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.

Facts remain when looking at labor markets instead of product markets.
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, mining, and non-profits
  - Barnatchez, Crane and Decker (2017) find large discrepancies in these sectors
- **Unique feature:** NETS allows us to circumnavigate confidentiality restrictions in census data, and allows us to perform unique analysis
Data Quality

- Potential concerns in NETS
  1. Discrepancies in employment relative to CBP
     - In our sample of sectors, employment trends are very similar in NETS and CBP
     - In our sample of sectors, very high correlation between employment at county and zipcode between NETS and CBP for every year
  2. Trend in coverage of firms
     - No trend in the time series of the correlation of employment between NETS and CBP
  3. Extended coverage of small firms and imputation
     - All results robust to excluding very small firms and imputed observations
     - All results weighted by employment

- Conclude that characteristics of NETS, with its minor differences with Census data, are not responsible for our results
Measuring Concentration

- Our benchmark measure of concentration is the Herfindahl-Hirschman Index (HHI),

\[ C_{i,g,t} = \sum_{e} s_{e,i,g,t}^2 \in \left[ \frac{1}{N}, 1 \right] , \]

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)

- Other used measures of concentration can be problematic
  - for narrowly defined products, only a few local markets have more than 4 firms (< 10%)
  - Analysis in Ganapati (2018) is faulty
Measuring Concentration Trends

- Differences across industries in market structure make aggregation in levels cumbersome
  - Calculate changes in the HHI for each \((i, g, t)\) pair from the first year with observed sales for that \((i, g)\) pair, \(\Delta C_{i,g,t}\)
    (similar to adding a fixed-effect to the cell)

- 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
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HHI of sales: Balanced panel

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Diverging Trends in Concentration

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Positive and Negative Trends

- We want to assess the relative importance of positive 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
  - 78% 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

Role of top 3 firms
Role of top 2 and 3
Fact 3: The Role of Top Firms in Concentrating Industries

Role of top 3 firms

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Can We Link Local Concentration With Market Power?

- Our findings are robust: there is a fall in local measures of product markets concentration
- Standard, single market, theories of market competition imply that the fall in concentration must come with an increase in competition
- ...but theories of multimarket competition sometimes imply the opposite
  - if large firms are expanding to the same markets, then it could be easier to collude. Thus, a decrease in competition
    - (Bernheim and Whinston 1990, Bond and Syropoulos 2008)
- So, do we see declines in local concentration due to entry of several top firms to the same markets?
• Employment share of markets with top firm where also 2nd and/or 3rd firms are present went from 6% to 10%
The Role of the 2nd and 3rd Firm in Diverging Industries

<table>
<thead>
<tr>
<th>Incl. 2nd &amp; 3rd Ranked Enterprises</th>
<th>Excl. 2nd &amp; 3rd Ranked Enterprises</th>
</tr>
</thead>
<tbody>
<tr>
<td>ZIP Level</td>
<td>National Level</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year</th>
<th>Average Change in HHI from First Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990</td>
<td>-0.25</td>
</tr>
<tr>
<td>1995</td>
<td>-0.2</td>
</tr>
<tr>
<td>2000</td>
<td>-0.15</td>
</tr>
<tr>
<td>2005</td>
<td>-0.1</td>
</tr>
<tr>
<td>2010</td>
<td>-0.05</td>
</tr>
<tr>
<td>2014</td>
<td>0.05</td>
</tr>
</tbody>
</table>

Role in concentrating industries
Role of top firm

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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

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Fact 4: Local Entry of Top Firm, Concentrating Industries

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

The case of Cemex

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Number of Firms when Walmart Comes to Town

The case of Cemex

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Conclusions

- 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

- Findings help reconcile observations of increasing national concentration but more mixed findings on markups and profits

- Results also hold for employment. Also robust to alternative ways to sample the data and concentration measures

- 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.
Comparison with CBP - Standardized Employment

Data quality

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Comparison with CBP - County-Level Correlations

- Including All NETS Enterprises
- Excluding NETS Enterprises with 1 Employee
- Excluding NETS Enterprises with Fewer than 5 Employees
- Excluding NETS Enterprises with Fewer than 10 Employees

Data quality

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Comparison with CBP - ZIP Code-Level Correlations

Data quality

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Role of Top 3 Firms, Diverging Industries

Average Change in HHI from First Year

Year


ZIP Level

National Level

Including Top 3 Enterprises

Excluding Top 3 Enterprises

Role of top firm

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Role of Top 3 Firms, Concentrating Industries

Role of top firm

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Number of Establishments and Top Firm Local Entry

Effect on concentration

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Fact 1

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ZIP Employment HHI, Various SICs

Fact 1

Diverging Trends with a Balanced Panel

Fact 1
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Average Change in HHI from First Year

Year
National CBSA County ZIP
Fact 1

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The Role of 2nd and 3rd Firms in Concentrating Industries

![Graph showing the average change in HHI from the first year for ZIP and National Levels, including and excluding 2nd and 3rd ranked enterprises over the years 1990 to 2014.]

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The Case of Cemex

- While diverging trends are most prevalent in Retail Trade, FIRE, and Services, they also exist in manufacturing.
- Study Ready-Mixed Concrete industry (SIC 8 32730000)
  - Industry exhibits diverging trends
  - High transport costs in this industry make local measures of concentration more relevant (Syverson 2004; Syverson 2008).
  - Industry’s largest enterprise is Cemex, a Mexican building materials company
  - Event study works similarly to case of Walmart
Concentration when Cemex Comes to Town

The case of Walmart

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Number of Establishments when Cemex Comes to Town

The case of Walmart

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