

Comments on:

# The Impact of Content Regulation on the US Oil Refining Industry

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RFF Retrospective Analysis Workshop  
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# Important Analysis

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- What is the impact of the 1990 CAAA restrictions on refined petroleum on refining costs, product prices and consumer welfare?
  - Compiled a very unique and rich data set to estimate these impacts.
- You estimated the 1990 CAAA restrictions increased gasoline production costs by \$0.07/gallon and diesel costs by \$0.03/gallon, resulting in a net consumer welfare loss of \$2.2 billion dollars per year.

# Retrospective Analysis?

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- For a workshop entitled “Looking Back: Using Retrospective Analysis to Improve Federal Environmental Regulation” I would have like to have seen much more emphasis on comparing your estimated costs of RFG and LSD with the EPA and NPC estimates
- It would also be good to include at least some description of the EPA and NPC ex-ante methodology
- How much of an improvement is your methodology relative to the EPA and NPC methods? And what is the ‘cost’ of implementing that improvement?
- What is the net gain to EPA from using your approach?

# Reduced Form IV Estimates

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- You conclude: “Reduced form productivity regressions showed that, if anything, RFG and LSD were associated with increases in gasoline and distillate output per unit of capacity during the sample.”
- You note correctly that the percentage of RFG and LSD is endogenous, but then you give short shrift to your IV estimation strategy.
  - You note that you instrument for RFG and LSD “with pre-1990 market share variable from Table 4 as well as gasoline and highway diesel taxes.”
  - “After instrumenting, the RFG coefficient is slightly negative, but not significant, while the LSD coefficient is still large and significant.”
  - Conclude: “There does not appear to be strong evidence that producing RFG or LSD reduces refinery productivity, and, in the case of LSD, appears to increase the amount of distillate obtained from a given capital stock and crude type.”

# Reduced Form IV Estimates

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- To me, this endogeneity issue seems important enough that you should at least present an argument about why these IVs are valid (e.g., why do they pass the exclusion restrictions and show they are relevant in the first stage) and discuss second-stage results.
- Other potential IVs? <I feel your pain!>

# Structural Model IV Estimates

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- You correctly note that OLS state-level price estimates can be biased towards zero for petroleum products, but again you sort of punt on this issue, by stating that it is known to be difficult to find a valid IV at the state-level .
- You try regional domestic crude prices, refinery concentration, and pipeline outages as IVs and note “Only the gasoline regressions have sufficient power in the first stage...”
  - Again, to me, this endogeneity issue seems important enough that you would want to do the basics to convince the reader that you have valid IVs.
  - Other potential IVs?

# Recommendations for EPA?

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- A lot of time and effort went into this paper – you compiled a rich data set and use interesting modeling techniques...
- What can EPA do to improve their ex-ante cost estimates for rules aimed at reducing various emissions from gasoline and diesel?
  - Should EPA collect any particular data in years leading up to a new rule(s)?
  - Do you have any suggestions about data EPA should collect with the new rule(s) to make it easier to perform retrospective cost analyses?
  - Any other suggestions?

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Thank you!