

LIQUIDITY CONSTRAINTS AND BUDGETING MISTAKES: EVIDENCE FROM SOCIAL SECURITY RECIPIENTS

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The views expressed are those of the authors and do not necessarily reflect the opinions of the Consumer Financial Protection Bureau, its director or staff, or the United States.

Why is Financial Fragility So Pervasive?

- Many consumers lack a significant buffer stock of liquid savings (Lusardi, Schneider and Tufano 2011; JPMC 2015)
 - Difficult to explain using traditional lifecycle consumption models
 - Leading explanations include transaction costs (Kaplan and Violante 2014), behavioral biases (Laibson et al 2007), and financial illiteracy (Lusardi and Mitchell 2013, Lusardi and de Bassa Scheresberg 2013)
- Lack of buffer stock correlated with
 - High MPCs from anticipated income (e.g. Johnson et al 2006)
 - Intramonth consumption cycles (e.g. Stephens 2006)
 - High costs from bank overdraft fees, late fees, and high-interest credit (CFPB March & July 2014)
- Does credit help or harm liquidity-constrained consumers?
 - Loosens constraints and facilitates consumption smoothing under LCPIH
 - Exacerbates constraints and lowers assets and welfare for behavioral and illiterate consumers

We Estimate the Role of Budgeting Mistakes as a Driver of High-cost Payday Borrowing

- Measure budgeting mistakes using quasi-randomly assigned timing of income
- Social Security benefits assigned to second, third, or fourth Wednesday each month based on day of birth
 - 28 million recipients subject to income timing assignment nationwide
 - Predictable, highly stable source of income
- Disbursement calendar allows us to separately identify the following effects on payday borrowing:
 - Days since last paycheck
 - Day of calendar month
 - Length of pay period
 - Timing of pay within the month

Results Speak to the Welfare Implications of Unsecured Credit

- Main findings
 - Budgeting failures account for at least 15% of payday borrowing and \$25-37 million per year in extra costs for Social Security recipients
 - Estimates are a lower bound on the role of budgeting mistakes in payday borrowing
 - Only identify specific types of mistakes
 - Only for Social Security recipients, who receive very steady income
- Regulatory background
 - Loosening of state usury caps to allow payday lending starting in the 1990s, re-regulation starting in the early 2000s
 - Currently banned in about 21 states, statewide databases in about 14 states, binding supply restrictions in several states
 - CFPB proposed regulations under consideration (2015)

Loan-level Data From Storefront Payday Lenders

- All loans from a number of large storefront payday lenders between 2010-2012
- Several hundred thousand borrowers who receive Social Security or SSI benefits*
 - 18% of all payday borrowers receive income from benefits or public assistance (CFPB, 2013)
- Unique features of payday loans
 - Precisely-measured income source and income timing
 - Requires pay stub to obtain loan
 - Almost always due exactly on payday
 - Requires bank account, so most receive benefits through direct deposit
 - Timing and amount of loan use precisely measured at daily level

* Precise details of sample size and sample period shrouded to protect lender identities

Typical Payday Loans: \$300 Principal, Five Rollovers

Panel A: Loan Terms at Origination

	Mean	Median	Std. Dev.
Loan amount total	\$352	\$306	\$169
Principal	\$305	\$255	\$149
Finance charge	\$47	\$45	\$25
APR	352%	282%	260%
Cost per 100	\$16	\$15	\$4
Contract duration (days)	21.0	20	10.5

Panel B: Borrower Statistics

	Mean	Median	Std. Dev.
Monthly benefits income	\$962	\$864	\$503
Total # of loan cycles	7.0	7	4.2
# of fresh loans	1.1	1	0.4
# of rollover cycles	5.9	5	4.2
Total fresh credit	\$427	\$400	\$224
Total fees	\$370	\$320	\$288
Total days indebted	196	195	121

-> Our analysis only considers “fresh” loans, since rollover loans always begin and end on pay dates

The SSA Disbursement Calendar Generates Several Sources of Variation in Pay Timing

JANUARY 2011						
S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

FEBRUARY 2011						
S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28					



MARCH 2011						
S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
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MAY 2011						
S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

JUNE 2011						
S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

Benefits paid on	Birth date on
Second Wednesday	1 st – 10 th
Third Wednesday	11 th – 20 th
Fourth Wednesday	21 st – 31 st

	Supplemental Security Income (SSI)
	Beneficiaries receiving benefits prior to May 1997 or receiving both Social Security benefits and SSI payments

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35-day pay period

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REGRESSION ANALYSIS

Focus on Wednesday groups

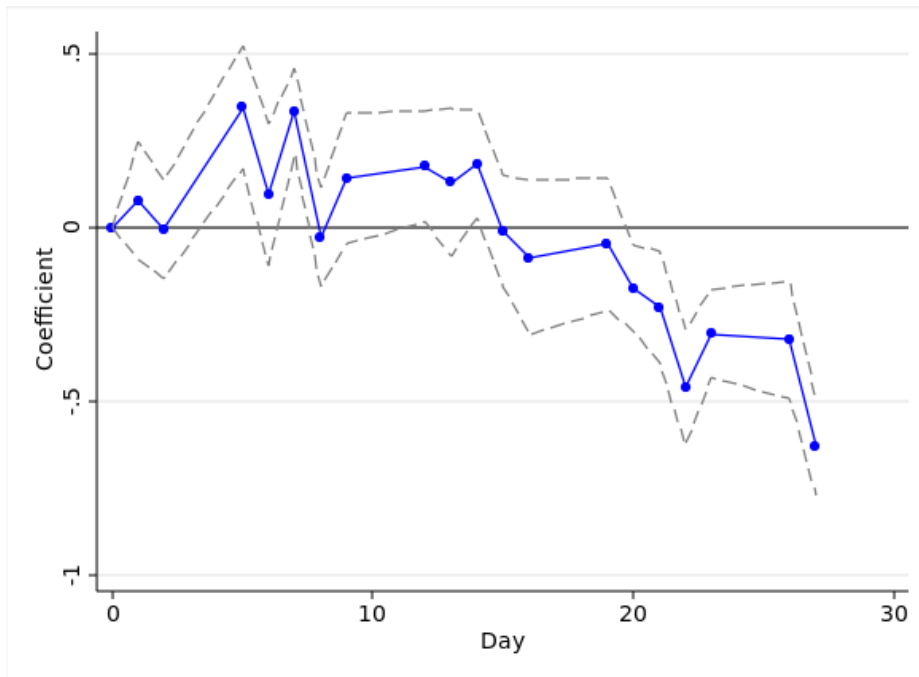
Identification Comes from Quasi-Random Assignment and Calendar Variation

$$\begin{aligned} \text{LoanVol}_{igt} = & \alpha_i + \beta_1 \text{PayCycle}_{gt} + \beta_2 \text{MonthlyCycle}_{gt} \\ & + \beta_3 \text{Long}_{gt} + \beta_4 \text{WedGroup}_{gt} + \gamma X_{gt} + \epsilon_{igt} \end{aligned}$$

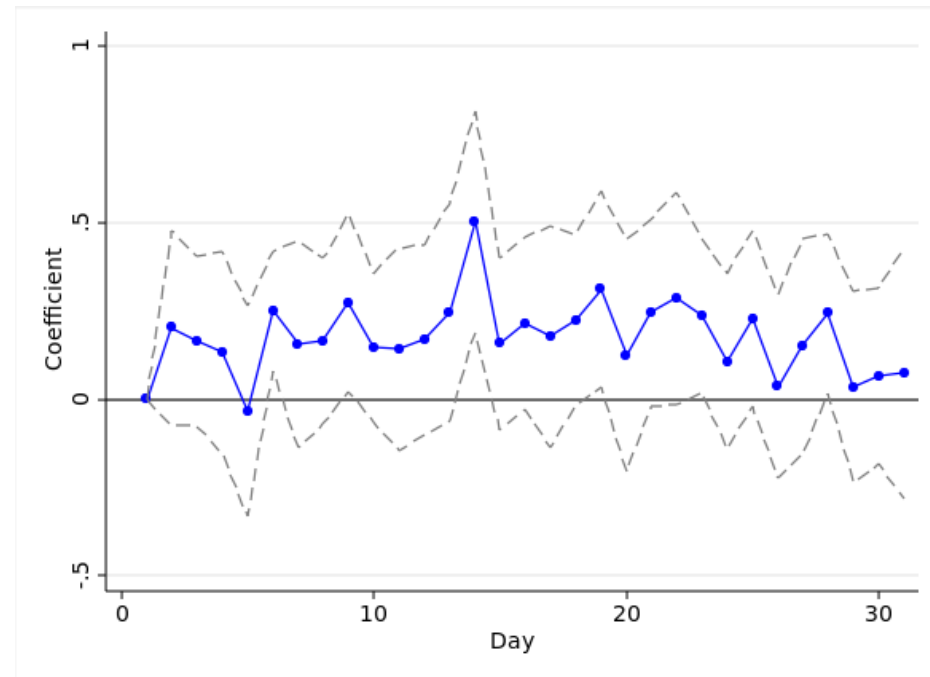
- LoanVol_{igt} is log loan volume per day per lender per disbursement group, normalized by size of group
 - Normalization removes the mechanical effect of differences in group size
- Long vs. short pay periods: Two months out of each year have 35-day instead of 28-day pay periods
- Wednesday group dummies: Effect of timing of paycheck within the month

Finding 1: Borrowing Declines Over the Pay Cycle, Increases Discontinuously on Paydays

Days Since Paycheck



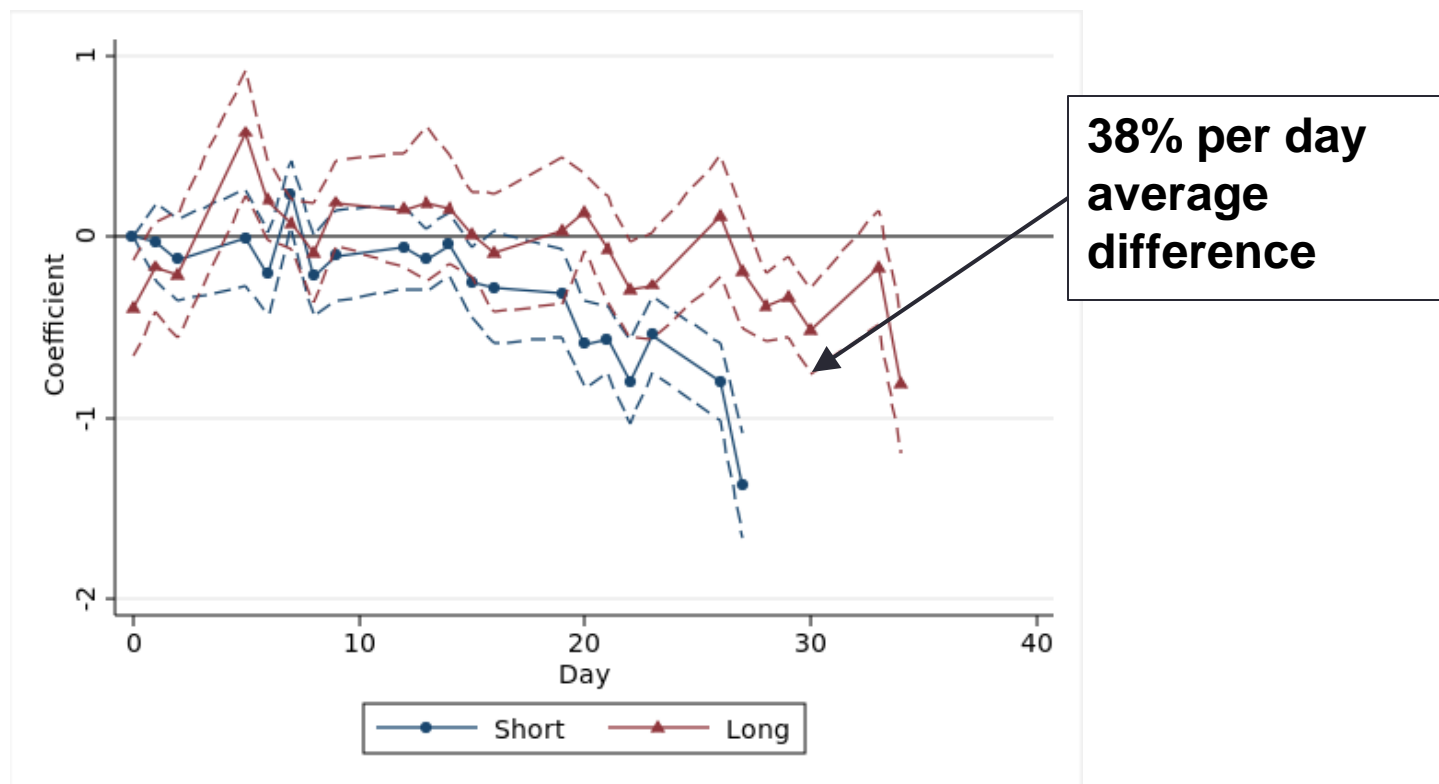
Day of Month



Coefficients and 95% confidence intervals from regression including each day since paycheck and day of calendar month

Finding 2: More Borrowing During Long Pay Periods

Days Since Paycheck



Coefficients and 95% confidence intervals from regression including each day since paycheck separately for long and short pay periods, and each day of calendar month

Finding 3: Fourth Wednesday Group Borrows 3% Less Than Second Wednesday Group

	Dollars	Loans
≥ 27 Days Since Check	- 0.628 (0.071) [0.000]	- 0.437 (0.063) [0.000]
Long pay period	0.325 (0.058) [0.000]	0.268 (0.047) [0.000]
Third Wednesday Dummy	0.002 (0.021) [0.913]	0.002 (0.022) [0.925]
Fourth Wednesday Dummy	- 0.034 (0.019) [0.093]	- 0.037 (0.022) [0.107]
R ²	0.911	0.916

Regressions include lender, month, year, and day of month fixed effects. Standard errors are clustered by recipient group X quarter

Effects are Stronger for Lower-Income Consumers

	(1) Dollars Lowest	(2) Loans	(3) Dollars Middle	(4) Loans	(5) Dollars Highest	(6) Loans
Mean Monthly Benefit:	\$706		\$1,120		\$1,639	
≥ 27 Days Since Check	- 0.640 (0.113) [0.000]	- 0.575 (0.105) [0.000]	- 0.640 (0.107) [0.000]	- 0.444 (0.097) [0.000]	- 0.746 (0.081) [0.000]	- 0.472 (0.074) [0.000]
Long pay period	0.376 (0.056) [0.000]	0.343 (0.059) [0.000]	0.378 (0.042) [0.000]	0.299 (0.039) [0.000]	0.324 (0.050) [0.000]	0.261 (0.045) [0.000]
Fourth Wednesday	- 0.104 (0.017) [0.000]	- 0.106 (0.014) [0.000]	- 0.040 (0.031) [0.222]	- 0.033 (0.032) [0.320]	- 0.002 (0.026) [0.934]	- 0.020 (0.021) [0.358]
R ²	0.876	0.863	0.880	0.878	0.838	0.852

THEORETICAL INTERPRETATION

How Should Income Timing Affect Borrowing?

	Change in Borrowing Over Pay Cycle	Jump in Borrowing at Pay Date?	More Borrowing in Long vs. Short Pay Cycles?	More Borrowing if Longer Lag Between Pay Date and 1st of Month?
Lifecycle / permanent income hypothesis (LCPIH)	None	No	No	No
Smoothing intramonth consumption declines	Increase	No	-	-
Uniformly distributed expenditure shocks	Increase	No	No	No
Quasi-hyperbolic discounting	Increase	No	Yes	Yes
Overconfidence about cashflows	Increase	No	Yes	Yes
Expenditure deferral	Decrease	Yes, if also overconfident	-	-

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Evidence of budgeting mistakes

ECONOMIC SIGNIFICANCE & CONCLUSIONS

Economic Significance: 15% of Loan Volume Driven By Budgeting Mistakes

- Simulate counterfactual loan volume in the absence of budgeting mistakes using regression coefficients

$$\widehat{LoanVol}_{igt} = LoanVol_{igt} \times \exp[-\widehat{\beta}_3 Long_{gt} + \widehat{\beta}_4 (LastDayOfMon_{gt} - CheckDate_{gt})]$$

$$\widehat{ShareAvoided} = 1 - \frac{\sum \widehat{LoanVol}_{igt}}{\sum LoanVol_{igt}}$$

$$\widehat{ShareDeferred} = \frac{\sum_{t>15th} LoanVol_{igt} \times [\overline{\exp(\widehat{\beta}_{1,\cdot})} - \exp(\widehat{\beta}_{1,t})]}{\sum LoanVol_{igt}}$$

- Budgeting failures account for 15% of total loan volume
 - 22% of loan volume for lowest-income tercile, 13% for highest
 - Long pay periods and pay timing within the month lead to \$153 million in loans and \$25 million in fees
 - \$12 million upper bound for costs of expenditure deferral

Conclusions

- Systematic budgeting mistakes drive a significant share of payday borrowing
 - Greater costs of mistakes among lower-income consumers
 - Budgeting mistakes may be one reason so many consumers are liquidity-constrained
- Widespread use of expenditure deferral
 - Consumers reduce consumption or defer expenses instead of borrowing at the end of their pay periods
- Policy implications
 - Tools and policies that help align the timing of income and large monthly expenditures may benefit consumers
 - Budgeting mistakes may cause large economic consequences of a credit crunch and large responses to stimulus payments