

The Rise of Market Power and the Macroeconomic Implications

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Overview

- Aggregate markups have risen from 21% to 61% since the 1980s
- *Median* markups haven't changed
- The entire change in markup is due to a rise in markups for firms at the top of the markup distribution
- The authors show how to estimate these markups, document them robustly, and show that we care about the entire distribution of markups, not just a summary statistic

Estimating Markups

- Existing approaches (BLP) rely on assumptions about consumer and firm behavior in order to get their results.
 - BLP assumes firms compete via Nash-Bertrand and uses the FOC that comes out of that equation
- **This paper:** estimates markup based on the wedge between an input's expenditure share (in revenue) and that input's output elasticity.
- Need to estimate a production function in order to do this.

Approach

- Document some stylized facts about markups for the past 60 years.
- Show that these patterns are robust to different definitions of markups.
- **Question:** are markups rising exclusively because of increasing fixed costs?
- **Answer:** No; fixed costs have increased, but profit rates and markups have increased even more.

Production Function Approach to Markup Estimation

$$Q_{it} = \overbrace{Q_{it}(\Omega_{it}, V_{it}, K_{it})}^{\text{productivity}} \quad (\text{production technology})$$

variable inputs

$$\mathcal{L}(V_{it}, K_{it}, \lambda_{it}) = P_{it}^V V_{it} + r_{it} K_{it} + F_{it} - \lambda_{it}(Q(\cdot) - \bar{Q}_{it})$$

$$\frac{\partial \mathcal{L}}{\partial V_{it}} = P_{it}^V - \lambda_{it} \frac{\partial Q(\cdot)}{\partial V_{it}} = 0 \quad (\text{FOC})$$

rearrange and multiply by $\frac{V_{it}}{Q_{it}}$ to get elasticity:

$$\begin{aligned} \theta_{it}^v &\equiv \frac{\partial Q(\cdot)}{\partial V_{it}} \frac{V_{it}}{Q_{it}} \\ &= \frac{1}{\lambda_{it}} \frac{P_{it}^V}{Q_{it}} \end{aligned}$$

Production Function Approach to Markup Estimation

- Does **not** depend on specifying conduct or a particular demand system.
- In principle there are multiple FOCs that give an expression for markups
- Need two ingredients from the data:
 - Revenue share of variable input, $\frac{P_{it}^V V_{it}}{P_{it} Q_{it}}$
 - Output elasticity of the variable input, θ_{it}^v

Data

- Compustat Data for 60 years

- Construct user cost of capital as

$$r_t = (I_t - \Pi_t) + \Delta$$

- Use SG &A as a measure of overhead
 - Also consider a specification where overhead is a factor of production
- Supplement Compustat data with Census data

Evolution of Markups and Distribution of Markups

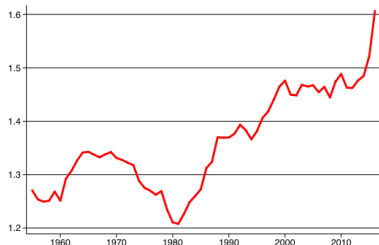
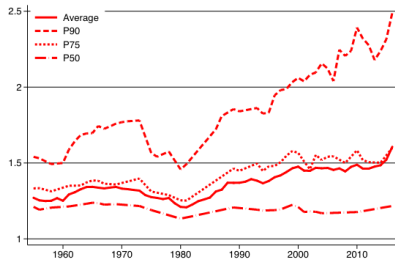


FIGURE I
Average Markups



(B) Percentiles markup distribution (revenue weight)

FIGURE III
The Distribution of Markups μ_{it}

Markup Growth at the Firm Level

There are two forces at work:

1. The markup (within term) increases
2. Reallocation of sales to high-markup firms

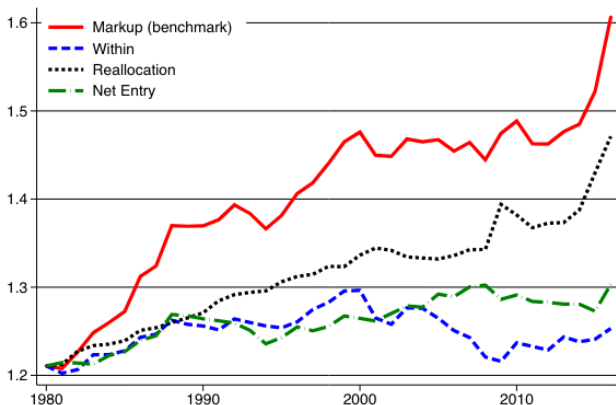


FIGURE IV

Decomposition of Markup Growth at the Firm Level

What do we lose when we use aggregate data?

$$\sum_i \frac{S_{it}}{P_{it}^V V_{it}} \neq \frac{\sum_i S_{it}}{\sum_i P_{it}^V V_{it}}$$

- The series based on aggregate data are all below the benchmark series
- A substantial part of the increase occurs within industry
- The dispersion and skewness of the distribution of markups have increased over time

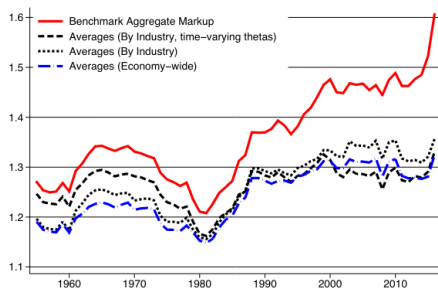


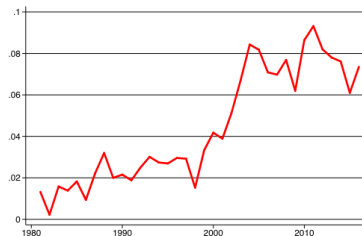
FIGURE V

Using Industry and Economy-Wide Averages versus Aggregating Microdata

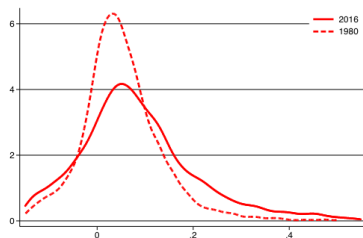
Markups and Profits at the Firm Level

$$\pi_{it} = 1 - \frac{\theta_{st}}{\mu_{it}} - \frac{r_t K_{it}}{S_{it}} - \frac{P_t^X X_{it}}{S_{it}}$$

- This profit measure includes the output elasticity of the production technology
- The increase in average profits is almost exclusively driven by the increase in profits for high profit firms



(A) Average profit rate (revenue weighted)



(B) Kernel density profit rate (unweighted)

FIGURE VIII

Average Profit Rate and Profit Rate Distribution

Comparing Aggregate Profits and Markups

$$\pi_{it} = \frac{P_{it}Q_{it} - C(Q_{it})}{P_{it}Q_{it}} = 1 - \frac{AC_{it}}{\mu_{it}MC_{it}} \quad (15)$$

- Assuming constant ratio of MC to AC and representative firm, implied profit is 38%. How to reconcile with the data?

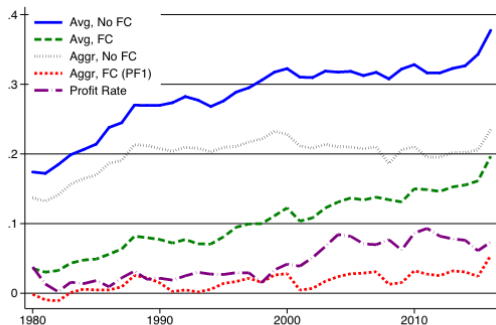


FIGURE XI

Decomposition of Equation (15) due to Overhead Costs and Aggregation

Conclusion

- Since 1980, markups have risen from 21% \rightarrow 61%, and profits from 1% \rightarrow 8%
- Almost all the change is due to high-markup firms.
- The rise in markups is not simply offsetting increasing fixed costs (although fixed costs *are* increasing).
- This provides one possible explanation for the secular decline in the labor share in the US.