Quantifying the Economic Cost of

Predatory Payday Lending

A report from the
Center for Responsible Lending

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Executive Summary

Our analysis of quantitative data reveals that payday lenders collect the vast majority of their fees from borrowers trapped in a cycle of repeated transactions, where borrowers are forced to pay high fees every two weeks just to keep an existing loan outstanding that they cannot afford to pay off. This cycle (the "debt trap") locks borrowers into revolving, high-priced short-term credit instead of meeting the need for reasonably-priced, longer-term credit.

The Center for Responsible Lending conservatively estimates that predatory payday lending fees – those extracted from borrowers caught in a debt trap of repeated transactions – costs U.S. families $3.4 billion annually.[1] Further, we find that this figure is driven by the churning of payday loan accounts as follows:

- 91% of all payday loans are made to borrowers with five or more payday loans per year;
- Two in three borrowers (66%) incur five or more payday loans per year, while nearly one in three (31%) receive twelve or more loans per year;
- Borrowers, on average, receive 8 to 13 payday loans per year; and
- 5 million payday borrowers are caught in this debt trap each year.

Introduction

The payday lending industry, which was virtually non-existent ten years ago, has experienced explosive growth -- from $10 billion in 2000 to $25 billion in 2003.[2] Payday loans are short-term loans for immediate cash, typically secured by a borrower's written check or authorization for automatic withdrawal from the borrower's bank account. They are called "payday loans" because they are marketed as a tool for cash-strapped borrowers to make it to the next paycheck.

To get a loan, a borrower gives a payday lender a postdated check (*e.g.*, dated on the borrower's next payday) and receives cash, minus the lender's fees.[3] On a $300 payday loan, a consumer typically incurs $45 in fees and receives $255 cash. The lender then

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[1] This estimate is conservative because it does not account for additional costs related to insufficient fund (NSF) fees, bounced check fees, disparities between the credit risk and effective interest rate charged borrowers, and increased public costs due to collection efforts and payday lending induced bankruptcies. Moreover, some consumer advocates contend that the practice itself is inherently abusive and that all fees from payday lenders should be considered predatory. *See e.g.*, Consumer Federation of America, "Consumer and Community Groups Call on Federal Reserve Board to Halt Rent-a-Bank Payday Lending by Delaware Bank" press release (April 15, 2003) (available at http://www.consumerfed.org/FedLetter.html, last verified December 16, 2003).

[2] Stephens Inc., "Payday Advance – The Final Innings: Standardizing the Approach" at p5 (September 22, 2000) (year 2000 data); Carr, James H. and Schuetz, Jenny, "Financial Services in Distressed Communities: Issues and Answers" Fannie Mae Foundation at p10 (August 2001); Stephens Inc., "Update on the Payday Loan Industry: Observations on Recent Industry Developments" (September 26, 2003) (year 2003 data); Stegman, Michael and Robert Faris. "Payday Lending: A Business Model that Encourages Chronic Borrowing." Economic Development Quarterly, Vol. 17, No. 1, at p8 (February 2003).

[3] Alternatively, borrowers may authorize the lender to electronically draw down a future amount from their account.

holds the check until the borrower's next payday, which generally falls anywhere from less than a week to a month later. Typical annual percentage rates (APR) for payday loans range from 391% to 443%.[4]

Entering Cycles of Debt

Since the loan comes due on payday, borrowers expect to have money in their account to cover the check. Many borrowers, however, find that paying back the entire loan on payday would leave them without funds necessary to meet basic living expenses, such as electricity, rent and groceries.

Borrowers who do not have the funds to repay the loan and meet other expenses must make one of three choices: (1) extend or "rollover" the loan, (2) pay off the loan but borrow again from the payday lender immediately in a "back-to-back" transaction, or (3) default, and consequently incur bounced check fees by the payday lender and insufficient fund (NSF) fees by the borrower's bank while still owing the full amount of the original post-dated check.

Payday Loan "Rollovers" or Extensions:
With a rollover or loan extension, the borrower who is unable to repay the loan at the end of two weeks is offered the opportunity to pay $45 to extend the loan term for another two weeks. The borrower still owes the original $300. Until the borrower can come up with $300 to repay the loan in full, the borrower must make a $45 payment every two weeks to avoid default. This can go on for months and years, with the borrower paying $45 in fees every two weeks for no additional cash advanced. In less than twelve weeks, the customer has paid the lender fees that total more than the $255 he or she received, but still owes all the money borrowed. On a yearly basis, such a borrower pays $1,170 in finance charges in exchange for the use of $255 in cash.

Payday Loan "Back-to-Back" Transactions:
While some states attempt to restrict payday loan extensions or rolling over payday loans,[5] many lenders circumvent these rules by using "back-to-back" transactions. In a back-to-back transaction, the borrower pays off the first loan, but must immediately borrow again to meet financial needs until his or her next payday. To repay the first loan, the borrower lets the lender cash the original post-dated check or pay the lender $300 in cash to tear up the check. In either case, they borrow again immediately. The net cost to the borrower for a back-to-back transaction is the same as an extension, $45 in fees every

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[4] Stephens Inc. (2003) *supra* n2 (placing the general cost of payday loans between a $15 and $17 fee per $100 loaned for a period of approximately 14 days, amounts equivalent to annual percentage rates of 391% and 443% respectively).

[5] A survey of 50-states' laws reveals that no state law effectively restricts rollovers, back-to-back transactions and frequent usage of payday loans, except for those that have wholly prohibited payday lending, including Alaska, Connecticut, Georgia, Maine, Maryland, Massachusetts, Michigan, New Jersey, New York, North Carolina, Pennsylvania, Rhode Island, Vermont and West Virginia.

two weeks for no additional money. One borrower, for example, testified in North Carolina that she had 35 back-to-back transactions over a 17-month period.[6]

Default on payday loan:
The third option, which borrowers have strong incentives to avoid, is to default. In fact, most borrowers pay back their debt.[7] Further, borrowers know the lender is holding their check. If the borrower does not extend or renew the loan, the lender will simply cash their check. If there are insufficient funds in the account, borrowers will face considerable NSF charges from the bank and bounced check fees from the payday lender. In fact, a lender can pass the check through borrowers' account repeatedly, increasing fees significantly. Third, borrowers sometimes face a range of aggressive collection practices, including being told that they may face criminal charges for writing a bad check, even though state law may prohibit it.[8]

Churning Payday Borrowers

Examinations by state regulators suggest that rollovers and back-to-back transactions are widespread in the payday lending industry (*see* Table 1). In fact, studies suggest that the entire payday lending industry relies on a business model that encourages chronic borrowing.[9]

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[6] *See* Testimony of Lisa A. Engelkins submitted to the North Carolina State Senate Commerce Committee (June 17, 2003) (retelling experience of entering into 35 back-to-back payday loan transactions over 17 months, paying $1,254 in fees to extend a $255 payday loan, and yet still owing the original $300) (on file with authors).

[7] In Virginia for 2002, the percentage of payday loans charged off as uncollectible was 3.4%. Virginia Bureau of Financial Institutions, "Supplement to the 2002 Annual Report of the Bureau of Financial Institutions" (2002) (available at: http://www.state.va.us/scc/division/bankins/forms/ar04-02.pdf). In North Carolina for 2000, only 6% of payday checks were returned for insufficient funds (NSF) and lenders recovered 69% of the value on these checks. North Carolina Commissioner of Banks Data (2001) (available at: http://www.banking.state.nc.us/cc/cccon00.pdf).

[8] *See e.g.*, O'Malley, Chris, "After Court Crackdown, Number of Indiana Payday Lenders Drops by 70 percent" Indianapolis Star (March 7, 2003) (citing new Indiana law prohibiting threats of criminal prosecution on payday loans); Caldwell, Bert, "A message to payday lenders" The Spokesman-Review (May 18, 2003) (documenting borrower claim involving threat of criminal prosecution arising from a payday loan).

[9] Stegman, Michael and Robert Faris *supra* n2 at pp 8-32; *See also*, Caskey, John P. "The Economics of Payday Lending." Center for Credit Union Research. (2002).

Table 1: Repeat Borrowing by Available State Data[10]

State	Average Loans per Borrower
California[11]	11
Illinois[12]	13
Indiana[13]	13
North Carolina[14]	8
Wisconsin[15]	12

Our own examination of available data is consistent with these findings that churning—inducing borrowers to extend their payday loan or enter into a back-to-back transaction—is largely responsible for the payday lending industry's volume (*see* Appendix). Specifically, our analysis shows that borrowers who receive five or more payday loans per year account for 91% of payday lenders' revenues. Fully 56% of revenues are generated from borrowers who have 13 or more payday loans per year. In fact, the number of borrowers that use the payday loans 13 or more times per year (27% of borrowers) is comparable to the number of borrowers that use it only occasionally, four or fewer times per year (33% of borrowers).[16]

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[10] Based on authors' survey of state payday lending reports that quantify loans per borrower. *See supra* n21 for a discussion of the exclusion of Florida data.

[11] Editorial, "California: Stop legal loan sharks" <u>Los Angeles Times</u> at p.B10 (May 14, 2001).

[12] Illinois Department of Financial Institutions, Consumer Credit Division. (n.d.). "Short term lending final report."at p. 26 (available at: http://www.state.il.us/dfi/ccd/pdfs/Shorterm.pdf).

[13] Data from the Indiana Department of Financial Institutions(based on a examination period conducted from July 1, 1999 to September 30, 1999) "Summary of Payday Lender Examination," at p3. (available at:http://www.in.gov/dfi/legal/paydaylend/Payday.PDF).

[14] *See* Appendix (Table A1). The eight loan average reported here for North Carolina significantly underestimates the actual average because it does not account for borrowers use of multiple shops. The data was presented in its raw form so that the North Carolina figure would be comparable to the other states, which have not employed the multi-shop methodology we use in this report.

[15] Caskey, John P. "The Economics of Payday Lending," at p34. Center for Credit Union Research. (2002).

[16] *See* Appendix.

Figure 1: Payday Loan Fees Paid by Repeat Borrowers
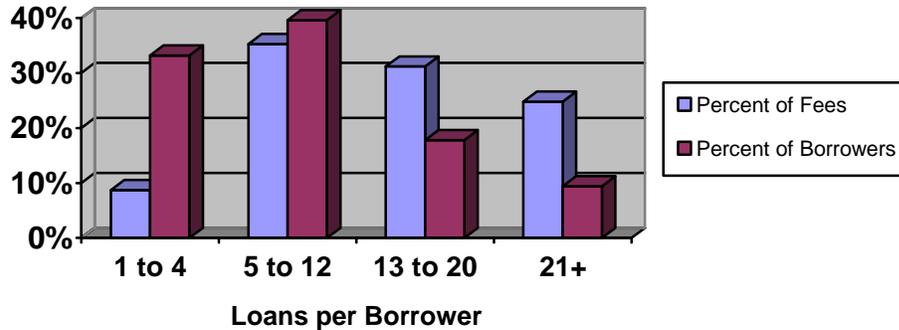
Sources: NC Banking Commissioner (2001), Elliehausen (2001) (*see* Appendix for calculations).

While proponents of payday lending argue that it is a helpful short-term solution for borrowers,[17] our analysis shows that people who use payday loans in this manner account for only a small fraction of payday lenders' revenues. Indeed, if payday loans were truly intended to meet a borrower's temporary need for a small amount of cash, then one would expect to see industry revenues driven by one-time or other limited-use borrowers.[18] For borrowers taking out five, ten, or even twenty or more loans per year, payday lending functions as chronic debt, instead of helpful credit.[19]

Quantifying the Economic Cost of Predatory Payday Lending

A borrower facing financial trouble will rarely be able to overcome it in a short period of time, such as the two-week term most often provided by payday lenders, and then immediately be in a position to pay back the loan in full. Most borrowers will need several months, perhaps a year, to have a legitimate opportunity to solve the problem. Our position is that the minimum time that payday borrowers would need in order to

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[17] Laitner, Bill, "Bill would regulate Payday Loan Businesses; Critics say it gives credence to abusive industry" Detroit Free Press (November 12, 2003) (quoting Kelly Rossman-McKinney, spokesperson for Check 'N Go, "It's really designed for short-term emergency needs, not for someone to depend on over a long period of time."); Hale, John, "Payday Lenders Numbers Grow" Danville Register & Bee (April 14, 2003) ("It's supposed to be a short-term loan to help in emergency situations", quoting branch manager of First Choice Cash Advance); Williams, Susan, "Bills may expand Payday" Charleston Gazette (February 12, 2003)(quoting Vice President of First American Cash Advance, "It helps in emergencies. If the car breaks down before payday, we can help."); Check 'N Go website (http://www.checkngo.com/questions.asp) ("…a cash advance is a short-term solution to an immediate need, it is not intended for repeated use in carrying an individual from payday to payday.").

[18] *See* Appendix.

[19] *Cf.*, Illinois Department of Financial Institutions *supra* n9 at p30 ("The problems arise when customers consistently incur expenses which exceed their income and are unable to free themselves from this biweekly financial cycle. These are the truly 'Captive Borrowers'.").

straighten out their finances sufficient to pay back the emergency funds is 90 days.[20] With a minimum 90-day term, a borrower would receive no more than four legitimate payday loans in a single year. Another way of looking at the matter is that, if payday lending really is set up for the occasional emergency as payday lenders claim, allowing one of these to occur every quarter should be sufficient to meet the credit needs of these borrowers. Accordingly, we chose five or more loans as the dividing line above which borrowers should be considered harmed by repeated payday loans.

To quantify the economic costs of predatory payday lending, we aggregated the amount of fees paid on payday loans by borrowers who received five or more payday loans in a calendar year. Our calculations use data from the North Carolina Commissioner of Banks that details how often borrowers use a single payday lender in a year. To the best of our knowledge, these data are the only loan level measurements available that allow us to determine confidently the percentage of revenues obtained from borrowers who take out five or more payday loans from one lender in a calendar year.[21] The North Carolina data appear to be representative of the rest of the country, and in fact, show fewer payday loans per borrower than in other states, which would have the effect of understating the amount of predatory payday lending.[22]

However, the North Carolina data do not account for borrowers who use more than one payday lender in a year. A national survey shows that 47% of payday borrowers will use more than one payday lending company ("shop") per year.[23] Consequently, in our analysis we account for payday lending to borrowers from multiple shops to get a more accurate assessment of borrowers' costs.[24]

Our analysis (*see* Appendix) reveals that 91% of payday loans are made to borrowers who receive five or more loans per year (that is, by definition, predatory payday lending). Multiplying 91% of loans times the $25 billion annual volume of payday lending[25] times

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[20] In addition, we believe that borrowers should have the ability to make installment payments as opposed to having the total loan amount due at the end of the term.

[21] Florida collects similar loan level data, but its data are not representative because the state has a prohibition against making a payday loan while another loan is outstanding with another lender, and the prohibition is enforced by the use of a statewide database that tracks individual borrowers. Other states allowing payday lending lack either this prohibition or, perhaps more importantly, the database to track the information. Further complicating any usage of the Florida database, payday lenders partnering with banks through "rent a charter" schemes claim preemption of state payday laws and routinely do not follow state law requirements.

[22] Data collected by other state regulatory agencies show similar patterns of lending. *See,* Table 1 *supra* p5 and accompanying discussion.

[23] Elliehausen, G., & Lawrence, E. C. "Payday advance credit in America: An analysis of consumer demand" (Monograph. 35) Georgetown University, McDonough School of Business, Credit Research Center at p40 (2001).

[24] Even the North Carolina data has limitations, though it tends to undercount rather than over count the number of borrowers with 5 or more loans in a year. For example, since the data only examine loans in a given calendar year, borrowers taking out four loans in November and December and four more loans in January and February would not be captured using our methodology.

[25] Stephens Inc. (2003) *supra* n2 (estimating 2003 U.S. payday loan volume from $25 to 27 billion).

the typical 15% fee charged ($15 fee on a $100 check, for $85 in loan proceeds)[26] results in a total estimated cost of predatory payday lending of $3.4 billion.

Table 3: Economic Cost of Predatory Payday Lending

Factor	Amount
Portion of loans to borrowers with 5 or more payday loans per calendar year	91%
2003 U.S. payday volume	$25 billion
Typical industry fee	15%
Total cost	$3.4 billion

Source: Authors' Calculations (*see* Appendix)

The $3.4 billion cost associated with predatory payday lending reflects the experiences of the more than two of every three payday loan borrowers who find themselves with five or more loans.

Even if one disputes the appropriate cutoff for how many loans in a year constitutes legitimate "emergency" use, the figures still demonstrate that the economics of the payday lending industry are driven by borrowers in the debt trap, perpetuating rather than alleviating the emergency facing the borrower. Were we to assume that a borrower could take six loans a year on an emergency basis, the total fees attributable to payday loans to borrowers who received seven or more loans would still amount to $3.1 billion annually. Even if the assumption that the appropriate number of payday loans a borrower should receive is twelve (one every single pay period for a borrower paid on a monthly basis), one would conclude that predatory payday lending costs Americans $2.1 billion annually.

Five million American borrowers are caught in this debt trap each year. There is $25 billion in annual payday volume,[27] and the average loan size is approximately $300.[28] Thus, there are approximately 83 million payday loans per year ($25 billion volume/$300 average payday loan). The average borrower will receive approximately 11 payday loans per year.[29] Using that figure, we are able to estimate a total of 7.6 million U.S. payday borrowers per year (83 million payday loans/11 loans per borrower). Because we know

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[26] According to the Missouri Department of Economic Development, $15 is the most common fee per $100 payday loan, but still less than the average fee. (http://www.missourifinance.org/pdfs/survey.pdf). A 2001 survey by the Consumer Federation of America and U.S. Public Interest Research Group found average fees of $18.28 per $100. *See* Fox, Jean Ann and Mierzwinski, E. "Rent-A-Bank Payday Lending: How Banks Help Payday Lenders Evade Consumer Protections" at p5 (November 2001). Also, the $15 fee per $100 is charged by some of the largest payday lenders, including Advance America and Check 'N Go. *See* "Race to the Bottom," Forbes (July 21, 2003). *See also*, Stephens, Inc. (2003) *supra* n2.

[27] See footnote 2.

[28] Stegman, Michael and Robert Faris. "Payday Lending: A Business Model that Encourages Chronic Borrowing." Economic Development Quarterly, Vol. 17, No. 1, at p8 (February 2003).

[29] See Table 1: average number of loans in the five states for which we have data is 11.

that 66% of the 7.6 million borrowers take out 5 or more payday loans per year,[30] we estimate that 5 million payday borrowers are caught in the debt trap.

Table 4: Borrowers Caught in Debt Trap

Factor	Amount
2003 U.S. payday lending volume	$25 billion
Average loan size	$300
2003 U.S. payday transactions	83 million
Average # of loans per borrower	11
Total # of borrowers	7.6 million
% of borrowers caught in debt-trap	66%
Total # of U.S. borrowers caught in debt trap	**5 million**

Our estimate may well understate the true costs of predatory payday lending. In addition to our conservative assumptions, we have not included any costs of loans to borrowers with four or fewer payday loans, despite serious concerns raised by national consumer advocates with regard to those loans.[31]

Conclusion

By using a conservative methodology, we estimate that predatory payday lending costs 5 million Americans $3.4 billion annually. While an understatement of the actual cost of predatory payday lending experienced by borrowers, our examination of the data shows that borrowers caught in the debt cycle provide the lion's share of payday lenders' revenues.

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[30] See Figure 1.

[31] These concerns include: marked disparities between the credit risk and effective interest rate charged on payday loans; lending without regard to the ability to repay; the coercive nature of holding a check as a payment mechanism; the short-term, non-installment nature of payday loans; additional costs related to NSF fees and bounced check charges; and public costs arising from collection efforts and associated bankruptcy filings. *See* Skillern, Peter. "Small Loans, Big Bucks: An Analysis of the Payday Lending Industry in North Carolina" (2002) (comparing payday loans to returns on equity from credit cards); *see also*, Fox, Jean Ann and Mierzwinski, E. *supra* n26 (detailing additional rate-risk comparisons with other types of financial products); Concerns were also raised in conversations with Elizabeth Renuart, National Consumer Law Center (December 1, 2003); Margot Saunders, National Consumer Law Center, (December 4, 2003); and Jean Ann Fox, Consumer Federation of America (December 15, 2003).

Appendix

Estimating Borrowers with Five or More Payday Loans Annually

Table A1 summarizes data from the North Carolina Commissioner of Banks' office.[32]

Table A1: North Carolina Payday Lending, 2000

No. of customers	431,214
Avg. loan amount	$240.37
Fee per loan	14.9%
Avg. loans per customer	8.1
Revenues	$124,166,636

The methodology described in this Appendix projects the total number of loans made to borrowers, using (1) number of loans reportedly made to each borrower by individual lenders and (2) multiple payday shops usage data from a survey of borrowers. The projection was necessary because the North Carolina Commissioner of Banks' data only reflect borrowers' experiences with individual lenders. Consequently, these data do not accurately account for the number of loans taken by borrowers who use multiple lenders. For example, if one borrower received one loan from two different lenders (for a total of two loans), the data would incorrectly account for the two loans as one loan each by two borrowers (for a total of two loans).

This distinction is important since, according to survey data (*see* Table A2), borrowers do in fact use more than one company to obtain their payday loans.[33] Thirty percent of borrowers reported using two lenders, eleven percent used three lenders, and six percent used four or more lenders.[34] While several findings in the underlying study raise concerns due to the very low survey response rate, the statistics on multiple lender use are supported by anecdotal research from other organizations.[35]

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[32] Office of the North Carolina Commissioner of Banks, "2000 ANNUAL REPORT OF CHECK CASHING BUSINESSES LICENSED UNDER ARTICLE 22 OF CHAPTER 53 OF THE NORTH CAROLINA GENERAL STATUTES FACT SHEET" (available at: http://www.banking.state.nc.us/cc/cccon00.pdf).

[33] Elliehausen, Gregory and Lawrence, Edward C. "Payday Advance Credit in America: An analysis of customer demand." Monogram #35, Credit Research Center McDonough School of Business Georgetown University at p40 (April 2001).

[34] *Id.*

[35] *See e.g.*, Stegman, Michael and Robert Faris, *supra* n2 at p21.

Table A2: Reported use of multiple payday lenders

Borrower Experience	Percent
Used only one company	53%
Used two companies	30%
Used three companies	11%
Used four or more companies	6%

Source: Elliehausen *(2001)*

As noted, our baseline for accounting from borrowers who utilize multiple lenders or "shops" is the North Carolina data. We derive the total number of loans made to borrowers at individual shops simply by multiplying the number of borrowers by the corresponding number of loans. So, for example, the first row of Table A3 shows that 66,921 borrowers reported receiving one loan from a single shop. However, in fact, the survey data on multiple shop usage indicates that just 53% of these borrowers received loans only from the shop that reported the corresponding data. This means that 47% used more than one shop and, consequently, received more than the one loan indicated in the raw data. To more properly account for borrowers' experiences, we must adjust for this multiple shop use.[36]

Examining more closely the number of loans attributed to borrowers reported in the Commissioner of Banks' database as having received one loan from a single shop (66,921) and applying the data from Table A2 on multiple shop usage, we can gain a more accurate understanding of those loans as follows:

- 53% of the 66,921 loans attributed to borrowers with one loan need no adjustment = 35,468
- 30% of the 66,921 loans attributed to borrowers with one loan actually went to borrowers who received at least one additional loan (total of two loans) = 20,076
- 11% of the 66,921 loans attributed to borrowers with one loan actually went to borrowers who received at least two additional loans (total of three loans) = 7,361
- 6% of the 66,921 loans attributed to borrowers with one loan actually went to borrowers who received at least three additional loans (total of four loans) = 4,015

It is also helpful to understand this methodology by examining a single row in our calculation spreadsheet. Turning to row 5 of Table A3, we can now understand that only 53% of those loans reported as made to borrowers with 5 loans are correctly accounted

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[36] To be conservative, we assumed that borrowers who reported using four or more lenders only used four. Further, we assumed that borrowers who incurred loans from multiple lenders only took out one additional loan from each additional lender. In doing so, we believe we have underestimated, perhaps substantially, the number of loans made to borrowers with five or more loans in a year. In addition, the raw data on number of borrowers with multiple loans bundles all loans above 27 per year into one group. Once again to be conservative, we have assumed that all borrowers reported in this group received the minimum possible 27 loans per year.

for in the data (53% * 131,205 = 69,539). However, borrowers in rows two through four of the table also used additional lenders and therefore account for many of the loans we project as made to borrowers with five loans (Column Y = A + B + C + D). By utilizing the survey data we can perform the following calculations to project the actual number of borrowers who received five loans, accounting for multiple shop use:

- 53% of 131,205 loans attributed to borrowers with five loans from one lender = 69,539 (Column A).
- 30% of 119,100 loans attributed to borrowers with four loans from one lender (but actually received at least one more from a second lender for a total of five) = 35,730 (Column B).
- 11% of 106,362 loans attributed to borrowers with three loans from one lender (but actually received at least one more from two additional lenders for a total of five) = 11,700 (Column C).
- 6% of 89,078 loans attributed to borrowers with two loans from one lender (but actually received at least one more from three additional lenders for a total of five) = 5,345 (Column D).
- Total of all such borrowers = 122,313 loans to borrowers with five loans total from all lenders (Column Y).

To review, to calculate the number of loans reported to "single shops" (X), we multiply the number of borrowers (F) from existing data[37] by the corresponding number of loans (Q) in equation one. Subsequently, we use this figure as a base for estimating loans resulting from borrowers' use of multiple shops in equation two. Equation two embodies the assumption that borrowers take only one additional loan from each additional lender they reported utilizing. Finally, in equation three, we provide projections for number of borrowers at specified loan levels by simply dividing the projected number of loans at multiple shops (Y) by the related frequency of borrowing (Q).

From these figures we are able to use equation four to calculate the total amount of fees derived from borrowers taking five or more payday loans per year. As detailed in the paper, this calculation is a function of the portion of loans to borrowers with five or more payday loans, a conservative estimate of typical payday loan fees (15 percent), and total estimated 2003 payday lending national volume ($25 billion).

EQUATION 1: $X_i = F_i * Q_i$

EQUATION 2: $Y_i = 0.53X_i + 0.30X_{(i-1)} + 0.11X_{(i-2)} + 0.06X_{(i-3)}$

EQUATION 3: $Z_i = Y_i / Q_i$

EQUATION 4: $A = \left(\sum_{i=5}^{30} Y_i / \sum_{i=1}^{30} Y_i \right) * 15\% \text{ fee} * \$25 \text{ billion} = \$3.4 \text{ billion}$

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[37] Office of the North Carolina Commissioner of Banks *supra* n28 (year 2000 data).

Table A3: Projections of borrowers' experiences with multiple shop payday lending

No. of Loans per Borrower (Q)*	Single Shop Number of Borrowers (F)*	Single-Shop Loans (X)	Loans to Borrowers Using One Lender (A) (53%)	Loans to Borrowers Using Two Lenders (B) (30%)	Loans to Borrowers Using Three Lenders (C) (11%)	Loans to Borrowers Using Four Lenders (D) (6%)	Multiple Shop Projected Loans (Y)	Multiple Shop Cumulative Share of Loans	Multiple Shop Projected Number of Borrowers (Z)	Multiple Shop Cumulative Share of Borrowers
1	66,921	66,921	35,468				35,468	1.0%	35,468	9.3%
2	44,539	89,078	47,211	20,076			67,288	3.0%	33,644	18.2%
3	35,454	106,362	56,372	26,723	7,361		90,457	5.6%	30,152	26.1%
4	29,775	119,100	63,123	31,909	9,799	4,015	108,845	8.7%	27,211	33.2%
5	26,241	131,205	69,539	35,730	11,700	5,345	122,313	12.2%	24,463	39.7%
6	23,332	139,992	74,196	39,362	13,101	6,382	133,040	16.0%	22,173	45.5%
7	20,627	144,389	76,526	41,998	14,433	7,146	140,102	20.1%	20,015	50.7%
8	19,669	157,352	83,397	43,317	15,399	7,872	149,985	24.4%	18,748	55.7%
9	17,788	160,092	84,849	47,206	15,883	8,400	156,337	28.9%	17,371	60.2%
10	16,815	168,150	89,120	48,028	17,309	8,663	163,119	33.6%	16,312	64.5%
11	16,070	176,770	93,688	50,445	17,610	9,441	171,184	38.5%	15,562	68.6%
12	17,199	206,388	109,386	53,031	18,497	9,606	190,519	44.0%	15,877	72.8%
13	11,038	143,494	76,052	61,916	19,445	10,089	167,502	48.8%	12,885	76.2%
14	9,475	132,650	70,305	43,048	22,703	10,606	146,662	53.1%	10,476	78.9%
15	8,601	129,015	68,378	39,795	15,784	12,383	136,341	57.0%	9,089	81.3%
16	8,341	133,456	70,732	38,705	14,592	8,610	132,637	60.8%	8,290	83.5%
17	7,595	129,115	68,431	40,037	14,192	7,959	130,618	64.6%	7,683	85.5%
18	6,841	123,138	65,263	38,735	14,680	7,741	126,419	68.2%	7,023	87.4%
19	6,283	119,377	63,270	36,941	14,203	8,007	122,421	71.7%	6,443	89.0%
20	5,892	117,840	62,455	35,813	13,545	7,747	119,560	75.2%	5,978	90.6%
21	5,278	110,838	58,744	35,352	13,131	7,388	114,616	78.5%	5,458	92.1%
22	4,799	105,578	55,956	33,251	12,962	7,163	109,333	81.6%	4,970	93.4%
23	4,722	108,606	57,561	31,673	12,192	7,070	108,497	84.7%	4,717	94.6%
24	5,129	123,096	65,241	32,582	11,614	6,650	116,087	88.1%	4,837	95.9%
25	4,164	104,100	55,173	36,929	11,947	6,335	110,383	91.3%	4,415	97.0%
26	6,019	156,494	82,942	31,230	13,541	6,516	134,229	95.1%	5,163	98.4%
27	2,607	70,389	37,306	46,948	11,451	7,386	103,091	98.1%	3,818	99.4%
28	0	0	0	21,117	17,214	6,246	44,577	99.4%	1,592	99.8%
29	0	0	0	0	7,743	9,390	17,132	99.9%	591	100.0%
30	0	0	0	0	0	4,223	4,223	100.0%	141	100.0%
Total	431,214	3,472,985					3,472,985		380,565	

* Raw data from North Carolina Commissioner of Banks (2001).