ThunderCats Stats

THUNDERCATS.WS

Our Motivating Questions

- **Cities and suburbs in close proximity, differ in transportation infrastructure & population characteristics:**
- **Are differences reflected in job search?**
- **Do jobs posted in cities and suburbs differ in their proportion of clicks that are local?**

Hypothesis Testing

- **Let p_{city} be the proportion of local clicks in the city**
- **Let p_{sub} be the proportion of local clicks in the suburb**

$$H_0 : p_{city} - p_{sub} = 0$$
$$H_A : p_{city} - p_{sub} \neq 0$$

$$\alpha = 0.005$$

How to separate cities and suburbs?

- **Census Bureau categorizes cities suburbs into Metropolitan Statistical Areas (MSAs)**
- **Eg "new york-newark-jersey city"**
- **Not in MSA = rural (excluded)**
- **In MSA title = city (included)**
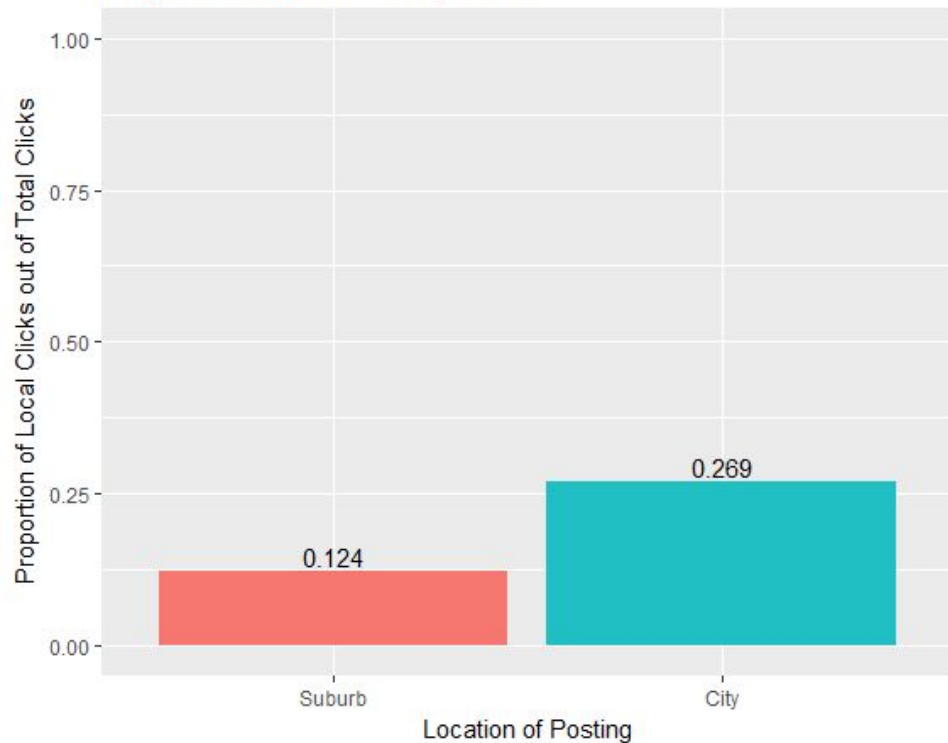- **In MSA, not in title = suburb (included)**

Results

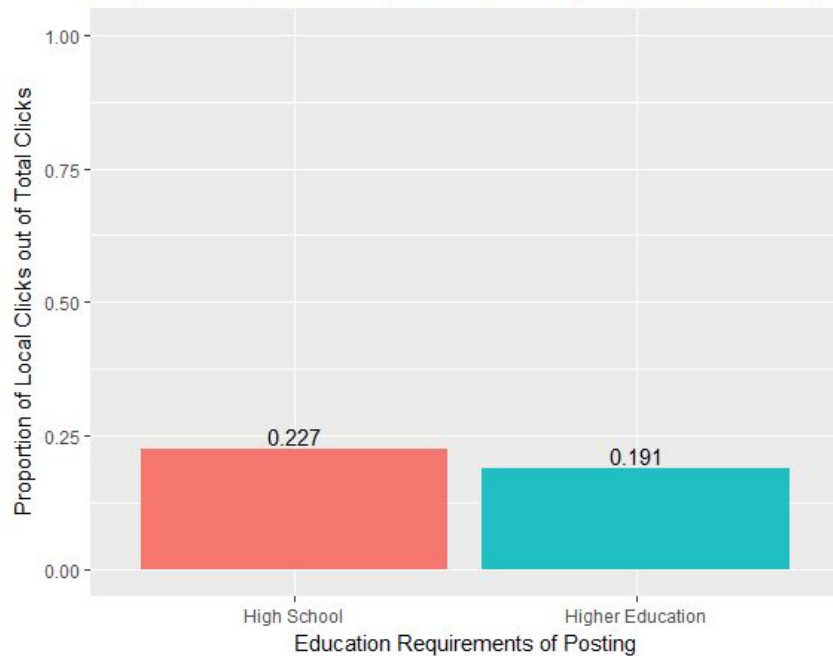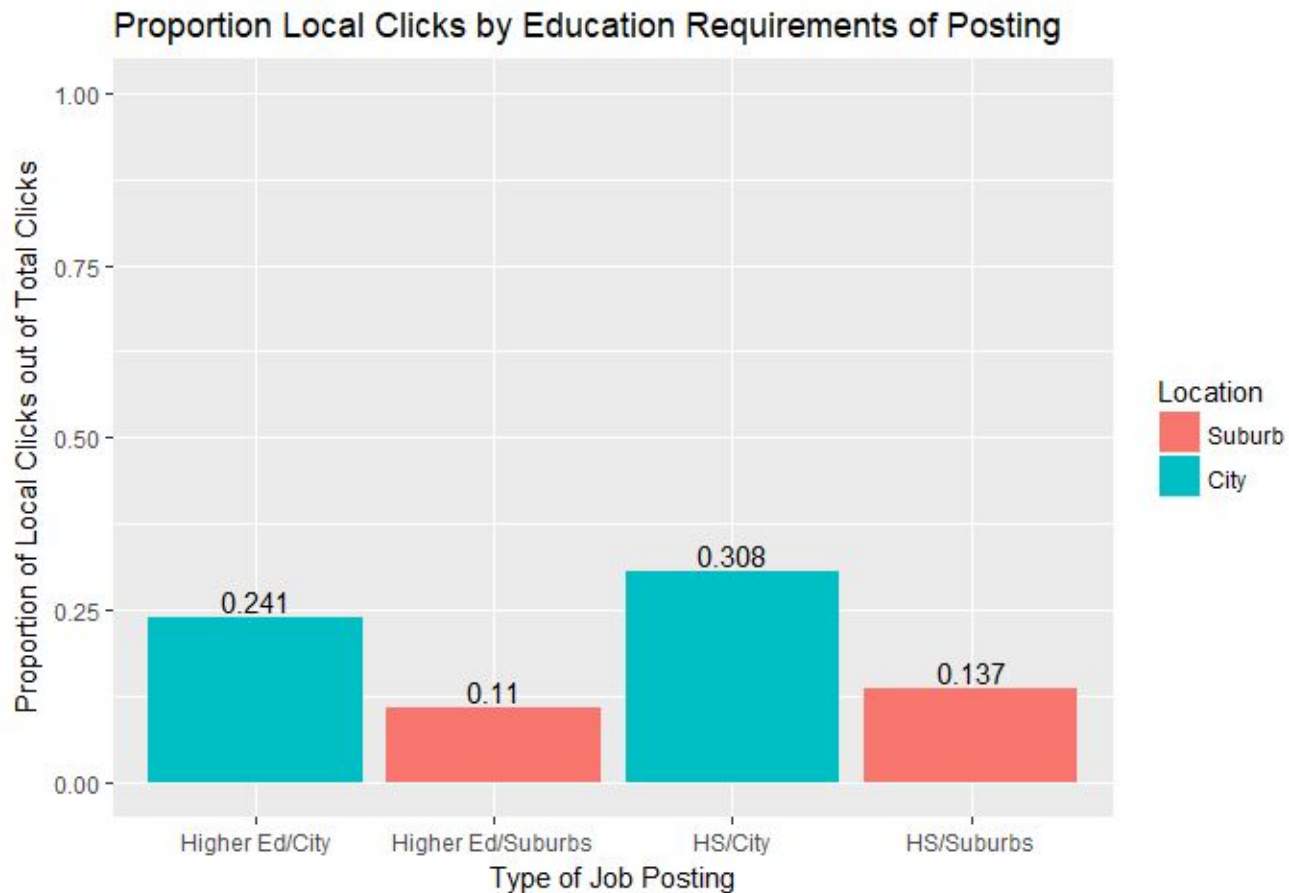| Education	$\hat{p}_{city} - \hat{p}_{suburb}$	99.5% CI for $p_{city} - p_{suburb}$
Grouped	14.6%	[14.1%, 15.1%]
High School	17.1%	[16.3%, 17.9%]
Higher Ed	13.1%	[12.3%, 13.9%]

Results Contd.

Proportion Local Clicks by Location

Proportion Local Clicks by Education Requirements of Posting

Results Contd.

Proportion Local Clicks by Education Requirements of Posting

Potential Confounders

- **Disparity in population density**
  - **Mitigated by 25 mile radius for "Local"**
- **Convenience sample**
  - **Generalizes only to Indeed users, not to gen. pop.**

Results Contd.

- **Linear regression, with city density and MSA fixed effects**
- **Subset of 5 MSAs:**
  - **New York-Newark-Jersey City**
  - **Washington-Arlington-Alexandria-DC**
  - **Chicago-Naperville-Elgin**
  - **Los Angeles-Long Beach-Anaheim**
  - **Dallas-Fort Worth-Arlington**
- **Low adjusted R^2, results stay the same**
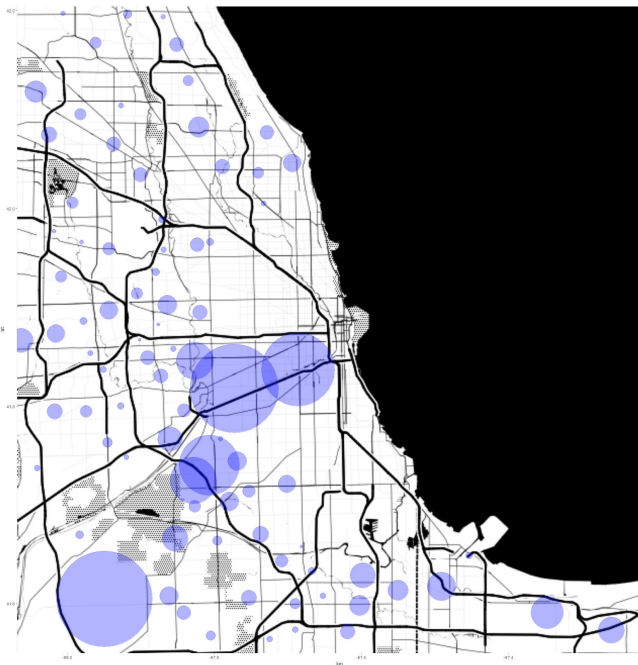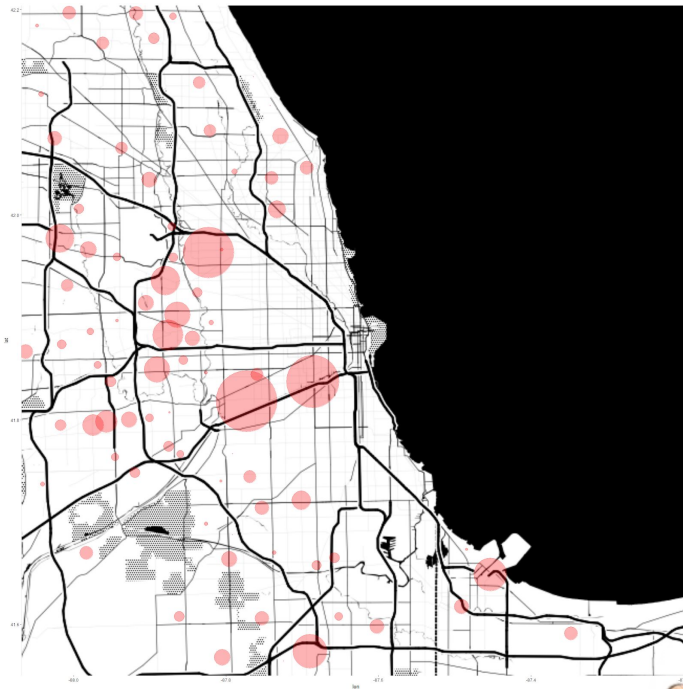
Maps: Boston

High School

Higher Ed
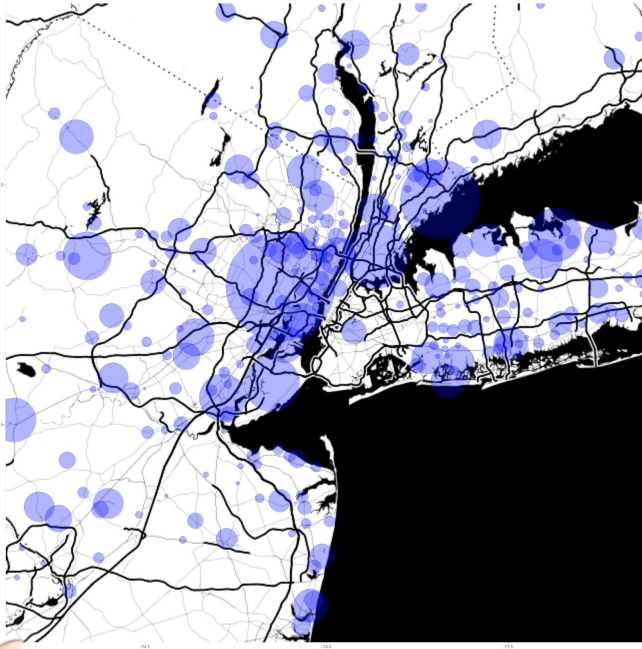
Maps: Chicago

High School

Higher Ed

Maps: NY

High School

Higher Ed

Interpretation

Restricted to indeed population:

- **Jobs posted in cities attract significantly higher proportion local interest than do jobs in suburbs**
- **Perhaps related to USA's investment in highways & automobile transport**
- **Indeed can promote urban jobs to local audience**