Structural Change Within Versus Across Firms: Evidence from the United States

Paper by Ding, Fort, Redding, and Schott

Discussion by Ryan Decker
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Contributions

- Along with Fort, Pierce, Schott (2018), Bloom et al. (2019), etc, expands literature on declining manufacturing employment.
  - Nuanced role of firm death (though depends on “firm” measurement!)
  - Geographic reallocation (north/east → south/west)
  - **Manufacturing firms have been significant job creators outside of manufacturing**
- Documents important role of within-firm knowledge creation and input complementarities
- Points to measurement challenges for productivity, concentration, market power

Comments

1. Is this story unique to manufacturing? Comparing manufacturing (**M**) and nonmanufacturing (**NM**) firms
2. Large firms and concentration
3. Structure of paper
4. Open questions and potential implications

1. Is this story unique to manufacturing? Comparing **M** and **NM** firms

Understanding the **M** versus **NM** comparison

- "Manufacturing" firms are defined as firms with *any* manufacturing establishments, any time within 1977-2019
  - Automaker with manufacturing as dominant activity
  - Large multi-unit general retailer with a single retail bakery
    - In 1977, 42% of manufacturing firm employment is at non-manufacturing establishments.
    - Large firms are often active in multiple 2-digit sectors: per SUSB data, in 2017 the average 1000+ employee firm was in 2.6 sectors.

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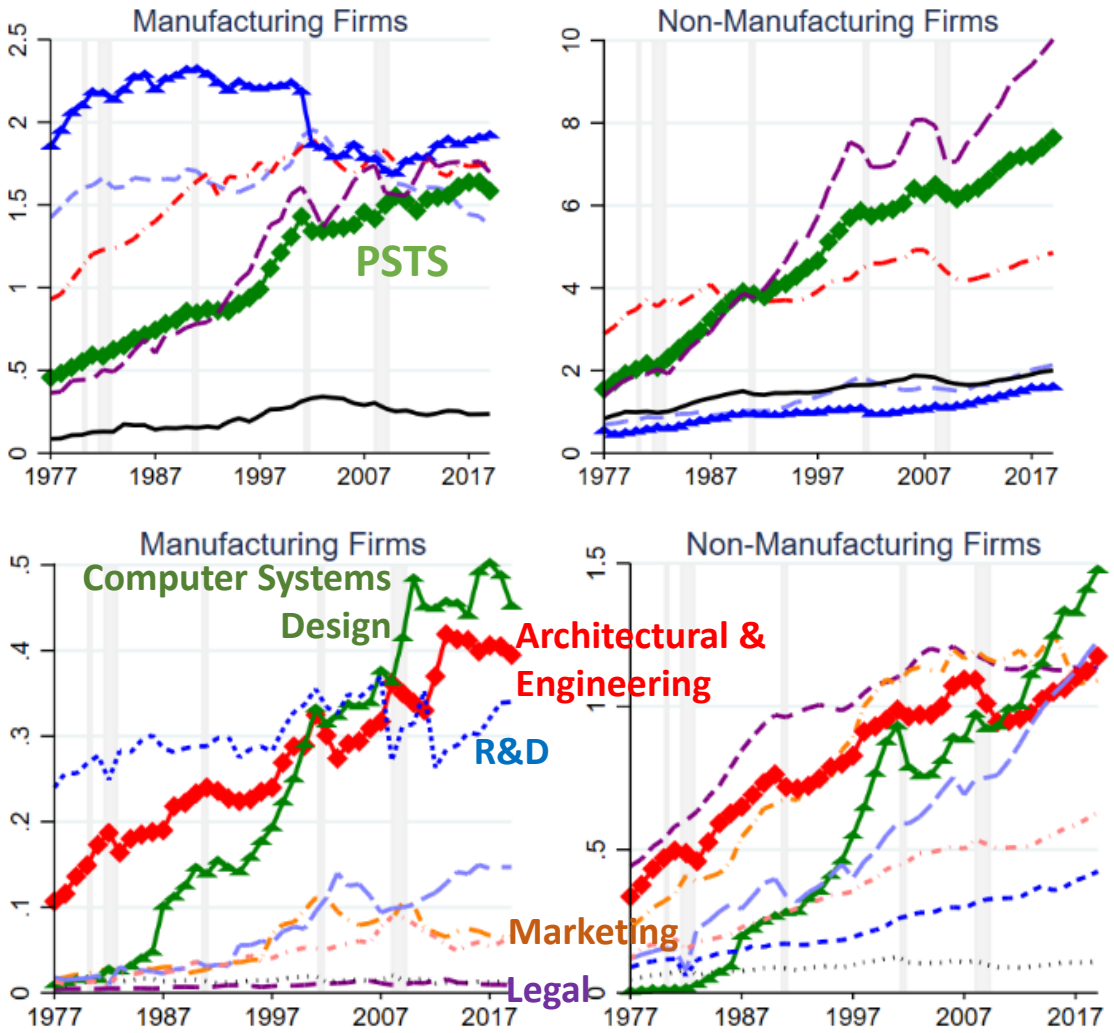
    - In 1977, 42% of manufacturing firm employment is at non-manufacturing establishments.
    - Large firms are often active in multiple 2-digit sectors: per SUSB data, in 2017 the average 1000+ employee firm was in 2.6 sectors.
- An **M** firm with non-manufacturing establishments *must* be a multi-unit firm, while **NM** firms can be any size
  - → **Selection on multi-unit status**

Comparing **M** and **NM** firms



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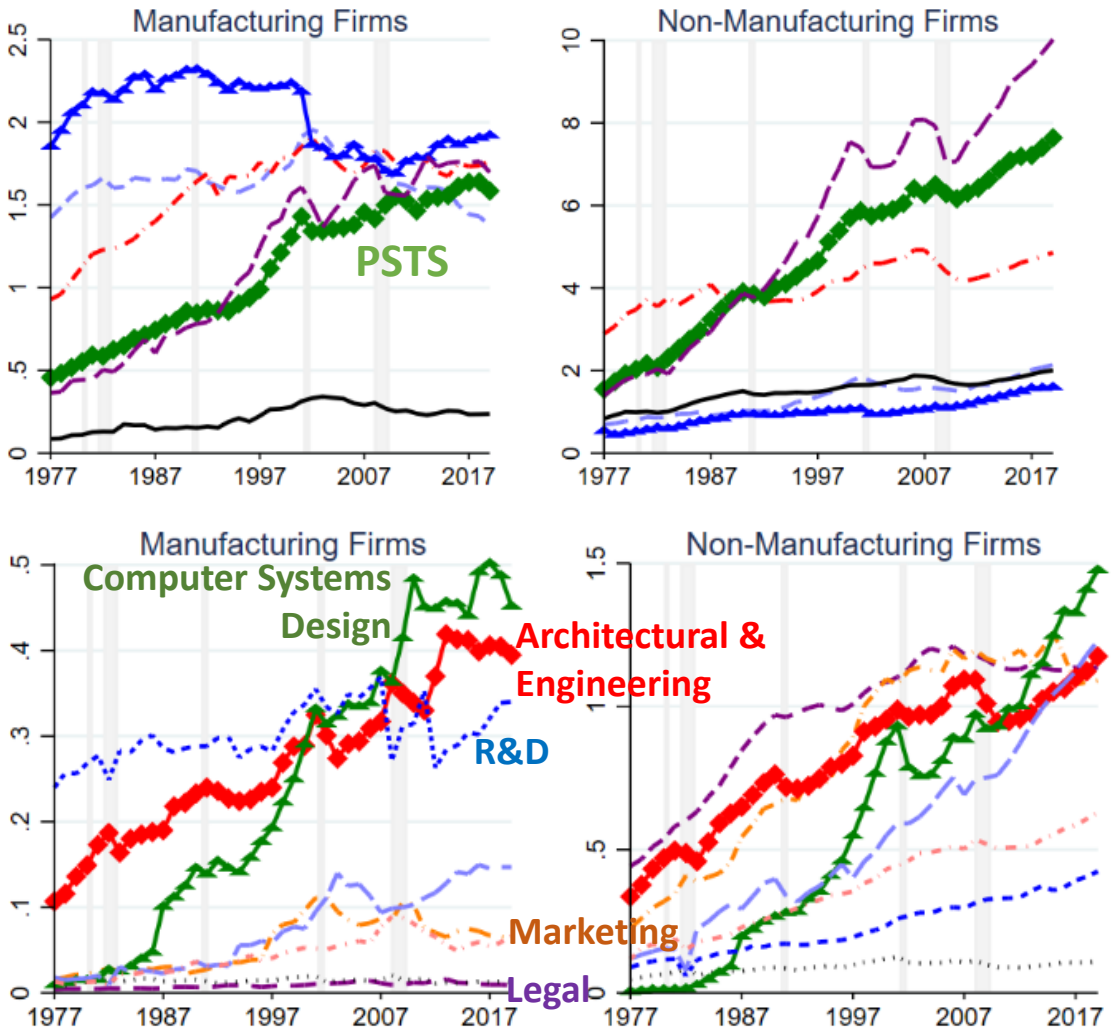

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  - But **M** firms neglect legal, marketing
- Authors argue: **M** firms expanded activity in PSTS industries that are inputs to manufacturing
  - Fact 4: "Manufacturing firms pivot towards a subset of growing non-mfg input sectors that relate to their past manufacturing activities"

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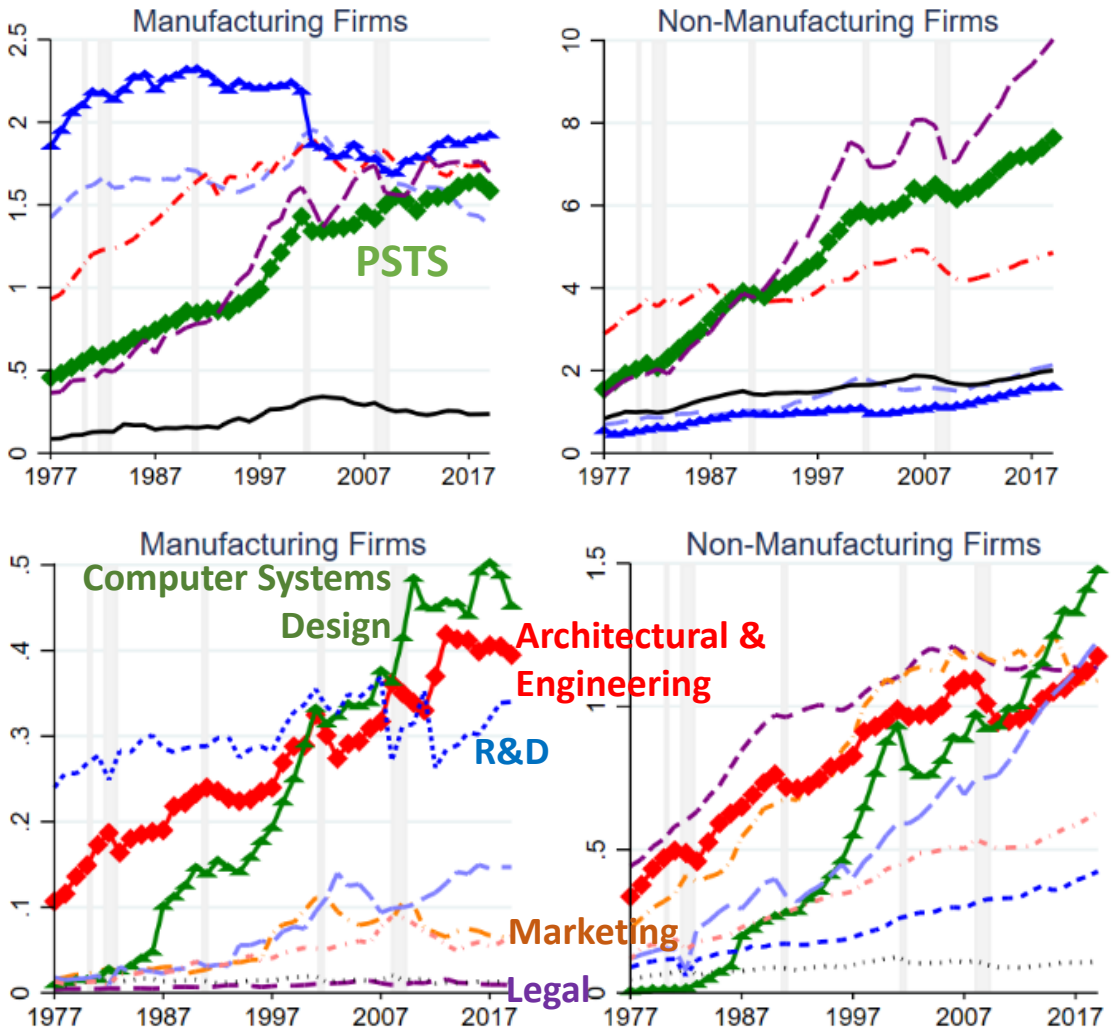

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- Authors argue: **M** firms expanded activity in PSTS industries that are inputs to manufacturing
  - Fact 4: "Manufacturing firms pivot towards a subset of growing non-mfg input sectors that relate to their past manufacturing activities"
- Evidence for this is not thoroughly explored
  - Relationship between PSTS and past manufacturing activities not directly studied
  - Alternative theory: legal, marketing, etc. establishments don't fit well into multi-unit firms

Alternative theory: **M**-neglected PSTS industries are small business industries

- PSTS industries with little growth in **M** firms are small business intensive
  - R&D is mostly found in multi-unit firms
  - Legal is found in small firms

Industry	Small business share (1997)	Small business share pctile (1997)
Computer systems design (5415)	60%	54
Architectural & engineering (5413)	70%	67
R&D (5417)	27%	17
Consulting (5416)	72%	70
Accounting (5412)	52%	46
Marketing (5418)	65%	60
Other (5419)	82%	80
Legal (5411)	90%	91
Specialized design (5414)	93%	94

Source: Business Dynamics Statistics. Unweighted percentiles in distribution of all 4-digit NAICS industries.

Suggestion: Pin down Fact 4 relationship between PSTS and manufacturing

- Expand direct evidence that **M** firms' PSTS activities relate to past **M** activities (I/O tables?)
- Try Table 1, Figures 1-3, 5 for (say) retail versus non-retail
  - Are we observing something unique to manufacturing, or a general characteristic of firm/industry lifecycle over this period?
- Omit single-unit firms from headline **M** vs **NM** comparisons

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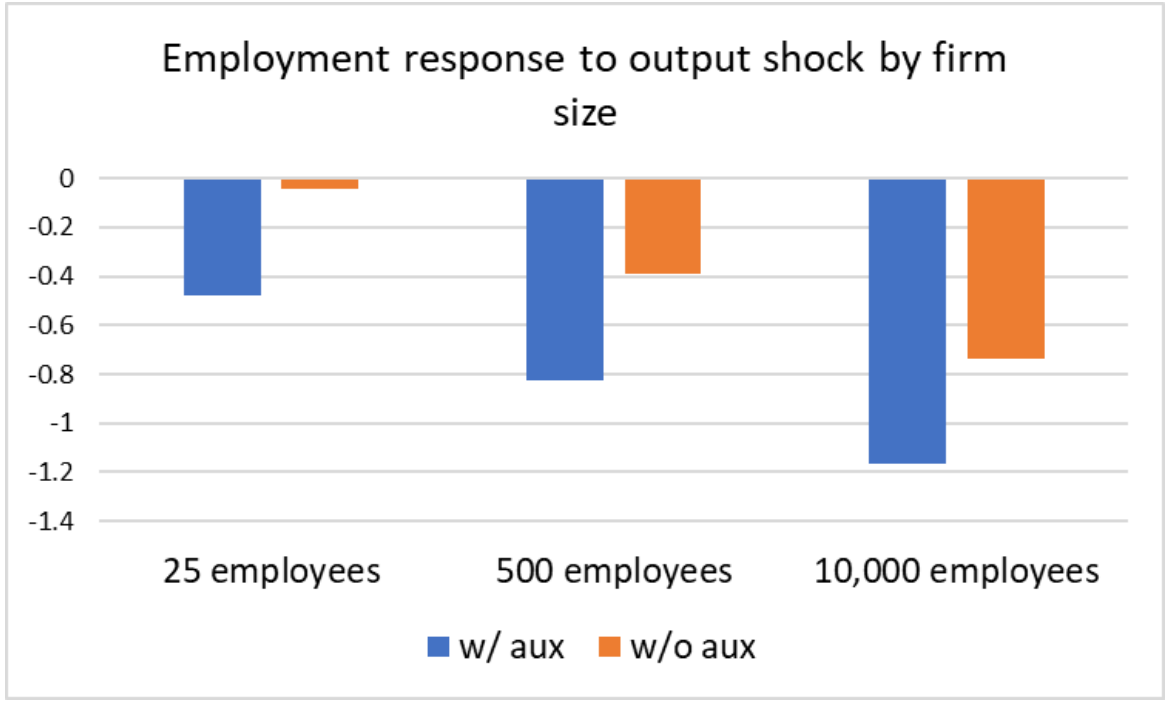
- Why do large firms respond more to output shock, especially with auxiliaries?
  - Sales response similar
  - Size effect only present for manufacturing and PSTS
  - Large firms have higher exit response too
  - But input shocks are size neutral
  - → China Shock effect size is increasing in firm size on net



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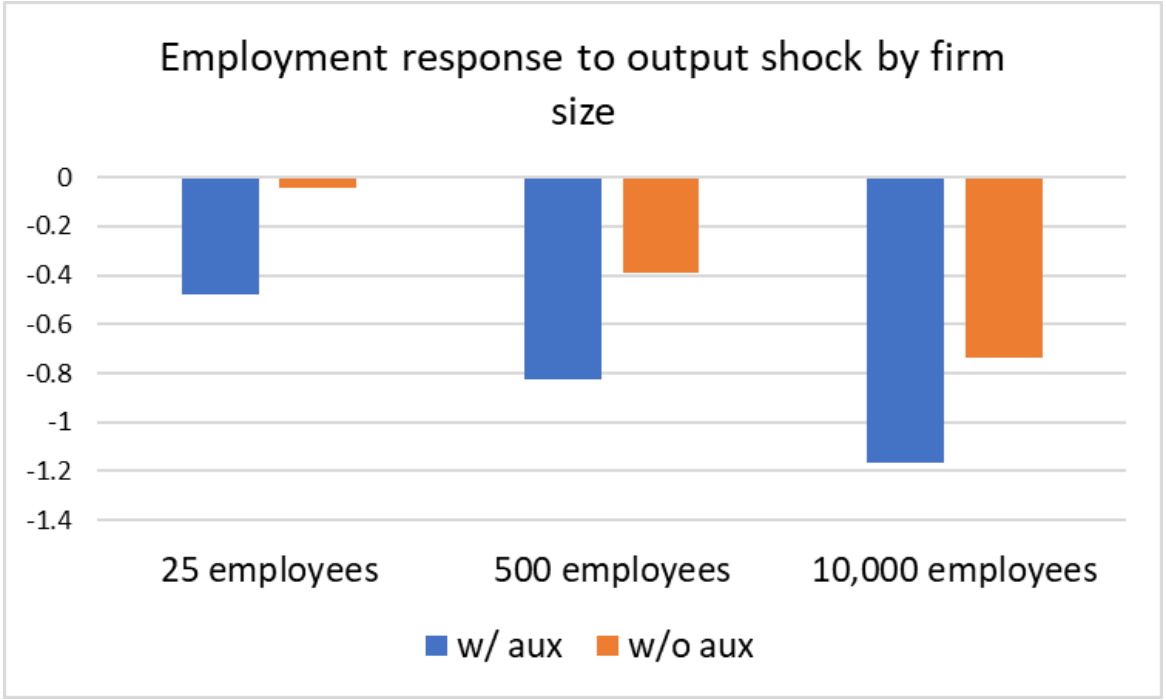

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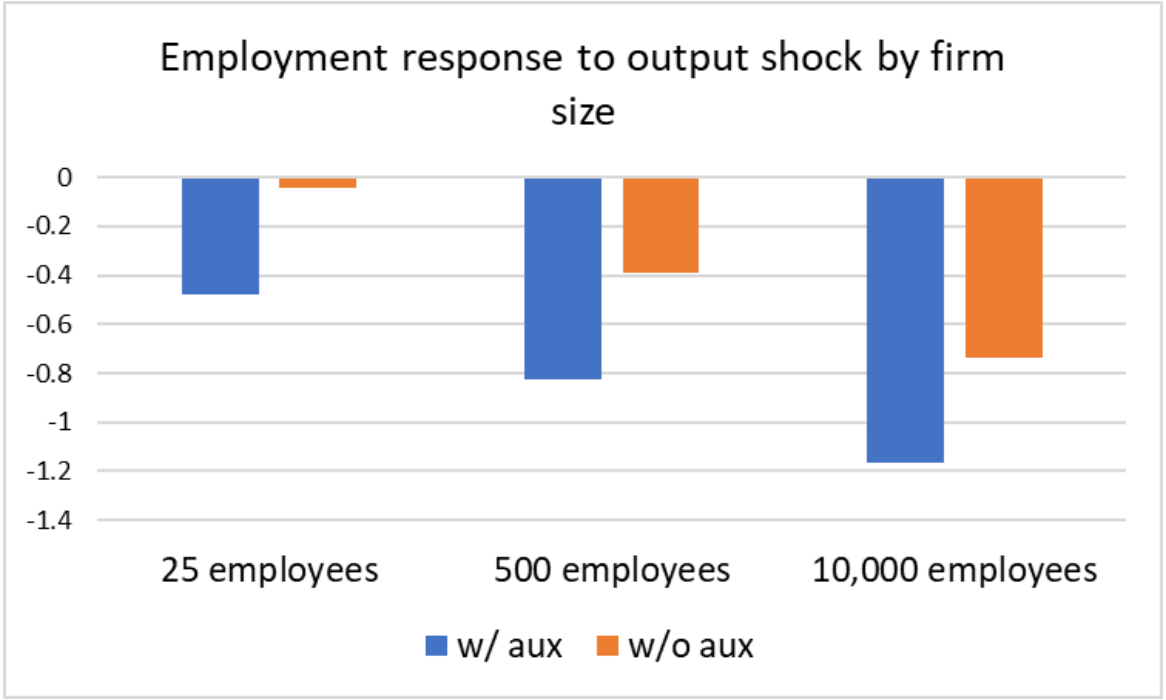
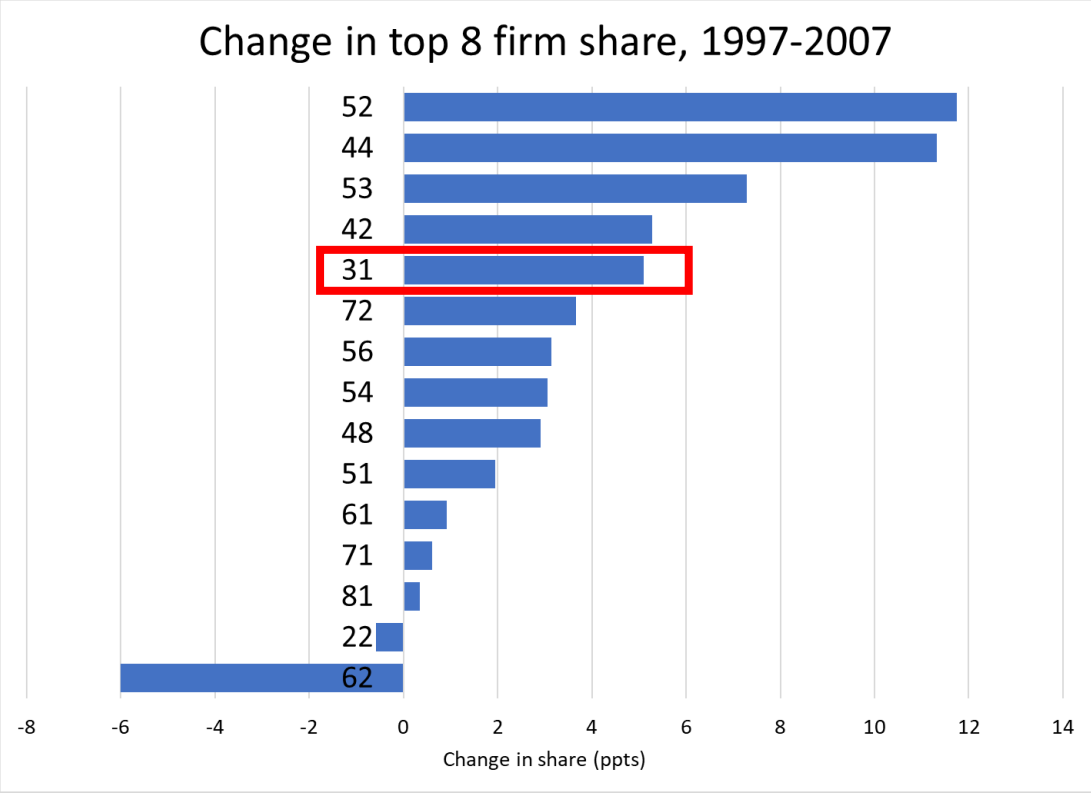
- Whatever the reason, is this big enough to reduce manufacturing concentration?
  - Implications for market power?



Concentration in manufacturing

- Concentration in manufacturing still rose, 1997-2007, though not as much as FIRE, trade (PSTS less)



Source: Economic Census. Sales-weighted average across 6-digit industries.

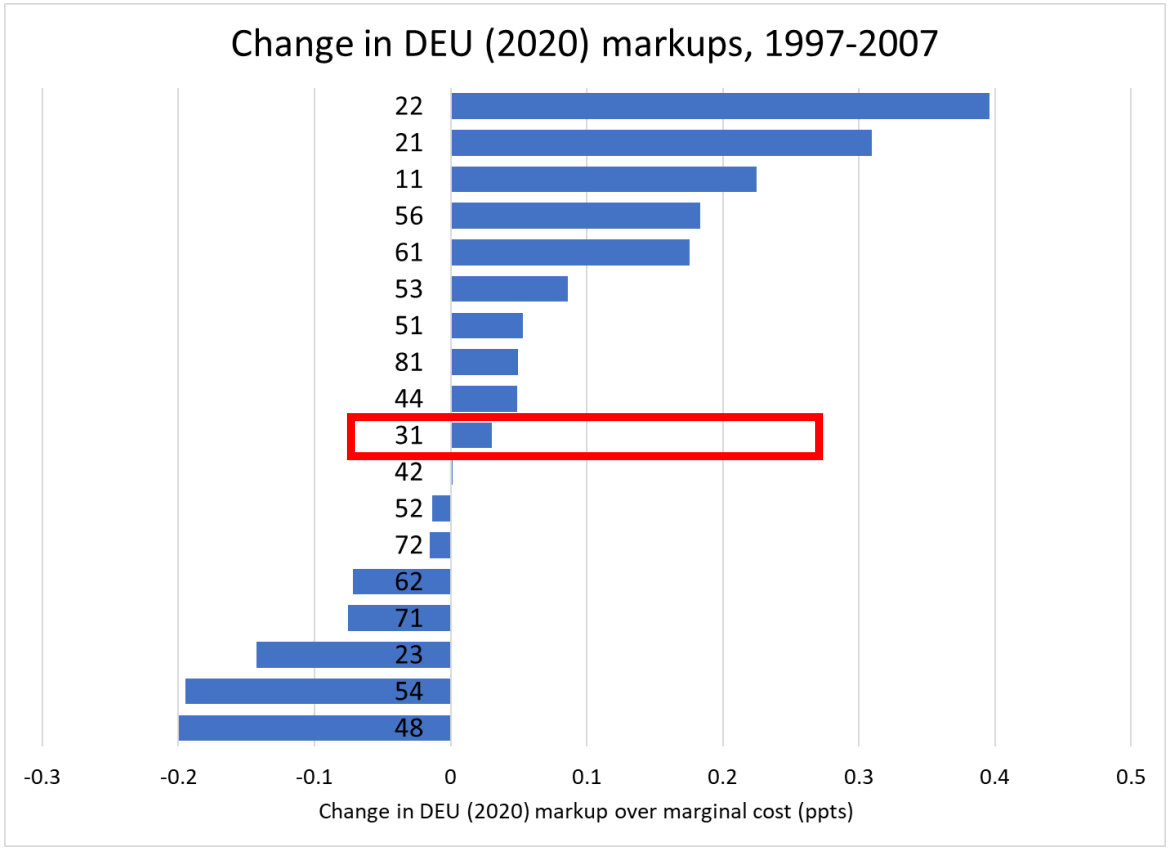
- Still, large firm (mfg) employment share declined.

	1997	2007
Top-8 sales share	54%	59%
Herfindahl	651	818
Large firm employment share	58%	55%

Manufacturing. Top firm share and Herfindahl are sales-weighted averages across 6-digit industries. Large firms have at least 500 employees.

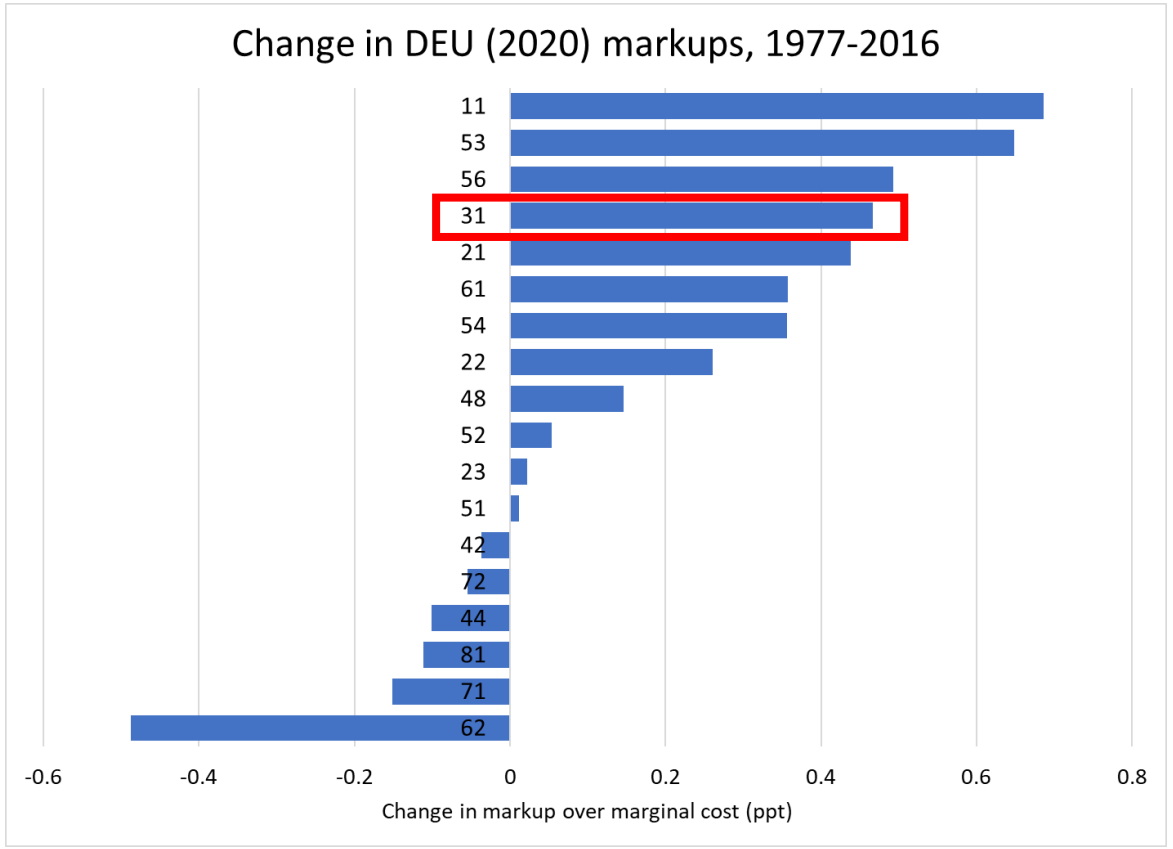
Markups in manufacturing

- DEU (2020) manufacturing markups nearly flat, 1997-2007…



Source: Compustat and author calculations following De Loecker, Eeckhout, and Unger (2020).

- …but rose strongly 1977-2016 overall (PSTS too…)



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Concentration and market power

- China Shock: Nothing too striking or obvious going on; mixed patterns for concentration and market power
  - Could apply industry-level output/input shocks to narrow industry concentration and markups (but note subsequent literature on DEU markups)
- Broader measurement challenges:
  - Expanding firm scope (ie, **M** firms' increased services activity) could reduce services concentration even while economywide concentration rises
  - Concentration and firm-level "markups" are complicated objects for multi-industry firms, and for tech-intensive firms (Foster, Haltiwanger, Tuttle 2022)

3. Paper structure

- This paper does two things:
  - Description of **M** versus **NM** firms in recent decades; role of manufacturing firms in growth of professional services
  - Knowledge workers/establishments as complementary inputs and implications for firm responses to output and input shocks
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- Descriptive piece could be its own paper with additional explorations
  - The decline of US manufacturing employment and the rise of services are first-order stories for US economics and policy; high value of description
    - Wholesale/retail??
    - How has geographic footprint of M firms (incl. services establishments) evolved?
    - Correlations with business formation? (my read of BDS data: inconclusive)
    - Correlations with policy? (R&D tax credits, etc.)
    - Correlations with capacity utilization? (Mfg CU still has not returned to 1970s peak)
    - How does manufacturing establishment productivity respond to in-firm PSTS activities?
    - Do these results vary by publicly traded vs privately held firms?

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    - How does manufacturing establishment productivity respond to in-firm PSTS activities?
    - Do these results vary by publicly traded vs privately held firms?
- Theory and “China Shock” evidence could be expanded (e.g., commodities shocks?)

4. Other open questions

- Implications for NIPA and productivity measurement? (in-house intangible capital production, etc.)
- Does **M** firm entry into services industries deter new firm entry? Relationship with "declining dynamism" literature.
  - More competitors in services industries
  - Higher entry costs in manufacturing (in-house knowledge)
  - What about manufacturing supply chain industries?
- How do manufacturing firms use in-house-produced knowledge?
  - Product/process improvement?
  - Does this generate intellectual property?

Thanks

5 Facts

1. Continuing manufacturing firms account for 16-32% of aggregate non-manufacturing employment growth (40% of payroll growth)
2. US aggregate employment is moving toward services, especially PSTS
3. Reallocation toward service inputs rather than final goods: Input services account for 44% of non-mfg employment growth/54% of payroll growth
4. Manufacturing firms pivot towards a subset of growing non-mfg input sectors that relate to their past manufacturing activities
5. Aux establishments have high wages; firms with aux are older, employ more workers, have more establishments, exhibit greater growth and pivoting as their aux share increases