



# Empirical Evidence on the Effects of MFNs

**Ramsey Shehadeh, NERA Economic Consulting**

***DOJ/FTC Workshop: Most-Favored-Nation Clauses and Antitrust Enforcement and Policy***

September 10, 2012

# MFNs: The Empirical Conundrum



NERA  
ECONOMIC CONSULTING

- Theory predicts effects of MFNs depend on the facts of a particular situation
  - Require empirical evaluation
- Challenges for empirical evaluation of MFNs
  - Characteristics associated with potential for anticompetitive effects also associated with efficiency motivation
  - Empirical techniques capable of distinguishing competitive effects from effects of confounding factors

# Strategies Employed to Evaluate MFNs Empirically



NERA  
ECONOMIC CONSULTING

- Strategy 1: Natural Experiment
  - Pharmaceuticals—Scott Morton (RAND 1997)
  - Consumer electronics—Chen and Liu (IJIO 2011)
  
- Strategy 2: Testable Hypotheses Derived from Economic Theory
  - Natural gas—Croker and Lyon (JLE 1994)
  - Tires—Arbatskaya, Hviid, and Shaffer (IJIO 2006)

# Natural Experiment: Pharmaceuticals (Scott Morton)



NERA  
ECONOMIC CONSULTING

- Did MFN for Medicaid soften competition among pharmaceutical suppliers?
- Natural Experiment
  - Passage of Omnibus Budget Reconciliation Act of 1990 (OBRA 90)
  - Differences between
    - Patented drugs and branded drugs facing generic competition
    - Rules for branded drugs and rules for generic drugs

# Hypothesized Implications of OBRA 90 MFN



NERA  
ECONOMIC CONSULTING

- MFN effect will induce supplier to raise its lowest prices
- After OBRA 90, lowering price to one customer has additional “cost” of required discount to Medicaid
  - For brand drugs, Medicaid pays the lower of
    - Lowest price
    - 87.5% of average manufacturer price (AMP)
  - Medicaid pays 90% of AMP for generic drugs
    - No lowest price provision

# Hypothesized Implications of OBRA 90 MFN



NERA  
ECONOMIC CONSULTING

- Greater price dispersion increases the likelihood that the MFN will matter
- Branded drugs under patent
  - Lower price dispersion pre-1990 than other drug classes
  - Expect little or no price change post-OBRA 90
- Branded drugs facing generic competition
  - More price dispersion than patented drugs
  - Expect reduction in price dispersion, increase in average price
- Generic drugs
  - Expect smaller price changes than branded drugs facing generics
  - Expect larger changes for drugs with only a few generics competing or for which Medicaid accounts for a greater share of purchases

# Empirical Results from OBRA 90 MFN Evaluation



NERA  
ECONOMIC CONSULTING

- Patented drugs: no statistically significant increase in price
- Branded drugs facing generic competition: 4% price increase on average
  - Depends on share of Medicaid
  - Depends on nature of generic competition
- Generic drugs: no statistically significant change in price

# Theoretical Hypotheses: Natural Gas (Crocker and Lyon)



NERA  
ECONOMIC CONSULTING

- Study of MFN in natural gas markets
  - Sellers are guaranteed a price at least as high as prices other sellers are offered from the same buyer or other buyers
- Compare theoretical implications of tacit collusion versus efficiency arguments for MFNs



# Developing Testable Hypotheses From Economic Theory



- Exploit the following three differences between the efficiency theory and collusive theory

| Market Characteristic    | Efficiency Theory   | Tacit Collusion                               |
|--------------------------|---|---|
| Number of buyers         | MFN more likely as number of buyers increases                                 | MFN less likely as number of buyers increases |
| Use of exogenous indices | MFN adoption relative to number of buyers should parallel adoption of indices | Indeterminate                                 |
| Relevant region for MFN  | Include the seller's region   | Include the buyer's region                    |

# Empirically Evaluating Testable Hypotheses



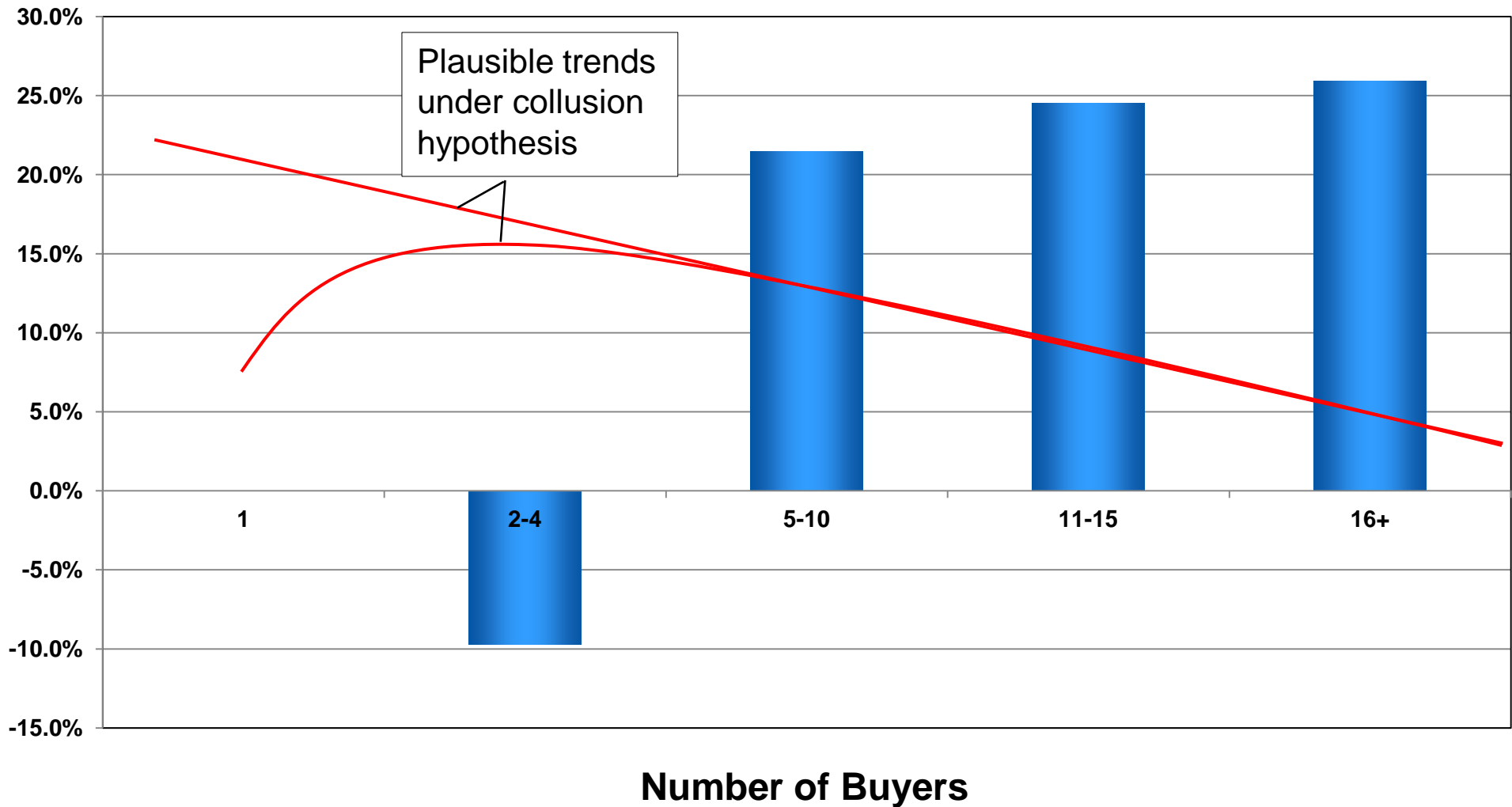
NERA  
ECONOMIC CONSULTING

- Data on natural gas contracts to test hypotheses
  - Are more sellers covered by an MFN in markets with more buyers (i.e., more alternatives)?
  - Do contracts that adopt MFNs “look like” contracts that adopt fuel escalators?
  - Are the regions defined in the MFN more similar to the seller’s economically relevant region than the buyer’s region?
  
- If the answer to these questions is yes, then industry outcomes are more consistent with a theory of efficiency than a theory of collusion

# Empirical Results Consistent with Efficiency Motivation



## Change in Probability of MFN Adoption





- Natural Experiments
  - Valuable for identifying price effects directly
  - Challenging implementation
    - Difficult to find natural experiment to address relevant antitrust questions
      - Construction of the “but-for” world
      - Endogeneity
  
- Testable hypotheses Derived from Economic Theory
  - Advantages
    - Avoids isolating MFN effect on price or other outcomes
    - Does not require a natural experiment or control group
    - Does not require complex data
  - Limitations
    - Must determine the right model and the right test
    - Able to compare two discrete theories, not all possible theories
    - Often do not address question of price effects directly



# Empirical Evidence on the Effects of MFNs