



PUBLIC TRANSPORT INVESTMENT AND INFORMAL TRANSIT NETWORKS

EVIDENCE FROM THE LAGOS BUS REFORM INTERVENTION

Program Details

LOCATION:

Lagos, Nigeria

IMPLEMENTING AGENCY:

Lagos Metropolitan Area
Transportation Authority (LAMATA)

SCOPE OF EVALUATED INTERVENTION:

- 18 new public transport trunk routes
- 27 new public transport feeder routes

TIMELINE:

January–December 2021

Context

African cities will double in population by 2050. With cities providing more opportunity per square mile, urban growth has the potential to lift billions out of poverty. The degree, however, to which this opportunity is realized will depend on transportation. Transportation determines whether individuals have access to miles of opportunities, or face gridlock that constrains them to isolated neighborhoods. In doing so, transportation determines how well cities can house and productively employ their residents.

In many low and middle income country cities, transit is private: operated by many small companies, some so small they only own a single bus. This system is flexible, but can be disorganized. Bus drivers try to steal business from each other, leading to dangerous driving, congestion, and pollution. As cities become wealthier, they often invest in formal transit such as centrally managed rail or buses. Such a transition occurred a generation ago in higher-income cities. It is now being replicated in emerging cities. Central transit, however,



Number of Trips per Day 0 - 199 200 - 299 300 - 399 400 - 499 500 - 599 600 - 699 700 - 799 800 and over
Source: ITP (2012) and analysis by DIME.



is expensive. How much and where should developing cities invest in formalizing transport? How can formal and informal transit best complement each other? Under what circumstances is it better to rely mostly on informal transit? The choices made today may crystallize the shape of these growing cities for generations.

Impact Evaluation Details

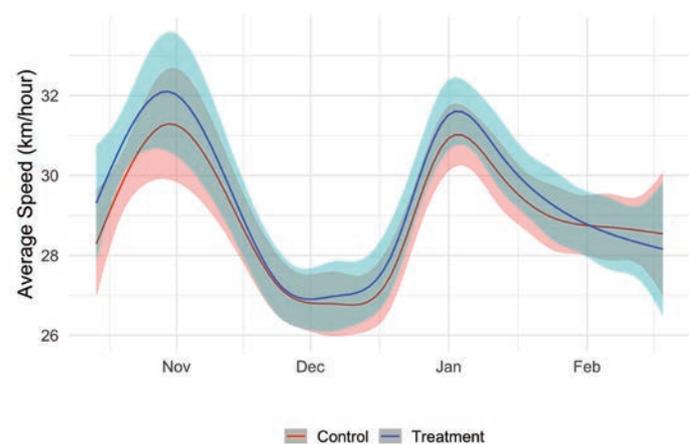
This impact evaluation focuses on how the informal transit system in Lagos responds to a large-scale public transit intervention. A research team composed of DIME, Brown University, and University of California, Berkeley will evaluate the impact of the roll-out of public buses on 25 routes previously served only by informal minibuses, in partnership with the Lagos State authorities and the Lagos Metropolitan Area Transport Authority. It is not clear what to expect: public buses might displace informal transit, or actually improve it, by increasing demand throughout the network. We will study demand for public transit as well as how the provision of public transit affects the supply

of informal transit and overall congestion. Additionally, we will use the expected shock to transit networks to empirically assess the efficiency of informal transit networks, and to understand the policy implications for their regulation.

The research team will use several sources of data: electronic ticketing data for formal buses; bus stop counts and worker surveys for informal buses; and congestion and travel times from Google Maps and Waze routing APIs. The identification strategy for this intervention is based on a differences-in-differences approach comparing routes to be opened in Fall/Winter 2020 and Spring 2021 to routes to be opened at a later stage. In particular, we compare bus route-level outcomes—fare, frequency and quality of the private and public offer, drivers' revenue—on newly opened routes and on routes that will open in the future. To understand how the intervention affects adjacent routes and drivers on adjacent routes, the team will also collect data on routes that are one bus network node away from the treated routes. In addition, we will develop a model of supply of informal transit and use the elasticities estimated in our reduced form approach to simulate policy scenarios.

Policy Relevance

The project will further the understanding of the necessary transport infrastructure and regulations for cities to allow for better connection of people to jobs and growth. The study of formalization of informal transit is a crucial question for Lagos, as the fastest growing megacity in Africa, but also for other client countries that will incur substantial urban growth in the next few decades. In general, cities in which informal public transport is prevalent will find valuable lessons in this project's conclusions on Lagos's formalization of its transit network.



Average speed per day: Lagos bus routes—treatment and control
Source: Google Maps (2020).

For more information email dimetransport@worldbank.org or visit www.worldbank.org/en/research/dime/brief/transport



ieConnect has over 30 ongoing impact evaluations across 19 different countries. The IEs focus on urban mobility, transport corridors, road safety, and rural roads sectors with thematic emphasis on gender, female economic empowerment, and fragile situations. From the ieConnect program we will learn how to improve the availability and quality of data that can be used for measuring the impact of transport projects and generate evidence that can be used to improve decision making for transport investments in the long-term. The ieConnect for Impact program is a collaboration between the World Bank's DIME group and the Transport Global Practice. This program has been funded with UK aid from the UK government.