Cluster and Co-located Cluster Effects: An Empirical Study of Six Chinese City Regions

Discussion of Lu et al. (2016)

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General Impression

- Well-structured and written
- Deeply rooted in literature (109 references)
- **Sophisticated methodology** carefully executed and **reflected** (from a layperson’s perspective)
  - multilevel regression
  - checks for endogeneity: multicollinearity, reverse causality, unobservable factors (p. 1991)
  - control variables and (industry & city) fixed effects
  - including contingencies and limitations
- Quantitative approach to **cluster life cycles**
- Allows for some **real-world interpretations**
### Structure of Tested Relations

<table>
<thead>
<tr>
<th>Size of focal industry/cluster</th>
<th>1) Localization economies</th>
<th>TFP of focal industry/cluster</th>
</tr>
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<tbody>
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<td>☐ size of local <strong>emerging</strong> clusters</td>
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2) direct co-location effects

3) mediating co-location effects: regional environment (cluster identity & lock-ins)

- **Size of focal industry/cluster**
  - 1) Localization economies
  - TFP of focal industry/cluster

Figure drawn after Lu et al. (2016, p. 1986)

*Cluster and Co-located Cluster Effects: Comment on Lu et al. (2016)*

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Structure of Tested Relations: Model Results

1) Localization economies

2) Direct co-location effects

3) Mediating co-location effects: regional environment (cluster identity & lock-ins)

Size of focal industry/cluster

1) Localization economies

TFP of focal industry/cluster

Size of local emerging clusters

Size of local mature clusters

Size of local declining clusters

Figure drawn after Lu et al. (2016, p. 1986)
Methodological Choices as Contingencies

- **Cluster definition and threshold** (LQ > 1)
  - “[F]uzziness shows the beauty of cluster theory...” (p. 1988)

- Number of **firms** as basis for LQ

- Choice of **region** (PRD = growing multi-cluster region)
  - vs. ‘Upas tree effect’ in rustbelt regions (cf. Checkland 1976)

- Level of **aggregation**
  - geographical space: 6 city-regions, pop. 1.8 m to 12.9 m, but one metropolitan region (PRD megalopolis)
  - What is an industry? ⇒ n = 2,661?! ⇒ 63 clusters (table 1)

- Classifying **clusters by life cycle stages**
  - arbitrary **thresholds**
  - LQf, rather than number of firms or employment growth ⇒ cluster growth only **relative to national industry average** ⇒ LQf might still grow if cluster declines, but not as fast as the industry nationwide!
Limitations

- **Clusters** = industries with LQ > 1
  - LQ measures only concentration of firms
  - threshold “hard for some scholars to accept” (p. 1988)
  - confined to cities?
- **Complexity** of real-world clusters not captured
  - industry relatedness
    - Urbanization vs. localization economies ⇔ related variety (cf. Frenken et al. 2007)
    - Overlapping knowledge bases ⇔ inter-industry knowledge spillovers
  - co-operation, institutions, socio-cultural embeddedness and political dimension
- **Research outlook** confined to chosen methodological frame ⇔ need for plurality of methods combining
  - econometric modelling
  - cluster identification ⇔ social network & value chain analysis (cf. Bergman/Feser 1999, ch. 3)
  - case study evidence
- **Policy implication** = multi-cluster approach
  - neither new nor differentiated
References

http://www.rri.wvu.edu/WebBook/Bergman-Feser/contents.htm [05.12.2016].


