



Empirical Evidence on the Effects of MFNs

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MFNs: The Empirical Conundrum



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- 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



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- 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)



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- 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



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- 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



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- 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



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- 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)



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- 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



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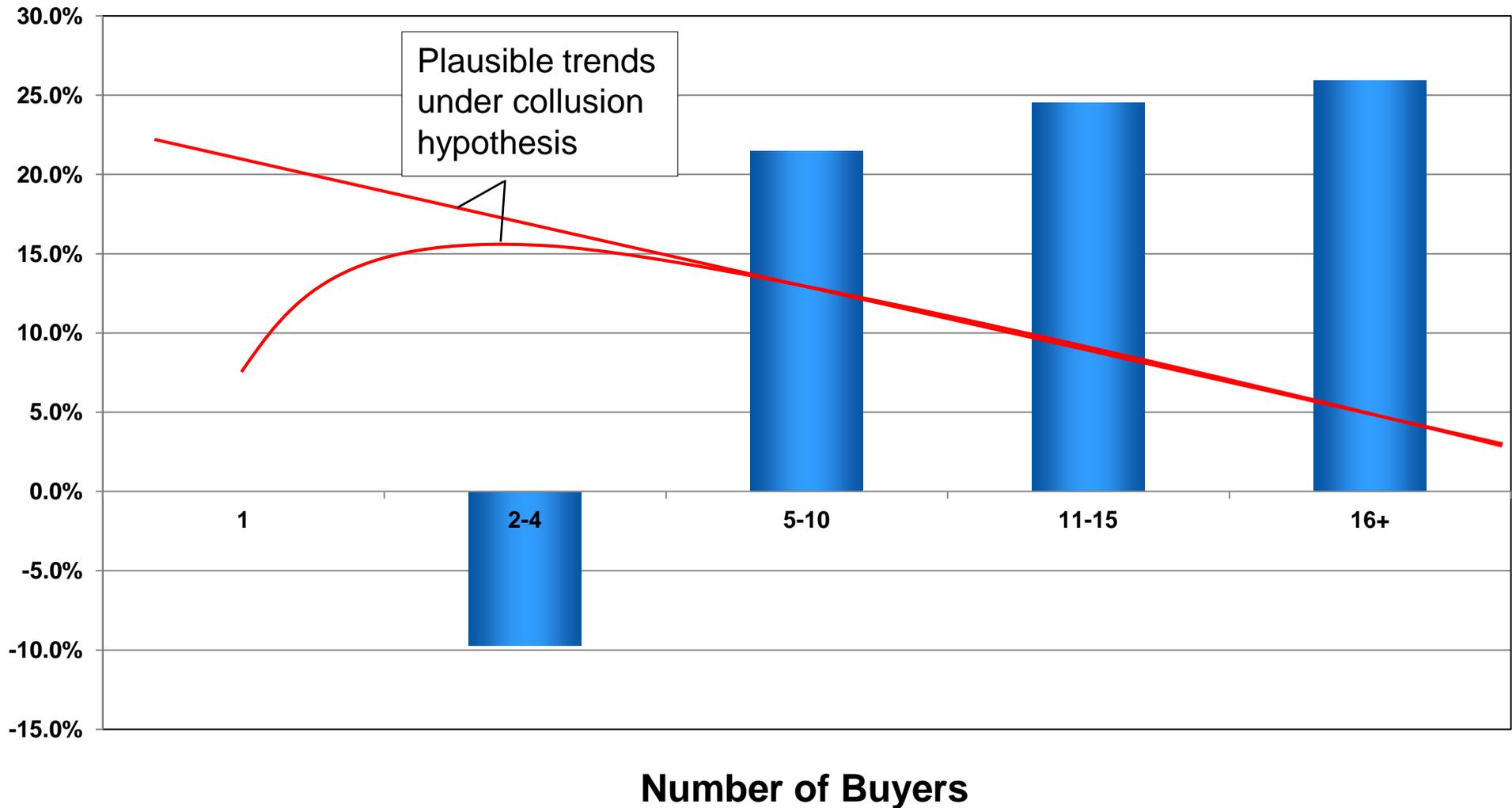
- Data on natural gas contracts to test hypotheses
 - Are more sellers covered by an MFN in markets with more buyers (i.e., more alternatives)?
 - Do contracts that adopt MFNs “look like” contracts that adopt fuel escalators?
 - Are the regions defined in the MFN more similar to the seller’s economically 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



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