Market Structure and Competition, Redux

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FTC Micro Conference November, 2017

How Should Empirical IO Respond to the Exploding Interest in Competition and Market Structure?

These ought to be heady times for empirical IO economists. One of our signature issues, the level and nature of markups, is at the heart of much policy debate, in the press, in policy papers and in academic research.

One can see the CEA report on competition, many popular press pieces, claims by Stiglitz, the debate over \hipster anti-trust," etc.

So Far, the Empirical Response is Largely from Non-IO Researchers

Many empirical IO papers have little to say about \aggregate" or average economy-wide levels of competition.

As a result, much research is being done by non-IO economists (Macro, Trade, etc.)

To varying degrees, these papers by non-IO economists recreate various aspects of the old, supposedly discredited, Structure-Conduct-Performance \paradigm," which was intended to answer exactly these kinds of questions.

Example: Autor, et al, on technology, labor share and concentration cites Demsetz (1973), \Industry Structure, Market Rivalry and Public Policy," but (I think) cites empirical work by current members of the NBER IO program only in reference to the modern literature on productivity estimation.

The New S-C-P and Empirical IO

How are we to think about the New S-C-P? Do we

- ignore,
- critique,
- improve,
- or propose alternatives?

S-C-P, original generation

- Broad question: the causal e ect of \market structure" (mostly, \concentration") on outcomes (markups or prices or pro ts).
- Method: cross-industry OLS regression of (say) Her ndahl index, H, on accounting measures of markups (Lerner Index) and/or pro ts, and/or other market outcomes with controls

Own-Time Critiques of S-C-P

Schmalensee (1989), Bresnahan (1989)

- \Chicago:" theoretical endogeneity of market shares, concentration and markups. Low cost *!* high share and high concentration with high markup even with a not-high price.
- Everyone: accounting data are terrible and there can be no cross-industry measure of price.
- Many: there is no single cross-industry theory of markets to guide us in cross-industry study.
- L. Weiss (and others): econometric endogeneity of shares and Her ndahls: what are possible IVs / what is excluded?

DEIO

One solution: Bresnahan's \NEIO" single-industry studies, with carefully measured data, theory tied to the market and (eventually) clear analysis of endogeneity, identi cation and instruments.

This is now the Dominant Empirical IO paradigm. It says nothing (can say nothing?) about economy-wide trends, etc.

Common Criticism: While Macro/Trade studies THE ECONOMY, IO studies the price of Yogurt.

Truthfully, IO has added markets for Health, Education, Environment, in addition to Anti-Trust, etc.

But still little aggregate.

SCP Redux

Macro, Trade & Finance economists are often still happy to regress outcomes on H.

The first two (alphabetical) references in the 2016 CEA report on competition are a regression of "innovation" on H and H^2 and a regression of price on modified (for cross-ownership) H. Autor, et al, and many other examples.

Studies with some features of SCP are driving much of the debate. They use cross-industry data and/or accounting data and/or concentration and/or markups (without price) and often treat market structure as exogenous, or use *ad hoc* instruments for market structure.

Straight-Up SCP

The \Causal E ect" of Competition on Price

What IV is excluded?

Chicago meets Bresnahan via Cournot a la Cowling and Waterson.

$$p_m - mc_m = \beta$$

Descriptive Regressions with Concentration

- Descriptive regressions involving market structure avoid the need for IV, and seem more straightforward, although it is often hard to avoid a causal interpretation.
- Some authors are more careful to say that they are measuring pure correlation, with price and concentration responding to some third variable. Maybe, though, we should be studying that variable directly.

Possible Non S-C-P Approach: Production Markups

Nice Example: De Loecker and Eeckhout (2017)

Here,

- accounting data, so can do cross-industry studies
- Aim for the Macro markup, p_m=c_{jm}, without using demand data and without imposing an equilibrium assumption

Still,

- Accounting data is *:::* not very good. imposing

The Hall-De Loecker Markup

Pure cost-minimization on a variable input

$$w_{jmt} = \lambda \frac{@F_{jmt}}{@L_{jmt}} = mc_{jmt} \frac{@F_{jmt}}{@L_{jmt}}$$

$$\frac{w_{jmt} L_{jmt}}{p_{jmt} q_{jmt}} = \frac{mc_{jmt}}{p_{jmt}} \frac{L_{jmt}}{q_{jmt}} \frac{@F_{jmt}}{@L_{jmt}}$$

$$\frac{\text{[input elasticity]}}{\text{[input revenue share]}} = \frac{p_{jmt}}{mc_{jmt}}$$

Markup 4jmt 14 3.484 Tm (jmt)Tj /T1_1 14Tf 3.6.525 0 Twhetherjmt havejmt

Production Methods, cont

The markup is revealed via accounting data + an estimate of the input elasticity. There are no good IVs, so use a \control variable" (materials?) + dynamic panel data assumptions to learn β_{jmt}.

Markup is a residual (a quasi-dual to mc in DEIO), so as usual there is a problem if β_{jmt} has un-modeled or mis-measured heterogeneity.

On the other hand are the advantages of cross-industry data, no reliance on oligopoly behavior, etc.

This seems like a good complement

De Loecker and Eeckhout (2017) \The Rise of Market Power"

Findings: (summer 2017):

1. Sharp increase in Markup since 1980: 42%
2. High markup rms tend to be smaller
3. Only in the upper half of Markup distribution (espec. at top)
4. Mostly within industry (in all; no particular industries)

They say markup changes are correlated with accounting pro ts (net of intangibles) and so are \market power."

Is it surprising that these are smaller rms? Maybe specialized? Or could this be production heterogeneity?

Another non-S-C-P Idea: DEIO on Big Industries or Sectors

Another idea is moving toward more aggregate conclusions via a large but nite number of DEIO-like studies, which may themselves require some compromises.

What are some big sectors that would work? We have IO workhorses, health, supermarkets, cars, airlines, online markets, cement, *etc.*. Is the any way to summarize within and between markets? Better candidates?

Example: Ganapati (2017) on the US wholesale sector using Census of Wholesale data.

Ganapati (2017) \Modern Wholesaling"

There is some feeling that large buyers (Walmart) are disintermediating the wholesale sector.

In fact, wholesale sector is

- growing,
- with fewer but larger rms,
- with many domestic locations,
- o ering an increasing variety of products,
- that often source both domestically and internationally
- accounting markups are growing,
- as is IT spending.

Ganapati (2017) continued

Methods are simple DEIO:

- Nested Logit demand from manufacturers for domestic and foreign-sourced wholesaling, outside option is direct purchase. Demand is shifted by geography, product variety, product

Ganapati, continued

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Some Very Tentative Conclusions

- If we ignore the New Macro S-C-P, it will generate \answers" for policy-makers, whether we think they make sense or not.
- Data issues (etc.) aside, Classic S-C-P still has the problem that without a cost-demand-equilibrium model, there is no way to motivate identi cation in the face of endogenous market structure.
- Production methods are a complementary approach to DEIO that can make use of (ahem) accounting data and think about aggregate trends, but will nevthey

\Modern" Markets

How common is the case of IT (and/or Trade and/or Big Data and/or *:::*) driven changes involving

- lower marginal costs,
- better products / better variety / better network
- better revenue management / marketing / regulatory arbitrage
- higher xed costs (maybe endogenous xed costs),
- leading to higher margins and variable pro ts
- xed costs limit entry

Online markets, airlines, wholesaling, *:::*?

Implications of \Modern Markets"

Normative analysis is tough. As an example, Berry (1993) suggested that airline networks increase demand (both via convenience and \marketing"), decrease *mc*. markups go up but net e ect on consumers is not immediately clear. It seems that maybe DEIO could answer this one, with relevance for anti-trust.

Distributional E ects are almost never studied in IO, but this is a big part of the \policy demand" for concentration studies. Autor, et al, \superstar rms" comes close to this, albeit in the end regressing labor share

Can we do better?