**INTRODUCTION**

Firms in large markets have higher productivities. This has been traditionally attributed to agglomeration economies. However, another factor causing higher productivity could be on account of selection due to competition which may cause low productivity firms to exit from large market. Science parks are planned clusters where firms are likely to benefit from agglomeration namely sharing, pooling and knowledge spillovers.

**OBJECTIVES/QUESTIONS**

- Are firms located in a science park leading or lagging those located in large and small cities in terms of TFP?
- How do agglomeration and selection parameters affect firm’s TFP?
- Do firms belonging to different industries equally benefit from agglomeration economies?

**METHODS**

- Firm’s log TFP measured using Olley and Pakes (1996) and IV/2SLS methods used to control for simultaneity and selectivity bias.
- TFP distributions compared using summary stats and non-parametric quantile - quantile plots.
- IQR, median and 10th percentile used to measure dispersion, shift and truncation of TFP distributions.
- Above measures used in regression to determine impact of agglomeration and selection on firm’s TFP.
- Estimate and compare the TFP distributions for firms belonging to different industries.

**RESULTS**

- Summary Stats show that large cities have highest TFP mean, largest dispersion (IQR) and greatest truncation (10th percentile).

<table>
<thead>
<tr>
<th>Summary Stats</th>
<th>N</th>
<th>Mean</th>
<th>Max</th>
<th>IQR</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>1698</td>
<td>754</td>
<td>1252</td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>12.12</td>
<td>7.66</td>
<td>11.91</td>
<td></td>
</tr>
<tr>
<td>Max</td>
<td>16.91</td>
<td>11.21</td>
<td>16.73</td>
<td></td>
</tr>
<tr>
<td>IQR</td>
<td>1.53</td>
<td>1.19</td>
<td>1.50</td>
<td></td>
</tr>
<tr>
<td>10-tile</td>
<td>10.70</td>
<td>6.53</td>
<td>10.51</td>
<td></td>
</tr>
<tr>
<td>Median</td>
<td>12.05</td>
<td>7.63</td>
<td>11.85</td>
<td></td>
</tr>
</tbody>
</table>

- Kernel density plot indicates that science parks TFP distributions lag firms in large cities but lead firms in small cities.
- Box-plots of TFP distributions confirm and depict more vividly.

**CONCLUSION**

- Firms located in science parks have a mean TFP lagging those of large cities and leading those of small cities.
- Firms in large cities have greatest dispersion and highest left truncation in TFP distribution.
- Firms located in science parks benefit from localization and specialization. Firms classified under NAICS 334 thus benefit from labor pooling, input sharing and knowledge spillovers.
- Firms located in large cities benefit from diversification but are negatively affected by localization due to higher competition.
- Greater labor density causes greater left truncation of the TFP distribution.

**REFERENCES**


**ACKNOWLEDGEMENT**

The data used are from EMIS available via OSU libraries. The data used are for the years 2009-2011. I also used data available on ROC government and science parks websites.

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