Discussion of *"Gas Prices, Fuel Efficiency, and Endogenous Product Choice in the U.S. Automobile Industry"*

Discussant: Matthew Chesnes

The Federal Trade Commission

November 19, 2009

The opinions expressed are my own and not necessarily those of the Commission.

Overview

- Presents a model of the US automobile industry where firms are allowed to choose the fuel efficiency (MPG) of the cars they offer.
- Unique identifying assumption based on the timing of the model. Creates moments based on the idea that *ex-post regret is not systemic or predictable.*
- Pins down consumers' preference for fuel efficiency by including both the positive effect of MPG on fuel cost savings and the negative association of MPG with other measures of automobile quality.
- Shows that consumers actually care quite a bit about fuel efficiency.
- He models the cost of complying with CAFE standards.

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Results

- The cost of violating the CAFE standards is estimated at $347 dollars per vehicle per year.
- Consumers care about fuel efficiency. Utility Vehicle (Sport and Crossover) owners are the most sensitive to MPG.
- At $3.43 gas, consumers' WTP for a 20% increase in MPG varies from near zero (luxury cars), to $1,000 for small cars, $2,500 for large cars, and over $7,000 for SUVs.
- Robustness checks: changes the production lead time, nesting structure of demand, different assumptions about future gas prices, and other controls in demand and cost.

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Counterfactuals

How can we achieve higher fuel efficiency? Increase CAFE standards or raise the gasoline tax.

1. What's the effect of increasing the gas price from $2.79 to $3.43 per gallon?
   - Average MPG increases 31% to 27 MPG (UVs more than double, Car MPG actually falls)
2. What gas price is required to increase fleet efficiency to 35 MPG?
   - $4.55 a gallon (UV efficiency has to triple)

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Comments 1/2

- Very nice paper, well written and explained, important policy question.
- Data issue: your MPG is for the base model (not available at a "trim-level"). Higher trim cars likely have lower MPG.
- How well does your model do for European consumers & car makers? If you simulate your model at European gas prices (e.g. an after-tax price of $7-$8 per gallon), do you get the observed 40 MPG average fuel efficiency?
  - See Espey (1998 Energy Economics).
- Could extend the model to allow car manufacturers to introduce new product lines in response to changing (higher) gasoline prices.

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- Gasoline price expectations. Could use forward prices of gasoline or do more to convince us that the spot price is a good indicator of consumers' expectations.
- Gasoline price volatility. Do consumers have more of a preference for efficiency when gas prices are more volatile? Maybe the variance of gasoline prices could be included in your demand model in addition to DPM.
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