

Enhancing Senior Mobility: Distributional Impacts and Equity Implications of Infrastructure Investments for an Ageing Population

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Abstract:

The swift aging of modern societies prompts critical inquiries regarding the equitable facilitation of older adults' mobility requirements within transportation systems. This paper assesses the distributional impacts of infrastructure investments aimed at enhancing senior mobility, concentrating on spatial and socio-economic disparities within elderly populations. The primary research inquiry is: To what degree do mobility-focused infrastructure investments for older adults mitigate or exacerbate pre-existing disparities in accessibility and welfare among various senior demographics?

Utilizing a mixed-methods framework that combines micro-level travel survey data, geospatial accessibility metrics, and distributional incidence analysis, we evaluate various investment strategies, including barrier-free urban design, demand-responsive transport services, and enhancements to pedestrian and public transit infrastructure. The findings indicate that when interventions are tailored to specific accessibility deficiencies and demographic vulnerabilities, they yield significant equity improvements, particularly favouring seniors who are low-income, have mobility challenges, or are spatially isolated. On the other hand, investments that do not take into account different mobility needs could make existing inequalities worse.

The paper's scientific contribution consists of presenting a formal distributional assessment model for senior mobility investments, supplying empirical evidence regarding their varied impacts, and delineating equity-focused design principles for transportation planning in aging populations. By systematically connecting different types of investments to their effects on distribution, this paper adds to the body of work on long-term infrastructure prioritization and inclusive mobility.

Keywords:

Senior mobility, Ageing population, Infrastructure investment, Accessibility, Distributional effects, Transport equity, Inclusive transport planning, Welfare impacts, Urban mobility, Demand-responsive transport.