Even Self-Aware Consumers Are Overconfident

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Academics and policymakers have sought to understand:

1. The extent of consumer self-awareness and overconfidence
2. The implications for regulation

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Great for studying consumer self-awareness and overconfidence:

1. "Obviously best" payments: minimum required, then pay remainder in final month
2. Basically no one does this
3. High failure rates $\Longrightarrow$ attention from regulators

Questions of Interest

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- How do those beliefs compare to actual probabilities?
- Is there evidence that borrowers learn from experience?
- How costly are repayment mistakes for borrowers?
- How would borrowers behave if they knew the truth?

Our Approach and Main Findings

Specify a theoretical model of consumer behavior:

- Informed by institutional context and data
- Use data to estimate parameters (beliefs)
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- The riskiest borrowers are also the most over-confident
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- The riskiest borrowers are also the most over-confident
- Self-insight is most valuable to the worst borrowers
- Eliminating overconfidence and mistakes increases average consumer benefits by \$35 ($\approx$ 450% of baseline!)

Transaction-Level DI Data

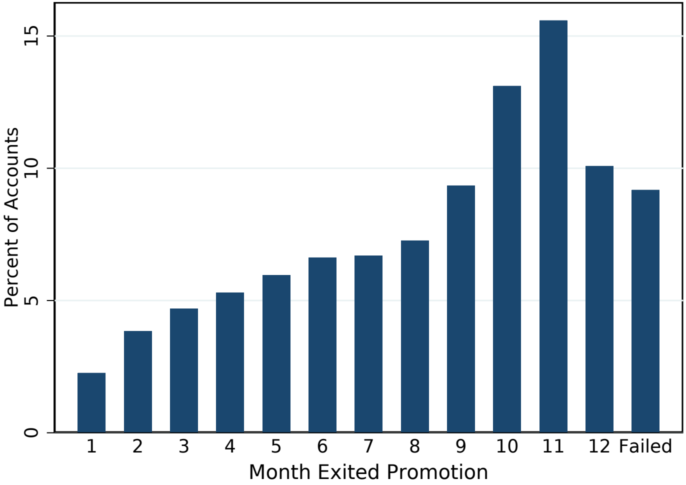
Administrative data from single retailer covering 12-month DI promotions in 2011-2013, matched to credit bureau data. Observe age, income, credit score, utilization rate of available credit, sequence of payments made.

We focus on creditworthy and sophisticated borrowers:

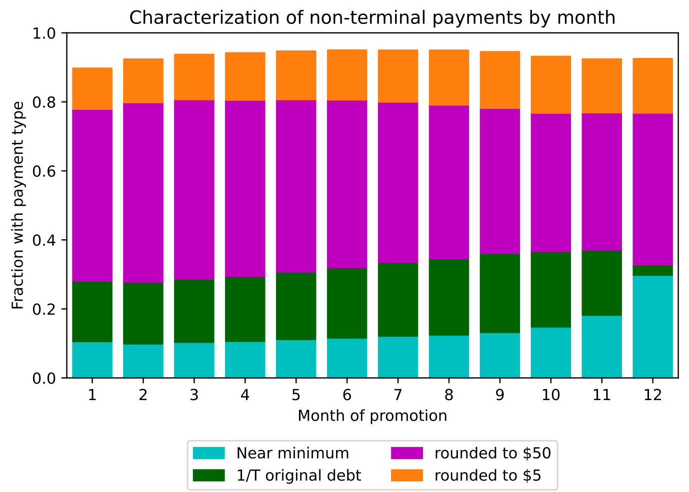
- Total revolving balance $< 2\times$ monthly income.
- No debt 30+ days delinquent in prior 24 months
- 25 to 65 years old

Also restrict attention to those with a single promo and no non-promotional purchases.

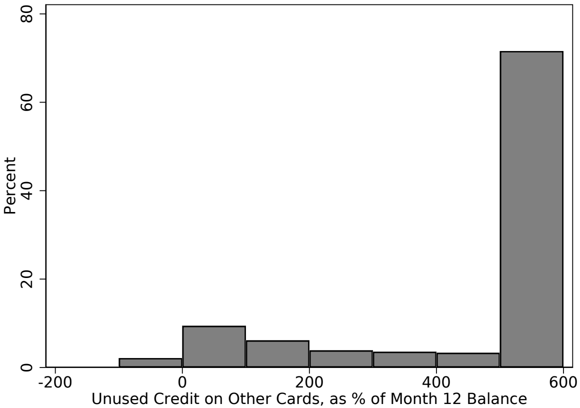
Most Borrowers Pay Off Early, but Many Others Fail



Borrowers Follow Payment Heuristics, and Stay With Them



Most Borrowers Who Fail Didn't "Need" To



Stylized Facts Summary

1. 80% of borrowers exit before month 12, 50% before month 10
2. Almost half of accounts active in month 12 fail the promotion
3. Payments can (mostly) be categorized into neat bins
4. People who fail the promotion didn't "need" to do so

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5. Borrowers don't change their payment by much very often...
6. ...including those who fail the promotion

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We estimate the model using the Simulated Method of Moments.

Payment Heuristics

Borrowers choose a *heuristic* from a discrete menu of options:

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Borrower chooses heuristic with highest net benefits, subject to taste shocks

Preferences: Costs and Benefits

Borrowers are risk neutral: maximize expected net benefits in dollars.

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- Borrower has a continuous latent belief that drifts during the promotion
- In progress: estimating "learning from mistakes"

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Want model borrowers to match the data with respect to...

- Categorical distribution of payment sizes
- Timing of successful exit from the promotion
- Rate of success in the promotion
- Frequency of missed payments

Identification of Beliefs

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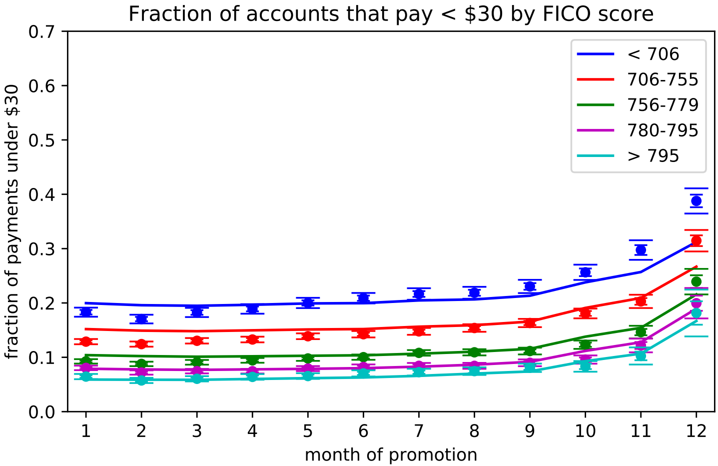
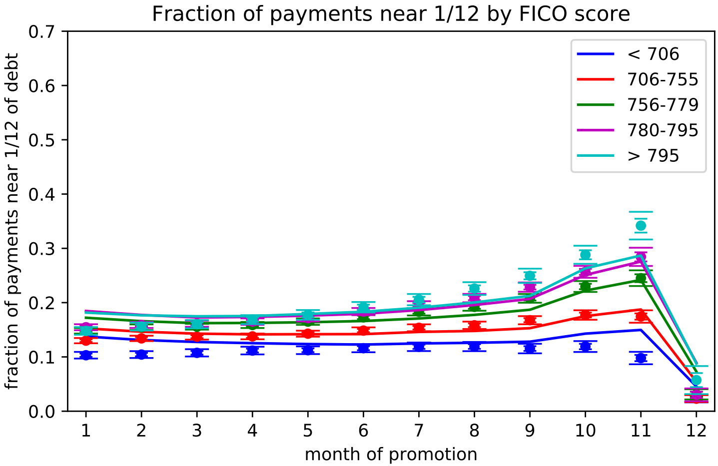
Categorical distribution of payment sizes conditional on observed characteristics identifies parameters governing (distribution of) beliefs about mistakes.

Model Fit: Very Low Payments By Credit Score



Model Fit: Payments Near 1/12 of Debt by Credit Score



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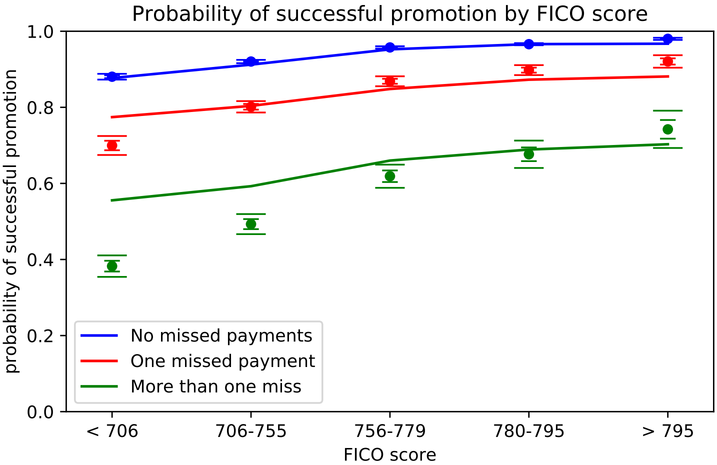

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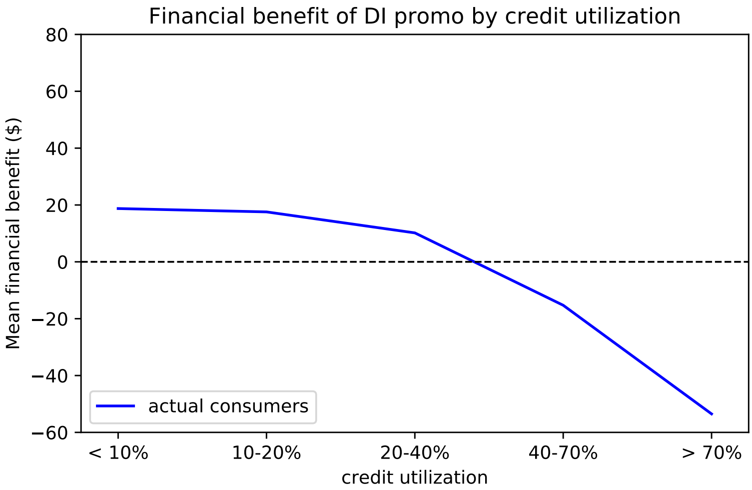
Financial benefits: Value of delaying repayment less fees and deferred interest

Decomposition of Borrowers' Financial Benefits



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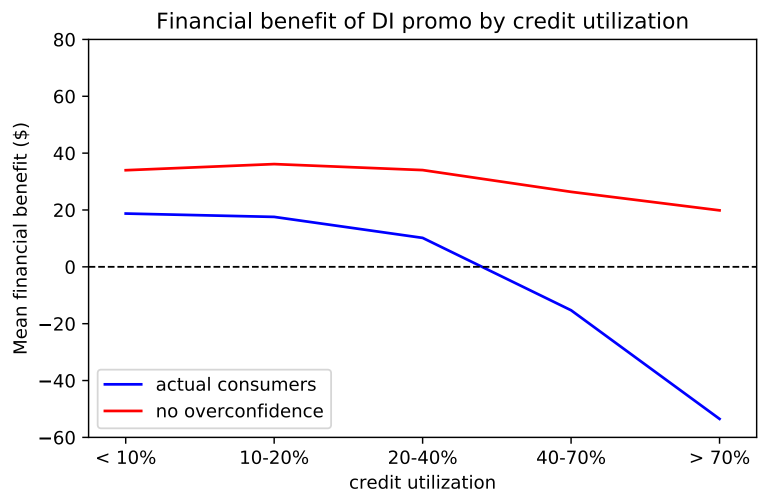

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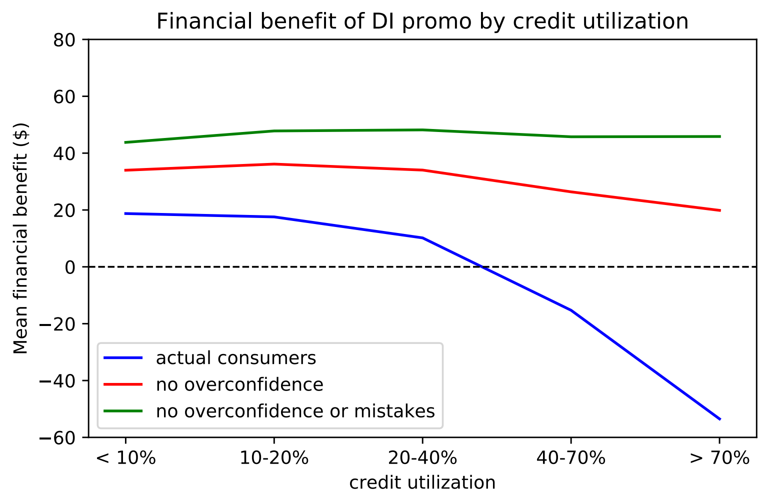

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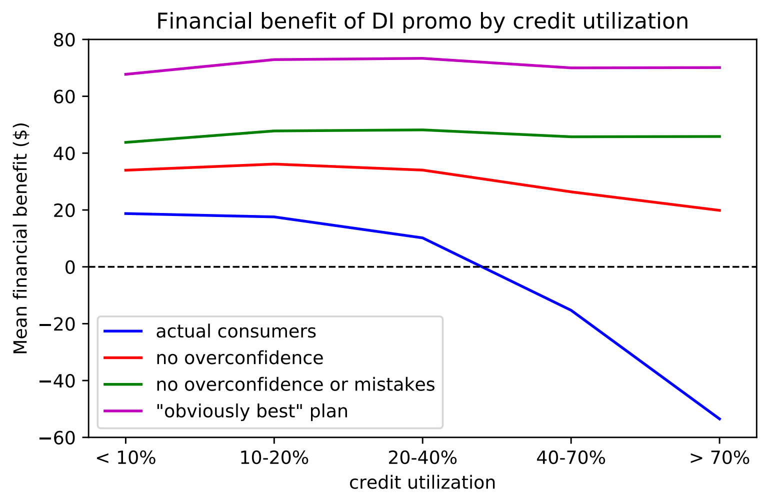
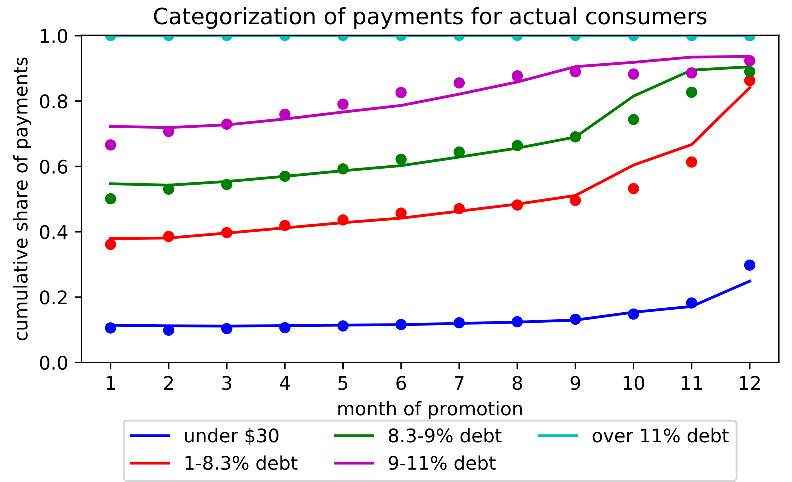
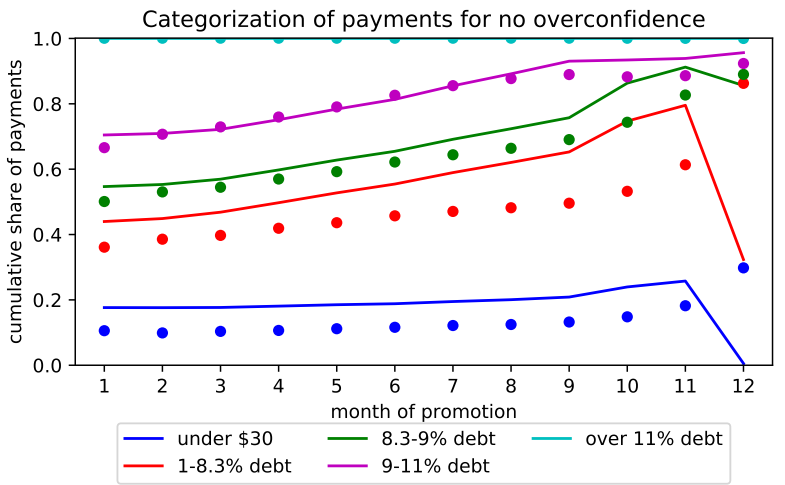


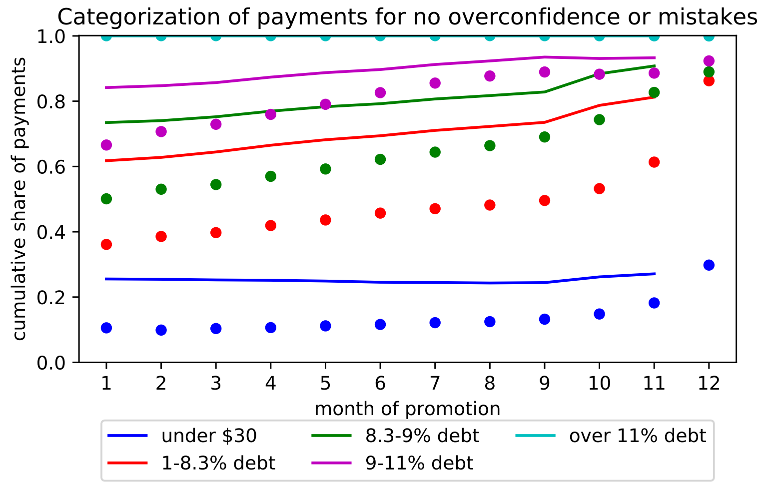
Payment Categorization: Actual Consumers



Payment Categorization: No Overconfidence



Payment Categorization: No Overconfidence or Mistakes



Conclusion

DI provides excellent setting to study self-awareness and over-confidence. We find:

- Borrowers are both self-aware and overconfident
- Riskiest borrowers are the most overconfident and would benefit most from self-awareness
- Without biases consumers would benefit far more from DI
- Many lessons for regulators that we leave for the future