

INTANGIBLES, INVESTMENT, AND EFFICIENCY

Nicolas Crouzet¹ Janice Eberly²

¹Kellogg School of Management, Northwestern University

²Kellogg School of Management, Northwestern University & NBER

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OVERVIEW

Two salient macro trends, since mid-1990's

- Increasing business concentration

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("productivity gap")

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 3. closely correlated growth in intangible capital

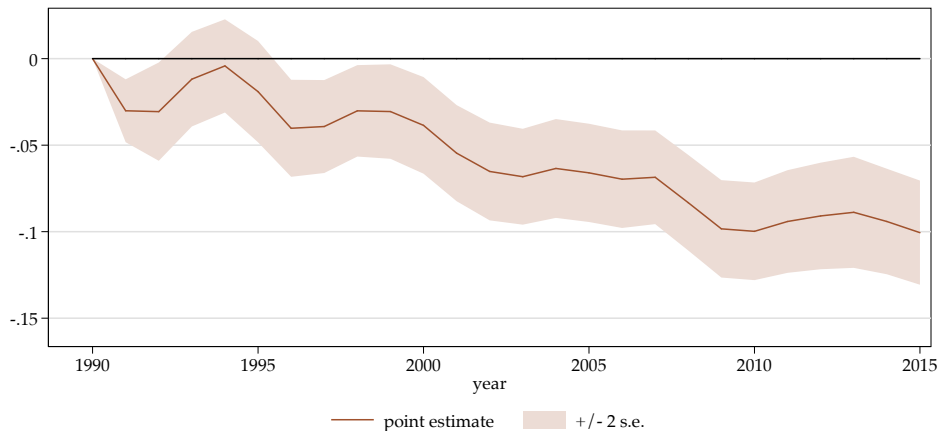
WHY RETAIL?

HHI OF SALES, COMPUSTAT US FIRMS



Sales HHI in retail: **.14** in 1990; **.36** in 2015.

THE INVESTMENT GAP IN RETAIL



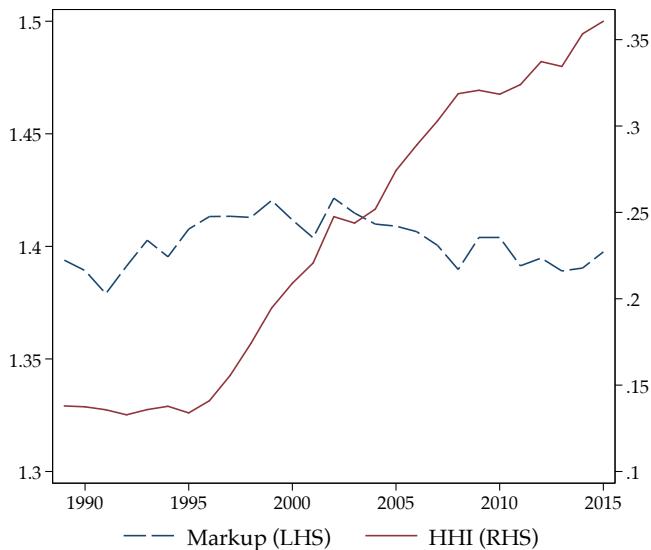
$$\begin{aligned}(I/K)_{i,t} &= \alpha_i + \delta_t + X'_{i,t}\beta + \epsilon_{i,t} \\ X_{i,t} &\equiv (Q_{i,t-1}, (CF/K)_{i,t-1})'\end{aligned}$$

PROXIMATE CAUSES

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- Increasing market power of incumbents?

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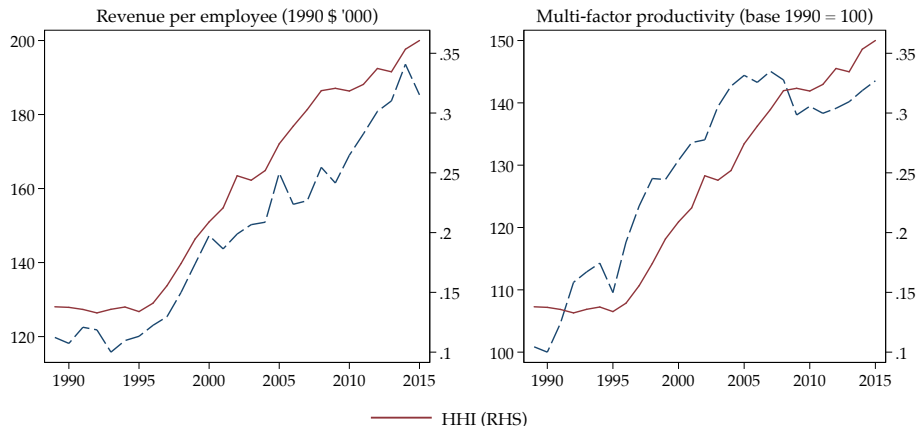
$$\text{Markup} \equiv \frac{\text{Sales}}{\text{Cost of goods sold}}$$

PROXIMATE CAUSES

- Increasing market power of incumbents?
- Productivity gains, especially among industry leaders?

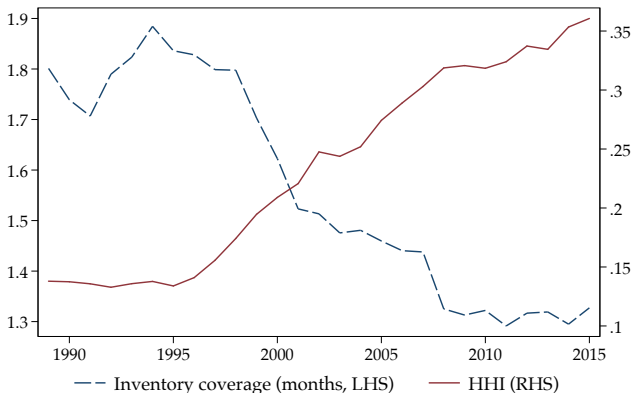
- Increasing market power of incumbents?
- Productivity gains, especially among industry leaders?
 - ⇒ rising concentration

PROXIMATE CAUSES



- Revenue per employee is a firm-level average, **weighted by sales**
- Multi-factor productivity is an (aggregate) output-based measure, from KLEMS

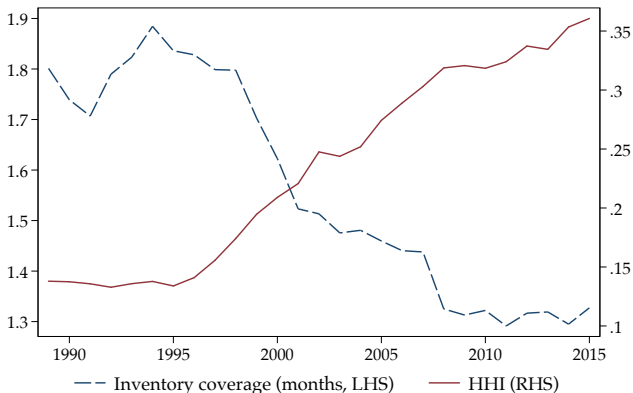
WHAT HAPPENED IN RETAIL?



- 1990's & early 2000's: faster payment systems, more accurate pricing, better inventory management (**Walmart**)

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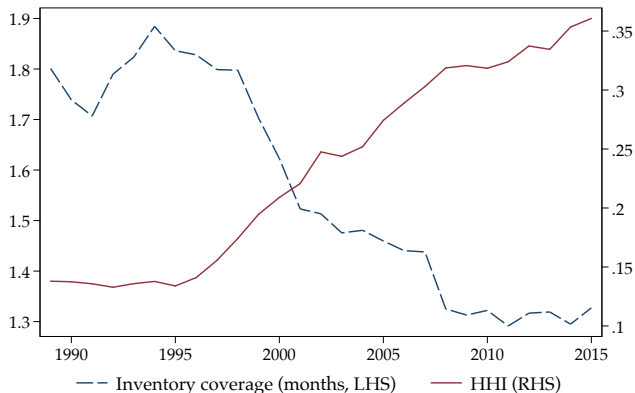


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- late 2000's & early 2010's: development of online retail platforms and distributed retail systems (**Amazon**)
- requires **intangible** "know-how", not only investment in new physical capital



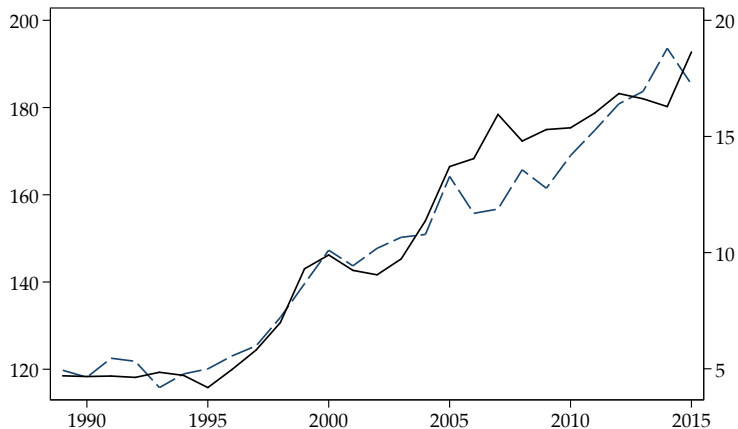
Dear Customer,

There are two types of companies: those that work hard to charge customers more, and those that work hard to charge customers less. Both approaches can work. We are firmly in the second camp.

Jeff Bezos (09/28/2011)

INTANGIBLES AND PRODUCTIVITY

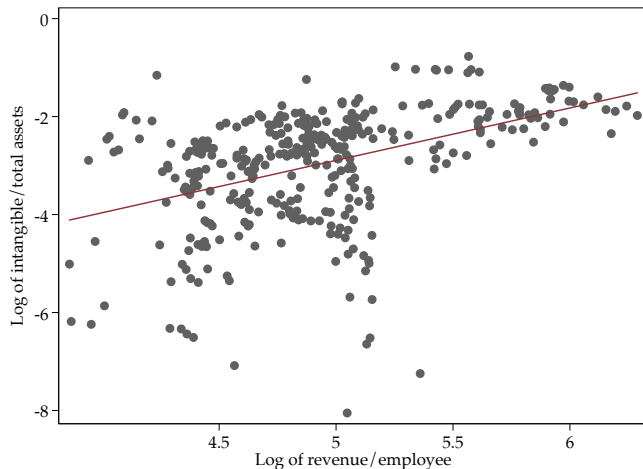
SECTOR-WIDE



--- Revenue per employee (1990 \$ '000, LHS)
— Intangible share of total assets (% , RHS)

INTANGIBLES AND PRODUCTIVITY

AT THE 3-DIGIT NAICS SUBSECTOR LEVEL

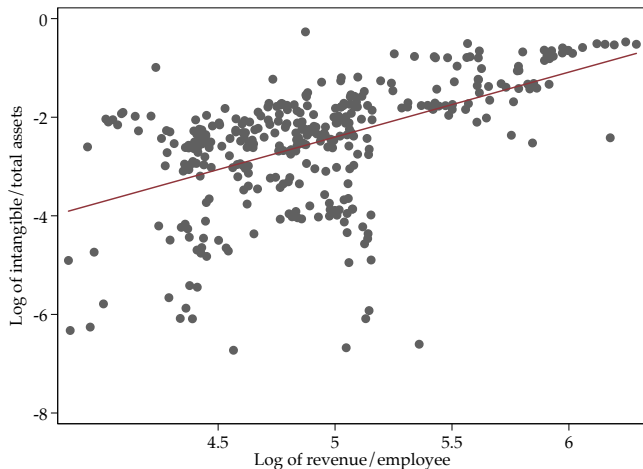


Simple correlation : **0.49**

OLS slope, with industry-clustered s.e.: **1.222 (0.346)**

INTANGIBLES AND PRODUCTIVITY

AT THE 3-DIGIT NAICS SUBSECTOR LEVEL — INCLUDING CAPITALIZED R&D

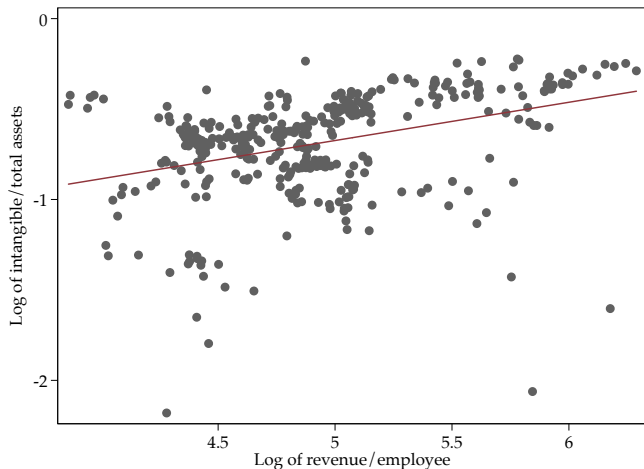


Simple correlation : **0.57**

OLS slope, with industry-clustered s.e.: **1.432 (0.320)**

INTANGIBLES AND PRODUCTIVITY

AT THE 3-DIGIT NAICS SUBSECTOR LEVEL — INCLUDING CAPITALIZED R&D AND CAPITALIZED SG&A



Simple correlation : **0.37**

OLS slope, with industry-clustered s.e.: **0.211 (0.088)**

CONCLUSION

In the US retail sector

- Higher concentration
- Large productivity gains, esp. among industry leaders
- Despite this fact, **physical** investment remains low
- But higher productivity strongly correlated with **intangible** investment

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Unanswered questions

- How widespread is this phenomenon, beyond retail?
- Does intangible investment only lead to productivity gains, or could it serve to increase market power?

brand value

PLAN

MORE

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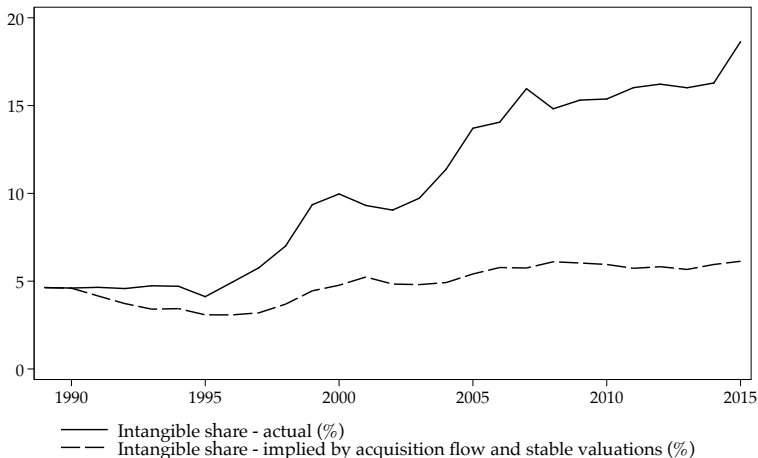
CONCENTRATION IN THE OIL & GAS SECTOR

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ACQUISITION ACTIVITY AND INTANGIBLE CAPITAL

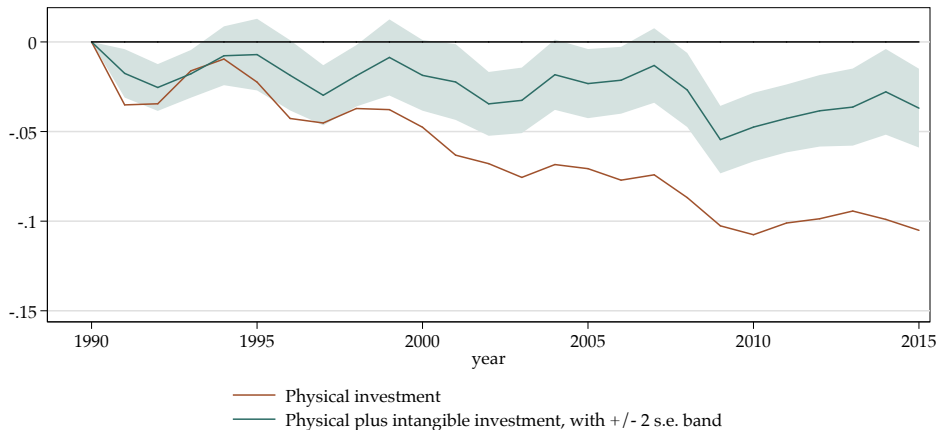
ACTUAL INTANGIBLE VS. IMPLIED BY ACQUISITION FLOWS



$$\text{Counterfactual (dotted line)} = \left(1 - \frac{1}{Q_{1989,1994}}\right) \times \text{acq. expenditures, cumulated}$$

INTANGIBLES AND THE INVESTMENT GAP

TIME EFFECTS IN INVESTMENT/Q REGRESSION, INCLUDE INTANGIBLE INVESTMENT



Intangible investment = net change in balance sheet intangibles + R&D + advertising