Data and Markups: a Macro-Finance Perspective
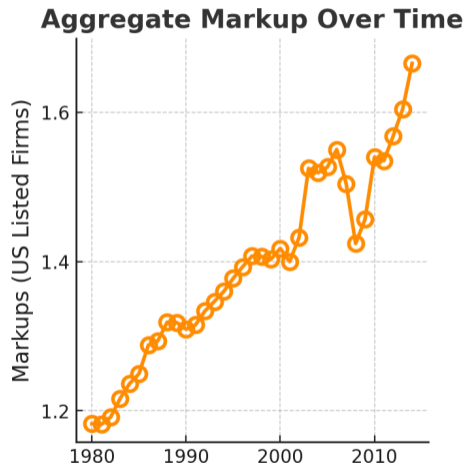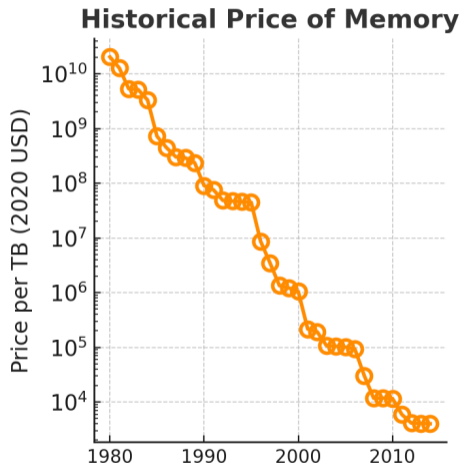
Jan Eeckhout and Laura Veldkamp - Discussion by Maarten De Ridder

Historical Price of Memory

Aggregate Markup Over Time

How are markups, market power, and prices related in the data economy?

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- Data enables firms to make more efficient decisions, e.g. by reducing uncertainty

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Rise in markups: seems like surplus extraction but actually reflects efficient decision making

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- Firm-level markups increase more: firms reallocate production to high-markup products

For anti-trust policy: clear that markups from efficient decision making offer no case for action

For monetary policy: important not to be simplistic about rise of markups

- Textbook view: increase in markups is a negative supply shock

- Full view: markups can be a positive supply shock if joint with cost+price reduction

Fantastic paper

- An original + intuitive way to think about production, uncertainty, and data

- Challenges textbook thinking on relationship between prices, markups and market power

- Compelling theory to explain recent trends in (various measures of) aggregate markups

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Discussion

1. Alternative mechanisms
2. Empirical evidence
3. Effects on business dynamism and growth

Comment 1: alternative mechanisms

Data that reduces uncertainty can also cause rent extraction. 2 examples:

1. Uncertainty about consumer types
   - Facilitates first-degree price discrimination
   - No change in equilibrium quantities, but (close to) full consumer surplus extraction

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1. Uncertainty about consumer types
   - Facilitates first-degree price discrimination
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2. Uncertainty about price-elasticity of demand
   - Say firms are risk averse (as in the paper)
   - Optimal markup under uncertain demand elasticity is lower than true optimal markup
   - Key difference: data could cause prices to rise and quantities to fall

Comment 2: empirical evidence

Paper is a theoretical contribution - need evidence to tell which story is true

Main testable predictions

- Data raises up-front investments: lower marginal costs, higher fixed costs

- Data raises markups, as long as up-front investments are feasible

- Data reduces the variance of earnings (!)

- Data raises the co-variance of firm-size and markups (!!)

A 'back of the envelope' empirical strategy

Premise: key driver of data collection and use of data in firm decisions is internet access

Broadband was rolled-out staggered in quasi-randomly way in France (Malgouyres et al. JIE 2021)

Test model's prediction by comparing pre and post-broadband roll-out cities for 2000-2008
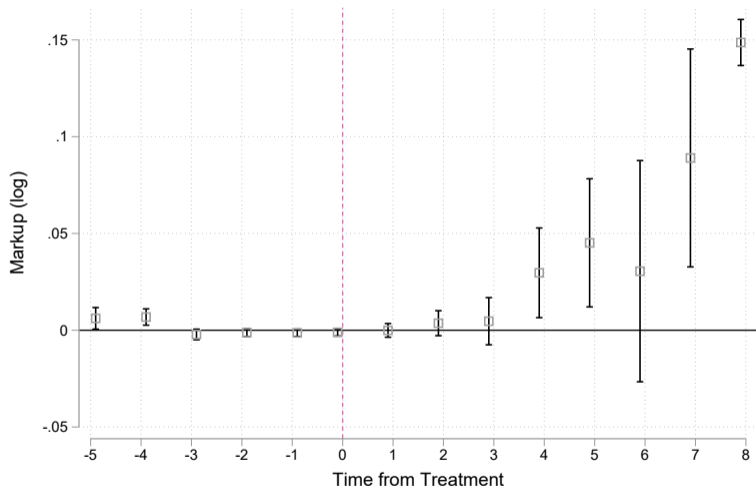
- Firms' markups: *Hitchhiker's Guide to Markup Estimation* (De Ridder, Grassi, Morzenti 2023)

- Up-front investments: wedge between markups and profits (De Ridder, AER 2024)

- City-block level data on access to broadband (Malgouyres et al., JIE 2021)

- Accounting data: balance sheet and income statement from FICUS-FARE (manufacturing)

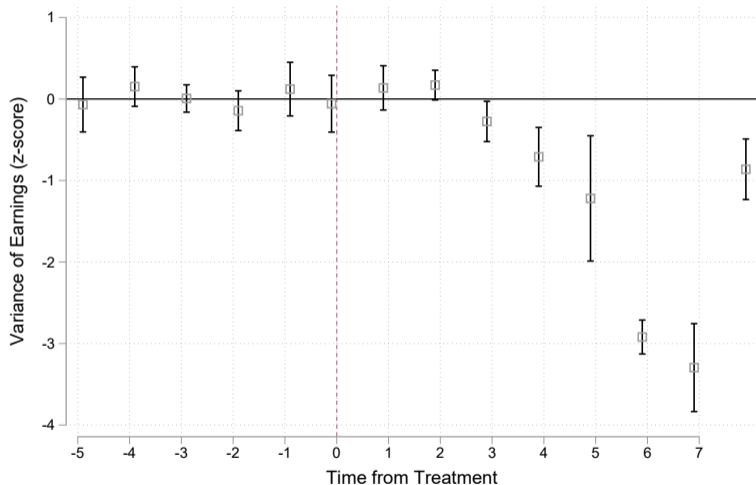# Prediction 1: rise in up-front investment vs variable costs
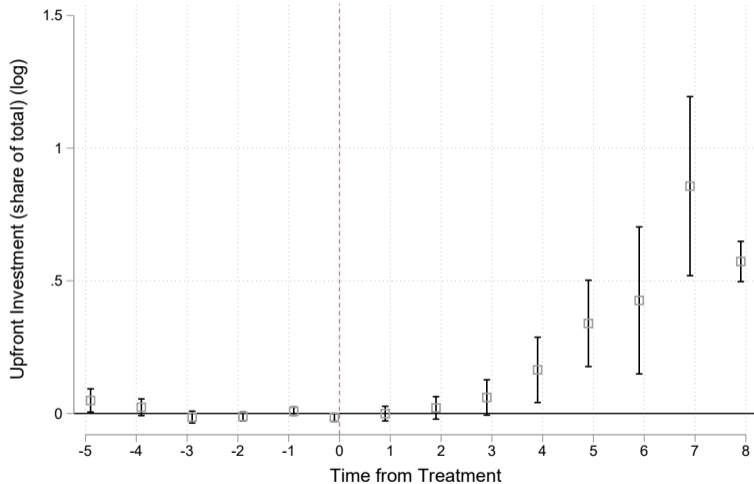
Results from Callaway and Sant'Anna (2021)'s estimator. Controls: Dep.-industry-year effects and firm effects.
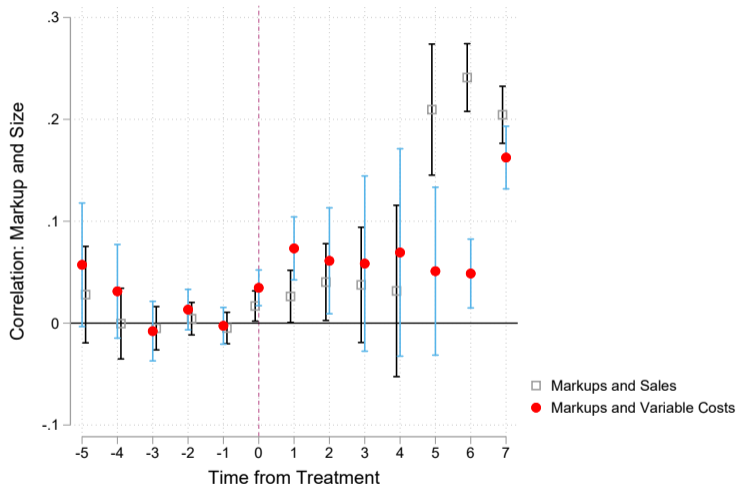
Prediction 2: increase in firm markups

Results from Callaway and Sant'Anna (2021)'s estimator. Controls: Dep.-industry-year effects and firm effects.

Results from Callaway and Sant'Anna (2021)'s estimator. Controls: Dep-year effects and city effects.

Prediction 4: increase in covariance between markups and size

Results from Callaway and Sant'Anna (2021)'s estimator. Controls: Dep-year effects and city effects.

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Next step: use direct information on firms' use of data

Data gives incumbent firms a competitive advantage: has a negative externality on potential entrants

Comment 3: adding business dynamism and growth

Data gives incumbent firms a competitive advantage: has a negative externality on potential entrants

Reasoning based on De Ridder (2024):

- Firms produce multiple goods, expand into other firms' markets (creative destruction)

- Consumers demand goods from firm with lowest quality-adjusted price

- World without data: innovating entrant always becomes producer

- World with data: incumbent has data and uses it to reduce marginal costs

- Incumbent can undercut entrant on price and prevent creative destruction by entrants

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Similar empirical predictions:

- Rise in markups + upfront investment, lower earnings variance, higher markup/size covariance

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Further empirical evidence needed to understand if paper captures main effects of data on consumers