



ECONOMIC  
INNOVATION  
GROUP

# Persistently poor, left- behind and chronically disconnected

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# Research Question

Why do places have a harder time climbing out of poverty than individual people?

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**2.2%**

Total population  
Experience chronic  
poverty

**34.0%**

Total population  
Experience “short”  
spells of poverty

**11**

Months  
The median spell  
below the poverty  
line lasts around

# Research Question

Why do places have a harder time climbing out of poverty than individual people?

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## Persistent Poverty

Registered a poverty rate of at least 20% for three decades

400

US counties

~13.5%

Census tracts

## Research Question



Why do places have a harder time climbing out of poverty than individual people? Why do some areas stay poor for so long?

Theory suggests convergent mechanisms: migration, transfers, input cost differentials

Places remain in a state of persistent poverty when enough economic and social ties break to effectively disconnect them from the broader economy

# Data Puzzle

How can we measure a “disconnect” between economic and social ties?

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## Where people live

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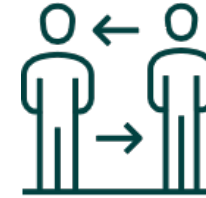
Do we sort into different places according to economic capacity?



## Where people work

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Structural reasons for types of work/income to segregate?



## Connection between

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Degree of interaction across employment and residential location types

# Data Puzzle

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- LEHD Origin-Destination Employment Statistics (LODES) - provides a direct measure of economic connectivity among locations
- Using “lehdr” package in R, we pull info on “Private Primary jobs” among those workers with their workplace and residence in the state

from	to	total_jobs
17031081800	17031839100	1933
17031280100	17031839100	1194
17031081403	17031839100	1133
17031839000	17031839100	1083

from	to	total_jobs
6037131701	6001400200	1
6037141302	6001400200	1
6037227020	6001400200	1
6037138000	6001400300	1

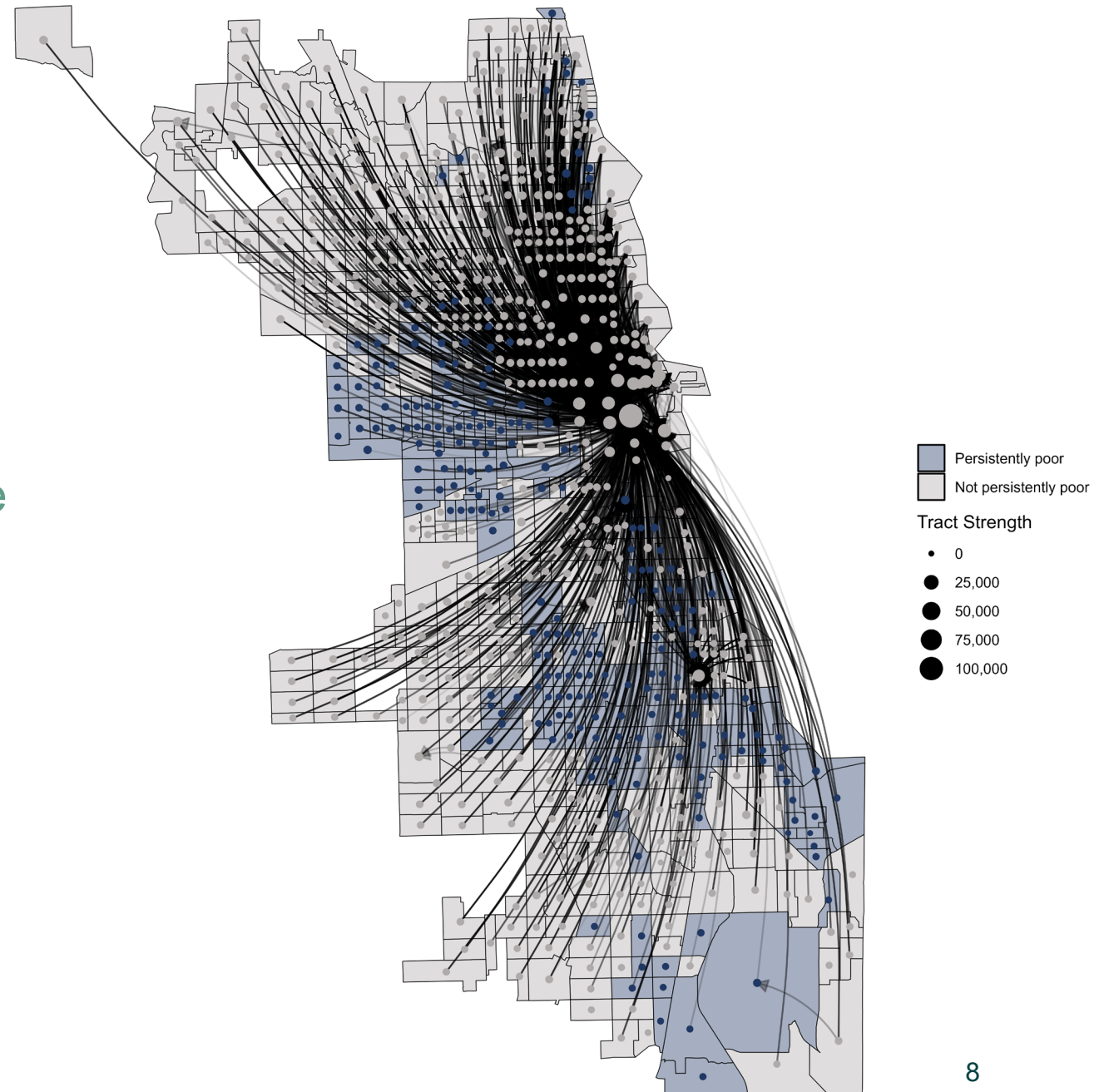
# Data Puzzle

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- A single commute between tracts, “nodes,” could be viewed as a network’s “edge.”
  - Within a metro, the network is very dense
  - Can explore:
    - Directed networks:
      - An edge includes the direction of job flow.
      - Two “edges” per tract pair.
    - Weighted networks:
      - Weight some edges more than others by the “number of jobs.”
      - “Strength” - Summing up the edge weights of the adjacent edges for each vertex.
    - Trimmed networks:
      - Keep only the edges/nodes that pass some criteria cutoff.
      - Easy subset but try to avoid throwing out data.

# Chicago, IL

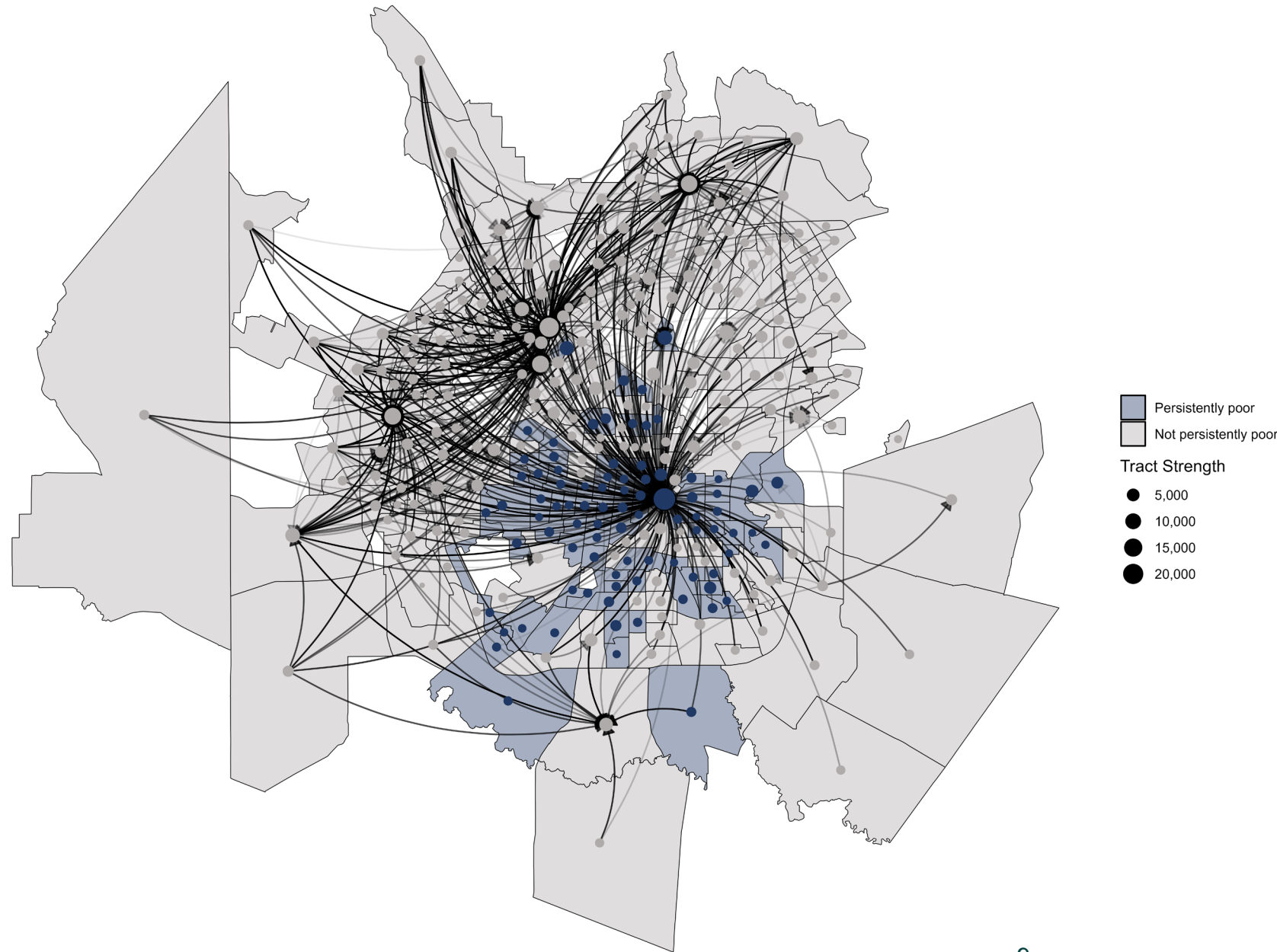
- Significant flow of jobs from the north toward the central business district
- A ratio of 0.53 jobs in a median persistently poor tract (524) to a single job in a median not persistently poor tract (983)





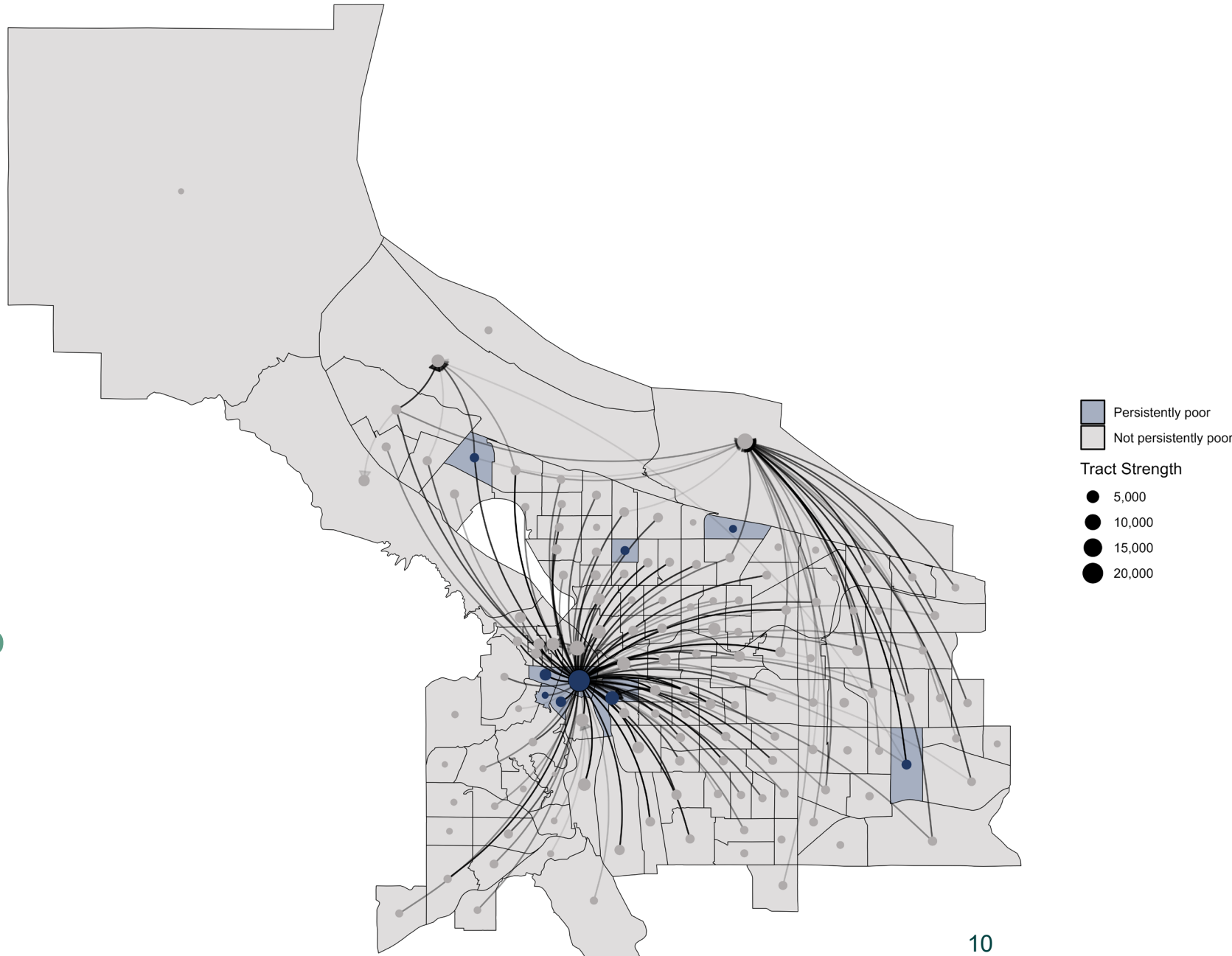
# San Antonio, TX

- Multiple locations of significant job flows – both in the geographic center and on the periphery
- A ratio of 0.64 jobs in a median persistently poor tract (1,374.5) to a single job in a median not persistently poor tract (2,120)



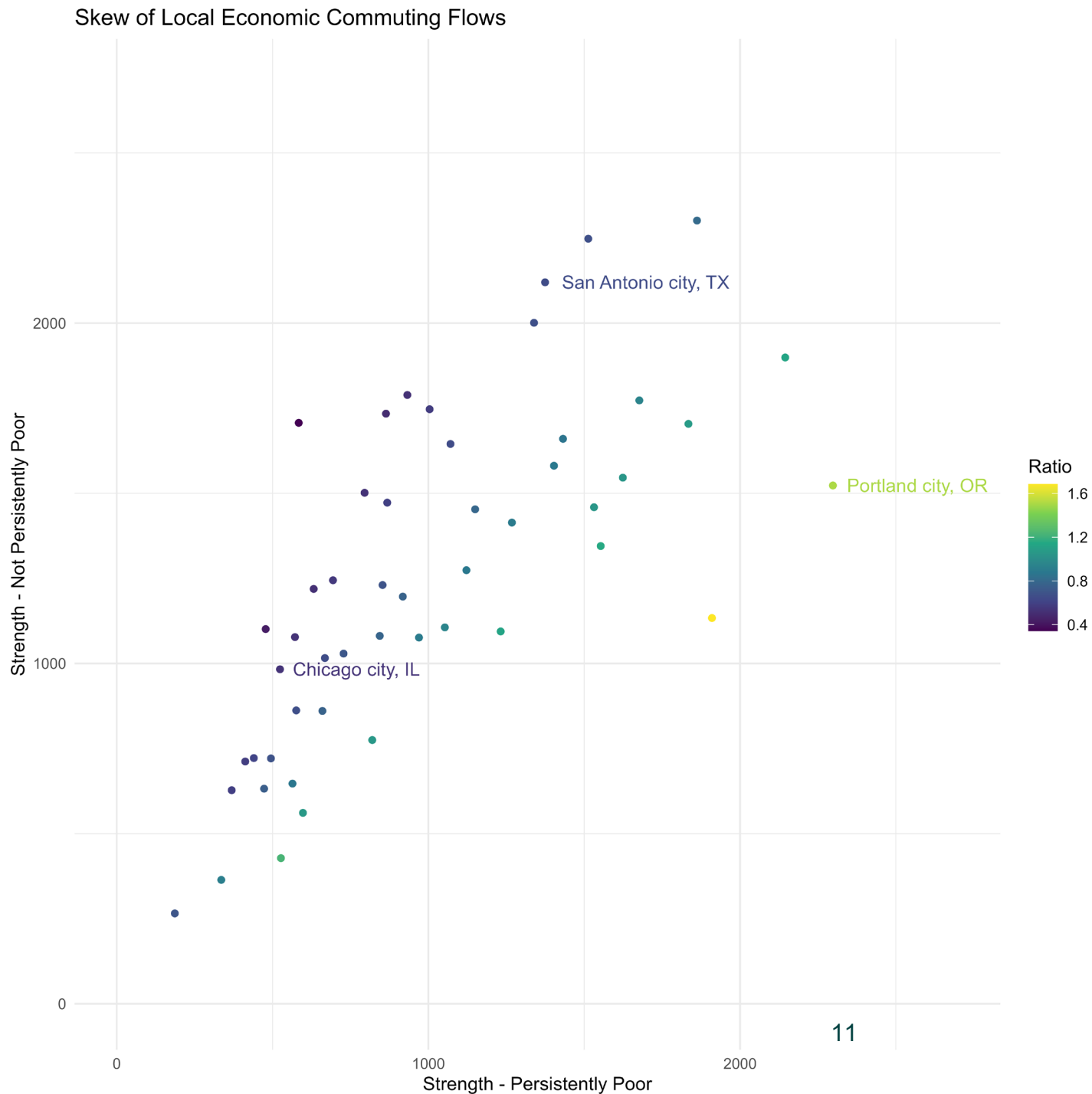
# Portland, OR

- Portland highlights a key consideration – the sway of a persistently poor central business district in cities with relatively few persistently poor tracts
- A ratio of 1.51 jobs in a median persistently poor tract (2,298) to a single job in a median not persistently poor tract (1,523)



# Skew among the 50 most populous places

- Both Chicago and San Antonio fall in a similar zone with regards to the strength ratio – even with very different central business district profiles
- Portland falls on the other end
- Among the 50 largest places, most seem to lean toward a greater amount of commuting activity among not persistently poor tracts



# Next Steps

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- Directed Weighted networks
  - Weight some edges more than others by the “number of jobs”
  - Avoid the need to artificially thin a network via cutoffs
  - Large amount of computing power needed
- **Exponential Random Graph Models (ERGM) and Temporal Exponential Random Graph Models (TERGM)**
  - What factors of a network shape the economic connectedness of local commuter flows?
  - How have these networks changed over time?
  - Test for homophily in commuting flows and friend-of-friend trends