# Discussion of "Technology-Driven Market Concentration through Idea Allocation"

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# THIS PAPER

▶ **Key contribution**: a technology-related explanation for the long-run increase in U.S. market concentration

fluctuations in technological novelty—defined through the emergence of breakthrough innovations—reshape the distribution of ideas across firms of different sizes and thus influence aggregate market structure

▶ **Empirical finding**: periods of high novelty are associated with declining concentration, partially driven by increased startup entry.

▶ **Model**: a partial equilibrium model in which inventors choose between joining incumbent firms or starting new ventures, accounting for adoption frictions, commercialization synergies, and contracting conditions

▶ **Quantitative performance**: 95.9% of the observed rise in U.S. market concentration and closely replicates its cyclical dynamics

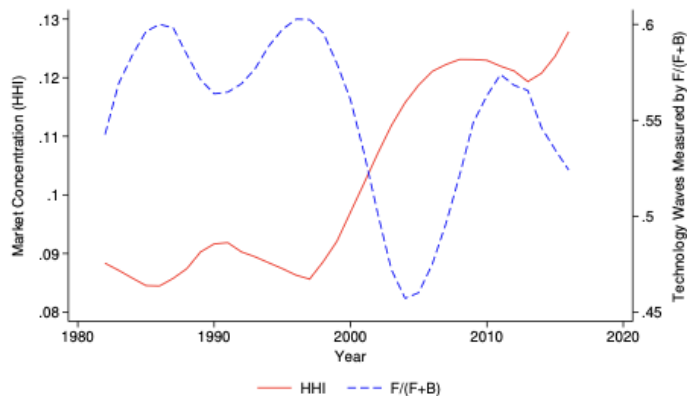# COMMENT #1: DELAYED EFFECTS OF NOVEL INNOVATIONS

► **Historical Examples: Blockchain Technology**

- David Chaum proposed a blockchain-like protocol in his **1982** dissertation.
- Haber and Stornetta introduced a cryptographically secure chain of blocks in **1991**.
- Merkle trees were added in **1992** to improve efficiency.
- The decentralized blockchain was only conceptualized by Nakamoto in **2008**.
- $\Rightarrow$ Significant delay between innovation and widespread impact.

# COMMENT #1: DELAYED EFFECTS OF NOVEL INNOVATIONS

► **Historical Examples: Blockchain Technology**

► Technological breakthroughs—especially truly novel ones—often exhibit long gestation periods before their economic or structural impact materializes. The same logic applies to academic research.

Panel B: Concentration and Tech Waves

$$\text{HHI}_{st} = \beta_0 \text{Novelty Index}_{st} + \beta_1 \text{Size}_{st} + \theta_s + \mu_t + \epsilon_{st}. \tag{4}$$

# COMMENT #1: DELAYED EFFECTS OF NOVEL INNOVATIONS

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► **Why should the impact of novelty patents on market concentration occur contemporaneously or within a two-year window?**

# Comment #1: Delayed Effects of Novel Innovations

▶ **Historical Examples: Blockchain Technology**

▶ Technological breakthroughs—especially truly novel ones—often exhibit long gestation periods before their economic or structural impact materializes. The same logic applies to academic research.

▶ **Why should the impact of novelty patents on market concentration occur contemporaneously or within a two-year window?**

▶ **Does technological novelty ultimately increase or decrease market concentration over the long run?** This remains inconclusive.

# COMMENT #2: PRODUCTIVITY VS. RETURNS TO SCALE

► **Does innovation increase the productivity level or alter the degree of returns to scale?** $y = Ak^s$

► This paper implicitly focuses on productivity level effects. (consistent with the ideas harder to find literature)

► But if novelty primarily influences returns to scale (e.g., by raising fixed cost and reducing marginal cost), it leads to rising market concentration

► Related literature:

  • **Kwon, Ma, and Zimmermann (2024)** – Long-run trends in concentration tied to scale economies
  • **Li, Ma, and Su (2024)** – Global shift in production functions toward higher markups and increasing returns (short-run decrease in HHI, but long-run increase in HHI) markup?

# COMMENT #3: CAUSAL INFERENCE

► The empirical analysis reveals a robust negative correlation between technological novelty and market concentration.

► However, **causality remains unaddressed**. Several concerns arise:

  • market concentration could suppress novelty (e.g., via strategic acquisitions, patent hoarding, or lobbying)
  • macro forces (e.g., globalization, policy regimes) may simultaneously influence both innovation and concentration

► Suggestions:

  • instrumental variables for technological novelty: e.g., exogenous shocks to scientific knowledge, variation in public R&D investment, or foreign patent flows.
  • explore industry-level variation and natural experiments where plausibly exogenous shifts occur.

► Strengthening causal identification would increase the empirical credibility of the main claims.

# COMMENT #4: POLICY IMPLICATIONS

▶ The paper has strong implications for market structure and innovation policy, but does not fully explore them.

▶ **Examples of potentially valuable policy experiments**:

- how would subsidizing startup formation or easing access to capital affect the equilibrium allocation of ideas?
- what are the welfare consequences of rising concentration when driven by declining novelty?
- could changes to IP or antitrust enforcement reshape inventor incentives and firm dynamics?

▶ Given the model's structure, it is well-suited to simulate these counterfactuals

▶ Incorporating even one or two such experiments would enhance the paper's relevance for policymakers

# COMMENT #5: STARTUP OWNERSHIP AND STRATEGIC CONTROL

▶ The paper assumes startups are independent actors—but many are backed or acquired by incumbents.

▶ Example: **Tencent's** common ownership across large segments of China's tech startup ecosystem.

▶ Relevant literature:

- **Common ownership**: potential coordination across firms with shared investors
- **Killer acquisitions**: incumbents may acquire startups to suppress future competition

▶ Consider discussing how common ownership or post-entry acquisitions may attenuate the deconcentration effect of novelty.
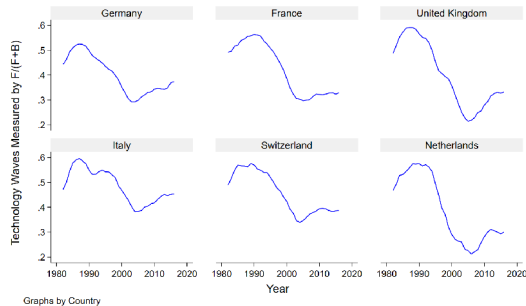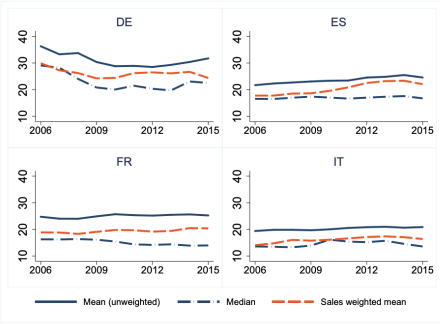
# COMMENT #6: EUROPEAN MARKET CONCENTRATION



Figure 14: Technological Waves in European Countries

Figure 2: $CR_4$ evolution over the period 2006-2015 by country

# Summary

- **An excellent and thought-provoking paper.**

- Tackles an important macroeconomic and industrial organization question.

- Offers strong empirical patterns and a creative theoretical framework.

- I learned a lot from reading it and look forward to future iterations.

- **Best of luck with the publication!**