Does Saving Cause Borrowing? Implications for the Co-Holding Puzzle

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Summary of paper

- Question: Why do people co-hold high-cost credit card debt and low-interest liquid savings?
- Empirical setting: a controlled experiment of SMS saving nudges by bank
- Theoretical derivations for the effect of such saving nudges on spending, savings and debt under (a) liquidity premium vs (b) mental accounting models.
- Causal forest approach to estimate individual-level treatment effect
- Main findings:
  - Substantial heterogeneity across individuals
  - Among those who respond to the saving nudges, spending ↓, savings ↑ while credit card debt stay unchanged → supports the mental accounting predictions

Outline of discussion

- Fantastic paper that I enjoy reading:
  - Clear theoretical predictions
  - Excellent empirical execution
  - Novel insights for classic question from methodological innovations
- Comments and ideas
  - Using the vast heterogeneity to understand different mechanisms
  - Comparing and interpreting different nudges
- Implications for designing and analyzing behavioral interventions

Co-holding

- Simultaneously holding high-interest revolving debt and low-yielding liquid assets
- Three features of co-holding across contexts and definitions
  - Prevalent
  - Costly
  - Persistent
- A puzzle? A mistake?

A classic question: Why do people co-hold?

- (Rational) inattention
- Strategic option ahead of bankruptcy
- Insurance against risk that credit limit is reduced
- Emergency savings
- Self-control
- Mental accounting
- Payment preferences

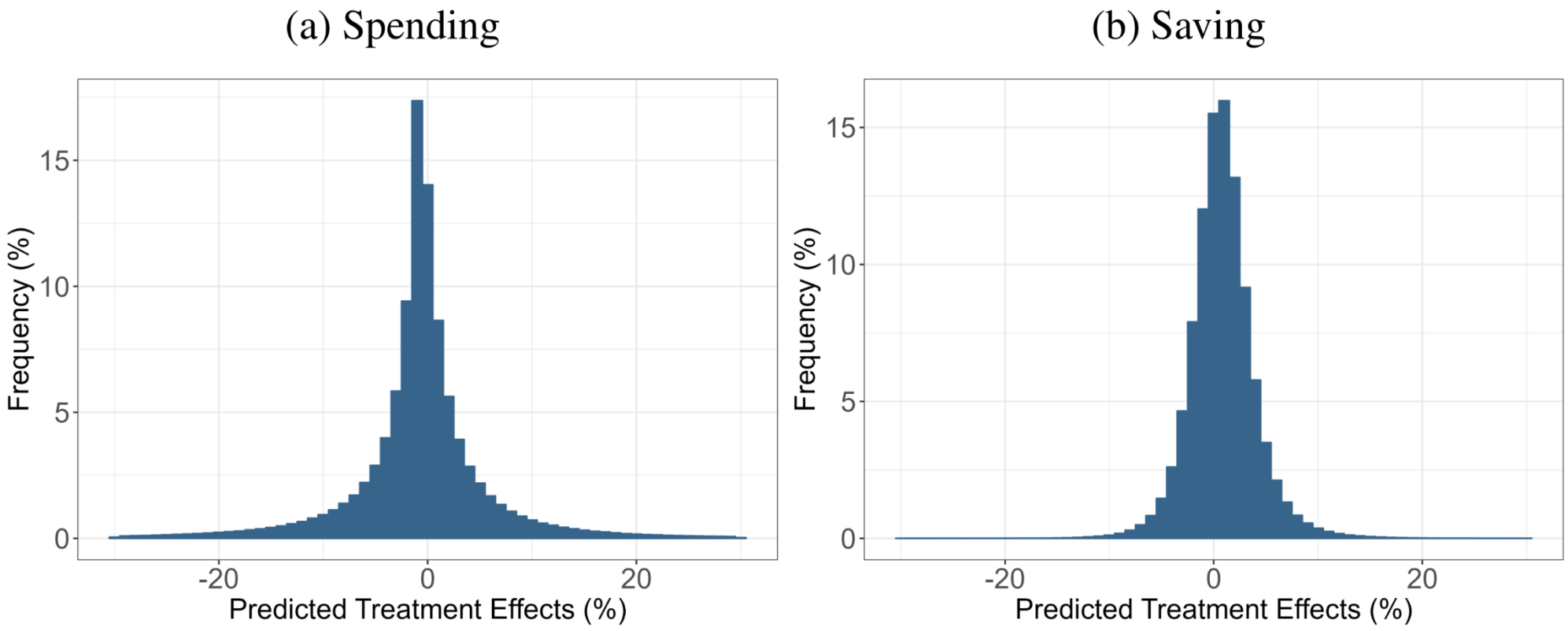
Theoretical predictions for spending, savings, and debt

Model and effect of a saving nudge	Spending	Savings	Debt
Liquidity premium model			
Patience ↑	↓	~	↓
Liquidity need ↑	~	↑	↑
Mental accounting model			
Patience ↑	↓	↑	~

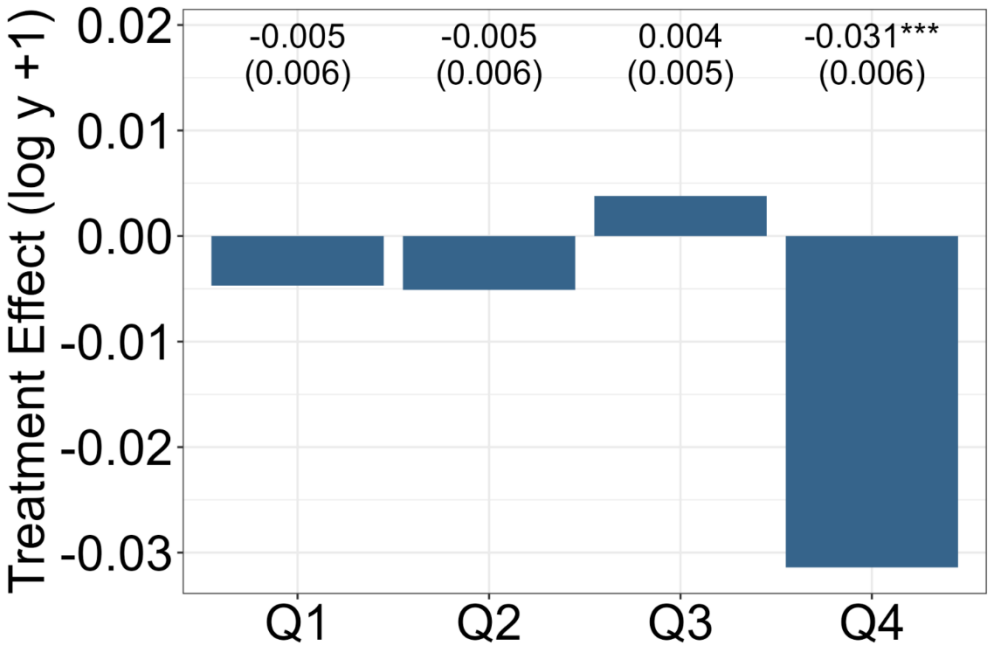
Overall effects support mental accounting predictions

	Ln Spending +1	Ln Checking Account Balance +1	Ln Credit Card Interest +1 During Treat.	Paid Interest During Treat. {0,1}	Ln Ending Statement Balance - Payments After Treat. +1
Panel A: All Individuals					
Any Treatment	-0.009*	0.006*			
	(0.005)	(0.003)			
Observations	3,054,503	3,054,503			
Mean of Dep.Var. in Control Group	16,732.41	17,393.63			
Panel B: Individuals with a Credit Card					
Any Treatment	-0.021***	0.012**	-0.004	-0.001	-0.003
	(0.006)	(0.006)	(0.004)	(0.004)	(0.005)
Observations	362,223	362,223	362,223	362,223	362,223
Mean of Dep.Var. in Control Group	29,960.75	34,586.21	213.84	0.41	4,981.45
Panel C: Individuals with a Credit Card Who Paid Interest at Baseline					
Any Treatment	-0.019**	0.017**	-0.004	-0.001	0.002
	(0.007)	(0.007)	(0.005)	(0.005)	(0.005)
Observations	152,016	152,016	152,016	152,016	152,016
Mean of Dep.Var. in Control Group	31,818.77	31,940.83	479.14	0.81	10,219.67

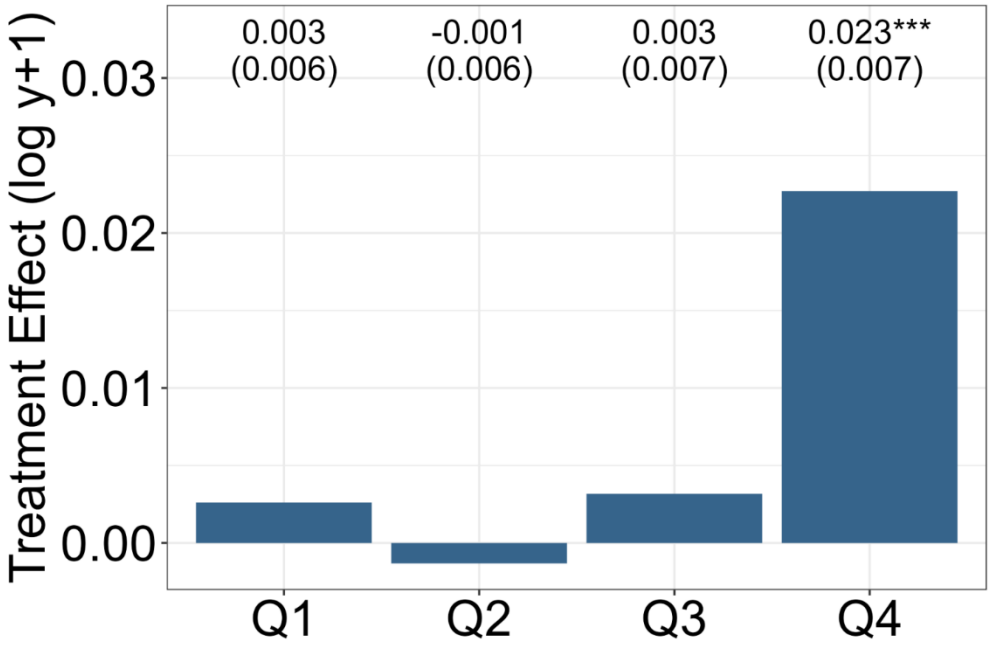
Substantial heterogeneity across individuals



Roughly ¼ respond in spending, ¼ respond in savings



(a) Spending



(b) Saving

Joint distribution of the two dimensions is revealing

(c) Individuals with a Credit Card Who Paid Interest at Baseline

	1	2	3	4
1	0.1017	0.0576	0.0571	0.0332
2	0.0592	0.0901	0.0526	0.0478
3	0.0571	0.0669	0.1070	0.0195
4	0.0319	0.0355	0.0339	0.1492

Spending ↓
Savings ↑

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Spending ~
Savings ↑
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Spending ↓
Savings ~
If debt ↓, these 10% of people look like agents with patience ↑ under liquidity premium models.

Comparing different nudges

Message	Type?	Effect for spending	Effect for savings
1: “Congratulations. Your average balance over the last 12 months has been great! Continue to increase your balance and strengthen your savings."	Savings in general	-0.0351	0.0209
2: “Increase the balance in your Banorte Account and get ready today for year-end expenses!”	Short-term goals	-0.0874***	0.0516**
3: “Join customers your age who already save 10% or more of their income. Commit and increase the balance in your Banorte Account by $XXX this month.”	Savings in general	-0.1216***	0.0779***
4: “In Banorte, you have the safest money box! Increase your account balance by $XXX this payday and reach your goals."	Mental accounting	-0.1239***	0.0811***
5: “Increase your balance this month by $XXX and reach your dreams. Commit to it. You can do it by saving only 10% of your income.”	Savings in general	-0.0685***	0.0371
6: “The holidays are coming. Commit to saving $XXX in your Banorte Account and avoid money shortfalls at year-end!”	Short-term goals	-0.0413*	0.0219
7: “Be prepared for an emergency! Commit to leaving 10% more in your account. Don’t withdraw all your money on payday.”	Short-term goals	-0.0918***	0.0546**

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3: “Join customers your age who already save 10% or more of their income. Commit and increase the balance in your Banorte Account by $XXX this month.”	Peer effects?	-0.1216***	0.0779***
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Big picture: designing and analyzing interventions

- The causal forest approach enables an estimate of treatment effect for each individual without suffering from over-fitting, curse of dimensionality, spurious correlation, or ad-hoc parametric choice for treatment effect heterogeneity
- It reveals that close to 65% of the treated individuals do not change spending or savings in response to the saving nudges.
- Equally important to understand for whom an intervention works vs does not work.
- Will be interesting to analyze and interpret the characteristics of non-responders.