

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

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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

- ▶ Adaptive Learning Process (long history in economics — Tinbergen's work).
- ▶ 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 λ 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.

Adaptive Learning + Dynamic Oligopoly

- ▶ 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.