The Use of Economics in Merger Analysis

Luke M. Froeb

Director, Bureau of Economics
US Federal Trade Commission &
Vanderbilt University

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Outline

- I. Where are we now?
  - EC
  - World
  - US FTC
- II. Economics and effects-based analysis
- III. Theory-based inference
  - Bargaining
  - Auctions
- IV. Backlash against Merger Simulation
- V. More economics is better

I. Where are we now?

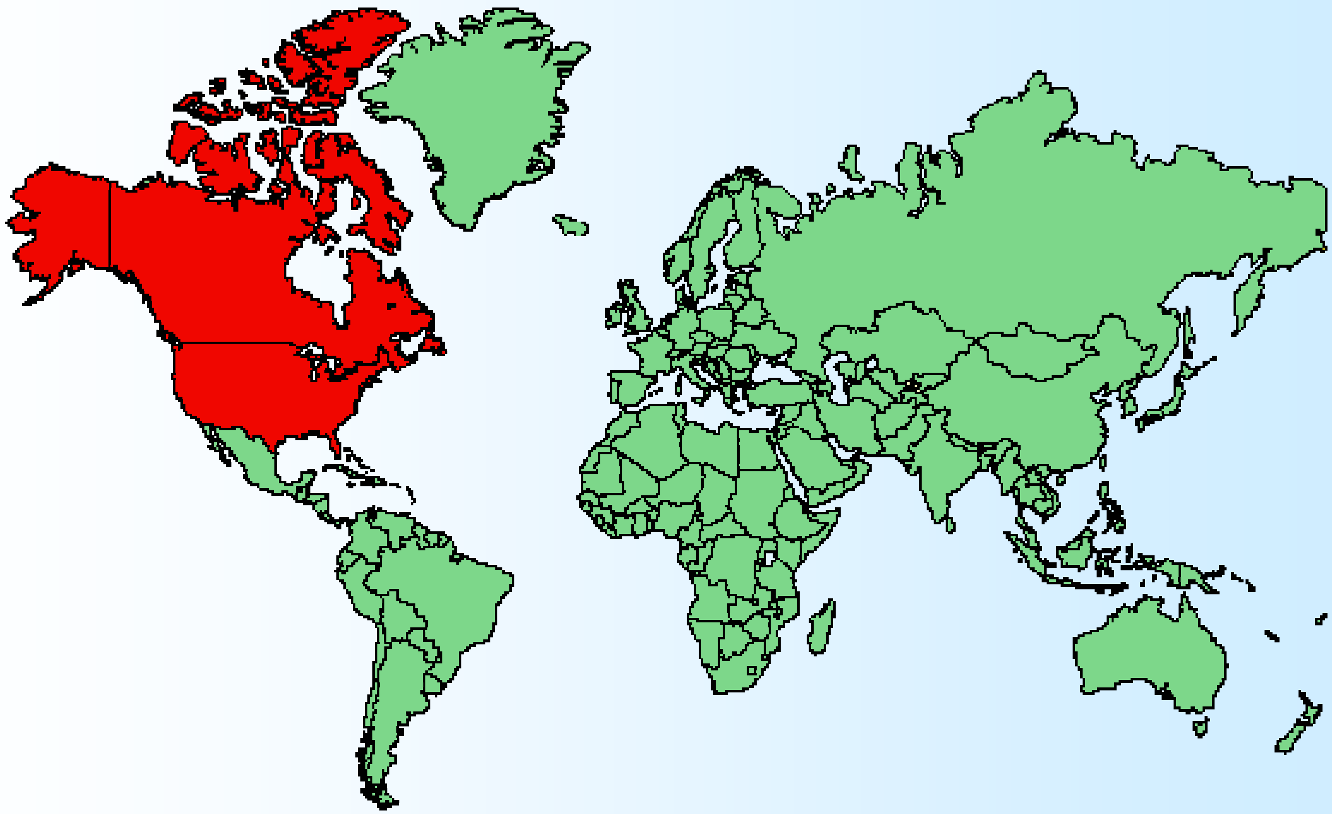
- EC
- World
- US

EC

- Mario Monti's legacy
  - Merger Guidelines; SIEC←→SLC
  - Best Practices
  - Chief Economist
- Irony
  - EC law and policy moving away from "form" towards "effects" based analysis,
  - Just as newly developed countries "import" old EC form-based laws

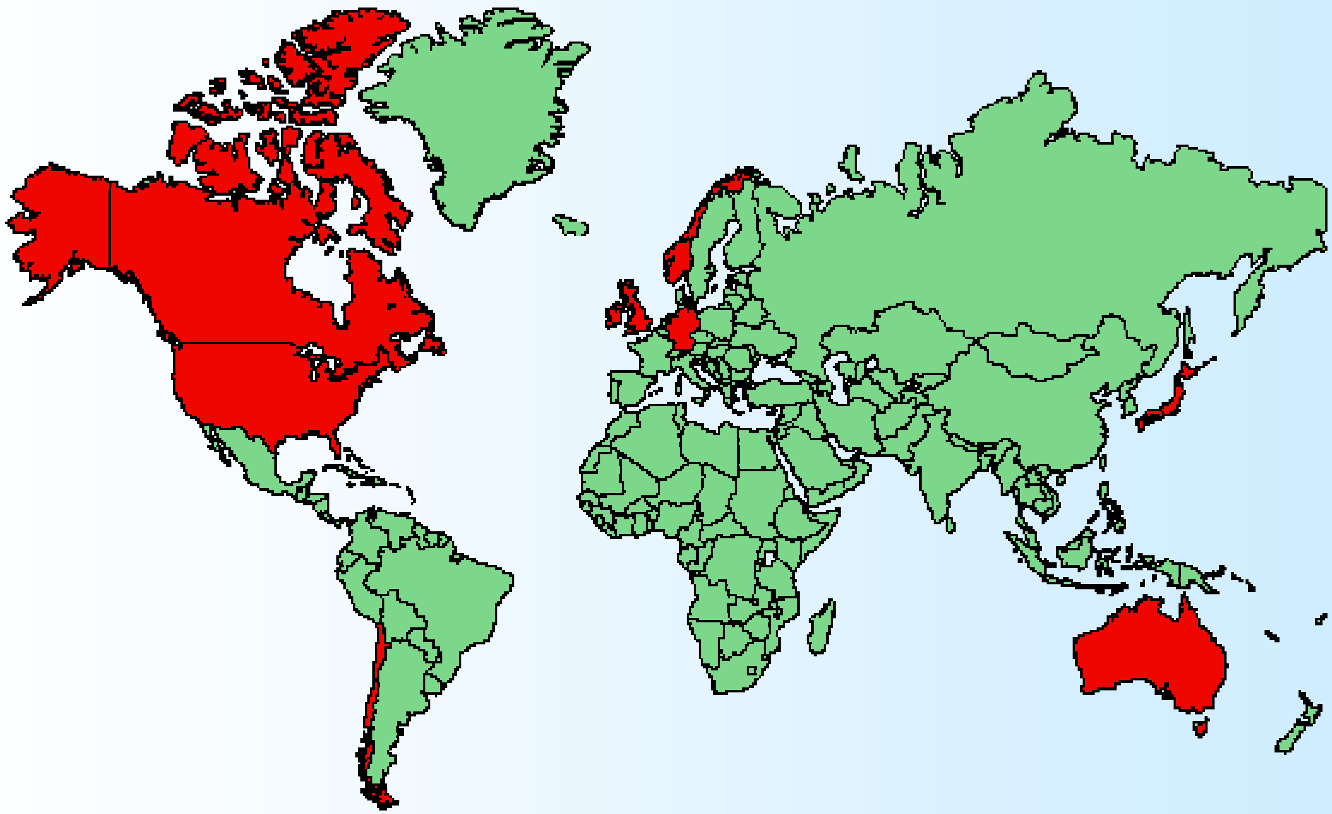
Global Proliferation of Competition Laws

1900



Laws enacted in 1900 or before

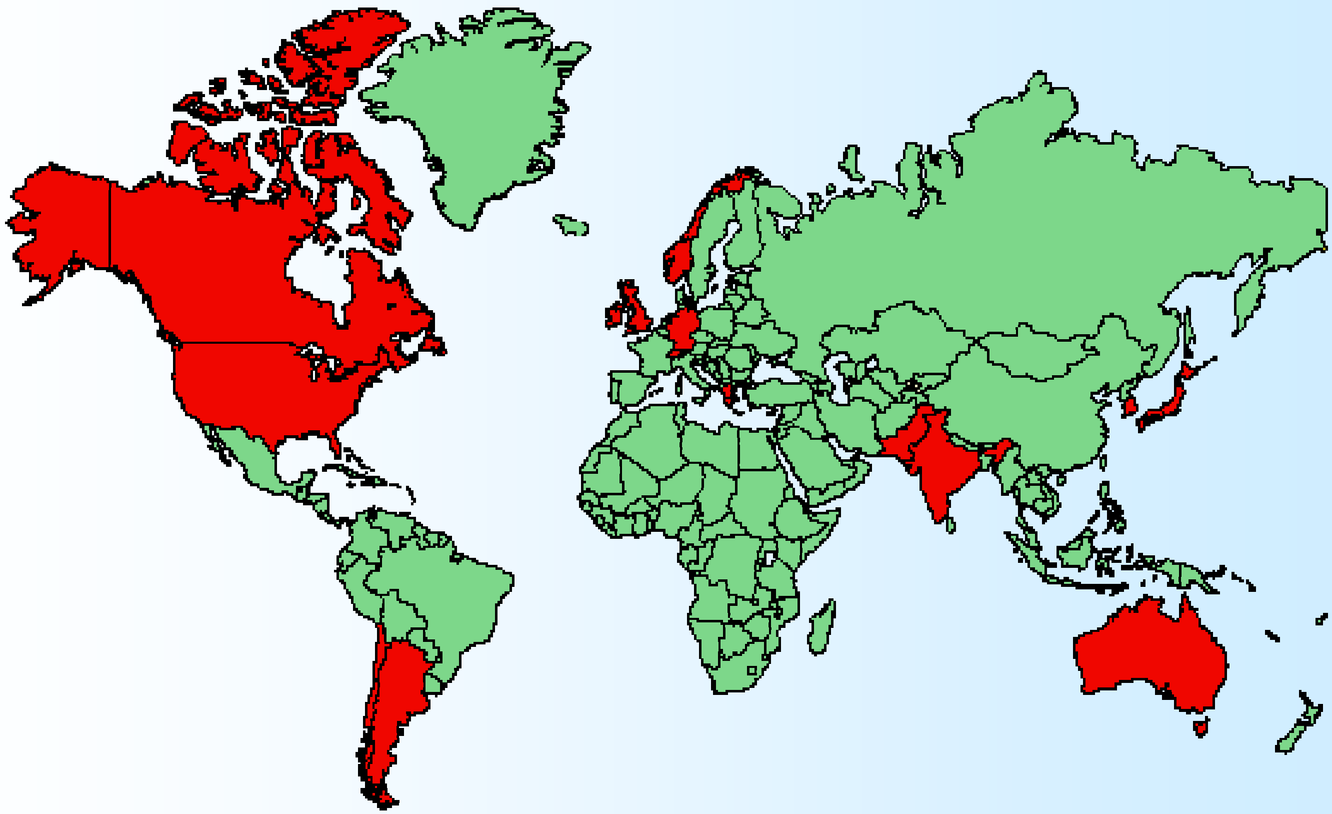
1960



Laws enacted in 1960 or before

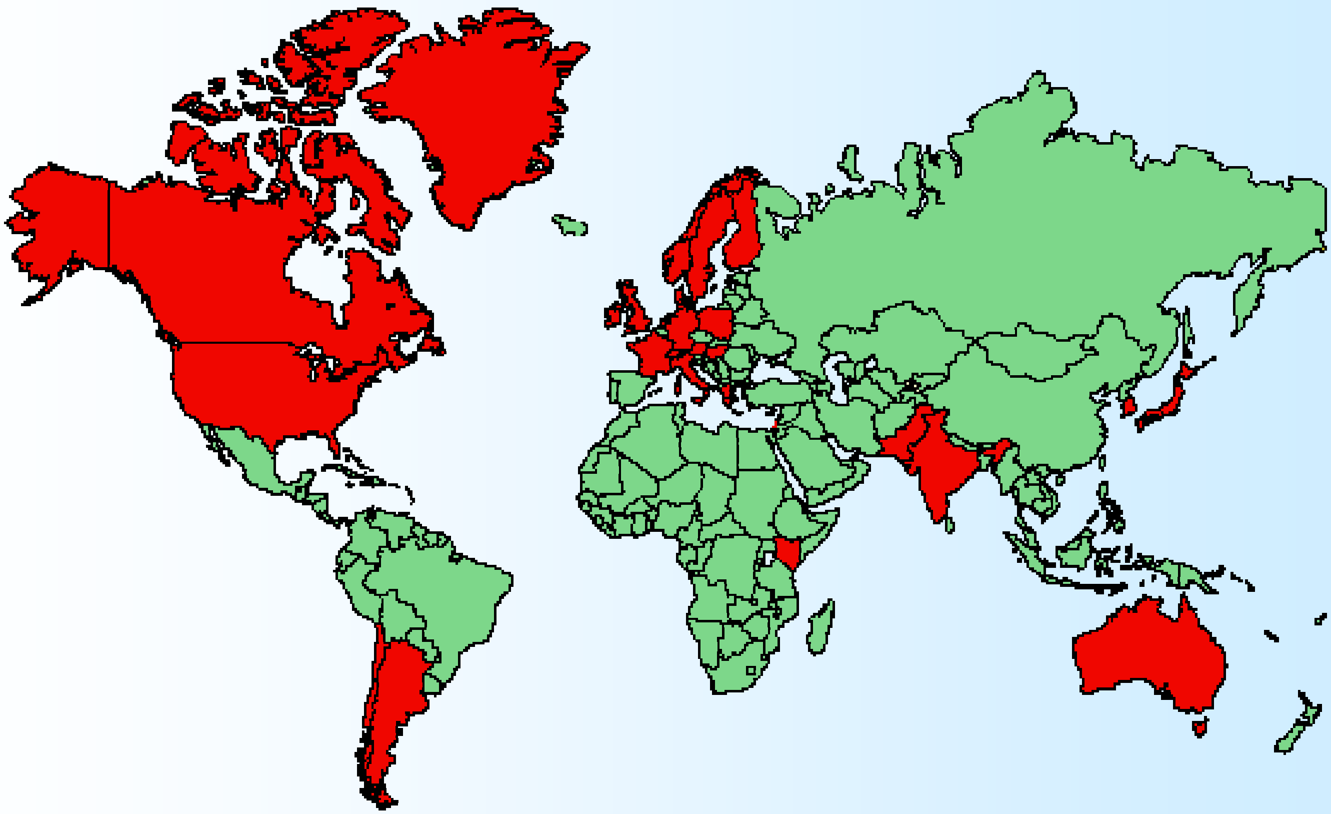
Note: EU introduced antitrust law in 1957

1980



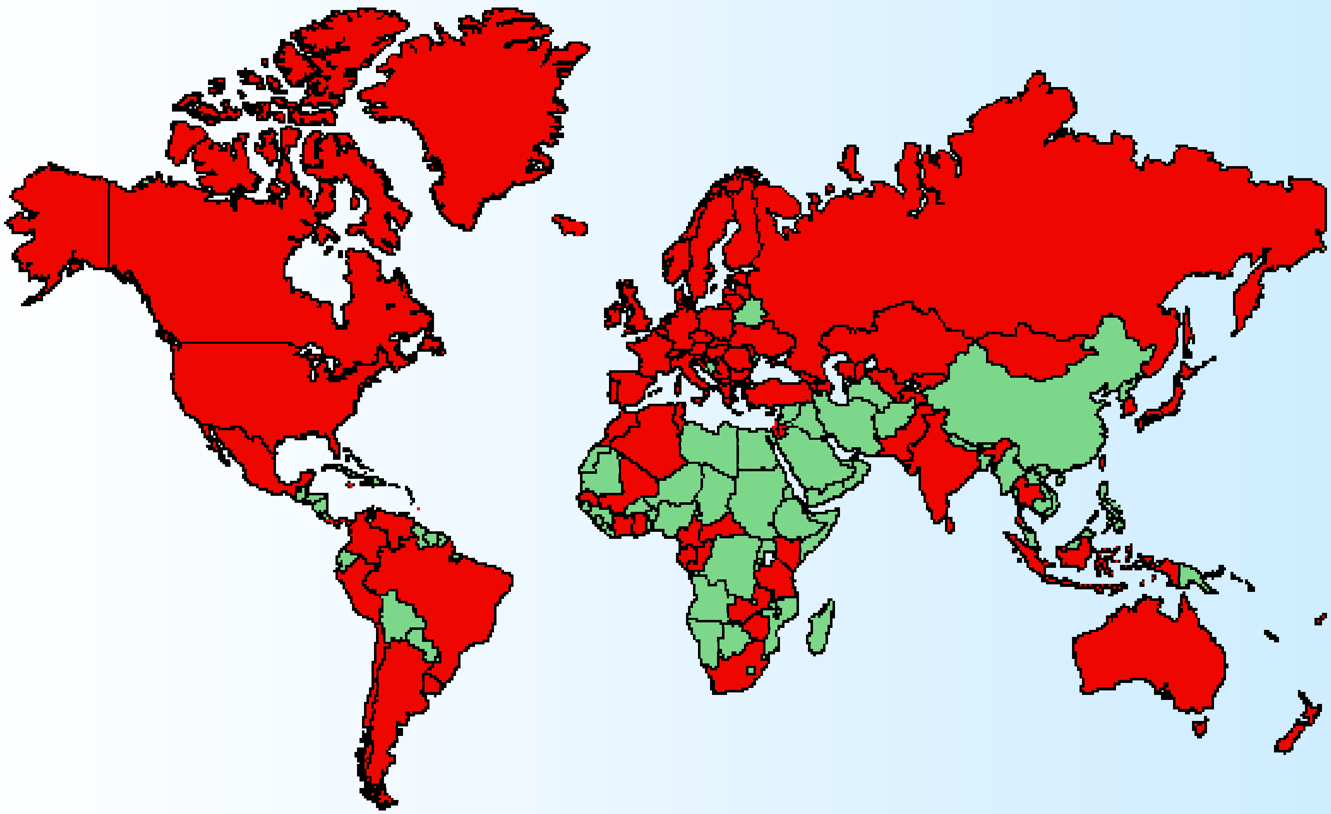
Laws enacted in 1980 or before

1990



Laws enacted in 1990 or before

2004



Laws enacted in 2004 or before

Enforcement Priorities?

- Allocation of scarce enforcement resources
  - 1. Abuse of Dominance, or “monopolization”
  - 2. Mergers
  - 3. Cartels
- Is this optimal?
  - Former state-owned business

Recent U.S. FTC Enforcement

- "Coordinated Effects" merger challenge
- Consummated merger challenge
  - Differences-in-differences estimation of effect
- "Innovation" merger investigation closed
  - R&D synergies vs. two independent firms racing towards innovation.
- "Cheap" exclusion non-merger challenges
  - Abuse government process to exclude competitors
  - "Cheaper" than reducing price or increasing quality

Workshop on Merger Enforcement, February 2004

No strong call to revise Horiz. Merger Guidelines

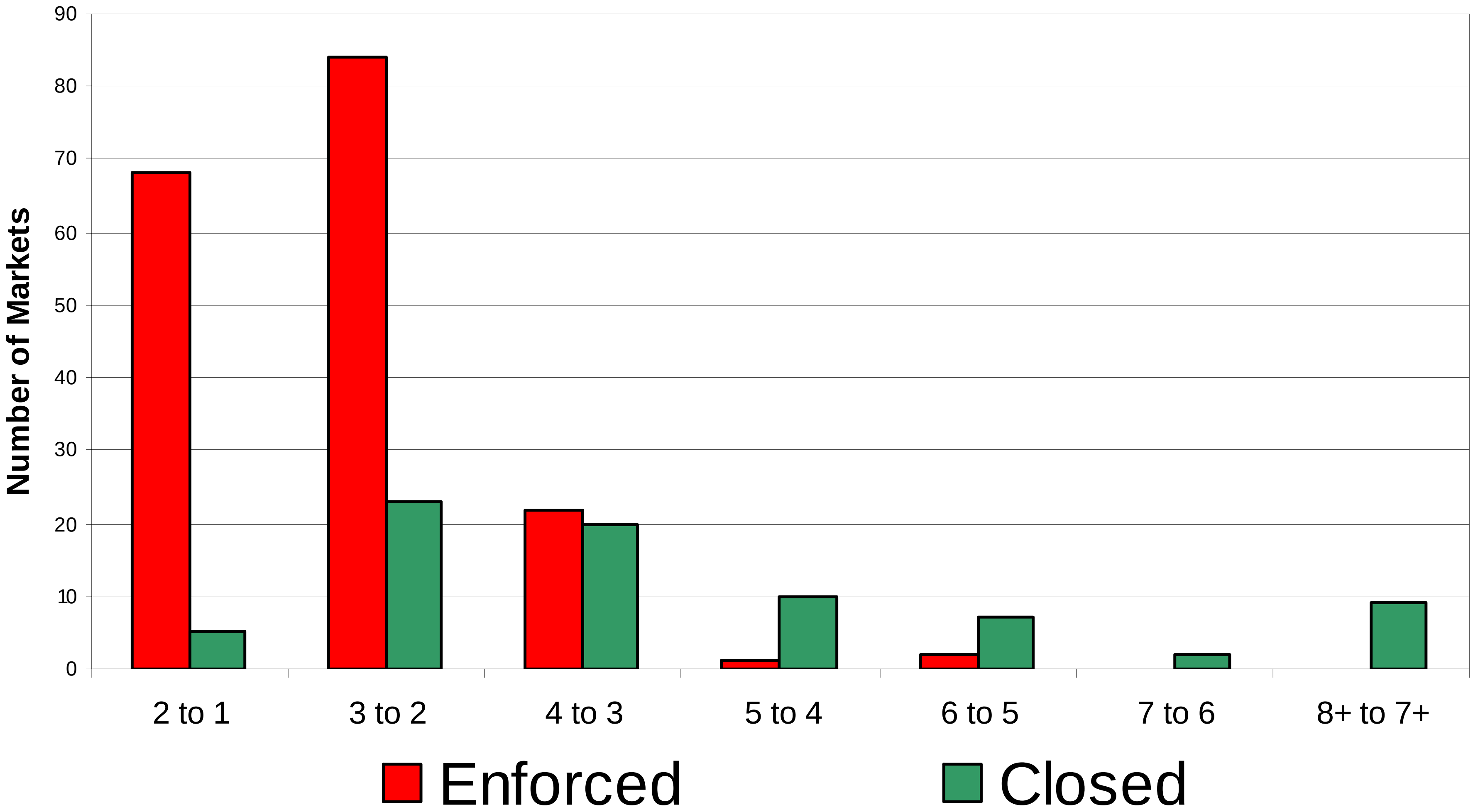
Strong support for the utility of the hypothetical monopolist paradigm

Skepticism about merger simulation and concentration thresholds

Support for transparency -- both during and after investigations.

Demand for more clarity for analysis of innovation and efficiencies

FTC Enforcement Data,96-03:
➔Structure just a starting point



Critique of Structural Presumptions

- Market delineation draws bright lines even when there may be none
  - No bright line between “in” vs. “out”
- Market Shares may be poor proxies for competitive positions of firms
- ➔Market shares and concentration may be poor predictors of merger effects

Beyond Market Structure

- Customer complaints ➔ challenges (50/51 cases)
  - Arch Coal, Oracle-Peoplesoft
  - What is acceptable scope of customer testimony?
  - Should we systematically survey customers?
- Easy Entry ➔ closures (19/19 cases)
- "Hot documents" ➔ challenges (18/20 cases)
- What about Efficiencies?

II. Effects-based analysis

What is Effect of Merger?

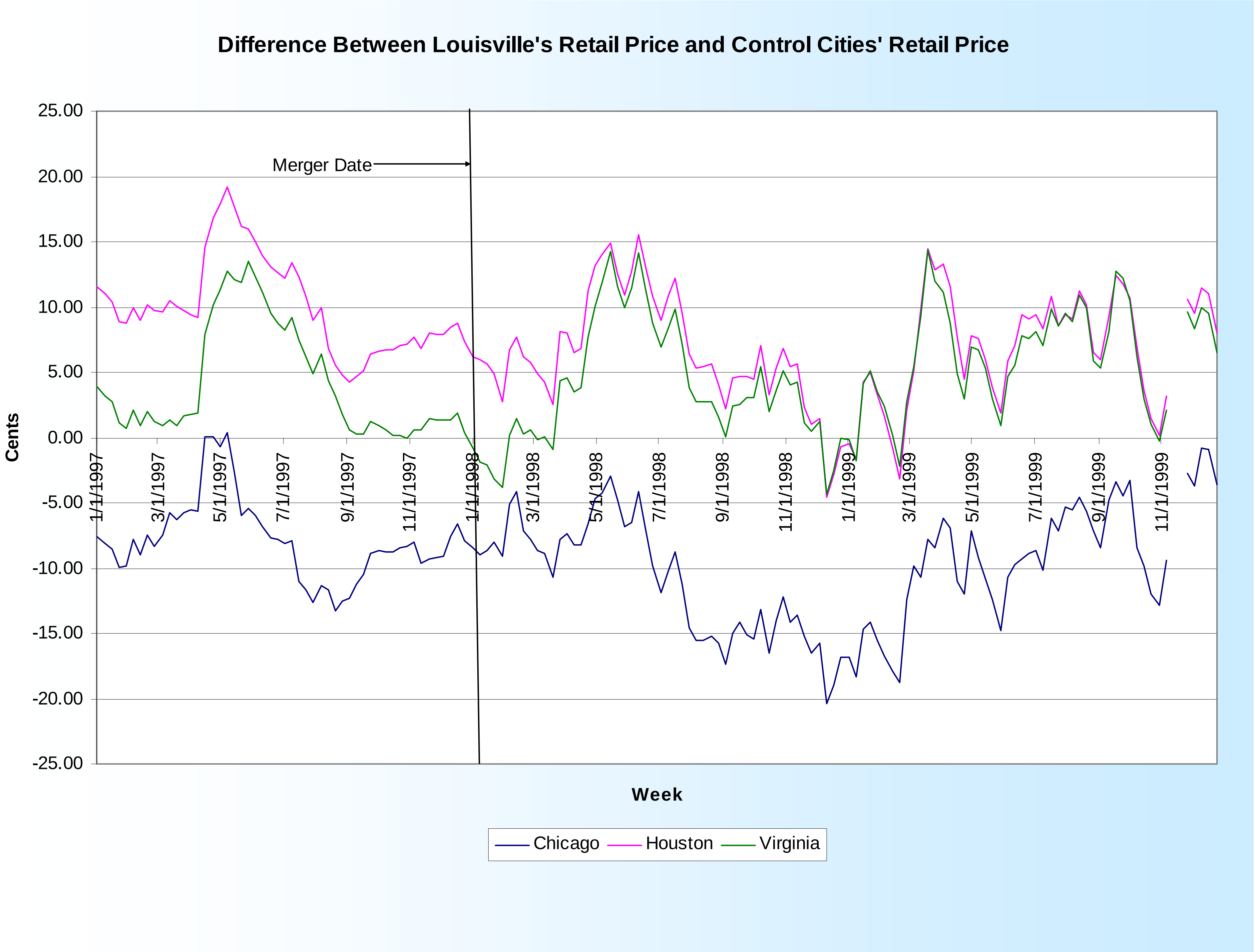
- "Effect" question compares two states of the world ("with" vs. "without" merger)
  - but only one is observed
- Two ways of drawing inference about unobserved state of world
  - Natural experiments
  - Theory-based inference

Natural Experiments

- *Control group* (without merger)
- *Experimental group* (with merger)
- ➔Difference between groups is estimate of merger effect.
- BIG questions
  - Did you hold everything else constant?
  - Does experiment mimic merger effect?

Estimating Effect of Marathon-Ashland Merger

- 1998, recent wave of petroleum mergers
- Change in HHI of about 800, to 2260
- Isolated region
  - Reformulated Gas mandated by EPA
  - Difficulty of arbitrage makes price effect possible
- Prices did ***NOT*** increase relative to other regions using similar type of gasoline
  - "Differences-in-Differences" Estimation controls for unobserved demand and supply shocks that could have accounted for the change.



Difference Between Louisville's Retail Price and Control Cities' Retail Price
Cents
25.00
20.00
15.00
10.00
5.00
0.00
-5.00
-10.00
-15.00
-20.00
-25.00
Merger Date
1/1/1997
3/1/1997
5/1/1997
7/1/1997
9/1/1997
11/1/1997
1/1/1998
3/1/1998
5/1/1998
7/1/1998
9/1/1998
11/1/1998
1/1/1999
3/1/1999
5/1/1999
7/1/1999
9/1/1999
11/1/1999
Week
Chicago
Houston
Virginia

III. Theory-Based Inference

- Posit pro- and anti-competitive merger theories
  – Which one best explains the evidence?
- "Merger simulation" is just another term for theory-based inference.
  – Used in bargaining, auctions, price-setting, quantity-setting models of competition

Example: Bargaining Theory

From Oracle-Peoplesoft trial:

"the area [that] is the most indeterminate in all of antitrust economics where you have negotiations between two parties. There is no determinate theory that predicts the outcome."

Question: can economic theory predict effects of mergers in bargaining markets?

John Nash's "Split the Difference" Bargaining Solution

- Same indeterminancy confounded John Nash
- Proved any "reasonable" solution would "split the difference"
- ➔*The gains from agreement relative to the alternatives to agreement, determine the terms of any agreement*
- What happens if a manager offers a $50 sales incentive to salespeople?
  - Makes salespeople more eager to reach agreement, so they reduce price by $25.

What Does Nash's Bargaining Solution Imply for Mergers?

- If merger changes alternatives to agreement, it also changes the terms of agreement.
- *Example*: Drugs bargaining with an insurance company to get onto a formulary.
  - If two bargain jointly, consequence of "no agreement" for insurance co. is worse
  - Prediction → merged entity gets better price

Model guides investigation

- *Relevant evidence*: how good are the alternatives to the merging products?
  - How much does merger change the alternatives of insurance company?
- *Efficiencies*: 50% pass-through of fixed-cost savings

Bargaining Natural Experiment

- Threat of exclusion induces competition between providers to be included in “network.”
- *Prediction*: Eliminating threat increases price
- *Natural Experiment:* “Any-willing-provider” (AWP) laws force inclusion of any provider willing to accept plan’s terms and conditions.
- *Evidence*: States with AWP laws have 2% higher medical expenditures.
  - Michael Vita, “.. selective contracting: … `any-willing-provider’ regulations,” Journal of Health Economics 20 (2001) 955–966

Auction Merger Simulation

- “Oral” or “English” auction, price is set by the second-highest bidder.
  - Mergers among top two bidders affect price.
  - *Example*: If values={1,2,3,4}, then merger of {3,4} reduces winning bid from 3 to 2.
- Expected merger effect =
  - (probability of a 1-2 finish) * (difference between the second- and third-highest values)
- ➔Higher variance leads to bigger merger effect
- Efficiencies make merged firm better loser.

Auction Merger Simulation (cont.)

- *Power-related distributions* give rise to Herfindahl-like formulas to predict merger effects.
  - Price change=h(s1+s2)-h(s1)-h(s2)
  - Logit model: $h(s) = -\sigma\,(\sqrt{6}/\pi) * \log(1-s)$
- Govt. witness in Oracle-Peoplesoft used auction model to predict merger effect
  - 5-11% price increase in "high-function financial mgt. systems"
  - 13-30% price increase in "high-function HR software"
- *Is model grounded in evidence*: is the magnitude of variance plausible?
  - hard to get significant price increase without enormous variance

IV. Backlash Against Careless Use of Merger Simulation

- Theoretical possibility is not enough,
  - Must show that effect is likely
  - What if we held vertical theories to same standard?
- Dave Scheffman critique: "fit accompli"
  - Before using economic models, you must first ask "Do they fit the evidence?"
- Rise in reduced-form estimation (type of natural experiment)
  - Alternative to theory-based inference

How well do we understand Post-Merger Product Re-positioning

- Carnival repositioned brands after acquisition of Princess
  - This kind of repositioning NOT contemplated by *Guidelines*
- Standard price-setting merger intuition
  - "Close" merging firms ➔big merger effect.
  - Non-merging firms gain more than merging firms.
- Simple models of post-merger repositioning show
  - Merged products move apart to avoid cannibalization
  - Non merging products can be hurt by merger
- What good are pre-merger elasticities?
  - Ignoring repositioning "overstates" post-merger price rise

Criticism of Merger Simulation is Healthy

- Reaction against formal models similar to what happened in Labor and Macroeconomics
  – Normal and healthy
  – Reminds us to “ground” models in facts of a case
- Much of the criticism is criticism of economics in general.
  – How economists think.

Isn't merger simulation built on unrealistic assumptions?

- Behind every competitive effects analysis is an economic model.
  - Simulation makes the model explicit
  - Forces economists to "put cards on table"
- Every model makes unrealistic assumptions
- Crucial question is whether model ignores factors that lead to biased predictions

Has merger simulation been tested against real data?

- No methodology has been shown to predict effects of real mergers
  - No coordinated effects theory,
  - No unilateral effects theory,
  - No market concentration theory.
- Model should be judged by how useful it is
  - Does it focus investigation?
  - Does it capture current competition?

Is merger simulation worth the money?

- *Demand estimation* is often expensive, open ended, yet can yield very little.
  - Often done without simulation, e.g., Kraft
- Merger simulation does NOT require demand estimation.
  - Can be done quickly, with very little information
- Virtue of simulation is focusing investigation on facts and assumptions that matter

Does merger simulation sway decision-makers at agencies?

- Merger simulation is standard methodological tool
  - No tool is definitive.
  - Used to organize evidence, not to substitute for it.
- First used in 1994 in US v. IBC
  - Expert declaration published in *Int'l J. Economics of Bus.* with five other examples from real cases.
- Use in recent litigated cases
  - Lagardere; Oracle/Peoplesoft;

Doesn’t simulation always predict a price increase?

- Every anticompetitive theory predicts price increase
  - We have safe harbours for concentration
- Use simulation to organize evidence, focus investigation, benchmark efficiency claims, evaluate remedies.
- Use it to compute cost reductions that offset price increase.
  - Can fashion remedy as well.

V. More Economics is Better

Coordinated Effects Analysis

- Theory of Repeated Games
  - How to detect and punish cartel defectors
  - Theory predicts almost any outcome.
  - Have we added much beyond Stigler's (1968) checklist for cartel stability
- When and how does merger affect likelihood of collusion
  - Ultimate question: which mergers cause collusion?

Will Vertical Theory "infect" Horizontal Merger Analysis

- Anticompetitive Vertical Theories
  - Softening horizontal competition.
  - Multilateral opportunism.
  - Dynamic entry/exit/investment effects.
- Thought Experiment: what if we used vertical theory to evaluate horizontal mergers?
  - e.g., "Multilateral Competition" implies upstream monopolists have no market power UNLESS they vertically integrate
  - ➔Upstream mergers have no price effects.
- Can two different theories explain same industry?
  - Empirical evidence needed

Competition Advocacy Informed by Empirical Work

- Eliminate Government-imposed barriers to competition
  - Small risk of type I enforcement error
- FTC targets
  - Entry restrictions, e.g., attorneys, contact lens
  - Information restrictions & mandates, e.g., PBM's
  - Bad regulations, e.g., vertical divorcement