Market access and firm performance: evidence based on GIS analysis of road network & manufacturing plant data of India by Sonnath Sharma et al.

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Brief recap of paper

• Central research questions:
  1. Are Indian firms that have better market access more profitable?
  2. Does better market access for a state’s firms reduce the dispersion in returns on assets?

• Questions are addressed by combining micro firm data from Annual Survey of Industries for 2001-2015 with a measure of market access (MA)

• MA measure constructed at district level using Open Street Maps data and based on driving distances through road network

• For Q2, state level panel regressions (TWFE) - a measure of dispersion of returns on MA (average across districts) and controls

• Main finding: Better market access $\rightarrow$ ↓ dispersion of returns
Overall impressions

- **Interesting and important research questions:**
  - Lots of previous research on impacts of $\uparrow$ transport connectivity on wages & local incomes, but less on impacts on firm profitability
  - Little previous research on impacts of $\uparrow$ connectivity on efficiency of resource allocation across firms

- **Great underlying data!** Authors do a nice job of assembling a panel of 652,864 enterprises & district-level MA measure based on combination of OSM ($\Rightarrow$ not only capturing major roads) & lights data

- **Important policy implication:** Finding that $\uparrow$ MA $\rightarrow$ $\downarrow$ dispersion of returns strengthens case for investing in roads

- **But paper is still clearly an early draft $\Rightarrow$ natural room for improvement**
Comments, questions, suggestions

• Paper only currently addresses one of its two research questions - no results on whether better MA is associated with improved firm profitability
  • Should be easy to resolve given data - estimate firm-level regressions

• Construction of market access measure:
  • $MA_i = \sum_j (NTL_j / (d_{ij})^\theta$
  • $\theta = 2$ is assumed without discussion, but why 2? Large literature on estimating $\theta$ that could refer to. Room for robustness checks
  • $d$ is measured as driving distance, but why not driving time?
  • Consider using major population centers instead of district centroids as points between which $d_{ij}$ is calculated
  • What about international market access? Could measure as, e.g., distance to nearest international port
  • Quality of OSM may be geographically uneven - has this been investigated?
Comments, questions, suggestions

- Why state-level regressions?
  - Aggregates much of the underlying richness in the data...
  - Is this because ASI lacks geographic identifiers below the state???
  - For research Q1, why not firm level regressions? For research Q2, possible to consider district-level regressions also???

- Clarify where the identifying variation is coming from:
  - \( \text{ROADispersion}_{s,t} = \beta_1 \text{MAI}_{s,t} + (\text{state FE}) + (\text{time FE}) + \nu_{s,t} \)
  - Inclusion of state FE \( \Rightarrow \beta_1 \) identified based on within-state variation in MAI
  - Given that NTL is measured only for 2014 \( \Rightarrow \) variation in MAI must come from temporal (annual) variation in road network coverage
  - Be useful to describe & give an overview of this variation

- Suggest less detail on GIS techniques (which are standard), more on identification strategy, discussion of results & robustness