Transportation, Jobs, and Social Networks

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October 22, 2015
Where will the jobs be?

• Simple view - jobs in transportation and warehousing sector
• Story - Centerpoint Joliet
• Which sectors
  • show impact on jobs?
  • accelerate job growth?
  • in which other sectors?
Value creation drives jobs
Leontief IO matrix

- TR matrix $L \rightarrow$ network
- $\$value$ input by supply/$\$output$ by consumer
- $V = L \cdot O$
- $(P - MC) = (1/e) P$
- Prune the matrix!
- Recognition level .01
- Looks same 2012, 2014, 2022
Past SNA

- Facebook, Twitter, infection
- IO matrix models supply chains.
- Weighted directed network.
- Past - studied entire network
  - node measures - degree or betweenness centrality;
  - network measures - density, centralization
- Rule for excluding weak links.
  - Recognition level

Our study

- ‘Egocentric’ view of the network.
- **Egonet**.
- Individual sector (the ego).
- Personal network of neighbor sectors one hop away (the alters).
- Productivity-like measure to gauge ego sector effect (Leverage or Efficiency).
Steps in Process

Algorithm
- Input TR matrix
- Prune matrix
  - Recognition level .01 or 1%
- Create & image weighted network
- For each sector:
  - Find & image egonet
  - Calculate V, VA, E
- Plot measures E vs V, display E/V
Egonets – Where benefits flow
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<tr>
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## Dense and sparse Egonet Measures

<table>
<thead>
<tr>
<th>Sector</th>
<th>Type</th>
<th>Value V</th>
<th>Efficiency E</th>
<th>E/V (x10^3)</th>
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\[ V = \text{value(ego)} \quad \text{VA}=\text{value(alters)} \quad E = \frac{\text{VA}}{V} \]
Quadrants of Leverage

• Plot Efficiency vs Value put out by ego
• Best quadrant is III
• Sector takes low margin ...
• For bigger margins in alters