

# Closing the Commute Gap: Evaluation of Bus Rapid Transit in Tanzania



As road congestion and urban sprawl worsen in ever-expanding African cities, many governments are investing in public transit infrastructure. But transit systems are often expensive and difficult to construct. Bus rapid transit (BRT)—or dedicated lanes for buses that run along existing roads—are a relatively low-cost public transit option, but there is little rigorous evidence on their efficacy in reducing congestion or improving socio-economic outcomes. Researchers are examining the effect of a system of BRT routes in Dar es Salaam, Tanzania on outcomes including travel patterns, employment, incomes, access to labor and goods markets, migration and neighborhood amenities.

## Policy Issue

Across the developing world, tens of millions of people live in large cities in which the cost of commuting and transport in general is extremely high. Existing evidence suggests that these costs may reduce the ability of poor households to access jobs and important amenities. Cities across the developing world are making significant investments in urban transport infrastructure as a means to increase urban mobility; reduce job search costs; improve worker and firm productivity, employment and growth; improve air quality; increase road safety; and improve individual welfare through increasing commuter income, health and leisure consumption.

Despite the rapid proliferation of these projects, the empirical evidence on the impacts of urban transportation infrastructure in developing countries remains limited. BRT systems have the potential to help address the challenges of urban sprawl, but few African cities have them. This research examines the impacts of a BRT in an East African city and aims to contribute evidence on effective ways to reduce road congestion and the adverse effects of urban sprawl in this context.

## Evaluation Context

Dar es Salaam, the largest city in Tanzania, has high levels of traffic congestion, especially on its main arterial roads. The public transit options currently available in Dar es Salaam are typical of fast-growing East African cities: in addition to an informal network of minibuses, rickshaws and motorcycle taxis, there are two commuter trains and a ferry.

The new BRT system consists of dedicated bus lanes separated from other vehicle traffic and station



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platforms with off-board fare collection systems to reduce slowdowns and promote traffic flow. The first operational BRT line which is currently under evaluation is the first of six planned routes, which will run in spoke-like fashion from the central business district to the outlying areas of the city. This system is similar to other BRT lines in developing cities (e.g. Lahore, Bogota, Quito), but it is the first of its kind to operate in East Africa.

The results of this study could have implications for other cities across the continent: Addis Ababa is building a light rail system, Nairobi is considering a BRT, Accra is expanding their BRT system, and Kigali is investing heavily in upgrading buses.

## **Details of the Intervention**

Researchers are partnering with the Dar Rapid Transit Agency (DART) to conduct a study evaluating the impact of the newly built BRT line in Dar es Salaam on outcomes including travel patterns, employment, incomes, access to labor and goods markets, migration and neighborhood amenities. Since the location of the BRT line is fixed (and cannot be allocated randomly), researchers are using a quasi-experimental design based on a difference-in-difference-in-difference strategy.

Researchers first surveyed close to 1,750 households in the Dar es Salaam metropolitan area. They are comparing households at varying distances from the newly constructed first phase of the BRT and later phases of the BRT system which will be constructed over the coming years. Information was collected on a wide range of outcomes including travel patterns and times, employment outcomes, incomes, consumption, assets, property values and neighborhood amenities.

The research team has initiated monthly mobile surveys of the original respondents to help with tracking respondents over long time periods, and to gather data on a subset of outcomes on a high-frequency basis. A full midline survey of all households included in the baseline survey (whether or not the original respondents still live in the household) and all individuals interviewed at baseline (including those who have migrated elsewhere) is currently underway.

In addition to the study described above, researchers are planning two randomized evaluations to investigate potential policy options for increasing the extent to which the poorest may benefit from the BRT. The first of these interventions will subsidize access to the BRT for certain individuals, and the second will be a spatially conditional cash transfer program which aims to understand the costs of displacement resulting from public infrastructure projects.

The design of the second intervention will be influenced by the results of a qualitative study conducted over summer 2017. Through a series of focus group discussions throughout Dar es Salaam, researchers sought to better understand the make-up of the housing market in Dar, how secure land and property titles are (both on paper, legally, as well as in practice), gauge monthly cost increase at which respondents would consider moving from their home, and identify the core reasons for moving.

## **Results and Policy Lessons**

Study on-going; results forthcoming

# Sources

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