

Surviving The FinTech Disruption

Wei Jiang, Yuehua Tang, Rachel Xiao, Vincent Yao

Discussion by:

Miao Ben Zhang

USC Marshall

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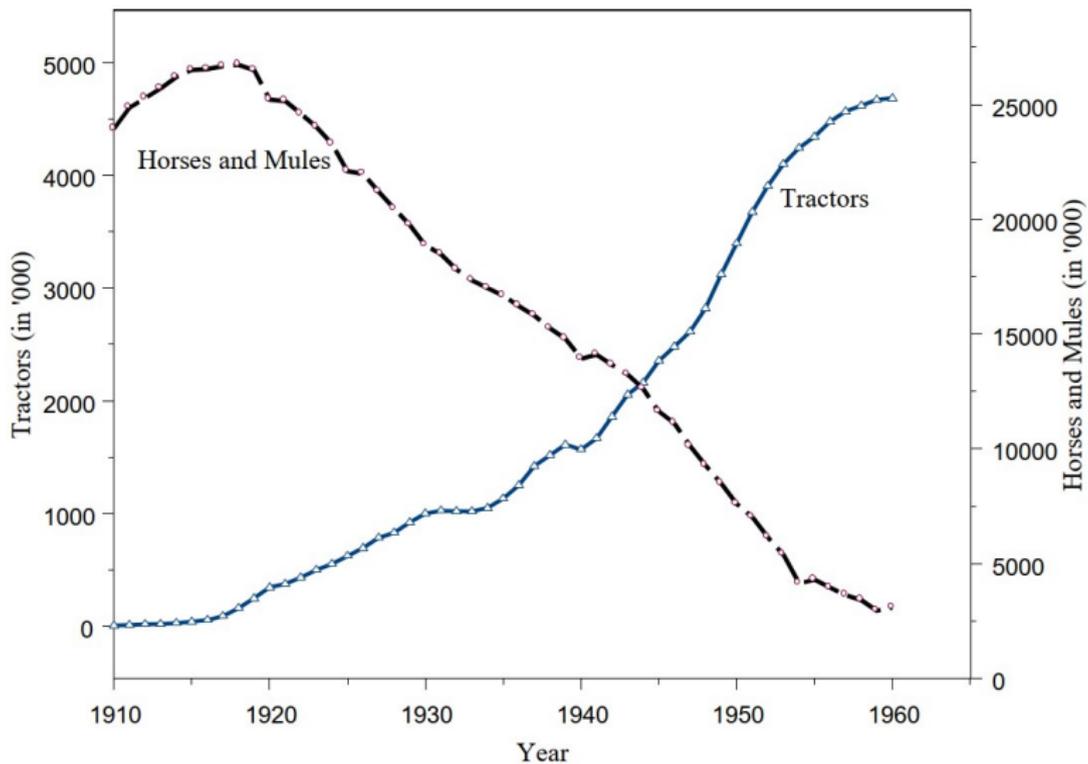
Background: Identifying technology disruption is difficult

Technology diffusion is a messy process:

- When will the impact take place?
 - It takes on average 10 years for a new technological product to diffuse from 10% to 90% of the full adoption level (Greenwood (1999))
 - E.g., Horses and Mules vs. Tractors (Manuelli and Seshadri (2014))

Graph

Horses and Mules vs. Tractors



Source: Manuelli and Seshadri (2014 AER)

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- **Who will be directly impacted?**
 - **Mechanized looms and knitting frames in 19th Century:** Luddites who are skilled textile workers (Wikipedia)
 - **Computerization in the 1980s-2000s:** Routine-task labor who are mid-skilled production and administrative workers (Autor, Levy, and Murnane (2003))
 - **Artificial intelligence in the 2010s:** Highly-educated and older workers but with substantial uncertainty on the direction (Webb (2020))

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A need for understanding the impact of FinTech—This Paper

This paper

A comprehensive examination of FinTech disruption

A novel measure:

- Occupations' *exposure* to FinTech
- Great skills on textual analyses and handling of massive textual data sets
- A benchmark measure for future studies on FinTech disruption
- Mid-skilled workers are most exposed (similar to Autor et al. (2003))

Rich empirical findings:

- 1 Firms *reduce* demand for FinTech-exposed occupations and *upskill* in hiring
- 2 Innovative firms respond less than non-innovative firms, and perform better
- 3 Firms that only acquire innovation do not perform better when exposed to FinTech disruption
- 4 ...

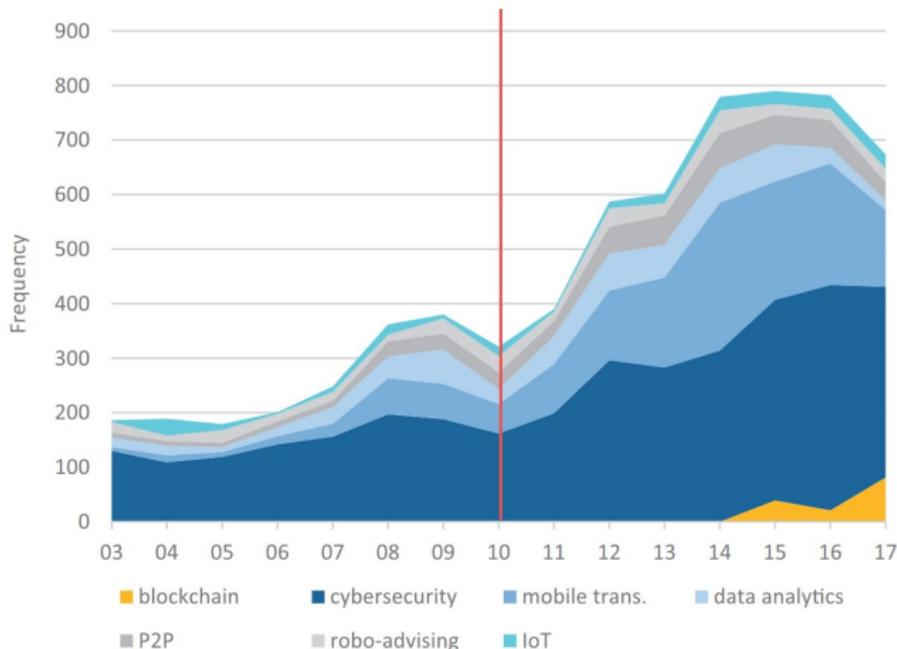
Outline

This is a very important paper. My discussion will focus on:

- Strengthening the measure and findings
 - ★ Is it plausible that we identify real effects of FinTech (so early)?
- Suggesting some implications of the novel findings
 - ★ This paper offers a buffet of novel findings that may change your prior. Where do they strike the most?

Comment 1: Can we identify the real effects of FinTech?

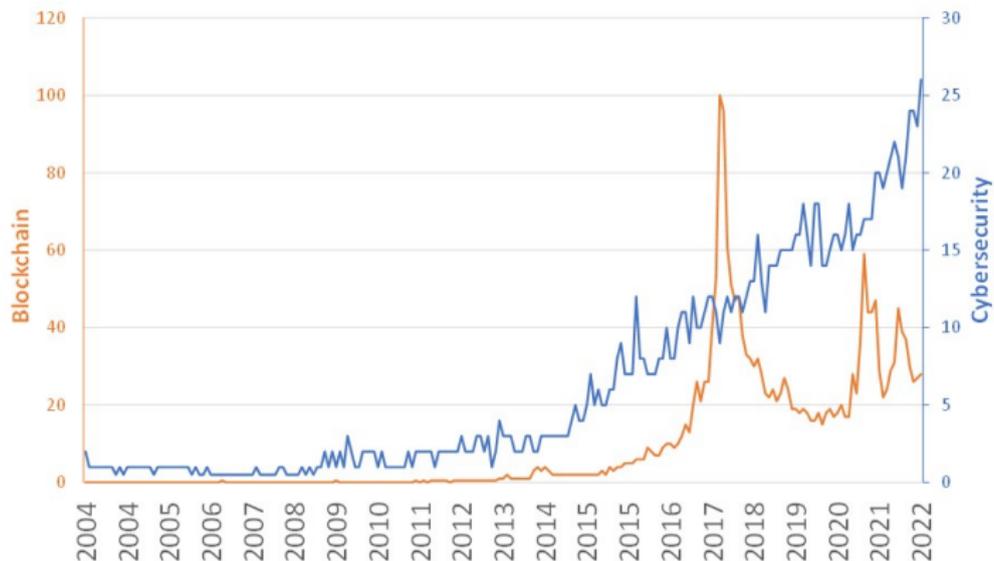
FinTech patenting increased rapidly after 2010 (Chen et al. (2019))



Source: Chen, Wu, and Yang (2019 RFS)

Comment 1: Can we identify the real effects of FinTech?

People barely Google “Cybersecurity” or “Blockchain” before 2010



Source: Google Trends

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- The sample in this study is 2010-2018, constrained by BGT job posting data
- The study regards 2010-2018 as the disrupting/treatment periods
- We can't inspect the pre-treatment periods, say before 2010
- Are we picking up FinTech disruption or some other trends?
 - ★ e.g., an influential paper by Beaudry and Green (2016) shows a “great reversal” in the demand for cognitive tasks after 2000 [Graph](#)

The Great Reversal

Supply of cognitive task keeps increasing post 2000 but total employment of cognitive task is flat after 2000 → Demand declines

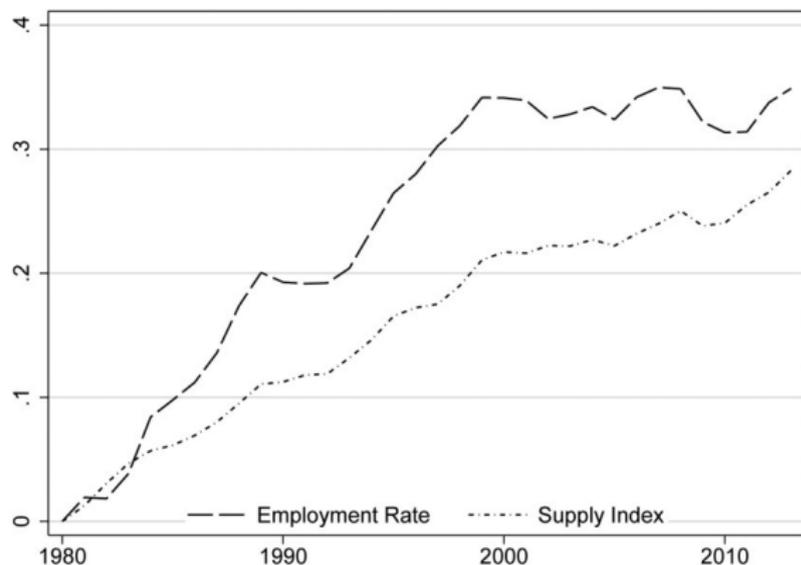


FIG. 6.—Cognitive employment rate and supply index. The employment rate is calculated as the total hours worked in cognitive jobs over the size of the workforce and plotted against the supply index as percentage growth since 1980.

Source: Beaudry and Green (2016 JLE)

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- **Suggestion 1:** Do we observe differential trends for FinTech-exposed occupations and other occupations before and after 2010?
 - ★ We don't have job postings before 2010, but we have occupational employment, e.g., from BLS-OEWS data

Comment 1: Can we identify the real effects of FinTech?

- Following the “slow technology diffusion” literature, 2010-2018 is at best the early disruption/adoption period, or even includes some pre-treatment years
 - e.g., The first blockchain patenting starts after 2014
- The paper currently shows the average effects of FinTech exposure across 2010-2018 based on cross-sectional regressions

$$\Delta Y_{o,t} = \beta_1 \cdot FT_{o,t-1} + \beta_2 \cdot X_o + \gamma_t + \varepsilon_{o,t}.$$

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- **Suggestion 2:** It seems more plausible that the effects come from the later years of 2010-2018.
 - ★ A subsample analyses or interacting FT variable with a year variable
 - ★ If there are differences in the time-series, can you also shed light on when FinTech disruption becomes stronger?
 - ★ Maybe use blockchain for a placebo test: Occupations exposed to blockchain may show impact later than those exposed to other FinTech

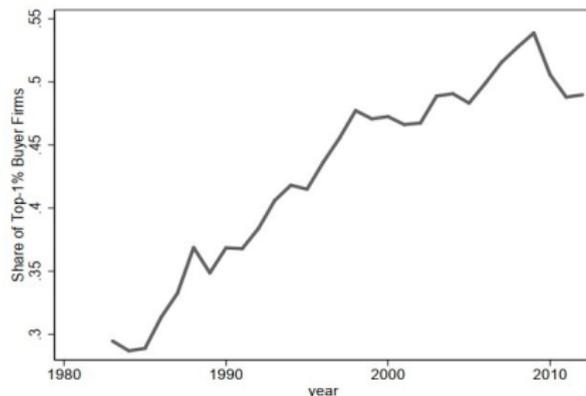
Comment 2: On the implication of the findings

This paper offers a buffet of novel findings that may change your prior.

Below, I will focus on the heterogeneous results of inventors and acquisition inventors

“Ten facts on declining business dynamism” (Akcigit and Ates (2020))

- Facts: Concentration and markups have risen, entry has declined, etc.
- Proposed explanation: Knowledge has become harder to diffuse
- Evidence: Top 1% patent buyer firms account for 50% of patent reassignments



Source: Akcigit and Ates (2020)

Comment 2: On the implication of the findings

A novel finding of this paper: Firms need to invent rather than just buy patents in order to perform well amid the FinTech disruption

- This is an important finding as it suggests that FinTech may break the trend
- “The FinTech Opportunity” (Philippon (2016))
 - ★ Incumbent banks disadvantageous in adopting FinTech
 - ★ “successive mergers have left many large banks with layers of legacy technologies that are at best partly integrated”

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- **Suggestion 3:** Can you speak to this literature using this novel finding?

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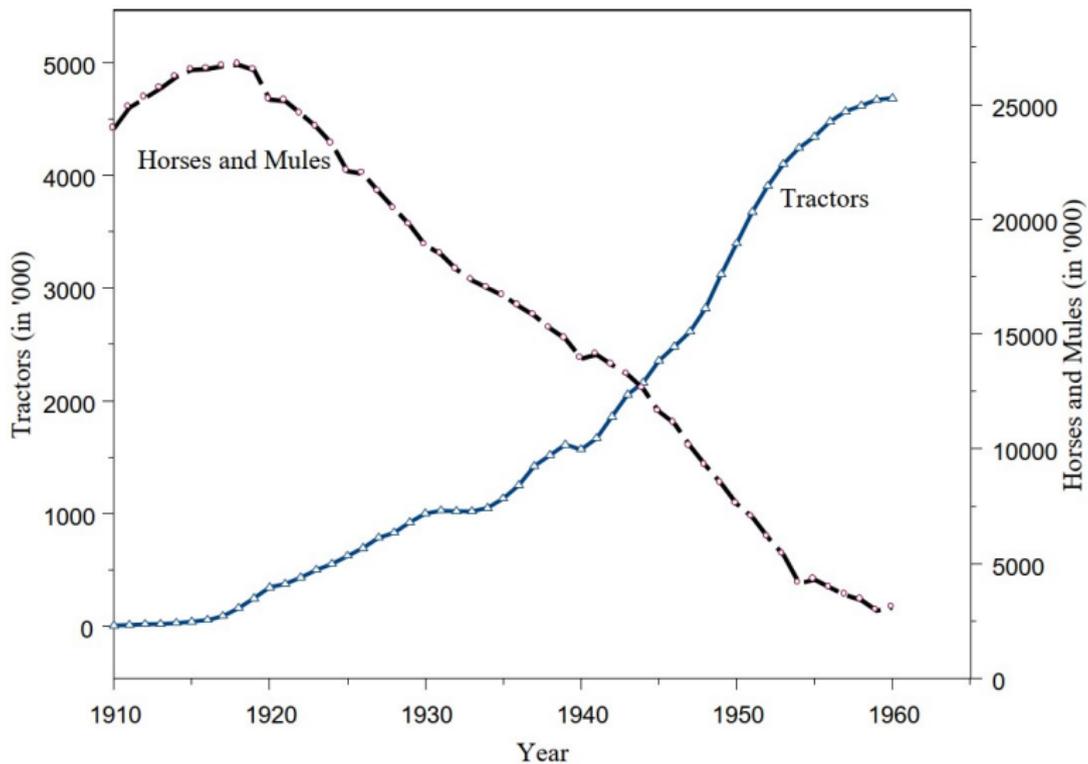
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- **Suggestion 3:** Can you speak to this literature using this novel finding?
 - ★ Why acquisition inventors do not perform as well as inventors amid FinTech disruption?
 - ★ Is it because FinTech patents are specific to a firms' infrastructure, like iOS versus Windows?
 - ★ Is it because of a selection issue that only low quality FinTech patents are reassigned?
 - ★ Is it because of a self-selection of firms into inventors and acquisition inventors? E.g., only unproductive firms acquire FinTech patents?

Conclusion

- An important paper with a big scope!
- A thorough analyses on how FinTech affects firms' hiring, patenting, performance
- These findings open the door to answering many timely and important questions
 - Can FinTech bring the “opportunity” to reverse the declining business dynamism as Thomas Philippon conjectured?
 - What is special about FinTech that made it diffuse so much faster than other technologies in the history?

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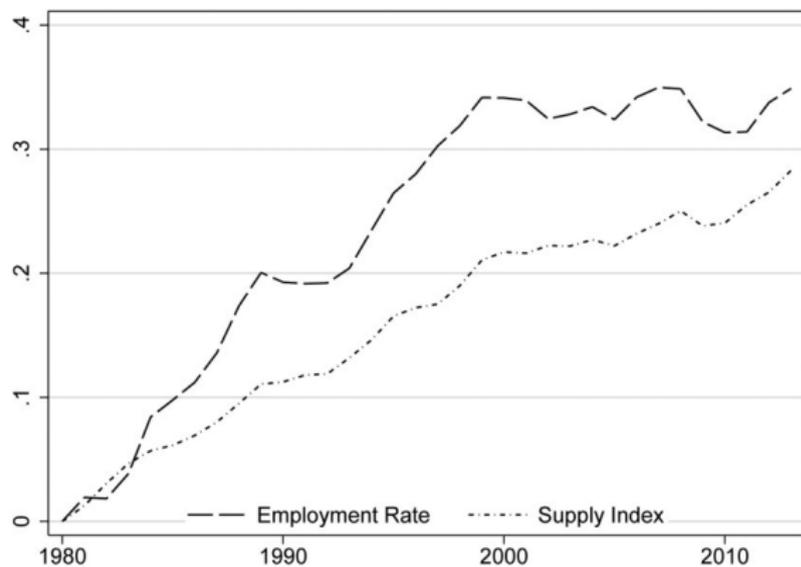


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