

Discussion of Cohen, Glachant and Söderberg (2014)

The Impact of Energy Prices on Energy Efficiency: Evidence
from the UK Refrigerator Market

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The question

Part of a series of recent papers revisiting the old Hausman (1979) question:

- Do consumers accurately value energy efficiency?
- When buying a durable, do customers give to the (appropriately) discounted sum of expenses the same weight as the opportunity cost?

It's important

- Expenses are a large part of total costs
- Imperfect rationality (limited attention, hyperbolic discounting)
- Taxing energy use might have a very small effect
- Room for paternalistic interventions

The paper

- Makes a good case for the use of refrigerators (no secondary market, no intensive margin of use)
- Finds small discounting factor ($\approx 10\%$) compatible with rational behavior
- Energy taxation rather inefficient to decrease energy use since price reactions are very strong

My main reaction

- Is appropriate discounting because individuals are rational or a byproduct of market design (energy labelling)?
- See D'Haultoeuille, Dürmeyer and Février on French Bonus/Malus and consumers overreaction to energy labelling

Some remarks on the empirical strategy

Key idea:

$$V_1 = -\alpha(p_1 + \gamma C_1(r)) + U_1$$

$$V_2 = -\alpha(p_2 + \gamma C_2(r)) + U_2$$

$$\gamma = 1?$$

First step: unobserved product characteristics

Berry's trick

$$\ln s_{j,t} - \ln s_{0,t} = u_j - \alpha(p_{j,t} + \gamma C_{j,t}(r)) + \xi_{j,t}$$

- Pb: u_j is correlated with both p_j and $C_j(r)$
- Allcott and Woznyck's trick: look at changes of market shares over time and changes of energy bill over time
- Energy bill changes because (expected) energy prices change

Second step: price expectations

- The authors use Nerlovian adaptative expectations
- Consumers consistently undershoot over the period
- What do futures market say, if there is any?
- Badly measured expectations: bias against rational behavior

Third step: building energy bill

- The authors use constant price next period: strange
- Why not use A&W and estimate γ ?

Fourth step: fridge price is endogenous

- $p_{j,t}$ and $\xi_{j,t}$ are (positively) correlated: more demanded products are more expensive
- What is the source of these demand shocks?
- Instrumentation strategy is weird:
 - Characteristics of other products are constant over time
 - Except if Entry/Exit, but then dynamically optimizing customer might want to delay purchase to wait for cheaper innovations
 - Prices of other product respond to own products shocks

Fifth step: reaction of fridge prices to energy price

- Fine to use the reduced form relationship, but some argument is needed
- Caution with interpretation: reaction mixes supply AND demand, so not only about producers' margins.