

# MINIMUM PAYMENTS ALTER DEBT REPAYMENT STRATEGIES ACROSS MULTIPLE CARDS

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- Canadians hold around \$640 billion in non-mortgage debt
- People make costly errors in utilization and repayment of that debt (Ponce et al., 2017; Gathergood et al., 2017)
- Relatively straightforward to implement the cost minimizing policy

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3. Pay off all debt on highest interest rate card before allocating any money to other debt

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  - Pay in proportion to debt amounts (Gathergood et al., 2017)
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- Strategies may impact people's motivation to get out of debt ( Gal & McShane, 2012; Kettle et al., 2016)



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- Evidence with single accounts people treat minimum as a reference point (Stewart, 2009; Keys & Wang, 2016)
- Paying only the minimum for many accounts can be consistent with the optimal policy

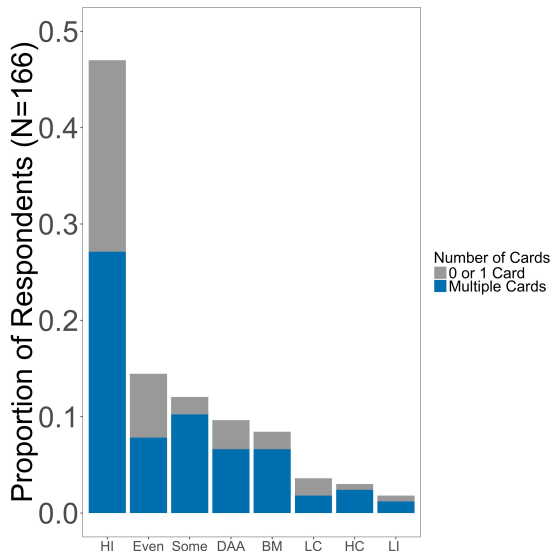
- Study 1a and b: Do people realize that interest is an important factor?

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- Study 2: Even though people know interest is important, minimum payments lead people to spread money across more cards

## STUDY 1A: SELF REPORTED STRATEGIES

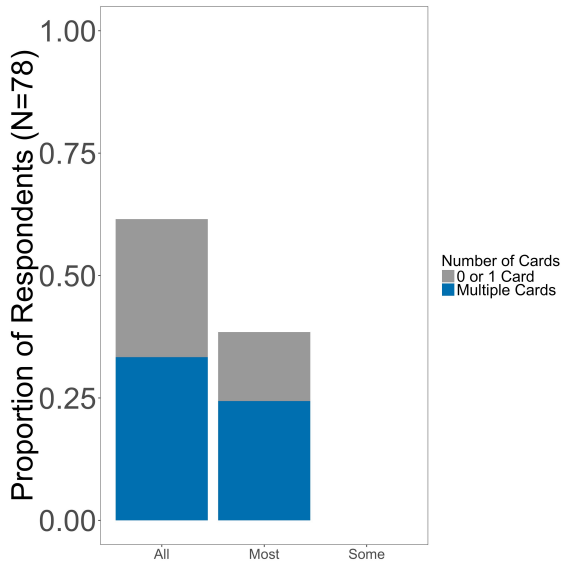
- Participants (N = 166) ranked the importance of 5 attributes to debt repayment
- Responded to drill down questions on direction (e.g., high vs. low interest) and concentration of their strategy
- Reported their beliefs about whether their strategy was the correct debt repayment strategy
- Answered debt experience and demographic questions

# SELF-REPORTED HEURISTICS



- HI: Highest interest card
- Even: Splitting evenly
- Some: Some amount to each card
- DAA: Smallest debt amount
- BM: Largest debt amount
- LC: Least credit available
- HC: Most credit available
- LI: Lowest interest card

# INTENDED CONCENTRATION OF REPAYMENT





## STUDY 1B: BUDGETING APP DATA

- Transaction and card terms data from a budgeting app marketed to large companies with credit card repayments (N = 182362 consumer-months)
- Examine population (N = 39747) that carried a balance on all their cards, and made repayments on all their cards (but not full repayment)
- Estimate the impact on repayments from a card having the highest interest rate, controlling for the size of the balance

## BUDGETING APP RESULTS

- People tend to repay more to their highest interest rate card relative to other cards controlling for balance
- The premium is small, about \$132 or 4% of the average allocation
- For people with only 2 cards the effect is only 2% of the average allocation

## CONCLUSIONS STUDY 1A & B

- Most people intend to repay highest interest rate debt
- Evidence for insufficient extremity in allocation
- Suggestive field evidence that people utilize interest rates in their debt repayment decisions

## COULD MINIMUM PAYMENTS INTERFERE?

- Many psychological and structural factors could impede people's abilities to implement their strategies (Agarwal et al., 2015; Shah, Mullainathan, & Shafir, 2012; Zhang, 2013)
- Prior work shows minimum payments reduce allocations in single card settings (Stewart, 2009)
- We test impacts of minimum payments on repayment strategies with multiple cards

## STUDY 2: METHODS

- Participants play a 3 round debt game modeled on Amar et al.'s task
- Participants (n=375) were randomly assigned to either a control or minimum payment condition with a budget of \$3000
- There was a \$25 fee for each failure to make a minimum payment
- We exclude participants (n=31) who allocated more than any debt amount

# PARTICIPANTS' ENTRY SCREEN

The table below includes all of the information on each of your debts.

Debt Name	Interest Rate	Total Debt	Minimum Payment
Debt 1	13%	\$ 2455	\$49
Debt 2	14%	\$ 3232	\$65
Debt 3	18%	\$ 2644	\$53
Debt 4	10%	\$ 1949	\$39
Debt 5	15%	\$ 2167	\$43
Debt 6	16%	\$ 2238	\$45

# PARTICIPANTS' ENTRY SCREEN

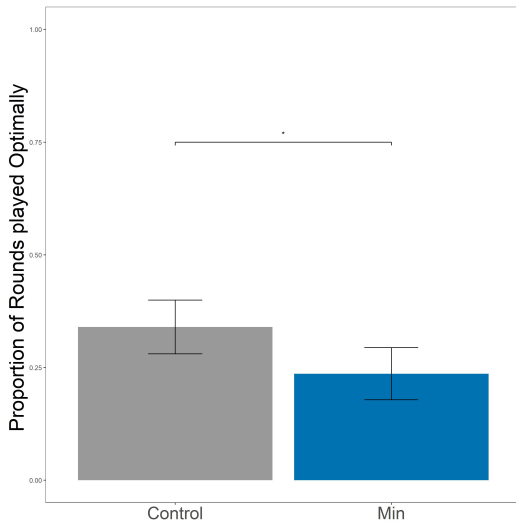
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How would you allocate your \$3000 budget to the 6 debts? Enter the amounts you would pay off on each debt. Your responses must sum to \$3000. Be careful, if you allocate more money than the size of the debt, that money will be lost.

Debt 1: amount \$2455, rate 13%	<input type="text" value="\$ 0"/>
Debt 2: amount \$3232, rate 14%	<input type="text" value="\$ 0"/>
Debt 3: amount \$2644, rate 18%	<input type="text" value="\$ 0"/>
Debt 4: amount \$1949, rate 10%	<input type="text" value="\$ 0"/>
Debt 5: amount \$2167, rate 15%	<input type="text" value="\$ 0"/>
Debt 6: amount \$2238, rate 16%	<input type="text" value="\$ 0"/>
<b>Total</b>	<input type="text" value="\$ 0"/>

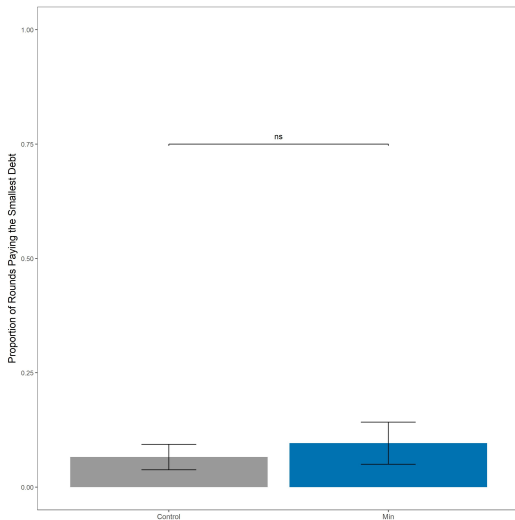
# MINIMUMS REDUCE OPTIMAL PLAY



$$\beta_{\min} = -.11, p = .015$$

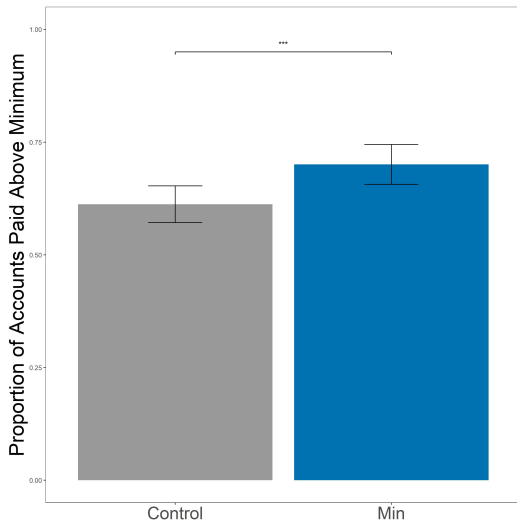


# NOT DRIVEN BY PAYING SMALLEST DEBT



$$\beta_{\min} = .028, p = .116$$

# MINIMUMS INDUCE PAYING MORE ACCOUNTS



$$\beta_{\min} = .14, p < .001$$

## STUDY 2: CONCLUSIONS

- Participants with minimums played fewer rounds optimally
- Paid more accounts above the minimum balance
- Participants may use naive diversification strategy (Benartzi & Thaler, 2001)
- 71% of participants made their largest allocation to their highest interest rate debt in round 1

# CONCLUSIONS

- In both lab and field, people are attentive to their interest in debt repayment
- A portion intend to allocate less extremely than they should
- Focusing on the highest interest account is the most common strategy in our repayment game

# CONCLUSIONS

- Minimum payments increase the tendency to spread repayments across accounts
- We find they decrease optimal play and increase number of accounts paid
- May relate to other effects (e.g., probability matching) in which people neglect corner solutions

THANK YOU!

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## STUDY 5: INTRODUCTION

- Differences could be driven by increased complexity of optimal strategy
- Paying minimums requires actively selecting an allocation
- Default condition holds strategy complexity constant, does not require active selection

## STUDY 5: METHODS

- Participants (n=258) randomly assigned into control, minimum payment, or Default minimum condition
- 40 participants were excluded for allocating more than they owed
- Participants were paid a bonus based on performance



## STUDY 5: DEFAULT SCREEN

How would you allocate your \$3000 budget to the 6 debts? Enter the amounts you would pay off on each debt. Your responses must sum to \$3000. Be careful, if you allocate more money than the size of the debt, that money will be lost.

Debt 1: amount \$2284, rate 7.99%, min \$46

\$

Debt 2: amount \$2221, rate 20.99%, min \$44

\$

Debt 3: amount \$2056, rate 12%, min \$41

\$

Debt 4: amount \$1375, rate 15.4%, min \$28

\$

Debt 5: amount \$3212, rate 14.4%, min \$64

\$

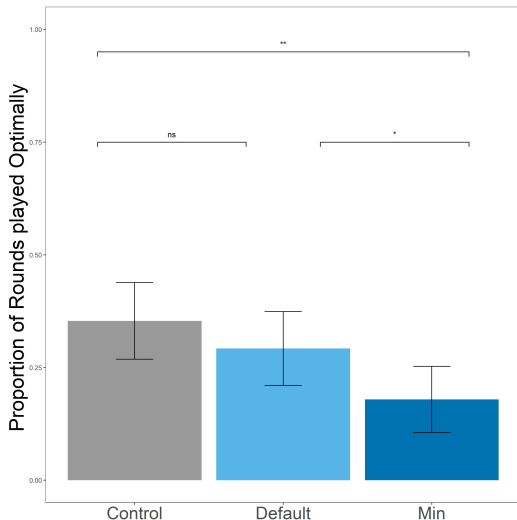
Debt 6: amount \$1742, rate 17.9%, min \$35

\$

**Total**

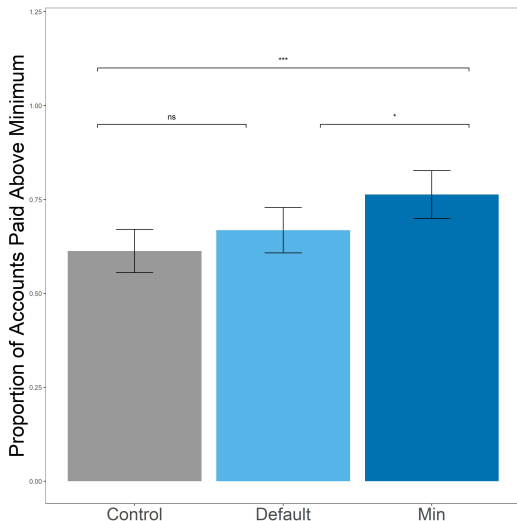
\$

# REPLICATE PRIMARY DIFFERENCE WITH INCENTIVES



$$\beta_{\min/\text{cont}} = -.21, p = .001, \beta_{\min/\text{def}} = -.12, p = .038$$

# DEFAULT PAYS TO FEWER ACCOUNTS



$$\beta_{\text{min}/\text{cont}} = .13, p < .001, \beta_{\text{min}/\text{def}} = .07, p = .021$$

## STUDY 5: CONCLUSIONS

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- Complexity of the optimal policy rule is the same across default and minimum payment conditions
- Replicate differences between control and minimum payment condition with incentives