

CFPB Data Point: Payday Lending

The CFPB Office of Research



Consumer Financial
Protection Bureau

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This is the first in an occasional series of publications from the Consumer Financial Protection Bureau's Office of Research. These publications are intended to further the Bureau's objective of providing an evidence-based perspective on consumer financial markets, consumer behavior, and regulations to inform the public discourse.

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1. Introduction

In this Data Point we present the results of several analyses of consumers' use of payday loans. The focus of the analyses is loan sequences, the series of loans borrowers often take out following a new loan.

Key findings of this report include:

- Over 80% of payday loans are rolled over or followed by another loan within 14 days (i.e., renewed). Same-day renewals are less frequent in states with mandated cooling-off periods, but 14-day renewal rates in states with cooling-off periods are nearly identical to states without these limitations. We define loan sequence as a series of loans taken out within 14 days of repayment of a prior loan.
- While many loan sequences end quickly, 15% of new loans are followed by a loan sequence at least 10 loans long. Half of all loans are in a sequence at least 10 loans long.
- Few borrowers amortize, or have reductions in principal amounts, between the first and last loan of a loan sequence. For more than 80% of the loan sequences that last for more than one loan, the last loan is the same size as or larger than the first loan in the sequence. Loan size is more likely to go up in longer loan sequences, and principal increases are associated with higher default rates.
- Monthly borrowers are disproportionately likely to stay in debt for 11 months or longer. Among new borrowers (i.e., those who did not have a payday loan at the beginning the year covered by the data) 22% of borrowers paid monthly averaged at least one loan per pay period. The majority of monthly borrowers are government benefits recipients.
- Most borrowing involves multiple renewals following an initial loan, rather than multiple distinct borrowing episodes separated by more than 14 days. Roughly half of new

borrowers (48%) have one loan sequence during the year. Of borrowers who neither renewed nor defaulted during the year, 60% took out only one loan.

The next section describes the data used in the analysis; subsequent sections describe the specific analyses and results exploring sequence durations, loan sizes and amortization, and loan usage over the year. An appendix discusses sampling issues and provides results from different sampling approaches.

2. Data

The Bureau obtained data from a number of storefront payday lenders through the supervisory process. These are the same data from which the Bureau drew a sample for use in the analysis described in the CFPB Payday Loans and Deposit Advance Products White Paper (April 2013), hereafter referred to as the “White Paper.”¹ The data provide information on all payday loans extended by each lender over a period of at least 12 months. The dataset contains an anonymous customer ID that allows us to link all loans made to the same consumer by a given lender during the observed time period.

The data provided by different lenders contain differing levels of detail. In addition to information on origination and maturity dates of the loans, the majority of the analysis presented in this Data Point requires that we determine whether a borrower defaulted on a loan. The information on which we base our analysis of defaults is only available for a subset of the lenders.² In addition, while some of the lenders provided more than 12 months of data, most did not. Therefore, we limit our analysis to 12 months for each lender so that the period of time over which we measure borrowing at each lender is consistent across lenders. The dataset used in the detailed analysis of borrowing patterns includes information on over 12 million loans in 30 states, and covers 12-month windows in 2011 and 2012. We describe further details of our sample and methodology in each section.

¹ CFPB, “Payday Loans and Deposit Advance Products, a White Paper of Initial Data Findings,” available at http://files.consumerfinance.gov/f/201304_cfpb_payday-dap-whitepaper.pdf.

² Portions of the analysis can be run without using information about loan defaults. We have run those portions of the analysis for a broader set of lenders, and the results are very similar.

3. Loan sequences

In this section, we describe patterns of borrowing following an initial payday loan. A primary driver of the cost of using payday loans is the extent to which borrowers roll loans over or engage in re-borrowing within a short period of time after repaying a loan. We use the term “renewal” to describe both paying additional fees to roll over a loan and re-borrowing within a given time period after repaying a loan.

One way borrowers could mitigate the cost of renewing, if they have difficulty paying off the initial loan in full, would be to borrow less each time they take out a new loan, and thereby effectively amortize the debt through a series of smaller and smaller balloon loans. Therefore, in addition to describing the duration of loan sequences, we study whether consumers’ loan amounts change over the course of a loan sequence.

3.1 Loan sequence definitions and state roll-over restrictions

We define a loan sequence as an initial payday loan plus the series of subsequent loans that are renewed within 14 days of repayment of the prior loan. For most consumers, re-borrowing within 14 days means borrowing prior to receiving another paycheck after repaying the prior loan. In addition, a number of states place restrictions on rolling loans over or on taking out a new loan within some short window after repaying a loan. A definition of loan sequence that only includes direct roll-overs or loans taken out on the same day that another is repaid could therefore understate the true duration over which consumers re-borrow before they fully repay an initial need.

Figure 1 shows the share of loans that are renewed within three different timeframes. These results are for all loans made during 12-month windows for a set of lenders for which we have information on loan origination and maturity dates.³ The categories are based on the state of the storefront where the loans were taken out, with same-day, 7-day, and 14-day renewal rates for groups of states based on regulatory restrictions around roll-overs and waiting periods, and for all states represented in the sample.

The first category includes five states with no effective limitations on roll-overs: Kansas, Ohio, Nevada, Utah and Texas.⁴ The second category consists of some of the many states that prohibit roll-overs but do not prevent lenders from making a loan to a borrower on the same day that a prior loan is repaid. The states in this category are California, Iowa, Kentucky, Michigan, Mississippi, Nebraska, New Mexico, South Carolina, and Tennessee. The final category includes states that impose a waiting period of at least one day after a loan is repaid before a lender can make another loan to the same borrower. These states are Alabama, Florida, Virginia and Wisconsin.⁵ Note that waiting periods may not be applicable for every loan – in Wisconsin and Alabama, they are triggered only after two consecutive loans – and therefore we observe some same-day renewals in these states. The "All" category includes all of the above states, as well as states with intermediate restrictions that do not fit neatly into the other categories: Alaska, Idaho, Illinois, Louisiana, Missouri, Oklahoma, Rhode Island and Washington.

³ We have also conducted this analysis for the subset of lenders that are used in the detailed loan sequence analysis – those lenders for whom we have the information that we use to analyze defaults – and the results are very similar.

⁴ While the deferred presentment statute in Texas imposes some restrictions on roll-overs, nearly all payday loans during our sample period were being made under the Credit Services Organization (CSO) model, which carries few restrictions. Licensed Ohio lenders operate under the state's mortgage loan and small loan statutes, so the limitations of its deferred presentment statutes do not apply to the loans in our sample.

⁵ Alabama's law specifies that borrowers must wait until the next business day to take out a loan after two consecutive loans are paid in full. Florida's law specifies a 24-hour cooling-off period after each loan. Virginia law forbids lenders from making a new loan on the same day a borrower repays a previous one. Wisconsin allows one renewal and requires a 24 hour waiting period after that renewal.

FIGURE 1: PAYDAY LOAN RENEWAL RATES BY STATE ROLL-OVER RESTRICTION

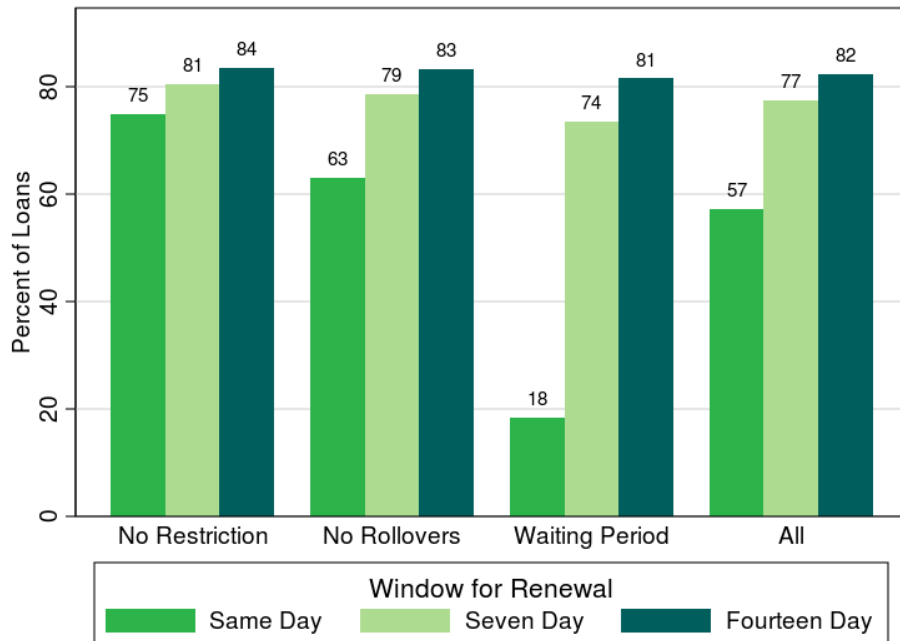


Figure 1 shows that while waiting periods are associated with a much lower level of same-day renewals, states with waiting periods or rollover restrictions have seven-day and 14-day renewal rates that are nearly identical to other states. Over all states in the sample, 82% of loans are renewed within fourteen days, and this percentage varies by only three percentage points across the three groups of states.

3.2 Sequence duration and loan volume

In this section we use data from the subset of lenders for whom we have sufficient information to analyze defaults. For the purposes of this analysis, a borrower is considered to have defaulted on a loan if the loan had not been repaid at the time the data were provided to the CFPB, or 30 days after the maturity date of the loan, whichever is later. Using this definition, loans with maturity dates within 30 days of the end of the 12-month sample period cannot be considered to have defaulted, and are included in the analysis as loans on which the borrower did not default.⁶

The loan sequences included in this analysis are those that began in the second month of a lender's 12-month sample period.⁷ We restrict the analysis to these sequences so that we can ensure we are able to observe the first loan in a sequence and thus accurately measure sequence duration.⁸ Using sequences that begin in the second month gives us the longest window to observe sequence length. As our dataset contains at most one year of loan usage for a given consumer, we are able to describe the pattern of sequence lengths up to roughly 11 months, but we cannot observe how long sequences may extend beyond 11 months.

Figure 2 shows the distribution of loan sequence lengths. The darker portion of the bar shows sequences that did not end in default, the lighter portion shows sequences that did end in default. Figure 2 shows that 36% of new sequences end with the initial loan being repaid; on 4%

⁶ We have conducted the analysis dropping these loans and the results are essentially unchanged.

⁷ If the distribution of sequence lengths is stable over time, then using a cohort of sequences that begin in the same time period will provide an unbiased estimate of the length of all loan sequences. See, e.g., Carlson and Horrigan, "Measures of Unemployment Duration as Guides to Research and Policy: Comment," *The American Economic Review*, Vol. 73, No. 5 (Dec., 1983), pp. 1143-1150.

⁸ Supplemental Security Income (SSI) benefits are normally disbursed on the first of the month, unless the first falls on a holiday or weekend, in which case they are disbursed on the prior business day. The exact timing of the "second month" is adjusted forward by a day if the first month of a lender's data period does not include a day on which (SSI) benefits were disbursed. This is done to ensure that loans to SSI recipients in the second month are truly new loans. We have also conducted the analysis for episodes that began in the third month, and the results are very similar.

of new sequences the borrower defaults on the first loan. More than half of new sequences do not go past a single renewal. On the other hand, 22% of sequences extend for seven or more loans, and 15% of sequences extend for 10 or more loans.

FIGURE 2: DURATION OF PAYDAY LOAN SEQUENCES

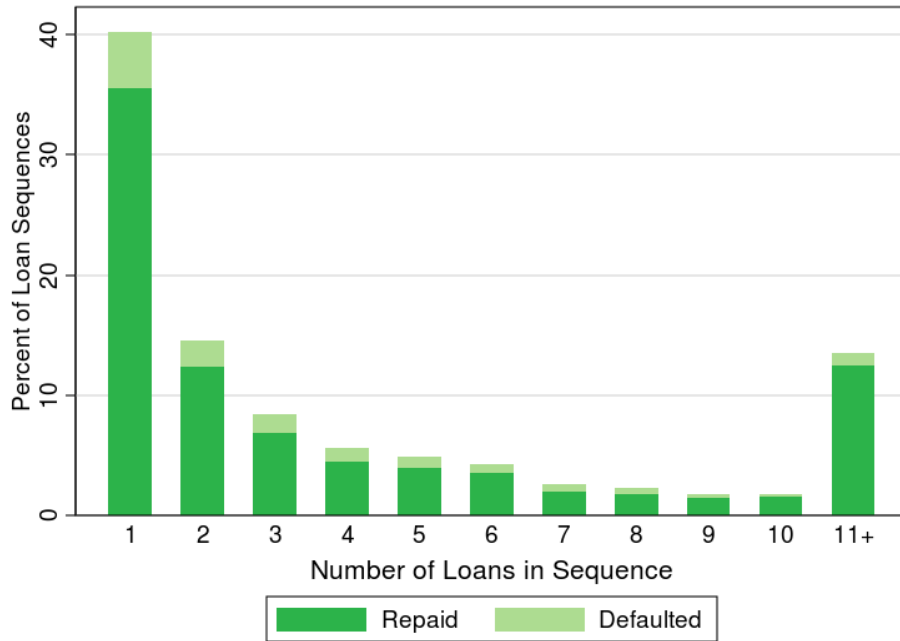
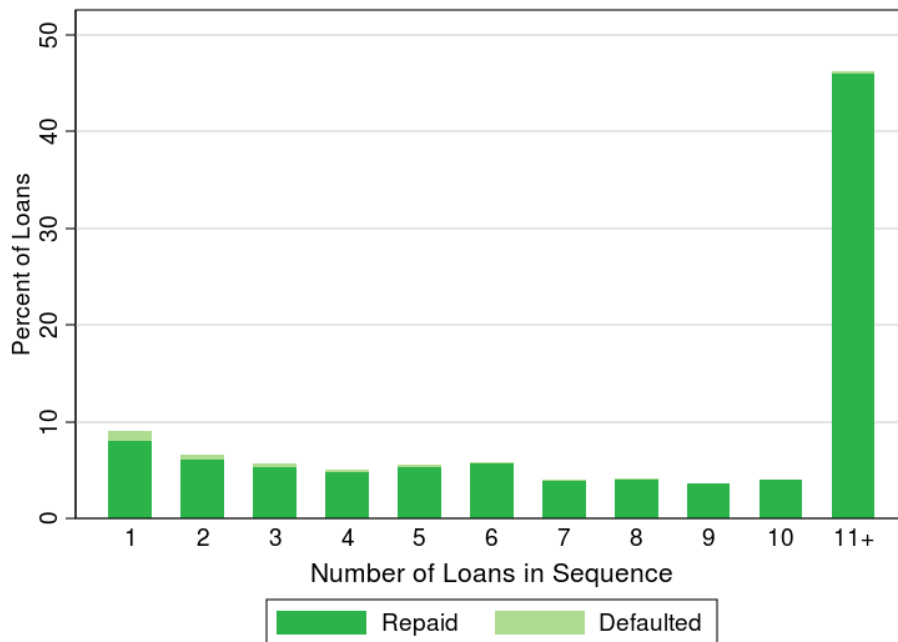


FIGURE 3: SHARE OF PAYDAY LOANS ORIGINATED IN PAYDAY LOAN SEQUENCES OF DIFFERENT LENGTHS



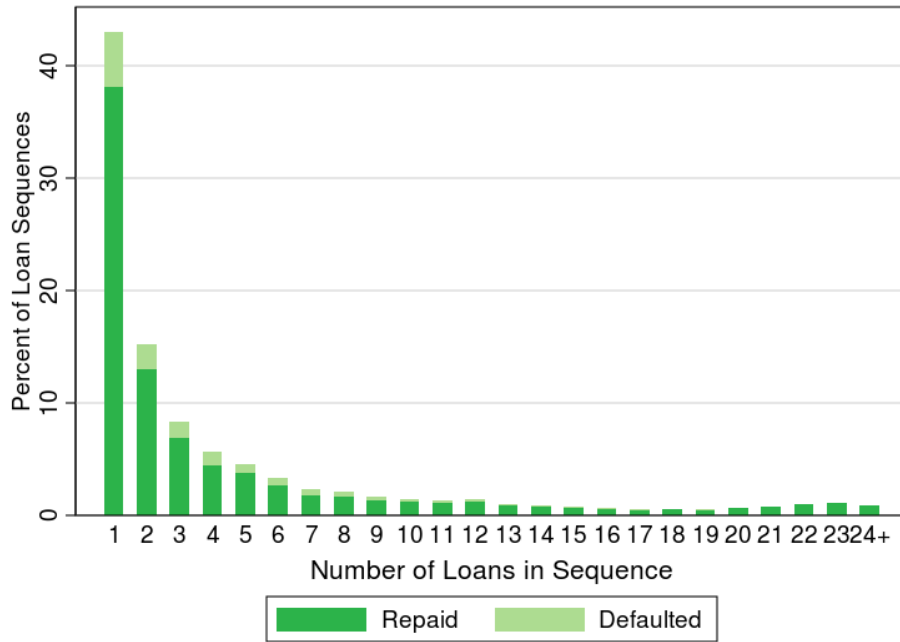
Though most loan sequences are short, most loans are part of long sequences. Figure 3 shows that half of all loans are in sequences of 10 or more loans; 62% are in sequences of seven or more loans.

Because the duration of payday loans are typically determined by the borrower’s pay frequency, borrowers that are paid bi-weekly typically take out shorter loans than borrowers that are paid monthly (or who receive benefits on a monthly basis). Consumer paid bi-weekly, therefore, could potentially take out many more loans over the course of 11 months than could borrowers who are paid monthly. The dataset contains information on the source and frequency of the income that a consumer reported to the lender when applying for a loan. To further explore the duration of loan sequences, we separately analyze borrowers with different pay frequencies.

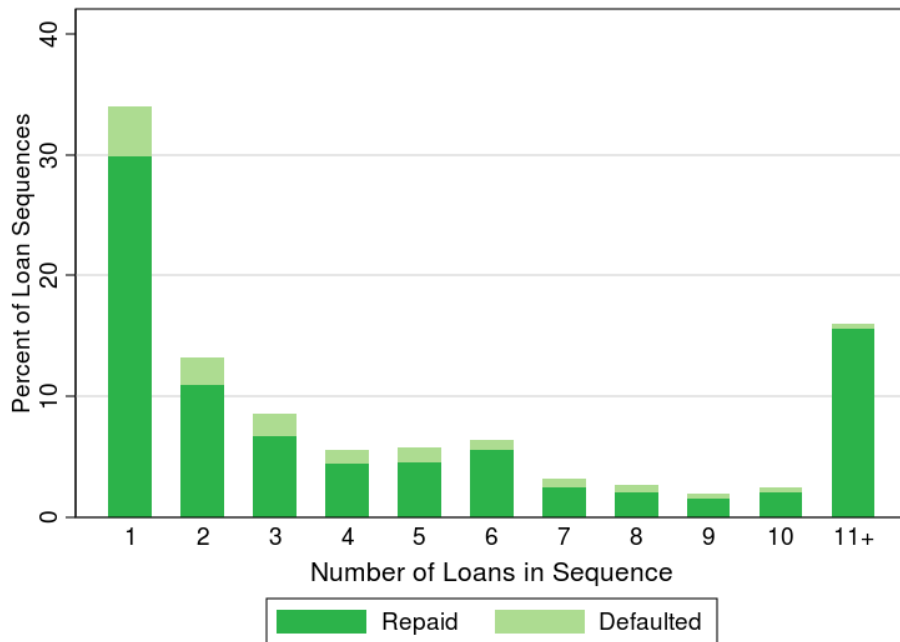
Figure 4 shows the distribution of sequence lengths, and whether those sequences ended in default, separately for borrowers who are paid weekly, bi-weekly, or twice a month, and borrowers who are paid monthly. In our sample, 14% of borrowers are paid weekly, 47% are paid bi-weekly, 9% are paid twice a month, and 30% are paid monthly.

FIGURE 4: DURATION OF PAYDAY LOAN SEQUENCES BY BORROWER PAY FREQUENCY

PANEL A: BORROWERS PAID WEEKLY, BI-WEEKLY, AND TWICE PER MONTH



PANEL B: BORROWERS PAID MONTHLY



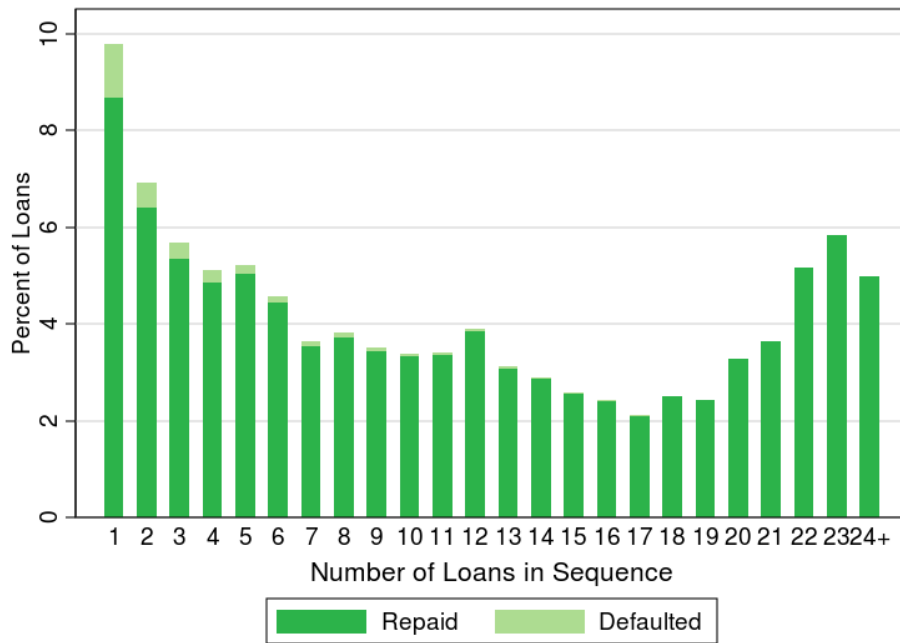
Panel A of Figure 4 shows the distribution of loan sequence length for borrowers that are paid more frequently than monthly. For these borrowers, 38% of new sequences end with the initial loan being repaid; on 5% of new sequences the borrower defaults on the initial loan. The majority of loan sequences to these borrowers end after a single renewal, but 12% of loan sequences span 11 or more loans.

Panel B of Figure 4 shows loan sequence lengths for borrowers who are paid monthly or receive monthly benefits. The majority of these borrowers, 58%, receive monthly government benefits, including Supplemental Security Income (SSI) and Social Security Disability or Retirement benefits. Panel B shows a lower rate of successful initial repayment; only 30% of initial loans are repaid without renewal and these borrowers default on 4% of initial loans. There is not the same long tail of sequences with a very high number of loans to these borrowers, as there is not time in an 11 month period for borrowers who are paid monthly to take out that many loans, but 16% of these sequences last for 11 or more loans.

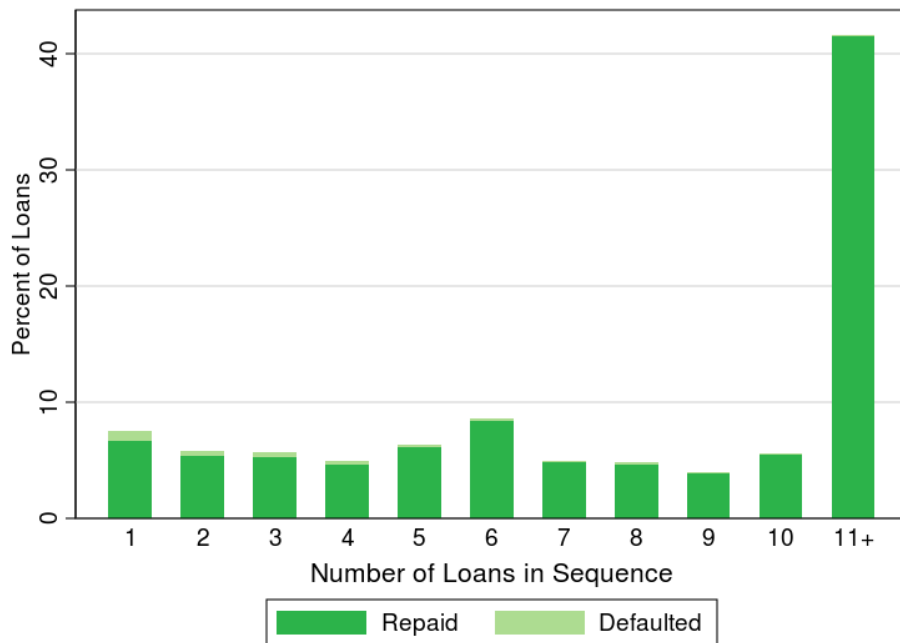
Figure 5 shows the distribution of loans by sequence length for borrowers that are paid more frequently than monthly (Panel A) and for borrowers who are paid monthly or receive monthly benefits (Panel B). The large portion of loans accounted for by long sequences is particularly important because the number of loans is proportional to the amount of fees incurred by borrowers, and by definition, also the fee revenues earned by lenders. Panel B, which shows results for monthly borrowers, is particularly striking. It shows that over 40% of all loans to these borrowers were in sequences that, once begun, persisted for the rest of the year for which data were available.

FIGURE 5: SHARE OF PAYDAY LOANS ORIGINATED IN PAYDAY LOAN SEQUENCES OF DIFFERENT LENGTHS

PANEL A: BORROWERS PAID WEEKLY, BI-WEEKLY, AND TWICE PER MONTH



PANEL B: BORROWERS PAID MONTHLY



3.3 Loan size and amortization

One way borrowers could mitigate the expense of a sequence of payday loans would be to reduce the principal amounts over time. On the other hand, some borrowers may take out larger and larger loans over time, either to cover the fees associated with the loans or to cover additional needs.⁹ To find the frequency with which each of these phenomena occurs, we analyzed loan size over the course of loan sequences.

Figure 6 shows the distribution of loan sequences by whether the principal increases, stays the same, or decreases between the first and last loan of the sequence, separately by borrower pay frequency. It shows that most borrowers do not self-amortize their payday loans. For both non-monthly (panel A) and monthly (panel B) borrowers, over 80% (47%/57% and 59%/63%, respectively) of loan sequences that last more than one loan have either no change or an increase in loan amount.

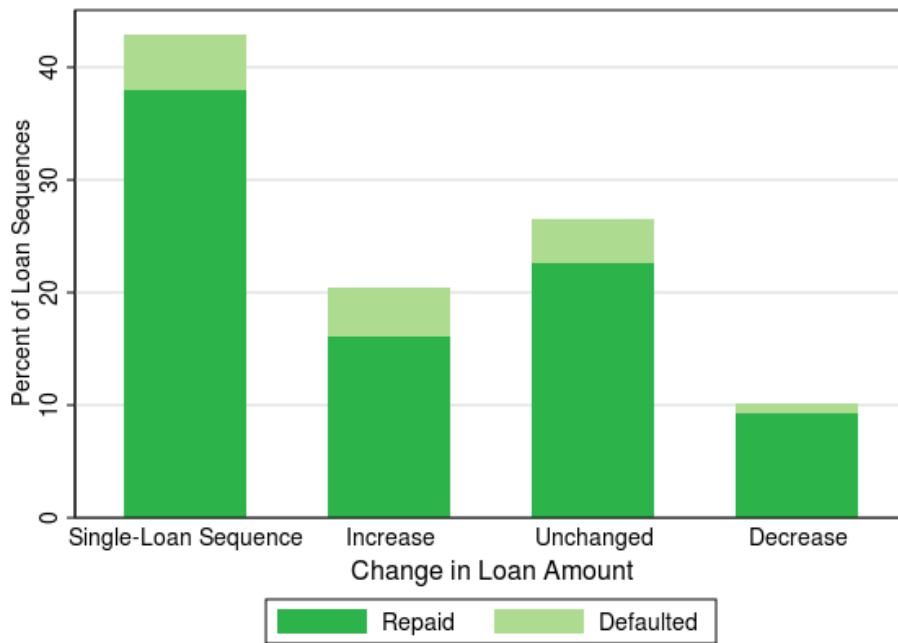
Figure 7 shows these proportions for loan sequences of different lengths, separately by borrower pay frequency and by whether the sequence ended in default. Each bar in this figure shows the proportion of loan sequences of that length that had an increase, no change, or a decrease in the amount of the loan between the first and last loan of the sequence. The figure shows two key patterns. Longer loan sequences and loan sequences that end in default are both more likely to have larger final loans than initial loans.

Further analysis indicates that the share of loans that show a reduction in the amount borrowed is fairly constant throughout a sequence. Increases in loan amounts, on the other hand, are more likely to occur early in a loan sequence. For example, each bar in Figure 8 shows loan amount changes, if any, for subsequent loans over the course of sequences that are seven loans long. This pattern suggests that increases in loan amount do not seem to be caused by snowballing loan amounts across the sequence. It may also reflect borrowers quickly reaching the maximum loan size allowable by law or permitted by the lender. Patterns of amortization within sequences of other lengths follow both of these consistent patterns, and are omitted for brevity.

⁹ The extent to which consumers may elect to decrease or increase principal amounts over the course of a sequence may be limited by state loan size restrictions and lenders' willingness to lend larger amounts. Some lenders may restrict new consumers to loan amounts below the maximum allowable by state law, and then permit increases after consumers demonstrate successful payment.

FIGURE 6: SHARE OF PAYDAY LOAN SEQUENCES BY CHANGE IN LOAN AMOUNT BETWEEN FIRST AND LAST LOAN

PANEL A: BORROWERS PAID WEEKLY, BI-WEEKLY, AND TWICE PER MONTH



PANEL B: BORROWERS PAID MONTHLY

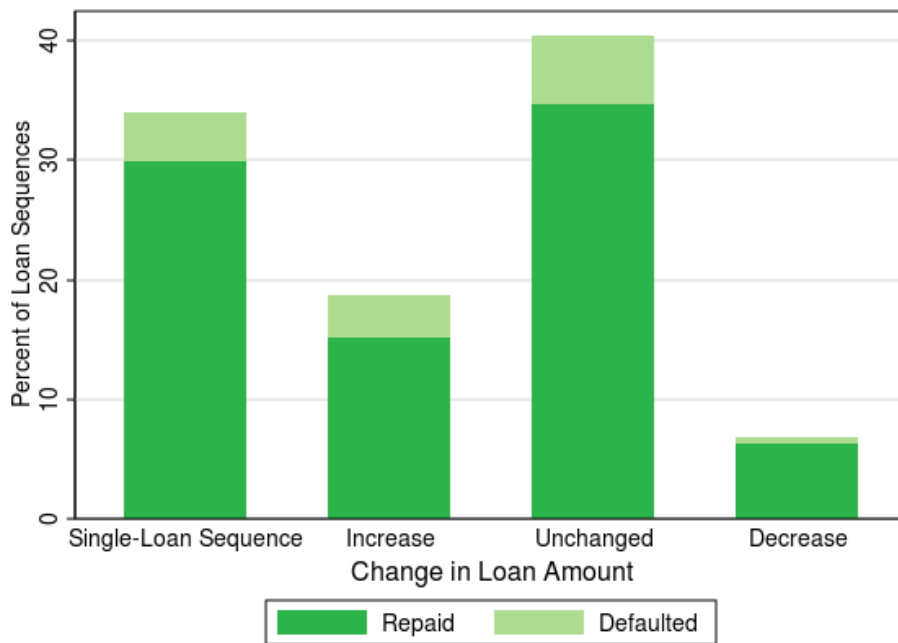
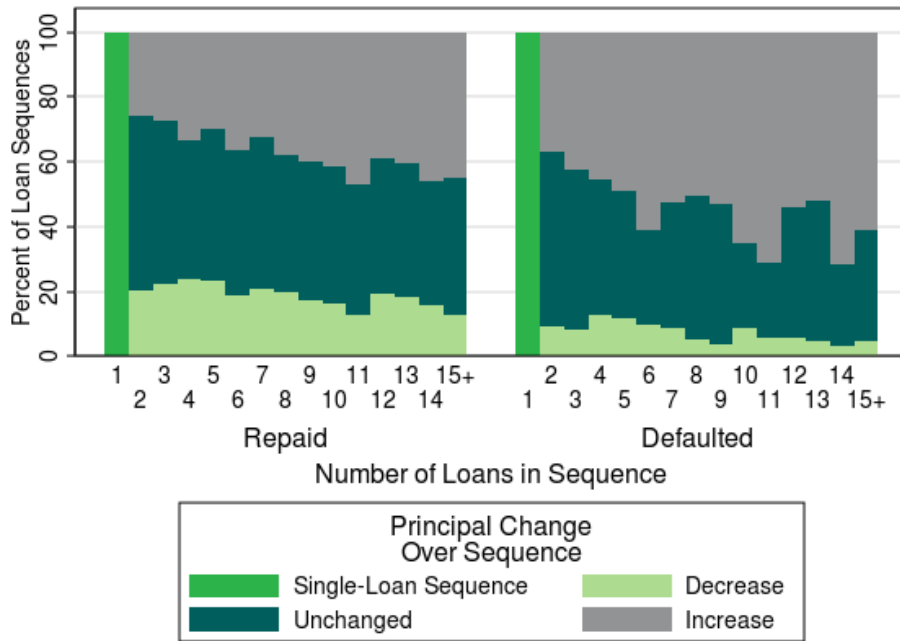


FIGURE 7: SHARE OF PAYDAY LOAN SEQUENCES BY CHANGE IN LOAN AMOUNT BETWEEN FIRST AND LAST LOAN, BY SEQUENCE LENGTH

PANEL A: BORROWERS PAID WEEKLY, BI-WEEKLY, AND TWICE PER MONTH



PANEL B: BORROWERS PAID MONTHLY

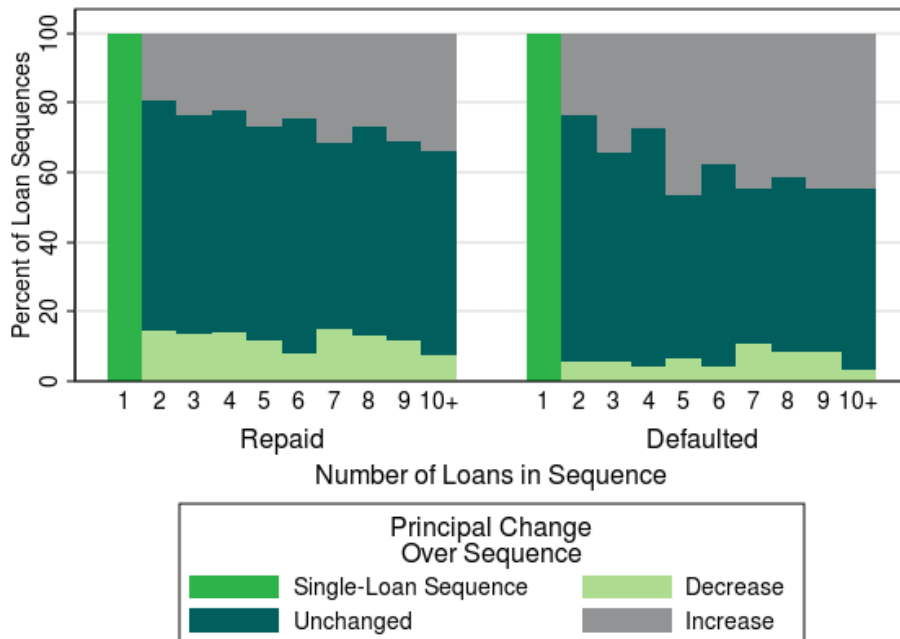
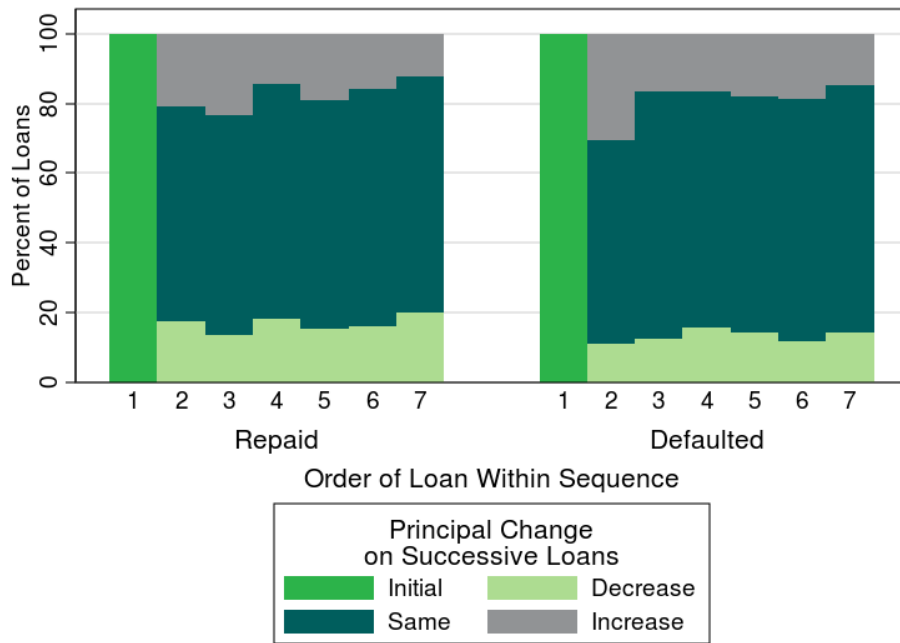
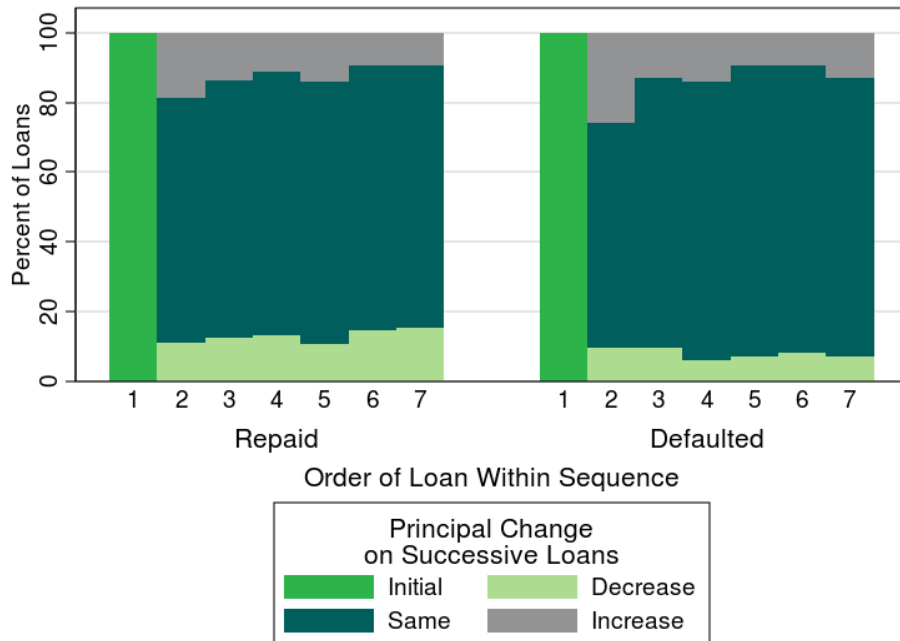


FIGURE 8: SHARE OF PAYDAY LOANS WITH CHANGE IN LOAN AMOUNT FROM PRIOR LOAN IN SEQUENCE FOR SEVEN-LOAN SEQUENCES

PANEL A: BORROWERS PAID WEEKLY, BI-WEEKLY, AND TWICE PER MONTH



PANEL B: BORROWERS PAID MONTHLY



4. Annual loan usage

In the previous section, we described sequences of payday loans following a new loan. The experiences of payday loan borrowers depend not only on what happens with individual loan sequences, but patterns of borrowing across multiple sequences. In this section we measure the number of loan sequences and loans borrowers have in a year.¹⁰ We also look at the extent to which borrowers repay all of their loans without renewing, versus renew or default on some loans.

There are a number of different ways to define the set of consumers whose annual usage we might measure. The approach taken in the White Paper was to measure the usage of borrowers who took out loans in the first month of the data period. This provides the longest possible window for measuring usage and, given the short duration of most loans, is similar to measuring the usage of borrowers in a lender's portfolio at a point in time. As noted in the White Paper, using this approach will lead to a higher proportion of heavy users of payday loans, as compared to other approaches. Another approach is to attempt to determine which loans were made to new payday borrowers who took out a loan early in the time period, and measure subsequent borrowing by those consumers. This also allows for a relatively long time window for measuring usage, but limits the analysis by excluding the majority of payday borrowers in the data. This approach also leads to a lower proportion of heavy users of payday loans than other methods, since all borrowers with continuous usage in a year are excluded. A third approach is to measure the usage of any borrower who took out a loan during the sample period. This approach is the most inclusive across borrowers, but borrowers who take out their first loan late in the period can only be observed for a limited time.

¹⁰ To the extent borrowers take out loans from multiple payday lenders, the results in this section will understate total borrowing.

Here we provide results for the “new borrowers” approach, and we show results for the “White Paper” approach and the “all borrowers” approach in an appendix. New borrowers are defined as borrowers who took out a loan in the second month of the data period and did not take out a loan in the first month.¹¹ Given the limitations of the data we cannot ensure that these borrowers are new to payday borrowing, but can ensure that they are not in the midst of an ongoing loan sequence with the lender making the “new loan” that we observe.

The findings are generally similar across the approaches, except with regard to the number of loans borrowers take out over the year. The “White Paper” approach includes more borrowers who are in long sequences, and therefore the median number of loans, 11, is higher than for the other two approaches. The “new borrower” approach, which tends to exclude borrowers in very long sequences, leads to a median number of loans of six over an 11-month period; the “all borrowers” approach gives a median number of six loans over a year, which includes borrowers who enter the data late in the time period.

¹¹ As in the definition of new sequences, the exact timing of the “first month” and “second month” is adjusted forward by a day if the first month of a lender’s data period does not include a day on which SSI benefits were disbursed. This is done to ensure that SSI recipients who borrowed in the second month were not repaying a prior loan on the same day.

4.1 Numbers of sequences and loans

Figure 9 shows the distribution of the number of loan sequences new borrowers have over an 11-month period. It shows that nearly half of borrowers (48%) have a single loan sequence, and roughly three-quarters (74%) have no more than two sequences. This analysis shows that relatively few payday borrowers have multiple periods of borrowing separated by periods without borrowing within a given year.

FIGURE 9: NUMBER OF PAYDAY LOAN SEQUENCES DURING 11 MONTH PERIOD

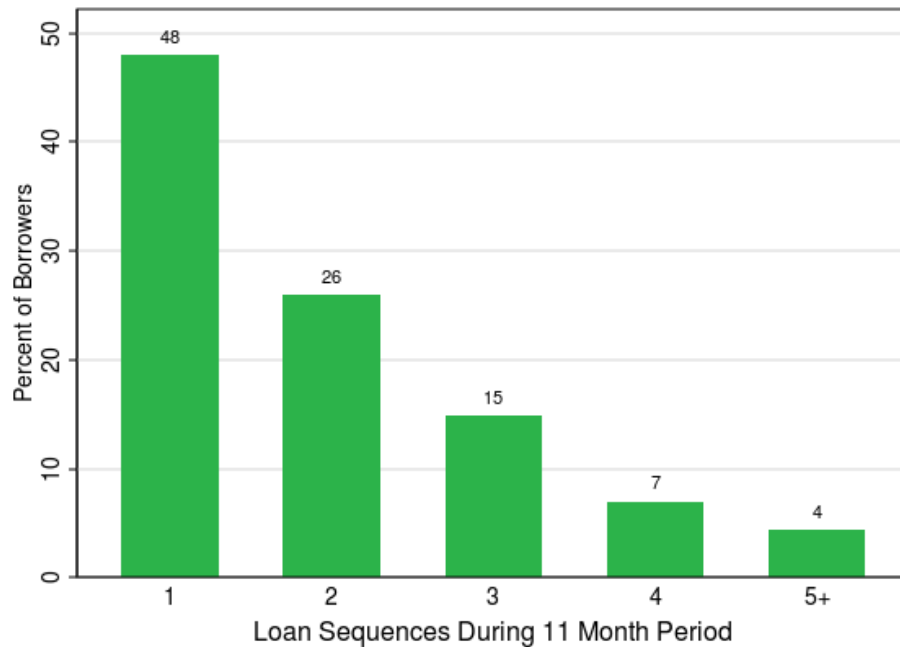
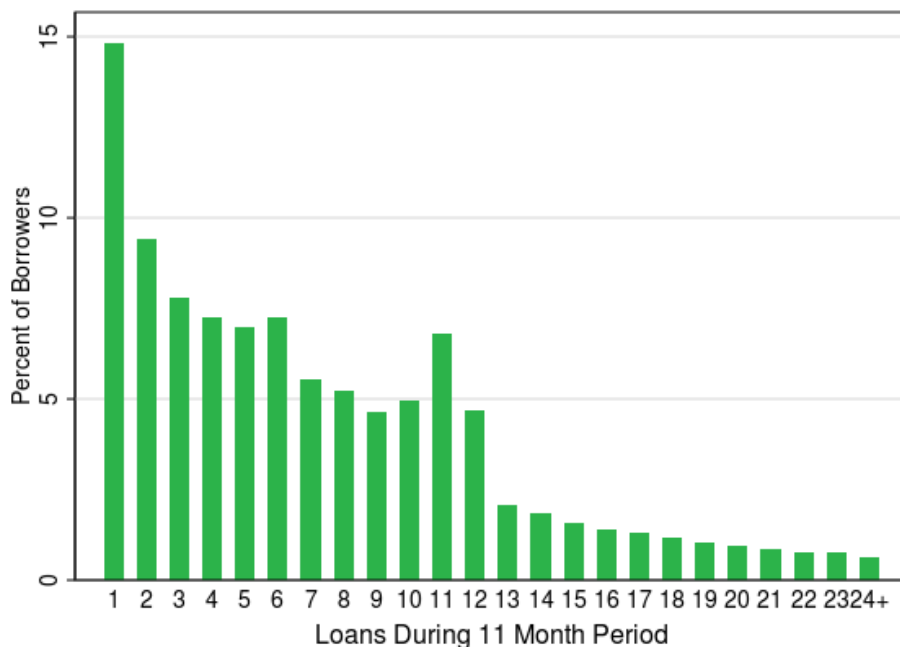


Figure 10 shows the distribution of the number of loans new borrowers take out over the 11-month period. It shows that 15% of these borrowers had only one loan during this time. The median number of loans per 11 months for this sample is six.

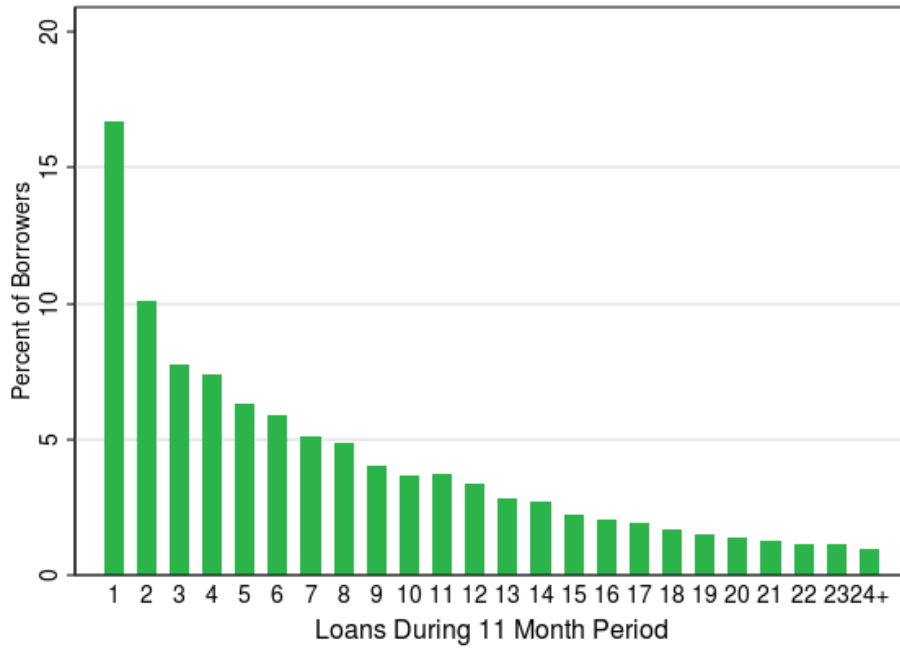
FIGURE 10: NUMBER OF PAYDAY LOANS DURING 11 MONTH PERIOD



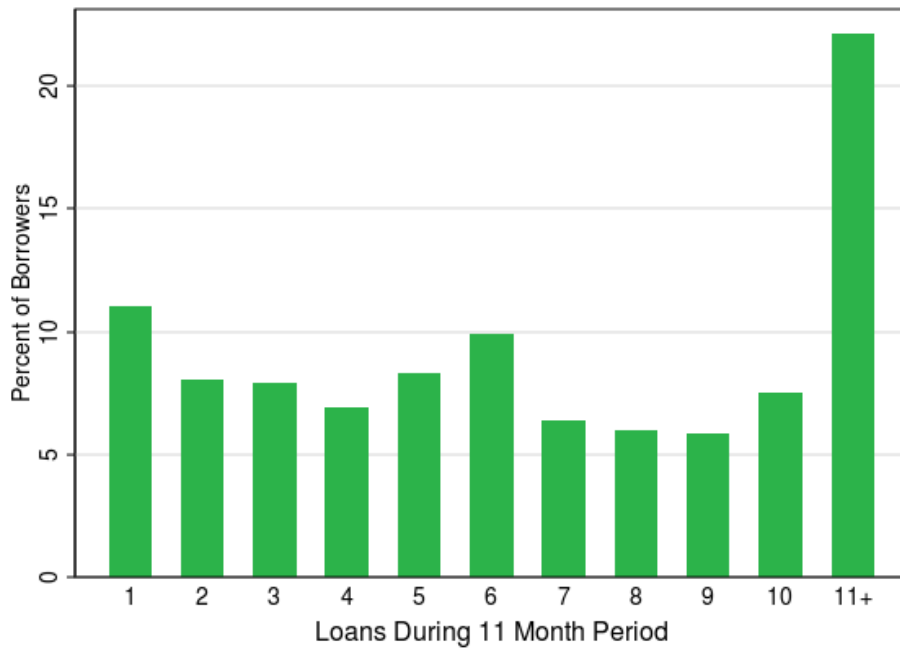
As discussed above, loan length depends on pay frequency, so people who are paid more frequently can potentially take out more loans over a period of time. Figure 11 presents results split by pay frequency. Panel B shows that a substantial portion of monthly borrowers took out a payday loan in each of the 11 months; 22% of these borrowers averaged one or more loans per pay period following their initial loan. The majority of these borrowers, 58%, receive monthly government benefits, including SSI and Social Security Disability or Retirement benefits.

FIGURE 11: NUMBER OF PAYDAY LOANS DURING 11 MONTH PERIOD

PANEL A: BORROWERS PAID WEEKLY, BI-WEEKLY, AND TWICE PER MONTH



PANEL B: BORROWERS PAID MONTHLY



4.2 Repayers, renewers, defaulters

In order to further characterize loan usage over the course of a year, we categorize borrowers based on their default and renewal behavior. We place consumers into one of three mutually exclusive and exhaustive categories: defaulter, renewer, and repayer. A defaulter is a borrower who defaults on any loan during the year. A renewer is a borrower who did not default and who renewed at least one loan within a period of 14 days after repaying a prior loan. A repayer is a borrower who neither defaulted nor renewed at any point during the year. A repayer could have taken out more than one loan over the observation period but in each case would have repaid the loan without re-borrowing within 14 days after repaying the loan.

There are some mechanical relationships between borrower categories and total loan usage. Borrowers who default may not be able to borrow again from the same lender, leading to lower observed usage levels. Consumers who take out many new loans over the course of the year (i.e., loans taken out more than 14 days subsequent to repayment of the last one) have more opportunities to renew a loan than borrowers who only take out a single new loan. Nonetheless, quantifying the relative shares of each group among the overall consumer population and the usage patterns of these groups may provide some meaningful insights.

FIGURE 12: SHARE OF BORROWERS THAT REPAY, RENEW, OR DEFAULT ON THEIR PAYDAY LOANS DURING AN 11 MONTH PERIOD

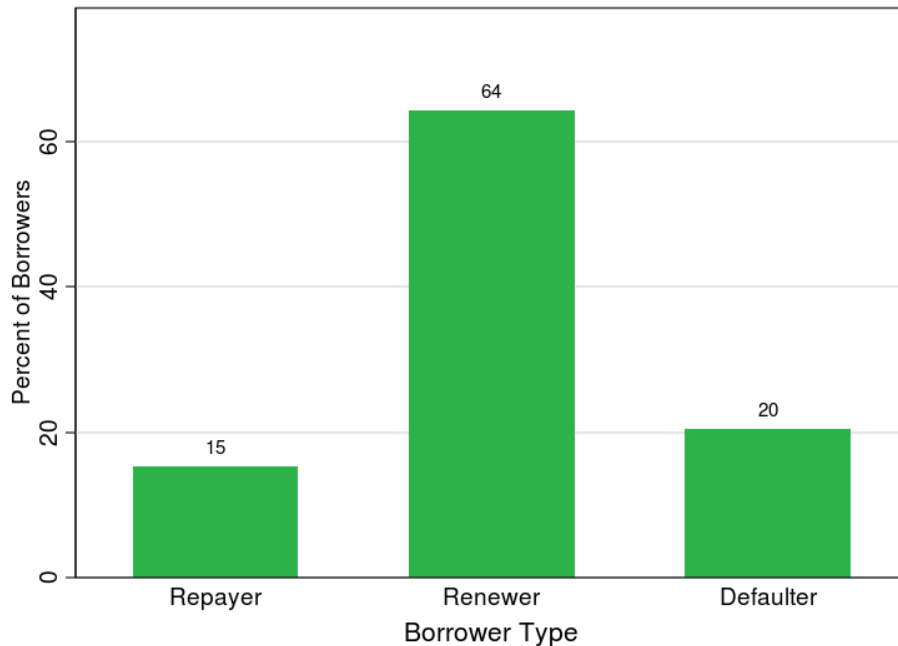


Figure 12 shows the distribution of new borrowers across these three categories. It shows that the majority (64%) of new borrowers become renewers. Similar proportions of new borrowers are categorized as defaulters (20%) and repayers (15%).

Figure 13 shows the number of loan sequences per new borrower. It shows that compared with repayers and renewers, defaulters are more likely to have just a single sequence. As noted above, defaulting may preclude a customer from borrowing from that lender again, so it is unsurprising that many defaulters have only a single sequence.

Repayers also tend to be low-intensity users; 61% took out only one loan during the time period. This is another manifestation of one of the findings in the prior section: it is unusual for borrowers to take out a payday loan at multiple times during a year separated by periods without borrowing.

Most renewers experience only 1-3 sequences during the 11-month time period; 36% have only one sequence, 30% have two, 19% have three and only 15% have four or more sequences.

FIGURE 13: NUMBER OF PAYDAY LOAN SEQUENCES DURING 11 MONTH PERIOD FOR REPAYERS, RENEWERS, AND DEFAULTERS

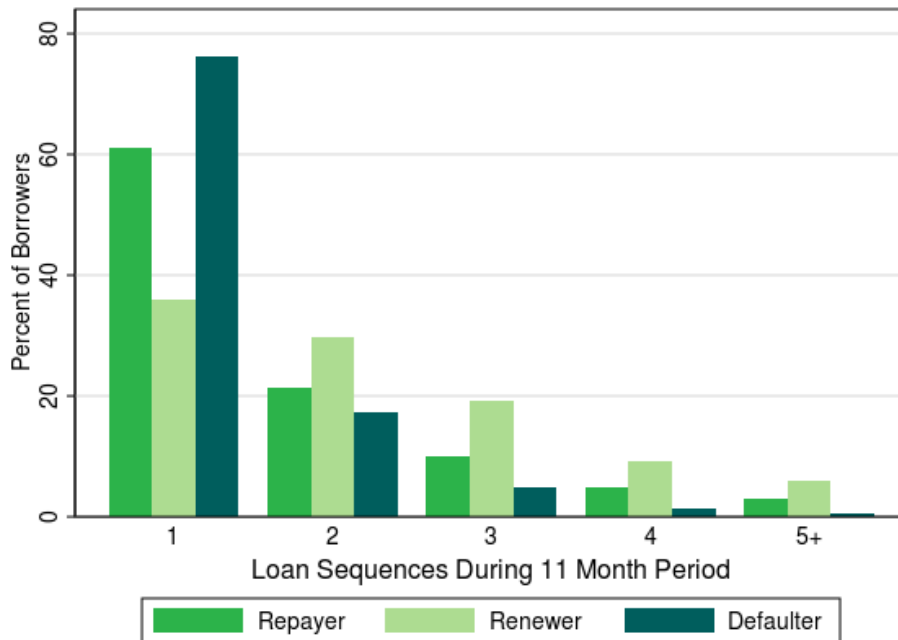
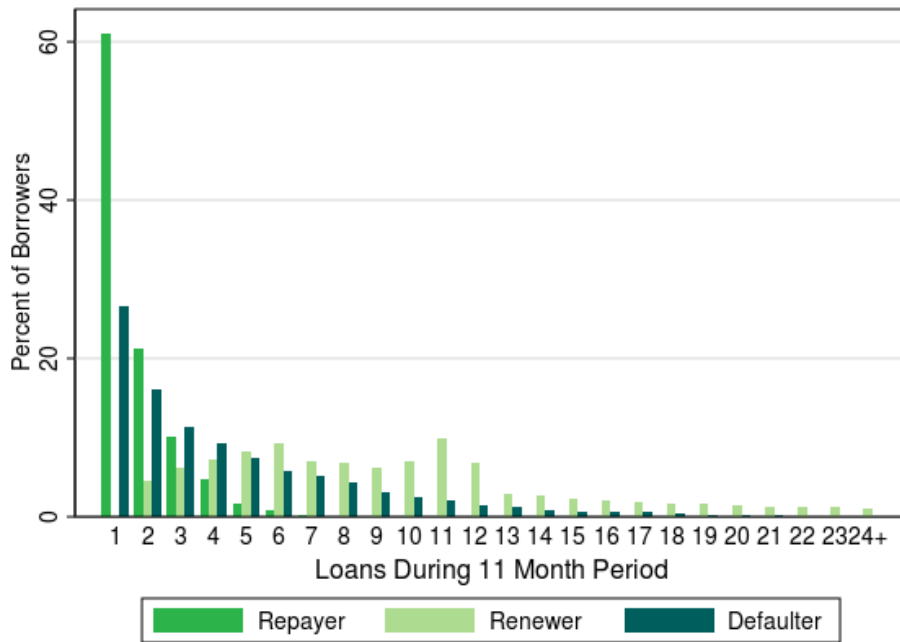


Figure 14 shows the distribution of loans per consumer for repayers, renewers, and defaulters during an 11-month period. By definition, the distribution of the number of loans for repayers is the same as the distribution of the loan sequences. The three consumer types display strikingly different usage intensities.

Defaulters are concentrated at lower intensities, with 27% defaulting on the first loan they took out. Substantial numbers of borrowers, however, took out a relatively large number of loans before defaulting.

Renewers display a wide range of usage intensities. The number of loans is fairly evenly distributed in the range between 2 and 12 loans, and reflects a combination of biweekly consumers who are able to take up to 24 loans, and monthly borrowers who typically take at most 11 loans in an 11-month period.

FIGURE 14: NUMBER OF PAYDAY LOANS DURING 11 MONTH PERIOD FOR REPAYERS, RENEWERS, AND DEFAULTERS



Taken together, the results from this section suggest that while there is a very wide variation in the number of loans that payday borrowers take out over the course of a year, this is related to differences in whether the borrowers repay versus renew those loans and how many loans they take out before repaying without re-borrowing. In other words, the differences in the number of loans come primarily from differences in the length of sequences, not the number of sequences.

APPENDIX A: DISCUSSION AND ANALYSIS OF ANNUAL LOAN USAGE USING ALTERNATE SAMPLING METHODS

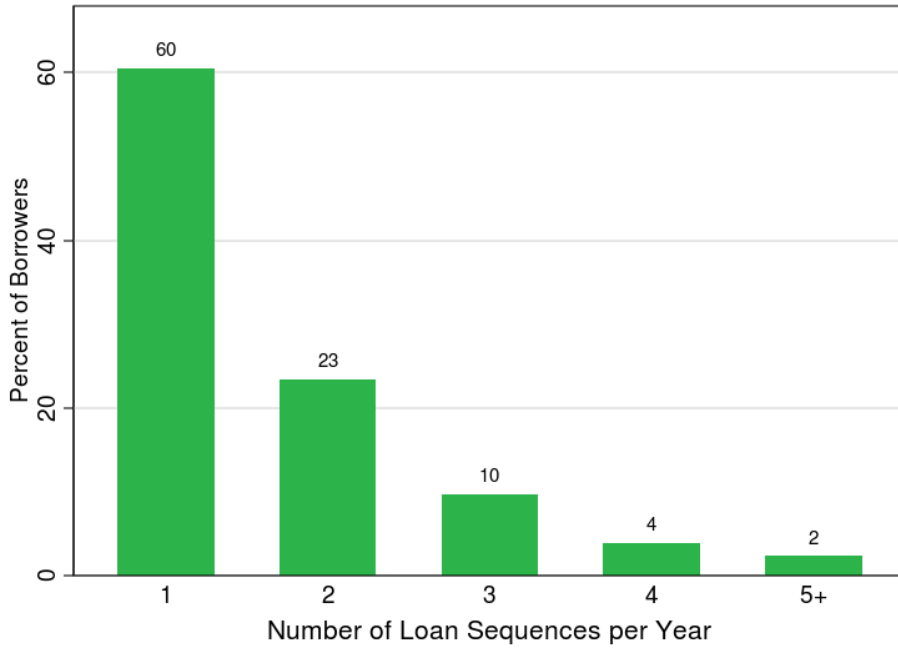
In this appendix we describe the effects of alternate sampling methods on the results discussed in Section 4 of the text. The approach used in Section 4 of the text is to measure the borrowing behavior of “new” borrowers, those who took out a loan in the second month of the dataset and did not have a prior loan in the dataset. In this appendix we present a subset of the results from Section 4 using two alternative approaches. The “all borrowers” approach includes all borrowers with at least one loan in the sample period, with the exception of borrowers whose first loan is made in the last month of the sample period (we cannot determine whether these borrowers repaid, renewed, or defaulted on their loan). The “White Paper” method tracks 12-month usage for consumers who have a loan in the first month of a lender’s 12-month window.¹²

Figure A.1 shows the distribution of the number of loan sequences for the two alternative approaches. It shows that for both of the methods described above as well as the “new borrower” methodology portrayed in Figure 9, the distribution of the number of sequences is very similar, with slightly more borrowers in the “all borrower” sample having only a single loan sequence during the year. This at least partially reflects that the “all borrower” approach permits borrowers to enter the sample later in the year, when there is less time for multiple loan sequences.

¹² Note that these results do not exactly replicate the results of the White Paper, since we use a different sample of lenders, those for which we have the information that we use to analyze defaults.

FIGURE A1: NUMBER OF PAYDAY LOAN SEQUENCES PER YEAR

PANEL A: "ALL BORROWERS"



PANEL B: "WHITE PAPER SAMPLE"

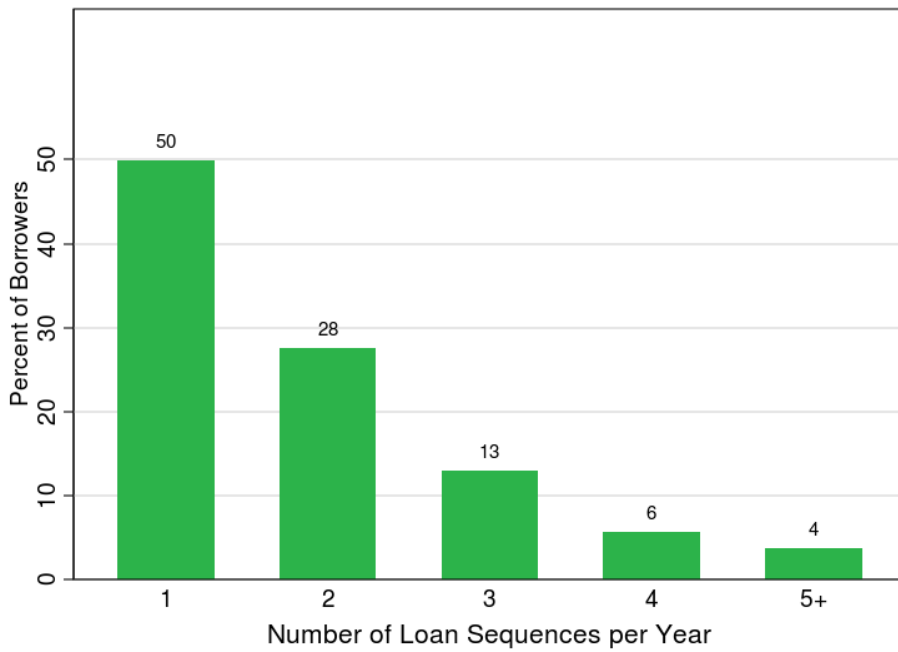
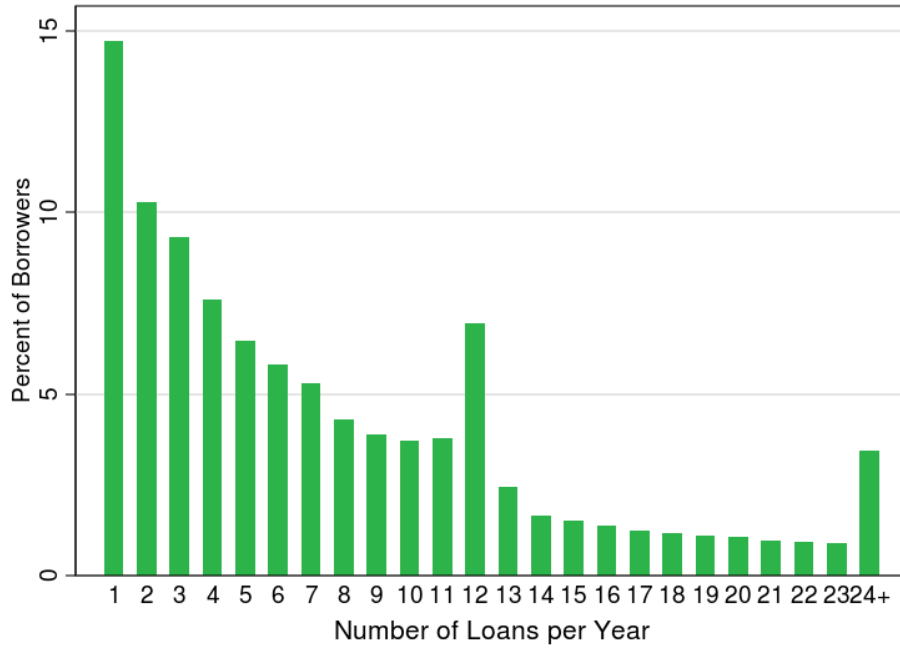


Figure A.2 shows the distribution of the number of loans during the year for the two alternative approaches. It demonstrates the phenomena described in the text, that using the “new borrower” approach excludes many borrowers in longer sequences, or, alternatively, using the “White Paper” approach includes a larger number of borrowers who are relatively heavy users of payday loans, and likely in long sequences. The “all borrower” approach shows spikes in use at twelve loans and 24 or more loans, like the “White Paper” approach, but also shows a similar share to the “new borrower” approach of borrowers who only took out one loan.

Figure A.3 shows the distribution of consumers across the “repayer,” “renewer,” and “defaulter” borrower types for the two alternative sampling approaches. Panel A shows that the distribution of borrowers across types is very similar between the “all borrower” sample and the “new borrowers” sample described in the text. Panel B shows the distribution using the “White Paper” method. The share of renewers in the “White Paper” sample is significantly higher than the other two approaches, reflecting the fact that the borrowers in a lenders portfolio at a point in time are disproportionately borrowers in long loan sequences. Overall, all three methods show that renewers represent the majority of all borrowers, with repayers and defaulters making up less than half of all borrowers for any sample.

FIGURE A2: NUMBER OF PAYDAY LOANS PER YEAR

PANEL A: "ALL BORROWERS"



PANEL B: "WHITE PAPER SAMPLE"

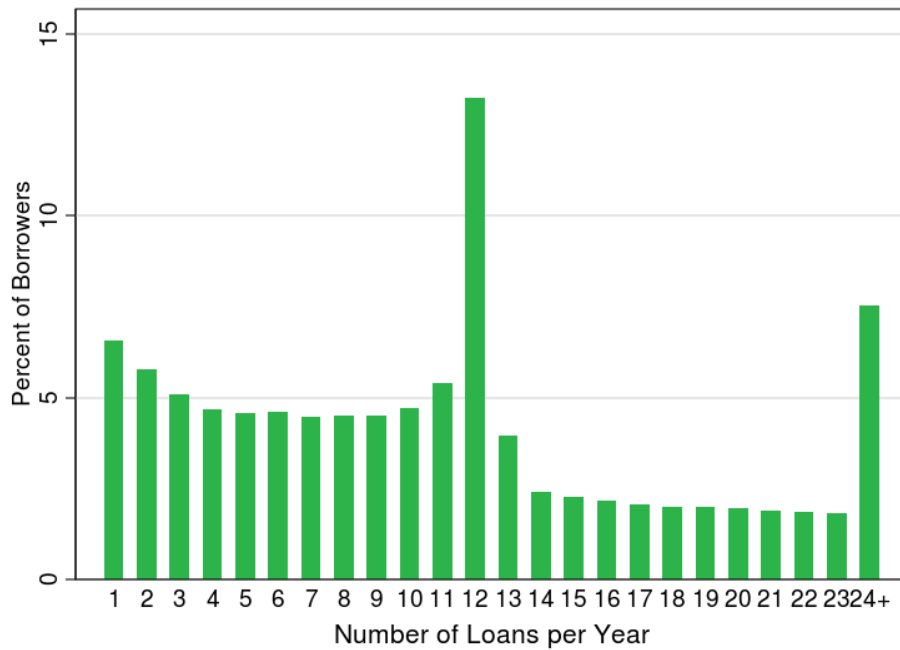
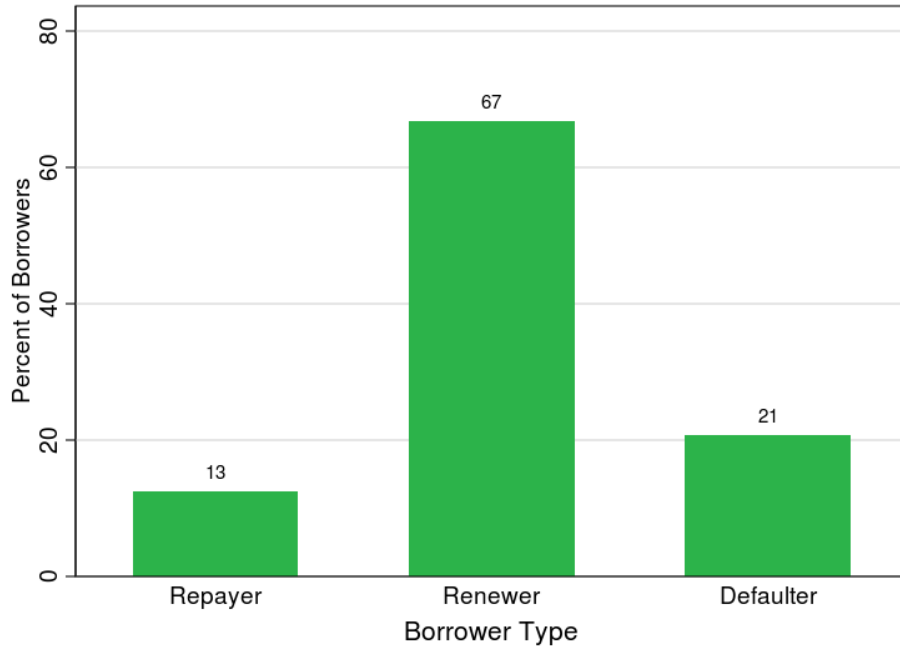


FIGURE A3: SHARE OF BORROWERS THAT REPAY, RENEW, OR DEFAULT ON THEIR PAYDAY LOANS DURING A YEAR

PANEL A: "ALL BORROWERS"



PANEL B: "WHITE PAPER SAMPLE"

