The Benefits of Transit in the United States: A Review and Analysis of Benefit-Cost Studies

Christopher E. Ferrell, PhD

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SJSU Research Foundation
210 N. Fourth St., 4th Fl.
San José, CA 95112

Tel // 408.924.7560
Fax // 408.924.7565

transweb.sjsu.edu

Analysis of available benefit-cost (b-c) ratio estimates for transit systems in the U.S. found wide variation among sources. Some differences can be attributed to population size and service area densities (context). Rural and small urban areas generally yielded lower b-c values than urbanized areas. However, differences remained even after context was accounted for, suggesting appropriate transit investments in rural and small urban areas can yield benefits substantially greater than costs.

Transit is a vital economic lifeline for millions of Americans.

Study Methods

The study involved a review of literature on b-c estimates of existing U.S. transit systems. B-c estimates from each study were organized according to the type of study area (e.g., rural, small urban, urban, etc.). This process identified monetary transit benefit categories. The estimated dollar value for each category was divided by the total estimated costs of providing the transit services, thus creating a benefit-specific b-c ratio for each category and allowing them to be compared equally.

Findings

The analysis found wide variation among sources. However, transit benefits were measurable and strong in a variety of operating environments, not just in large cities. Key findings from this review and analysis were:

- **Substantial transit benefits were found in rural and small urban areas:** While two studies for rural area transit services found ratios below or slightly above "1" for every dollar spent, others found values ranging from 1.67 to 9.67.
- **Transit pays for itself in congestion relief benefits for mid- to large-sized urban areas:** These benefits begin to exceed transit costs for metro areas of around 2.5 million people or larger.
- **Jobs and economic stimulus are among the largest benefit categories of transit:** This was true in urban and rural areas alike.
- **Transit improves health care access and outcomes while reducing costs:** Transit access to medical services decreases people's tendency to forgo treatments, thereby improving public health and reducing its costs.
- **Transit saves money:** While transit's financial benefits in rural areas are generally low compared with total costs, small and large urban areas receive larger benefits.
- **Low b-c ratios aside, transit saves lives:** Transit's safety and security benefits were low compared with total transit costs. However, b-c analysis methods may undervalue transit's role in reducing accidents and their social costs.
- **Greenhouse gas emissions, air quality, and other important but undervalued transit benefits should be considered:** Transit fights climate change through reduced greenhouse gas emissions, reduces dependence on foreign oil, increases property values, increases compact/transit-oriented development patterns, and improves emergency response. But they have received little attention from system-wide b-c studies and deserve more.

Policy Recommendations

- Analysts should use methods that include benefits appropriate to the transit system's context. Benefit-cost studies of rural or small urban systems should not focus on congestion benefits, but rather on benefits to jobs and the economy, health care costs, and saving money.

Transit pays for itself in congestion relief benefits for mid- to large-sized urban areas.

- Accelerate research and development of transit benefit-cost methods. These are improving, but additional research and development is needed before they can reliably and accurately capture the full range of benefits in monetary terms.
- Consider the full range of benefits that transit offers in all contexts—urban and rural. It can help shape transportation planning and financing policies and programs. The findings in this report suggest that greater transit investments in rural and small urban areas may be warranted.

Rural, Small Urban and Urbanized Area Transit Benefit-Cost Ratios

Study Area	Benefit-Cost Ratio	Source
U.S. Small Urban & Rural		Godavarthy, et al. (2014)
Rural	1.11	
Small Urban	2.16	
Urbanized Areas (UZAs) by Population		Harford (2006)
700,000 - 1,000,000	0.75	
1,000,001 - 2,500,000	0.85	
2,500,001 - 5,000,000	1.34	
5,000,001 - 8,000,000	1.32	
8,000,001 and over	1.62	
South Dakota	2.30	Penet (2011)
Rural	0.47	
Small Urban	1.23	
Urbanized	2.96	
Other	0.54	
Danbury, Conneticut (Small Urban)	9.70	Skolnik and Schreiner (1998)
Select U.S. Rural Transit Agencies		Burkhardt, et al. (1998)
Blacksburg Transit, Virginia	1.67	
COLTS (Lee County), Maryland	4.22	
County Commuter, Maryland	3.18	
Delta Area Rural Transportation System, Mississippi	3.55	
JAUNT, Inc., Virginia	1.85	
Pee Dee Regional Transportation Authority, South Carolina	3.25	
STAR, Sweetwater County, Wyoming	3.03	
Zuni Entrepreneurial Enterprises, New Mexico	4.22	

About the Authors

Christopher E. Ferrell is a Research Associate at the Mineta Transportation Institute and the co-founder of and principal at CFA Consultants.

To Learn More

For more details about the study, download the full report at ***transweb.sjsu.edu/project/1425.html***

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