



U.S. Department of Transportation
Federal Transit Administration



Evaluating Transportation Equity: An Intermetropolitan Comparison of Regional Accessibility and Urban Form

Background

Accessibility gauges the potential for interaction rather than the quality or amount of movement, and it provides the needed measurement tool as the critical link between social equity and the built environment as it is shaped by land-use and transportation decisions. Nearly all empirical research on accessibility has been focused on case studies of single metropolitan regions, which fail to capture the effect of region-level decisions. Intermetropolitan comparisons are essential for understanding the region-level decision tradeoffs between mobility and proximity in producing accessibility. Without a systematic analysis of a cross-section of metropolitan areas, policy makers have little guidance in understanding which arrangements of transportation infrastructure and which types of urban form lead to more equitable regional accessibility outcomes. This study supports a transportation policy shift by evaluating the social equity implications of accessibility through a comparison between multiple metropolitan areas of the United States. The study compares 25 metropolitan regions to identify those regions that best support high accessibility for transit-dependent populations, racial minorities, and low-income households.

Objectives

The project sought to accomplish the following objectives: (1) to demonstrate that intermetropolitan comparisons of accessibility are feasible; (2) to propose methodological innovations necessary to conduct social equity analysis in the context of regional accessibility; (3) to identify possible main factors that contribute to the equity of the accessibility distribution among a metropolitan region's residents; and (4) to illustrate the special disadvantage experienced by people who are dependent on public transportation.

Findings and Conclusions

The study offers several innovations in modifying standard approaches to accessibility measurement to fit the needs of social equity analysis and finds that three main factors contribute to the equity of the accessibility distribution among a metropolitan region's residents.

The project demonstrates that carrying out intermetropolitan comparisons of accessibility is feasible with current data, but that a key obstacle stands in the way of future work. Data are not readily available and they lack consistency. The study offers several innovations in modifying standard approaches to accessibility measurement to fit the needs of social equity analysis. Whereas in standard transportation planning practice an individual

impedance distance-decay function is estimated for each region, this study has relied on a single pooled factor. The approach is both necessary for intermetropolitan comparison and justified as a method, yet there are many approaches to estimating such a factor. Significantly higher or lower factors could not only raise or lower accessibility levels overall, but could alter the ordinal ranking between metropolitan areas.

The study focuses substantively on social equity outcomes of regional accessibility and finds that three main factors contribute to the equity of the accessibility distribution among a metropolitan region's residents. First, regions where transit accessibility is high relative to automobile accessibility tend to be more equitable than others. Second, regions with a small share of transit-dependent residents are more equitable than regions with large shares of transit-dependent residents. Having access to a car is an advantage even in regions with exceptionally high transit accessibility. Finally, a region tends to be more equitable if a larger share of transit-dependent people is capable of living in zones where transit accessibility is high. Under this approach, land-use regulations and housing policies might contribute to improving transportation equity by relaxing restrictions on where people live.

Benefits

This project sought to accomplish for accessibility that which current mobility-based metrics do for mobility: affect the terms of the debate and establish a measurable basis for policymaking at the metropolitan and intermetropolitan scale. Advancing standardized metrics offers the opportunity to inject accessibility—and, hence, equity and sustainability—principles into transportation decision-making.

If moving accessibility to a more central position in transportation policy is to proceed, then the diffusion of accessibility metrics in transportation planning practice will be greatly assisted by the standardization and standardized reporting of data. MPOs, for example, might provide consistently defined outputs of metropolitan travel models to a central collection agency, much like transit agencies are required to do for the National Transit Database. The project provides a deeper understanding of how a standardized set of data generated by regional agencies might be collected in a repository to facilitate consistent and dependable accessibility-based analysis among places and through time.

Project Information

FTA Report No. 0066

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