

Empirical Modeling

- U Traditional S-C-P Models
 - Y High CR implies anticompetitive behavior
 - Y Anticompetitive pricing inferred from accounting measures of profitability
- U New Empirical Industrial Organization
 - Y Microeconomic foundations
 - " Structural models – market equilibrium
 - " Game Theory applications
 - Y Measures difference between actual price and "competitive price"
 - Y High CR doesn't necessarily imply anti-competitive behavior

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Basic Modeling Assumptions

? S-C-P Basic Assumptions

- ? Economic price-cost margins are directly observable in accounting data.
- ? Cross-section variation in industry structure easily captured by a few observable measures.
- ? Empirical work should focus on relationship between structure and performance.

? NEIO Basic Assumptions

- ? Shift in focus of IO empirics (Appelbaum, Bresnahan, Lau (1979, 1982))
 - ? Typically based on time series data from single industries or closely related markets
 - ? Econometric model of an industry
 - ? Industries have unique characteristics that affect firm conduct
 - ? Firm and industry conduct are unknown parameters to be estimated
 - ? Data can choose among alternative hypotheses, including perfect competition.
- GOAL: Estimate parameters that directly measure degree of imperfect competition or specific pricing behaviors

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Traditional Structure-Conduct-Performance

$PCM = f(\text{CR, Advertising, Min. Efficient Scale, Capital Intensity, Market growth rate, Policy, Firm Structure})$

- ? Reduced form estimation
- ? Market power effects directly observable
- ? Possible proxies for market power: price-cost margin, profits, rate of return
- ? Focus: Variations in market power effects due to ? in endogenous variables ... advertising, concentration ratio, etc.

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Traditional S-C-P Findings

- ? Parker and Conner (1979)
 - ? CR4 and Advertising/Sales--significant positive effects on Price-Cost Margin
- ? Rogers (1985)
 - ? Rising significance of CR4 and falling significance of MES over time
- ? Rogers and Petraglia (1994)
 - ? Presence of cooperatives negatively related to PCM
- ? Ward (1981, 1992)
 - ? Cattle feedlot prices positively correlated with number of buyers

Schmalensee--Cross-sectional studies.....guide construction and analysis of particular industries."

NEIO Models

- ? Nature of oligopoly interaction in the real world
 - ? Price and Quantity determination in oligopoly/oligopsony
 - ? Advertising as strategic variable in 2 stage game
 - ? Formation and enforcement of tacitly collusive agreements
 - ? Degree of single-firm market power under product differentiation (Product level elasticities – Demand System)
- ? Size & determinants of firm and industry price-cost margins
 - ? Econometric estimation
 - ? Nonparametric estimation (mathematical programming)

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Econometric Estimation

- U Industry level (with or without firm level equations)
- U SYSTEM ESTIMATION using non-linear estimation technique
 - Y Downstream demand for product
 - Y Upstream supply of product
 - Y Other input demand equations for both Upstream and Downstream

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"Typical" NEIO Model

- | Unknown parameters
 - ? Cost parameters
 - ? Demand parameters (Monopoly Case)
 - ? Firm Conduct

- | Observable, Endogenous (Time Series)
 - ? Industry price
 - ? Firm or industry quantity
 - ? Cost and Demand shifters
 - ? Input prices, public policy, others

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NEIO Findings

- ? Meat packing industry:
 - ? Significant but small market power exertion
 - Schroeter (1988), Azzam and Pagoulatos (1990), Azzam (1992)
- ? U.S. Pear processing:
 - ? Oligopoly power in sale of fruit cocktail
 - Wann and Sexton (1992)
- ? Taiwanese tomato processing
 - ? Near perfect monopsony
 - Huang and Sexton (1996)

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IO Applications to U.S. Beef

- ? Have vertical coordination changes resulted in market power? Ward and Stephens (2000)
 - $P_{UP} = f(\text{Structural parameter}, P_{\text{Down, rising}}, P_{\text{Down falling}})$
- ? Monopsony power in beef. Love, Burton & Raper (1999)
 - Plant level cost analysis, nonparametric method
 - $F(\text{output price, input prices and quantities (i.e. materials, labor, energy, capital, live cattle)})$

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IO Applications to U.S. Beef

? Market power/efficiency tradeoffs Azzam (1997)

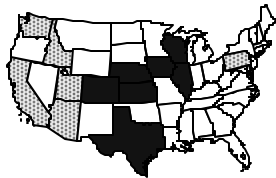
- Farm/Wholesale Beef Price Margin = f(Labor, Energy, Transportation, Market power component, efficiency component)
- Estimate jointly with cattle supply equation

? Definition of Regional Cattle Procurement Markets Hayenga, Koontz & Schroeder (1996)

- F(Distance, Procurement Overlap, Cash purchases, Slaughter, Available price data, Same parent firm)
- Dickey - Fuller Cointegration test

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Beef Packing Plant Location



■ Major states
(29 plants)

▣ Fringe states
(9 plants)

Source: Love, Burton, Raper and Shumway GIPSA Study, 1998

Is there Monopsony Power in Beef Packing?

UGIPSA Funding

U Love, Burton, Raper, and Shumway

U 38 major packing plants

U Weekly plant level cost information for one year

U 5 different tests for anti-competitive cattle prices (Nonparametric methods)

U Monopsony power in 3 "fringe" plants, 3 "major" plants

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“Only theory can separate the competitive from the anticompetitive.”

Robert Bork, *The Antitrust Paradox*
