From Good to Bad Concentration?  
U.S. Industries over the past 30 years 

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NYU, NBER, CEPR  

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Panel A. Cumulative Change in CR8 (%)

Source: U.S. Economic Census for all Businesses. Dashed lines because of changes in industry classification from SIC to NAICS.
Stylized Fact: After-Tax Net Profit Margins

Panel B. Profits/VA

Source: FRED Non Financial Corporates.
Stylized Fact: Labor Share

Panel C. Labor Share

Source: FRED Non Financial Corporates.
US vs EU: Concentration

CR8 Level (OECD 2019)

Source: Bajgar et al. (2019), OECD STAN
US vs EU & Asia: Profit Rates

Source: OECD STAN. Pre-Tax Gross Operating Surplus over Revenues.
US vs EU: Labor Shares

Source: EU KLEMS 2017. See also Cette et al. (2019).
Theory: Good vs Bad Concentration

- Ex-post profits: \( \pi = \frac{\mu}{1+\mu} \left( \frac{a}{A} \right)^{\sigma-1} \frac{PY}{N} - \phi \)
- Free entry: \( \frac{\mathbb{E}[\pi]}{r+\delta} \leq \kappa \)
- Number of firms (symmetric)

\[
N = \frac{\mu}{1 + \mu} \frac{PY}{(r + \delta) \kappa + \phi}
\]

- Bad concentration: barriers to entry \( \kappa \), regulatory capture
- Good concentration: efficient response to TFP, competition

- Selection effect \( a^* (\sigma) \)

\[
(r + \delta) \kappa = (1 - F(a^*)) \times \mathbb{E}[\pi \mid a > a^*].
\]
China Shock: N, Import-Adj. CR8

Notes: Compustat, NBER-CES and Peter Schott’s data.
China Shock: Evaluating Measures

Response of log(OIADP) to China Shock

SALE/COGS

Notes: Compustat, NBER-CES and Peter Schott’s import data. Plots show $\beta_t$ from regressions $y_{i,j,t} = \beta_t \times NTR \text{ Gap}_j + \delta_i + \gamma_t + \epsilon_{i,j,t}$.
SALE/COGS vs Gross Profit Rates

Sources: OECD Stan and Compustat.
Testable Prediction: Dynamics of Market Shares

- Market shares
  
  \[
  s_{i,j,t} = \frac{h_{i,j,t}}{N_j} \left( \frac{(1 + \mu_j) a_{i,j,t}}{(1 + \mu_{i,j}) A_{j,t}} \right)^{\sigma_j^{-1}}
  \]

- Prop. All else equal, an increase in \( \sigma \) leads to an increase in the volatility of market shares.
  
  \[
  \sum_{\log s}^2 = \sum_{\log h}^2 + (\sigma_j - 1)^2 \sum_{\log a}^2
  \]
## Testable Predictions

<table>
<thead>
<tr>
<th>Theories</th>
<th>Good $\sigma$</th>
<th>Bad $\kappa$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Turnover / Exit</td>
<td>+</td>
<td>–</td>
</tr>
<tr>
<td>Investment / $K$ Growth</td>
<td>+</td>
<td>–</td>
</tr>
<tr>
<td>$\text{Corr} (\Delta CR, \Delta TFP)$</td>
<td>+</td>
<td>–</td>
</tr>
<tr>
<td>$\text{Corr} (\Delta CR, \Delta P)$</td>
<td>–</td>
<td>+</td>
</tr>
</tbody>
</table>
Declining Turnover

Source: Compustat NA, following BEA industries. Measure is 1-5-year ahead correlation of ranks within industry.
Investment: Growth in $K$ vs. $Q$

Notes: $Q$ for Non-Financial corporate sector from FRED; Capital stock from BEA
## TFP, Prices and Markups

<table>
<thead>
<tr>
<th></th>
<th>$\Delta_5 \log(TFP)$</th>
<th>$\Delta_5 \log(P)$</th>
<th>$\Delta_5 \log(\mu)$</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
</tr>
<tr>
<td></td>
<td>Pre-00</td>
<td>Post-00</td>
<td>Pre-00</td>
</tr>
<tr>
<td>$\Delta_5 \log(CR4)$</td>
<td>0.174*</td>
<td>-0.049</td>
<td>-0.090</td>
</tr>
<tr>
<td></td>
<td>(0.066)</td>
<td>(0.050)</td>
<td>(0.061)</td>
</tr>
<tr>
<td>Cons</td>
<td>0.017</td>
<td>0.027**</td>
<td>0.073**</td>
</tr>
<tr>
<td></td>
<td>(0.014)</td>
<td>(0.009)</td>
<td>(0.013)</td>
</tr>
<tr>
<td>Year FE</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>$R^2$</td>
<td>.12</td>
<td>.11</td>
<td>.049</td>
</tr>
<tr>
<td>Observations</td>
<td>92</td>
<td>138</td>
<td>92</td>
</tr>
</tbody>
</table>

Source: BLS multifactor and Compustat.
$\sigma$ vs $\kappa$? Principal Component Loadings

Components over Time

Average scores for PC1 and PC2

- PC1: "Intangibles"
- PC2: "Barriers to Entry"
Lobbying?

Source: Gutiérrez and Philippon (2018)
Four prominent explanations

- **Rising Capital Share** \((\alpha)\).

- **Rising Elasticity** \((\sigma)\).
  - Autor et al. (2017)

- **Increasing Returns to Scale** \((\gamma)\).
  - Aghion et al. (2018)

- **Rising Barriers to Competition** \((\kappa)\).
### Summary of Theories and Measures

<table>
<thead>
<tr>
<th>Theories</th>
<th>Data</th>
<th>$\alpha$</th>
<th>$\sigma$</th>
<th>$\gamma$</th>
<th>$\kappa$</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Intern. Evidence</strong></td>
<td>Common global trends</td>
<td>–</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td><strong>2. Entry, Exit and Turnover</strong></td>
<td>Leader turnover</td>
<td>–</td>
<td>?</td>
<td>+</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td>Elast. of Entry to $Q$</td>
<td>–</td>
<td>?</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td></td>
<td>Exit Rate</td>
<td>–</td>
<td>?</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td></td>
<td>Corr($\Delta CR, \Delta P$)</td>
<td>-..+</td>
<td>?</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td><strong>4. Inv. &amp; profits by leaders</strong></td>
<td>Agg. inv. rate</td>
<td>–</td>
<td>+</td>
<td>?</td>
<td>?</td>
</tr>
<tr>
<td></td>
<td>Leader inv. rate</td>
<td>–</td>
<td>–</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td></td>
<td>Leader profits</td>
<td>+</td>
<td>?</td>
<td>?</td>
<td>+</td>
</tr>
<tr>
<td><strong>5. Ret. to Scale</strong></td>
<td>Estimated RS*</td>
<td>0+</td>
<td>0</td>
<td>–</td>
<td>+</td>
</tr>
</tbody>
</table>
Airlines and Telecom

Source: BLS multifactor and Compustat.
Turnover of Leaders

- Avg. of industry-level exit probabilities:
  - 1980: 0.2
  - 1990: 0.3
  - 2000: 0.4
  - 2010: 0.25

Source: Compustat NA, following BEA industries.
Change in Profits - Within or Between Firms?

Source: Compustat NA. Regression: $\pi_{i,j,t} = \beta_t \times Lead_{i,j,t} + \delta_i + \gamma_t + \epsilon_{jt}$. Average: $\gamma_t$. Leader: $\gamma_t + \beta_t$. 
### Increasing Harm at High CR?

<table>
<thead>
<tr>
<th></th>
<th>$\Delta_5 \log(\mu)$ (1)</th>
<th>$\Delta_5 \log(\mu)$ (2)</th>
<th>$\Delta_5 \log(\mu)$ (3)</th>
<th>$\Delta_5 \log(\mu)$ (4)</th>
<th>$\Delta_5 \log(\mu)$ (5)</th>
<th>$\Delta_5 \log(\mu)$ (6)</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>All</td>
<td>Mfg</td>
<td>NonMfg</td>
<td>All</td>
<td>Mfg</td>
<td>NonMfg</td>
</tr>
<tr>
<td>$\Delta_5 \log(CR4_{jt})$</td>
<td>0.00</td>
<td>0.09**</td>
<td>0.00</td>
<td>0.12*</td>
<td>0.10**</td>
<td>0.12*</td>
</tr>
<tr>
<td></td>
<td>(0.01)</td>
<td>(3.73)</td>
<td>(0.01)</td>
<td>(2.06)</td>
<td>(3.35)</td>
<td>(2.01)</td>
</tr>
<tr>
<td>$\Delta_5 \log(CR4_{jt}) \times 1_{t \geq 2002}$</td>
<td>0.26**</td>
<td>0.14*</td>
<td>0.26**</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>(3.70)</td>
<td>(2.16)</td>
<td>(3.62)</td>
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<tr>
<td>$\Delta_5 \log(CR4_{jt}) \times \text{High CR}$</td>
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<td></td>
<td></td>
<td>0.40**</td>
<td>0.10</td>
<td>0.40**</td>
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<tr>
<td></td>
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<td></td>
<td></td>
<td>(2.87)</td>
<td>(1.61)</td>
<td>(2.81)</td>
</tr>
<tr>
<td>High CR</td>
<td>-0.01</td>
<td>0.07**</td>
<td>-0.01</td>
<td>-0.01</td>
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</tr>
<tr>
<td></td>
<td>(-0.40)</td>
<td>(2.95)</td>
<td>(-0.39)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cons</td>
<td>0.03**</td>
<td>0.10**</td>
<td>0.03**</td>
<td>0.02+</td>
<td>0.07**</td>
<td>0.02+</td>
</tr>
<tr>
<td></td>
<td>(3.42)</td>
<td>(7.18)</td>
<td>(3.35)</td>
<td>(1.92)</td>
<td>(11.97)</td>
<td>(1.88)</td>
</tr>
<tr>
<td>Sec x Yr FE</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>R2</td>
<td>.36</td>
<td>.33</td>
<td>.36</td>
<td>.35</td>
<td>.36</td>
<td>.35</td>
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<tr>
<td>Observations</td>
<td>3,141</td>
<td>2,743</td>
<td>398</td>
<td>3,141</td>
<td>2,743</td>
<td>398</td>
</tr>
</tbody>
</table>

Source: U.S. Economic Census, NBER-CES and BEA
Why After 2000? Returns to Scale?

- Why is bad concentration more prevalent after 2000?
- Perhaps returns to scale have increased?
  - Using the approach of Basu and Fernald (1997), we find a moderate increase from 0.78 to 0.80.
  - De-Loecker et al. (2019) estimate increase from 1.03 to 1.08 in US. Diez et al. (2018) reach similar conclusions globally.
  - There is no evidence that returns to scale have increased significantly in recent years.
Estimates

Source: BLS multifactor
First Principal Component: Intangibles

PC1: "Intangibles"
Second Principal Component: Barriers to Entry

PC2: "Barriers to Entry"
PC2 scores ("Barriers to Entry") vs Import Shares

Sources: BEA. Imports from Peter Schott’s data. Notes: Only manufacturing.
References I


References II


