"How Costly Are Markups?"

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The Questions

- three important questions
    1. how large are the losses from markups?
    2. what are the distorted margins?
    3. what are the best corrective policies?
- why do we care?
    - in recent past, US industries have become more concentrated and profit margins have increased
        - ⋆ 1982-2010: sales share of top 4 firms increased by 40% (Autor et al., 2013)
    - large literature emphasizes importance of micro-level distortions for aggregate outcomes
        - ⋆ market power is an obvious source of misallocation
    - identifying inefficiencies needed to find remedies

This Paper: Model

- main challenges:
  - markups hard to measure
  - no universally accepted model of imperfect competition
- quantitative model of firm dynamics with endogenous markups
- monopolistic competition with free entry
  - upon entry: productivity drawn from Pareto distribution, shape parameter ζ
  - after entry: one-time irreversible investment
  - two factors: labor and intermediates
  - infinitesimal firms, but non-CES demand system

Kinked Demand

- Kimball-Klenow-Willis (KKW) production function
  - elasticity varies with relative quantity, $q = y/Y$

$$\text{markup:} \qquad \mu(q) = \frac{\sigma}{\sigma - q^{\epsilon/\sigma}}$$

  - $\star$ $\sigma > 1$ determines average elasticity of substitution
  - $\star$ $\epsilon \geq 0$ determines how elasticity varies with relative quantity (superelasticity)
  - $\star$ $\epsilon = 0 \rightarrow$ CES

- compared to CES, $\epsilon > 0$:
  - as a firm's price rises above average, its demand is choked off more quickly than with CES
  - as its price declines below average, its demand rises less rapidly than it does under CES
  - hence, stronger incentive to keep prices close to average $\rightarrow$ "kinked demand"

Results

- calibration:
  - $\sigma = 10 \to \mu(1) = \mu(q)|_{\epsilon=0} = 1.11$
  - $\epsilon = 1.64$ and $\xi = 4.79$ calibrated to match the US distribution of sales and payroll in 6-digit NAICS industries
- costs of markups: 26.1% (without intermediates: 3.4%)
  1. underinvestment, labor supply too low (*aggregate markup*) $\approx 3/4$
  2. misallocation across firms (*markup dispersion*) $\approx 1/4$
  3. inefficient entry ≈ 0
- policy analysis:
  1. entry subsidy not very effective: entry not very distorted, effect on competition weak
  2. limiting industry concentration may backfire: large firms are already *too small*
  3. uniform output subsidy eliminates 3/4 of distortion

General Comments

- important question
- largely plausible results
  - ▸ top firms account for a huge fraction of sales
  - ▸ if markups vary little across top firms → relatively low misallocation
  - ▸ crucial effect of intermediates (Jones, 2011, Baqaee & Farhi, 2018)
- questions:
  - ▸ kinked demand
  - ▸ calibration - robustness
 - ▸ the rise of concentration

Kinked Demand: Some Issues

- kinked demand
  - no strategic interaction
- key feature:
  - stronger DRS than CES
- comparison to CES
  - CES with exogenous markups (same as KKW) $\rightarrow$ "overstate" misallocation
    - but calibration of σ not easily comparable
    - (Hsieh & Klenow, 2009)
  - CES with endogenous markups (discrete number of firms) $\rightarrow$ similar misallocation
    - but then CES/KKW not crucial, provided the right "curvature" is used
    - (Atkeson & Burstein, 2008, Edmond, Midrigan & Xu, 2015)

KKW versus CES

- demand elasticity, e:

$$KKW : e(q) = \sigma q^{-\epsilon/\sigma}; \qquad CES : e(s) = \left(\frac{s}{\theta} + \frac{1-s}{\gamma}\right)^{-1}$$

  - elasticity of profit share to q (KKW, red) or s (CES, black):
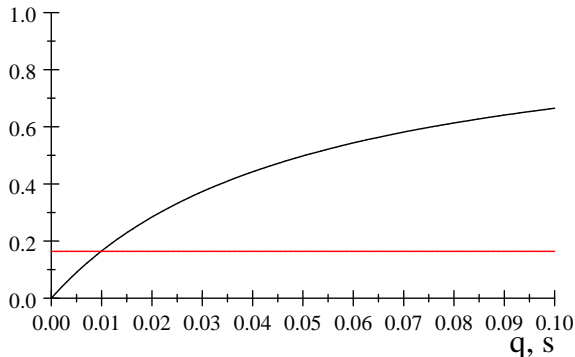
- firm size less effective at reducing markups with KKW than CES

Calibration: Some Issues

- is this a model of superstar firms?
  - Census data aggregated in size classes
    - superstar firms are *within* the top bin
  - continuum of firms versus granularity
- why $\sigma = 10$?
  - seems high compared to estimates of demand elasticities
    - trade literature often uses $\sigma \leq 5$ (Broda & Weinstein, 2006, Redding & Weinstein, 2018)
- ratio ϵ/σ critical in shaping the markup distribution
  - no direct evidence, indirect for Taiwan
  - are Taiwanese manufacturing firms comparable to US?

Calibration: Some Suggestions

- use firm-level data in Compustat
    - estimate simultaneously σ, ϵ, and $\bar{\xi}$
    - show how the model fits the markup distribution
        - ⋆ markup variation seems higher in Compustat
- add multiple industries
- cross-industry heterogeneity in markups may be higher
    - high cross-industry variation in $\sigma \rightarrow \uparrow$ misallocation
    - lower elasticity of substitution between industries $\rightarrow \downarrow$ misallocation
    - (Epifani & Gancia, 2011)
- net effect unclear, would be nice to find out!

Why Did Concentration Increase?

- the increase in concentration is astonishing
  - worth a paper on its own!
- is it good or bad news?
  - not obvious
- reason for the increase in concentration matters
  - markups more compressed $\rightarrow$ lower misallocation
  - productivity more dispersed $\rightarrow$ higher misallocation?
- empirical challenge:
  - disentangle markups and technology

Why Did Concentration Increase? Some Hints

- Bonfiglioli, Crino' & Gancia (2018a)
  - transaction-level data on US import, 2002-2012
  - study firm-level determinants of economic performance in US market
    - ★ intensive/extensive, average/top firms, granularity
    - ★ granularity less important than heterogeneity for explaining sales

- here: use our data to document the increase in concentration
  - many countries of origin, many sectors → country or sector specific?
  - all firms are small in the US market → markup variation unlikely
  - can control for prices

- 2002-2012 change in the share of top4 firms
  - by country: $+20\%$
  - by sector: $+20\%$
  - not explained by changes in prices

- global in scope, technological in nature
  - concentration correlates with: market size, export, entry, innovation (Bonfiglioli, Crino' & Gancia, 2018a,b,c)

Conclusion

- great paper!
  - ▶ important question
  - ▶ very nice model
  - ▶ plausible results
- some more effort on the calibration may help
  - ▶ is KKW the "right" demand system?
- leaves the desire to see more
- especially on the time dimension
  - ▶ how did distortion change with the rise of concentration?

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