Informing Transport Investments Through Data Systems and Evidence

Transport is a critical investment sector for economic development. Since 2000, about 16 percent of lending by multilateral development banks has been aimed at this sector. However, there is limited evidence of its impact through rigorous experimental or quasi-experimental evaluation. In fact, impact evaluations (IEs) on transport accounted for less than 1 percent of IEs globally between 1981 and 2012.[1]

The ieConnect for Impact Program

Advances in data and technology have created new opportunities to work on the evaluation of large infrastructure investments. The ieConnect for Impact program is generating a significant body of evidence through the development of data systems and evaluations that can transform the way we think of mobility as an economic force and at a scale that will substantially improve the evidence base for policy making. The ieConnect for Impact program is a collaboration between the Development Impact Evaluation group (DIME) and the World Bank Transport Global Practice. It is anchored into a shared and common vision for "Sustainable Mobility for All."[2] Through partnership with the UK Foreign, Commonwealth & Development Office (FCDO), the ieConnect for Impact program was launched with funding from the UK government.

Program Snapshot

- 25 impact evaluations (IEs) across 18 countries
- Focus on urban mobility, transport corridors, road safety, and rural infrastructure
- Thematic emphasis on gender, female economic empowerment, fragile situations, environment, and climate

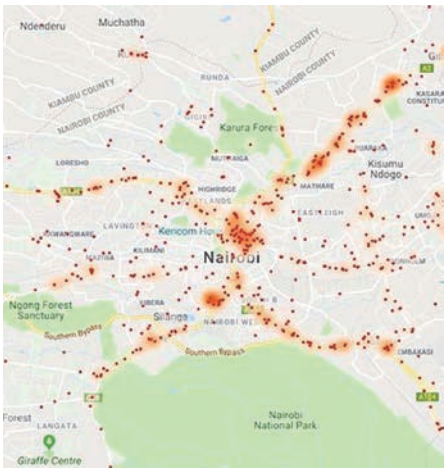
Building Data Systems

Transport IEs are typically on a larger scale, have more intensive data requirements, and present unique methodological challenges compared with IEs in other sectors. The ieConnect program has prioritized the development and expansion of data systems using new technologies to harvest large amounts of data at higher frequency or with greater geographic coverage and spatial resolution than traditional survey methods allow. This includes geospatial, crowdsourced, and sensor data, coupled with new and existing datasets. The data systems being developed allow research teams to mitigate methodological challenges—such as the fact that selection of project sites is not random and is often integral to project design—using rigorous IE methods. This, in turn, can build local capacity and strengthen government agencies' basis for evidence-based decision making for transport investments in the long term.

For instance, ieConnect's smarTTrans project is developing a detailed real-time geo-referenced crash map of Nairobi (Map 1). In the first stage, the team is generating high-frequency data on crashes and crash density around urban hotspots and using a real-time verification process to record characteristics related to the crash. Once this process has been successfully tested for Nairobi, the code will be open and available so that this type of data collection can be expanded to other cities and countries. The second stage will use the information on the characteristics of

[1] Cameron, D. B., A. Mishra, and A. N. Brown. 2016. "The Growth of Impact Evaluation for International Development: How Much Have We Learned?" *Journal of Development Effectiveness* 8 (1): 1–21.

[2] TThe Sustainable Mobility for All (SuM4All) initiative is a global multistakeholder partnership framed around the four goals of universal access, efficiency, safety, and green mobility. For more information, visit www.sum4all.org.



Map 1. Crowd-sourced and web-scraped real-time geo-referenced crash map of Nairobi

the different crash sites to conduct a series of experiments testing different types of interventions. A better understanding of which road safety interventions are most effective can be used to mitigate the health and safety impacts of increasing motorization in Nairobi.

Partnering Across Institutions

An increasing portion of the operational portfolio of multilateral development banks supports multifaceted development challenges, such as high-density, multi-modal trade corridors, and urban mobility. The ieConnect program (see Table 1 for a list of ongoing IEs) aims to influence the design and implementation of transport projects financed by the World Bank, other multilateral development banks, bilateral development institutions, and government agencies by partnering at the operational level of the impact evaluation to transfer IE knowledge and tools. The program links projects with research teams to generate data and develop innovative and rigorous IEs. Within the portfolio, IEs of investments from other organizations, including the African Development Bank and the Islamic Development Bank, are under way or planned.

TABLE 1. Ongoing impact evaluations

Title	Country	Theme
Rio de Janeiro gender segregated public transport	Brazil	Gender, Urban Mobility
The impact of a targeted fare subsidy program on public transportation usage and labor market outcomes: a regression discontinuity analysis from Bogota	Colombia	Urban Mobility
Ethiopia Expressway	Ethiopia	Transport Corridors
Hawassa Industrial Park Community Impact Evaluation	Ethiopia	Gender, Transport Corridors
Ethiopia Impact Evaluation of the Transport Systems Improvement Project (TRANSIP) in Addis Ababa	Ethiopia	Urban Mobility, Road Safety
Road Safety Data and Analytics for a Safer Addis-Adama Expressway	Ethiopia	Road Safety
Guinea-Bissau Rural Transport Project: Impact Evaluation on Women's Access to Essential Services and Economic Opportunities	Guinea-Bissau	Rural Roads, Gender
Measuring Violence Against Women in Public Spaces: Drawing on Experimental Evidence	Global	Gender, Urban Mobility
Impact Evaluation of Iraq Transport Corridor Project	Iraq	Transport Corridors
Kenya smarTTrans: Road Safety in Kenya	Kenya	Road Safety, Urban Mobility
Liberia Road Safety Impact Evaluation	Liberia	Road Safety
Impact Evaluation of Emergency Response and Post-Crash Care in Malawi and Tanzania	Malawi, Tanzania	Road Safety
The Route for Development: Complementary Effects of Improved Roads and Agricultural Extension Services	Mozambique	Rural Roads
Connecting the Dots: The Impact of Enhanced Bridge Connectivity	Nepal	Rural Roads
Impact Evaluation of the Rural Access and Mobility Project	Nigeria	Rural Roads
Slow down! Pilots to Decrease Speeding and Incidence of Fatal Traffic Accidents at "Critical" Road Spots	Nicaragua	Road Safety
Enhancing Female Participation in Household Decision-Making for Improved Impacts of Rural Roads on Factor Accumulation and Productivity in Nicaragua	Nicaragua	Rural Roads, Gender
Impact Evaluation of the Peru Support of the Subnational Transport Program Project	Peru	Rural Roads
Lake Victoria Transport Program Rwanda Corridor	Rwanda	Transport Corridors, Rural Roads
Impact Evaluation of Rwanda Rural Feeder Roads	Rwanda	Rural Roads
Effects of Large Transportation Infrastructure Projects on Worker Well-Being	Senegal	Urban Mobility
Measuring and Enhancing Mobility in Dakar	Senegal	Urban Mobility
Impact Evaluation of the Dar es Salaam BRT System	Tanzania	Urban Mobility, Road Safety
Understanding and Addressing Gender-Based Violence in Public Transportation in Dar es Salaam	Tanzania	Gender, Urban Mobility
Measuring the Impact of Highway Upgrading on National Integration	Tunisia	Transport Corridors

Going Forward

Dissemination of baseline results began in 2018 and will continue through 2022, with final IE reports following. Given the close partnership in developing the IEs and data collection, research teams and government counterparts have the opportunity to directly influence policy making and use findings to shape the investments and ensure that they realize their full potential in terms of poverty reduction and sustainable growth. Findings are presented at high-level stakeholder events and international conferences so that policy makers, academics, and a wider audience can learn about the results and how to apply them, facilitating the application of research tools and findings to different contexts where the impact can be magnified.

ieConnect Team

Arianna Legovini, Head of DIME
Nancy Vandycke, Economic Advisor, Transport Practice
Sveta Milusheva, Economist, DIME Program Coordinator
Alice Mortlock, Operations Officer, DIME
Girija Borker, Economist, DIME
Théophile Bougna, Economist, DIME
Alice Duhaut, Economist, DIME
Javier Morales Sarriera, Economist, Transport Practice
Aram Gassama, Research Analyst, DIME
Robert Marty, Research Analyst, DIME
Judith Indalecio, Program Coordinator, DIME

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