

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),

$$C_{i,g,t} = \sum_e s_{e,i,g,t}^2 \in [1/N, 1],$$

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)
- 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

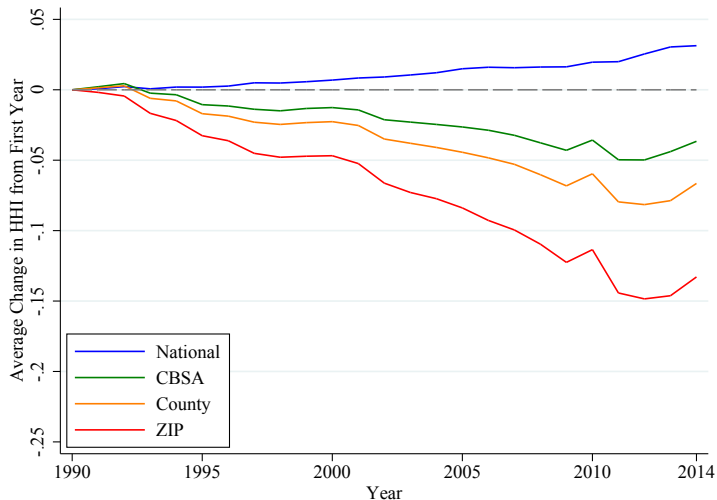
Measuring Concentration Trends

- 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,

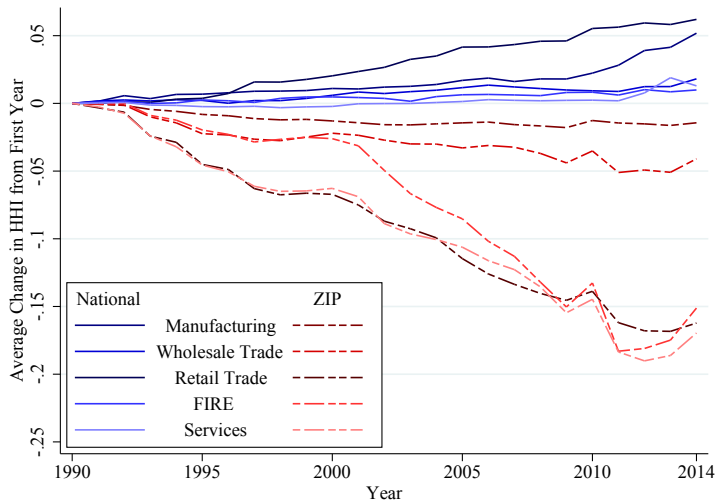
$$\Delta C_t = \sum_{i,g} w_{i,g,t} \Delta C_{i,g,t}$$

- ▶ 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



Fact 1: Diverging National and Local Concentration Trends



HHI of sales: Balanced panel

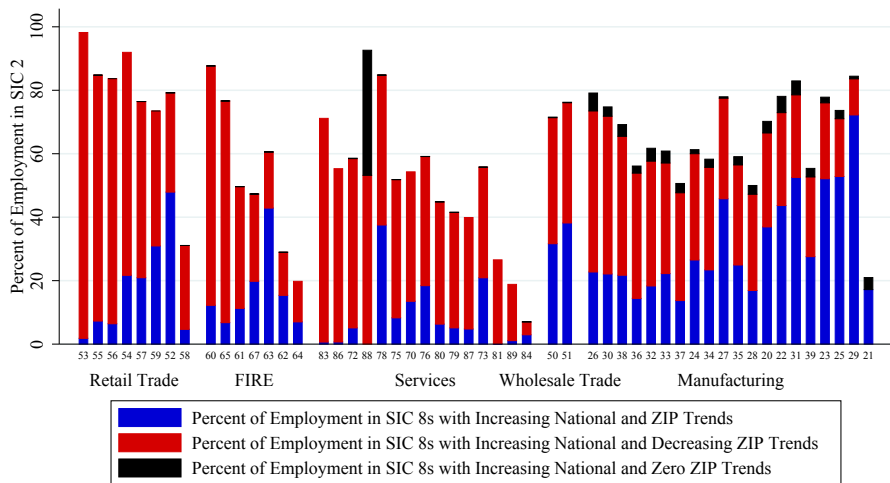
Positive and Negative Trends

- 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

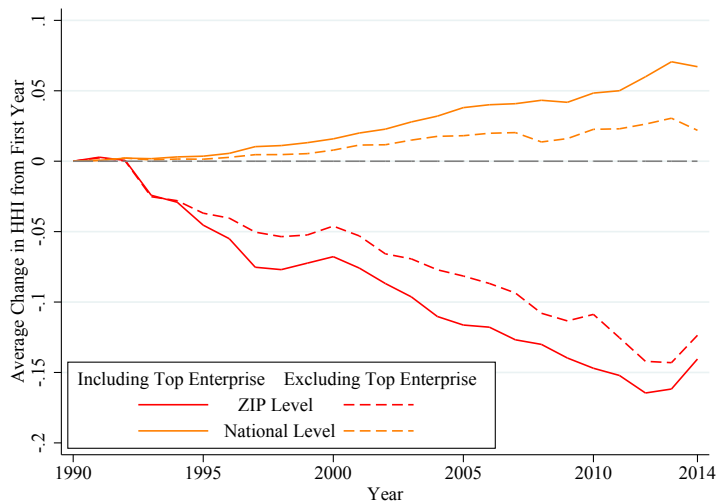


- Diverging trends are most prevalent in Retail Trade, least prevalent in Manufacturing

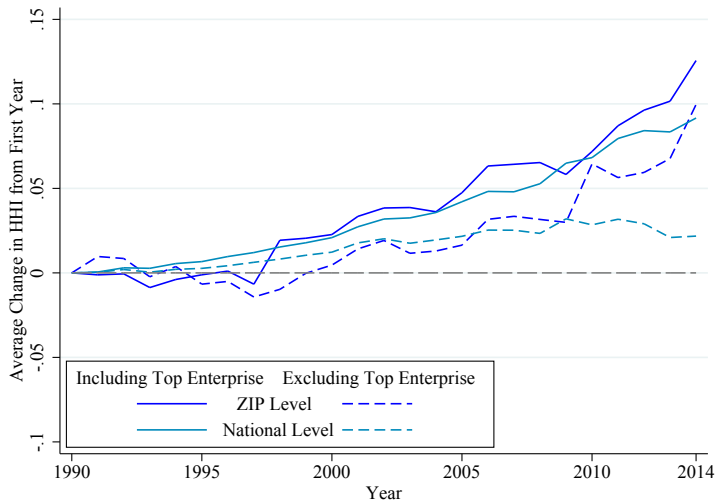
Measuring the Role of Top Firms

- 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



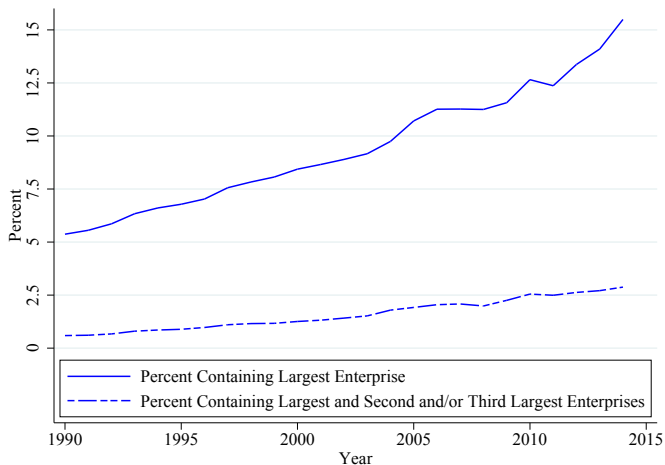
Fact 3: The Role of Top Firms in Concentrating Industries



Can We Link Local Concentration With Market Power?

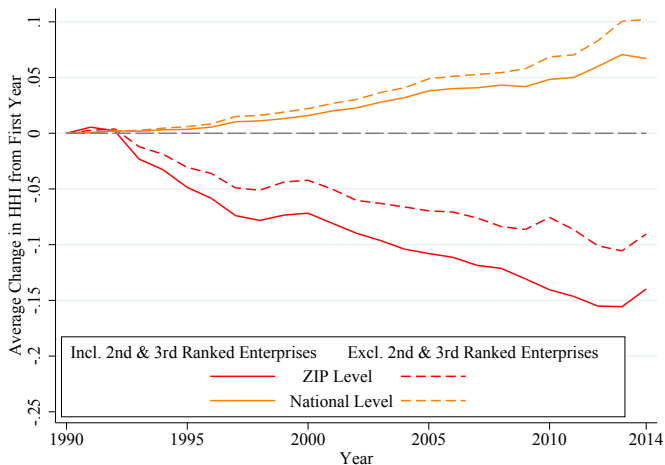
- Our findings are robust: there is a fall in local measures of product markets concentration
- Standard, single market, theories of market competition imply that the fall in concentration must come with an increase in competition
- ...but theories of multimarket competition sometimes imply the opposite
 - ▶ 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?

The Expansion of Top Enterprises into New 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



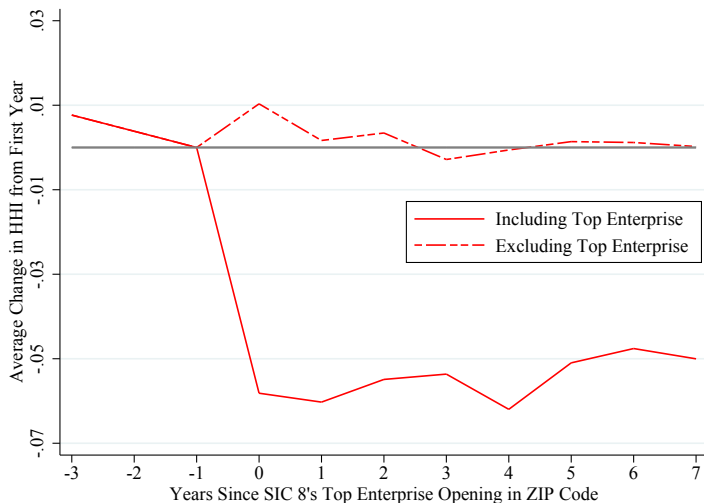
Role in concentrating industries

Role of top firm

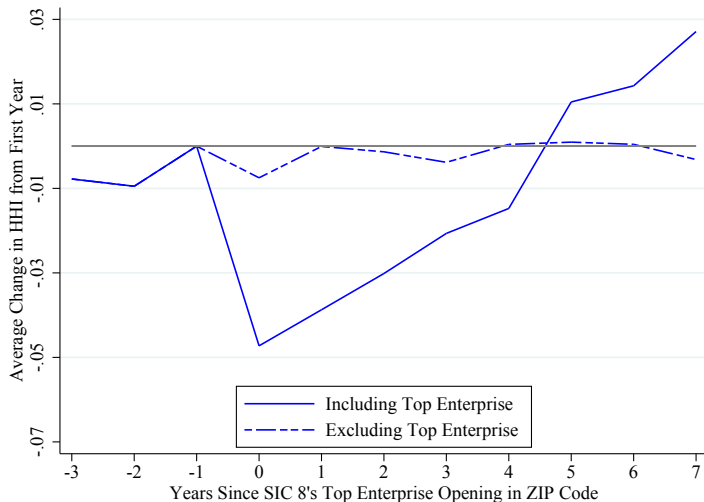
An Event Study: When a Top Firm Comes to Town

- 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



Fact 4: Local Entry of Top Firm, Concentrating Industries



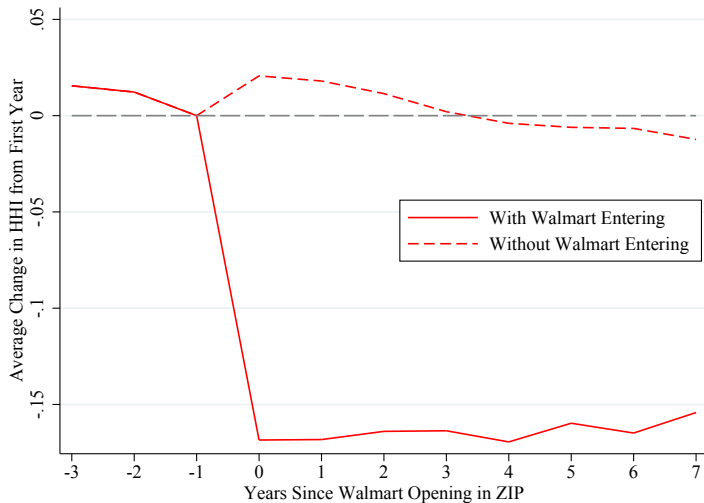
Effect on number of establishments

The Case of Walmart

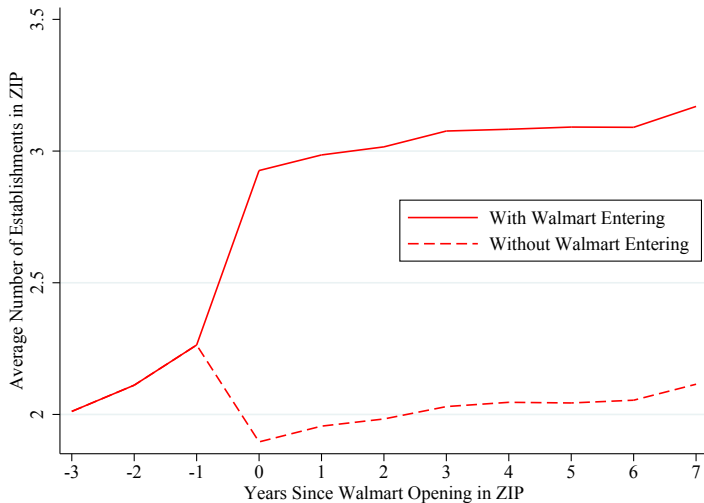
- Fact 4 presents average across industries, here we look at one specific industry
 - ▶ Advantage is that effect of local entry on number of establishments easier to interpret
- Study Discount Department Stores industry (SIC 8 53119901)
 - ▶ Walmart's primary industry and where Walmart is the top firm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

The case of Cemex

Concentration when Walmart Comes to Town



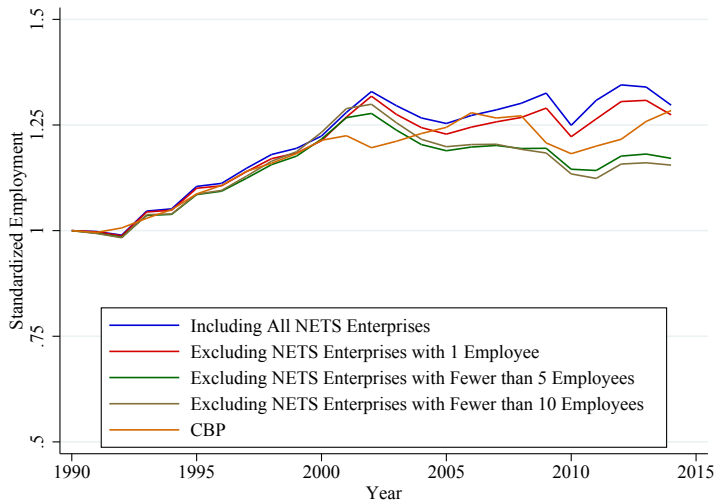
Number of Firms when Walmart Comes to Town



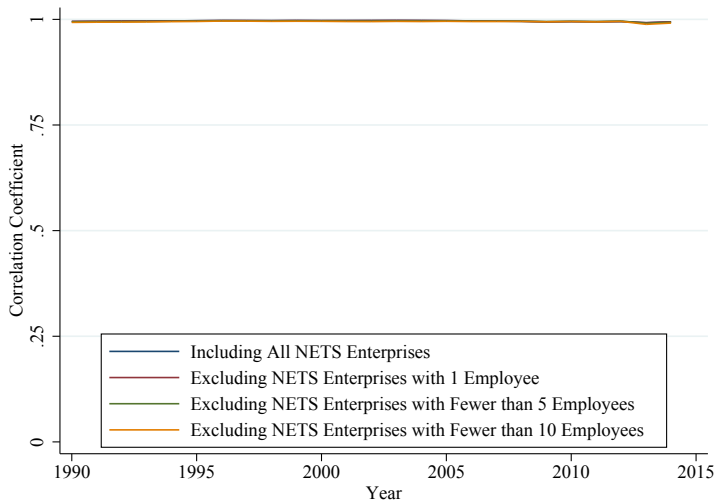
Conclusions

- 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.

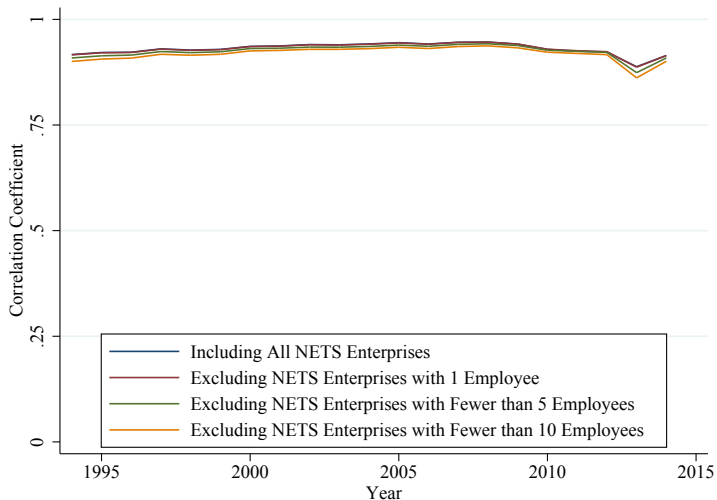
Comparison with CBP - Standardized Employment



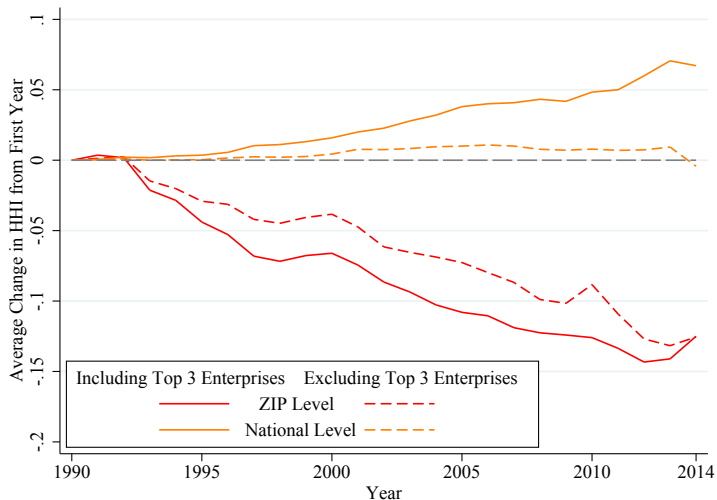
Comparison with CBP - County-Level Correlations



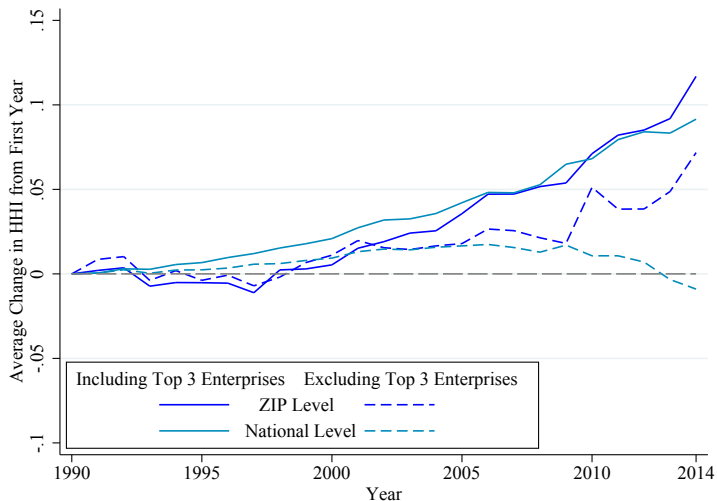
Comparison with CBP - ZIP Code-Level Correlations



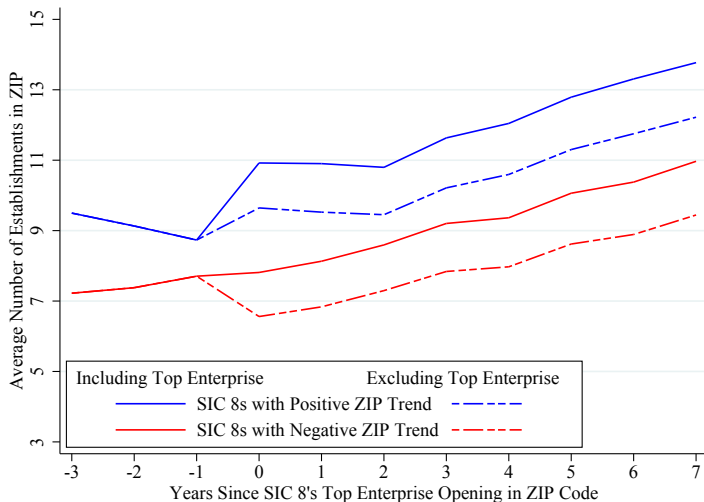
Role of Top 3 Firms, Diverging Industries



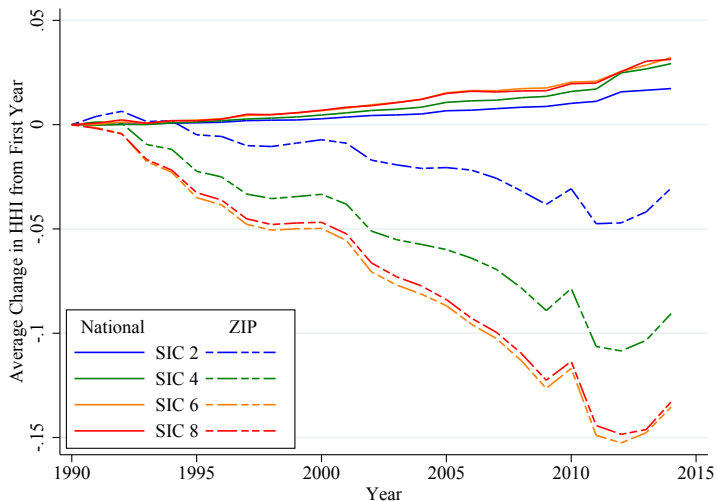
Role of Top 3 Firms, Concentrating Industries



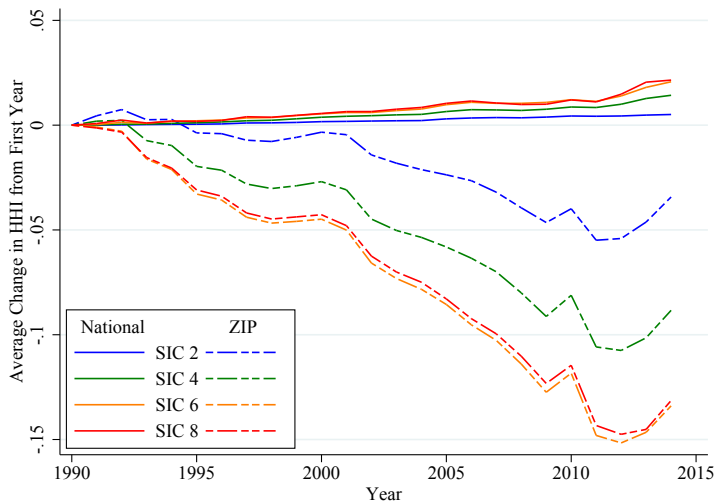
Number of Establishments and Top Firm Local Entry



ZIP Sales HHI, Various SICs

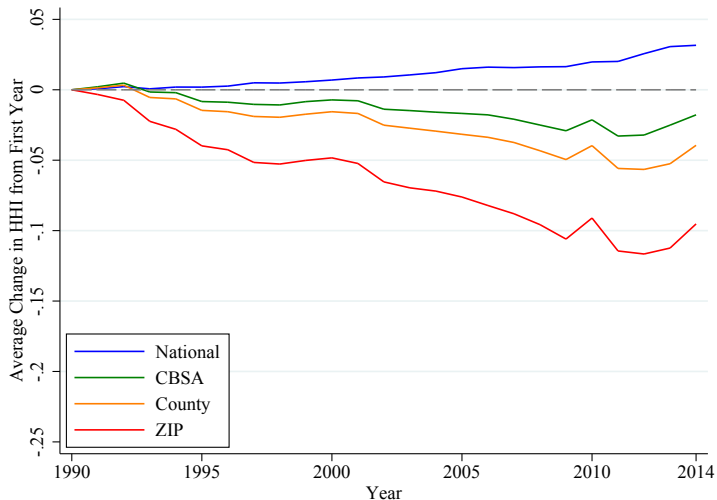


ZIP Employment HHI, Various SICs



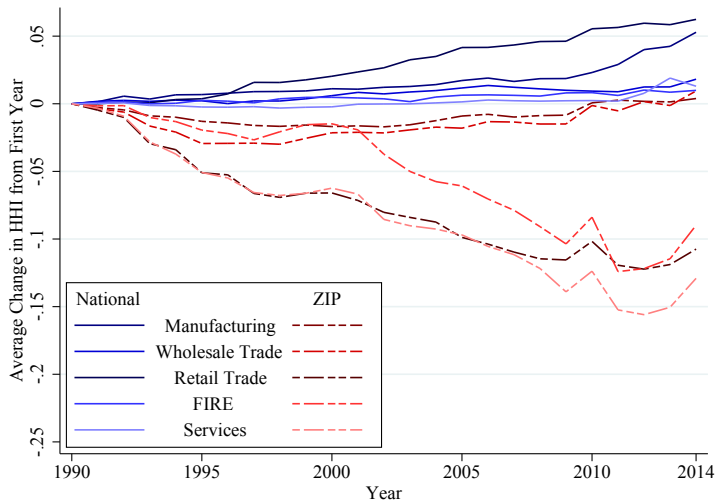
Fact 1

Diverging Trends with a Balanced Panel



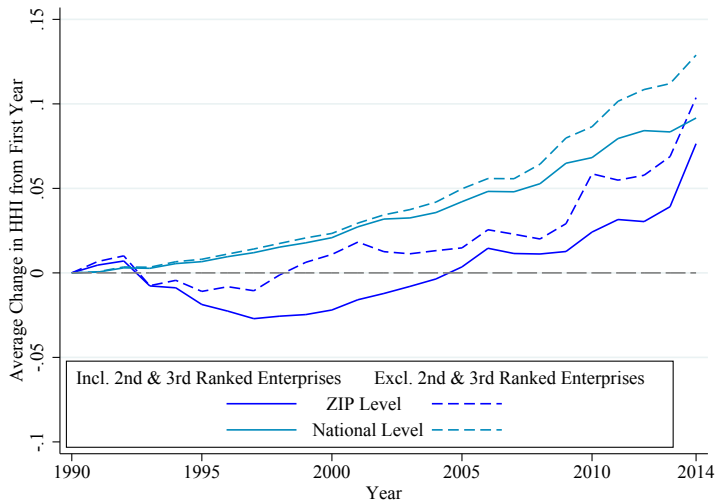
Fact 1

Diverging Trends with a Balanced Panel



Fact 1

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

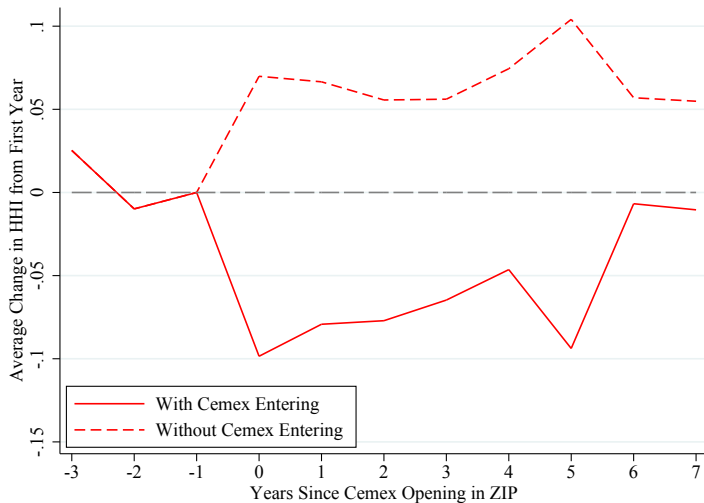


The Case of Cemex

- 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

The case of Walmart

Concentration when Cemex Comes to Town



Number of Establishments when Cemex Comes to Town

