Diverging Trends in National and Local Concentration

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Introduction

- Recent literature has documented increasing national product-market concentration, driven by growing top firms
  - CEA, Gutierrez and Philippon (2017), Barkai (2017), among others
- Consistent narrative has emerged whereby the rise in national concentration is the cause for
  - Rising markups and market power (De Loecker and Eeckhout, 2017)
  - Increasing profits (Barkai, 2017)
  - Declining labor share (Autor, et al., 2017)
  - Declining firm entry and dynamism (Decker, et al., 2017)
- However, most markets are local and product-specific
  - Due to transport costs and imperfect substitutability
  - Concentration is more appropriately measured locally and for fine product classifications
- We use NETS data from 1990-2014 to explore national and local product-market concentration trends
Four Main Facts

We document four main facts relating to product-market concentration between 1990 and 2014:

1. Overall and for all major sectors, concentration is increasing nationally but decreasing locally.
2. 8-digit industries with diverging trends are pervasive and account for a large share of employment and sales.
3. Among diverging industries, top firms have *increased* national but *decreased* local concentration.
4. Among diverging industries, opening of a plant from a top firm is associated with a long-lasting *decrease* in local concentration.
The Data

- Data comes from the National Establishment Time Series (NETS)
  - Provided by Walls & Associates from Dun & Bradstreet
- Contains annual observations of every U.S. business establishment from 1990 through 2014
  - Sales, employment, owning enterprise, primary industry, and location
  - Each establishment is assigned a unique ID number allowing us to track it over time even in case of corporate-level changes
  - Data on primary industry is provided at 8-digit SIC code level or more aggregate sectors
- We exclude establishments associated with
  - agriculture, education, government, health care, mining, and non-profits
Measuring Concentration

- Our benchmark measure of concentration is the Herfindahl-Hirschman Index (HHI),
  \[ C_{i,g,t} = \sum_{e} s_{e,i,g,t}^2 \in [1/N, 1], \]

  where \( s_{e,i,g,t} \) is an enterprise \( e \)'s total share of sales in industry \( i \) (SIC 8), location \( g \), at time \( t \) and \( N \) is the number of enterprises

  - Four geography levels for \( g \): country, CBSA, county, ZIP code
  - Results are robust to alternative measures of concentration (e.g. adjusted HHI or share of top enterprise)
Measuring Concentration Trends

- Differences across industries in number of firms make comparisons in levels hard
  - Calculate changes in the HHI for each \((i, g, t)\) pair from the first year with observed sales for that \((i, g)\) pair, \(\Delta C_{i,g,t}\)
- Calculate for each year the average change, weighted by employment \((w_{i,g,t})\), across all industries,

\[
\Delta C_t = \sum_{i,g} w_{i,g,t} \Delta C_{i,g,t}
\]

- We compute it for the whole economy and by major sector
- We compute it for each level of geography
Fact 1: Diverging National and Local Concentration Trends

Average Change in HHI from First Year
Across All Divisions

HHI of sales: County and SIC levels
HHI of employment: County and SIC levels

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Fact 1: Diverging National and Local Concentration Trends

Average Change in HHI from First Year
National and ZIP Levels, for Each Division

HHI of sales: ZIP and SIC levels
HHI of employment: ZIP and SIC levels

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Positive and Negative Trends

- We want to assess the relative importance of national and negative trends.
- For each industry we compute the weighed average change in HHI, $\Delta C_{i,t} = \sum_g w_{i,g,t} \Delta C_{i,g,t}$.

To calculate sign of trend for each SIC 8 industry we regress $\Delta C_{i,t}$ on $t$ and determine the sign of the coefficient.

Fraction of employment:

- 61% in industries with *positive national* trend
- 77% in industries with *negative local* (ZIP) coefficients
- 43% in industries with both *positive national but negative local* (ZIP) coefficients
Fact 2: Pervasive Diverging Trends Across 2-digit Sectors

- Diverging trends are most prevalent in Retail Trade, least prevalent in Manufacturing
Measuring the Role of Top Firms

- We want to understand the role of top firms in generating diverging trends
  - Define an industries’ top firm(s) using national 2014 sales
- Calculate trends in concentration with and without the top firm
  - Look at \((i, g)\) pairs where top firm enters
  - Select \((i, g, t)\) where concentration can be calculated after excluding top firm
- Are top firms expanding (and increasing national concentration) by adding establishments that decrease local concentration?
Fact 3: The Role of Top Firms in Diverging Industries

Average Change in HHI from First Year
Across SIC8s with Positive National and Negative ZIP Trends

Role of top 3 firms
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Fact 3: The Role of Top Firms in Concentrating Industries

Average Change in HHI from First Year
Across SIC8s with Positive National and Positive ZIP Trends

Role of top 3 firms
An Event Study: When a Top Firm Comes to Town

- Are top firms actually lowering concentration when they enter a locality?
  - How long-lasting is the effect?
- We want to measure the effect on local concentration before and after a top firm enters an \((i, g)\) pair
  - Calculate for every industry and location and average using employment shares
  - Use 10 year window (3 before and 7 after) and normalize by HHI in year of entry
Fact 4: Local Entry of Top Firm, Diverging Industries

Average Change in HHI after Top Enterprise Opening
Across SIC8s with Positive National and Negative ZIP Trends

Average Change in HHI from First Year

-3 -2 -1 0 1 2 3 4 5 6 7
Years Since SIC8's Top Enterprise Opening in ZIP Code

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Fact 4: Local Entry of Top Firm, Concentrating Industries

Average Change in HHI after Top Enterprise Opening

Across SIC8s with Positive National and Positive ZIP Trends

Effect on number of establishments

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The Case of Walmart

- Fact 4 presents average across industries, here we look at one specific industry
  - Advantage is that effect of local entry on number of establishments easier to interpret
- Study Discount Department Stores industry (SIC 8 53119901)
  - Walmart’s primary industry and where Walmart is the top firm
  - Industry exhibits diverging trends
  - Event study works well, there is no apparent trend in concentration if we exclude sales of entering Walmart establishments
Concentration when Walmart Comes to Town

Average Change in HHI Before and After Walmart Openings
Within SIC 53119901, Discount Department Stores

The case of Cemex

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Number of Firms when Walmart Comes to Town

Avg. Number of Estab. Before and After Walmart Openings
Within SIC8 53119901, Discount Department Stores

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Conclusion

- Rising national concentration is largely driven by expansion of large firms into new local markets
  - This expansion makes local markets less concentrated and, probably, more competitive
- No theory of product-market competition associates decreasing concentration with increasing markups and profits
  - Findings help reconcile observations of increasing national concentration but more mixed findings on markups and profits
- In sum, product-market concentration does not seem to be a problem, anti-trust authorities can take a pause
  - In fact, Carl Shapiro (former top anti-trust official) has been hypothesizing our findings
  - Of course, large national firms might be problematic for other reasons: political capture, monopsony power, etc.
Role of Top 3 Firms, Diverging Industries

Average Change in HHI from First Year
Across SIC8s with Positive National and Negative ZIP Trends

 Including Top 3 Enterprises  Excluding Top 3 Enterprises

-2  -1.5  -1  -0.5  0  0.5  1

Year


Role of top firm
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Role of Top 3 Firms, Concentrating Industries

Average Change in HHI from First Year
Across SIC8s with Positive National and Positive ZIP Trends

![Graph showing the average change in HHI from the first year across SIC8s with positive national and positive ZIP trends. The graph compares the changes including and excluding top 3 enterprises at the ZIP level and national level.](image-url)
Number of Establishments and Top Firm Local Entry

Average Number of Establishments in SIC8-ZIP Pairs
Across SIC8s with Positive National Trends

Effect on concentration
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Concentration when Cemex Comes to Town

Average Change in HHI Before and After Cemex Openings
Within SIC8 32730000, Ready-Mixed Concrete

The case of Walmart

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Number of Establishments when Cemex Comes to Town

Avg. Number of Estab. Before and After Cemex Openings
Within SIC 32730000, Ready-Mixed Concrete

The case of Walmart

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Average Change in HHI from First Year
County and National Levels, across All Divisions

Fact 1
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### County Employment HHI, Various SICs

#### Average Change in HHI from First Year

County and National Levels, across All Divisions

<table>
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<th>Year</th>
<th>SIC2</th>
<th>SIC4</th>
<th>SIC6</th>
<th>SIC8</th>
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<tr>
<td>2014</td>
<td>-0.15</td>
<td>-0.1</td>
<td>-0.05</td>
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</tr>
</tbody>
</table>

**Fact 1**

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Fact 1

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County-Level Employment Correlations in CBP and NETS Industries

Correlation of County Employment in CBP and NETS Industries Used in RHST (2018)

Data Description
Standardized Employment in CBP and NETS Industries

Data Description

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