MINIMUM PAYMENTS ALTER DEBT REPAYMENT STRATEGIES ACROSS MULTIPLE CARDS

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FCAC Conference, November 2018
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
1. Pay the minimum payment on every debt
1. Pay the minimum payment on every debt

2. Pay down debts in order of highest to lowest interest rate
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2. Pay down debts in order of highest to lowest interest rate

3. Pay off all debt on highest interest rate card before allocating any money to other debt
WHY MIGHT PEOPLE MAKE MISTAKES?

- Don’t know key information
- Don’t know optimal strategy or believe that other strategies are better
  - Pay in proportion to debt amounts (Gathergood et al., 2017)
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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)
UNCLEAR HOW MINIMUM PAYMENTS AFFECT STRATEGIES

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- Evidence with single accounts people treat minimum as a reference point (Stewart, 2009; Keys & Wang, 2016)
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- 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
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

Proportion of Respondents (N=78)

Number of Cards
- 0 or 1 Card
- Multiple Cards

All: 0.25
Most: 0.00
Some: 0.25
• 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
· 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
The table below includes all of the information on each of your debts.

<table>
<thead>
<tr>
<th>Debt Name</th>
<th>Interest Rate</th>
<th>Total Debt</th>
<th>Minimum Payment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Debt 1</td>
<td>13%</td>
<td>$2455</td>
<td>$49</td>
</tr>
<tr>
<td>Debt 2</td>
<td>14%</td>
<td>$3232</td>
<td>$65</td>
</tr>
<tr>
<td>Debt 3</td>
<td>18%</td>
<td>$2644</td>
<td>$53</td>
</tr>
<tr>
<td>Debt 4</td>
<td>10%</td>
<td>$1949</td>
<td>$39</td>
</tr>
<tr>
<td>Debt 5</td>
<td>15%</td>
<td>$2167</td>
<td>$43</td>
</tr>
<tr>
<td>Debt 6</td>
<td>16%</td>
<td>$2238</td>
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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%
Debt 2: amount $3232, rate 14%
Debt 3: amount $2644, rate 18%
Debt 4: amount $1949, rate 10%
Debt 5: amount $2167, rate 15%
Debt 6: amount $2238, rate 16%

Total
MINIMUMS REDUCE OPTIMAL PLAY

\[ \beta_{\text{min}} = -0.11, \ p = 0.015 \]
\( \beta_{\text{min}} = .028, \ p = .116 \)
MINIMUMS INDUCE PAYING MORE ACCOUNTS

\[ \beta_{\text{min}} = .14, \ p < .001 \]
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 the number of accounts paid.

- May relate to other effects (e.g., probability matching) in which people neglect corner solutions.
THANK YOU!
• 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
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**

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<table>
<thead>
<tr>
<th>Debt</th>
<th>Amount</th>
<th>Rate</th>
<th>Min</th>
<th>Allocation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Debt 1</td>
<td>$2284</td>
<td>7.99%</td>
<td>$46</td>
<td>$46</td>
</tr>
<tr>
<td>Debt 2</td>
<td>$2221</td>
<td>20.99%</td>
<td>$44</td>
<td>$44</td>
</tr>
<tr>
<td>Debt 3</td>
<td>$2056</td>
<td>12%</td>
<td>$41</td>
<td>$41</td>
</tr>
<tr>
<td>Debt 4</td>
<td>$1375</td>
<td>15.4%</td>
<td>$28</td>
<td>$28</td>
</tr>
<tr>
<td>Debt 5</td>
<td>$3212</td>
<td>14.4%</td>
<td>$64</td>
<td>$64</td>
</tr>
<tr>
<td>Debt 6</td>
<td>$1742</td>
<td>17.9%</td>
<td>$35</td>
<td>$35</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td></td>
<td><strong>$258</strong></td>
</tr>
</tbody>
</table>
\[ \beta_{\text{min/cont}} = -0.21, \ p = .001, \ \beta_{\text{min/def}} = -0.12, \ p = .038 \]
DEFAULT PAYS TO FEWER ACCOUNTS

$\beta_{\text{min/cont}} = .13, \ p < .001, \ \beta_{\text{min/def}} = .07, \ p = .021$
Default condition attenuates difference between minimum payment and control conditions
STUDY 5: CONCLUSIONS

- Default condition attenuates difference between minimum payment and control conditions
- Complexity of the optimal policy rule is the same across default and minimum payment conditions
Default condition attenuates difference between minimum payment and control conditions

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