

ieConnect for Impact: Using Data and New Technologies to Inform Policy Decisions and Investments in Transport

ieConnect for Impact is the World Bank's impact evaluation program on transport. The program generates data and evidence on the effectiveness of transport investments, helping inform the US\$20 billion that Multilateral Development Banks spend in the sector each year¹. By doing so, the program helps realign research priorities with where development financing is spent. Despite being the second largest sector in spending volume, as of 2015, only one percent of rigorous impact evaluations (IEs) globally were in transport².

The ieConnect program was launched in 2015 with funding from the UK government to address the gap in data and evidence in transport. Under the helm of the Development

Impact Evaluation group (DIME) and the Transport Global Practice of the World Bank, the program has grown to 41 research activities in 23 countries, anchored in a common vision for sustainable development³.

Objective: to improve development effectiveness of investments in the transport sector through better and more accessible evidence.

Key Areas: urban mobility, transport corridors, road safety, and rural infrastructure.

Thematic emphasis: gender, female economic empowerment, fragile situations, environment, climate change, and COVID-19 response or recovery.

IE Method: Data and Technology

Advances in data and technology have transformed how we can evaluate large infrastructure investments. ieConnect for Impact has prioritized the use of new disruptive technologies to generate large amounts of high-resolution data to expand evaluation options beyond what traditional survey methods allow. This includes geospatial, crowdsourced, and sensor data, coupled with new and existing datasets. But high-quality data does not constitute evidence unless coupled with rigorous methods. ieConnect for Impact links operational projects with

research teams to develop a rigorous analytical approach—experimental and quasi-experimental—to address the most pressing development questions in the sector. The program helps us understand how transport investments improve trade, local economic activity, land use, resilience, gender empowerment, and access to basic services in less developed and remote regions by combining advances in big data and technology with the most robust causal analytical tools available.

Policy Impact

ieConnect has emerged as a critical program to inform and influence transport policies and investments. Examples include:

Rwanda Rural Feeder Roads Impact Evaluation

- **Research question:** What is the impact of upgrading rural roads on markets and households in remote rural areas in Rwanda?
- **Policy Impact:** The data system developed by the team has been adopted by the government. It is being used to measure the impacts on corridor projects as well as rural roads. The results of the study's market price survey are visualized in an interactive online database. The dashboard was developed using open source software for sustainability, and government staff were trained on how to use the dashboard and

extract data. The dashboard can be used by the Ministry of Agriculture to monitor variations in price and availability of key commodities.



before



after



Rio de Janeiro Gender Segregated Public Transport Impact Evaluation

- **Research question:** What is the demand for, and impact of women-reserved safe spaces on the metro in Rio De Janeiro?
- **Policy Impact:** The study found that, while reserved space is safer in relative terms, commuters associate women riding in public space with more openness to sexual advances. Results were discussed with the implementing partner, raising the need for more enforcement to decrease male presence in the women-only car. The results highlighted to the government potential downsides of public policies focused on segregating space instead of addressing cultural norms.



The study helped identify the distributional impacts of the first phase of the program to contribute to policy discussions on how to maximize the impact of phases 2 - 6 of the BRT.

Kenya SmartTrans Impact Evaluation

- **Research question:** Is it possible to use novel crowdsourcing data and machine learning algorithms to identify vehicle crash hotspots in Nairobi, Kenya?
- **Policy Impact.** By digitizing over 10,000 paper crash reports from official sources and developing a machine learning algorithm, the study produced a detailed real-time, georeferenced crash map of Nairobi that showed that less than one percent of the city's road network represented 52 percent of crashes and 55 percent of deaths. The team is working with the Government of Kenya to identify how the results of these analyses can help inform future road safety policies. 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. Specifically, the analyses can be used to help inform how to target interventions more efficiently, and how the data system can then be used to study the impact of any interventions that are implemented. This technology is also open and available for expansion to other countries.



Dar es Salaam BRT System Impact Evaluation

- **Research question:** What is the impact of a new Bus Rapid Transit (BRT) on travel times, commuter safety, job creation, income, property values, and health, wealth, and happiness for residents in Dar es Salaam, Tanzania?
- **Policy Impact:** The city of Dar es Salaam invested in a BRT project to address traffic congestion. The impact evaluation analyzes the impact of Phase I.



Information Dissemination and Capacity Building

- The program builds the capacity of a broad set of stakeholders from developing countries to make systematic use of data and evidence through a collaborative learning-by-doing approach. ieConnect organizes national and international workshops that bring together operational project teams, government policy makers, funders, data scientists, and economists to coproduce rigorous impact evaluations, generate data, and directly influence policy making.
- These workshops help project teams access and integrate the latest transport research into their projects and train participants in impact evaluation methods.
- The ieConnect team interacts closely with stakeholders throughout the lifecycle of each research project to help strengthen their understanding and ownership of the results.
- Research 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.

Looking forward:

ieConnect understands that every plan, investment, and policy change must be grounded in data and evidence for effective decision making. ieConnect will continue to work with transport projects in developing countries to build a data ecosystem to inform better policy choices.

The program is also ramping up efforts to help countries significantly improve their resilience to natural disasters and climate change, including providing evidence to inform transport emission reduction, and resilient infrastructure policies, and investments.

Notes

1. Progress Report (2016–2018) of the MDB Working Group on Sustainable Transport. <https://www.adb.org/documents/progress-report-2016-2018-mdb-wg-sustainable-transport>
2. Sabet, Shayda Mae, and Annette N. Brown. "Is impact evaluation still on the rise? The new trends in 2010–2015." *Journal of Development Effectiveness* 10.3 (2018): 291–304.
3. The Sustainable Mobility for All (SuM4All) initiative is a global multi-stakeholder partnership framed around the four goals of universal access, efficiency, safety, and green mobility in transport. For more information, visit www.sum4all.org.