Debt Aversion: Theory and Experiment
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Debt Aversion

- Puzzle: people seem to shy away from debt, even if it comes with economic benefits (Field, 2009; Meissner, 2016; Duffy and Orland, 2020)
- This project:
  1. Model of debt aversion
  2. Experiment to elicit and structurally estimate debt aversion
- Debt aversion will be accounted for jointly with:
  - Risk aversion, Loss Aversion, Time Discounting, (Present Bias)
- All these preferences may affect how people save and borrow and therefore need to be controlled for
- This Project: identify debt aversion by comparing willingness to accept different saving and borrowing contracts
- Saving and borrowing contracts are structurally similar: Gain and loss of money, temporally separated
- If (after controlling for other preferences) people are willing to pay a premium to avoid being in debt \(\rightarrow\) debt aversion

Experiment

- Participants complete a total of 90 binary choices over lotteries and intertemporal prospects
- Three rather standard multiple price lists (MPLs) to elicit risk and time preferences
- Four new MPLs that consist of
- Three rather standard multiple price lists (MPLs) to elicit risk and time preferences
- Example saving contract

Model

- Two period model \((\tau \in (t, T), 0 \leq t < T)\):
  \[
  U(x) = E[\tilde{v}(x(t)) + \phi(T) v(x_T) - c(x_t, x_T)]
  \]
- Value function:
  \[
  v(x) = \begin{cases} 
  u(x) & \text{if } x \geq 0 \\
  -\lambda u(-x) & \text{if } x < 0 
  \end{cases}
  \]
- Cost of being in debt:
  \[
  \tilde{c}(x_t, x_T) = (\gamma - 1) \phi(T) v(x_T)
  \]
- Atemporal utility function (CRRA):
  \[
  u(x) = \frac{(x)^{1-\alpha}}{1-\alpha}
  \]
- Discounting:
  \[
  \phi(\tau) = \frac{1}{(1 + \delta)}
  \]
- Intertemporal utility for saving contracts \((x_t < 0, x_T > 0)\):
  \[
  U(X) = -\lambda \phi(\tau) u(x_t) + \phi(T) u(x_T)
  \]
- Intertemporal utility for debt contracts \((x_t > 0, x_T < 0)\):
  \[
  U(X) = \phi(\tau) u(x_t) - \gamma \lambda \phi(T) u(x_T)
  \]

Results

- We estimate all preference parameters jointly using maximum likelihood

<table>
<thead>
<tr>
<th>Point estimate</th>
<th>Standard Error</th>
<th>95% Conf. Interval</th>
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</thead>
<tbody>
<tr>
<td>Risk aversion: (\alpha)</td>
<td>0.6430</td>
<td>0.0344</td>
</tr>
<tr>
<td>Discounting: (\delta)</td>
<td>0.0359</td>
<td>0.006</td>
</tr>
<tr>
<td>Debt aversion: (\gamma)</td>
<td>1.0535</td>
<td>0.0112</td>
</tr>
<tr>
<td>Loss aversion: (\lambda)</td>
<td>1.1074</td>
<td>0.0118</td>
</tr>
<tr>
<td>Fechner error: (\mu)</td>
<td>0.4483</td>
<td>0.0402</td>
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- Average participant would be indifferent between accepting or rejecting:
  - \(\approx 20.63 \text{ today} \approx -15 \text{ in 4 weeks}\)
- Counterfactual debt-neutral person with the same parameters (except \(\gamma = 1\)):
  - \(\approx 17.81 \text{ today} \approx -15 \text{ in 4 weeks}\)
- "Debt premium" of \(2.82\)

Conclusion

- We formalize a model of debt aversion
- Participants are on average debt averse
- We ran a battery of robustness checks: different forms of \(\tilde{c}(x_t, x_T), u(x), \phi(\tau)\) (e.g. quasi hyperbolic discounting), error structure (logit, probit, multiple).
  - Debt aversion remains robust
  - No evidence for present bias in our sample
- Methodological contribution: To our knowledge we are first to implement actual indebtedness in an experiment

References

