Public Transit Accessibility in New York City

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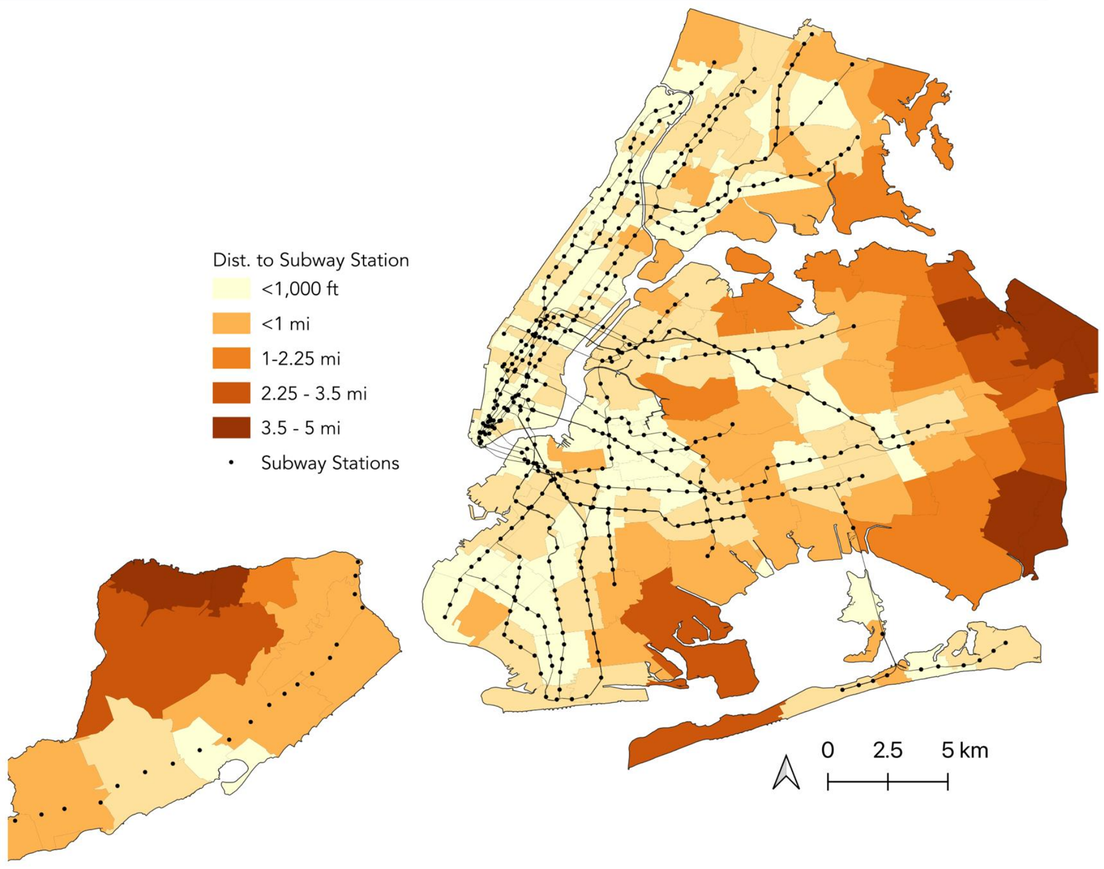
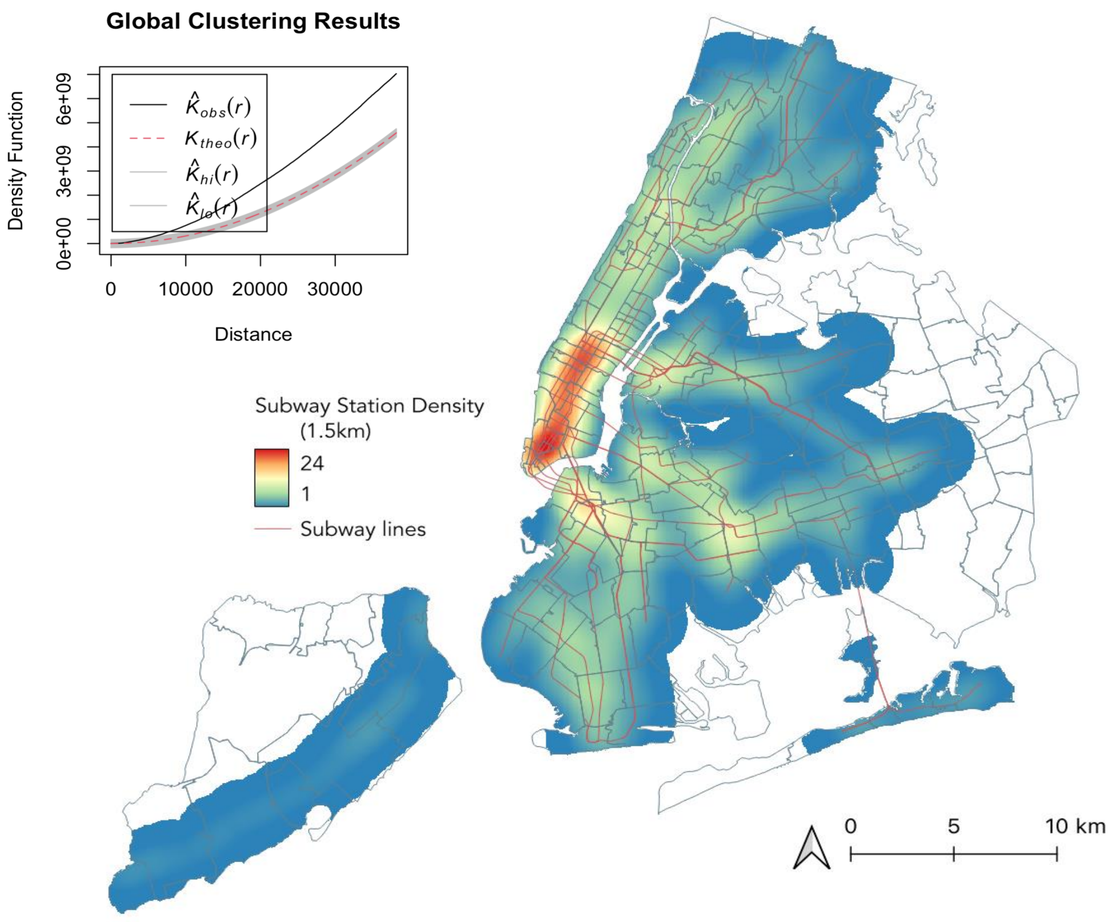
Key Findings: *Subway Stations are clustered in high-income zip codes of downtown Manhattan and downtown Brooklyn, while being sparsely distributed in the population dense and low-income neighborhoods of Brooklyn, Queens and Staten Island. This inequity in public transit access should be addressed through policy interventions.*

Background

- Transit equity – in terms of accessibility and proximity to public transit options – is an important aspect of environmental justice (EJ)
- Lack of public transit disproportionately affects low-income, elderly, differently abled, children and other vulnerable populations that may not have the access or ability to drive private vehicles as an alternative. It also worsens traffic clashes and air pollution.
- In New York City, millions of people rely on the metro "subway" system as a daily mode of commute – but how *accessible* is the public transit for people in different parts of the city?
- This poster explores the spatial distribution of subway stations and the disparity in walkable access across zip codes.



Map 1. "Walkable" access to subway stations, by zip code



Map 2. Kernel Density Analysis showing clustering

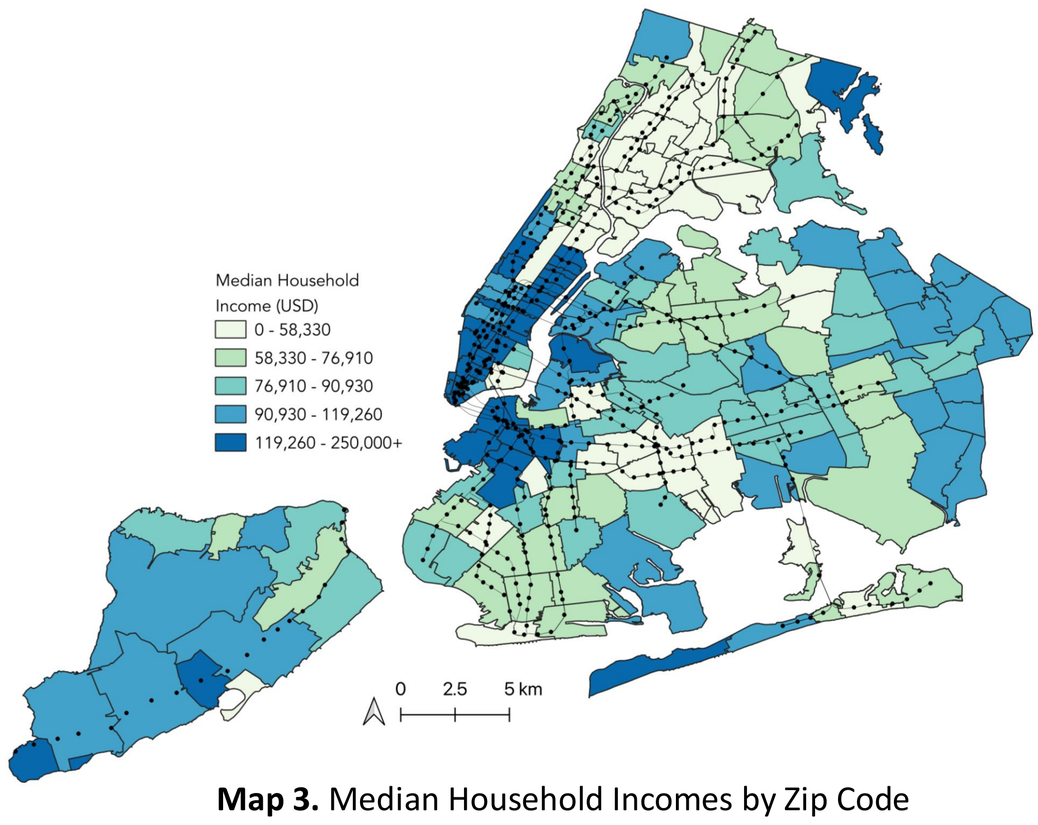
Methods and Results

Data Source: Median incomes and population density data was sourced from the US Census. Neighborhood Subway Station data was sourced from MTA data feeds.

Analysis: Using geoprocessing tools of proximity, 'walkable' distance to a subway station was determined as less than 1,000 ft. A buffer of this distance was created around each station, and access was visually depicted on a color graded continuum (Map 1). Kernel Density Analysis conducted using QGIS shows high density clustering of subway stations in high-income downtown Manhattan, low density spread in central Bronx, and a near total absence in the outer periphery of Queens, Brooklyn and Staten Island (Maps 2 and 3). The inset Ripley's K shows that the subway station distribution is non- random.

Conclusions and Future Directions

- The results indicate that the the subway system is excessively available in high-income neighborhoods of New York, while being inaccessible to the outer boroughs. While Manhattan receives more foot traffic from non-residential travellers, residents of Queens, Brooklyn Staten Island and the Bronx can benefit greatly from increased subway connectivity to other parts of the city.
- Expanded public transit improves access to healthcare services, grocery stores, schools and other vital services. Moreover, an accessible public transit system is a core element of the urban built environment as an end in itself. Urgent policy attention and resource allocation is needed to close this access gap.



Map 3. Median Household Incomes by Zip Code

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