Does tax policy work when consumers have imperfect price information? Theory and evidence

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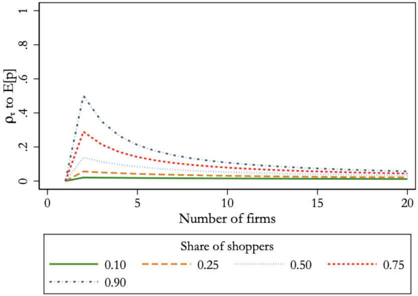
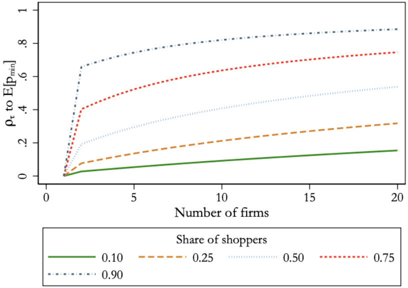
Theoretical model

- Goal: uncover what drives the incidence of tax changes on consumers
- Elements of the model:
  - Consumer search model with imperfect information
  - 2 types of consumers:
    - Shoppers: informed (i.e. know all prices)
    - Non-shoppers: less informed (i.e. only know the distribution of prices, incur search cost to draw additional prices)
  - Level of competition between sellers
- 2 stage game: (i) firm entry (ii) firms set prices and consumers make search and buying decisions
- Consumers can switch from one seller to another, buying a fixed quantity of the good
- Key role of: the share of price-sensitive consumers + the number of sellers

Theoretical predictions



A. Pass-through to average price



B. Pass-through to average price of price sensitive consumers

Findings:

- pass-through is an increasing function of the share of shoppers
- average pass-through: ↑ and then ↓ in the number of sellers

Empirical findings

- Leverage data on fuel prices in France and Germany over the COVID crisis
- Analyze both a tax increase and decrease
- Synthetic DiD (+ an event study to study dynamic effects)
- Findings:
  - Diesel consumers more "price sensitive": look more for information
  - Higher pass through for diesel than for E10 and E5
  - Asymmetric pass through
  - Humped shaped relationship between pass-through and the number of fuel stations in a local market

Some Questions and Comments: Consumer behavior

Imperfect information and Price sensitivity of consumers:

- Theoretically :
  - What do you gain from using this price sensitivity concept rather than price elasticity?
  - What drives differences in price sensitivity? ability to retrieve information? or financial constraint (/outside options)?
  - How is the share of shoppers (ϕ) determined? Is it exogenous? How do you identify it? Is it something the government can act upon? And if so, how?
- Empirically:
  - You characterize price sensitivity by the number of search divided by the number of vehicles. But, diesel drivers drive twice as much.
  - Is not there something mechanical whereby if you go more often to the gas station, you also look more frequently at prices?

Some Questions and Comments: Firms / Competition

- **Mark-ups**: Do you have empirical evidence for differences in mark-ups between the different types of fuel?
- **"Local market" / Scope of search:**
  - "rival sellers": if I commute to work everyday, I will search for fuel near where I live and near where I work - i.e. sellers near my work are competing with those near my house.
  - Could we envision different search radii depending on how financially/time constrained individuals are?

Some Questions and Comments: External validity

Where would you say the fuel market stands in comparison with other sectors with respect to imperfect information / price-sensitivity of consumers?

- Cost of price adjustment: low cost of price adjustment $\neq$ menu costs: costs of printing price tags in supermarkets
- Cost of information: fuel vs grocery shopping
  - Retrieving the information:
    - centralized information on apps/online platforms $\neq$ information on prices when visiting the shop
  - Complexity of the information:
    - single good $\neq$ bundle of goods

Some Questions and Comments: Policy Recommendations

- **Magnitude of the effects:** even though the goal is more to have a ranking of the pass-through and not quantify them, it would be useful to have a sense of the magnitude of the effects (involving quantities)
- **Fairness?** Is it always the case that the more financially constrained are the ones more able to look for/find the information?
- **Benefit of this policy instrument:**
  - Fast but asymmetric pass-through (higher for tax increase than tax decrease)
  - Does this asymmetry make it a desirable policy instrument (esp. if used frequently)? What about other policies (checks, etc)?