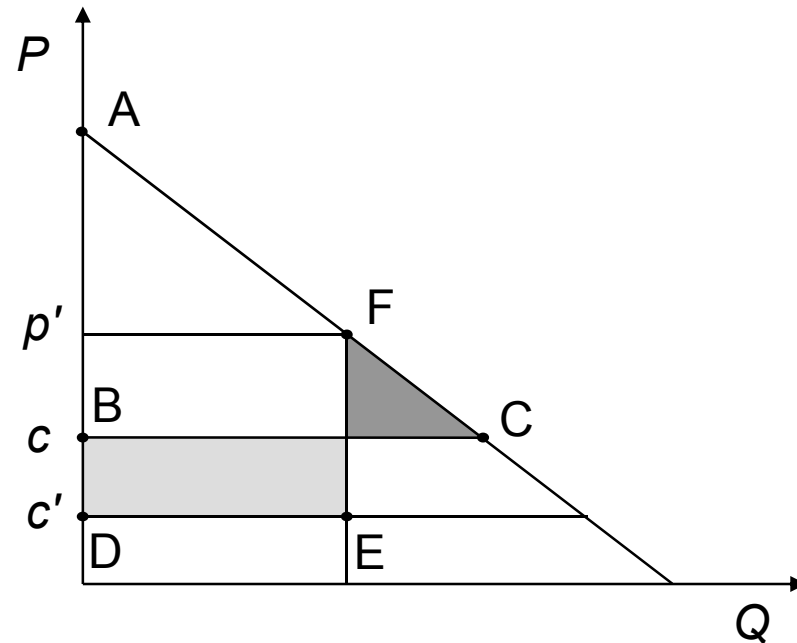


Horizontal Merger Policy: New Work on an Old Problem

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- Merger policy is a central pillar of antitrust policy.
- Traditional approach to the review of horizontal mergers:
 - Emphasizes the tradeoff between market power and efficiencies
 - Does so focusing on one merger at a time

- *Williamson [1968] diagram:*



- *Fancier version: Farrell-Shapiro [AER, 1990] (also McAfee-McMillan).*

- Today I'll talk about some work that I've been doing with Volker Nocke that has sought to broaden this perspective:
 - *“Dynamic Merger Review” (JPE [2010])*
 - *“Merger Policy with Merger Choice”*

plus some ongoing related work...

“Dynamic Merger Review”

[JPE, 2010]

Mergers are not one-time events!

What can we say about how to evaluate a merger when other mergers may follow?

- In general, the effect of a proposed merger today may depend on later mergers *and* may affect which mergers are later proposed and approved.

We show that in some cases this apparently difficult problem has a simple resolution:

[Under ... assumptions] An antitrust authority who wants to maximize (discounted) consumer surplus can do so using a ***completely myopic rule***.

The Model:

- N firms
- $\{M_1, \dots, M_K\}$ = set of all possible mergers
 - Mergers are disjoint
- T periods;
 - Base model: Cournot CRS competition in each period
- p_{kt} = probability M_k becomes feasible in period t
- If M_k becomes feasible, cost drawn from F_{kt}
 - Get only one cost draw over the T periods (another form of disjointness)
- Base model: merger feasibility observed by all firms
- Mergers proposed at start of each period
- Unproposed or rejected mergers can be proposed at a later date

Basic idea behind result:

1. *Suppose antitrust authority could approve any merger it wants. What would it do?*

- Key observation: *A form of complementarity exists in Cournot model between CS-nondecreasing mergers; likewise for CS-increasing mergers*

- Formally: *A merger is CS-nondecreasing iff*

$$P(Q^0) - c_M \geq \sum_{i \in M} [P(Q^0) - c_i]$$

- Intuition: *A CS-nondecreasing merger reduces market shares of other firms, reducing market power effects of their mergers.*

- **Complementarity:** *if we approve a currently CS-nondecreasing merger now we will never regret it later.*
- **Unapproved mergers not going away:** *if we reject a currently CS-decreasing merger now we can always approve it later if circumstances change.*
- **Together:** *imply that a myopic policy is optimal*

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 - *Complementarity + unapproved mergers not going away implies myopic policy is optimal*

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Basic idea behind result:

2. *Now consider the moral hazard problem: firms must propose mergers.*

- *Key observation: CS-nondecreasing mergers are profitable both in isolation, and if they start a wave of other mergers.*
 - *To see why (for the first claim), recall that for CS-neutral mergers, the firm's margin has grown:*

$$P(Q^0) - c_M = \sum_{i \in M} [P(Q^0) - c_i]$$

- *Profitability of proposing a CS-nondecreasing merger regardless of whether it causes additional mergers to be approved means incentives are aligned.*

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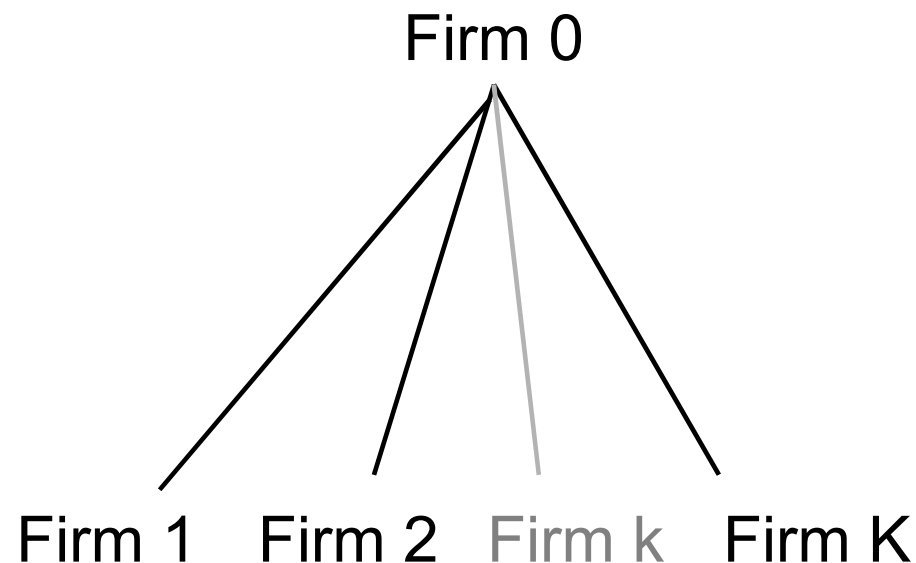
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Robustness issues:

1. Price competition and Product differentiation
2. Fixed costs and Exit
3. Demand shifts, Entry, and Continuing innovation
4. Aggregate surplus standard
5. Nondisjoint (overlapping) mergers
 - *Causes two kinds of problems:*
 - May not want to approve CS-nondecreasing merger if it precludes something better that may arise later
 - Firms now have a **choice** of which merger to propose.

“Merger Policy with Merger Choice”

- Explores a (static) setting in which mergers are mutually exclusive (the disjointness assumption fails)



The Model

- Cournot model with constant returns to scale.
- Firms 1 to K ordered by premerger marginal costs: $c_1 > c_2 > \dots > c_K$.
- K potential mergers each between firm 0 and one merger partner $k \in \{1, \dots, K\}$. Efficiency gains are stochastic and independent. (There may be other firms in the industry.)
- Antitrust authority observes the characteristics of the proposed merger, but **not** of unproposed ones.

- **Related papers:**

- **Lyons (Mimeo, 2002).** Identifies issue: When choosing between mergers, the interests of firms and the antitrust authority are not perfectly aligned.
- **Armstrong and Vickers (EMA, 2010).** Abstract model that formally considers this issue. Assumes a single agent and that all projects (mergers) are ex ante identical.
- Literature on delegated agency without transfers (Holmstrom, Melamud-Shibano, etc.)

- **Antitrust policy:** commitment to an approval set

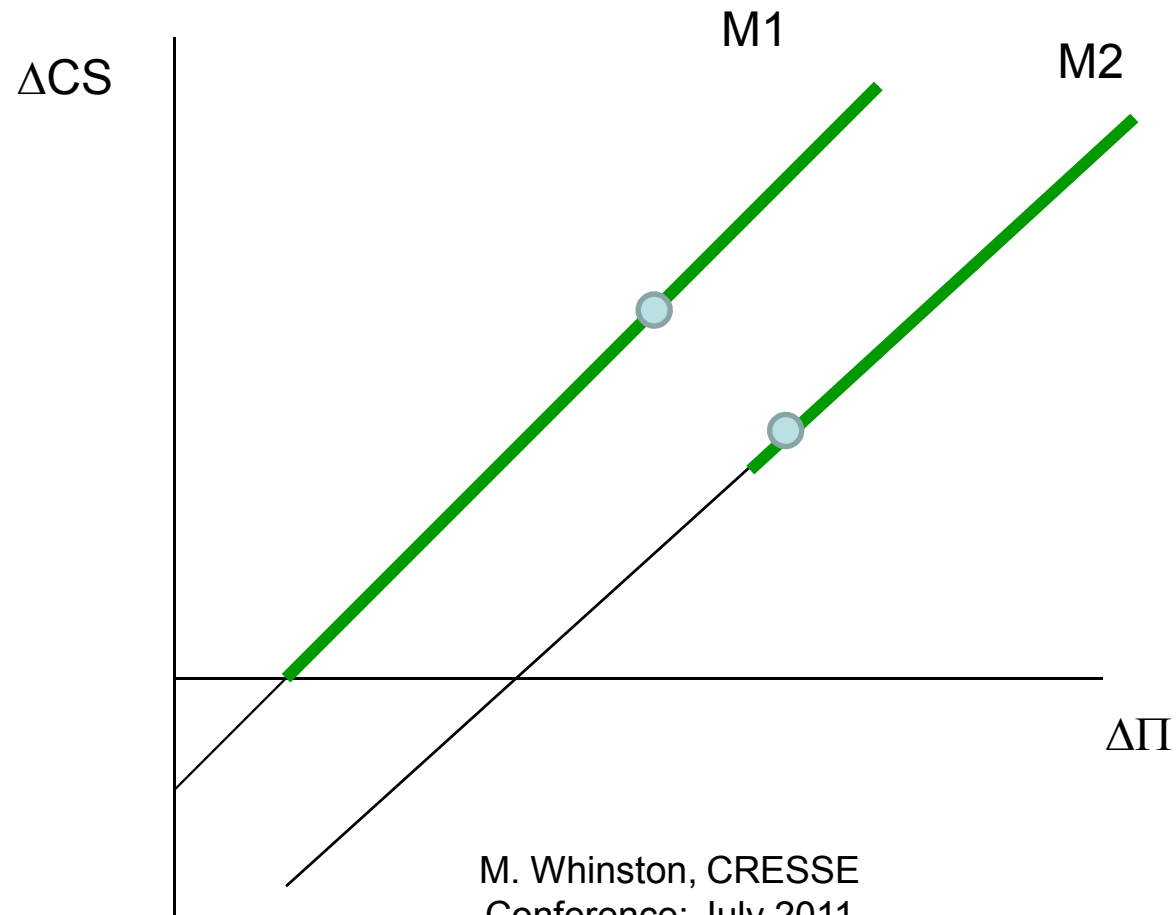
$$A = \cup A_k$$

- At most one merger can be evaluated
 - No randomization
 - Null merger M_0 is always in this set.
-
- Antitrust authority's objective is to maximize expected consumer surplus (base case).

- **Key issue:** Given antitrust policy, which merger M_k (if any) will be proposed?
 - Situation of *bargaining with externalities*
 - **Base case:** Segal [1999] “offer game”
 - Also examine others, e.g, industry profit maximization (Coasian bargaining; Menu auctions; Jehiel-Moldovanu optimal sales mechanism)
 - **If bargaining outcome is $M^*(\mathcal{F}, \mathcal{A})$ then the antitrust authority solves:**

$$\max_{\mathcal{A}} E[\Delta CS(M^*(\mathcal{F}, \mathcal{A}))]$$

Merger choice: Suppose that firm 0 may be acquired by either firm 1 or firm 2. Firm 2's share is larger.



Main result:

The “smallest” merger should be approved if and only if it is CS-nondecreasing, but other mergers should only be approved if they are strictly CS-increasing. Moreover, the minimum acceptable change in CS should be strictly increasing in merger size.

Extensions and Related Work

- International mergers
- Remedies
- A Computational Model of Horizontal Merger Policy (with Mark Satterthwaite)

International Mergers

- Model can be used to shed light on multi-jurisdictional merger enforcement.
- E.g., consider a merger of two firms in country A. Recall it is CS-nondecreasing in country A iff

$$P_A(Q^{A0}) - c_M \geq \sum_{i \in M} [P_A(Q^{A0}) - c_i]$$

- With per unit trade cost t it is CS-nondecreasing in country B iff

$$P_B(Q^{B0}) - c_M - t \geq \sum_{i \in M} [P_B(Q^{B0}) - c_i - t]$$

Merger Remedies with Merger Choice

- A concern with applying remedies is that they may change which merger is proposed, potentially in an undesirable direction.
 - When is it optimal to apply maximal (allowable) remedies?

Computational Merger Model

- Idea is to look at a richer model (dynamic with nondisjoint mergers)
- Start with Ericson-Pakes/Pakes-McGuire model... but that model has some unattractive features for examining mergers...

More General Issue: Optimal Antitrust Policy

Extends beyond issue of horizontal mergers!

–Key issues:

- Substitution between practices (both within and across firms)
- Imperfect observability