

Firms and Big Data: Adoption, Use and Impacts

by Alejandro Rabano

Discussed by Shasha Li

Halle Institute for Economic Research (IWH) and Magdeburg University (OVGU), Germany

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Summary

- Very interesting paper!
- RQ: How firms adopt big data from consumer and what are the real impacts?
 - A theoretical framework with search and ads posting: firms adopted big data have lower cost to process consumer preference info.
 - Empirical evidence from a French Business ICT survey (25000 firm-year obs in 2015, 2017, 2019).
- Big data adoption: (1) increases over time, especially for service firms; (2) increases with firm size; (3) associated with higher costs per employee and also higher markups.

Benefit and cost of big data

- This paper on benefit.
- In general, what info big data brings
 - Consumer demand (e.g., preference, quantity), Macro conditions (e.g., policy, sentiment), Knowledge (e.g., tech know-how, innovation, management skills), and more.
 - But also noise (fake news), cost (to collect, to digest), and so on.

Comment 1. about the model

- A small firm search model with ads + A quantitative model with both household and firm search.
- Personal view: a bit confusing to have two model sessions. Why model household search.
- Cost of ads?
- Cost of big data?
- Can information cost be negative (equation below if $t < g$)?

$$\lambda \int_{\varepsilon} t_{c,y}^{\lambda}(\varepsilon_j) \log \left(\frac{t_{c,y}^{\lambda}(\varepsilon_j)}{g(\varepsilon_j)} \right) d\varepsilon_j$$

Comment 2: about the empirical

- Big data in this paper: social media data.
- Survey question about big data adoption
 - During the previous year, has your company analyzed Big Data from the following sources?
 - 1 The company's own data from intelligent or connected objects, or sensors.
 - 2 Geolocation data from portable devices.
 - 3 Data generated by social media.
 - 4 Other sources of Big Data not specified above.
- Social media data use **vs** (other big data or no big data?)
- Firms: are we comparing apple to apple? (IT capacity, financials, etc). Match.

Comment 3. model talk to data

- Anecdotal evidence about social media data helps understand consumer preference.

Comment 4: miscellaneous

- Introduction: research question and contribution better highlight.
- Literature review: IT too broad; big data shorter; other literature.
- Grammar and structure: flow (roadmap); missing bracket for example p24.
- Notation and description: p5 distribution $g(\cdot)$ mass $g(\cdot)$; p10 $g(\cdot)$ uniform domain; p9 what is μ , and why use eqn 14 from the big model; p27 equilibrium, whose decisions ...

Conclusion

- Very promising research!
- Both theoretically and empirically show firm level Big Data adoption story and evidence.
- Many other future research possible.
- Look forward to seeing the next version and further developments.

Thanks!