The Spatial Structure of American Employment

Where are the Jobs?

Are they here?

Or here?

Are they here?
Scholars: US Cities have Dispersed Employment

Fig. 2. Los Angeles CMSA.

Scholars: US Cities have Dispersed Employment

Fig. 3. Employment and population centralization (120 MSAs).

LODES Data Allows us to Map Jobs

Where Are The Jobs?  Employment in America, 2010
How do you make something like this?

- Idea is from the racial dot map, and code is based on the pu
- Code is adapted from the racial dot map code, and available at https://github.com/rmanduca/jobmaps
- First go through LODES files and pick one random point per job within each census block
- Then plot all the dots onto square png map tiles
- Tiles are aggregated into a map using leaflet.js
Initial takeaways from exploring the map

- Jobs are much more concentrated than (I at least) believed
- Downtowns still have a large number of jobs
- Suburban jobs are frequently clustered into subcenters or corridors
  - In contrast to residences, which are spread far more evenly throughout the metro area
Concentration of Jobs

- 89% of all jobs are in blocks with job densities > 500/sqkm
- 70% of all jobs in blocks with densities > 2000/km
  - In Minneapolis-St Paul, just 16 square km of land holds 70% of all jobs
  - The city of Minneapolis proper is 151 sqkm in area, and the Twin Cities urban area is 2646 sqkm
What do 2000 jobs / sqkm look like?
What do 2000 jobs / sqkm look like?

40 Jobs on one city block
What do 2000 jobs / sqkm look like?

200 Jobs in a big suburban development
What do 1000 jobs / sqkm look like?

17 Jobs on one city block
How to square job concentration with previous results?

- Provided that previous results are accurate, jobs are not concentrated in downtowns
- However, they are still concentrated
- Squaring these two statements requires thinking in two dimensions
Concentration Analysis in Two Dimensions
Distance from CBD vs Cumulative Density

Cumulative Distribution of Employment and Population from CBD, Los Angeles-Long Beach-Santa Ana, CA Metro Area

Cumulative Distribution of Employment and Population vs Area, Los Angeles-Long Beach-Santa Ana, CA Metro Area
If jobs tend to be concentrated, then it’s useful to be able to find and identify concentrations.

One way to do this is to simply group nearby blocks together when all are above a concentration threshold.

Subcenters are blocks with > 2000 jobs / sq km (8 jobs per acre).

Idea is to

Two blocks are part of the same subcenter if they are adjacent, or if their centroids are less than 200m apart.
Example: The Bay Area

Business Districts of the SF Bay Area, Scaled by Employment
Some findings on subcenters

- In almost all cities, the largest subcenter contains the historic downtown.

- In most cases, the largest subcenter holds 5-10% of all jobs in the MSA, and about 10% of jobs within subcenters.

- The distribution of employment among subcenters looks a bit like a power law, but not quite.
Thank you!

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