EQUITY IN ACCESSIBILITY

Assessing job accessibility of essential workers in Atlanta, GA

Tamim Abedin Moses Levich Soyeon Kim
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BACKGROUND

Public transit is important for marginalized groups in Atlanta as 75% of public transit riders are low-income, and 70% of riders are Black. Compounded with traffic congestion, rising housing prices, and the economic recession from the pandemic, understanding people's access to jobs is important. Even with the pandemic, many low-income residents still have to commute to work as their jobs are considered essential and can only be done in person.

RESEARCH QUESTIONS

How can we assess the spatial access of essential jobs for Atlanta residents by income using public transportation?

METHODS

We identified job locations of essential jobs according to CDC definition. The jobs were aggregated to zones identified through two aggregation techniques: a fishnet determined through the average nearest neighbor and census block groups. The opportunity of each zone was determined by the number of jobs in each zone for the fishnet and the average kernel density for each census block group. The centroids of fishnets and the census block groups were used as destinations.

With GTFS data, we created a public transportation network based on travel time.Using Higgins (2019) accessibility toolbox, the accessibility scores from each census block group centroids to job locations were calculated using cumulative opportunity models and gravity models.

FINDINGS

The correlation between cumulative opportunity accessibility scores and gravity scores have an extremely strong correlation (r^2=.91) for the fishnet aggregation and a strong correlation for kernel density aggregation (r^2=.70).

The gravity model accessibility scores had no significant correlation with income for the fishnet aggregation (r^2= .08) or the kernel density aggregation (r^2=.05).

The cumulative opportunity models in both aggregation techniques had stronger correlations with income than the gravity models, but were still extremely weak (r^2=.15 for fishnet and r^2=.13 for kernel density).