

Information Disclosure, Cognitive Biases and Payday Borrowers

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Motivation (Background)

Debate over payday lenders being predatory:

- Consumer advocates argue that lenders prey on the financially illiterate and unsophisticated.
 - Fee is \$15-\$17 per \$100 loan, every 2 weeks
 - Implied APR is >400%
 - \$50 billion in U.S. payday loans generate \$8 billion in fees/year
- Industry argues that it is priced fairly and provides service to those in need.
 - Transparent: Fees posted on wall; APR on loan documents

Empirically unresolved: Morse, 2007; Morgan and Strain, 2007; Skiba and Tobacman, 2007; Melzer, 2008

Motivation

- Even if priced fairly and non-predatory, one has to wonder whether cognitive limitations or biases by some borrowers explain the use of payday loans
 - Prior research has established that mistakes are made in household finance (e.g., Campbell, 2006)
 - Portfolio choice, stock market participation, saving, credit card use, real estate, etc...
 - Why would payday lending be any different?

Motivation - Remedies

- If mistakes are indeed being made by borrowers, how can policy makers help?

1. Remove option

- Ohio just capped payday APR to 28%, prohibitive

2. Improve financial education

- Lusardi Mitchell, 2006; Lusardi Tufano, 2009; Cole Shastry 2008

3. Mandate additional disclosure that is

- Better informed as to what mistakes are being made
- Better targeted to de-bias potential cognitive biases causing these mistakes
 - ❖ This is topic of our paper.

De-biasing Disclosure Approach

Benefits

- Expose the population at risk of mistake with site-relevant information at moment of a possible mistake (e.g., at point of payday loan or mortgage)
- Able to combine conveyance of information with de-biasing strategies when we know what biases might be site-relevant

Limitation

- May not be effective for across-the-board financial planning

What do we do in this paper?

- Field Experiment at the point of payday borrowing
- Can we impact borrowing behavior with de-biasing information treatments?
- Which de-biasing treatment works best?
- For whom?

Field Experiment Process

- Access to customers of large U.S. payday lender
 - 77 stores in 11 states participated for 2 weeks
- Intervention
 - Employee asks customer to fill out 4-question survey while processing loan in exchange for **magazine subscription**
 - Survey dropped in box in lobby – does not affect loan application
 - Expose customer to information treatment
 - Printed on envelope holding loan cash (people keep this envelope for awhile)
 - Intervention is centered in June, 2008.
 - On October 1, 2008, we get download of consenting customer's entire transaction history.



Q1 What expenses did you originally take out the loan for (if renewing) or what will you use this loan for (if new loan).

Please check all that apply.

- Rent or mortgage payment
- Utilities
- Medical bills
- Vacation
- Personal or family emergencies
- Gifts, apparel, or electronics
- Transportation or car-related expenses
- Eating out or entertainment
- Groceries
- Other debt obligations
- Other bills
- Other (Please Specify _____)

Q2 What is your highest level of education?

- Less than high school degree
- High school degree or equivalent
- Some college
- Bachelor's degree or higher

Q3 How many weeks do you think it will take for this loan to be paid back in full?

_____ Weeks

Q4 Indicate how well each of the following adjectives would describe you. On each row, circle the number most appropriate for you on the scale next to each adjective. Numbers near 1 indicate that the adjective would seldom describe you, numbers near 4 indicate that it would sometimes describe you, and numbers near 7 indicate it would usually describe you.

	Seldom would describe me			Sometimes would describe me			Usually would describe me	
A Planner	1	2	3	4	5	6	7	
Impulsive	1	2	3	4	5	6	7	
Self Controlled	1	2	3	4	5	6	7	
Enjoy Spending	1	2	3	4	5	6	7	

The Treatments

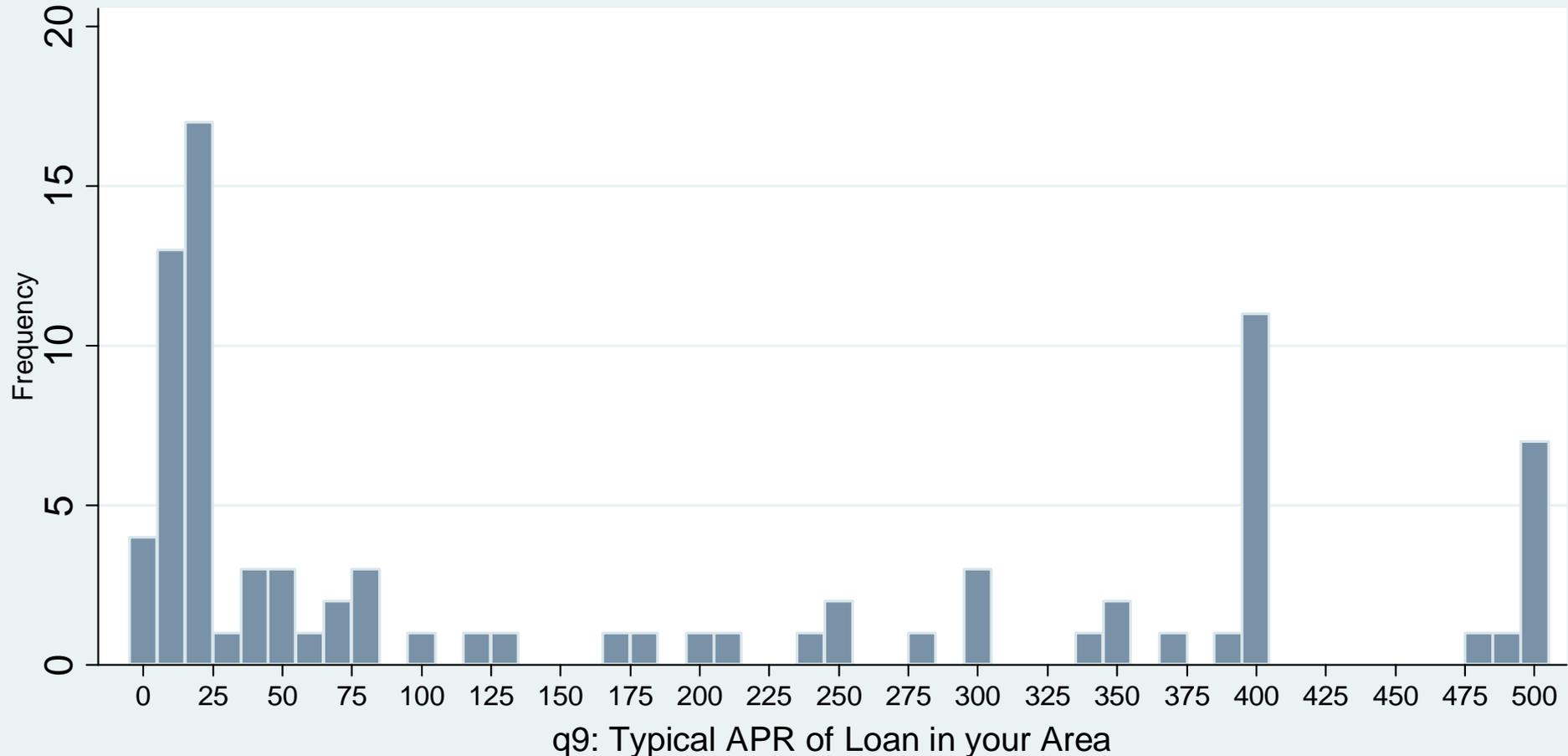


Information Treatment I

Potential problem : People may not internalize APR because focus in store is the dollar fee structure on the wall.



Phone Survey – What is the typical APR of a payday loan in your area?



Side note: People that give an APR that is close to accurate are less satisfied with the lender. Reinforces that there may be learning.

Treatment: Reinforce understanding of APR by presenting it next to other (smaller) APRs.

Annual interest rates on different types of loans

	Median Annual Interest % (from government surveys)
Payday Loan	443%
Installment Car Loans	18%
Credit Card	16%
Subprime Mortgages	10%



Information Treatment 2

Potential Problem: People fail to add up cost of single decision over time

Peanuts Effect (Markowitz, 1952)



Treatment: Present additive dollar costs of payday loan fees into future

(ex.: EPA rules on gas mileage disclosure; quit smoking methods)

How much it will cost in fees or interest if you borrow \$300

PAYDAY LENDER (assuming fee is \$15 per \$100 loan)		CREDIT CARD (assuming a 20% APR)	
If you repay in:		If you repay in:	
2 weeks	\$45	2 weeks	\$2.50
1 month	\$90	1 month	\$5
2 months	\$180	2 months	\$10
3 months	\$270	3 months	\$15

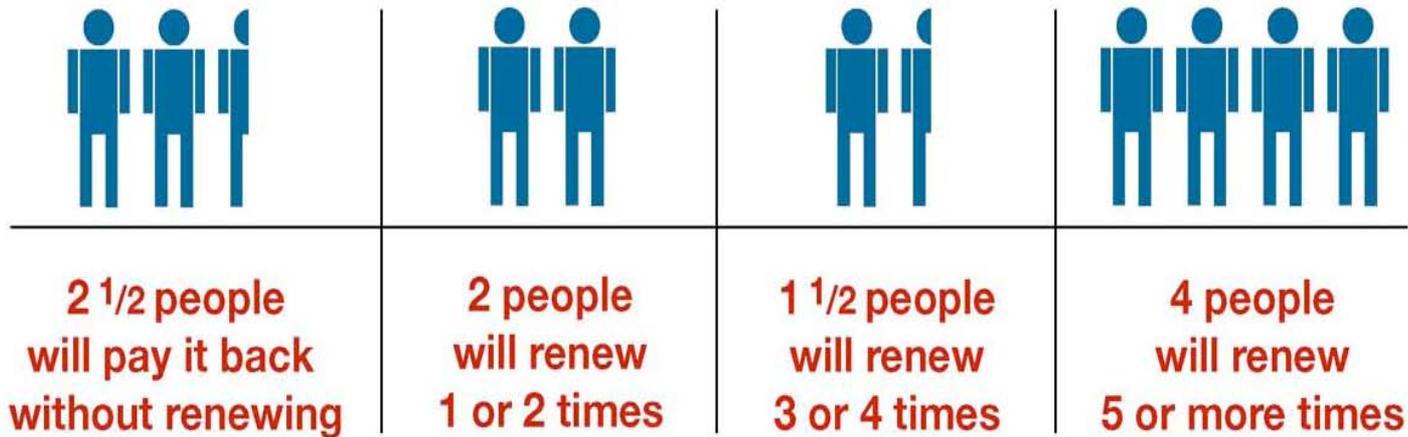
Information Treatment 3

Potential Problem: People fail to consider adequate variance in future outcomes/ People are overconfident about their ability to pay back loan quickly



Treatment: Present distribution of expected number of refinancings

Out of 10 typical people taking out a new payday loan...



We also interact the 3 information treatments with a savings planner treatment.

- Potential problem: People may want to change behavior but may fail in implementing these changes (procrastination/self-control)
- Treatment: Give them a tool in the form of a Savings Planner
 - In lieu of direct personal counseling
 - Elliehausen, Lundquist and Staten(2007): Counseling effective in reducing debt, especially for those with least ability to handle credit prior to counseling.

My **2** WEEK SAVINGS PLANNER

I can cut back on these daily expenses:

(Choose, or add in the blank lines, daily expense items appropriate for you where savings might be possible.)

- Coffee _____
- Soda/ soft drinks/alcohol _____
- Eating lunch out & take out meals _____
- Magazines & newspapers _____
- Lottery tickets _____
- _____
- _____
- _____
- _____

And I will save this much \$ per day:

(Fill in the potential amount saved per day. For example, cutting back from a specialty coffee to a regular coffee might save \$1.50 per day.)

- _____ x 14 =

In 2 weeks, I will have saved this much:

(Multiply the \$ saved per day times 14 days to gauge the 2-week savings. For example, \$1.50 x 14 = \$21 saved for just one item!)

- \$ _____
- \$ _____
- \$ _____
- \$ _____
- \$ _____
- \$ _____
- \$ _____
- \$ _____
- \$ _____

I can cut back on these weekly expenses:

- Use car less to save gasoline _____
- Dinner out with family/friends _____
- Movies & entertainment _____
- Clothes & shoes purchases _____
- Grocery shopping _____
- Beauty products and services _____
- Games, DVDs and other electronics _____
- Sports outings _____
- Car detailing or accessories _____
- _____
- _____
- _____

And I will save this much \$ per week:

- _____ x 2 =

In 2 weeks, I will have saved this much:

- \$ _____
- \$ _____
- \$ _____
- \$ _____
- \$ _____
- \$ _____
- \$ _____
- \$ _____
- \$ _____
- \$ _____
- \$ _____
- \$ _____



\$ _____ ***Add up all of your savings from the daily and weekly items to reach a desired savings goal.***

Randomization

- ▶ Are the treatments internally randomized?
 - ▶ Do the control individuals look like treatment individuals
- ▶ Is our sample externally representative?
 - ▶ Do the participants look like ordinary payday borrowers?

Random Assignment

- ▶ Randomize at the store-day level
 - ▶ 77 stores, 12 days/store
 - ▶ Difficult to randomize at person level: errors by busy clerks in recording who got what treatments
- ▶ We test whether treatment is correlated with a host of pre-treatment characteristics
 - ▶ Income, age, amount borrowed, frequency of borrowing, education, etc..
 - ▶ Results consistent with randomly applied treatment

The Participants



- ▶ 1451 participants
- ▶ Rate of participation is 21% across stores, balanced in days of the week

Background Characteristics

Comparing to Ellihausen & Lawrence (2007)

450 borrowers from phone survey

	E & L	Our Sample
Income	(numbers are % of total respondents)	
Less than \$25,000	0.230	0.421
\$25,000-\$50,000	0.525	0.446
More than \$50,000	0.254	0.133
Education		
No High School Degree	0.062	0.045
High School Degree	0.383	0.298
Some College	0.361	0.497
College Degree	0.194	0.156

Data Structure & Statistics

Treatment Day Statistics

	# in Sample	Annual Income	Age
Average	1451	30,936	42.3

Previous Year Statistics

	Ave # of Loans	Ave. Loan Amount	Ave Fees/ Loan	Total Fees Paid
Weekly	11.4	310.6	48.4	551.8
Bi-Weekly	10.7	357.6	55.4	592.8
Semi-Monthly	10.8	381.9	60.4	652.3
Monthly	8.4	285.6	44.3	372.1
Average	10.4	344.3	53.6	557.4

“Balanced” panel structure: Time unit is pay cycle.

- Have 39,763 loan transactions for 2002-2008
- Impute 191,990 no payday borrowing cycles

Results

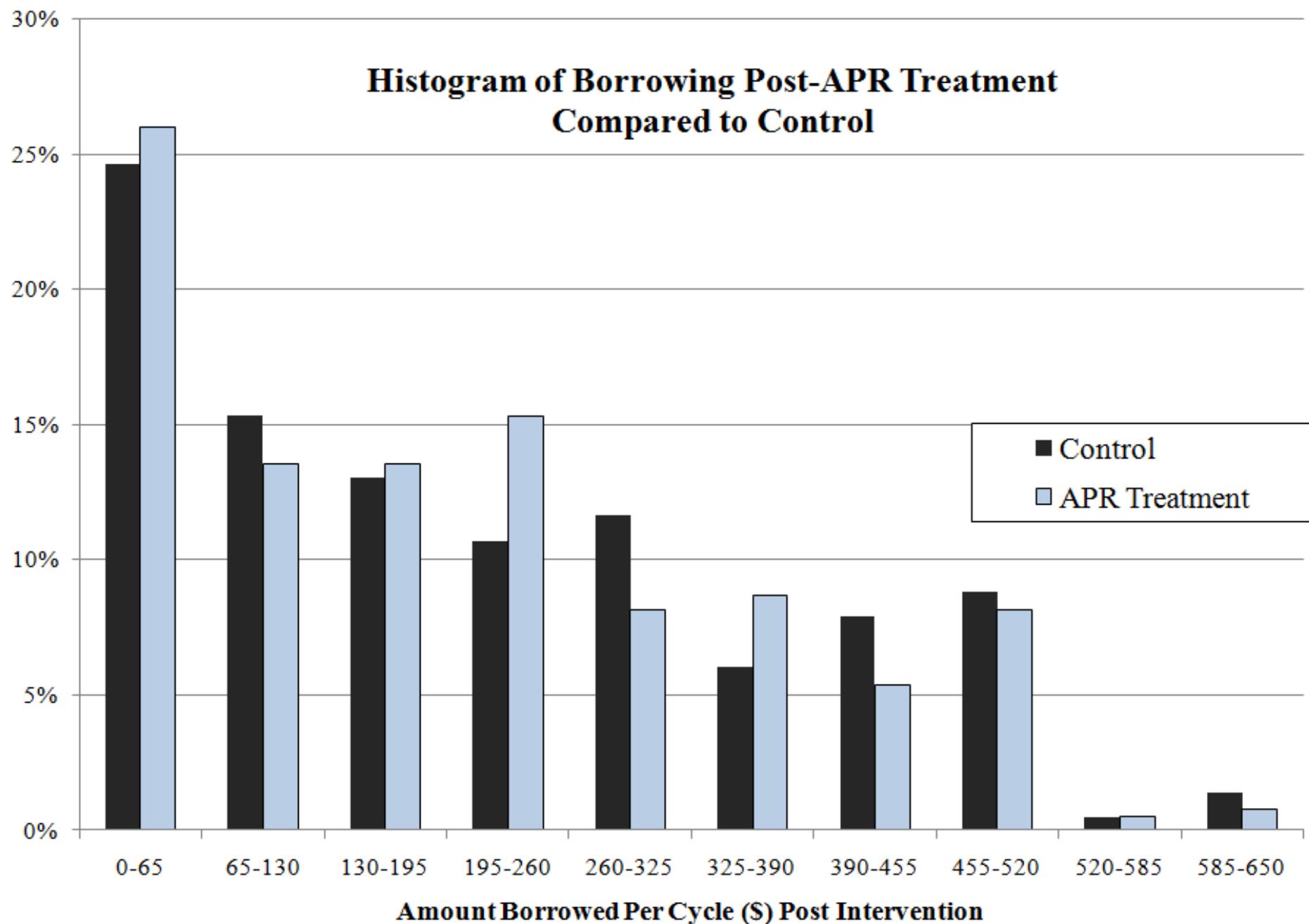


Histograms tell the main result

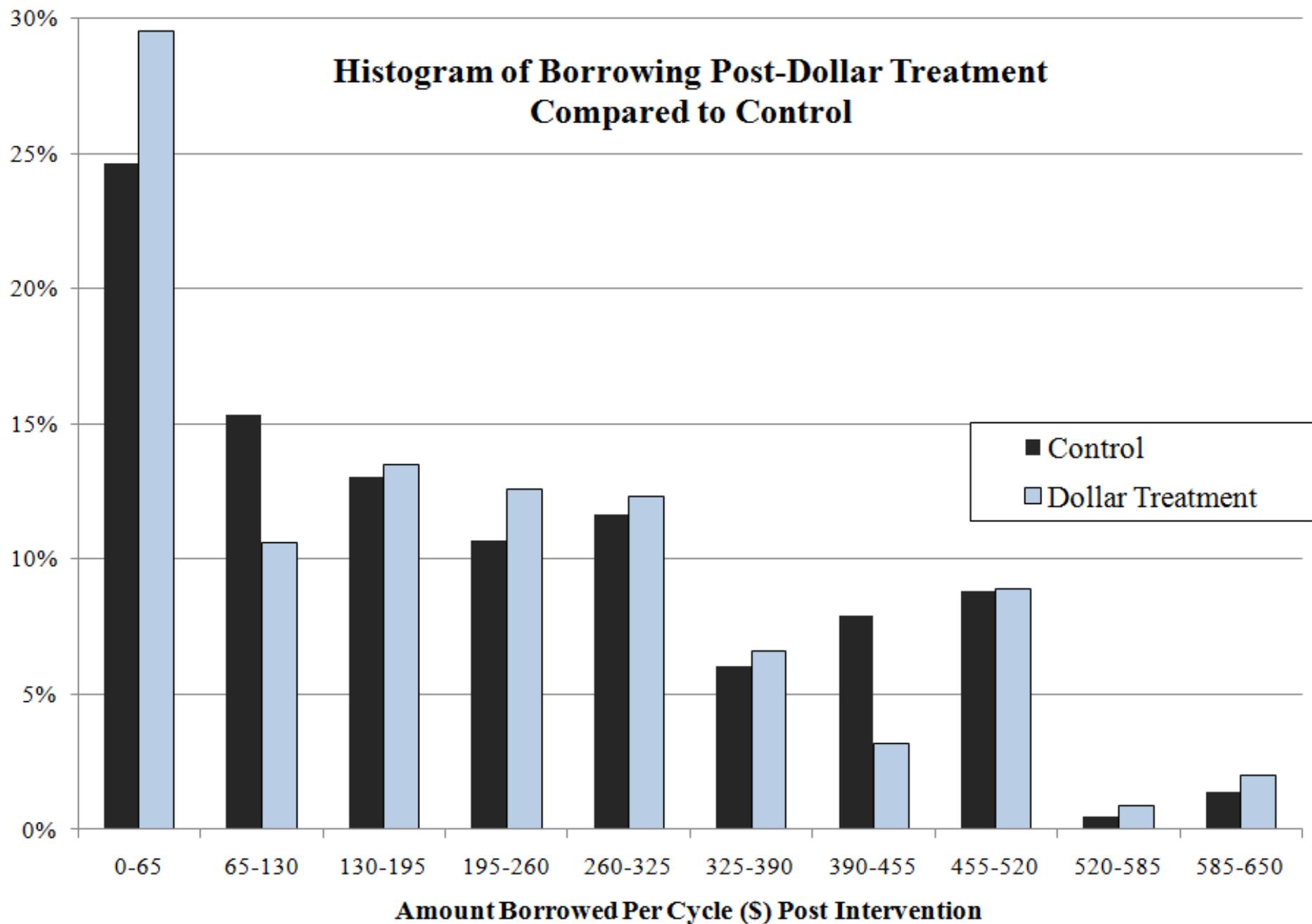
- ▶ Horizontal axis:

Total amount borrowed in all post-intervention periods / number of post cycles

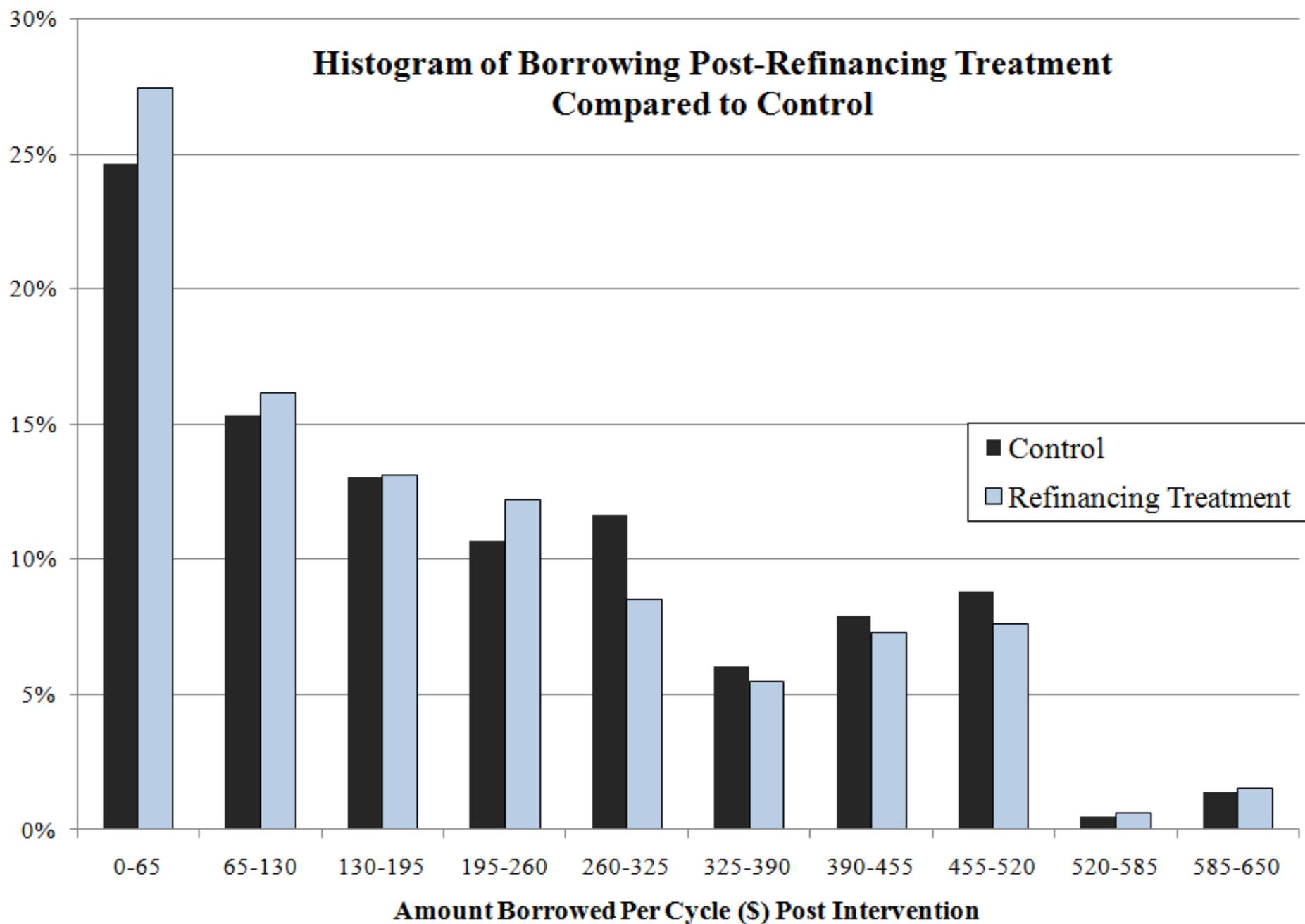
Histogram of Borrowing Post-APR Treatment Compared to Control



Histogram of Borrowing Post-Dollar Treatment Compared to Control



Histogram of Borrowing Post-Refinancing Treatment Compared to Control



Estimations

Two outcome measures:

1. **Indicator for whether customer borrowed**
 - Individual fixed effects and time dummies
2. **Amount borrowed**
 - Tobit estimation (due to truncation at 0) with store & time effects

	Indicator Whether Borrowed				Loan Amt
Savings Planner	0.006 [0.024]	0.002 [0.023]	-0.009 [0.020]	-0.018 [0.012]	2.310 [11.52]
Dollar Information	-0.061** [0.030]	-0.055* [0.030]	-0.053** [0.026]	-0.052*** [0.011]	-38.25** [16.29]
APR Information	-0.016 [0.022]	-0.018 [0.021]	-0.021 [0.023]	-0.042*** [0.012]	-28.27* [15.75]
Refinancing Information	-0.030 [0.028]	-0.036 [0.028]	-0.038 [0.028]	-0.032*** [0.012]	-44.07*** [16.56]
Dollar *Planner				-0.002 [0.018]	
APR *Planner				0.046*** [0.017]	
Refinancing *Planner				-0.010 [0.018]	
Period Income					0.104*** [0.002]
Post	0.042* [0.024]	0.040* [0.023]	0.047** [0.023]	0.050*** [0.008]	43.59*** [13.20]
Store F.E.	No	Yes	No	No	No
Individual F.E.	No	No	Yes	Yes	No
Tobit model with store effects	No	No	No	No	Yes
Observations	231,671	231,671	231,671	231,753	231,011
R-squared	0.138	0.165	0.369	0.369	.

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0.053 lower probability of taking out a loan is a 10% decline relative to control mean post intervention

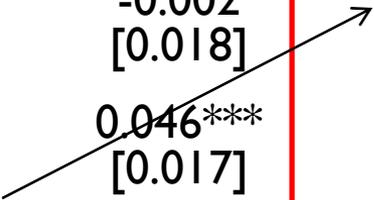
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Adding interaction of planner:
Planner viewed as too paternalistic? Unclear why just for one treatment group. At a minimum, planner ineffective.



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R-squared	0.138	0.165	0.369	0.369	.

Mean control group post loan amount is \$235



Dynamics

- ▶ Is the prior result just a temporary effect that dissipates?
- ▶ Interact treatment dummy with indicator for
 - ▶ period $(t+1)$
 - ▶ periods $(t+2)$ to $(t+3)$
 - ▶ all future periods
- ▶ Result: It takes a couple of periods for effect to be economically and statistically significant.
- ▶ Thereafter, it sticks, at least from June until October 1st.

Is there a heterogeneity of effect across different borrower types?

- ▶ Use data from in-store survey

Heterogeneity of Effects across Groups of Borrowers. Split by:

- **Education levels**
- **How constrained borrowers are**
 - Split borrowers on average borrowing amount/income
- **Self-reported self control** (rated yourself from 1-7)
 - Self Control Scale = +A Planner + Self Controlled – Impulsive
– Enjoys Spending
- **Self reported use of loan for gratification items:**
 - Vacations, gifts, apparel or electronics, eating out
 - Parker (1999) and Souleles (1999) show that unconstrained people spend on these items following tax windfalls
 - Bertrand & Morse (2009): people with these gratification usages do not pay down debt following the 2008 tax rebate

Predictions

- Self control predictions could go either way
 - Low self-control might **have the most to gain**
 - Low self-control may also be **less willing/able** to respond to new information
- Education predictions could go either way:
 - Less educated may **experience larger shocks** with the new information
 - Less educated may be **more constrained** in their ability to alter their payday borrowing in response

Effect of Treatments by Education and Amount Borrowed/Income

<i>Dependent variable:</i>	High School or Less	Some College	College or More	Low Constrained	High Constrained
	Indicator for Borrowing			Indicator for Borrowing	
Savings Planner	-0.035 [0.032]	0.010 [0.032]	0.008 [0.046]	-0.023 [0.025]	0.013 [0.030]
Dollar Information	-0.059 [0.053]	-0.097** [0.037]	0.097 [0.060]	-0.096*** [0.033]	0.041 [0.049]
APR Information	0.006 [0.045]	-0.033 [0.030]	-0.027 [0.085]	-0.033 [0.028]	0.009 [0.052]
Refinancing Information	-0.054 [0.048]	-0.030 [0.038]	-0.039 [0.086]	-0.042 [0.032]	-0.007 [0.051]
Post	0.073* [0.039]	0.038 [0.029]	0.008 [0.059]	0.086*** [0.026]	-0.037 [0.042]
Individual F.E.	Yes	Yes	Yes	Yes	Yes
Observations	81,358	114,740	34,260	151,569	80,102
R-squared	0.387	0.367	0.335	0.373	0.357

Effect of Treatments by Self-Reported Self-Control

<i>Dependent variable:</i>	High Self Control	Low Self Control	Gratification	Not Gratification
	Indicator for Borrowing		Indicator for Borrowing	
Savings Planner	-0.002 [0.031]	-0.016 [0.029]	-0.051 [0.068]	-0.005 [0.022]
Dollar Information	-0.083** [0.038]	-0.031 [0.038]	0.034 [0.097]	-0.062** [0.026]
APR Information	-0.013 [0.041]	-0.026 [0.028]	0.020 [0.087]	-0.024 [0.025]
Refinancing Information	-0.014 [0.037]	-0.054 [0.040]	0.014 [0.087]	-0.043 [0.029]
Post	0.046 [0.032]	0.049* [0.028]	0.021 [0.068]	0.050** [0.024]
Individual F.E.	Yes	Yes	Yes	Yes
Observations	90,915	140,756	20,668	211,003
R-squared	0.382	0.360	0.384	0.367

Summary

Main results

- Narrow bracketing seems to be a cognitive bias of payday borrowers that can be helped
 - De-biasing failure to add up over time reduces borrowing (both in likelihood & in amount) by 10%+
 - De-biasing overconfidence about ability to repay the loan also tends to reduce amount borrowed
- Heterogeneities: Treatment most effective on..
 - Less educated (experience most new information?)
 - Those borrowing less relative to income (less constrained)
 - Self controlled (able to act on information?)

Conclusion

- ▶ Paper advocates for understanding the specific cognitive biases that may lead to mistakes in decision-making and subsequently designing some correcting or “de-biasing” information disclosure
- ▶ Hopefully:
 - ▶ Results suggest a widened set of tools for policy-makers
 - ▶ Results relevant for a broader set of financial and non-financial decisions.