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Assessing the Comparative Efficiency of Urban Mass Transit Systems in Ohio: Longitudinal Analysis

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A mass transit system not only improves passenger mobility, it also affects the level of economic activities

(e.g., working and shopping). Thus, changes wrought by mass transit service planning can heavily influence regional economic growth. This planning requires a careful consideration of conflicting goals, such as better utilization of fleets vs. transit services, improved passenger services vs. increased operating expenses, revenue increases vs. tax or fare hikes. In turn, this poses a number of problems for policy decision makers. In particular, given the public's growing concerns over government budget deficits, the continuous underutilization of a mass transit system can increase public scrutiny of additional investments in mass transit services. This project seeks ways to better utilize mass transit systems and thus make best use of state, federal, and municipal government funds and of taxpayers' monies. Research results could be applied to transit systems outside of Ohio.

Transit efficiency (especially accessibility to high-quality transit) may affect the local economy.

Study Methods

This research project employed a data envelopment analysis (DEA) model with an input-oriented ratio form under constant returns to scale (CRS) and varying returns to scale (VRS) to address the following research questions:

1. How can we assess the performance of mass transit systems over time? in other words, which performance metrics are relevant for assessing mass transit efficiency for the future investment and improvement of the mass transit system?
2. What are the most important determinants of mass transit efficiency?
3. How do we develop a transit policy that can boost transit efficiency?

Findings

Based on the analysis of the past three years of time-series data for 24 of Ohio's 27 urban mass transit agencies, this study found:

- The overall size (i.e., total population) of a city has no bearing on its mass transit efficiency.
- Local climate and economic conditions are not necessarily tied to transit efficiency.
- Using particular transportation modes could influence mass transit efficiency, according to the analysis of 515 transit agencies across the US.

Policy Recommendations

The author makes the following recommendations to improve mass transit efficiency:

- State and municipal governments should reward and prioritize the development of mass transit systems that serve densely settled urban areas (an average population of at least 7,000 per square mile) while increasing the use of bus rapid transit.
- Where financial and human resources are not fully utilized, public policy makers must consider outsourcing the transit operation to private enterprises or building a long-term partnership with them.
- Public policy makers should eliminate duplications and/or have high-performing transit agencies manage services for low-performing adjacent areas.



Source: <http://www.butlercountyrta.com/>

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To Learn More

For more details about the study, download the full report at transweb.sjsu.edu/project/1135.html