  $y$  on payday.

Household utility,  $U$ , is a function of consumption,  $C$ , each period:  $U(C_t)$ . Household welfare is the sum of utility over both periods:  $U(C_0) + \delta U(C_1)$ , where  $\delta$  reflects household's time rate of discount.

If the marginal utility of consumption ( $U'$ ) is diminishing, households will want to avoid undesired fluctuations in their standard of living by borrowing against their future income.

Households without access to credit must fend for themselves (autarky). Welfare under autarky equals  $U(0) + \delta U(y)$ . The extreme fluctuations in living standards for households without access to credit make it a possible worse case, and hence, a good benchmark.

If households borrow  $B$  at interest rate  $r$ , welfare equals  $U(B) + \delta U(y - (1 + r)B)$ . Borrowing increases utility in period zero, when the proceeds are consumed, but lowers utility in period one, when households pay for their borrowing. Rational, informed households trade off the good and bad side of borrowing until the marginal utility from borrowing and consuming another unit today just equals the marginal *dis*utility of repaying the extra unit on payday:

$$U'(B) = \delta(1 + r)U'(y - (1 + r)B). \tag{1}$$

For a specific utility function, the rule (1) gives household's loan demand as a function of income and the interest rate:  $B(y, r)$ . All else equal, loan demand tends to increase with household income ( $B_y > 0$ ) and decreases with the loan rate ( $B_r < 0$ ).

Although we suppress the household discount factor ( $\delta$ ) from the demand function (until later), loan demand also increases with  $\delta$ . High discounters care less about future goods and "bads," like repaying debt, so all else equal, high discounters (optimally) borrow and consume more heavily today than low discounters.

Given a loan demand function, household welfare equals  $U(B(y, r, d)) + \delta U(y - (1 + r)B(y, r, \delta))$ . As long as households borrow optimally, per (1), their welfare with borrowing cannot be lower than under autarky.<sup>10</sup>

Given borrower's demand for credit, the welfare gain from borrowing (over autarky) depends on the microeconomics of the credit market: the cost of credit production and competition among credit producers. The best case for rational borrowers is perfect competition. With many lenders competing to supply credit, the price of credit will be driven down until it just covers the cost of lending. Suppose the cost of lending  $B$  to a particular household equals  $(1 + \rho)B + f$ , where  $\rho$  is the opportunity costs of lending  $f$  is the fixed cost. If the going price for loans is  $(1 + r)$  per  $B$ , profits equal  $(r - \rho)B - f$ .

The competitive equilibrium price and quantity of credit is where households borrow optimally, per (1), and lenders just break even.

Welfare is maximal under perfect competition because households borrow optimally at the lowest possible price where lender's break even.

Because of fixed costs, low income borrowers may pay a higher interest rate per unit than high income borrowers in equilibrium. Fixed costs may imply quantity discounts for borrowers just as with other goods and services.

The high price payday loans may reflect the combination of small loan amounts and relatively high fixed costs (Flannery and Samolyk 2005).

Usury limits on loan prices lowers welfare and may force lower income households back to autarky. If the usury limit is  $\bar{r}$ , the smallest loan that just covers costs is  $f/(\bar{r} - \rho)$ . Let  $\underline{B}$  denote that mandatory minimum (lenders will refuse to lend smaller amounts). Lower income households with optimal loan demand less than  $\underline{B}$  will face a beggar's choice: borrow  $\underline{B}$

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<sup>10</sup>If the cost of borrowing is prohibitive, optimal borrowing may equal zero. In that case, households choose autarky. If optimal borrowing is positive, households must be at least weakly better off than under autarky.

at  $\bar{r}$  or do not borrow at all. Welfare for those households would be higher without the usury limit; even though they would pay more than  $\bar{r}$  per unit borrowed, they could borrow amounts between 0 and  $\underline{B}$  that better suited their income and preferences.

Limiting loan size may raise the cost of credit and lower welfare for higher income households. Suppose the maximum allowable loan is  $\bar{B}$ . The competitive interest rate for that size of loan is  $f/\bar{B} + \rho$ . At that interest rate, loan demand by higher income households might exceed  $\bar{B}$ . If so, those households will have to obtain the extra credit at a higher price from a second lender (who also has fixed costs to cover). The higher price, not to mention the extra contracting costs, lower household welfare.

In sum, welfare for rational households is highest if credit is available at competitive prices. If households choose to borrow, they must be at least as well off than without credit. Limiting loan rates and quantities cannot raise household welfare and may reduce it.

Anything less than perfect competition implies lower household welfare. A monopoly lender—the worst case of imperfect competition—raises the interest rate until the marginal revenue from charging more (per unit loaned) equals the marginal cost (lost revenues) from lower loan demand:

$$B(y, r) = -(r - \rho)B_r(y, r). \quad (2)$$

At that monopoly interest rate,  $r^m$ , household loan demand is  $B_r(y, r^m)$ .

Household welfare under monopoly equals

$$U(B_r(y, r^m)) + \delta U(y - (1 + r^m)B_r(y, r^m)).$$

Welfare is lower under monopoly (than under perfect competition) because the monopolist charges higher interest rates per unit borrowed. More expensive credit reduces household loan demand, and with less credit, households' standard of living fluctuates more than under competition. Even so, welfare under a monopolist cannot be lower than under autarky, with no borrowing at all. If household borrow from the monopolist, they must still be better off than without no credit at all.

### 3.0.1 Costly Income Deception

In the textbook model household welfare cannot be lower than under autarky because households are fully informed and rational. Here we show households how can be made worse off than without credit if lenders are able to delude households about their households future income.

Suppose lenders that a cost of  $C(\tau)$ , lenders can convince a prospective borrower that her income on payday will be  $y + \tau$ .  $C$  can be interpreted variously as the cost of a guilty conscience, the risk of prosecution, or the resources spent conning households into believe  $\tau$ .<sup>11</sup> Households skepticism increases with the level of deception, implying  $C'(\cdot) > 0$  and  $C''(\cdot) > 0$ .<sup>12</sup>  $C(\cdot)$  can vary across households, as some may be more skeptical than others.  $C(\tau)$  might be lower for more gullible households and higher for the more skeptical ones. For the fully rational borrower, the costs of deception are infinite:  $C(0) = \infty$

Our version of costly income deception takes us far from the mainstream model above and information modelling techniques in general. Borrowers here not fully informed, as they operate under the assumption that next period equals  $y + \tau$ , and that is plainly wrong. There are modern models of costly income verification (Townsend ) and income falsification (Lacker and Weinberg (1989)), but the falsifying and verifying in those models comes after the realization of a random income stream, and it is the outsiders who verify and insiders who falsify. Here the outsider falsifies, and the insider (fails) to verify.

Our income deception story is closer to the facts than it is to theory. In research on credit card borrowing, Ausubel (1991, 1999) and Shui and Ausubel (2004) find that credit card holders systematically *underestimate* their card balances or their duration of borrowing. Underestimating borrowing is not much different from *overestimating* future income.

Income deception is also been one of the particular complaints against subprime mortgage lenders. In a survey by Stock (2001) of households with foreclosed subprime mortgages in

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<sup>11</sup>T

<sup>12</sup>One could model the information asymmetry here as an adverse selection problem, where borrowers do not know if a lender is lying, but they do know that some fraction of lenders are liars. Supposing that subprime borrowers can solve that subtle inference problem seems unlikely, so we simply suppose that borrowers are more or less gullible.

Dayton, Ohio, 42 percent reported that mortgage lender encouraged them to borrow more than they initially intended.

The model should not be taken too literally. We do not think this is exactly what a predatory lenders do, but it seems to capture the flavor of allegations that predators lure households into borrowing, or paying, too much.

Though gullible, households in the model borrow optimally given their perceived income. That means they are on their demand curve for credit, where their demand reflects their deluded income expectations.<sup>13</sup> Profits for a predatory lender are

$$(r - \rho)B(y + \tau, r) - C(\tau) - f.$$

The first-order condition for the optimal  $\tau$  is

$$(r - \rho)B_y(y + \tau, r) = C'(\tau), \tag{4}$$

The predator exaggerates income to the point where the marginal revenue from exaggerating household income (due to increased loan demand) equals the marginal cost of exaggeration.<sup>14</sup>

The incentive to exaggerate income is increasing with the interest spread on loans. In a perfectly competitive loan market spreads are zero so lenders would have no incentive to falsify. They could not *afford* to falsify; the costs of falsification would require higher spreads to compensate, so borrowers would switch to cheaper, honest lenders. Costly predation can occur only if imperfect competition enables predators to charge higher than competitive spreads.

A predatory-*monopolist* sets the loan rate as well. The first- order condition for  $r$  is:

$$B(y + \tau, r) = -(r - \rho)B_r(y + \tau, r). \tag{5}$$

The predatory-monopolist does not always charge a higher loan rate than an ordinary monopolist. If households have CRRA (constant relative risk aversion) utility ( $c^{1-\gamma} -$

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$$U'(B(y + \tau, r)) = \delta(1 + r)U'(y - (1 + r)B(y + \tau, r)). \tag{3}$$

<sup>14</sup>Is the self-deluded borrower worse off than the borrower that is deceived by lender? Suppose borrower deludes self by  $\tau^s$ . Further deception occurs if and only if  $(r - \rho)\frac{\partial B(y+\tau^s)}{\partial \tau} > C'(\tau^s)$ .

$1)/(1 - \gamma)$ , the predatory-monopolist charges the same rate as an ordinary monopolist,  $r^m$ , but lends more.<sup>15</sup> In this case, households are worse off with a predatory monopolist because they overborrow, but not because they overpay. Households enjoy the extra consumption afforded by the extra borrowing today, but rue the extra borrowing come payday.<sup>16</sup>

Households may still be better off under predatory-monopolist than under autarky, however. It depends on how much overborrowing the predatory -monopolist elicits; a small amount of overborrowing may be better than not borrowing at all.

For other utility functions, the predatory-monopolist charges higher interest rates households with "higher" (deluded) income prospects may be less sensitive to interest rates at the margin.<sup>17</sup> The exception for CRRA utility is important, nonetheless, as it implies predators are better detected by how much they lend, rather than how much they charge.

### 3.0.2 Income Uncertainty

When income is uncertain, default is possible. Risk gives predators another angle; instead of exaggerating the level of households' future income, they might exaggerate the odds of high income.

Suppose household's future income is either high or low; income equals  $Y$  with probability

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<sup>15</sup>With CRRA utility, the predatory-monopolist's pricing rule (5) implies

$$r - \rho = \frac{\gamma(1 + r)}{1 - (1 - \gamma)(1 + r)B(y + \tau, r)/(y + \tau)}.$$

The ratio  $B(y + \tau)/(y + \tau)$  is invariant to  $y + \tau$ , so the predatory-monopolist charges the same rate as an ordinary monopolist. The predator lends more, however, and reaps extra profits of  $(r^m - \rho)\{B(y + \tau) - B(y)\} - C(\tau)$ .

<sup>16</sup>The difference between households (ex post) welfare under a monopolist and under a predatory-monopolist is

$$\begin{aligned} & U(B(y, r^m)) - U(B(y + \tau, r^m)) + \delta U(y - (1 + r^m)B(y, r^m)) \\ & - \delta U(y - (1 + r^m)B(y + \tau, r^m)). \end{aligned}$$

That difference is positive, i.e., welfare is lower under the predatory monopolist, because  $B(y + \tau, r^m)$  violates household's first-order condition:  $U'[B(y + \tau, r^m)] < \delta(1 + r^m)U'[y - (1 - r^m)B(y + \tau, r^m)]$ .

<sup>17</sup>For example, households whose utility is exponential ( $-e^{-\theta c}$ ) or quadratic ( $-c - k)^2$  will pay higher rates to a predatory-monopolist than to an ordinary monopolist. Proofs available upon request.

$\pi$  or  $y$  with probability  $1 - \pi$ . If  $\pi = 0$ , we are back to the fixed income case. Thus, one way to think about predatory lending in this case is that predators convince households that with some probability  $\pi > 0$ , their income will be higher by  $Y - y$ .

Given  $B$ , household's expected welfare is

$$U(B) + \delta[\pi U(Y - 1 + r)B] + (1 - \pi) \max[U(y - (1 - r)B), U(0)]$$

Expected utility on payday depends on whether households default when their income turns out low, i.e., whether  $(1 + r)B > y$ . Under certain conditions, discussed momentarily, households will limit their borrowing to avoid default. We impose a no-default constraint for now, and then show that the constraint does not bind given those conditions. We then show how predators may exaggerate  $\pi$  until households *do* default in some events.

Household's choose  $B$  to maximize

$$U(B) + \delta[\pi U(Y - 1 + r)B] + (1 - \pi)U(y - (1 - r)B) \tag{6}$$

subject to the no-default constraint:  $y \geq (1 - r)B$ . Let  $\lambda$  denote the Lagrangian multiplier on that constraint. The first-order condition (FOC) for  $B$  is

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$$U'(B) - (1+r)\delta \left[ \pi U'(Y-1+r)B + (1-\pi)U'(y-(1-r)B) \right] = \lambda$$

The no-default constraint binds if and only if

$$U'(y/(1 + r)) > \delta(1 + r)[\pi U'(Y - y) + (1 - \pi)U'(0)]. \tag{7}$$

Thus, whether households borrow to the hilt depends (among other things) on  $\pi$ . If that probability exceeds a certain threshold  $\bar{\pi}$ , households play it safe and limit their borrowing to  $B < y/(1 + r)$ .<sup>18</sup> Given  $\pi < \bar{\pi}$ , the FOC can be solved for loan demand:  $B(Y, y, \pi, r)$ . It

<sup>18</sup> $\bar{\pi}$  solves (7) with equality.  $\bar{\pi} = \frac{U'(y/(1+r)) - \delta(1+r)U'(0)}{\delta(1+r)[U'(Y-y) - U'(0)]}$ .

turns out that loan demand is increasing in  $\pi$  if and only if  $B < y/(1+r)$ . In that case, higher  $\pi$  decreases the marginal disutility of repaying debt on payday, so households increase borrowing until the marginal utility of consumption today decreases commensurately.<sup>19</sup>

With random income, predatory lenders can boost loan demand by exaggerating  $\pi$ . Suppose a predator can exaggerate  $\pi$  by  $\tau$  at cost  $C(\tau)$ .

$$\max_{\tau,r} (r - \rho)B(Y, y, \pi + \tau, r) - C(\tau) - f$$

subject to  $\bar{\pi} \geq \pi + \tau$ .

Predators' exaggeration cannot exceed  $\bar{\pi} - \pi$ , or else households would borrow to the hilt ( $B = y/(1+r)$ ) and default would be possible. Default is not necessarily bad for the lender (if they can raise rates sufficiently to compensate), but once default is possible, borrowers loan demand becomes a decreasing function of  $\pi$ . It seems implausible that a predator could exaggerate  $\pi$  to increase loan demand up to  $y/(1+r)$ , and then attenuate  $\pi$  to increase loan demand even further.

The first order condition for  $\tau$  is

$$(r - \rho)B_{\tau}(Y, y, \pi + \tau, r) - C'(\tau) - \mu = 0,$$

where  $\mu$  is the multiplier on the predator's constraint. That constraint binds if and only if  $(r - \rho)B_{\tau}(Y, y, \bar{\pi}, r) > C'(\bar{\pi} - \pi)$ . If the marginal revenue from exaggerating the odds of high income exceeds the marginal cost when  $\tau = \bar{\pi} - \pi$ , then predators will exaggerate those odds until households borrow up to the hilt. In that case, households default with probability  $1 - \pi$ . Absent predation, households would never default. Thus, when income is random, the overborrowing elicited by predators increases the probability of default.

## 4 Detecting Predatory Lending

### 4.0.3

We test for predatory lending in the two credit markets where predation may be most rampant: payday lending and subprime mortgage lending. Predators in our model dupe gullible

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<sup>19</sup>If  $B > y/(1+r)$ , the FOC for  $B$  is  $U'(B) = \delta(1+r)\pi U'(Y - (1+r)B)$ , so loan demand decreases in  $B$ .



households into overborrowing. In essence, predators contrive to increase the *demand* for loans so predators should be detectable by loan size, relative to income. The identification problem here is that payday lenders and subprime mortgage lenders may also, or instead, legitimately increase credit *supply*, of credit legitimately. Defenders of those industries describe it as a genuine financial innovation that lowers the cost of credit to low income, working households. Hence, we would observe more borrowing in states with more lenient laws on payday lending and subprime mortgage lending even if lenders in that industry are not, as a whole, predatory.

## 4.1 Predatory Payday Lending?

To distinguish predatory loans from legitimate lending we test whether debt levels in states that allow payday loans are unusually high for households that seem most susceptible to income or demand manipulation, i.e. prey. In terms of our model, we need proxies for the cost of deceiving borrowers,  $C(\tau)$ ; low  $C(\tau)$  households are easier to fool, so they will be fooled more. We identify low  $C(\tau)$  households by no college diploma, uncertain income, and smokers. Those are our proxies for *prey*. We allow household debt levels to depend directly on payday laws and on those prey proxies to allow for any differences in the supply of loans in those states and to those households. We identify predatory lending with the interaction between payday laws and our prey proxies. Higher debt and delinquency among prey in payday states is potential evidence of excessive *demand* for loans due to deceptive practices by payday lenders.

We test for predatory lending by payday lenders by looking at differences in household debt across states with different regulations on the payday lending industry. We focus on whether that difference is higher for households that are more susceptible to manipulation by predatory lenders. Specifically, we estimate regressions across states ( $j$ ), households ( $i$ ), and (two) years ( $Y$ ) :

$$\text{Tobit}(\text{non-mortgage } debt_{ijy}) = T(P_j, p_i, Y, P_j Y, p_i Y, P_j p_i, P_j p_i Y, X_{ij}) + e_{ijy}.$$

The dependent variable is non-mortgage debt, because the SCF does not ask households

about payday loans specifically.<sup>20</sup> We estimate a Tobit function because the distribution of debt is truncated at zero.

$Y$  is a dummy that distinguishes households surveyed in 1995 ( $Y=0$ ) and 2001 ( $Y = 1$ ). Including that dummy eliminates differences in debt within a state that are unrelated to regulation on Payday lending. Ideally, we want to compare before and after the advent of payday lending but that date, even the year, is uncertain. Caskey (2002) figures there were fewer than 200 payday lenders at the at the beginning of the 1990s, and Rotunday, the CEO of EZ Corp (a pawnbroker) did not notice competition from payday lenders until the late 1990s (see above), about the same time "predatory lending" started appearing in the American Banker (Figure 5), so we approximate before and after (the advent of payday lending) using 1995 and 2001.<sup>21</sup>

$P_j$  measures how permissive states are toward the business of payday lending. The indicator  $p_i$  identifies potential prey: households without a college degree ("undegreed"), uncertain income, or smokers.

Including  $P_j$  and  $p_i$  allows for legitimate differences in supply and demand. If payday lending increases the supply of credit sufficiently, as discussed earlier, debt will be higher in states with payday lending.

Debt may also differ across  $p_i$  if those proxies are correlated with legitimate differences in supply and demand. Smokers will demand more debt, all else equal, if smoking indicates they have high, or hyperbolic discount rates (or both). Income uncertainty may increase credit demand but reduce supply. Given expected income (and all else), households with uncertain income may demand more credit but they may find credit costlier, or less accessible, if their income uncertainty is not diversifiable by lenders. Given income and prospects (uncertainty), it is not obvious whether (or why) households without degrees might have more or less debt.

We identify *predatory* lending with the interaction:  $P_j p_i Y$ . Predators in our model boost loan demand illegitimately by inflating borrowers' income. Their most likely prey

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<sup>20</sup>We experimented with debt from "finance and loan companies," a category that should comprise payday lenders, but because the subset of households with debt from such institutions was so small, the Tobit estimates did not converge.

<sup>21</sup>The SCF is only conducted every three years, so our choice of years is limited accordingly. The 2004 survey is not yet available.

are uneducated households, or households with more income uncertainty. Any preying on such households should show up as a positive coefficient on that interaction term. This is essentially a difference-in-difference-difference analysis: the first difference is across payday and nonpayday states, the second across prey and non-prey, the third across years (before and after the innovation of payday lending).

$X$  is a long list of variables that might affect loan supply and demand: income, age, job seniority, county unemployment, marital status, family size, race, sex, attitudes toward credit, bank concentration and deregulation controls, and the state bankruptcy exemptions studied in Gropp et. al.<sup>22</sup> We use data on state bankruptcy exemptions as of 1999 as compiled by Lehnert and Maki (2002). We assign a bankruptcy exemption to each individual that takes into account state-specific exemption levels that vary according to both marital and home ownership status.

Our key identifying assumption is that  $X$  controls for other differences across households and states that might cause difference in observed debt levels. Given  $X$ , any *additional* debt among prey after the advent of Payday lending may represent overborrowing.

We estimate similar regressions to test whether payday lending loosens household credit constraints,

$$Probit(creditconstrained) = H(P_j, p_i, Y, P_jY, p_iY, P_jp_i, P_jp_iY, X_{ij}) + e_{ijy}$$

*Credit constrained* equals 1 if households reported they were rejected for credit, given less credit than they applied for, or did not apply for credit because they expected rejection. Our final regression estimates whether households in payday states were more likely to miss a debt payment after the advent of payday lending:

$$Probit(missedpayment) = H(P_j, p_i, Y, P_jY, p_iY, P_jp_i, P_jp_iY, X_{ij}) + e_{ijy}.$$

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<sup>22</sup>Their identification issues are similar to ours in some respects. Higher exemptions may reduce the supply of credit (because lenders claims are less secure) *and* increase the demand for debt (because borrowers obligations are less binding). The net effect on the quantity of credit is ambiguous. But the demand effect should be larger for wealthy households (with more assets at risk), so the supply effect can be identified by testing whether total debt decreases disproportionately for less well off borrowers in high exemption states. It does.

Our model implies that the extra debt burden associated with predatory lending will tend to increase default (or delinquency) rates. Thus, if payday lenders are predatory, we would expect higher delinquency after the advent of payday lending in states that allow it, particularly for prey.

The delinquency regressions seem like the ultimate (or better) test of whether payday lending is welfare reducing, as “predatory” is defined here. If a finding of higher debt and/or looser credit constraints is associated with higher risk of credit delinquency, detractors of Payday lending can claim more convincingly that payday lenders lower welfare by luring uneducated households (or other prey) into unaffordable levels of indebtedness. If not— if delinquency rates are not higher payday states, defenders can argue that payday lenders raise welfare by increasing credit supply and relaxing credit constraints.

## 4.2 Data

We study the area-probability cross sections in the 1995 and 2001 Surveys of Consumer Finance (SCF).<sup>23</sup> The sample those years covered 2,780 and 2,917 households, respectively, giving us 5,697 households in total. Table 2 reports summary statistics for the full sample and for the 3,189 households in the low (below median) income subsample. The latter warrant special consideration as subprime and payday borrowers are more likely to fall in that category. *Non-mortgage* debt among low income households averaged \$6700, but the median was just \$600, small enough that any difference in debt due to payday loans—which average \$300—should be detectable. Twentyone percent of all households reported being credit constrained (turned town for credit or too discouraged to apply), and twenty-seven percent of low-income households reported being credit constrained. About one in six low income households reported missing a debt payment over the previous year. Roughly half

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<sup>23</sup>We exclude the “list sample” of wealthy households covered by the SCF as they seem less subject to predatory lending. The geographic information we use (households state of residence) are not available to the public or the authors, so all statistics in our study were calculated by authorized analysts in the SCF Group at the Federal Reserve Board of Governors. Note that this confidential dataset contains 4,449 households whereas the public version only includes 4,442 households. This is due to the exclusion of 7 extremely wealthy households from the public dataset for disclosure reasons.

of either sample (56-57 percent) lived in states that permitted payday lending or non-judicial mortgage foreclosure. The low income subsample does include more potential targets for predators: 40 percent of low income households had uncertain income (31 percent of the full sample), 82 percent lacked college degrees (68 percent of the full sample), and 33 percent smoked (29 percent for the full sample).<sup>24</sup>Table 2 also lists the other variables we include as controls, essentially the same set used in Gropp et al.(1997)

### 4.3 Regression Results

The regressions in Table 3 measure differences in the dependent variables across different categories of households while controlling for household income, assets, age, demographic characteristics, employment tenure, attitudes toward credit, county unemployment, state banking concentration and regulation history, bankruptcy exemptions. The indicator  $Payday = 1$  for households living in states that permitted payday lending (0 for other households). Potential prey are indicated by the dummy variables *Uncertain Income*, *No College Degree*, *Smoker*. Households surveyed in 2001 (as opposed to 1995) are indicated by the *2001 dummy*. The regressions include all five indicators, plus interactions among them, allowing for 15 differences, differences-in-differences, and differences-in-differences-in differences across states, households, and years.

The dependent variables are non-mortgage debt, the credit constrained indicator, and the missed payment indicator. The non-mortgage debt regression was estimated via Tobit (to account for truncation at zero). The regressions for credit constrained and missed payment were estimated via dprobit (Stata 2005), so those regression coefficients measure differences in *probability(credit constrained)* and *probability(missed payment)* across categories (or the changes in those probabilities given a small change in any of the continuous independent variables).

The triple interactions— $Payday \times prey \times 2001$ — are key to the predatory hypothesis, but

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<sup>24</sup>The Survey of Consumer Finances actually consists of 5 separate datasets or “implicates” since missing data are multiply imputed. As such, all of our estimates and their corresponding standard errors are computed using the Repeat Imputation Inference (RII) techniques. See Montalto and Sung (1996) for an accessible introduction to RII estimation and inference.

interpreting those triple differences is easier after considering interpreting some simple, single differences first. *Payday* is insignificant in all regressions, implying that none of the dependent variables differed significantly for households in payday states. *Smoker* is significant in the regressions for non-mortgage debt and *probability(credit constrained)*, indicating that smokers owe more than non-smokers (with comparable income, education, etc.), yet they were still more likely—5.7 percent more likely—to report being credit constrained. The mean of *probability(credit constrained)* across all households was 21 percent (Table 2), so the difference of 5.7 percent for smokers was substantial. *Probability(credit constrained)* was also higher for households with *Uncertain income* and *No College Degree* indicators; the former were 4.9 percent more likely to constraints the latter were 7.3 percent higher. Those differences do not speak for or against the predatory lending hypothesis, but they do indicate that the prey proxies are associated with real differences in credit supply and/or credit demand.

Key to the predatory hypothesis are the triple interactions—*Paydayxpreyx2001*. The hypothesis that payday lenders boost loan demand by exaggerating income implies higher debt and delinquency (given actual income) for prey in payday states in 2001 (after payday lending was invented). Contrary to that hypothesis, all three of those interactions are insignificant in the regression for non-mortgage and the regression for probability(missed payment). More specifically, households without a college degree and households with uncertain income who lived in payday states in 2001 did not have higher debt than their counterparts in 2001, nor were they more likely to miss a debt payment. Smokers, by contrast, were less likely to report credit constraints if they lived in a payday state in 2001. That difference is interesting (and substantial), but the implications for the predatory lending hypothesis are ambiguous. If smokers have discount rates that are merely high (but not hyperbolic), looser credit constraints are welfare improving. If smokers are hyperbolic discounters, however, i.e., if they are procrastinators, looser credit constraints could lower their welfare because if it enables them to accumulate excess debt.<sup>25</sup> If smokers are hyperbolic discounters, however, and if payday lenders were exploiting that behavior, we would expect the looser credit

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<sup>25</sup>We were told that a payday lender in Colorado offered loans *in* a tobacco show for a time, but discontinued the practice from lack of business.

constraints on smokers to lead to more missed payments, but *probability(missed payment)* did not differ significantly for smokers in payday states in 2001.

The regressions in Table 4 uses two variables to capture differences in state regulations on payday lending. The first, *loan limit*, is a continuous variable equal to the statutory limit on payday loans in each state. Loan limit ranges from 0 (for states that prohibit payday lending) to \$1250 (Table 1). The second variable, *unlimited* indicates the nine states without any limits. Higher loan limit gives payday lenders more leeway to boost loan demand (if indeed they do), so this richer specification of regulatory differences should help in detecting such practices. The downside is that the regressions in Table 4 have six key interactions to consider: *limitxprey x2001* and *unlimited xpreyx2001*.

The only significant interaction in the regression for non-mortgage debt is *unlimitedx no college degree x2001*. Households without college degrees in states living in states with unlimited payday loans did have higher non-mortgage debt in 2001. While that difference is consistent with the predatory hypothesis, the extra debt for those households was not associated with higher delinquency, contrary to the predatory hypothesis.

Unlimited payday loans are also associated with looser credit constraints (column 2). Households without degrees and households with uncertain income living in states with unlimited payday loans in 2001 were 15 percent and 14 percent (respectively) less likely to report being constrained than in 1995. Smokers living in states with higher payday limits were also less likely to report being constrained in 2001.

The looser credit constraints were not associated with higher delinquency in any case (column 3). In fact, households with uncertain income with access to unlimited payday loans in 2001 were nine percent *less* likely to miss a payment than comparable households in 1995. The mean probability of a missed payment was 16 percent, so a decline of nine percent is substantial (though only marginally significant).<sup>26</sup>

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<sup>26</sup>Regressions estimated over the set of households with low (below median) income yielded qualitatively similar differences (same signs and magnitudes) to those noted in Table 3 and 4, though in some cases the differences were less significant, particularly the differences associated with unlimited payday loans. The fraction of households live in states with unlimited payday loans was small, and the fraction of low income households in those states was even smaller, so the loss of significance mostly reflects higher standard errors in the estimates, not smaller coefficients.

In sum, payday lending seems to loosen credit constraints on households without a college degree, households with uncertain income, and households who smoke. Debt is significantly higher for households with uncertain income in payday states in 2001, but not higher delinquency.<sup>27</sup> In no case do we find a positive association between payday lending and the probability the probability of missed debt payments. In fact, we find somewhat lower delinquency risk for the (small set) of households with uncertain income that live in states with unlimited payday loans.

## 5 Testing for Predatory Mortgage Lending

To test for predatory lending in mortgage markets, we exploit the implication of our model that the incentive to dupe households into overborrowing is increasing in the recovery rate on default. The higher default risk associated with overlending tends to deter overlending, but a higher recovery rate weakens that deterrent. Hence, we would expect higher mortgage debt in states where default recovery rates are higher, particularly among potential prey.

We proxy for differences in recovery rates using differences in foreclosure procedures across states. Some states require more expensive judicial foreclosure procedures that should reduce recovery rates compared to states that permit easier, *non*judicial foreclosure (Pence 2003). A higher recovery rate might increase the supply of debt for legitimate reasons, of course, so to distinguish that effect from illegitimate overlending by predators who manipulate loan demand we test whether mortgage debt and total debt are *especially* high for potential prey who happen to live in states that permit non-judicial foreclosure.

Table 4 reports estimates of

$$Tobit(mortgagedebt_{ijy}) = T(N_j, p_i, Y, N_j Y, p_i Y, N_j p_i, N_j p_i Y, X_{ijy}) + e_{ijy},$$

where  $N$  equals zero for state permitting *non*-judicial foreclosure. The other variables are defined as above. Non-judicial foreclosure is associated with significantly mortgage debt, while households with uncertain income, and those without college degrees have significantly

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<sup>27</sup>Payday loans are very small so it is not necessarily inconsistent to find looser credit constraints in payday states without finding higher debt.



lower mortgage debt, as do smokers. None of the interactions between prey, foreclosure proceedings, and year are significant, meaning we do not find higher mortgage debt or delinquency in states where easier foreclosure might invite more predatory mortgage lending.

## 6 Some evidence that competition lowers payday loan rates

The main complaint against payday lenders are their high fees. The 390 percent annual rate implied by a \$15 fee per \$100 per two week loan strikes many critics as usurious or unconscionable, hence the many states with usury limits on payday loan prices. Economists (at least us) would expect competition among payday lenders (and pawnshops) to drive prices down until the cost the credit just covered the costs of funds, the cost of producing the loan (both fixed and variable), and the risk of default. This section presents evidence that competition does work; using a small data set of "found" data, we find lower payday prices in cities with more payday lenders and pawnshops per capita.

We found data on payday loan prices in a 2001 survey conducted by the U.S. Public Interest Research Group (PIRG) and the Consumer Federation of American of 235 payday lenders located in 62 cities and twenty states (and D.C.)<sup>28</sup> In their analysis of the data, Fox and Mierzwinski (2001, p. 14) observed that about half the lenders charged fees at or above the usury limit set by the states. "If competition were really working...", they conclude, "we would expect many more firms to offer and advertise lower rates." The PIRG survey lacked a measure of competition, however, so they did not test their claim that competition fails in payday lending.

Our data on the number of payday stores in various cities from Graves and Peterson (2005). Their study pinpoints the location of payday stores by zip code in twenty states with military bases to see if payday lenders "target" soldiers.<sup>29</sup> They demonstrate conclusively

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<sup>28</sup>Most surveys were conducted by employee or volunteer visits to payday offices, although some were conducted by phone. The surveyors did not borrow from the payday lenders; they simply looked for signs posting fees or asked store clerks to quote fees.

<sup>29</sup>We ignore the question of whether locating near customers represents insidious targeting. When car

that payday lenders do cluster around bases; for example, the 92054 zip code comprising Camp Pendelton had 22 payday outlets, 17 more than expected given the population in that zip. Graves and Peterson conclude (p. 2005):

Those who genuinely care about the welfare of American soldiers...should find their empirical results profoundly troubling...for the reasonable and caring, supporting the troops should an emphatic return to ...usury laws insisted upon by previous American generations.

To see if competition among payday lenders might obviate usury limits, we matched Graves and Petersons' (2005) data on the number of payday lenders with PIRGs' (2001) data on payday loan prices and fees. The number of cities that overlapped in the two studies was small, from 37 to 22, depending on the variable in question (Table 5A).<sup>30</sup>

These "found" data make a less than perfect laboratory for testing the competition hypothesis. First, the number of payday *stores* tabulated by Graves and Peterson (2005) will overstate competition because if stores may have the same owner. Second, more stores per capita might signal higher *demand* for payday loans (and hence, higher prices) rather than higher supply and lower prices.<sup>31</sup> Third, the payday prices are from 2001, but the numbers on stores were collected in 2004-5. Stores in 2004 should be correlated stores in 2001, but the cities where payday stores grew fastest in the interim may be those with the highest prices in 2001 (hence inviting new entry). All three imperfections will bias the correlation between payday prices and stores upward, so they work against the competition hypothesis.

The regressions in Table 5B (and Figure 8) indicate that payday prices and fees *do* decline as the number of payday stores per capita increases. An extra 50 payday stores/10000 (about one standard deviation) is associated with a \$0.50 drop in the loan price (column 1) and a

rentals locate near airports, are they targetting fliers?

<sup>30</sup>PIRG's (2001) survey covered multiple payday lenders per city. We use the average loan rate and fee for payday lenders in the same city. We obtain similar results using medians instead of means.

<sup>31</sup>That bias is distinctly possible here, because Graves and Petersons' (2004) study covered states with military bases, and soldiers may have high demand for payday loans.

\$6.5 drop in NSF fees (column 5). A \$0.50 decline in payday prices is not large (compared to the mean price of \$17.5), but the estimate is almost surely biased downward for the reasons just discussed.<sup>32</sup> Payday store prices also decline as the number of *pawnshops* per capita increases (column 2), consistent with other evidence that payday lenders pawnshops are in competition. In fact, we cannot reject the hypothesis that the more pawnshops per capita has the same effect on payday prices and more payday stores.

## 7 Conclusion

”Predatory” is an inflammatory term that lawyers, journalists, and consumer groups use to condemn high prices, excessive lending, and other seemingly dubious practices by payday and subprime (mortgage) lenders. Even those reformers admit that ”predatory” is hard to define, however, so that is where our paper starts. We define predatory lending as a welfare *reducing* provision of credit, and we show how a voluntary transaction can make borrowers worse off if lenders contrive to increase loan demand by exaggerating households’ income prospects. Predation in our model resembles advertising; advertisers accentuate how much pleasure their product brings, while predators attenuate how much a loan will cost (in terms of future well-being) by exaggerating household income and hence, their willingness and ability to repay credit. We show that lenders will prey (in our sense) as long as the extra revenue from larger (or more expensive) loans exceeds the extra default risk associated with higher debt. We also show that credit *counseling*—disabusing households of their inflated income beliefs—limits the welfare loss from predatory lending. Counseling will not always drive out predation, however, because counseling involves convincing households to borrow *less* at terms that are not necessarily cheaper (because verifying households’ income may cost as much falsifying it).

Our concept of predatory lending may not correspond to the specific practices of payday lenders and subprime mortgage lenders that reformers condemn, but it comes close. Both

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<sup>32</sup>Regressing the annual percentage rate (as opposed to dollar fee) on *payday lenders/100,000* also yields a negative (but insignificant) coefficient. Without the extreme (fee = \$30), the coefficient on *Payday lenders/100,000* equals .0074. (p = 0.091).

lenders are accused of entrapping borrowers in a cycle of refinancings and delinquency by lending excessively (relative to households' income). The predators in our model lend excessively, and the extra debt leads to higher risk of delinquency. Reformers also condemn payday and subprime lenders of "targeting vulnerable consumers" (PIRG 2001) that are less sophisticated. The predators in our model naturally prey on households that are easier to fool.

Our model also helps in distinguishing illegitimate *predatory* lending from high cost, high risk–yet legitimate–credit. Reformers tend to focus on the interest rates charged by alleged predators, but our model shows that predators do not necessarily charge more than ordinary lenders. Predators always lend more, however, suggesting that predators are better detected by how much they lend rather than how much they charge. The incentive to overlend, we show, depends on the cost of fooling households into overborrowing, on the one hand, and the recovery rate in case of default, on the other. If payday lenders and subprime mortgage lenders were preying on unsuspecting households, we would expect higher debt and delinquency among easier- to-fool-households (prey) living states with higher payday loan limits and cheaper home foreclosure procedure, yet we find few differences consistent with that prediction. Households with uncertain incomes (potential prey) who live in payday states do have higher debt, but *not* higher delinquency. In fact, they have slightly *lower* delinquency rates and they are less apt to report being credit constrained (denied credit or too discouraged to apply). Those findings of lower delinquency and looser credit constraints applies for only to the very small subset of households in are sample, but they are still tantalizing. Despite its high cost, payday loan may help risky households borrow more and better manage their finances. It will take more data to confirm that particular conjecture, however. In general, we caution that our data are very indirect since we cannot specifically identify payday or subprime borrowers.

The differences we find for smokers are interesting, but harder to interpret in terms of predatory lending. Smokers tend to borrow less (given income and many other controls) and are more likely to report being credit constrained *unless* they live in states permitting payday loans. The looser credit constraints could mean that smokers have high loan demand (because they have discount rates) and that payday lenders help satisfy that urge, or it could

mean that smokers have *hyperbolic* discount rates (that make them procrastinators) and that payday lenders exploit that (we do not find higher delinquency rates for smokers in payday states, however). We cannot distinguish those interpretations without further tests.<sup>33</sup>

While reformers often advocate usury limits to contain high payday loan prices, we find some evidence that competition among payday lenders (and pawnshops) may obviate usury limits. Using a small set of data, we find that payday loan rates and fees decline significantly as the number of payday lenders and pawnshops increase. Despite their alleged naivety, payday consumers appear sophisticated enough to shop for lower prices. The problem (of high rates) may not be too many such lenders, but too few. If scrutiny and prosecution risk limit entry into payday lending, the lack of competition may drive rates higher. In the end, the simple fact that payday lenders have triumphed over pawnshops suggests (to us) that payday lending raise household welfare by providing a lower cost, preferable alternative to borrowing from pawnshops. Unless credit is somehow bad, the extra (or more convenient) credit from payday lenders must be good.<sup>34</sup>

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<sup>33</sup>Smoking might also simply be a better way to identify the socioeconomic class that borrows from payday lenders.

<sup>34</sup>The extra (or more convenient) credit can be welfare reducing only for households with behavioral problems that make them borrow too much to begin with.

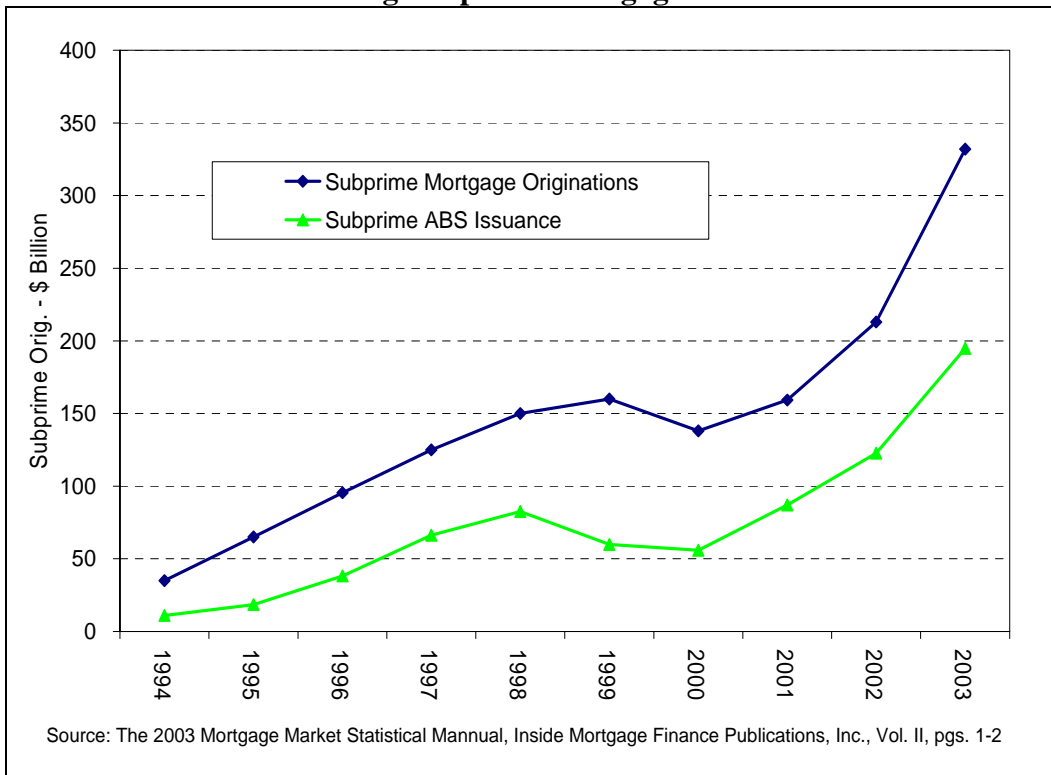
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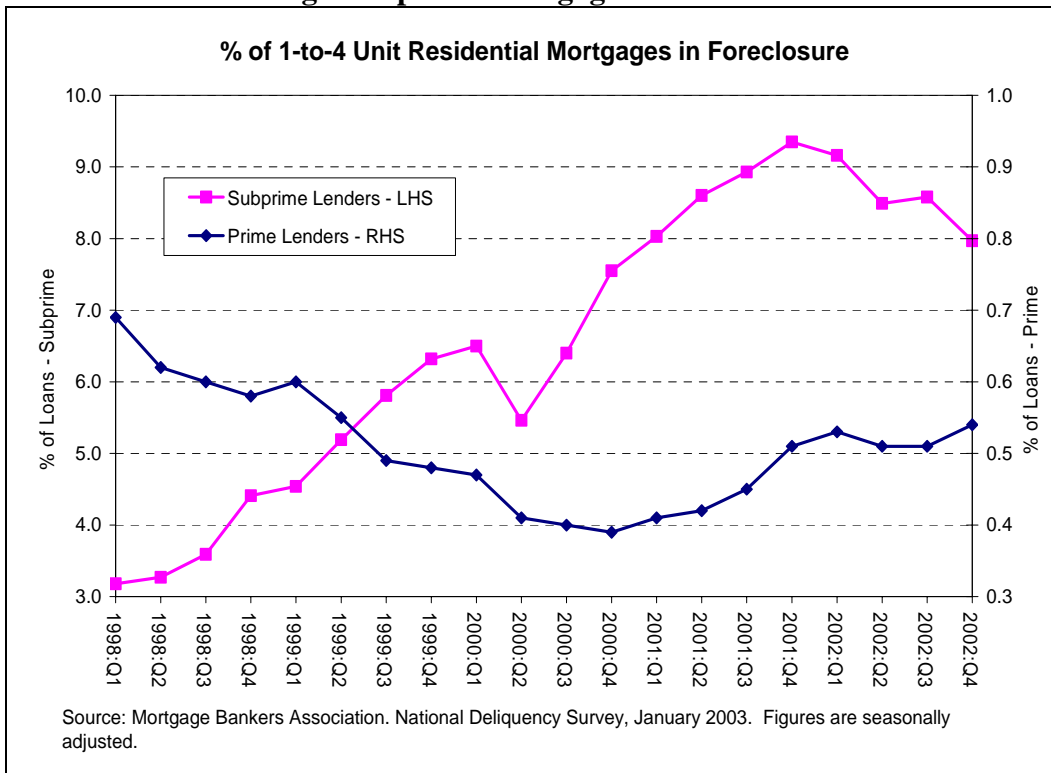
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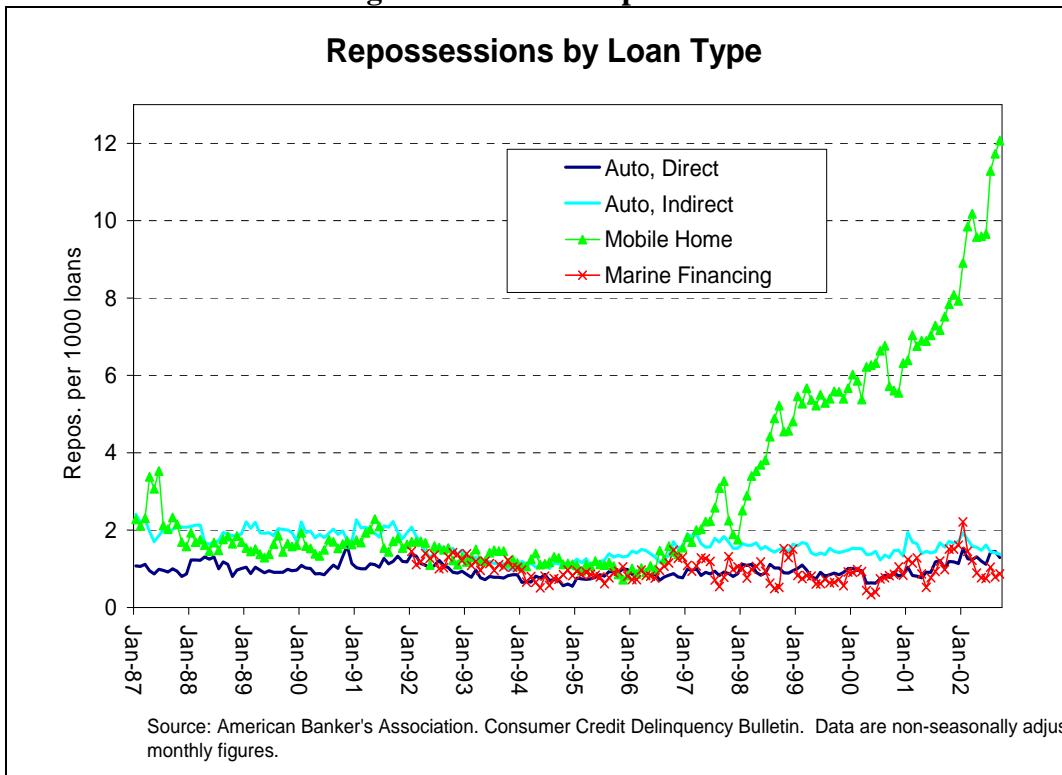
**Figure 1**  
**Booming Subprime Mortgage Market**



**Figure 2**  
**High Subprime Mortgage Foreclosures**



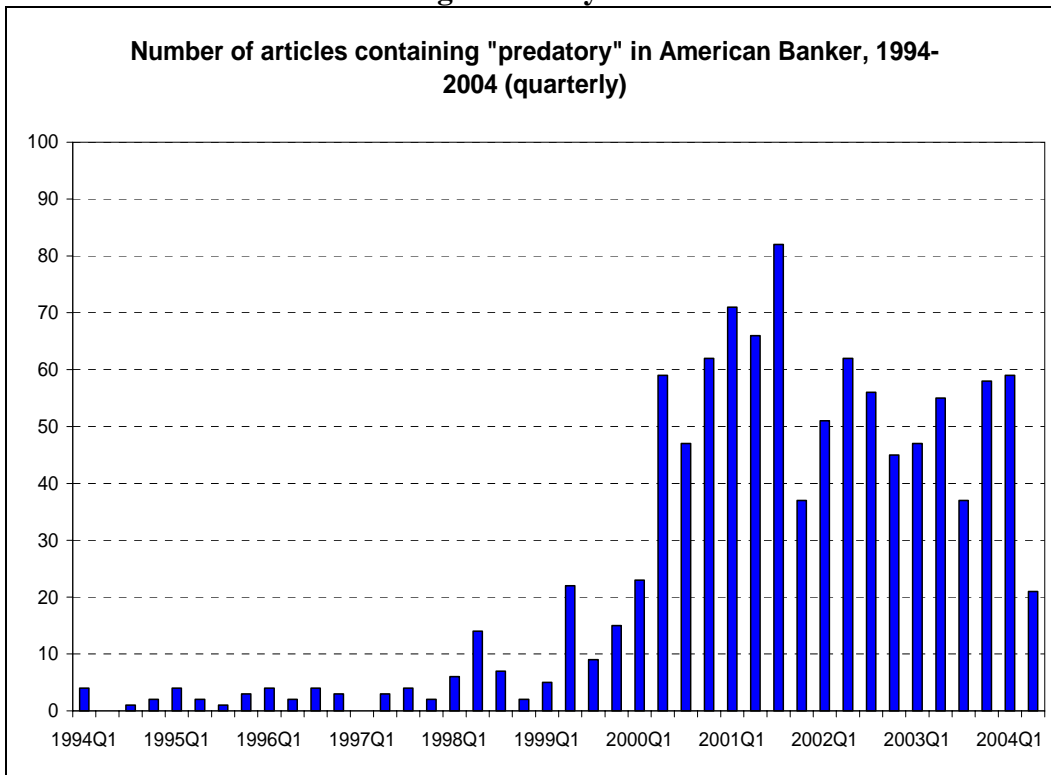
**Figure 3**  
**Rising Mobile Home Repossessions**



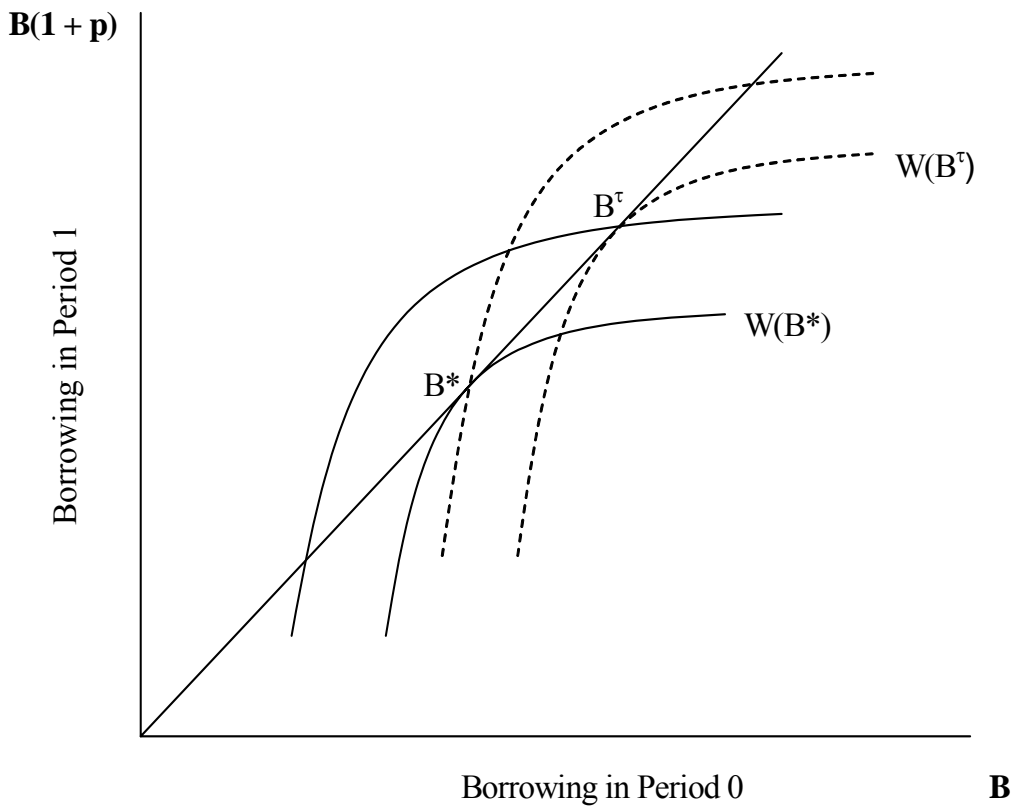
**Figure 4**  
**Payday share prices (AAE) have risen. Pawnshops (EXPW) have fallen**



**Figure 5**  
**Growing Predatory Concerns**

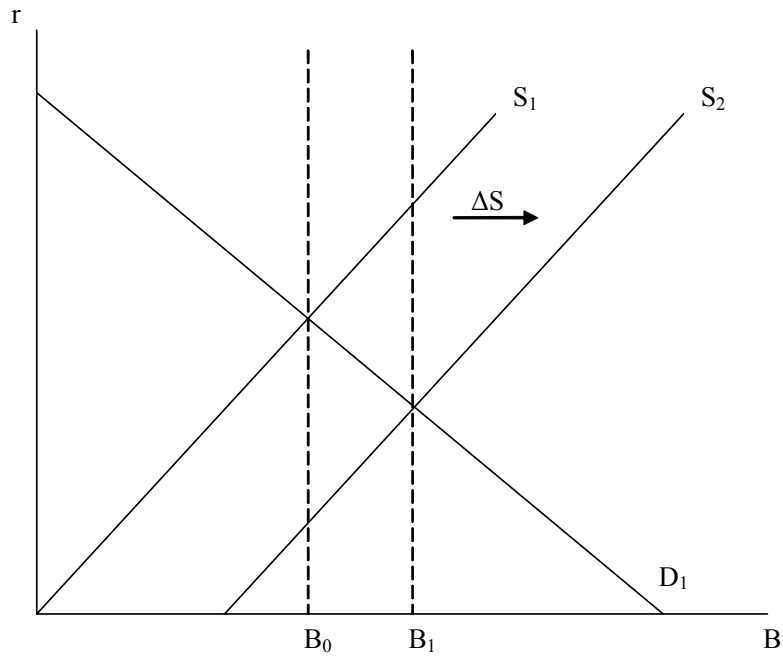


**Figure 6**  
**Over-borrowing due to income delusion/deception**

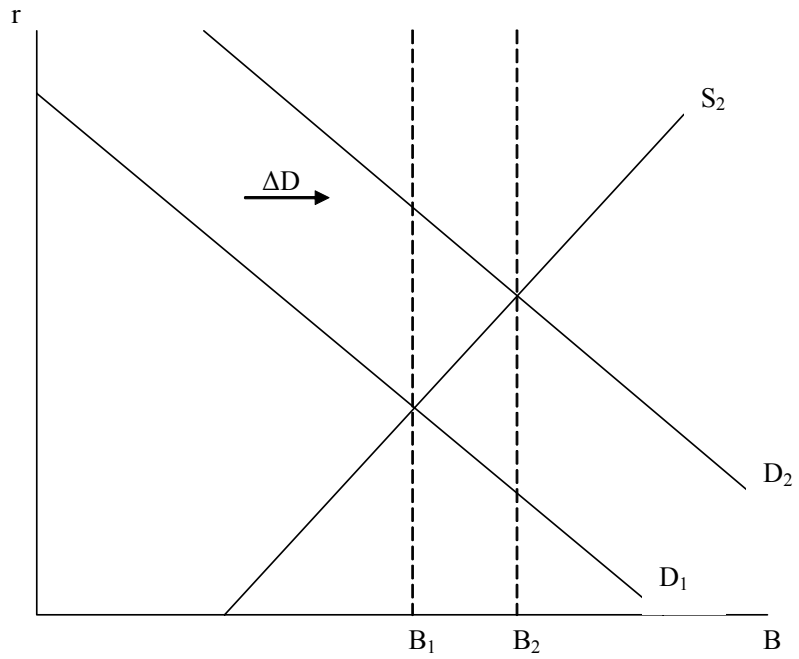


### Figure 7 Identification Strategy

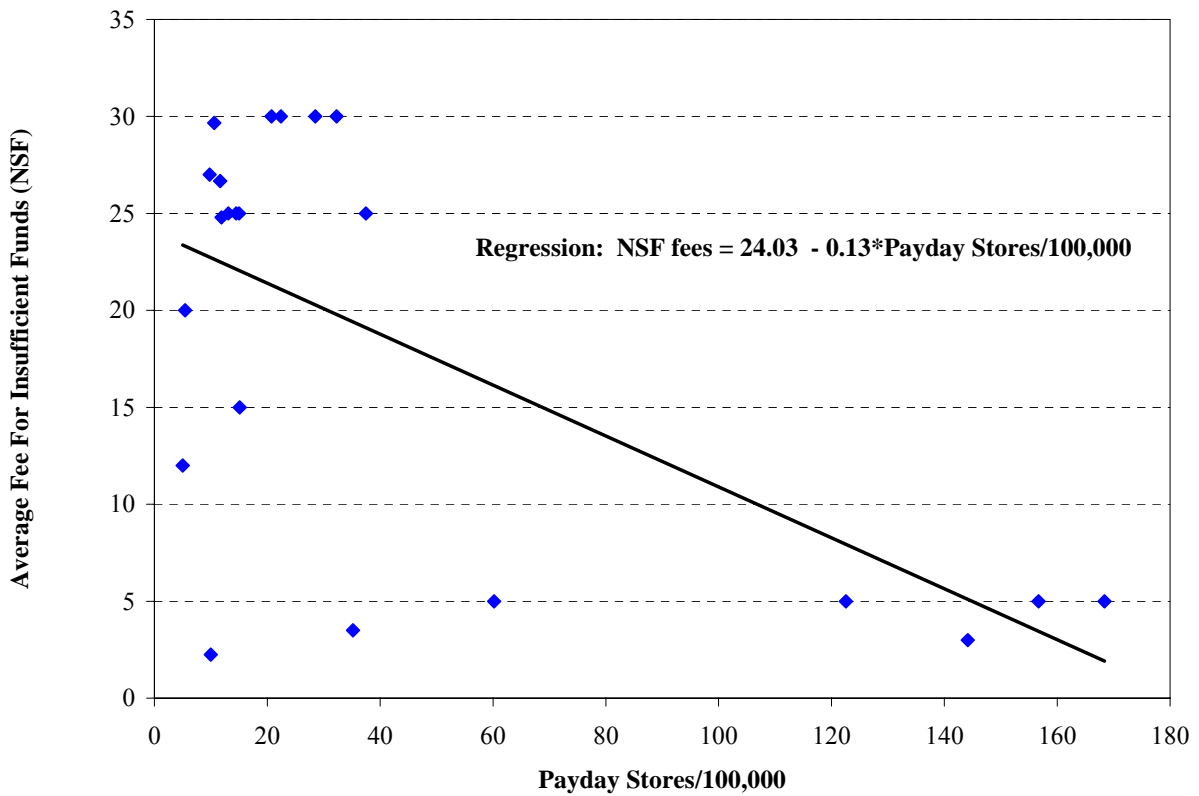
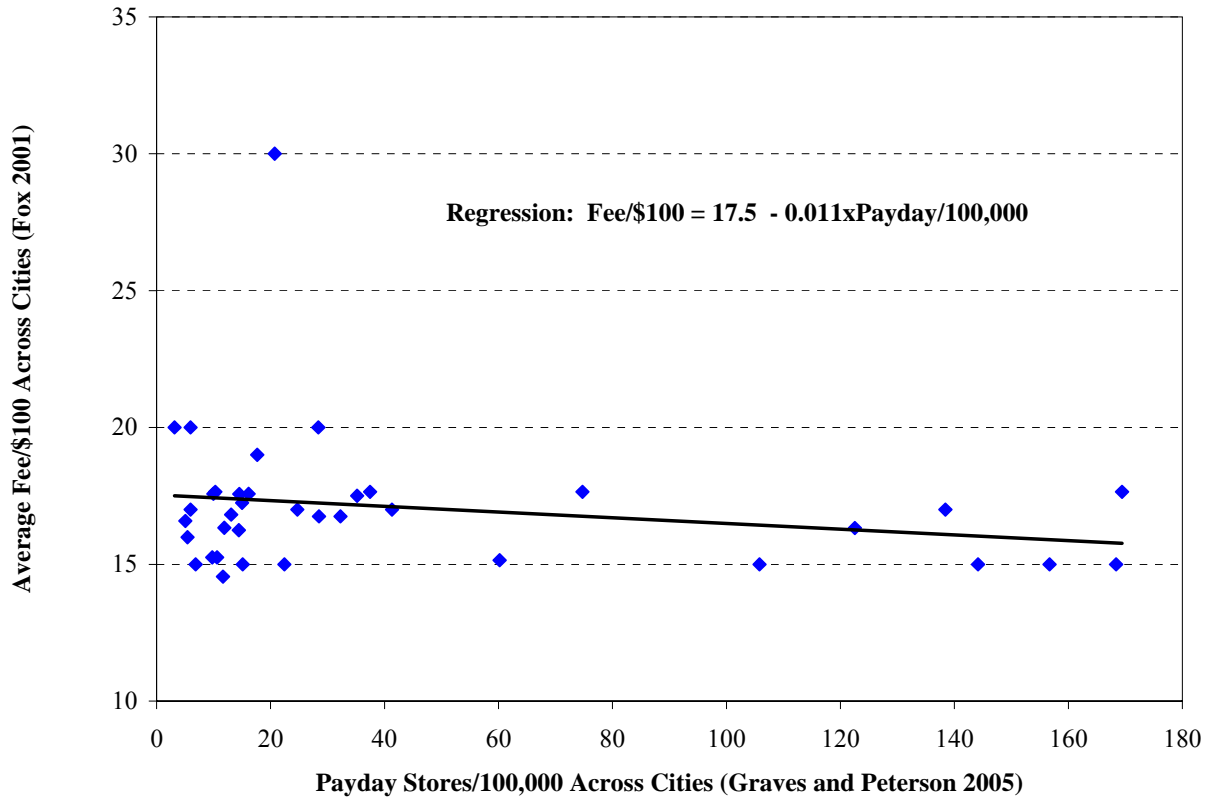
Payday lenders increase credit supply

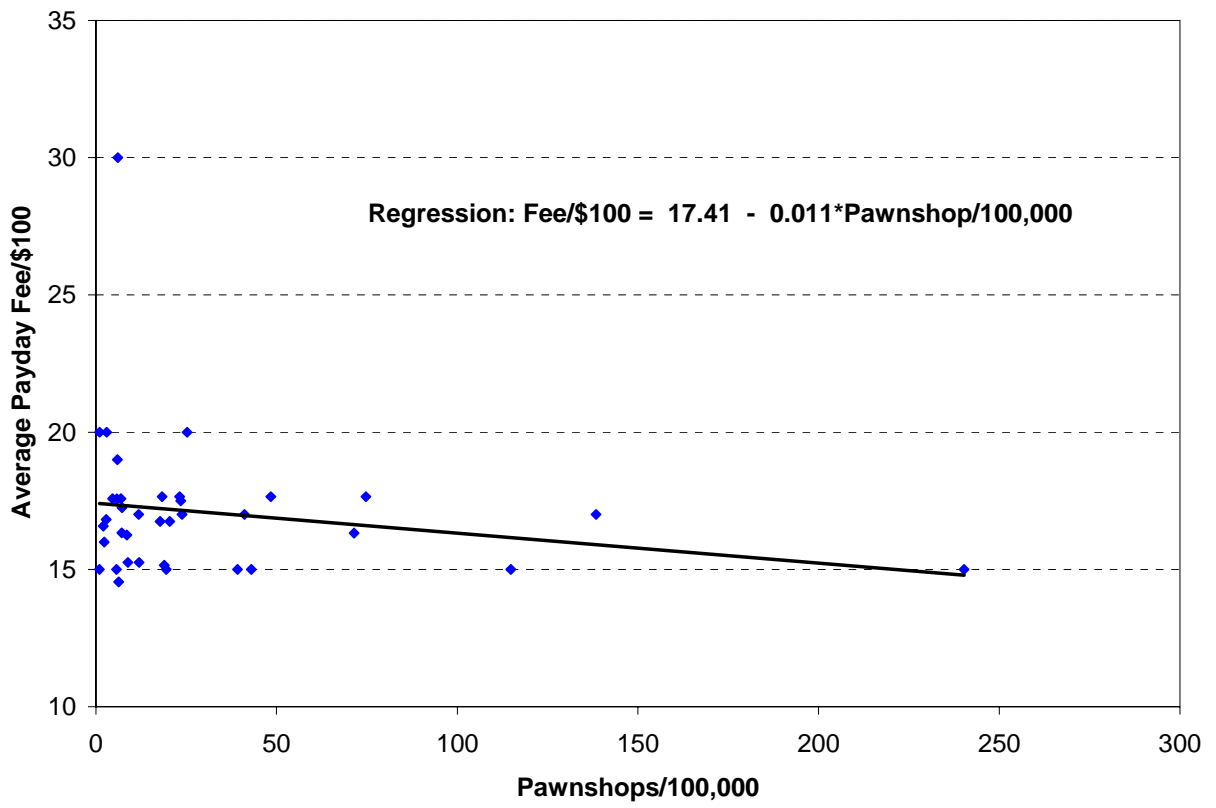


Predators increase demand for credit by “prey”



**Figure 8**  
**More Payday Stores Means Lower Payday Prices and Fees?**





**Table 1**  
**Regulation of Payday Lending and Foreclosure Procedures, by State**

States that do *not* allow payday loans (below) “effectively prohibit payday loans due to small loan interest rate caps, usury laws, and/or specific prohibition for check cashers” (Fox and Mierzwinski 2001). States that allow payday lending (below) are those without small loan caps or usury laws or states with specific laws enabling payday lending. Foreclosure procedures are from Pence (2004).

State	2001 Payday Regulations			Non-Judicial Foreclosure?
	Allows Payday?	Max Loan	Max fee/\$100	
Alabama	No	-	-	Yes
Alaska	No	-	-	Yes
Arizona	Yes	500	17.65	Yes
Arkansas	No	-	-	Yes
California	Yes	300	17.65	Yes
Colorado	Yes	500	20.00	Yes
Connecticut	No	-	-	No
Delaware	Yes	No Limit	No Limit	No
District of Columbia	Yes	1000	16.10	Yes
Florida	Yes	500	15.00	No
Georgia	No	-	-	Yes
Hawaii	Yes	300	17.65	Yes
Idaho	Yes	No Limit	No Limit	Yes
Illinois	Yes	400	No Limit	No
Indiana	No	-	-	No
Iowa	Yes	500	16.67	Yes
Kansas	Yes	860	15.00	No
Kentucky	Yes	500	17.65	No
Louisiana	Yes	350	20.00	No
Maine	No	-	-	No
Maryland	No	-	-	No
Massachusetts	No	-	-	Yes
Michigan	No	-	-	Yes
Minnesota	Yes	350	15.00	Yes
Mississippi	Yes	400	22.00	Yes
Missouri	Yes	500	No Limit	Yes
Montana	Yes	300	25.00	Yes
Nebraska	Yes	500	17.65	Yes
Nevada	Yes	1250	No Limit	Yes
New Hampshire	Yes	No Limit	No Limit	Yes
New Jersey	No	-	-	No
New Mexico	Yes	No Limit	No Limit	No
New York	No	-	-	No
North Carolina	No	-	-	Yes
North Dakota	Yes	500	20.00	No
Ohio	Yes	500	15.00	No
Oklahoma	Yes	730	20.00	No
Oregon	Yes	No Limit	No Limit	Yes
Pennsylvania	No	-	-	No
Rhode Island	No	-	-	Yes
South Carolina	Yes	300	17.65	No
South Dakota	Yes	No Limit	No Limit	Yes
Tennessee	Yes	500	17.65	Yes
Texas	Yes	350	11.87	Yes
Utah	Yes	No Limit	No Limit	Yes
Vermont	No	-	-	No
Virginia	No	-	-	Yes
Washington	Yes	500	15.00	Yes
West Virginia	No	-	-	Yes
Wisconsin	Yes	No Limit	No Limit	No
Wyoming	Yes	No Limit	30.00	Yes

**Table 2**  
**Sample Statistics**

Statistics calculated over pooled area-probability samples in 1995 and 2001 SCF.

Variable	Units	Area-Probability Sample 5,697 Households			Low (below median) Income Sample 3,189 Households		
		Mean	Std. Dev.	Median	Mean	Std. Dev.	Median
Has Debt?	Yes = 1; No = 0	0.75	0.43	1.00	0.65	0.48	1.00
Residential Mortgage Debt	(\$10,000)	3.27	7.36	0.00	1.16	3.53	0.00
Has Residential Mortgage Debt?	Yes = 1; No = 0	0.41	0.49	0.00	0.22	0.42	0.00
Non-mortgage Debt	(\$10,000)	1.15	3.25	0.23	0.67	2.23	0.06
Has Non-mortgage Mortgage Debt?	Yes = 1; No = 0	0.67	0.47	1.00	0.59	0.49	1.00
Missed Payment in Last Year?	Yes = 1; No = 0	0.16	0.37	0.00	0.17	0.38	0.00
Credit Constrained?	Yes = 1; No = 0	0.21	0.41	0.00	0.27	0.44	0.00
Payday Loan Permitted?	Yes = 1; No = 0	0.56	0.50	1.00	0.57	0.49	1.00
Payday Loan Limit	(\$)	230.12	234.31	300.00	235.37	234.59	300.00
Unlimited Payday Loans?	Yes = 1; No = 0	0.03	0.18	0.00	0.03	0.18	0.00
Non-Judicial Foreclosure ("No Judge")?	Yes = 1; No = 0	0.58	0.49	1.00	0.57	0.49	1.00
t = 2001	Yes = 1; No = 0	0.51	0.50	1.00	0.52	0.50	1.00
Uncertain Income?	Yes = 1; No = 0	0.31	0.46	0.00	0.40	0.49	0.00
No College Degree?	Yes = 1; No = 0	0.68	0.46	1.00	0.82	0.39	1.00
Smoker?	Yes = 1; No = 0	0.29	0.45	0.00	0.33	0.47	0.00
Years Instate Branching Permitted		16.64	8.13	16.00	16.81	8.20	16.00
Years Interstate Branching Permitted		12.15	3.55	13.00	12.24	3.57	13.00
Local Market Herfindahl	max = 100	14.71	8.59	13.17	14.99	8.65	13.46
Bankruptcy Exemption	(\$10,000)	11.15	23.65	3.00	8.23	19.21	2.20
Bankruptcy Exemption X Assets		5.18	40.54	0.36	16.16	660.88	0.08
Age in years		47.04	16.84	44.00	48.34	19.23	45.00
Age Squared		2,496.54	1,756.62	1,936.00	2,706.22	2,017.42	2,025.00
Income	(\$10,000)	5.25	9.42	3.62	1.91	1.02	1.92
Income Squared	(\$100,000,000)	116.28	2,319.81	13.13	4.69	4.09	3.70
Assets	(\$1,000,000)	0.34	1.72	0.11	0.83	29.52	0.04
Married?	Yes = 1; No = 0	0.59	0.49	1.00	0.40	0.49	0.00
Family Size	persons	2.43	1.40	2.00	2.12	1.37	2.00
Non-White?	Yes = 1; No = 0	0.24	0.42	0.00	0.30	0.46	0.00
Male?	Yes = 1; No = 0	0.72	0.45	1.00	0.57	0.50	1.00
Rural?	Yes = 1; No = 0	0.25	0.43	0.00	0.26	0.44	0.00
Years at Current Employer		6.65	9.23	2.00	4.13	7.67	1.00
Thinks Credit Is Bad Idea?	Yes = 1; No = 0	0.30	0.46	0.00	0.30	0.46	0.00
County Unemployment Rate		5.08	1.83	4.70	5.23	1.90	4.90



**Table 3****Do Debt, Credit Constraints, and Delinquency Differ For “Prey” in Payday States?**

Tobit or Dprobit (as indicated) regression coefficients and robust standard errors (in parenthesis) estimated over 5697 households in 1995 and 2001 SCF (area-probability samples). *Payday X Prey X 2001* measures the difference-in-difference (between 2001 and 1995) in dependent variables for prey--households with uncertain income, without college degree, or smokers--in states that permit payday loans. Dprobit estimates measure change in dependent variable given small change in continuous independent variables or switch in discrete variables. See Table 2 for variable definitions.

	Dependent Variable (model):		
	Non-mortgage Debt (Tobit)	Credit Constrained (Dprobit)	Missed Payment (Dprobit)
<i>Payday X Uncertain Income X 2001</i>	0.255 (0.434)	-0.010 (0.041)	-0.025 (0.038)
<i>Payday X No College Degree X 2001</i>	0.543 (0.596)	0.031 (0.051)	0.012 (0.044)
<i>Payday X Smoker X 2001</i>	-0.147 (0.388)	-0.080*** (0.030)	-0.015 (0.038)
Payday Permitted?	0.485 (0.332)	0.026 (0.031)	0.017 (0.026)
Uncertain Inome?	0.076 (0.215)	0.049** (0.025)	0.009 (0.024)
No College Degree?	-0.117 (0.256)	0.073*** (0.024)	0.015 (0.022)
Smoker?	-0.435** (0.197)	0.057** (0.025)	0.030 (0.025)
2001 Dummy	-0.196 (0.440)	-0.012 (0.040)	-0.077** (0.035)
Payday X 2001	-0.268 (0.598)	0.025 (0.045)	0.039 (0.039)
Uncertain X 2001	-0.420 (0.333)	-0.015 (0.031)	0.034 (0.035)
No College X 2001	-0.340 (0.473)	0.004 (0.037)	0.029 (0.034)
Smoker X 2001	0.508* (0.284)	0.025 (0.034)	0.029 (0.034)
Payday X Uncertain	-0.294 (0.303)	0.022 (0.032)	-8.76E-04 (0.030)
Payday X No College	-0.277 (0.344)	-0.057* (0.032)	-0.040 (0.029)
Payday X Smoker	-0.050 (0.267)	0.017 (0.032)	0.017 (0.031)
Age (years)	0.112*** (0.026)	0.002 (0.002)	0.004** (0.002)
Age Squared	-0.002*** (3.25E-04)	-7.95E-05 *** (2.24E-05)	-7.95E-05*** (2.20E-05)

Table 3 continues . . .

**Table 3 (continued)**

	Dependent Variable (model):		
	Non-mortgage Debt (Tobit)	Credit Constrained (Dprobit)	Missed Payment (Dprobit)
Income	0.114*** (0.034)	-0.011*** (0.003)	-0.005** (0.002)
Income Squared	-3.14E-04 ** (1.36E-04 )	2.65E-05 *** (8.37E-06 )	1.03E-05** (5.07E-06 )
Assets	0.129 (0.106)	0.005 (0.005)	0.012*** (0.004)
Married?	0.586*** (0.187)	-0.028 (0.018)	-0.025 (0.017)
Family Size	0.001 (0.049)	0.017*** (0.004)	0.020*** (0.004)
Non-White?	-0.245** (0.119)	0.091*** (0.014)	0.039*** (0.013)
Male?	0.114 (0.146)	-0.024 (0.016)	-0.002 (0.016)
Rural?	-0.104 (0.126)	-0.027** (0.013)	0.024* (0.014)
Years at Current Employer	0.021*** (0.007)	-0.003*** (0.001)	0.000 (0.001)
Thinks Credit Is Bad Idea?	-0.304** (0.119)	-0.002 (0.011)	0.005 (0.010)
County Unemployment Rate	0.026 (0.033)	0.003 (0.003)	0.001 (0.003)
Years Since Instate Branching Permitted	1.88E-05 (0.007)	0.002*** (7.10E-04 )	6.86E-04 (6.62E-04 )
Years Since Interstate Branching Permitted	0.056 (0.041)	1.09E-05 (0.003)	0.002 (0.003)
Local Market Bank Herfindahl	-0.002 (0.006)	-5.08E-04 (6.86E-04 )	-6.40E-04 (6.28E-04 )
State Bankruptcy Exemption	0.002 (0.003)	2.71E-04 (3.20E-04 )	5.94E-04 ** (2.68E-04 )
Bankruptcy Exemption X Assets	0.004 (0.006)	-2.90E-04 (8.22E-04 )	-3.77E-04 (4.79E-04 )

\*\*\* Significant at the 99% level

\*\* Significant at the 95% level

\* Significant at the 90% level

**Table 4**  
**Do Debt, Credit Constraints, and Delinquency Differ For “Prey” in States With Higher Payday Loan Limits?**

Tobit or Dprobit (as indicated) regression coefficients and robust standard errors (in parenthesis) estimated over 5697 households in 1995 and 2001 SCF (area-probability samples). *Payday Limit* = state limit on payday loans (0 to \$1250). *Unlimited* = 1 for the nine states without limits and 0 for other states. The interactions- *Limit X Prey X 2001* and *Unlimited X Prey X 2001*- measure difference-in-difference (between 2001 and 1995) in dependent variables for prey--households with uncertain income, without college degree, or smokers--in states with higher (or unlimited) payday loans. Dprobit estimates measure change in dependent variable given small change in continuous independent variables or switch in discrete variables. See Table 2 for variable definitions. See Table 2 for variable definitions.

	Dependent Variable (model):		
	Non-mortgage Debt (Tobit)	Credit Constrained (DProbit)	Missed Payment (DProbit)
<i>Payday Limit X Uncertain X 2001</i>	2.33E-04 (9.42E-04 )	-6.84E-06 (9.18E-05 )	-8.39E-05 (9.16E-05 )
<i>Unlimited X Uncertain X 2001</i>	-0.241 (1.200)	-0.141*** (0.029)	-0.090* (0.052)
<i>Payday Limit X No College X 2001</i>	0.001 (0.001)	9.60E-05 (9.80E-05 )	3.61E-05 (8.93E-05 )
<i>Unlimited X No College X 2001</i>	2.722* (1.479)	-0.150*** (0.026)	0.036 (0.134)
<i>Payday Limit X Smoker X 2001</i>	2.18E-05 (8.04E-04 )	-2.74E-04 *** (9.31E-05 )	-4.71E-05 (8.63E-05 )
<i>Unlimited X Smoker X 2001</i>	-0.798 (1.207)	0.054 (0.153)	-0.036 (0.086)
Payday Loan Limit	9.72E-04 (6.82E-04 )	2.17E-05 (6.29E-05 )	1.67E-05 (5.34E-05 )
Unlimited Payday Loans?	0.039 (0.801)	-0.125*** (0.039)	0.001 (0.069)
Uncertain Income?	-0.081 (0.203)	0.054** (0.024)	-9.61E-04 (0.023)
No College Degree?	-0.151 (0.247)	0.065*** (0.022)	0.009 (0.021)
Smoker?	-0.400** (0.189)	0.043* (0.023)	0.034 (0.024)
2001 Dummy	-0.168 (0.410)	-0.007 (0.037)	-0.072** (0.033)
Payday Limit X 2001	-5.84E-04 (0.001)	4.29E-05 (8.67E-05 )	7.46E-05 (7.32E-05 )
Unlimited Payday X 2001	-1.689 (1.270)	0.404* (0.208)	0.049 (0.124)
Uncertain X 2001	-0.308 (0.312)	-0.012 (0.030)	0.044 (0.035)
No College X 2001	-0.373 (0.441)	0.003 (0.034)	0.024 (0.032)
Smoker X 2001	0.442 (0.269)	0.035 (0.034)	0.033 (0.033)

Table 4 continues . . .

Table 4 (continued)

	Dependent Variable (model):		
	Non-mortgage De	Credit Constrained	Missed Payment
	(Tobit)	(DProbit)	(DProbit)
Payday Limit X Uncertain	-9.56E-05 (6.96E-04)	8.02E-06 (6.50E-05)	2.95E-05 (6.68E-05)
Unlimited Payday X Uncertain	0.163 (0.904)	0.308** (0.137)	0.103 (0.109)
Payday Limit X No College	-4.35E-04 (7.25E-04)	-1.04E-04 (6.95E-05)	-6.62E-05 (6.26E-05)
Unlimited Payday X No College	-0.571 (0.859)	0.081 (0.124)	-0.019 (0.071)
Payday Limit X Smoker	-3.56E-04 (5.54E-04)	8.22E-05 (6.41E-05)	1.65E-05 (6.27E-05)
Unlimited Payday X Smoker	0.475 (0.798)	0.119 (0.122)	0.038 (0.086)
Age (years)	0.113*** (0.026)	0.002 (0.002)	0.004** (0.002)
Age Squared	-0.002*** (0.000)	0.000*** (0.000)	0.000*** (0.000)
Income	0.114*** (0.034)	-0.011*** (0.003)	-0.005** (0.002)
Income Squared	0.000** (0.000)	0.000*** (0.000)	0.000** (0.000)
Assets	0.129 (0.107)	0.006 (0.005)	0.012*** (0.004)
Married?	0.576*** (0.186)	-0.027 (0.018)	-0.026 (0.017)
Family Size	0.005 (0.049)	0.017*** (0.004)	0.020*** (0.004)
Non-White?	-0.252** (0.120)	0.090*** (0.014)	0.039*** (0.013)
Male?	0.120 (0.146)	-0.024 (0.016)	-0.003 (0.016)
Rural?	-0.099 (0.127)	-0.029** (0.013)	0.023* (0.014)
Years at Current Employer	0.022*** (0.007)	-0.003*** (0.001)	0.000 (0.001)
Thinks Credit Is Bad Idea?	-0.302** (0.119)	-0.003 (0.011)	0.006 (0.010)
County Unemployment Rate	0.031 (0.033)	0.003 (0.003)	0.001 (0.003)
Years Instate Branching Permitted	0.002 (0.008)	0.002** (7.22E-04)	6.84E-04 (6.75E-04)
Years Interstate Branching Permitted	0.054 (0.042)	-9.59E-04 (0.003)	0.002 (0.003)
Local Market Herfindahl	-0.001 (0.006)	0.000 (0.001)	-0.001 (0.001)

Bankruptcy Exemption	0.002 (0.003)	0.000 (0.000)	0.001** (0.000)
Bankruptcy Exemption X Assets	0.004 (0.006)	0.000 (0.001)	0.000 (0.000)

\*\*\* Significant at the 99% level    \*\* Significant at the 95% level    \* Significant at the 90% level

**Table 5****Do Mortgage Debt and Delinquency Differ For “Prey” In States With Easier Foreclosure?**

Tobit or Dprobit (as indicated) regression coefficients and robust standard errors (in parenthesis) estimated over 5697 households in 1995 and 2001 SCF (area-probability samples). Regressions indicate whether mortgage debt or delinquency (missed payment) were different in 2001 (versus 1995) for prey (households with uncertain income, no college degree, or smokers) living in states allowing non-judicial foreclosures. See Table 2 for variable definitions.

	Mortgage Debt	Missed Payment
	(Tobit)	(Dprobit)
No Judge X Uncertain X 2001	-0.711 (1.447)	0.057 (0.052)
No Judge X No College X 2001	1.010 (1.454)	0.006 (0.044)
No Judge X Smoker X 2001	0.062 (1.496)	-0.018 (0.040)
No Judge	2.736*** (0.856)	-0.009 (0.029)
Uncertain Income?	-1.926** (0.753)	0.014 (0.024)
No College Degree?	-1.397* (0.778)	-0.007 (0.024)
Smoker?	-3.180*** (0.881)	0.035 (0.025)
2001 Dummy	-1.978* (1.055)	-0.068** (0.034)
No Judge X 2001	-0.417 (1.212)	0.029 (0.040)
Uncertain X 2001	-0.270 (1.092)	-0.016 (0.030)
No College X 2001	-0.167 (1.124)	0.033 (0.035)
Smoker X 2001	1.109 (1.154)	0.031 (0.035)
No Judge X Uncertain	1.051 (1.009)	-0.008 (0.030)
No Judge X No College	-2.735*** (1.033)	-0.002 (0.032)
No Judge X Smoker	0.269 (1.075)	0.008 (0.033)
Years Instate Branching Permitted	0.099*** (0.024)	5.69E-04 (6.60E-04)
Years Interstate Branching Permitted	0.146 (0.100)	0.002 (0.003)
Local Market Herfindahl	0.010 (0.022)	-6.88E-04 (6.35E-04)
Bankruptcy Exemption	0.046*** (0.007)	6.31E-04 ** (2.62E-04)
Bankruptcy Exemption X Assets	0.022* (0.011)	-3.49E-04 (4.66E-04)
Age (years)	1.037*** (0.097)	0.004** (0.002)
Age Squared	-0.011*** (0.001)	-7.93E-05 *** (2.22E-05)
Income	0.296*** (0.102)	-0.005*** (0.002)
Income Squared	7.89E-04 (6.17E-04)	1.05E-05 ** (5.09E-06)
Assets	-0.502 (0.392)	0.012*** (0.004)
Married?	2.821*** (0.619)	-0.026 (0.017)
Family Size	1.071*** (0.137)	0.020*** (0.004)
Non-White?	-2.693*** (0.444)	0.039*** (0.013)

Male?	1.004* (0.592)	-0.002 (0.016)
Rural?	-1.773*** (0.417)	0.024* (0.014)
Years at Current Employer	0.105*** (0.020)	0.000 (0.001)
Thinks Credit Is Bad Idea?	0.052 (0.357)	0.005 (0.010)
County Unemployment Rate	-0.258*** (0.092)	0.001 (0.003)
Number of Households	5,697	5,697

\*\*\* Significant at the 99% level \*\* Significant at the 95% level \* Significant at the 90% level

**Table 6A**  
**Statistics on Payday Prices and Payday Stores and Pawnshops Per Capita**

	# Cities <sup>4</sup>	Mean	Median	Std. Dev.	Min	Max
Price per \$100 borrowed <sup>1</sup>	37	17.1	16.8	2.6	14.6	30.0
Fee for Insufficient Funds (NSF) <sup>1</sup>	22	18.4	24.9	11.0	2.3	30.0
Payday Stores/100000 <sup>2</sup>	37	43.6	17.7	52.1	3.2	169.4
Pawnshops/100000 <sup>3</sup>	37	30.0	12.0	47.1	1.0	240.3

<sup>1</sup> From Fox and Mierzwinski (2001). <sup>2</sup> From Graves and Peterson (2005) <sup>3</sup> Authors' tabulation from Yellowpages.com. <sup>4</sup> Number of overlapping cities in Fox and Mierzwinski (2001) and Graves and Peterson (2005).

**Table 6B**  
**Do More Payday Stores (and Pawnshops) Mean Lower Prices and Fees?**

Ordinary least squares coefficient estimates (robust standard errors).

Independent Variable	Dependent Variable:							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Price/\$100	Price/\$100	Price/\$100	Price/\$100	NSF Fee	NSF Fee	NSF Fee	NSF Fee
Payday Stores 100000	-0.01* (0.005)	-	-0.007 (0.006)	-	-0.131*** (0.020)	-	-0.127*** (0.026)	-
Pawnshops 100000	-	-0.011** (0.005)	-0.005 (0.006)	-	-	-0.101*** (0.026)	-0.005 (0.016)	-
Payday + Pawn 100000	-	-	-	-0.006** (0.003)	-	-	-	- 0.065*** (0.012)
Constant	17.54*** (0.60)	17.41*** (0.56)	17.54*** (0.61)	17.53*** (0.60)	24.03*** (2.50)	21.35*** (2.36)	24.01*** (2.57)	23.13*** (2.43)
# of Cities	37	37	37	37	22	22	22	22
R <sup>2</sup>	0.043	0.038	0.047	0.047	0.40	0.25	0.40	0.36
P value for F-Test: (Payday 100k = Pawn 100k)			0.86				0.00***	

\*\*\* Significant at the 99% level \*\* Significant at the 95% level \* Significant at the 90% level