Discussion of "Optimal Taxation of Behavioral Agents" by Emmanuel Farhi and Xavier Gabaix

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Bounded Rationality and Taxes

- People make choices not consistent with the canonical models in PF:
  - ★ Chetty, Looney and Kroft (2009): They fail to account for sales taxes
  - ★ Lacetera, Pope and Sydnor (2012): buyers of used cars look at the left digit of odometer even when other information is available
  - ★ Etc. etc.
- How does this change the basic lessons of optimal taxation?
  - ★ Inverse elasticity rule, Production efficiency, etc.?

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  - ★ Inverse Elasticity Rule: holds but inattention increases taxes
  - ★ Production Efficiency and irrelevance: it does not hold
  - ★ Many others: Mirrleesian and Pigouvian taxes, etc.

Behavioral vs Non-Behavioral PF

- Non-behavioral PF:
  - ★ Individual behavior of i: $x_i(\tau) \in \arg \max_{x \in BC^i(\tau)} u^i(x)$
  - ★ Data: revealed preferences argument gives us $u^i(x)$
  - ★ **Choose** social welfare function $\mathcal{W}\left(\left\{u^i(x)\right\}_{i \in \mathcal{I}}\right)$
- Optimal Taxation Problem:

$$\max_{\tau} \mathcal{W}\left(\left\{u^i(x(\tau))\right\}\right) + \lambda \tau \cdot \int x^i(\tau) di$$

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This Paper's Approach

- Use Gabaix (2014) to choose $u_E^i(\mathbf{x})$ and $u_D^i(\mathbf{x})$
- Gabaix's sparsity model - an example:
  - ★ Agents perceive after tax prices to be $p_i(1 + m_i\tau_i)$
  - ★ Decision utility: Maximize $u(\mathbf{x})$ given perceived after tax prices
  - ★ Experience utility: Maximize $u(\mathbf{x})$ given true after tax prices
  - ★ Interprets m_i as perception; assume a cost function that leads to sparse choice, i.e., many zeros

This Paper's Approach

- Misperception, i.e, $m_i \neq 1$, change elasticities
  - ★ When $m_i < 1$, typically households are less responsive to tax changes
- Difference between $u_E^i(\mathbf{x})$ and $u_D^i(\mathbf{x})$ creates behavioral wedge

My Discussion

- Decision vs. experience utility
- Focus on misperception as limited ability to process information and show it could increase people's responses to taxes and reduce optimal taxes

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  - ★ Sims, Caplin and Dean, Gabaix, etc.: Rational Inattention
  - ★ Gul and Pessendorfer: Preferences over sets of available choices

Bounded Rationality and Welfare

- Without welfare, it is hard to think about where is the objective of the optimal taxation problem coming from

  - ★ In rational models: political institutions can explain where social welfare functions come from

  - ★ Here: people vote with their experience utility but make decision with decision utility!

Rational Inattention and Information

- Alternative model of behavior: Sims, Caplin and Dean, Matejka and McKay, etc.

Untaxed Numeraire

- Suppose we have two goods: c_0, c_1
- Utility function $c_0 + \frac{c_1^{1-1/\psi}}{1-1/\psi}$
- Price of both goods normalized to 1. Pay tax τ on good 1

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Sims: Shannon entropy

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Rational Inattention and Information

- Consumption choice conditional on a signal

$$V(s;\pi) = \max_{c_1, c_0(\tau)} \int [c_0(\tau) + c_1^{1-1/\psi}/(1-1/\psi) \frac{\pi(s|\tau)}{\int \pi(s|\tau) d\tau} d\tau$$

subject to

$$c_0(\tau) + c_1 \tau = w$$

- Information choice

$$\max_{\pi} \int \int V(s;\pi)\pi(s|\tau) ds d\tau - \mathcal{K}(\pi)$$

Information Structures

- Full information - standard public finance

$$\pi(s|\tau) = \begin{cases} 1 & s = \tau \\ 0 & \text{otherwise} \end{cases}$$

- Partition information - not fully attentive

$$\pi(s|\tau) = \begin{cases} 1 & s = s_i, \tau \in [\tau_{i-1}, \tau_i] \\ 0 & \text{otherwise} \end{cases}$$

GOVERNMENT

- Objective

$$\max_{\tau} \lambda \int V(s;\pi)\pi(s|\tau)ds + \tau \int c_1(s)\pi(s|\tau)ds$$

- Since actual tax does not affect information cost, only effect of tax on the realized signal and consumption matters

Optimal Taxes

Proposition. Suppose $\pi(s|\tau)$ is partition and is fine enough. Then

$$\tau^{\mathrm{Sims}} < \tau^{\mathrm{Ramsey}} < \tau^{\mathrm{FG}}$$

Optimal Taxes

- Why?
  - ★ With partition: never optimal to choose inside an interval
  - ★ Tax base with partition attention: $(1+\tau-\Delta)^{-\psi}$
  - ★ Tax base under Ramsey: $(1+\tau)^{-\psi}$
  - ★ Tax base under FG: $(1+m_i\tau)^{-\psi}$
    - Also consumption of good 1 is too high; behavioral wedge

Conclusion

- Very important first step towards understanding of optimal taxes away from full rationality and attention
- More work needed to understand the precise effect of the nature of bounded rationality on optimal taxes