Discussion of Contracting, Exclusivity, and the Formation of Supply Networks with Downstream Competition
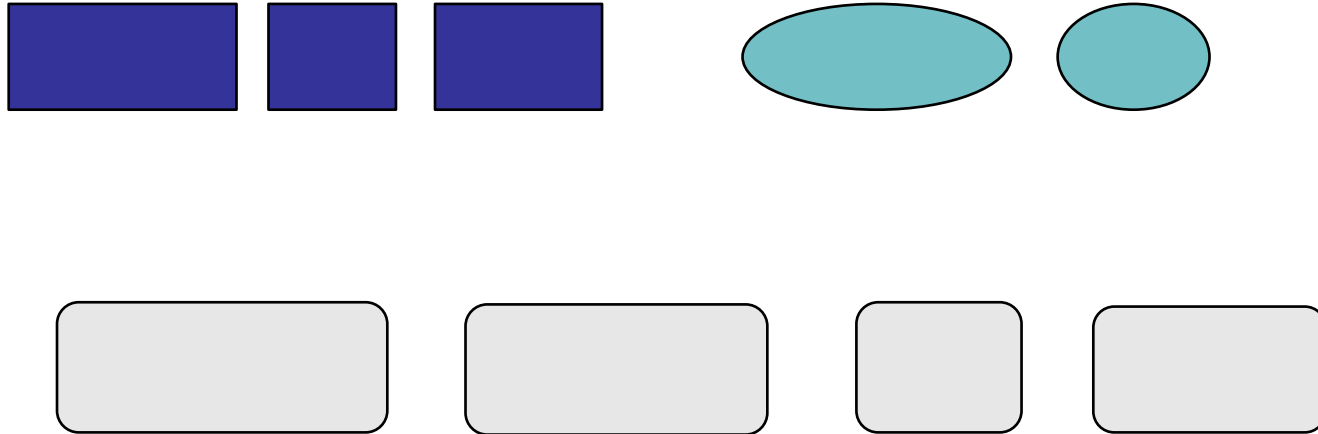
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Big Picture: Bilateral Oligopoly

Main ingredients: Buyers and sellers with market power, inter-connected payoffs/externalities, contracting

Examples

- Mobile handsets and tablets

- iPhone
    Apple Store, Best Buy, Amazon, Verizon retail, AT&T retail, Target, Wal-Mart, etc…

- Samsung Galaxy
- Google Pixel
- Amazon Fire
- Sony xPeria

- Mixed availability at different retailers.

- Incomplete network of supply relationships (some brands aren't in some retailers).

- Would be nice to understand how we ended up here and be able to predict what would happen after a merger (eg Amazon buys Sony).

More Examples

- Some video programming (sports, specialty channels) and cable/satellite providers.

- Hospitals and doctors on managed care plans.

- Grocery stores and food products.

- Department stores and clothing brands.

- Soft drinks and restaurant chains.

- In many cases of bilateral oligopoly, we see some interesting cases of incomplete supply networks.

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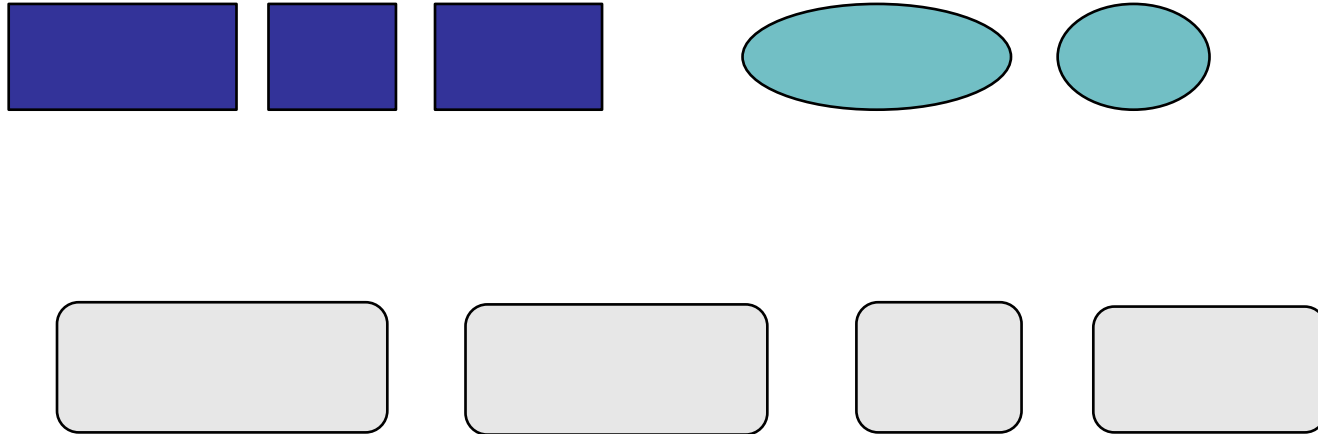
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This paper

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Horn and Wolinsky Supply Networks

- Analysis using Horn and Wolinsky equilibrium notion (also known as Nash-in-Nash)

- Recall that HW equilibrium checks for U-D pairwise deviations.

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Horn and Wolinsky Supply Networks

- Consider 2 identical upstream manufacturers and downstream monopoly. Only HW equilibrium involves both firms serving the downstream monopoly at cost.

- Were only one firm serving the downstream monopoly, either U1-

Horn and Wolinsky Supply Networks

- That said, the potential weakness in the HW model is that it only requires single pair deviations to be unprofitable.

- This rules out:

- : deviations involving the same firm in two negotiations

- : multi-firm deviations

- This criticism applies of course to both determination of contractual terms and supply networks.

CPNE Supply Networks

- If we think about trying to predict two types of outcomes: (1) supply networks and (2) contractual terms, then looking at CPNE is really about working on (1).

- The key difference with HW

Coalition Proof Nash Equilibrium (CPNE)

- Make sure doesn't allow for horizontal coordination

- Any deviation that requires two firms in the same segment jointly deviating could be problematic.

- Like Nash-in-Nash, CPNE its own impurities.
  - Why do deviations by a sub-coalition only have to be immune to further deviations within the sub-coalition?
  - Can we get to CPNE in this setting with offers and counteroffers?

- Potentially difficult to compute (paper restricts to 2x2 analysis mostly).
  - Would be interested to know how feasible for computer simulations.
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Demand vs Supply vs Contracting Model

- Come across several papers recently which take standard supply-demand models in IO (eg BLP demand, Nash pricing equilibrium) and…

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General Contracting Spaces

- As mentioned before, one ingredient that makes analyzing coalition formation more feasible (but still difficult) here is

General Contracting Spaces

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General Contracting Spaces

- Theory is fairly clear here.

- However, in practice/data,
  (cable, music streaming, certain medical procedures, fuel for trucks, etc).

- One has to choose between allowing for flexible contract spaces (theoretically satisfying) and assuming linear fee

Conclusion

- Very interesting paper wrestling with important issues in antitrust and IO.

- Combines insights from contracting in vertical relations literature with coalition formation theory.

- Can predict a decent array of supply relationships.

- Show us what CPNE can do that Nash-in-Nash can not, and trade off against downsides (eg computational costs).

- Important area of research for theory.