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# Using LODES to Study “Shocks” to Urban Neighborhoods

Rachel Meltzer

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Annual LED Meeting  
U.S. Census Bureau  
September 11<sup>th</sup>, 2017

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# Cities as the setting

- Cities are characterized by their:
  - Density
  - Heterogeneity
  - Dynamics
- These features present many opportunities
- But also acute challenges
- Cities are not monolithic
- Need the right data to capture urban dynamics

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# Data wish list

- Three main features:

- ① Good coverage

- ② Fine-grained

- ③ Longitudinal

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# Research using LODES

- Neighborhood “shocks”
- “Does Gentrification Increase Employment Opportunities in Low-Income Neighborhoods?”
- “Neighborhood Economic Vulnerability in the Face of Natural Disasters: The Case of Hurricane Sandy and New York City”

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# “Does Gentrification Increase Employment Opportunities in LI Neighborhoods?”

## ■ Research Questions:

- Does gentrification increase local employment opportunities?
- Do incumbent residents benefit from these employment opportunities?

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# “Does Gentrification Increase Employment Opportunities in LI Neighborhoods?”

## ■ Data:

- ❑ Localized jobs: LODES (2002-2011)
- ❑ Neighborhood characteristics: Neighborhood Change Database (NCDB) and American Community Survey (ACS)
- ❑ Location and entry/exit of businesses: National Establishment Time Series (NETS)

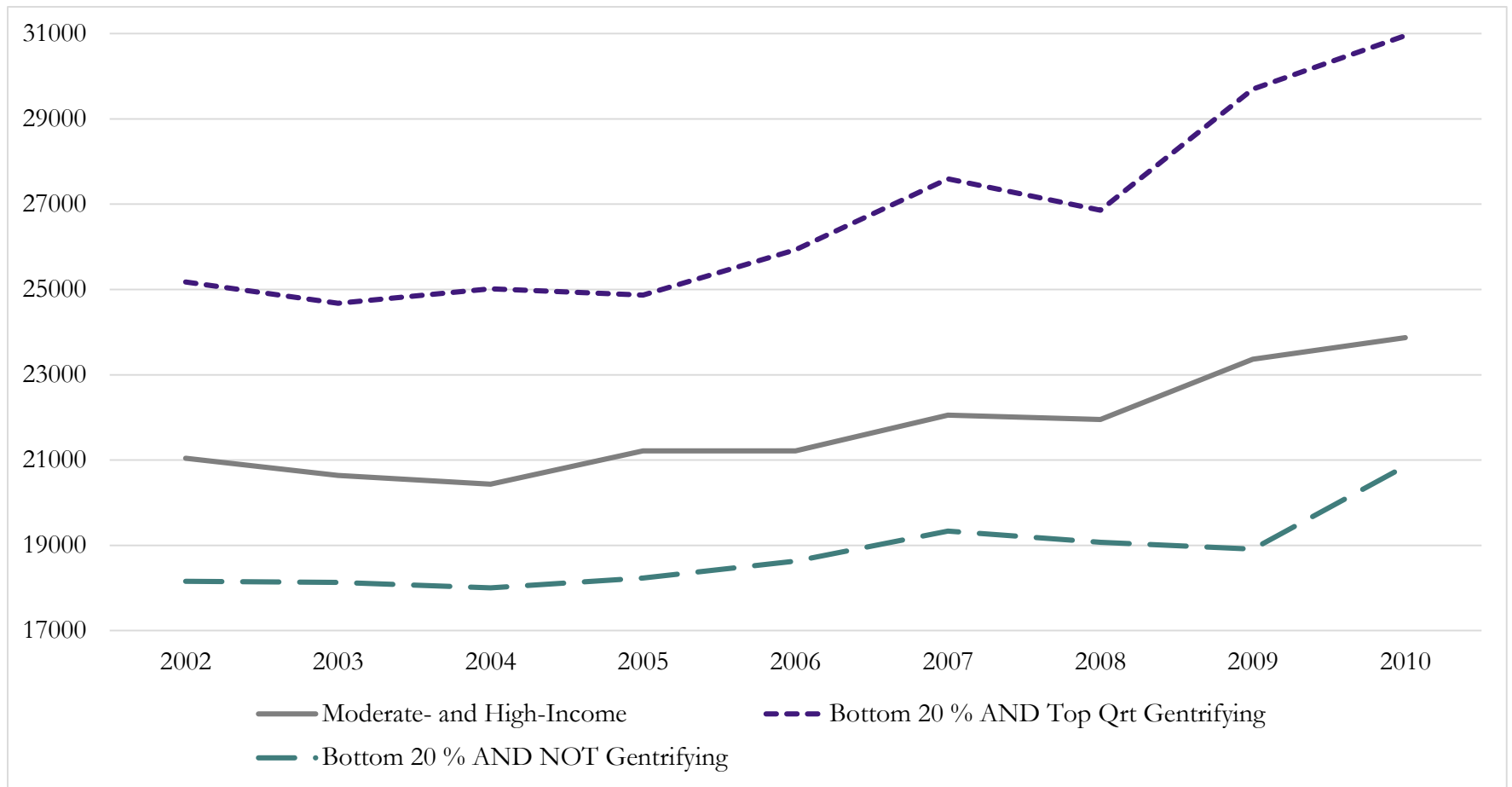
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# “Does Gentrification Increase Employment Opportunities in LI Neighborhoods?”

## ■ Methods:

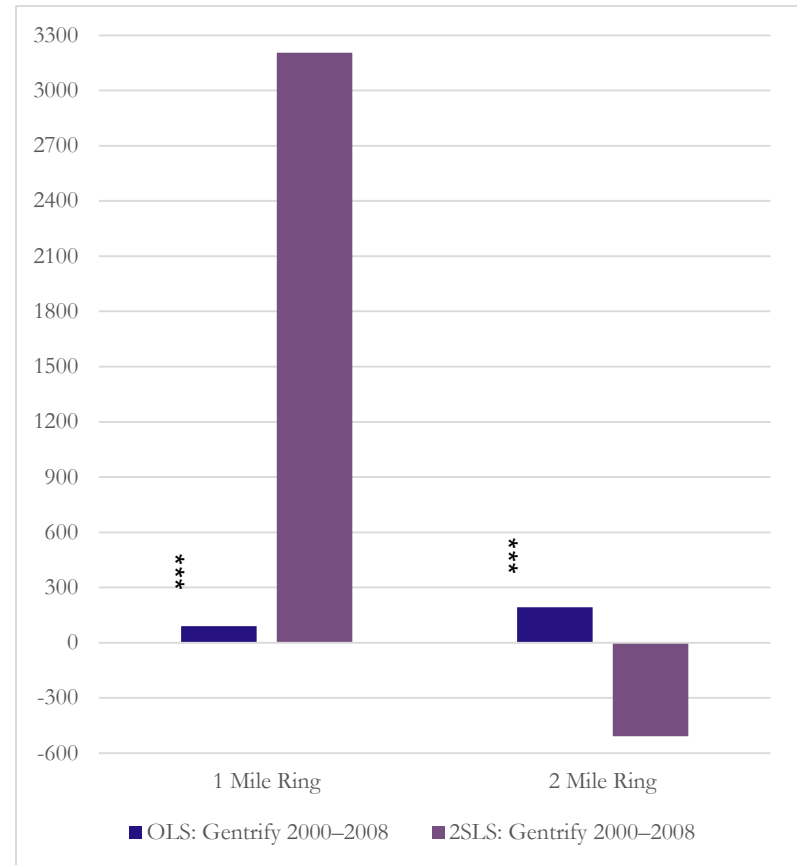
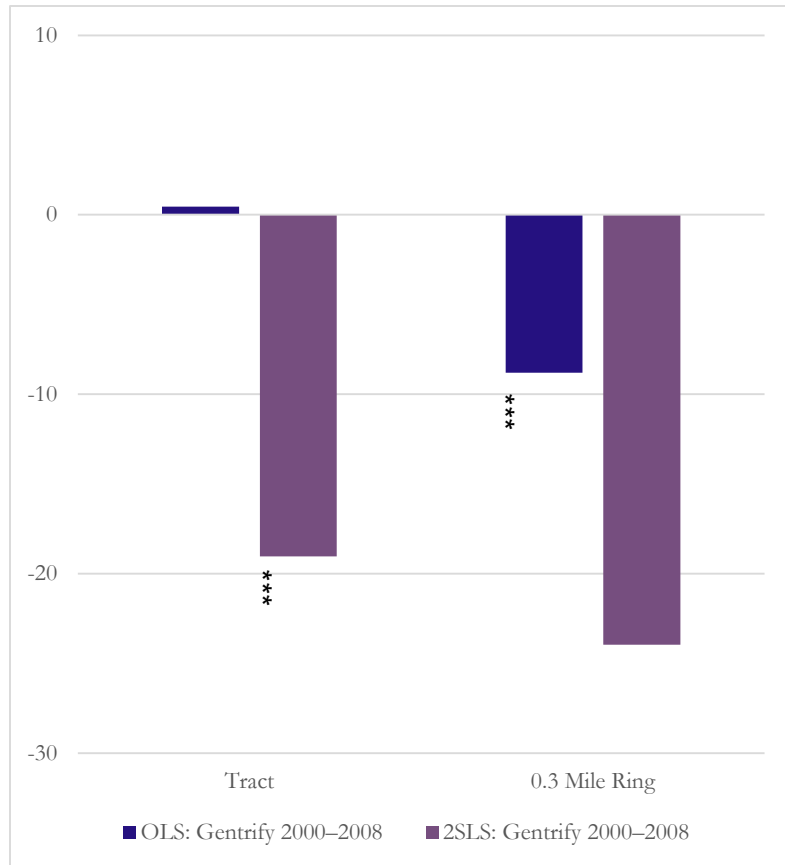
- ❑ Identify gentrifying neighborhoods based on income change relative to MSA
- ❑ Compare job outcomes: gentrifying vs. stable/declining neighborhoods
- ❑ Control for local demographics, business turnover
- ❑ Instrument for neighborhood gentrification using predicted growth in earnings at state level (Bartik)

# Findings: Avg. # Jobs (by place of work) per Neighborhood





# Findings: Avg. # Local Jobs per Neighborhood



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# “Neighborhood Economic Vulnerability in the Face of Natural Disasters”

- Research Question:

- What are the short-term effects from Sandy on neighborhood economic activity?

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# “Neighborhood Economic Vulnerability in the Face of Natural Disasters”

## ■ Data:

### □ Measures of business activity:

- Jobs: LODES (2002-2014)
- Businesses: InfoUSA
- Sales tax revenues: NYC Dept. of Finance

### □ Measures of flood vulnerability and impact:

- NYC-determined Evacuation Maps
  - FEMA flood surge maps
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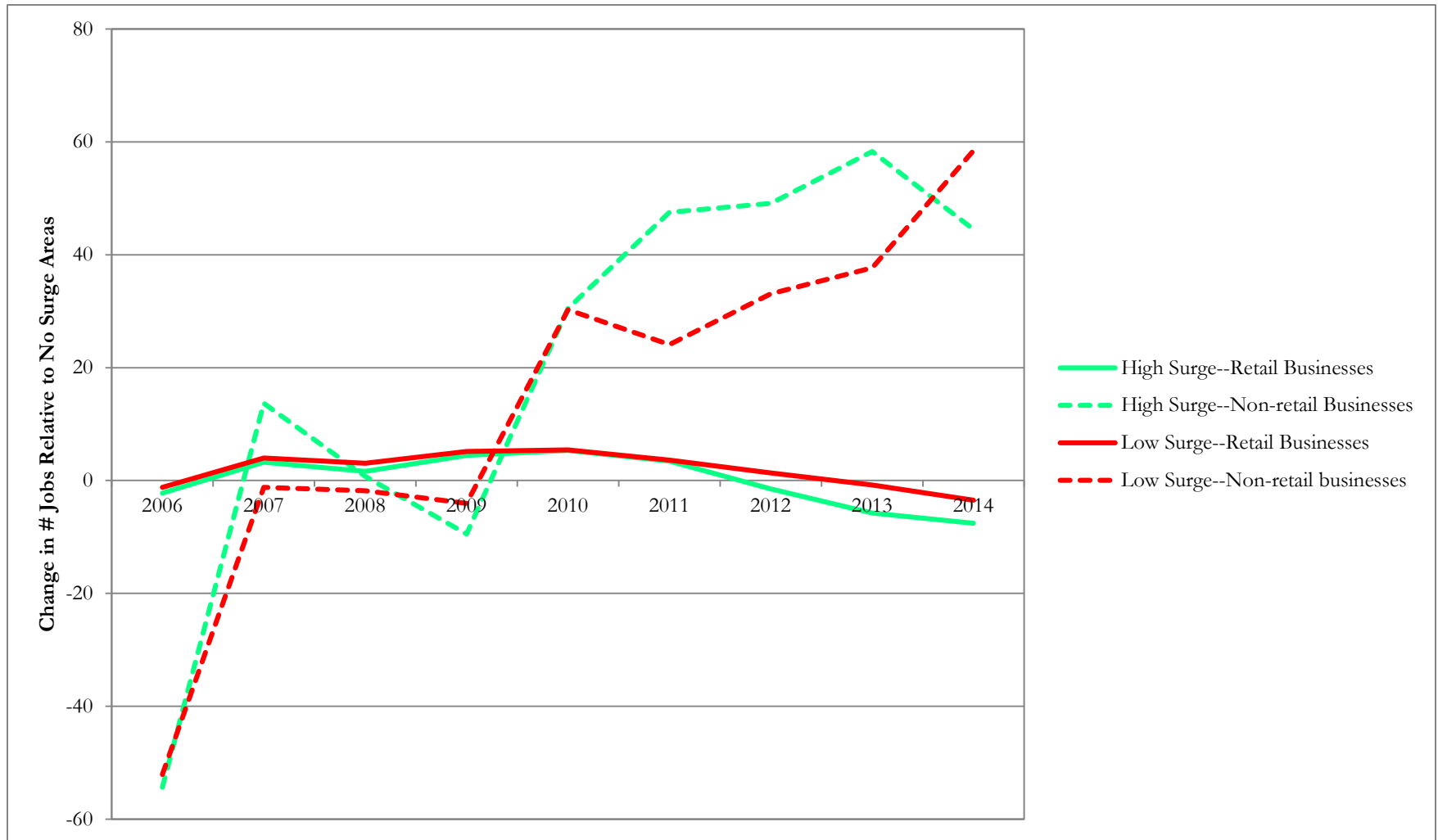
# “Neighborhood Economic Vulnerability in the Face of Natural Disasters”

## ■ Methods:

- ❑ Compare economic outcomes across surge levels
- ❑ Before and after Sandy
- ❑ Control for pre-storm vulnerability



# Findings: Jobs after Sandy



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- Three main features:

- ① **Good coverage**

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# Feature #1: COVERAGE

- Geography: multiple sites
- Subjects: universe of all possible cases

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# Feature #1: COVERAGE

- Geography: multiple sites, national
- LODES:
  - Covers (nearly) the universe of census blocks across the U.S.
  - Covers wide range of municipalities and contexts
- Comparisons across contexts
- Generalizability of findings



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# Feature #1: COVERAGE

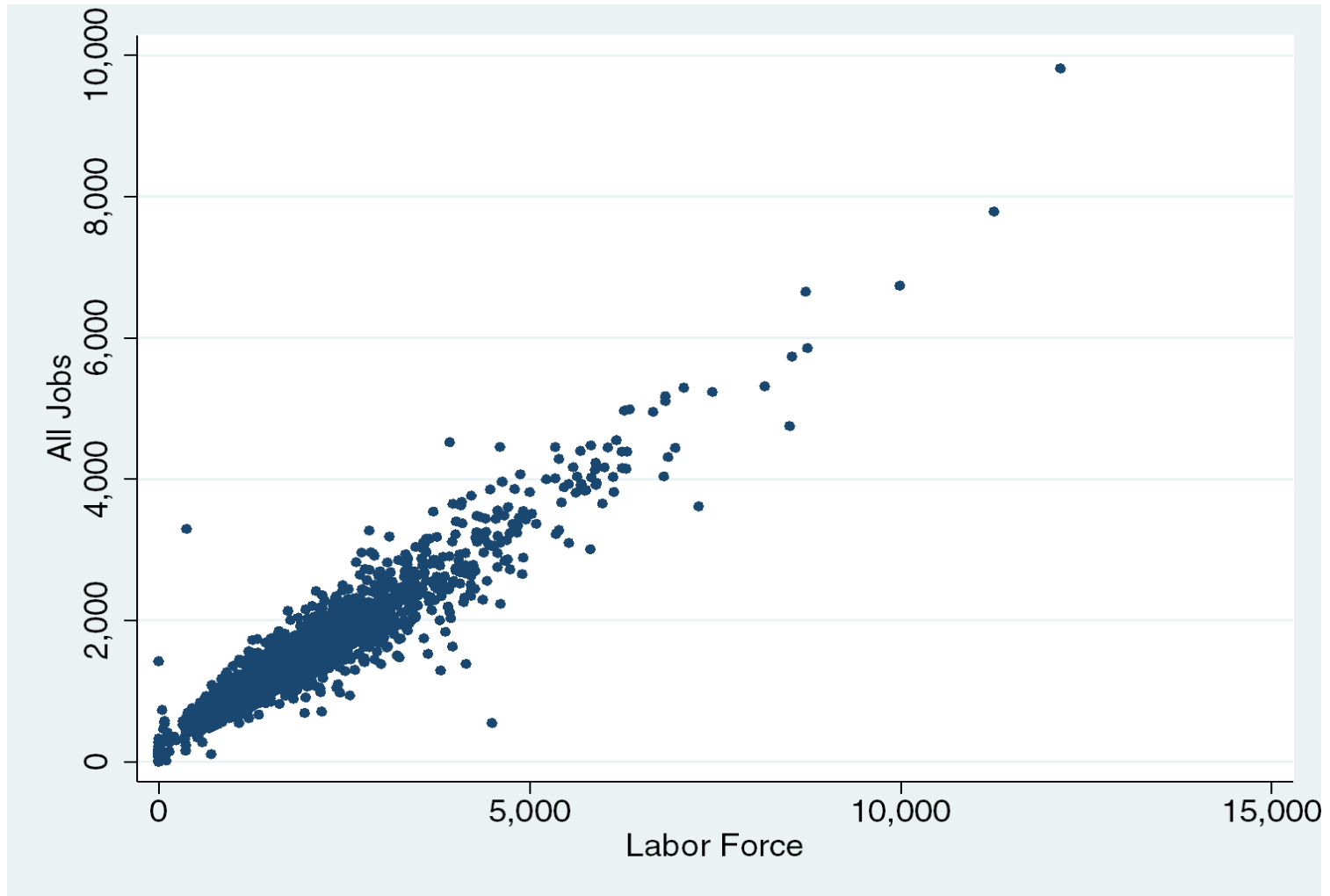
- Subjects: universe of all possible cases
  - LODES has reliable coverage of jobs reported through UI
  - Consistent (and transparent) mechanism for reporting
- Internal validity

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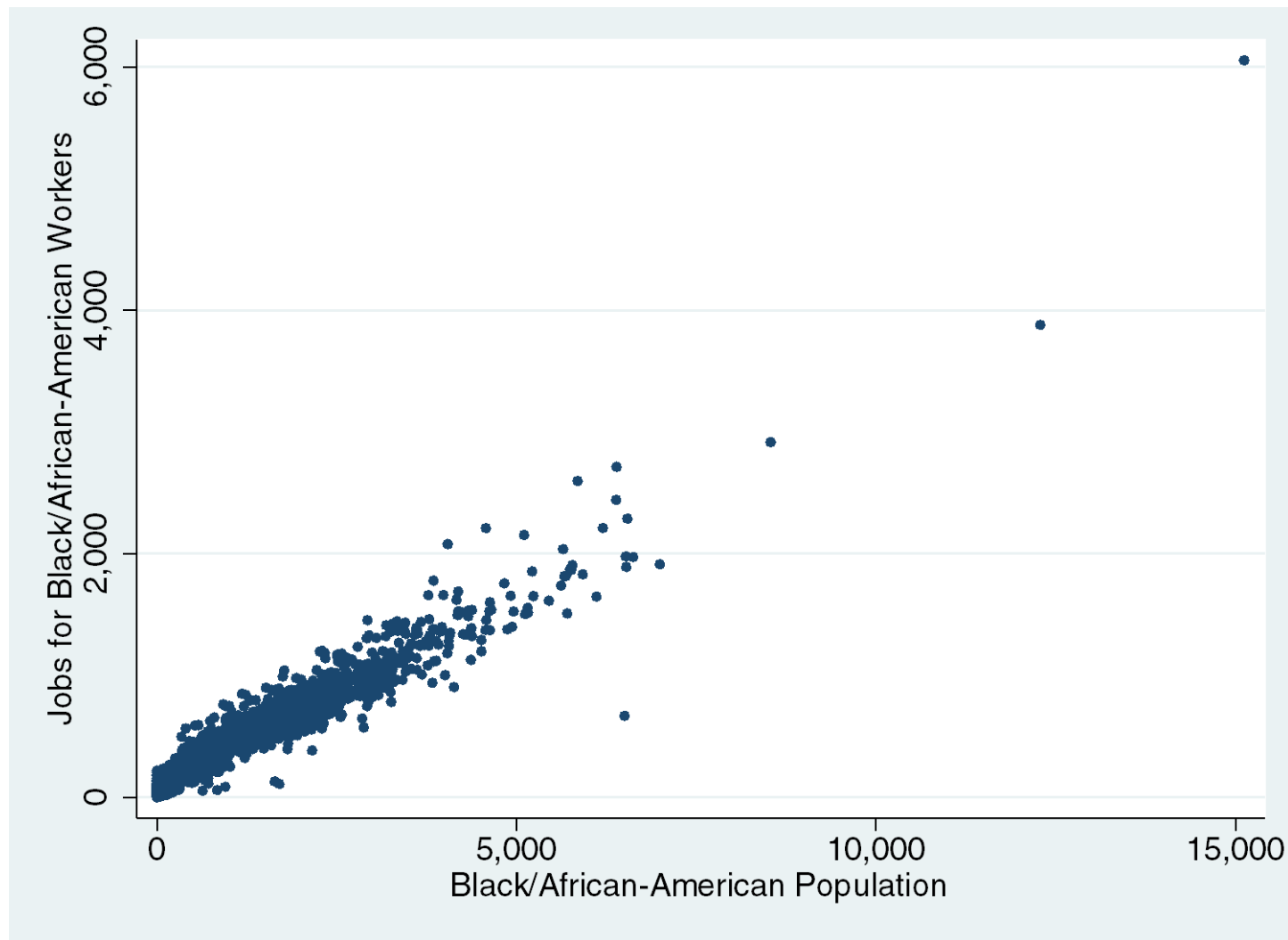
# Feature #1: COVERAGE

- What about jobs (and jobholders):
  - With lower wages?
  - With unreported wages?
  - In non-employer firms?
- Concern:
  - Discrepancies are not randomly distributed
  - Is there more under-reporting or informality in neighborhoods subject to shocks?

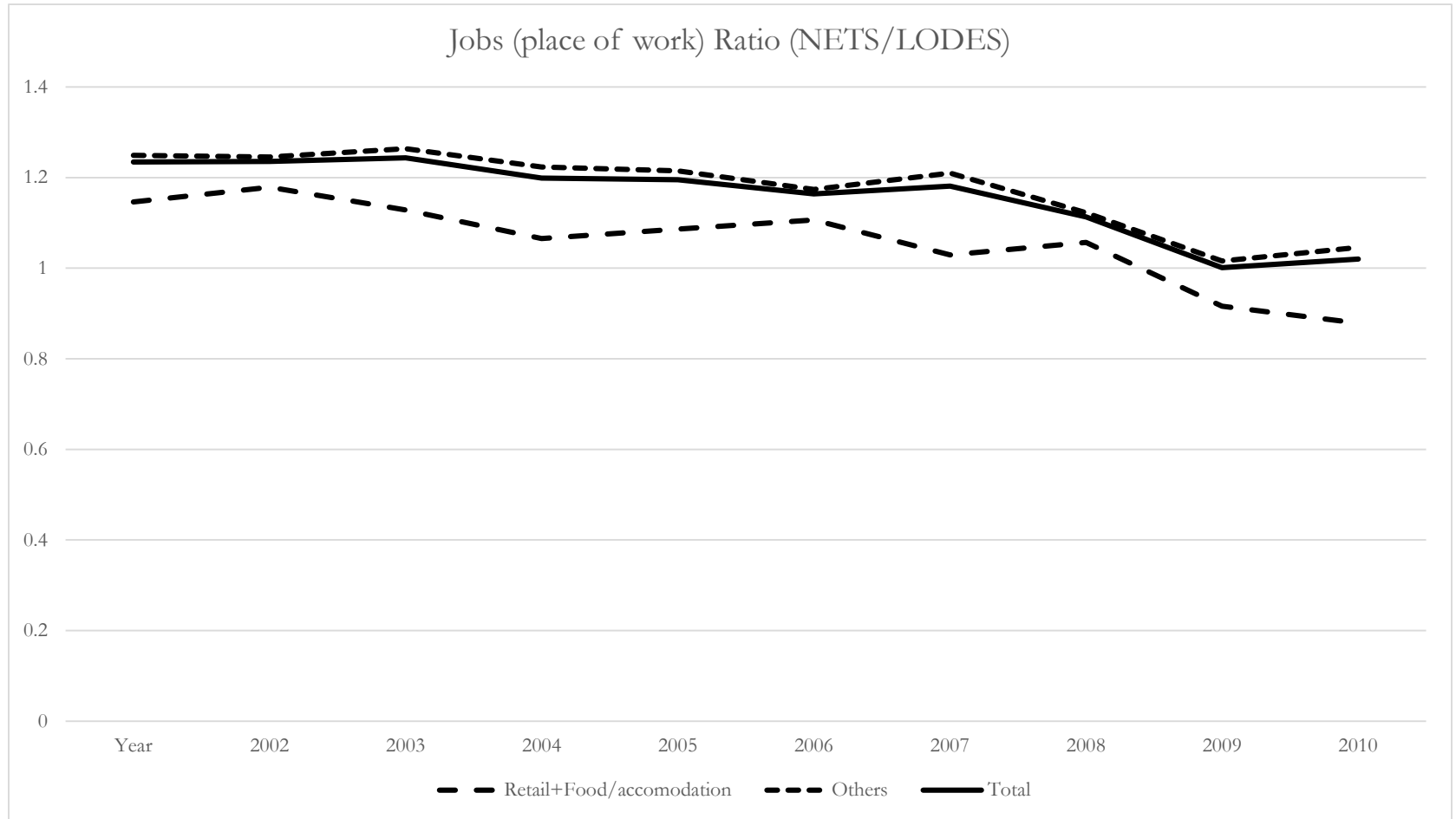
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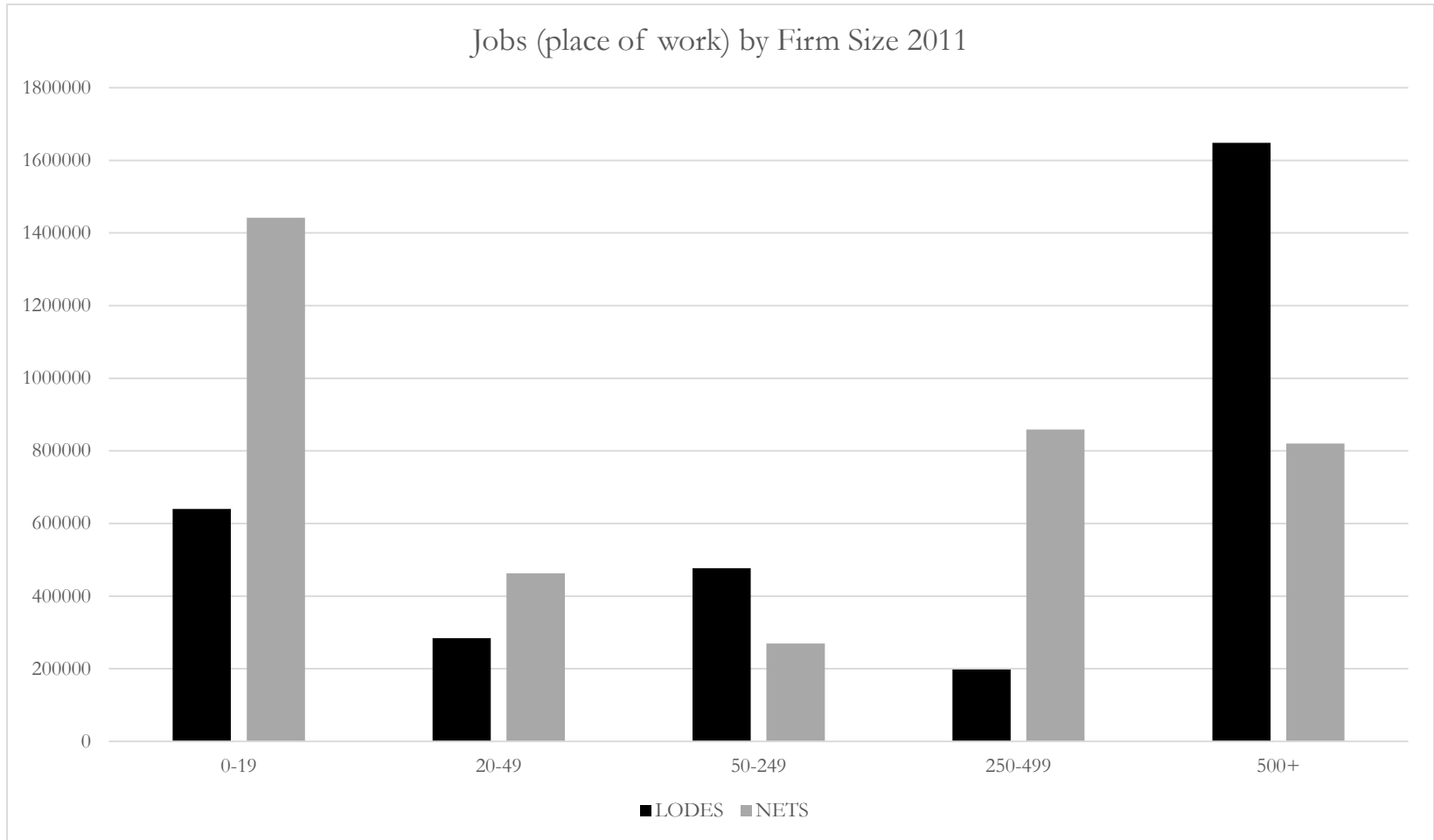
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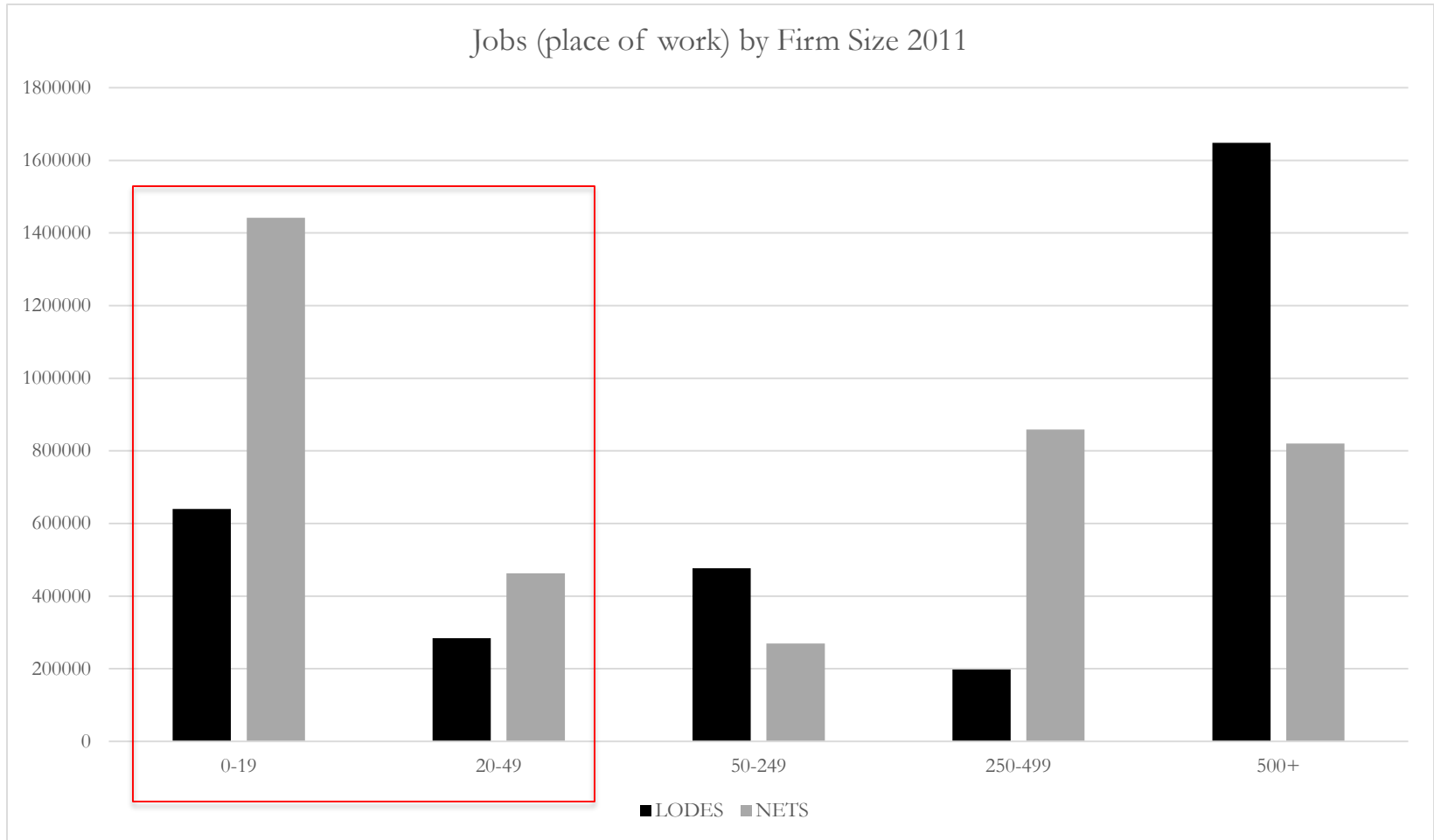
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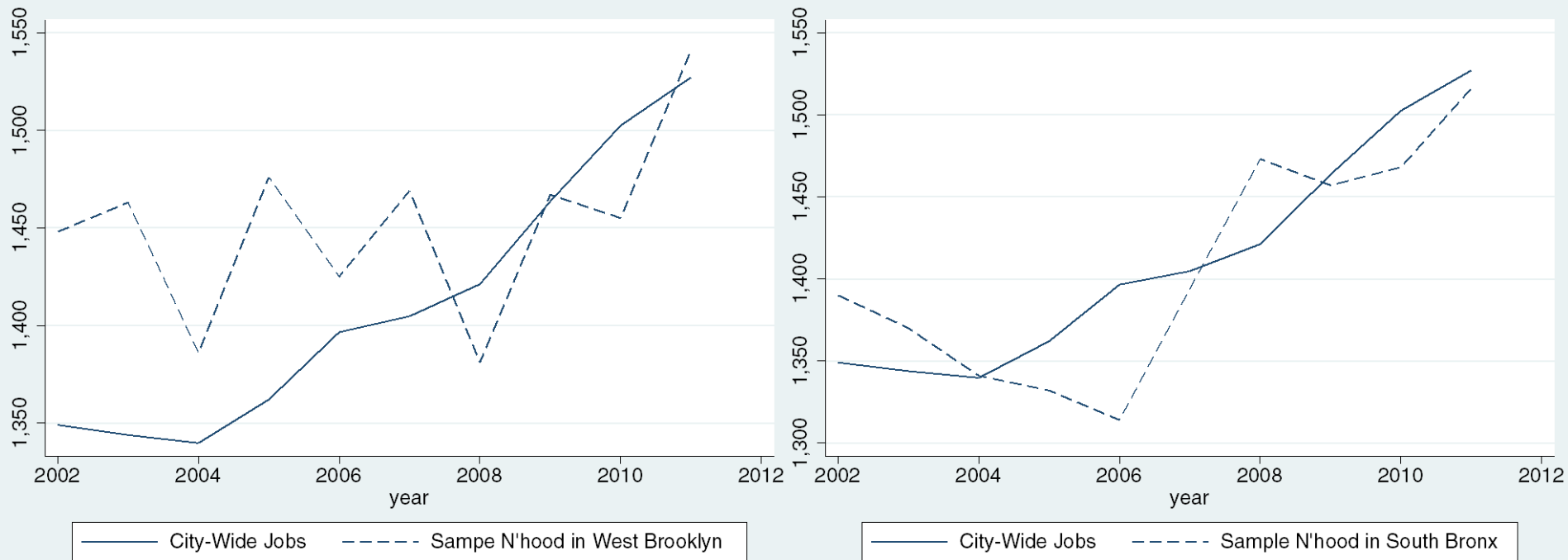
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## Feature #2: FINE-GRAINED

- Captures sub-municipal heterogeneity
- Facilitates flexible micro-geographies

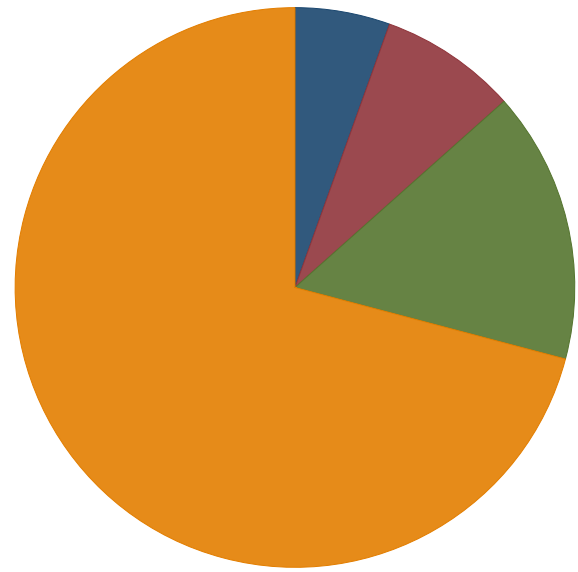
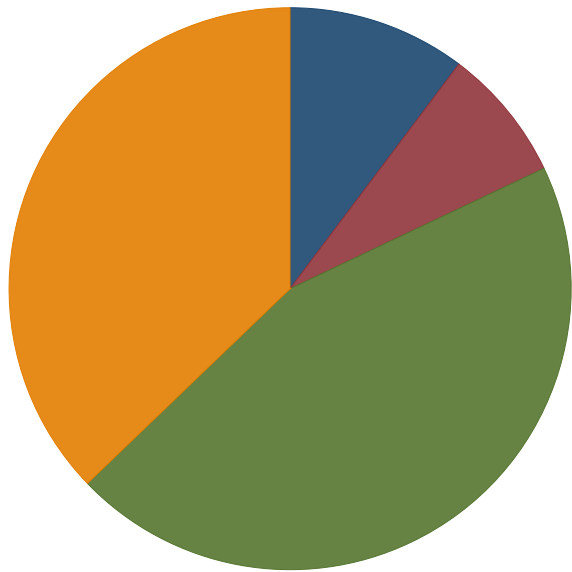
# Feature #2: FINE-GRAINED

- Captures sub-municipal heterogeneity



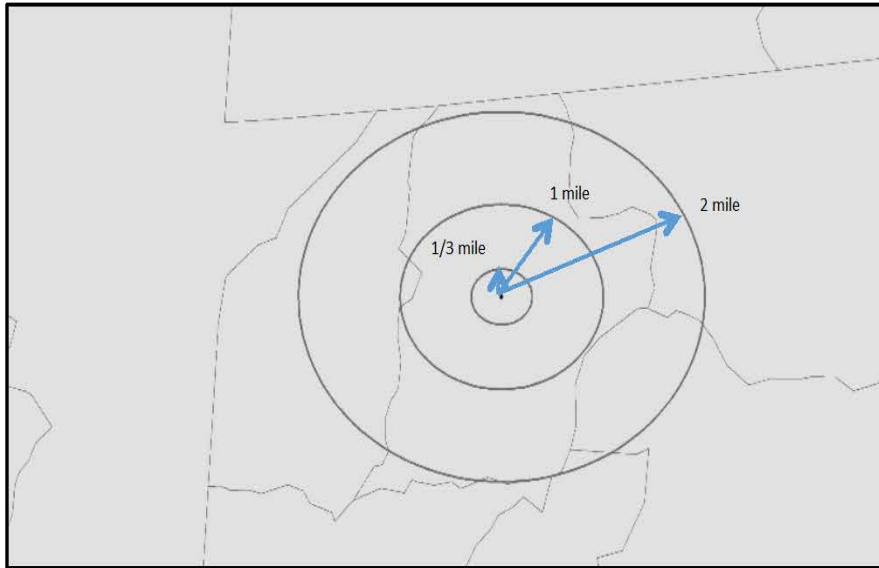
# Feature #2: FINE-GRAINED

- In cities, heterogeneity is *spatial*



# Feature #2: FINE-GRAINED

- Facilitates flexible micro-geographies

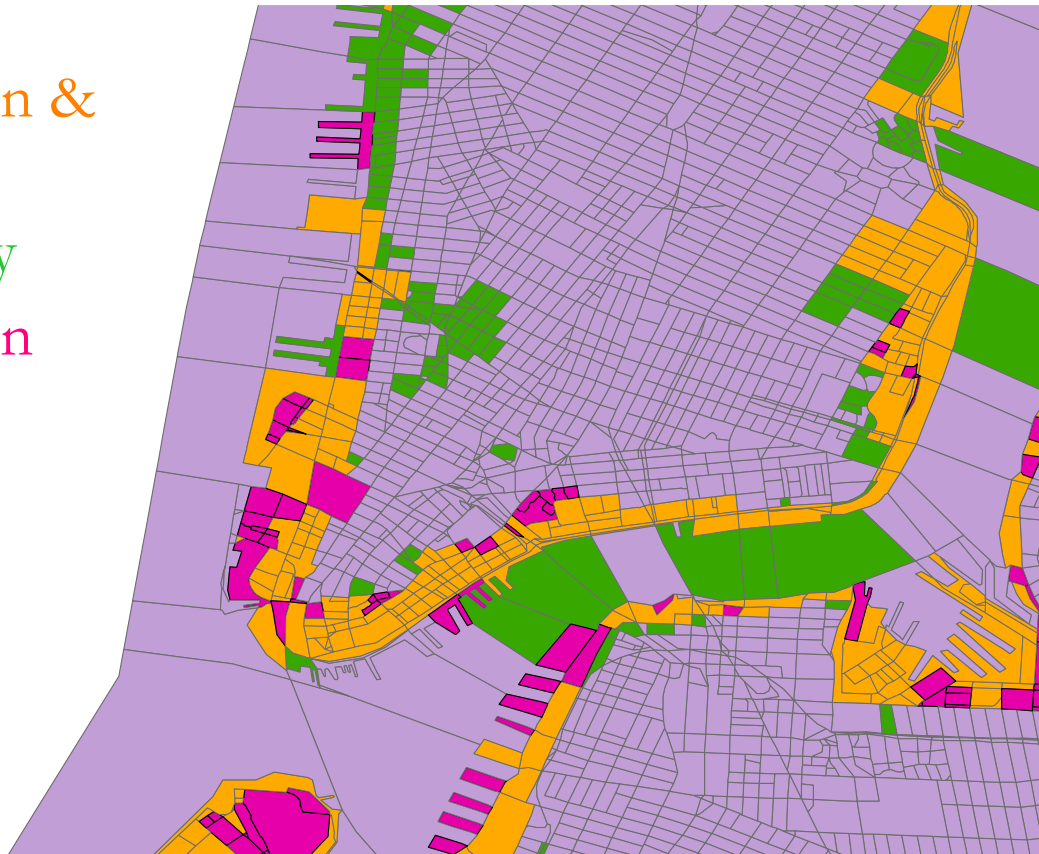


*(Ring radii are, from small to large, 0.3 mile, 1 mile and 2 miles.)*

# Feature #2: FINE-GRAINED

- Facilitates flexible micro-geographies

- Evacuation & Surge
- Surge only
- Evacuation only
- None



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# Feature #3: LONGITUDINAL

- Neighborhoods are not static
- Changes over time are *idiosyncratic* and *spatial*
- Length of time: the longer the better!
- Frequency of observations: more often the better!

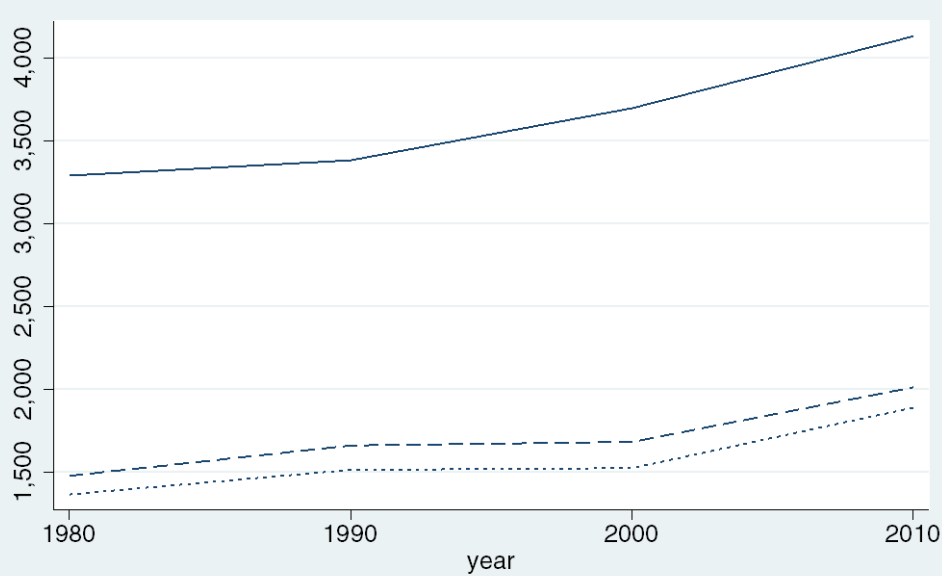
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# Feature #3: LONGITUDINAL

- Length:
  - ❑ Pro: LODES offers nearly a decade's worth of data
  - ❑ Con: LODES misses the 90s and 80s (an important counterpoint to the 2000s in cities)

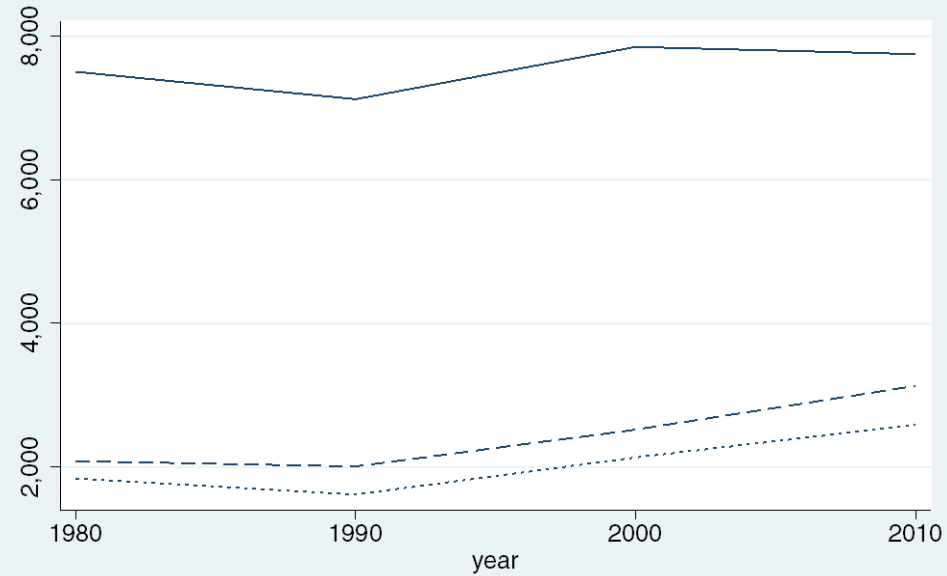


# Feature #3: LONGITUDINAL



— Average Population    ..... +16 Employed Pop  
- - - +16 Labor Force

NYC



— Total Population    ..... +16 Employed Pop  
- - - +16 Labor Force

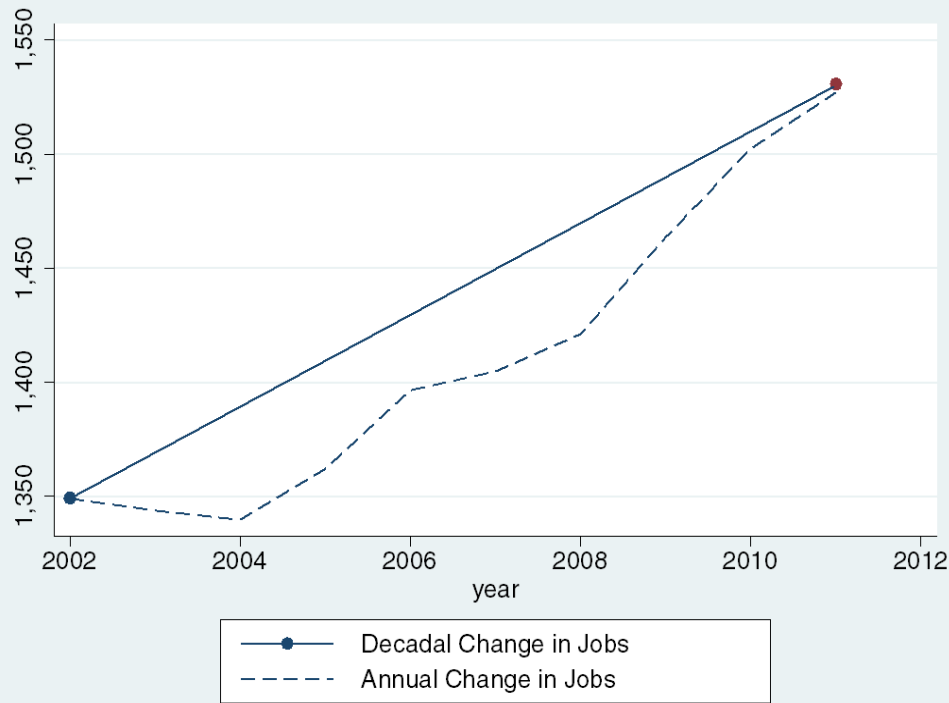
EAST HARLEM

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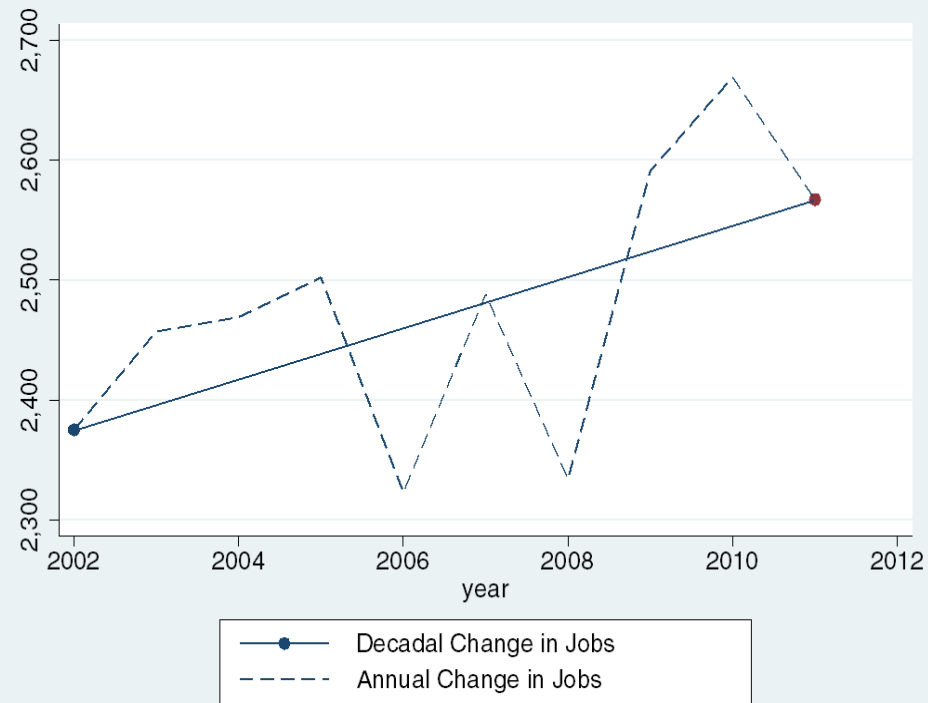
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- Frequency:
  - Pro: Annual cases from LODES > decennial cases, i.e. Census
    - Example: Annual job observations vs. decennial gentrification designation
  - Con: Annual cases from LODES miss within-year shifts that correspond to shocks
    - Example: Observing immediate jobs response post-Sandy

# Feature #3: LONGITUDINAL



NYC



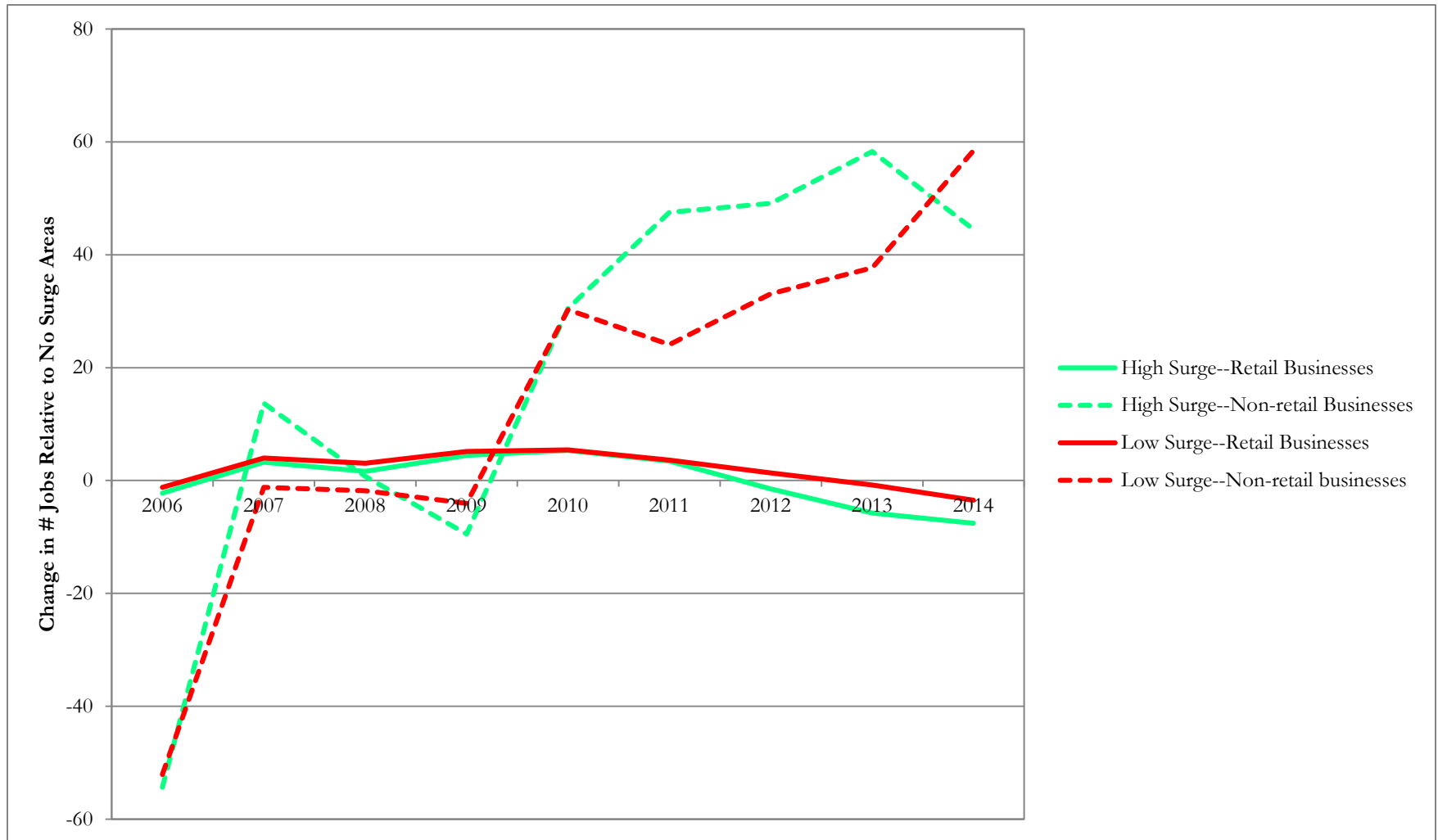
SUNSET PARK

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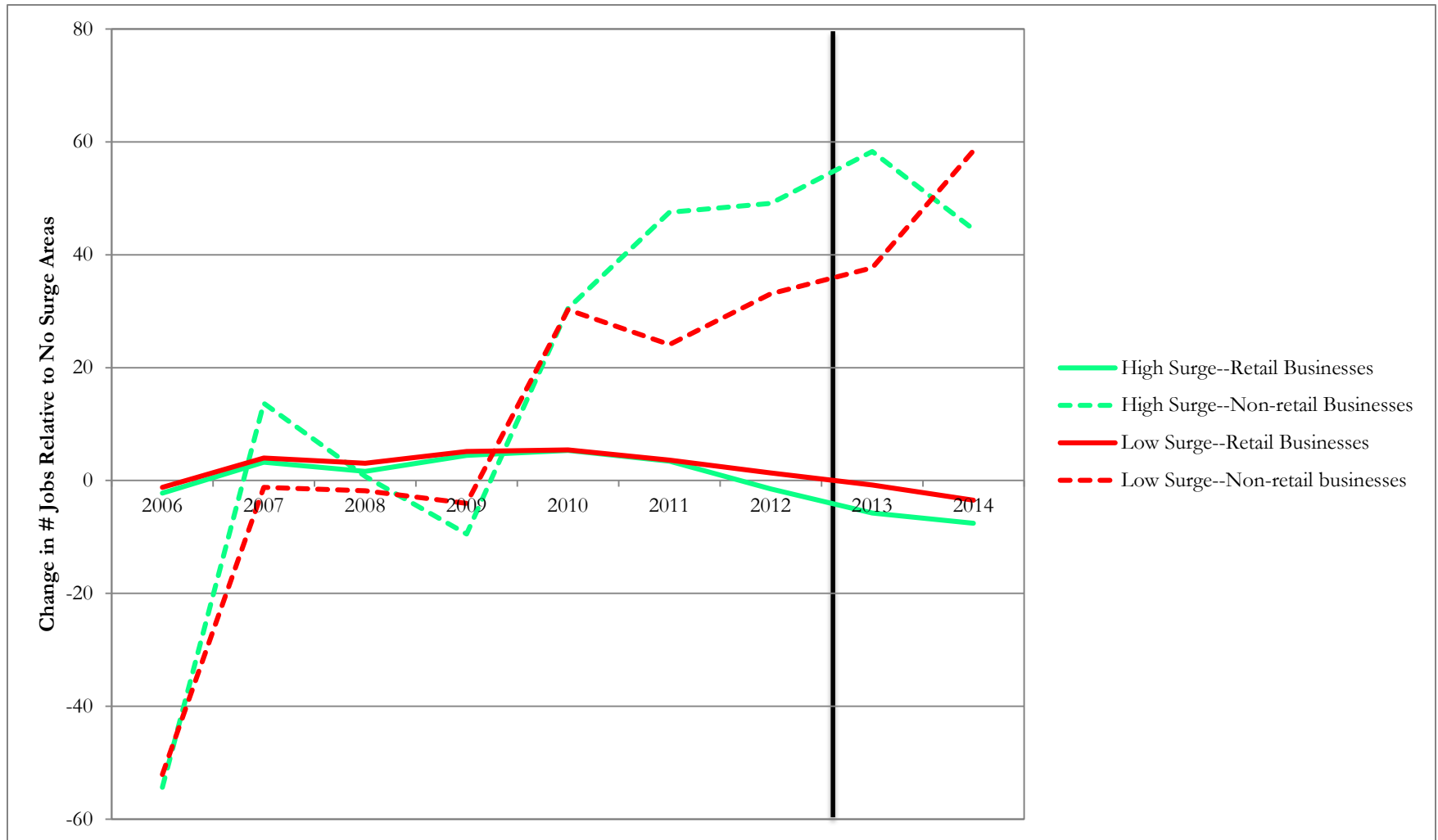
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# Feature #3: LONGITUDINAL



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# Moving forward

- More to be done with LODES and sub-municipal economic activity:
  - Sorting of jobs
  - Sorting of residents, relative to jobs
  - Intervening effect of: housing, amenities, land use, transportation
  - Variation *across* cities?
- BUT, jobs are only one aspect of economic activity

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# Moving forward

- How to expand this data project to other outcomes?
- Challenge with harmonizing various data sources at different intervals and geographies
- More information on gaps in coverage
- Opportunities for interdisciplinary forums



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Thank you!  
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