What Co Consumers Believe About Future Gasoline Prices?

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Crucial for research on auto demand

- Key determinants of car choice
  - Purchase price
  - Attributes (e.g., size and power)
  - Lifetime fuel expenditures
    - Fuel economy (EPA tests)
    - Miles, scrap rates (odometers, registrations)
    - Discount rates (auto loan APRs)
    - Gas prices today and in the future (i.e., beliefs)

- Researchers typically assume “no change” forecast

- Results often hinge on assumptions about beliefs

- But what do consumers actually belief?
Why don’t we *ask* consumers?

• Michigan Survey of Consumers (MSC)
  – Monthly survey of 500 U.S. households
  – Nationally representative sampling
  – Asks about economic outlook (sentiment index)
  – Expectations for inflation, personal finances
  – Basic demographics

• We approached the MSC, proposing to add questions about expected gasoline prices
MSC already asks about gas prices!

- Do you think gas prices will go up during the next 5 years, go down, or stay the same?
  - By how many cents per gal will they go up/down?

- Previously unknown to research community!
- Also asks “next 12 months” since 2006
- Less than 1% non-response rates
- We use 5-year forecast data for 1993-2009
Similar question about inflation

• Do you think prices will go up during the next 5 years, go down, or stay the same?
  – By what percent per year will they go up/down?

• Useful for constructing real gas price forecasts

• We add nominal forecast change to current gas price, then adjust using inflation forecast
Specific questions we study

1. Are beliefs consistent with “no-change” forecast for gasoline prices?
   - Two tests: (a) zero change, (b) 1-for-1 correlation

2. Does it depend on which gas price we examine?
   - National vs. state-specific variation in gas prices
   - State gasoline taxes vs. pre-tax prices

3. How large and important is variation in beliefs?

4. How accurate are consumer forecasts?
   - Anderson, Kellogg, Sallee, and Curtin (2011)
Nominal forecasts: prices will increase
Real forecasts: prices will not change
Forecasts shift one-for-one with prices
Beliefs vary significantly across people
Variation in beliefs is "big" relative to other drivers of demand for MPG

<table>
<thead>
<tr>
<th>Component</th>
<th>Gas price grows to $t = 35$</th>
<th></th>
<th>Gas price plateaus at $t = 5$</th>
<th></th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Raw forecasts</td>
<td>Persistent forecasts</td>
<td>Raw forecasts</td>
<td>Persistent forecasts</td>
</tr>
<tr>
<td>Annual miles driven</td>
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<td>37.3</td>
<td>39.7</td>
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<td>Local gasoline price</td>
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<td>0.7</td>
<td>1.1</td>
<td>1.2</td>
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<td>Discount factor</td>
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<td>36.4</td>
<td>48.1</td>
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<tr>
<td>Gas price forecast</td>
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<td>47.6</td>
<td>19.2</td>
<td>13.9</td>
</tr>
</tbody>
</table>

Stuff that varies across people that influences value of fuel economy

Fraction of variation in value of fuel economy explained by this stuff
Conclusions

• Average consumer uses a no-change forecast, at least during normal economic times

• Significant variation in beliefs that correlates strongly with gas prices (in levels)

• Relevance to energy paradox
  – Average beliefs: cannot explain paradox
  – Variation in beliefs: potentially an explanation