

The Impossibility of Saving by Spending

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Motivation

- According to the Report on the Economic Well-Being of U.S. Households, around 60% of individuals wouldn't be able to cover a \$400 emergency expense completely using cash or its equivalent
- There are several reasons for why people undersave - present bias, self control issues, financial constraints
- Implies perceived cost connected to active saving
- Can passive/automatic saving (such as round-up savings programs) lower these costs and improve savings outcomes for households?
- Round-up savings program used by big banks in the U.S. and in more recent years by FinTech companies
- So far, no economic analysis of the program and its possible effects

Institutional Background

I study the round-up savings program of a U.S. bank, the first program of its kind in the U.S. Households can participate in the program if they have a checking account, savings account and **debit card** with the bank. Every transaction done with the debit card is then rounded-up to the next dollar.

According to analyses from the Federal Reserve Bank of Atlanta, debit cards are the preferred **method of payment** (compared to credit cards) for incomes of up to \$75,000. They also find that only from age 65 on, credit cards are used more than debit cards as method of payment.



Figure 1. Round-up Savings Program Mechanics

Data

I use a 10% random subsample of transaction-level account aggregator data from July 2010 to May 2015. The data provides information on checking account, savings account and credit card activity. I utilize a sample of 578 enrolled households.

Baseline Results

Broad research question: Does enrollment in a round-up savings program have an effect on spending behavior and other household outcomes?

I split this question up into four subquestions and formulate four hypotheses:

1. Does enrollment in a round-up savings program affect spending?

H1: There is no effect on spending.

→ I find an increase in spending upon enrollment - reject H1

Dependent Variable:	Total Spending		
Model:	(1)	(2)	(3)
Enrollment	87.86*** (30.14)	86.80*** (30.39)	87.48*** (30.21)
Weekly Income		94.74 (73.35)	
Monthly Income			20.34 (16.79)
<i>Fixed-effects</i>			
Household	Yes	Yes	Yes
Week	Yes	Yes	Yes
<i>Fit statistics</i>			
Observations	9,826	9,826	9,826
R ²	0.231	0.232	0.232
Within R ²	0.001	0.002	0.001

Clustered (Household) standard-errors in parentheses
Signif. Codes: ***: 0.01, **: 0.05, *: 0.1

Table 1. Regression Results for H1

2. Does enrollment in a round-up savings program affect the extensive margin (spending frequency)?

H2: Spending frequency (extensive margin) increases.

→ Findings show an increase in the extensive margin upon enrollment.

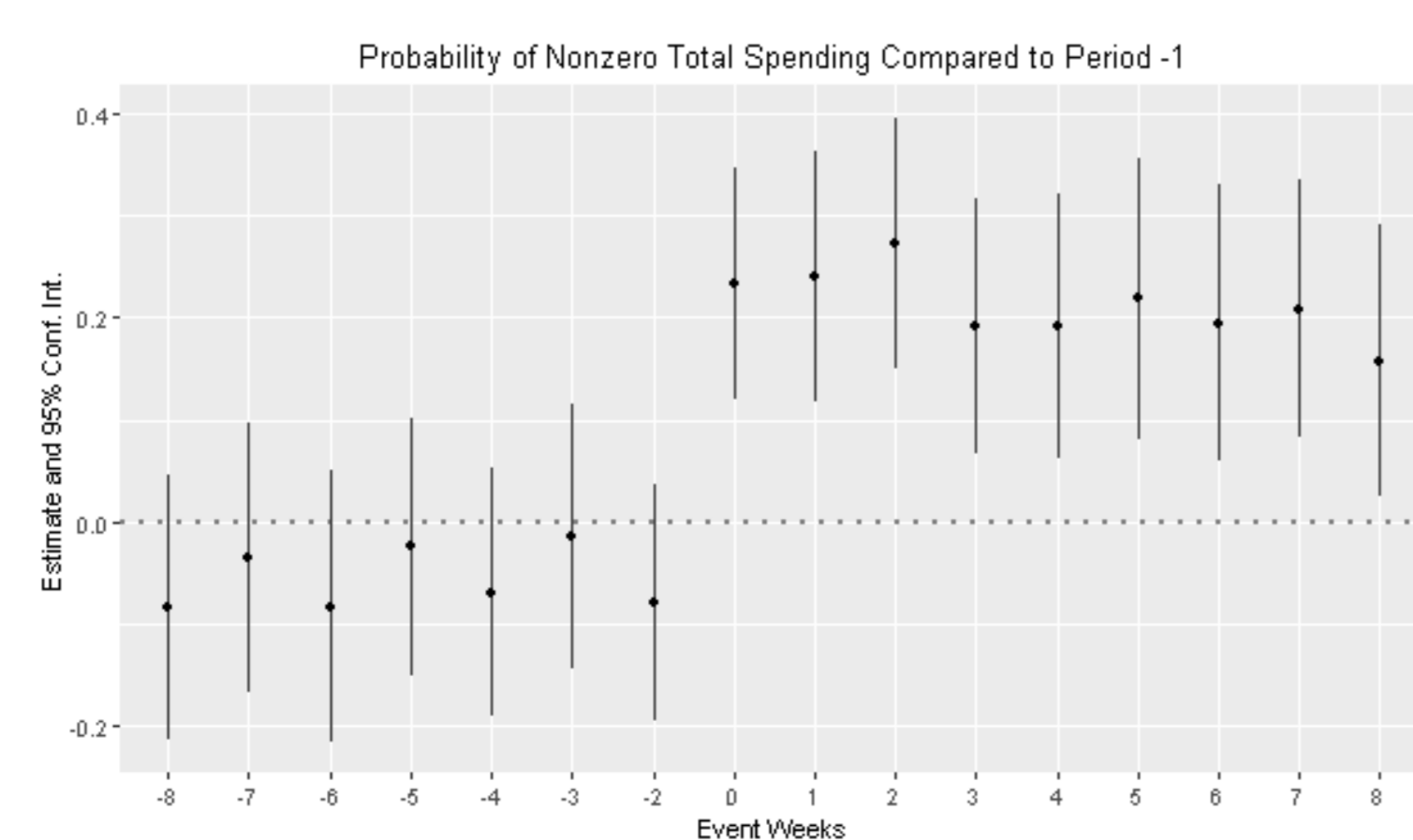


Figure 2. Extensive Margin Coefficients

3. Does enrollment in a round-up savings program affect the intensive margin (average amount spent)?

H3: Average amount spent (intensive margin) decreases.

→ There's an increase in the average amount spent upon enrollment - reject H3

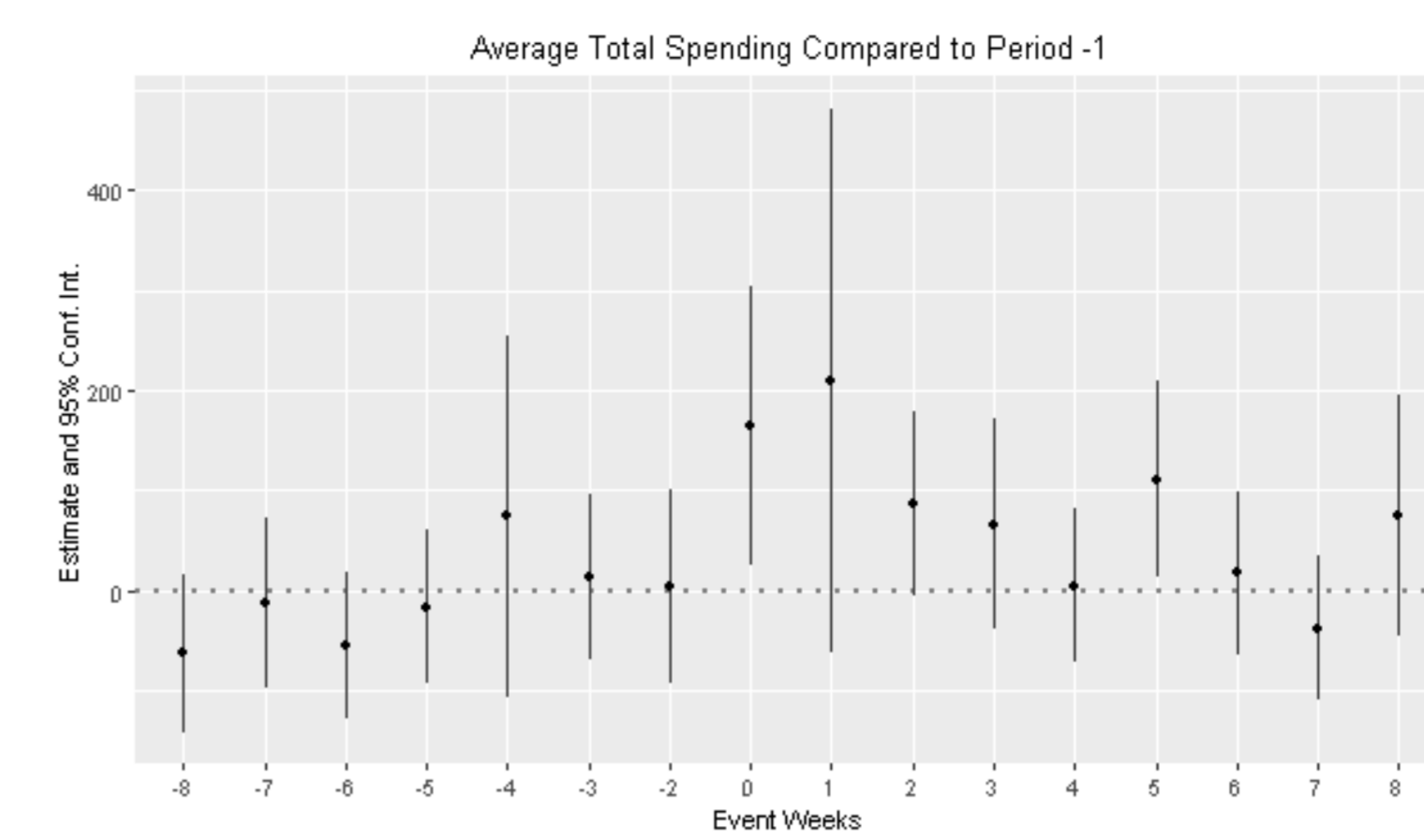


Figure 3. Intensive Margin Coefficients

4. Does enrollment in a round-up savings program affect liquidity shortfall (indicator variable for account overdraft or bounced check)?

H4: There is no effect on liquidity shortfall.

→ I find a gradual increase in the propensity of liquidity shortfall after enrollment - reject H4

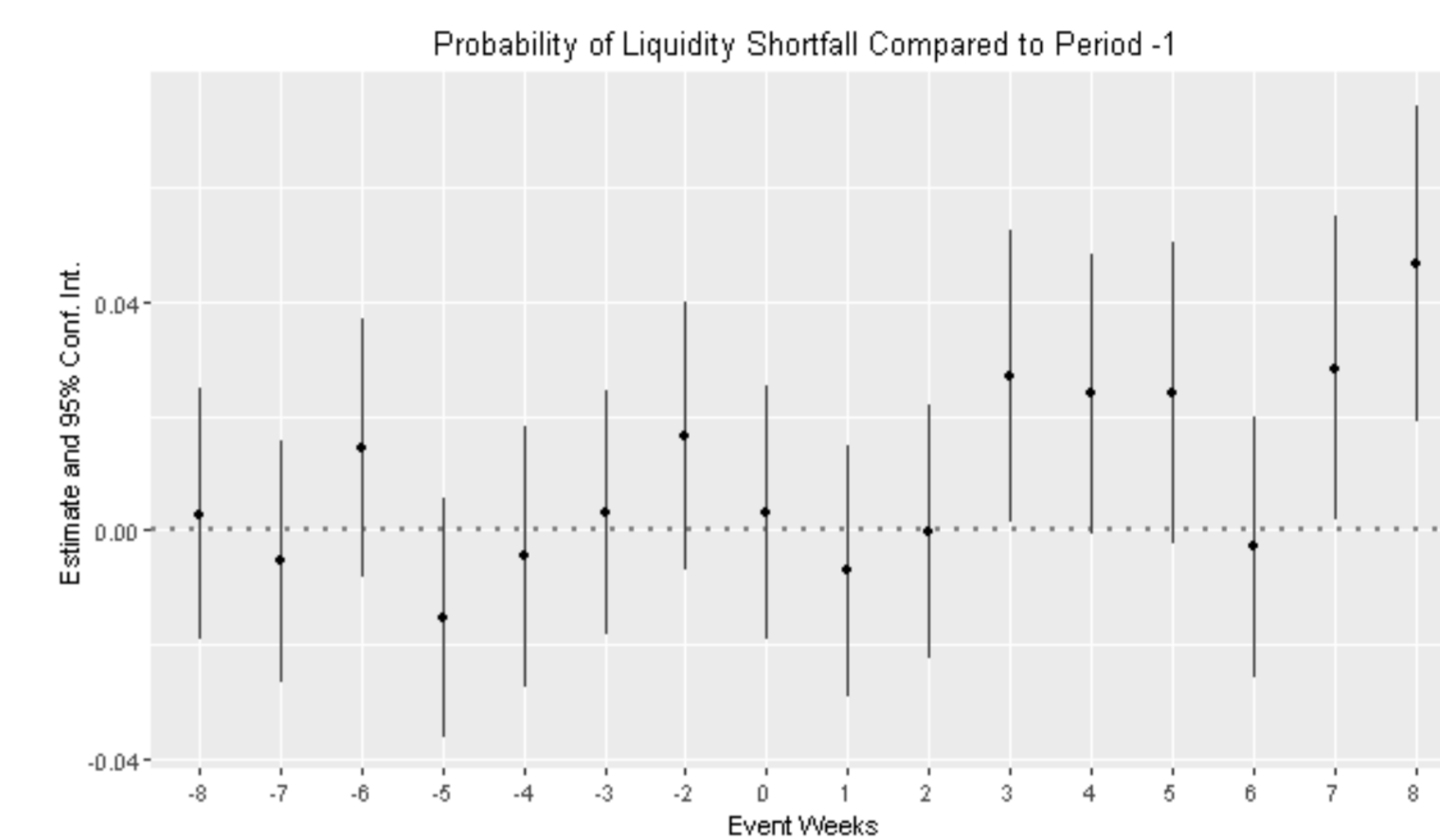


Figure 4. Liquidity Shortfall Coefficients

Difference-in-Differences

- Difference-in-differences analysis using the estimator by Callaway and Sant'Anna (2021) for multiple time periods
- Data aggregated on the monthly level (the baseline results are on the weekly level) to ensure big enough groups
- I analyze two months pre-enrollment and two months post-enrollment
- I find an average increase of approximately \$300 per month upon enrollment

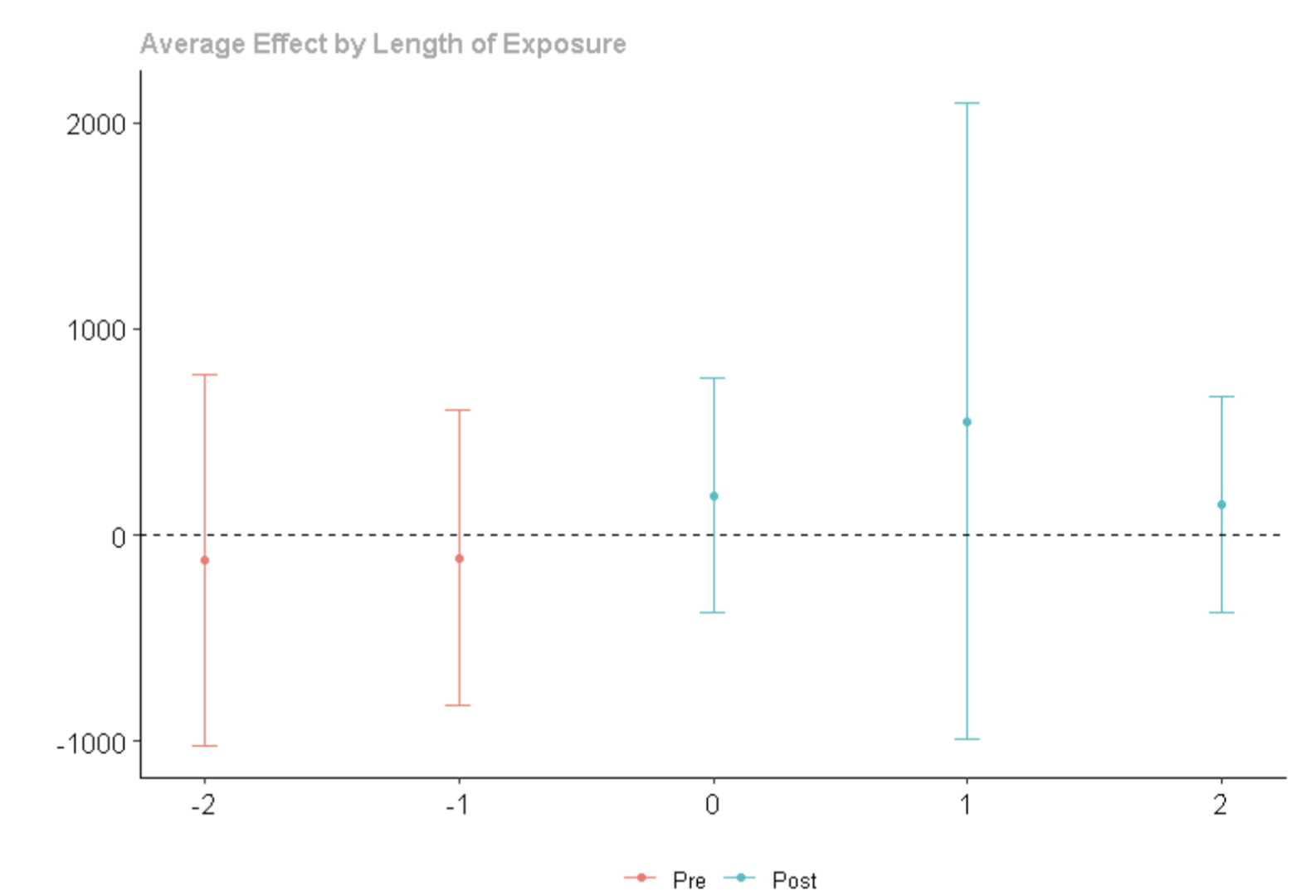


Figure 5. Diff-in-Diff Coefficients

Economic Channels

I consider two economic channels as drivers behind this effect:

1. Round-up Channel

- Round-up feature as possible driver of effect ("gamification")
- Compare round-up savings program to "flat" savings program (every transaction triggers a flat \$1 transfer into the savings account) - I find similar results for both programs

2. Spend+Save Channel

- Halo effect of saving on spending decreases pain of paying for transactions and lowers threshold for additional transactions
- Purpose of program is to help with self-control when it comes to saving - initial adverse effect and self-control issues contribute to increases in saving upon enrollment

Conclusion

- Average Increase in total spending of \$87 per week over an 8-week post-enrollment period, driven by an increase in the extensive and intensive margins.
- Gradual increase in the propensity of liquidity shortfall
- Compared to a weekly average round-up savings amount of \$4.50, this suggests a short-run adverse effect of enrollment

Week	Mean	St. Dev.	Min	Median	Max
0	\$ 3.29	\$ 2.94	\$ 0.00	\$ 2.55	\$ 20.68
1	\$ 4.65	\$ 3.89	\$ 0.00	\$ 3.68	\$ 20.98
2	\$ 4.72	\$ 3.78	\$ 0.00	\$ 3.91	\$ 31.93
3	\$ 4.65	\$ 3.81	\$ 0.00	\$ 3.76	\$ 23.75
4	\$ 4.59	\$ 4.19	\$ 0.00	\$ 3.42	\$ 25.38
5	\$ 4.85	\$ 4.23	\$ 0.00	\$ 3.91	\$ 38.81
6	\$ 4.42	\$ 3.59	\$ 0.00	\$ 3.83	\$ 20.20
7	\$ 4.79	\$ 3.95	\$ 0.00	\$ 3.98	\$ 25.48
8	\$ 4.60	\$ 3.89	\$ 0.00	\$ 3.63	\$ 22.35

Table 2. Summary Statistics for Round-Up Savings