Measuring Market Power

Critiques of the Production Approach

1. Data/Measurement
2. Mispecified Model
3. Econometrics/Identification
4. Conceptual

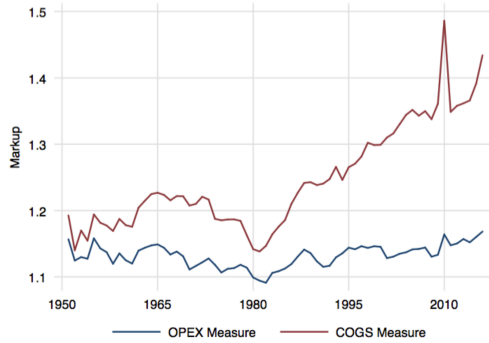
Data/Measurement: Traina (2018)

The Compustat data used by DeLoecker, Eckout, and Unger (2020) is not ideal.

One issue is the ad hoc determination of *marginal costs* from accounting data.

OPEX = COGS + SGA. If we include marketing and management expenses...

Figure 2: COGS vs. OPEX Markups



Traina (2018), Why?

Why do these estiamtes differ so much?

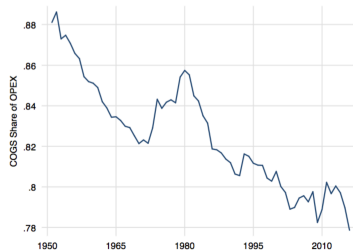
Recall the markups equation

$$\mu_{it} = \theta_{it}^{V} \frac{P_{it}^{Q} Q_{it}}{P_{it}^{V} V_{it}}$$

Omitting a variable, in this case SGA, will bias θ. No trend effect.

But(!!) the share of COGS, is declining (and share of SGA increasing) over time.

Figure 4: COGS Share of OPEX



Traina (2018) Thoughts

What is SGA? Is it important?

Remember, all the rise in markups from DLEU was from the largest 10% if firms. Is SGA somehow especially important for them?

Could estiamte a PF with COGS, SGA separately and allow COGS and SGA elasticities to cary over time...

Data/Measurement

DLEU strongly suggest that concentration is casuing markups to rise.

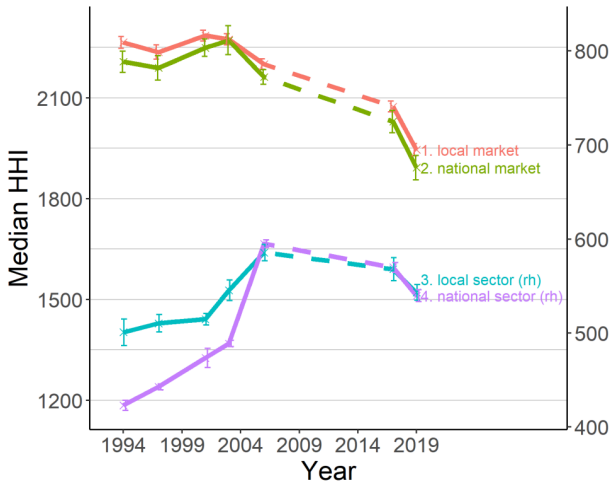
Studies using Compustat or Census data group firms/plants together by production codes at the national level.

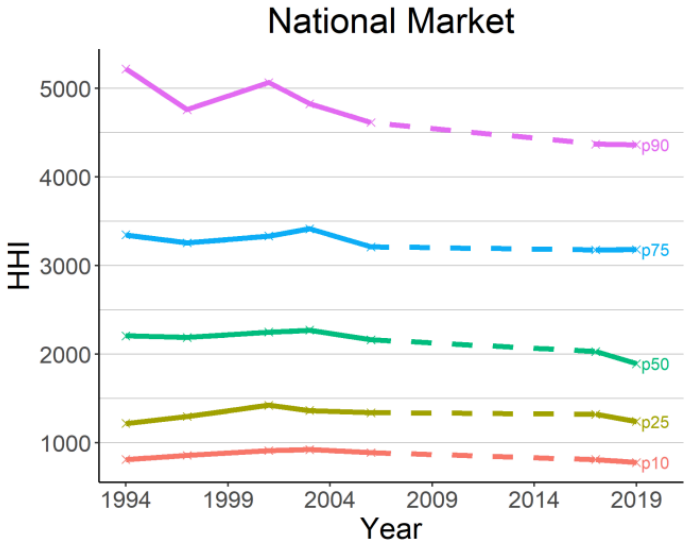
This is typically a terrible grouping from a product market / antitrust point of view. Examples:

- NAICS325620: after-shave, deoderant, mouthwash, sunscreen, hair dye.
- NAICS336120: heavy trucks, buses, garbage trucks, fire engines, motor homes.
- Cable TV is national not local.

BLY Findings

Figure 1: Median HHI over time, by market definition




National Market
HHI
5000
4000
3000
2000
1000
1994
1999
2004
2009
2014
2019
Year
p90
p75
p50
p25
p10

Mispecification: Raval (2021)

Recall the markups equation from cost minimization

$$\mu_{it} = \theta_{it}^{V} \frac{P_{it}^{Q} Q_{it}}{P_{it}^{V} V_{it}}$$

This should hold for any variable input, V. Does it?

Table I Datasets

Dataset	Unit of Observation	Time Period	No. Establishments	No. Industries Used
Chile	Manufacturing Plant	1979-1996	5,000 / year	16
Colombia	Manufacturing Plant	1978-1991	7,000 / year	21
India	Manufacturing Plant	1998-2014	30,000 / year	23
Indonesia	Manufacturing Firm	1991-2000	14,000 / year	22
Retailer	Retail Store	3 years	Thousands / year	1

Raval Findings

Short answer: markups differ based on different variable inputs.

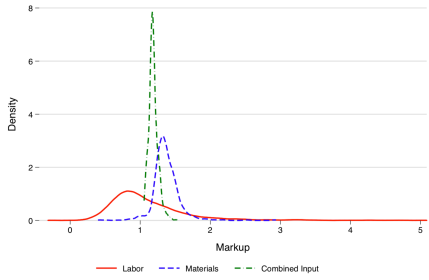
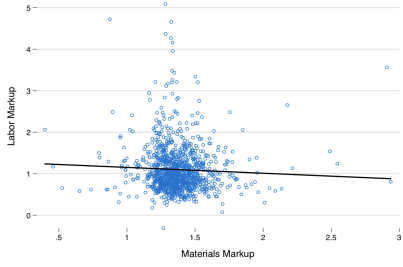


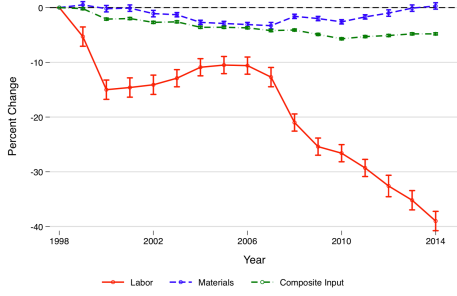
Table II 90/50 Ratio of Markup Estimates

	Labor		Materials		Composite Input	
Dataset	CD	TL	CD	TL	CD	TL
Chile	2.67	2.03	1.53	1.39	1.17	1.17
	(0.013)	(0.008)	(0.003)	(0.004)	(0.001)	(0.001)
Colombia	2.88	1.82	1.82	1.43	1.16	1.17
	(0.016)	(0.005)	(0.008)	(0.004)	(0.001)	(0.001)
India	4.04	2.95	1.38	1.29	1.14	1.14
	(0.013)	(0.007)	(0.001)	(0.001)	(0.000)	(0.000)
Indonesia	4.06	3.12	1.66	1.46	1.15	1.16
	(0.025)	(0.019)	(0.004)	(0.003)	(0.001)	(0.001)
Retailer	1.23	1.30	1.02	1.03	1.02	1.02
	(0.002)	(0.004)	(0.000)	(0.000)	(0.000)	(0.000)

Note: CD is Cobb-Douglas and TL translog. Estimates use all establishments and years. Standard errors are based on 20 bootstrap simulations. For India, these estimates ignore the sample weights.

Raval: Correlations and Trends





(a) India

Bond, Hashemi, Kaplan, Zoch (2020, JME)

"Some Unpleasant Markup Arithmetic"

The markup equation (again)...

$$\mu_{it} = \theta_{it}^{V} \frac{P_{it}^{Q} Q_{it}}{P_{it}^{V} V_{it}}$$

This is the ratio of the **output elasticity** to the labor share of **revenue**.

But (!!), many studies use revenue instead of output to estimate "production functions."

The Uncomfortable Arithmetic

Inverse demand curve: $P(Q)$

Revenue: $R(Q) = P(Q)Q$

Elasticity of **revenue** wrt V

$$\varepsilon_{R,V} = (1 + \varepsilon_{P,Q})\varepsilon_{Q,V}$$

follows from the chain rule applied to the **revenue** function.

The Uncomfortable Arithmetic, cont.

Cost minimization of the firm implies

$$s_{R,V} = \frac{C'(Q)}{P}\varepsilon_{Q,V}$$

And the firms FOC for profit max (MC=MR) implies

$$\frac{C'(Q)}{P} = 1 + \varepsilon_{P,Q}$$

People typically estimate the markup using the revenue elasticity, but

$$\mu := \frac{\varepsilon_{R,V}}{s_{R,V}} = 1.$$

Oops...

Additional points from the Arithmetic paper

- If V is partially fixed, then the markup will reflect both the true markup and the shadow cost of adjustment.

- If V is partially used to "influence demand" (e.g. $D = F_D(V_{1D}, V_{2D}, ...)$), then markups are biased *downward*.

Conceptual Issues

The regression underlying the ratio estimator

$$\bar{q}_{it} = -p_{it} + \beta_v(p^v_{it} + \bar{v}_{it}) + \beta_k(r_{it} + \bar{k}_{it}) + \omega_{it} + \varepsilon_{it}$$

DLEU use HHI to instrument for price...

This is reminiscent of the Structure-Conduct-Performance literature of the 1960/70s.

The IO literature moved away from running equations like this a long time ago.

But the questions are still very important.

- Is market power rising?
- Does concentration have anything to do with it?

Demsetz (1973)

Classic discussion of competition and monopoly profits. Where do profits come from?

1. successful entrepenuership, superior technology;
2. collusion / entry barriers.

It is important to distinguish these when designing public policy.