Geographical Concentration of Inter-Organizational Collaborations

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Research Question

Does geographical proximity enhance knowledge spillover?

• Focus: spillover through Inter-organizational (estab) collaboration
  – The authors consider this as a Source of implicit knowledge spillover (cf. Explicit knowledge: patent citation)
  – Do Inter-org collaborations occur b/w orgs located close to each other?

• Knowledge spillover
  – External economies => agglomeration/localization
  – Collaboration => Does knowledge spill? External economies? => pecuniary agglomeration/localization economies
    • Better to specify what “implicit” means?

  – Patent citation vs collaboration
    • Helpful to consider a mechanism behind a firm’s decision for collaboration
      – Patent citation: it is possible to cite a patent applied far away. Yet we find localization
      – Collaboration: requires firms to be physically close by
Data and Method

• Data: Patent data (1993 to 2010)
  – Include all the patents
    • Inventor (address): organization/establishment
    • Assigner (name and address): firm

• Method
  – Focus on bilateral distances b/w collaborating orgs
    • Relative density:
      \[ \text{Density of bilateral dist b/w collaborating org w/ a particular-class patent} \]
      \[ \text{Density of dist b/w the pairs randomly drawn from all the orgs w/ a particular-class patent} \]
    – A collaboration may involve two or more orgs
      • What is the distribution of the N of collaborators per patent?
      • How does the distribution of an average distance for a group look like?
        – Is it possible that the collaboration localization found here reflects a small number of group consisting many closely located estabs?

• Max dist, weighted avg dist, etc ➔ How does a collaboration group is formed?
  – Distance to HQs (address of assigner)
• Potential pairs
  – How about taking into account the difference in industry b/w orgs?

  – To the extent that the same-ind estabs are localized, incorporating this would strengthen their results
Finding: Collaboration distance (relative density)

- “Localization degree” (by Duranton & Overman) also supports that the collaboration is localized!

- Implicit knowledge spillover \(\rightarrow\) Agglomeration?
  - From the authors’ findings, we cannot discuss causality
    - Firm location: endogenous?
      - Does a firm locate its estab closer to potential collaborators?
      - Does a firm assign a particular innovative project for the estabs close to each other?
Finding: Within-firm vs bw-firm collaboration: Firm border effects

- Extent of localization is greater in bw-firm collaboration than in within-firm collaboration
- For bw-firm collaboration, the degree of localization is much higher!
• Greater localization degree for bw-firm collaborations
  – What to take out from here?
    • Is geographical proximity required to overcome a firm boundary?

– Within-firm collaboration
  • Reverse causality?
    – Does a firm chose geographically close locations for the estabs to collaborate?
    – Still, support the idea that location matters for collaboration
  • Collaborate or not collaborate?
    – If the proximity is important for collaboration, a firm may decide to put all the necessary
      functions into a single estab
      => This is not considered as a collaboration

– Some basic statistics would be helpful
  • % of single estab w/ patents

– What does ratios tell us?
  • Within-firm collaborations: 35.5%
  • Bw-firm collaborations: 64.5%
Findings: Firm-size effect on collaboration

Extent of localization is larger in small firm.
Finding: Single and multi-estab firms:

- **Collaboration**
  1. B/w single- and single-estab firms (%)?
  2. B/w single- and multi-estab firms (%)?
  3. B/w multi- and multi-estab firms (%)?

- **Percentage?**
  - Before considering geography, which specific collaborations occur more often than the case with random drawing?

- Both 1 and 2 are the collaborations across a firm border
  - Given that, why are the collaborations in 1 more localized? (with more localization degree?)
Summary

• The paper helps us to understand the role of geography/distance on collaboration
  – Implicit knowledge spillover (more explanation)

• The paper may benefit by including
  – More description on a firm’s decision to choose which estabs for collaboration
  – Discussion about causality
    • Any way to utilize time-series?
  – Some measures at a collaborating-group level
    • Use firm (HQ) address information
  – Analysis with estabs without collaborators
    • Maybe the most localized collaboration
  – Some explanations on the ratio of different kind of collaborations