Comments on
“Intangible Assets and Inter-firm Linkages over the Lifecycle of Firms: Theory and Firm-level Evidence”
by In Hwan Jo, Yukiko Saito, and Tatsuro Senga

Kaoru Hosono (Gakushuin U.)

December 14, 2018

RIETI - Hitotsubashi - Gakushuin - Toyo
International Workshop on Firm Dynamics

What the authors do.

- Build a model of industry dynamics incorporating organizational capital that is firm-specific and productivity enhancing.
- Apply the model to a firm-level dataset from Japan by regarding the number of buyers and sellers as organizational capital.
- Show that the model can replicate the age-linkages and age-productivity relationships observed in data.
- Quantitatively assess the role of maintenance (linkage) cost (χ_m) and upward adjustment cost (ξ_m) of organizational capital in the accumulation of organizational capital (i.e., # of linkages) and aggregate economy.
- Show that linkage cost amplifies productivity shocks and can trigger recessions on its own by displaying transitional dynamics.

My questions and comments

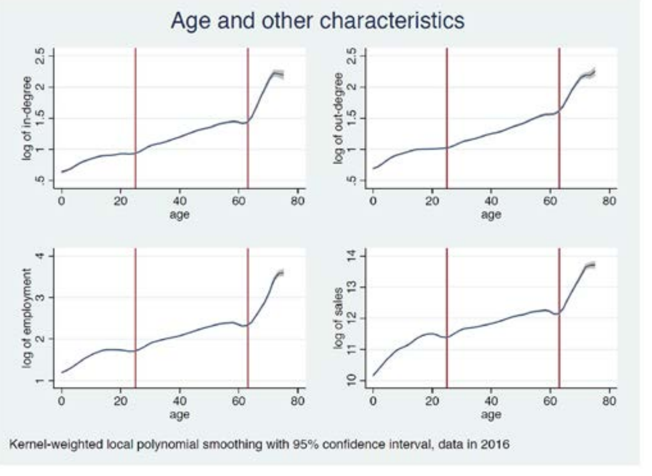
1. Can inter-firm linkages be interpreted as (a part of) organizational capital (or other intangible capital)?
2. What are the maintenance (linkage) costs of organizational capital?
3. What are the roles of inter-firm linkages in business cycles?
4. Data- and model-specific questions

Comment 1. Inter-firm linkages as organizational capital

- Intangibles cannot be observed by definition.
- Previous studies try to measure intangibles using either stock market or accounting information (e.g., Collard, Hulten and Sichel, 2009, JIW) .
- The authors propose a novel measure of organizational capital (or intangible capital): inter-firm linkages (i.e., # of sellers and buyers).

Comment 1. Inter-firm linkages as organizational capital

- The authors interpret a positive correlation between firm age and the number of suppliers/customers as suggesting that the latter is (a part of) organizational capital, because firms are supposed to accumulate organizational capital (and other intangibles) gradually over time due to adjustment costs.



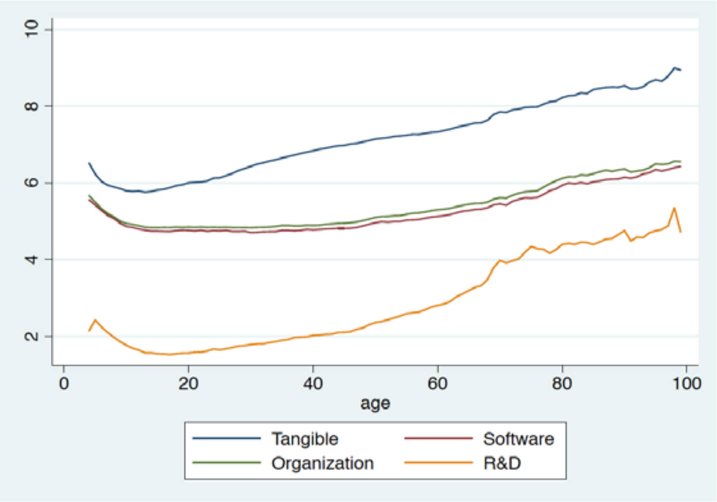
- The association b/w intangibles and inter-firm linkages is insightful, but the authors may want to discuss this association more deliberately.

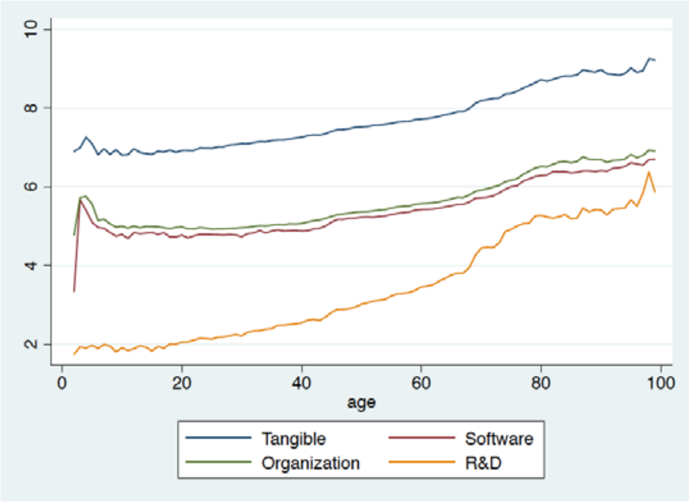
Comment 1. Inter-firm linkages as organizational capital

1. Inter-firm linkages are bilateral. Who invests in search for a partner and maintenance of the relationships, a buyer, a seller, or both? In principle, equilibrium models should take such a bilateral aspect into account.
2. Do firms' investment really cause a positive correlation between age-linkages? Or does selection mechanism work in a way that firms with more inter-frim linkages are more likely to survive?
3. Are inter-firm linkages correlated with conventionally measured organizational capital (and other intangible capital)?
4. Why does the number of linkages (extensive margin), rather than sales/purchase per partner (intensive margin) matter for firm growth?

Comment 1. Inter-firm linkages as organizational capital: example of conventional measure of OC

- Example of Q3: Hosono et al. (2018a) measure organizational capital based on the selling, general, and administrative expenses recorded in income statements, following Corrado et al. (2009), and show a positive correlation between age and organizational capital (and other types of intangible capital).
- Is # of buyers and sellers correlated with accounting-based OC across firms?
-





- Source. Hosono et al. (2018a)
- Note. Hosono et al. use the Basic Survey of Japanese Business Structure and Activities (BSJBSA)

Comment 2. What are the maintenance (linkage) costs?

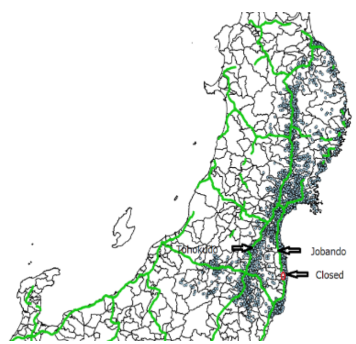
- Linkage costs plays a key role in amplifying productivity shocks and causing business cycles in their model.
- What are linkage costs?

✓Costs for modifying their products to meet customers’ or suppliers’ demands? Do such costs change over time?

- The authors may want to show some proxies for linkage costs and to provide evidence that these proxies actually fluctuate over business cycles.

Comment 2. What are the maintenance (linkage) costs?: example of linkage costs that is not investment

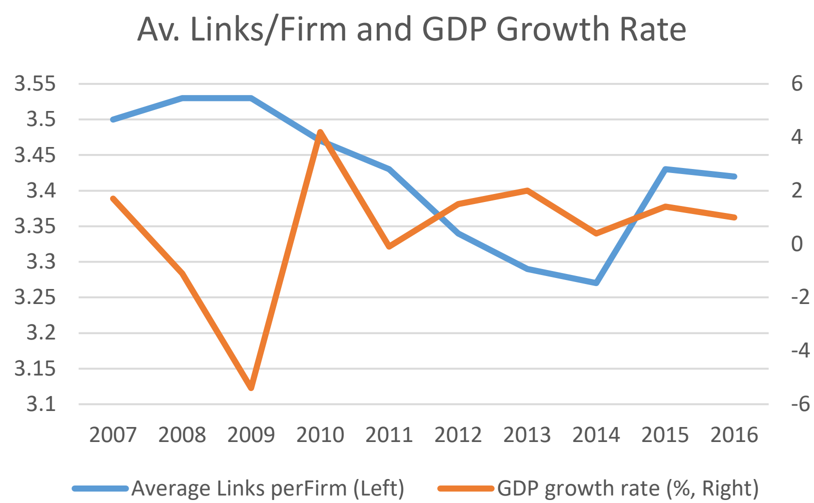
- Inter-firm linkages are likely to be newly formed or terminated for many other reasons than firm-specific investment in organizational capital.
- As an example, Hosono et al. (2018b) show that an exogenous increase in transportation costs, caused by the disruption of a highway due to the Tohoku Earthquake in Japan, increased the probability that inter-firm linkages are broken.
- They further show that disrupted inter-firm linkages deteriorated firm performance, suggesting that the extensive margin (# of linkages) matters.



- Source: Hosono et al. (2018b)

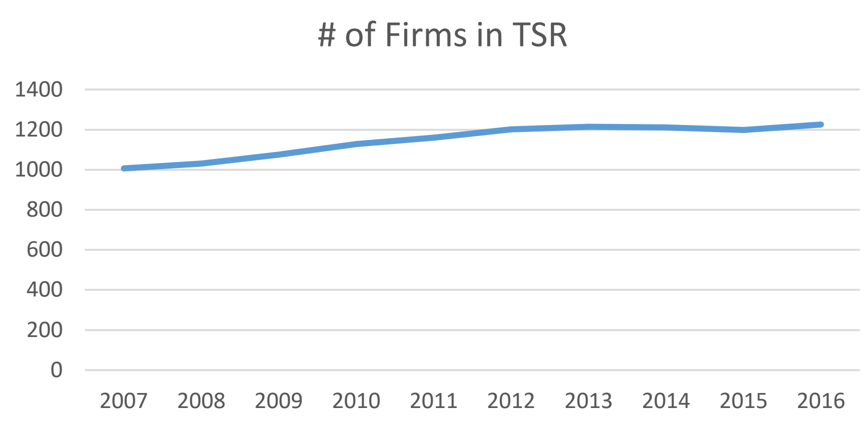
Comment 3. What are the roles of inter-firm linkages in business cycles: procyclical?

- Authors stress the role of the maintenance (linkage) costs and upward adjustment costs of organizational capital as a source and amplifying factors of business cycles.
- They suggest that inter-firm linkages are procyclical.
- However, the average number of links per firm seem to be weakly countercyclical (correl=-0.38).



Comment 4. Data- and Model-specific questions: Data

- The number of firms that are contained in the TSR database increased up to 2013. If smaller firms were more likely to be contained in the database over time, the average number of linkages was likely to decrease due to this data selection, because small firms tend to have fewer links.
- If so, it might be misleading to focus on the observation that the average no. of links in Japan fell between 2011 and 2014.



Comment 4. Data- and model-specific questions: Model

- Assumption

✓Why external finance for investment in physical capital (k') is not allowed?

- Steady State

✓ Why does TFP_{knm} increase with age even after controlling for intangibles(m)?

Conclusion

- Viewing inter-firm linkages as organizational capital and analyzing their role in business cycles and growth are novel and promising.
- More deliberate discussion will make this view more convincing.

References

- Hosono, K., M. Takizawa, and K. Yamanouchi (2018a) “Firm Age, Productivity, and Intangible Capital,” working paper.
- Hosono, K., D. Miyakawa, A. Ono, H. Uchida, I. Uesugi (2018b) “Damage to Transport Infrastructure and Disruption of Interfirm Transactional Relationships” working paper.