Discussion of “Learning and Investment under Demand Uncertainty in Container Shipping” by Jeon

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November 2, 2017 FTC Microeconomics Conference
Container Shipping

- It is how you get stuff and the linchpin of international trade (see “The Box”).
- Unlike bulk shipping, say Kalouptsidi’s work, there are issues of market power: it is not like taxis — it’s like airlines.
  - Regular schedules.
  - Highly Concentrated.
  - Cartels have been active.
- The market has had some issues with over swings in total capacity in the market that are large, lagging global demand for shipping.
The Paper

Combination of a couple pieces:

1. Ericson-Pakes dynamic oligopoly model.
2. Calibration and Estimation of both static and dynamic profits.
3. Perceived demand process that incorporates learning given demand realizations.
Data and Estimation for Container Shipping

- Data on prices, contracts and spot, mainly on the Asia-Europe. Seems like a lot of aggregation across routes and when the contracts were signed.
- Volumes are easy to gather information on.
- Profits are Cournot-Like (think Porter (1983)).
  - CES demand curve
    \[ \log(Q) = \alpha_0 + \alpha_1 \log(P) \]
  - Linear Marginal Cost up to capacity constraint:
    \[ mc = a + b \frac{q_{ijt}}{q_{it}} \]
- Note that this is taking the Asia-Europe market as a homogenous good and marginal costs as increasing (probably for tractability).
- Not clear to me what the outside market is doing.
Estimating and Solving the Model

- Nice use of large state space techniques: moment based equilibrium (Ifrach and Weintraub 2017) where you track moments of the distribution of other firms states — aggregate capacity in this case.
- State space otherwise is the capacity of each firm in the industry, which is big.
- There is no standard about is the aggregated state \( \hat{s} \) reasonable: total capacity of all competitors. I would be nice to have some robustness of the choice of \( \hat{s} \).
Learning

- Firms have no awareness of learning: parameters just change (information about the demand process is not in the state space).
- It is not clear what identifies the $\lambda$ parameter (the weight of newer information) in the data.
- It would be better to have auxiliary data:
  - Resale value of ships.
  - Survey Evidence.
Counterfactuals

- Merger Effects: interesting to know what the effects of consolidation in this industry could be.
- Demand Fluctuations: there is an idea that more concentrated industries might be better at getting rid of excess capacity.
- Scrap Subsidy.
What do we learn from the combination of dynamic oligopoly and adaptive learning?

Many of the counterfactuals about different learning models could probably work equally well in a competitive environment too.

Parameters from the learning model are used for the rational model counterfactual. Also, not a good sense of statistical significance of the differences in the differences in learning/rational model predictions.