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Unveiling the Influential Factors of Commuters for Public Transit Mode Selection

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A B S T R A C T

This research study explores the influential factors that shape commuters' decisions when selecting public transit modes for their daily journeys. By delving into the core of commuter behavior and decision-making processes, this research aims to unveil the underlying motivations, preferences, and constraints that guide commuters towards specific modes of public transportation. Through a comprehensive analysis of these factors, valuable insights are provided to inform strategies for enhancing public transit system. By shedding light on the intricacies of commuter decision-making processes, this research paves the way for informed interventions aimed at optimizing public transit services to meet the evolving needs and expectations of modern-day commuters.

Keywords: Mode Choice, Commuters' Behavior, Public Transit System

INTRODUCTION

In the realm of urban transportation, the selection of a commuting mode plays a crucial role in shaping transportation efficiency, sustainability, and overall user experience. Public transit systems stand as vital conduits for millions of commuters globally, offering a diverse array of options for navigating daily journeys. It is imperative for policymakers, urban planners, and transportation authorities to grasp the intricate array of factors that influence commuters when choosing a specific public transit mode to enhance the quality and efficacy of transportation services.

This study delves into the heart of commuter behaviour and decision-making processes regarding the selection of public transit modes for daily commutes. By uncovering the influential factors that guide commuters towards modes of public transportation, this research aims to illuminate the underlying motivations, preferences, and constraints that shape commuter decisions. Through a thorough examination of these factors, we aim to offer valuable insights that can guide strategies to improve public transit systems, elevate commuter satisfaction, and advance sustainable urban mobility solutions.
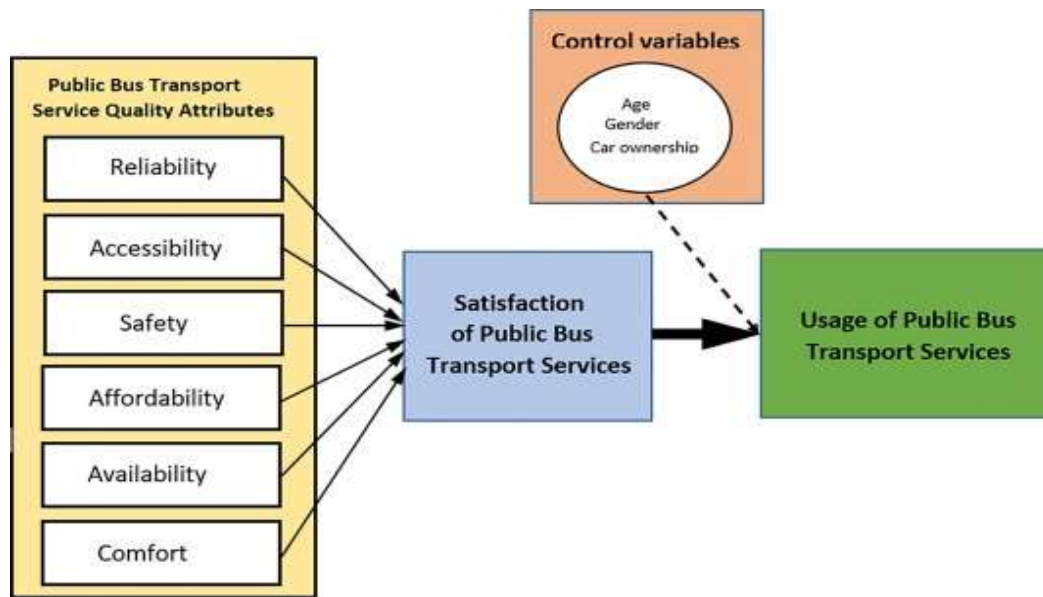
Figure 1. Influential Factors for Public Transportation Selection

Focused on unravelling the complex interplay of variables affecting mode selection for commuting via public transit, this research seeks to enrich the existing knowledge base in urban transportation planning and policy development. By untangling the intricacies of commuter decision-making processes, this study strives to pave the way for more informed and targeted interventions aimed at optimizing public transit services to meet the evolving needs and expectations of today's commuters. Figure 1. Shows the influential factors for public transportation selection.

LITERATURE REVIEW

Sinziana Rasca and Naima Saeed explored the factors influencing the use of public transport by commuters living in networks of small cities and towns in Northern Europe. The study analyses data collected through a regional travel survey conducted in Agder, Norway, and uses ordered logistic regression to identify the factors that significantly affect the choice of public transport as a daily commute mode. The results show that car ownership, distance to work, parking availability, and ticket prices are significant factors in determining the use of public transport. The study also finds that the odds of using public transport increase when respondents do not have persons in care, while factors such as low bus frequency and long walking distances to the bus stop have a negative impact on public transport use. The main factors influencing the use of public transport by commuters in small cities and towns include car ownership, distance to work, parking availability, ticket prices, and the presence of persons in care. These factors significantly impact the choice of public transport as a daily commute mode. Figure 2 shows the interconnectivity among factors.

Figure 2. Interconnectivity among factors

Ludfi Djakfar et. al. founded that how employees choose their commuting transport mode using the stimulus-organism-response (SOR) model. The study collected data through a questionnaire survey of 500 formal-sector workers in Jakarta. The results showed that trip characteristics, transport infrastructure, environment, and work characteristics indirectly influenced the choice of e-hailing and private transport through organism factors (travel experience and attitude). The study suggests that a comprehensive strategy including infrastructure provision, transit service improvement, the built environment, and employers' policies is needed to promote sustainable commuting trips. They suggested that suggest that to promote sustainable commuting trips, a comprehensive strategy is needed. This strategy should include improving transport infrastructure, transit services, the built environment, and employers' policies. By addressing these factors, it can encourage the use of public transport, e-hailing services, and reduce reliance on private transport for commuting.

Juremalani, J., & Chauhan, K. A. examined that the challenges of urbanization in emerging economies and the need to promote non-motorized vehicles for shopping trips. The study analyses the characteristics of shopping trips in Vadodara City, such as distance, travel time, and mode choice behaviour. It also examines the socio-economic background of the commuters to understand their preferences and needs. The findings suggest that promoting non-motorized transportation can have multiple benefits, including reduced pollution, fuel savings, improved health, and reduced congestion.

Javid Faizi et al. discussed the development of mode choice models for work trips in urban transportation planning. The models cover various modes of transportation such as private car, taxi, public bus, auto-rickshaw, motorcycles, shared car, bicycles, and walking. Factors that influence mode choice include socio-economic variables, network variables, and weather conditions. The article reviews different methods used for developing mode choice models, with the multinomial logit model being the most commonly used. The application of mode choice models can help users make informed transportation choices and can contribute to reducing traffic congestion and air pollution in cities. The main factors that influence mode choice in urban transportation include socio-economic variables such as age, gender, car ownership, and family monthly income, as well as network variables like travel time, travel cost, comfort, reliability, employment, driving license, weather, and dust & noise. These factors play a significant role in determining the mode of transportation individuals choose for their work trips.

CONCLUSION

The promoting sustainable commuting trips requires a comprehensive strategy involving infrastructure improvement, transit service enhancement, built environment considerations, and supportive employers' policies. By addressing these factors, it can encourage the use of public transport, e-hailing services, and reduce reliance on private transport for commuting. The main factors influencing the use of public transport by commuters in small cities and towns include car ownership, distance to work, parking availability, ticket prices, and the presence of persons in care. These factors significantly impact the choice of public transport as a daily commute mode. The study emphasizes the importance of considering these factors to promote public transport usage and improve sustainable commuting options in small urban areas. It is also evident that various factors significantly influence travellers' mode choice behaviour in different cities. Factors such as travel time, travel cost, vehicle ownership, age, distance, license, occupation, residence status, weather, and family income play crucial roles in determining mode selection. Many studies have utilized multinomial logit models based on utility functions theory to develop accurate mode choice models with high prediction accuracy.

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