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DRIVING REVOLUTIONARY IDEAS INTO PRACTICE



INFRASTRUCTURE FOR CLIMATE CHANGE
 POVERTY REDUCTION 2.0
 HUMAN DEVELOPMENT ON MOBILE
 GOVERNMENT, DISRUPTED



ABOUT DIME

The World Bank's Development Impact Evaluation (DIME) department generates high-quality and operationally relevant data and research to transform development policy, help reduce extreme poverty, and secure shared prosperity. DIME develops customized data and evidence ecosystems to produce actionable information and recommend specific policy pathways to maximize impact. To do so, DIME has developed and implemented a model of co-production with agencies on the ground that transfers capacity and know-how to partners, enables them to make mid-course corrections and motivates the scale-up of more successful policy instruments to achieve policy outcomes and optimize development impact. In so doing, DIME secures increases in the rate of return of underlying investments by large margins, far exceeding the costs of the research. The department conducts research in 64 countries with 200 agencies, leveraging a US\$180 million research budget to shape the design and implementation of US\$26 billion in development finance. DIME also provides advisory services to 30 multilateral and bilateral development agencies. Finally, DIME invests in public goods to improve the quality and reproducibility of development research around the world. From DIME Wiki to toolkits, training, and summer schools, DIME is servicing the global community of researchers and, in so doing, improving the quality of global policy advice.



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PREFACE

ARIANNA LEGOVINI

In the business of making policies, decisions are based on experience and guided by political concerns. However, in the business of delivering policies, the machinery of government is often taxed by delays and inefficiencies, and constrained by insufficient resources, management tools, and just-in-time information. The result is that governments operate well below the efficiency frontier.

For most of our history, research has been disconnected from policy and has moved slowly to build knowledge relevant to designing policies. Evaluation focused on whether (not how) policies succeed and missed the opportunity to inform the number one cause of failure: implementation. Today, we embrace that opportunity.

I have thought hard for at least two decades about how to bridge the distance between economic theory and practice, between what researchers do and what practitioners need, and how to increase the efficiency, volume, and quality of knowledge generation to make evidence relevant and timely for everyday decisions. I founded DIME to drive research into development practice. I will introduce some of the principles that govern this young institution in the chapters that follow, each designed to exemplify the value of doing better research for doing better development. In these chapters, we present four overarching ideas that we have worked into development practice.

We use three economic principles to do better research at DIME:

1. Placing capacity in the hands of policy makers to increase demand for contextually relevant and actionable knowledge;

2. Implementing global and country research programs to achieve economies of scale and scope in knowledge generation and dissemination; and
3. Instituting strict procedures for technical research standards, ethics, transparency, reproducibility, and data privacy and security, to further the credibility and actionability of research.

Overall, **DIME's approach is to inform the path of development through a capacities-based and iterative process of evidence-informed adaptive policy change.**

To do so, we have reorganized the production function of research from the microentrepreneurial to a "firm" model. We have attracted top-quality research economists, data scientists, analysts, software engineers, field coordinators, administrators, and program managers to professionalize every aspect of the production function of research. We have managed large consultations and collaborations with governments and development partners. Our aim is to release financial and technical constraints and build capacities; to unleash governments' ability to articulate needs, participate in generating evidence, and use it to manage and negotiate their own policies. In doing so, we leverage and help shape billions in development finance to learn how to create more efficient governments and more effective policies.

Further, we have taken advantage of the explosion in data and advanced AI analytics to deepen our model and deploy spatially integrated city, country, and global data systems and research programs that generate just-in-time policy advice. This has enhanced our ability to make substantive contributions at all stages of the policy cycle and support our clients in augmenting sectoral synergies.

In the chapters that follow, we use four areas of our research to help drive four, separate points:

1. Infrastructure investments represent more than half of total expenditures in national budgets or development finance and can be critical in providing access to economic opportunities or managing climate change risks. Yet the returns on these investments can come up short. We use the example of water infrastructure to investigate how returns can be optimized. We demonstrate that **relatively low-cost, complementary interventions and reforms can double or triple economic returns.**
2. The losses experienced during the COVID-19 pandemic pushed social protection systems to expand exactly when fiscal resources were at their lowest. We leverage a deep literature on cash transfers, economic inclusion, and community-driven development to show that the **choices we make in addressing the pleas of the most vulnerable can have dramatic consequences on their ability to extricate themselves from poverty,** increase their productive capacity, and secure sustainable improvements to their livelihoods.
3. The huge inequalities in access to quality education and health take decades to address. **Access to mobile technologies, social media, and streaming revolutionizes access to information, services and markets.** Phones load the hands of the poor with information and market opportunities. At US\$50 each, including a solar charger, smartphones are an affordable solution to calling for help, learning to read, obtaining healthcare, holding a bank account, using digital payments, and having access to diversified economic activity. Streaming edutainment can reach global populations and help develop norms and behaviors consistent with a fair and just society.

4. We expect government to deliver. Yet bureaucracies are constrained by administrative burden, low autonomy, and low morale; civil servants might be poorly resourced, and have inadequate management tools. In this chapter we show how research works hand in hand with digitalization to enable digital transformation that enhances public sector productivity.

By improving the efficiency and quality of public functions, digital transformation can have large, downstream impacts on the economy.

Overall, my message is that by using data, advanced analytics, and impact evaluation, governments and development institutions like the World Bank can achieve radically different levels of productivity and effectiveness of development

policy. We demonstrate in example after example that investing in data, advanced analytics, and impact evaluation has a transformational impact on the ability of governments to function, deliver services to their citizens, and ensure high returns on their investments.

However, the current resources in data, advanced analytics, and impact evaluation are inadequate to support shifts and much-needed support to the recovery process across our client countries, and to help address long-standing inequalities in opportunity and access to better lives.

I propose a plan for action in the conclusion of this report to help inform a conversation around how the World Bank and other development partners must rethink the balance between knowledge and investment financing.

ARIANNA





INFRASTRUCTURE FOR CLIMATE CHANGE DRAINS, TAPS, AND CANALS

ARIANNA LEGOVINI

Infrastructure is a powerful tool for managing climate change and its distributional consequences. Irrigation infrastructure lowers rainfall risks and expands the frequency of planting seasons, potentially reducing uncertainty, and increasing revenues. Drainage infrastructure lowers the risk of flooding and erosion, improving health outcomes and the environmental sustainability of soils. Water infrastructure improves access to drinking water while managing risks associated with decreased precipitation and runoff.

Infrastructure investments are urgently needed to address inequalities in access and associated opportunities. Only 7 percent of cultivated land in Sub-Saharan Africa is irrigated;¹ one billion people will be at risk of displacement due to flooding and other disasters by 2050,² and two billion people lack safely managed drinking water.³ While investments in water

¹ "Africa," International Water Management Institute, <https://www.iwmi.cgiar.org/issues/irrigation/africa/>.

² "IEP: Over one billion people at threat of being displaced by 2050 due to environmental change, conflict, and civil unrest," PRNewswire, September 9 2020, <https://www.prnewswire.com/ae/news-releases/iep-over-one-billion-people-at-threat-of-being-displaced-by-2050-due-to-environmental-change-conflict-and-civil-unrest-301125350.html>.

³ "2.1 billion people lack safe drinking water at home, more than twice as many as lack safe sanitation," World Health Organization, July 12 2017, <https://www.who.int/news/item/12-07-2017-2-1-billion-people-lack-safe-drinking-water-at-home-more-than-twice-as-many-lack-safe-sanitation>.

infrastructure are a first-order necessity, the costs are high and the realized returns are often low: not because of the inherent value of the infrastructure, but because of the lack of attention to factors that secure use, adoption, operations, and maintenance.

In this chapter, we show how market constraints can cap the adoption of extremely profitable irrigation technologies at a mere one-third of farmers. We show that overuse of irrigation water by some can create artificial scarcities for others, lowering agricultural productivity and exacerbating food crises. We also show how inadequate maintenance of water points can render as many as half inoperable. Finally, we show how a lack of waste collection services can undermine the usefulness of expensive drainage infrastructure.

The solutions to doubling or tripling the impact of infrastructure are just an arm's length away. Complementing the billions a year spent on water infrastructure with relatively low-cost interventions can help increase and sustain economic impact. Our economic research has tested and documented how critical, low-cost interventions improve usage and technology adoption and optimize the institutions needed for operation and maintenance.

The four studies we present below exemplify issues of global significance in infrastructure. They tell us how embedding data and experimentation can optimize the sustainability of impacts and increase the cost-effectiveness of expensive, but potentially transformative, infrastructure by large margins. We offer four critical lessons:

1. **How to triple returns to irrigation:** Access to irrigated land is a huge constraint in Africa. Irrigation infrastructure investments must be accompanied by reforms in land markets and the introduction of labor-saving technologies.

Supply-side interventions that provide inputs, insurance, credit, and information might be necessary, but are not sufficient to induce farmers to adopt profitable technologies that improve livelihoods and increase agricultural productivity. The Rwanda case study, a multi-year national research program, convincingly demonstrates that labor and land market constraints are binding for two-thirds of farmers with irrigation access. When farmers cannot take advantage of the economic opportunity offered by the infrastructure or the inputs provided by development programs, the returns to expensive irrigation infrastructure can be less than a third of their potential.

2. **How to halve water scarcity:** When institutions surrounding water usage are missing, farmers might use water inefficiently and cause negative externalities for other users. For example, farmers closer to the source might over-irrigate at the expense of other farmers. In so doing, they might lower the impact and sustainability of irrigation investments. The Mozambique case study develops solutions to Pareto improvements in the distribution of water usage that reduced reported water scarcity by half, while improving the distribution of water usage to benefit both the farmers that were over- and under-using water, thus increasing returns on irrigation infrastructure overall. Optimizing the role played by institutions in regulating, monitoring, and enforcing water usage can potentially increase returns on irrigation investment by large margins.

3. **Increasing the returns to investing in water access by two-thirds:** Access to water in rural areas emphasizes the construction of new infrastructure. Little attention, however, is placed on sustainability. The lack of institutional arrangements for operation and maintenance can reduce the life expectancy of

water infrastructure, its cost-effectiveness, and its impact on communities. In the Tanzania case study, we find that more than half of the communal water infrastructure is not functioning—with many of these water points breaking down within a year of construction. This means that focusing on water point maintenance could effectively expand access to reliable water services at a fraction of the cost of new capital investments. Many water points fail because of simple hardware issues such as broken taps. Addressing this technical breakdown may be straightforward. However, the fact that water points remain in disrepair for months, or even years, points to structural, institutional challenges that need to be resolved, such as strengthening own-source revenue at the community level and strengthening the coordination between communities and local government.

4. **Low-cost solutions can be viable alternatives to infrastructure investments:** Drainage infrastructure can be critical in preventing flooding, related erosion, and negative impacts on human health. Like other infrastructure examples in this chapter, drainage canals are a public resource that can be overutilized by private actors (for example, for waste disposal) who do not internalize the cost. The impact and sustainability of drainage infrastructure is thus critically linked to understanding collective action in operations and maintenance,

and the provision of waste collection services. In the Senegal case study, we show that a low-cost intervention that provides local organizations with know-how and resources to manage waste surrounding existing drainage infrastructure can be as effective as new drainage infrastructure in averting floods and their devastating consequences on property and health.

The overall lesson of this chapter is that while infrastructure construction is expensive, returns and sustainability can be enhanced by lowering constraints to adoption, optimizing usage, and building or strengthening institutions that address collective action in operations and maintenance. These low-cost, complementary solutions can greatly increase the return on and the sustainability of water infrastructure and its impact on the economy.

In the next stage of our research, we will explore ways to improve norms and behaviors around water conservation (for example, using entertainment media to change water conservation practices on a global scale); the power of innovations in urban design (for example, recycling water instead of draining it); address market constraints (for example, introducing land rental markets to spur adoption of irrigation technologies and using digital tools to speed up land titling); and the role of institutions to improve water governance and the protection of national aquifers.

Releasing Economic Constraints to Get Irrigation Working

FLORENCE KONDYLLIS AND JOHN LOESER

Common Perceptions

Low adoption of productive technologies is a key reason for low agricultural yield in Sub-Saharan Africa. Productive technologies may be underutilized due to inefficiencies in the markets faced by farmers. In particular, these market failures distort technology adoption, most commonly through experimental manipulation of markets for risk, credit, and information.

Economic theory suggests that land and labor market failures reduce the adoption of productive technologies because they generate inefficient allocations of labor and land across farms. However, this theory has not been thoroughly tested.

Questions We Should Be Asking

Irrigation increases agricultural productivity by adding agricultural seasons, enabling the cultivation of water-intensive crops, and reducing uncertainty. However, irrigation is costly: it requires high construction and maintenance costs, and is associated with increased usage of complementary inputs such as labor, fertilizer, and improved seeds.

In the context of large irrigation schemes, infrastructure sustainability hinges on ensuring that the increased productivity associated with irrigation use is realized by farmers within the schemes so that maintenance costs can be recovered. In a recent DIME study,⁴ we show that failures in land

and labor markets may limit the adoption of this productive technology, putting the sustainability of these large investments at risk.

Irrigation is a key component of the Rwandan government's development agenda, per its goal of Rural Transformation (laid out in PSTA 4⁵ and NST1⁶). Land Husbandry, Water Harvesting, and Hillside Irrigation (LWH) is a flagship project with the goal of transforming hillside agricultural production sustainably. We conducted an impact evaluation of three hillside irrigation schemes constructed by the Rwandan government from 2009–14 in the Karongi and Nyanza districts. In all sites with irrigation access, sufficient water is available to enable year-round irrigation.

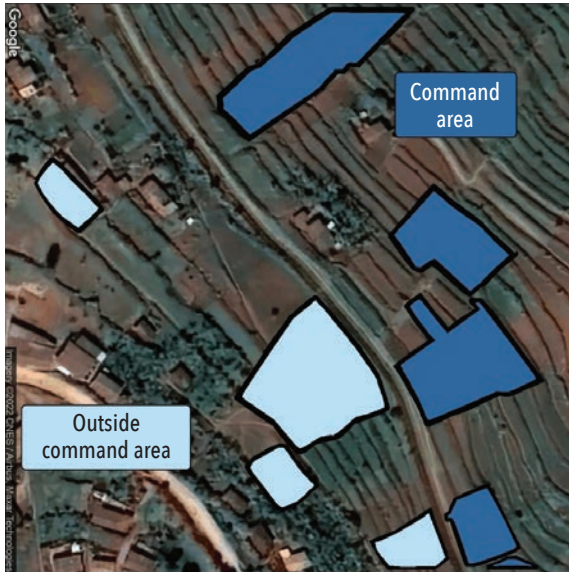
For farmers, the main cost of irrigating a plot is the labor associated with the actual irrigation, including maintaining furrows and using hoses to distribute water from the valves to their plots. Labor market failures create a wedge between household labor productivity and the market wage, meaning smaller households—who rely on hired labor to meet the labor demands of irrigated agriculture—may be unable to profitably irrigate their land. In addition, if these households face difficulty trading their land, labor

⁴ Maria Ruth Jones* et al. "Factor Market Failures and the Adoption of Irrigation in Rwanda," Policy Research Working Paper 9092, (Washington DC: World Bank Group, December 2019), <https://openknowledge.worldbank.org/handle/10986/33061>.

⁵ PSTA refers to the Strategic Plan for Agricultural Transformation. PSTA 4 "seeks the 'transformation of Rwandan agriculture from a subsistence sector to a knowledge-based value creating sector, that contributes to the national economy and ensures food and nutrition security in a sustainable and resilient manner.'" See: https://www.minagri.gov.rw/fileadmin/user_upload/Minagri/Publications/Policies_and_strategies/PSTA4__Rwanda_Strategic_Plan_for_Agriculture_Transformation_2018.pdf.

⁶ NST 1 refers to Pillar 1 of the Strategic Plan for Agricultural Transformation: Economic Transformation, per above.

■ ■ **Figure 1.1** Plots Inside and Outside the Irrigation Scheme (“Command Area”)



Note: The “command area” in dark blue shows the irrigated plots, while the light blue area shows plots that are not part of the irrigation scheme.

market failures can cause inefficient adoption of this profitable technology.

Our impact evaluation compares plots located just above the canal (not irrigated) to those just below (with irrigation access)(see figure 1.1). We randomly selected plots within 50 meters of the irrigation scheme boundary, and then identified the associated households to interview. Households answered survey questions about the sampled plot and any other plots they cultivate. In total, the evaluation includes four years of data on 3,000 plots.

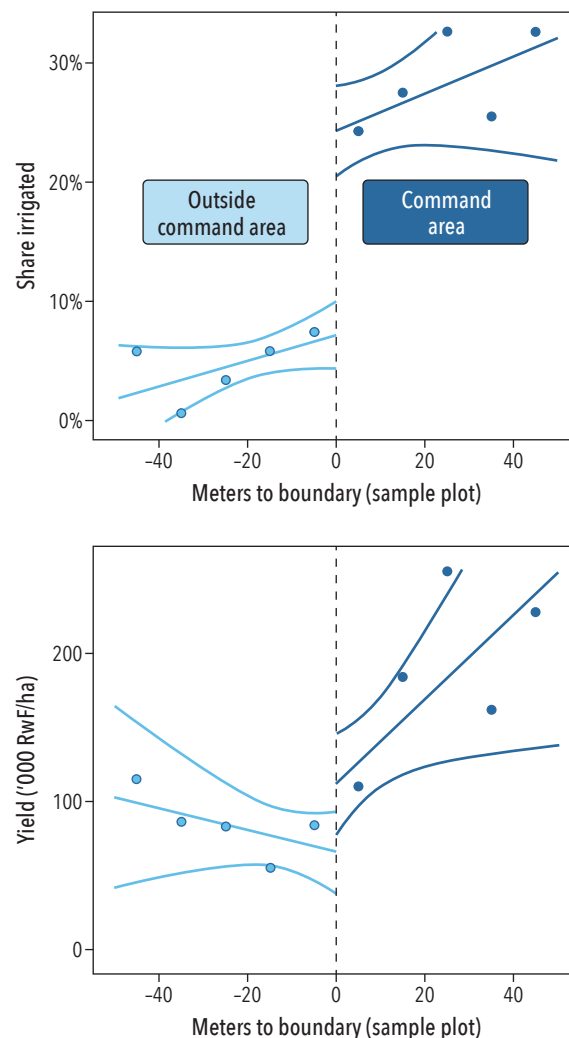
Challenging Perceptions

Our evaluation produced three key results:

1. Irrigation enables dry season horticultural production, which boosts on-farm profits by

43–62 percent (see figure 1.2). These profits are generated by changing cropping patterns from perennial bananas to a more input-intensive rotation of dry-season crops that command higher prices, for example cabbages, tomatoes, and onions, as well as rainy-season staples.

■ ■ **Figure 1.2** The Impact of the Irrigation Scheme on Share Irrigated and Yield



Note: Each solid dot represents the average proportion of irrigation and yield for sample plots grouped in 10-meter bins of distance compared to the command area boundary. The curved lines represent 95 percent confidence intervals. The plots inside the command area are associated with both higher irrigation levels and higher yields.

2. **Irrigation adoption is constrained.** Farmers were only irrigating 30 percent of plots four years after the introduction of the irrigation initiative. Access to irrigation requires farmers to substitute labor and inputs away from their other plots. Eliminating this substitution would increase adoption by at least 34 percent.

3. **Labor substitution is largest for smaller households and wealthier households.**

Households with two additional members substitute 37–78 percent less than average-sized households, while households that are one standard deviation wealthier substitute 45–90 percent more than average wealth households. Land markets are constrained, limiting land transactions between both farmers who have extra land in the irrigation scheme that they cannot irrigate, and other farmers close by who would irrigate but have no land within the irrigation scheme. Only labor market failures, combined with failures in the land market, can explain irrigation access on one plot leading to greater substitution across plots for richer households, and decreased substitution across plots for larger households.

Randomized controlled trials carried out within these schemes, which aimed to address information and credit constraints, demonstrated that farmers' adoption of irrigation is not limited by their knowledge of the irrigated crops or by limited access to finance to purchase non-labor production inputs.

One important caveat: these findings apply only to smallholder agriculture—the prevailing cultivation arrangements on these schemes. While constrained access to markets cannot explain our

results, we cannot reject that a move away from smallholder agriculture toward other cultivation arrangements, such as contract farming or other out-grower arrangements, would increase the adoption and sustainability of irrigation investments. This is currently on the World Bank policy agenda, supporting investments across the rural development portfolio.

Policy Implications

The impacts of farmers' access to irrigation documented in the context of the flagship Land Husbandry, Water Harvesting, and Hillside Irrigation project have informed complementary investments at scale, as well as the national sector strategy (PSTA 4) toward efficient use of irrigation, establishing a link between rigorous research and policy design.

A new grant and International Development Association (IDA)-funded investment in the sector will address market inefficiencies. Within these new operations, experiments designed to manipulate land and output markets, as well as trials of labor-saving irrigation technologies, are underway to maximize returns on irrigation development.



This case study is based on an impact evaluation conducted within DIME's Economic Transformation and Growth research program. See: Jones, Maria, Florence Kondylis,* John Loeser,* and Jeremy Magruder. 2019. "Factor Market Failures and the Adoption of Irrigation in Rwanda." Policy Research Working Paper 9092, World Bank, Washington, DC. This paper is forthcoming in the American Economic Review.*

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**Development Impact Evaluation (DIME), World Bank.*

Building More or Managing Right?

PAUL CHRISTIAN, FLORENCE KONDYLIS, AND ASTRID ZWAGER

The previous case study focused on the economics of irrigation impacts and the role of market failures: incomplete land and labor markets contribute to the agriculture productivity gap by hindering technology adoption. This case study shifts focus from market explanations for gaps in agricultural productivity (despite irrigation investments) to the behavior of farmers.

Common Perceptions

Irrigation systems are a resource commonly shared by farmers. Therefore, when farmers fail to internalize the cost of their water use on others, the allocation of water within an irrigation scheme may not only be inefficient, but also affect water availability for others. Collective action over the management of a scheme is therefore necessary to ensure the sustainability of irrigation supply.

Decentralized models of governance have evolved to formalize the delivery of water resources (Ostrom 1990; Ostrom and Schlager 1992). For example, with only 8 percent of farmers in Mozambique having access to irrigation (FAO 2016), the government of Mozambique acknowledged that action was needed. To improve agriculture growth and rural development, the government spent US\$2.3 billion in 2008 (World Bank 2010). To help drive this goal, the World Bank invested US\$70 million through the Sustainable Irrigation Development Project (PROIRRI) to support the rehabilitation and development of over 3,000 Ha of irrigated farmland—benefitting 6,000 people across 42 schemes in three central regions of Mozambique: the Manica, Sofala, and Zambézia provinces.

However, local institutions, like water user associations, may not achieve efficient resource sharing if the main constraint users face is limited attention to water management (Meinzen-Dick 2007; Plusquellec 2002).

Questions We Should Be Asking

To assess how effectively farmers with irrigation access were managing water, DIME's technical partners (Hydrosolutions Ltd.) created a user-based water monitoring system. This system covered 148 households cultivating 222 plots across three irrigation schemes.

The first year of monitoring data revealed that issues around water access went beyond poor accessibility to irrigation equipment and infrastructure: there was enough water in the scheme to meet everyone's requirements, but at the plot level there was scarcity. Aside from the rainiest weeks, many farmers were not allocated enough water to meet crop recommendations. Water scarcity was, therefore, purely a problem of allocation.

Our evidence offers three stylized facts:

- Water allocations are inefficient;
- Water scarcity arises from basing water needs on fixed quantities rather than dynamic crop requirements; and
- There is substantial variation in planting times. Therefore, some farmers have crops in early growth stages while others have crops in late growth stages.

If farmers could be persuaded to use less water in the first and second growth stages, when

water requirements are lower, more water would be available to farmers in the third and fourth growth stages when requirements are higher.

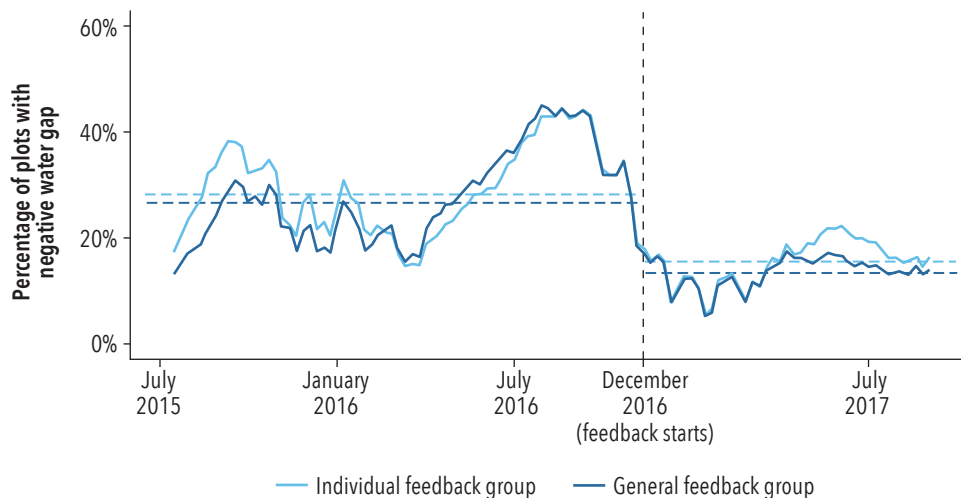
If allocations were more closely matched to crop water requirements given their growth stages, water scarcity could be eliminated without making any other changes to cultivation practices. With this in mind, researchers at DIME, Arizona State University, the International Food Policy Research Institute, and engineers from Hydrosolutions Ltd. designed a randomized controlled trial comparing the impact of providing information about water recommendations on water allocation (see figure 1.3). Farmers from 147 households were randomly assigned to one of two groups, and surveyed seven times (once every four months) between August 2015 and July 2017. One group received information that provided general watering recommendations across crop growth stages. The second group received individualized information that compared water requirements to each farmer’s water use in the same season of the previous year.

Using surveys, we collected information on the watering patterns on all plots farmed by households, and monitored water supplies and weekly precipitation data (mm/week) from the NOAA’s Climate Prediction Centre CMORPH product (Climate Prediction Center 2015). Farmers were provided with information about water use by interviewers before they completed each survey.

We found that:

- Providing farmers with guidelines for the water requirements of their primary crops may be a low-cost way to remedy water scarcity.
- Reminding farmers of the water requirements over their primary crop’s growth cycle significantly reduced the number of conflicts over water use and the proportion of farmers who self-reported having insufficient water.
- In contrast, administering user-based water monitoring systems to provide individualized feedback on water use does not appear to merit its costs.

■ ■ **Figure 1.3** The Impact of the Mozambique Irrigation Information Campaign



Note: The figure shows the eight-week moving averages of plot-crop-week observations. The solid lines show the proportion of plots (on the y-axis) in a given week (on the x-axis) where the water available in canals adjacent to monitored plots is less than the amount required. This is also known as a “negative water gap.” The two sets of horizontal dashed lines show the averages of plots associated with each feedback modality before and after the feedback period. The vertical dashed line indicates the week in December 2016 when all farmers received feedback.

Policy Implications

Effective monitoring can be a cost-effective water management strategy. In this context, we learned that communication through text messages was ineffective: while the messages can be simple, they must be delivered in person. These findings informed plans to build capacity for both monitoring water usage and establishing water user associations to support the effective expansion of irrigation infrastructure. Finally, assuming all irrigated areas are similar to the PROIRRI project, potential savings would represent 9.4 percent of water withdrawal from all sources in Mozambique.



This case study is based on an impact evaluation conducted within DIME's Economic Transformation and Growth research program. See: Christian, Paul, Florence Kondylis,* Valerie Mueller, Astrid Zwager,* and Tobias Siegfried. 2018. "Water When It Counts: Reducing Scarcity Through Water Monitoring in Central Mozambique." Policy Research Working Paper 8345, World Bank, Washington, DC. See also: Christian, Paul,* Florence Kondylis,* Valerie Mueller, Astrid Zwager,* and Tobias Siegfried. 2021. "Monitoring Water for Conservation: A Proof of Concept from Mozambique." American Journal of Agricultural Economics 104 (1): 92–110.*

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ACKNOWLEDGMENTS

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**Development Impact Evaluation (DIME), World Bank.*

Caring for the Investments We Make

AIDAN COVILLE, DANIEL ROGGER, AND JEROME SANSONETTI

The previous case study focused on the repercussions of suboptimal behavior on farms' productivity. This case study highlights the drivers behind water accessibility in rural areas and how to deploy infrastructure investments to ensure sustainability.

Common Perceptions

Development projects seeking to improve access to water in rural areas have often focused on building new infrastructure. In 2007, for instance, the government of Tanzania, together with multiple donors, launched the Water Supply and Development Program (WSDP). While significant efforts to increase the number of water points in rural areas were undertaken during the program's first phase, neither the state nor donors fully accounted for the financial, human, and material resources needed to maintain existing projects.

The focus on new infrastructure without fully accounting for needed maintenance meant that water infrastructure often fell into disrepair. One-fifth of communal water points (such as hand-pumps, boreholes, and protected springs) broke within their first year, and more than half of all water points were broken at any point in time. Despite billions invested in the sector, access to improved water in Tanzania only increased from 54 percent in 1990 to 56 percent in 2015.

In response, WSDP stakeholders designed the program's second phase to include a result-based financing approach, with most of the subsidies targeting local government actors to be delivered following specific performance targets that captured whether a water point was

functioning. This strategy was implemented to incentivize the maintenance of existing water points in rural areas rather than the construction of new ones. Repairing existing infrastructure provides an opportunity to lower the carbon intensity of water service expansion, while also increasing rural communities' resilience to a changing climate by ensuring water services are more reliable.

Questions We Should Be Asking

Water infrastructure sustainability can be unpacked into multiple potential drivers. Local factors—whether institutional, administrative, or financial—involve a range of actors, including government officials, local citizens and their village water management groups, development organizations, and civil society stakeholders. The first step of this process should be the identification of what makes a water point sustainable in the first place, followed by an analysis of what different stakeholders require to best deliver them. Only then can the problem of water access in rural communities be addressed effectively.

To answer these questions, we draw from six years of continuous quantitative and qualitative research capturing data on water infrastructure characteristics, village water management practices, local government incentives, and community engagement. These primary data sources were combined with secondary data on poverty rates, access to education and health services, and electoral results, among others, to create a holistic picture of activities in the water sector in relation to the broader national context.

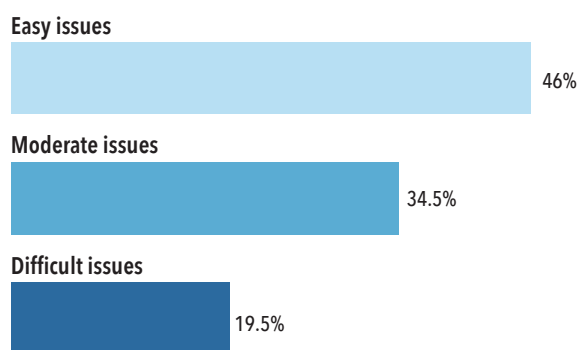
To further contextualize how the social, cultural, and political environment influences civil servants' decision-making, DIME researchers spent three months observing employees' daily routines in two Tanzanian water and sanitation departments. The researchers conducted in-depth interviews with civil servants, village water committee members, water users, and civil society representatives.

Our Findings

Our research explores infrastructure sustainability drivers through the lens of three of the key players in the process: communities, local government, and politicians.

Community: Despite half of the water points being broken down for 12 months or longer, most water points are deemed repairable at a lower

■ ■ **Figure 1.4** Hardware Issues Affecting Rural Water Points in Tanzania, by Degree of Severity



Note: "Easy issues" refer to water points having only simple problems (for example, a broken tap or no fuel or electricity for the engine). "Moderate issues" refer to water points experiencing problems that could be overcome by communities with some effort (for example, a broken core or well structure). "Difficult issues" refer to water points experiencing at least one structural problem that communities may be unable to fix themselves (for example, a dried-up source or a structure that was never completed).

cost than replacement. The most cited hardware problem is broken taps, and the main reason reported by local water committees for not having fixed the water point is a lack of funds. However, less than half of water points institute user fees, and when they are instituted, only 11 percent base fees on financial predictions about life-cycle costs. The presence of user fees is strongly correlated with actual functionality, and this has the strongest relationship when water points rely on complex technologies: complex water points that do not apply water fees are the most likely of any water points to break down. This suggests that a non-trivial share of water points may be fixable at a low cost (see figure 1.4), yet current community management structures are not well-positioned to address these issues on their own.

Local government: Despite communities presenting clear needs for government support, bureaucratic procedures tend to subvert the best intentions of civil servants eager to engage with these communities. In particular, the reporting requirements to central government structures shift civil servants' focus toward higher-level institutions and away from local priorities. Conversely, there are no formal procedures for ensuring that employees of water and sanitation departments meet with community-based institutions and village governments to discuss water access and service delivery issues, such as budgetary processes (Bailey 2017).

Politicians: Across Tanzania's political cycle, the quality of investment in water points seems to vary. In the run-up to elections, greater investments in water point design and quality lead to greater sustainability. However, just after elections, the quality of water point sustainability falls. This pattern is also found in Nigeria and Sierra Leone (Rogger and Somani 2021).

Policy Implications

This research presents a unique opportunity to unpack the roles of different actors in the water sector over time and identify important interaction points between them. This allows for an in-depth diagnosis of the sector’s challenges and potential solutions. We see that:

- Village water community management practices (such as setting user fees) are important determinants of water point functionality, but communities still heavily rely on local government support.
- Local government can provide backstopping support to communities, but they are constrained by political incentives, bureaucratic procedures, and an ambiguous delineation of the roles and responsibilities between communities and government.
- Results-based financing has the potential to overcome important constraints to securing sustainable water infrastructure, but incentives

may not directly address other types of constraints, such as improving the coordination between local government and communities needed to ensure funds can be effectively channeled toward sustainability objectives.

We find significant financial, behavioral, political, and institutional constraints to effective engagement between key partners in securing the sustainability of rural water infrastructure. By highlighting these constraints, this research supported changes in the water sector, including the establishment of a Rural Water Supply Agency in 2019. This agency is designed to streamline the government’s frontline support for water services. The introduction of FCDO and World Bank results-based financing projects to incentivize infrastructure maintenance has provided further impetus to address the significant sustainability challenges in the country.

While water point functionality remained constant and low through 2018, the country started

■ ■-Map 1.1 The Evolution of Functional Water Point Availability in Tanzania, 2019–21

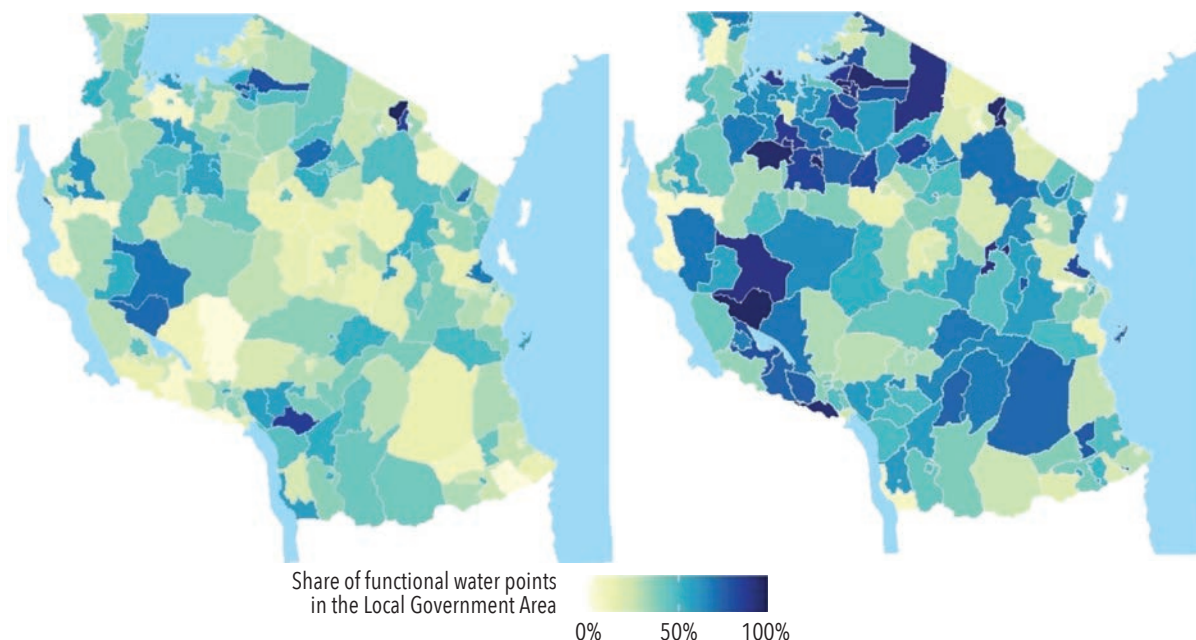
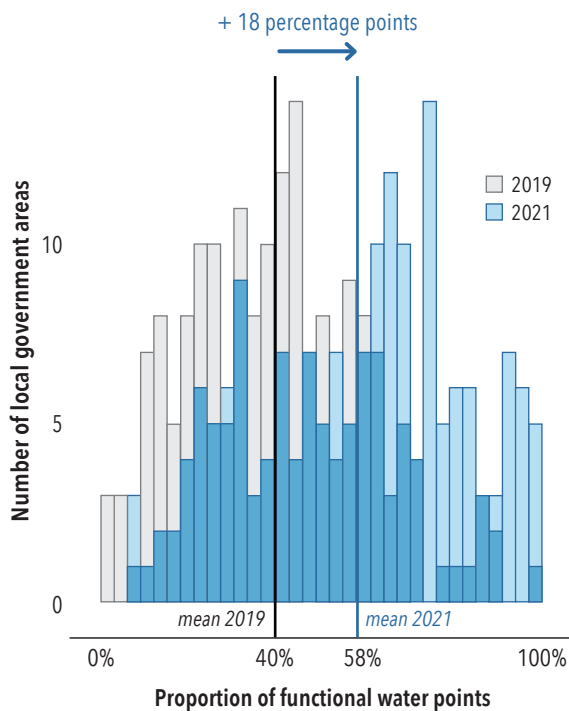


Figure 1.5 The Evolution of Local Government Areas' (LGA) Water Point Functionality, 2019–21



Note: Local government areas' water point functionality grew by an average of 18 percentage points between 2019 and 2021. The improvement was broad-based, as seen in the distribution shift.

to see a large increase in functionality rates from 2019–21 (see figure 1.4). Not only did water point functionality increase significantly (from 40 percent to 58 percent), but this improvement was broad-based, with gains being achieved in both low-performing and high-performing regions (see figure 1.5). While it is not possible to attribute these dramatic improvements to any single intervention or policy, the findings highlight that

significant, broad-based improvements in infrastructure sustainability are possible. This presents opportunities for countries across Sub-Saharan Africa that suffer from similarly low levels of water point functionality to make potentially significant gains in water access by focusing on improving infrastructure sustainability.

This joint initiative by the British and Tanzanian governments forms part of a global shift in public service provisioning that focuses on results. By rewarding measurable results, instead of paying for inputs, donors hope that public institutions will operate more efficiently and effectively.



This case study is based on an impact evaluation being conducted within DIME's Infrastructure and Climate Change research program.

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Investing in Drainage or Managing Waste? Different Costs, Same Results

CHLOË FERNANDEZ AND MARCUS HOLMLUND

Similar to the Tanzanian water access issues discussed in the previous case study, focusing solely on deploying new infrastructure curtails the potential impact and efficiency of resources. Complementing the roll out of such projects with a contextual analysis of social dynamics—and subsequently sharing the decision-making and management power among stakeholders—could prove to be a powerful and cost-effective climate adaptation strategy.

Common Perceptions

Uncoordinated, rapid urbanization and worsening climate change have made flooding an increasingly recurrent phenomenon (Fernandez et al. 2018). A common response to mitigating the associated damage has been to roll out massive infrastructure projects in the urban centers of developing countries. Traditionally, development agencies have focused on the engineering aspects of such projects. However, little consideration has been given to the broader context in which they occur, such as the surrounding institutional and community dynamics.

Questions We Should Be Asking

In recent decades, stormwater flooding has become one of the most serious natural hazards—affecting hundreds of thousands of people and causing hundreds of millions of dollars' worth of damage to infrastructure, public equipment, and households' livelihoods (Fernandez et al. 2018). This is due to rapid and unplanned urbanization, increased rainfall following periods of intense drought, rising groundwater, and inadequate

drainage infrastructure (Fernandez et al. 2018). These risk factors disproportionately affect the most vulnerable population groups, who often settle informally in high-risk areas located on the outskirts of large urban centers (Fernandez et al. 2018).

This is the case in Senegal, where the cities of Pikine and Guediawaye were established on a dried-up river basin next to the capital and, as a result, suffer enormously during rainy seasons. Emergency solutions were implemented to facilitate the drainage and storage of stormwater through the construction and rehabilitation of retention basins. There was, however, little engagement of local populations in the planning and construction of these basins, and, consequently, little sense of ownership of these resources by their host communities. In addition, the absence of public waste management services led to the disposal of waste in the stormwater installations, clogging the drains and rendering them ineffective.

The maintenance of infrastructure investments requires not only ongoing government, operational, and financial support, but also individual and collective behavior conducive to the sustainable functioning of these resources. Without the latter, returns on new water infrastructure run the risk of falling flat per the tragedy of the commons: individual users will tend to overutilize a public resource in the absence of adequate collective action. In the case of Pikine and Guediawaye, what was intended as a community good ended up being a source of insecurity and health hazards. The question is: how can we incentivize the active engagement of target

beneficiaries and maximize the returns on infrastructure investments?

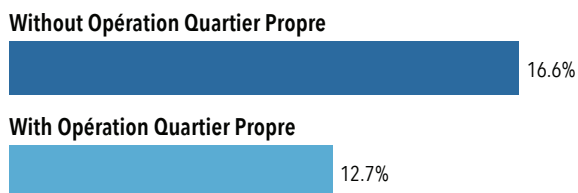
Challenging Perceptions

In a bid to reduce the risk of flooding in the peri-urban areas of Dakar, the government of Senegal launched the World Bank–assisted Stormwater Management and Climate Change Adaptation Project (Projet de Gestion Environnemental et d'Adaptation au Changement Climatique, also known as PROGEP). Originally conceived as an infrastructure project, PROGEP added a community-focused initiative following recommendations from DIME. The project had three major components:

- Strengthening institutional and management capacity for stormwater drainage and urban planning;
- Developing primary drainage infrastructure (approximately 73 percent of project investment); and
- Engaging the community in urban flood-risk reduction and management.

The third component included a wide variety of community-based interventions, such as the construction of amenities (for example, walking paths and sport installations) aiming to add value to areas surrounding the drainage infrastructure. One such intervention was Opération Quartier Propre (OQP), which sought to mobilize established community-based organizations (CBOs) for the maintenance of public spaces. Partner CBOs were provided with cleaning materials and offered non-monetary rewards, conditional on maintaining a certain level of cleanliness in their neighborhood. OQP's overarching goal was to reduce the incidence of flooding by leveraging granular local knowledge and mobilization capacity by giving CBOs a direct stake in the state of their neighborhood.

■ ■ Figure 1.6 The Effect of Opération Quartier Propre on the Absolute Risk of Being a Flood Victim



Note: Opération Quartier Propre decreased the relative risk of being a flood victim by 23 percent.

DIME evaluated the impact of OQP through a randomized controlled trial and surveys of 2,400 households (including 28,010 persons) and 160 CBOs in Pikine and Guédiawaye. The results showed the intervention was effective: just one year after OQP began, households in treated areas reported being significantly less affected by flooding (see figure 1.6). OQP also positively impacted residents' overall quality of life, with respondents reporting a better perception of their neighborhood's cleanliness and improved flood-related health outcomes.

Policy Implications

The OQP impact evaluation was designed to test whether this specific intervention, over and above all other actions by PROGEP, could increase community engagement in the general upkeep of public areas and improve residents' quality of life. This was a light-touch, cost-effective, bottom-up intervention: OQP engaged existing community-based organizations and empowered them to use their local knowledge and networks to work toward improved community cleanliness, while providing minimal guidance and only basic materials. These findings support the argument that aspirational incentives can positively impact the returns and maintenance of public infrastructure projects through increased community engagement.

We found that the positive effects on local waste management, cleanliness of public spaces, and quality of life were particularly pronounced in areas with underdeveloped infrastructure. This suggests that in addition to complementing large infrastructural investments, an OQP-type intervention could be implemented as a low-cost, high-impact interim solution. The results of this impact evaluation provide evidence that the tragedy of the commons can be mitigated by setting up aspirational incentives that facilitate collective action.

More broadly, the OQP impact evaluation provides lessons for other initiatives aimed at engaging communities in the upkeep or provision of public goods:

- The intervention relied almost wholly on local knowledge and gave participating CBOs full autonomy in determining the types of activities to be implemented.
- CBO rewards were based primarily on an external assessment of neighborhood cleanliness, as opposed to the actual activities conducted. This is an example of a results- or outcome-based intervention at the local level.
- The study highlights how a light-touch intervention can shift social norms, which is critical in achieving sustainable returns on community investment in the context of climate change adaptation.



This case study is based on an impact evaluation conducted within DIME's Infrastructure and Climate Change research program. See: Newman, Carol, Tara Mitchell, Marcus Holmlund, and Chloë Fernandez.* 2019. "Group Incentives for the Public Good: A Field Experiment on Improving the Urban Environment." Policy Research Working Paper 9087, World Bank, Washington, DC. See also: Fernandez, Chloë,* Marcus Holmlund,* Tara Mitchell, and Carol Newman. 2018. Operation Clean Neighborhood: Working with Communities for Flood Risk Mitigation in Senegal. Impact Evaluation Final Report.*

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REDUCING POVERTY 2.0

CASH, COWS, AND BEYOND

ARIANNA LEGOVINI

From the distributional impacts of the COVID-19 pandemic to the potential distributional impacts of climate change and decarbonization policies, it is imperative for us to understand how to optimize scarce fiscal resources in supporting the poorest and most vulnerable populations.

In this chapter, we unpack a deep literature on conditional and unconditional cash transfers, Targeting the Ultra Poor and economic inclusion programs, and community-driven development projects to stimulate a discussion on allocating of resources for social protection and poverty reduction. We offer three lessons.

1. Temporary unconditional cash transfers (UCT) are highly cost-effective, and their impact persists for years. Experimental estimates from 38 randomized controlled trials from 14 developing countries demonstrate that UCTs paid to families over 12–18 months increase household consumption by 35 cents per dollar transferred over that period and in the following years, with no evidence of dependency. The smaller the transfers are, the larger their cost-effectiveness is, suggesting that UCT-based safety nets should be thinly and widely distributed across populations in need.
2. In addition to cash, Targeting the Ultra Poor/ economic inclusion programs provide assets, mentorship, and training to vulnerable households for a timebound period of 18–24 months. These programs are more expensive than UCTs and have larger impacts, but are more difficult to implement successfully: the cost-effectiveness of these programs is much more variable than for UCTs. However, when successful, the

impacts of these programs are highly persistent and increase over the years after the intervention.

- In the case of Niger, the economic inclusion program increased consumption and food security by 15 percent and these impacts were sustained 18 months later.
 - In the case of Afghanistan, the Targeting the Ultra Poor (TUP) Program led to a 30 percent increase in consumption and a 20 percentage point decrease in households in poverty. These impacts were sustained over the five years after program completion, indicating that households continue to use their acquired assets well.
3. The impact of UCTs and TUPs dominate over the estimated impacts of Conditional Cash Transfers (CCTs) and Community-Driven Development (CDD). CCTs condition the delivery of transfers upon a change in households' investments, most commonly, in their children's human capital. While effective at doing this, the transfers are not effective at reducing poverty. CDD programs deliver resources to

communities, most commonly for local infrastructure projects, through a facilitated process of community-driven prioritization of needs. In the twelve cases where these projects were rigorously tested through randomized controlled trials in as many countries, results were disappointing, with no or very limited impacts on either poverty or the range of targeted outcomes.

The main lesson for safety nets and social protection policy, especially for COVID-19 response, is that **timebound support to vulnerable households over 12–24 months can be transformational** for their ability to extricate themselves from poverty. The literature suggests that neither UCTs nor TUP programs create dependency. On the contrary, these types of temporary support programs can place households on a different path with sustained changes in the household production function and sustained earning capacity. Breaking inertia in allocating resources across different projects is urgently needed to support households and communities more effectively.

The Power of Small, Temporary Cash Transfers

FLORENCE KONDYLIS AND JOHN LOESER

Common Perceptions

“Big push” interventions are commonly proposed to generate significant, sustained increases in household, community, and national income (Banerjee, Duflo, and Sharma 2020; Kraay and McKenzie 2014). At the household level, two approaches to increasing intervention size may, in theory, enable households to escape poverty traps and persistently reduce poverty (Ghatak 2015):

1. When households are in a “scarcity poverty trap,” increasing the *intensity* (cash transfer size) of interventions can push households over a poverty threshold.
2. Alternatively, when households face “frictional poverty traps” (facing many obstacles), increasing the *scope* (adding complementary interventions to create multifaceted programs) of interventions can enable households to overcome multiple constraints.

Questions We Should Be Asking

Evaluating increasing intervention intensity and scope requires measures of the impact of the above two approaches on cost-effectiveness (Banerjee et al. 2015). However, evidence on the longer-term persistence of cost-effectiveness is limited for both approaches.

In our recent working paper, we compile 38 estimates of the impacts of temporary cash transfers on household consumption from 14 countries. These estimates were from 17 randomized controlled trials (RCTs) of either temporary unconditional cash transfers, or multifaceted graduation programs with complementary interventions that included temporary unconditional transfers, targeting the

ultra poor. On average, the transfers were administered over eight months for unconditional cash transfers, and over sixteen months for multifaceted graduation programs. We included these classes of programs to evaluate two approaches to increasing the size of cash transfers—increasing their intensity (small cash transfers or large cash transfers) and increasing their scope (cash transfers or multifaceted graduation programs).

The RCTs in our sample all collected information on annual household consumption, cash transfer size, and program cost (in US\$ purchasing power parity). To measure cost-effectiveness, we focus on the effects of cash transfers on consumption.

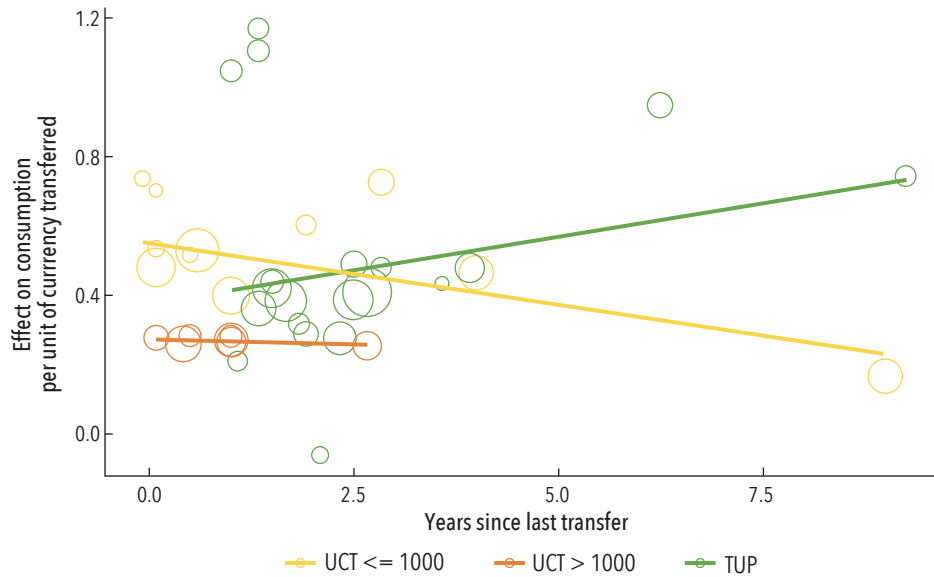
Challenging Perceptions

Impacts of Temporary Unconditional Cash Transfers

Surprisingly, our results suggest *more* persistent impacts of *smaller* unconditional cash transfers (see figure 2.1). This implies that smaller cash transfers persistently push more households out of poverty per transfer unit. Unconditional cash transfers increase annual household consumption by 0.35 per unit of transfer. Over three years, this implies that increases in household consumption are larger than the initial value of the transfers. Consistent with the uniform nature of the intervention, these estimates are remarkably consistent across contexts.

Larger unconditional cash transfers have smaller impacts on consumption per unit of transfer over both the short- and longer-term. The impacts of unconditional cash transfers are more persistent in developing countries than wealthier countries.

Figure 2.1 Impacts of UCTs and TUP Programs with Respect to Transfer Size and Years Since Last Transfer



Note: Unconditional Cash Transfers (UCTs) of less than 1,000 USD (in yellow) have the largest effect on household consumption per unit of currency transferred for the first 3 to 4 years, compared to UCTs of more than 1,000 USD (in orange) and Targeting the Ultra Poor interventions (in green).

Finally, the cumulative impacts of unconditional cash transfers on consumption over the first three years are larger than the size of transfers, providing strong evidence that unconditional cash transfers are cost-effective.

Impacts of Complementary Interventions that Target the Ultra Poor

Only four of our sample’s twenty complementary intervention estimates were measured more than three years after the last transfer, highlighting the need for more long-run estimates. However, we find that complementary interventions increase impacts on consumption.

Complementary interventions are relatively expensive in our sample. Therefore, the average complementary intervention is 5–43 percent less cost-effective at increasing consumption than the average unconditional cash transfer at the average evaluated time horizon (1.5 years for UCT and 2.6 years for TUP).

However, we also find evidence that the average impacts of TUP complementary interventions masks important variation across contexts. Specifically, we find evidence of variation in the cost-effectiveness of complementary interventions on increasing household consumption.

Finally, the relative cost-effectiveness of complementary interventions grows over time: the impacts surpass those of unconditional cash transfers after 3.4–7.7 years.

Policy Implications

While cash transfers are fairly uniformly cost-effective in raising consumption at all time horizons across a range of contexts, the emphasis for future work should be on the importance of context-specific estimates of the long-term impacts of complementary interventions that target the ultra poor, in order to inform policy.

It is worth noting that beyond cost-effectiveness, there are justifications for increasing intervention size to consider. For example, increasing transfer size or providing complementary programs to the poorest households can be powerful tools for poverty reduction (despite the variance in cost-effectiveness).

One aspect of cash benchmarking that our study does not explicitly address is that the assets transferred under many graduation programs are done in-kind. In these cases, we consider the cash-equivalent value of the asset transfer to benchmark the cost-effectiveness of the program against unconditional cash transfers, implying that these transfers are equivalent in value, and we focus on measuring returns to complementary interventions. Yet cash and in-kind transfers may have different properties: for a given transfer amount, cash opens more investment choices. Even though assets can be sold, this may be done at cost. In some contexts, program participants may face constraints in accessing full markets that make in-kind transfers more cost-effective than cash.

Our results question the necessity of “big push” interventions to reduce poverty. Small, temporary cash transfers—with a total transfer value under US\$1000 purchasing power parity (PPP) per household—provide a strong benchmark for scalable, cost-effective poverty reduction across diverse contexts.

The presence of poverty traps alone does not justify increasing intervention size. Instead, the distribution of poverty thresholds conditional on targeting is crucial. In concrete terms, if poverty traps are uniformly distributed, then small cash transfers will be at least as effective at pushing households out of poverty per transfer dollar as larger cash transfers. On the other hand, if poverty traps are denser in the higher ranges

of the distribution, larger cash transfers will be more cost-effective at getting households out of poverty.



This case study is based on a meta-analysis completed during the preparation stages of the World Food Programme’s Cash-Based Transfers and Gender Impact Evaluation Window and the Climate and Resilience Window. It is based on data compiled to complete the Cash-Based Transfers and Gender Impact Evaluation Window pre-analysis plan. See: Kondylis, Florence, and John Loeser.* 2021. “Intervention Size and Persistence.” Policy Research Working Paper 9769, World Bank, Washington, DC.*

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Scaling Effective Economic Inclusion Programs

PATRICK PREMAND

This case study builds on the review that opened this chapter to examine the effectiveness of economic inclusion programs that target the ultra poor when the programming is delivered through government-run safety net systems.

Common Perceptions

Economic inclusion approaches show that multifaceted programs—such as graduation programs providing cash grants or assets, plus other support or training—can go a long way toward reducing poverty and sustaining poverty reduction in the long term (Banerjee et al. 2015).

Economic inclusion programs utilize a package of interventions designed to address multiple constraints experienced by the ultra poor and their ability to extricate themselves from poverty. Economic inclusion programs aim to boost the income, assets, and skills of the world's poorest individuals and households with a “big push” of coordinated interventions for a time-bound period of approximately one to two years. A typical program provides a one-off transfer of a productive asset (for example, a dairy cow) or a lump-sum cash grant, regular cash transfers, skills training, or savings facilitation to sustain income-generating activity, as well as psychosocial support in the form of life skills training or frequent visits from social workers.

Even in particularly fragile contexts like Afghanistan, impact evaluation shows that multifaceted programs that target the ultra poor can significantly, and cost-effectively, increase household consumption and reduce poverty (Bedoya et al. 2019).

Questions We Should Be Asking

Existing evidence has highlighted the effectiveness of small-scale NGO pilots. Economic inclusion approaches are experiencing an unprecedented surge worldwide and are underway in at least 75 countries, reaching 20 million households and nearly 92 million individuals (directly or indirectly) (Andrews et al. 2021). However, there are many questions about whether governments can successfully deliver multifaceted interventions through their national social protection systems.

Between 2016 and 2020, the governments of Burkina Faso, Mauritania, Niger, and Senegal leveraged their national cash transfer systems to deliver complementary economic inclusion measures aimed at alleviating key constraints that keep the poor from growing their economic activities. These measures were implemented in both rural and urban areas. Beneficiaries (over 90 percent of whom were women) received one or more of the following:

1. Core components consisting of coaching, group savings facilitation, entrepreneurship training, and improved access to markets;
2. A lump-sum cash grant; and/ or
3. Psychosocial components in the form of life skills training and community sensitization on aspirations and social norms.

A multicountry, randomized impact evaluation is underway to determine the impact and cost-effectiveness of this integrated support package, including an analysis of which components optimize it (see figure 2.2).

■ ■ **Figure 2.2** Comparison Group (Control) and Three Economic Inclusion Packages Evaluated (Treatments)



Villages with existing cash transfer beneficiaries were randomly allocated to one of the three packages or a comparison group. In Niger, the randomized controlled trial included 329 villages and over 22,000 households across five regions.

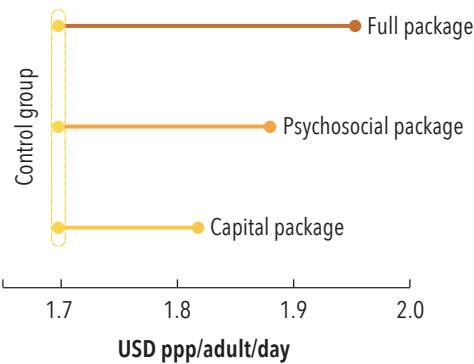
Our Findings

The government-led Niger economic inclusion interventions were highly cost-effective and positively impacted household consumption, food security, revenue, income, and women’s psychosocial well-being.

Household Consumption and Food Security

All three packages improved household consumption and decreased food insecurity; impacts were sustained even 18 months post-intervention. While the impacts were seen for all three packages, the

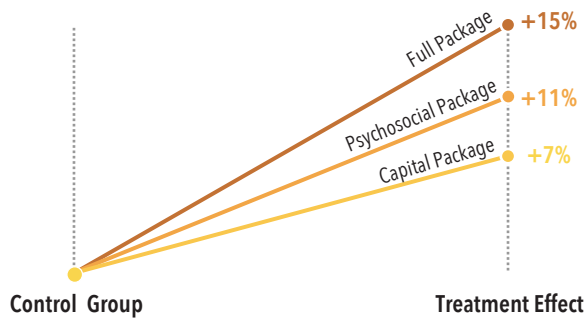
■ ■ **Figure 2.3** The Net Impact of Economic Inclusion Interventions on Household Consumption



Note: The amounts represent the average consumption per adult per day (measured in US\$ PPP) for each treatment arm. The data was collected 18 months after the project’s implementation.

full package had the strongest results (see figure 2.3): 18 months post-intervention, beneficiaries had increased their consumption by 15 percent (see figure 2.4).

■ ■ **Figure 2.4** The Relative Impact of Interventions on Household Consumption



Note: The percentages represent the increase in consumption per adult per day (measured in US\$ PPP) for each treatment arm. The data was collected 18 months after the project's implementation.

Revenue and Income

We measured revenues across three activities: off-farm business, agricultural harvest, and livestock. Impacts were particularly strong on off-farm businesses, indicating that women had expanded to non-agricultural activities. However, all three packages strongly impacted beneficiaries' business revenues, with an incredible 49–102 percent increase 18 months post-intervention.

The data shows that women spent more time on income-generating activities and were able to focus on more profitable, non-agricultural businesses. Substantial increases in livestock revenues were also observed in the capital and full packages, as well as in agricultural revenues in the psychosocial and full packages 18 months post-intervention. Across all three packages, households developed new income sources—crucial because diversification is an important factor in sustaining reduced poverty.

Women's Psychosocial Well-Being

Impacts on social inclusion and psychological well-being were strong and sustained for all

three packages. Some dimensions of women's empowerment also improved.

Policy Implications

In Niger, the program kept costs low by using a government-led, national cash transfer program as the delivery mechanism. The full package cost was US\$584 per beneficiary over the two years of the program. The cash grant (US\$321) was the main cost driver. These costs are much lower than graduation-style programs implemented in other contexts (Andrews et al. 2021).

As a result, the **Niger productive inclusion interventions that built on the national cash transfer program were highly cost-effective.**

The impacts on consumption alone (without considering impacts on assets, etc.) were so large for the psychosocial and full packages that they exceeded intervention costs 18 months post-intervention. The capital package had a lower benefit-cost ratio due to the relatively high cost of the cash grants and the limited extra welfare impacts it generated.

When using the same assumptions about the sustainability of program impacts as in the literature, the benefit-cost ratios estimated in Niger are several times larger than already very effective traditional graduation programs implemented by non-governmental organizations elsewhere.

The results show that the intervention modalities with psychosocial components are particularly cost-effective due to their low cost and substantial impacts, showing the value of integrating psychosocial interventions in multifaceted programs.

Overall, the delivery of economic inclusion packages to cash transfer beneficiaries generated strong results for household welfare and encouraged households to shift into more productive economic activities. The results show that **government-run safety net systems provide a platform to scale-up highly effective, multifaceted interventions.** This is a promising avenue to simultaneously reduce extreme poverty, improve productive employment opportunities, promote women's empowerment, and boost household resilience.

While the scale-up of economic inclusion programs builds on a promising evidence base, existing evidence does not yet go far enough in addressing several ongoing debates in economic inclusion programming. Specifically, there are still critical gaps in understanding the mechanisms and drivers of impact and cost-effectiveness, especially for large-scale, government-led programs (Andrews et al. 2021).

To implement high quality impact evaluations and assess the cost-effectiveness of government-led economic inclusion programs, the World Bank's Partnership for Economic Inclusion (PEI) and DIME are forging a partnership. This initiative will marry PEI's broad network of technical partners, deep engagement with World Bank's operations, and wide partnership network with DIME's expertise to evaluate large-scale government interventions and develop pathways to maximize program impact.



This case study is based on the work of Thomas Bossuroy, Senior Economist, Social Protection and Jobs Global Practice, World Bank, and Patrick Premand, Senior Economist, DIME.

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**Development Impact Evaluation (DIME), World Bank.*

Targeting the Ultra Poor in Extremely Fragile Contexts

AIDAN COVILLE AND GUADALUPE BEDOYA

The previous case study illustrated that government-run safety net systems provide a platform to scale-up highly effective multifaceted interventions that target the ultra poor. However, do these interventions also work in countries affected by fragility, conflict, and violence?

Common Perceptions

Since 2013, DIME has worked to evaluate the IDA-financed Afghanistan Access to Finance Project (A2F) and measure the impact of the Targeting the Ultra Poor (TUP) Program—a US\$15 million component of the Access to Finance Project. At the time, there was skepticism that such a complex, multifaceted program that included productive assets transfer, training, stipends, regular coaching, and mentoring could be implemented in a fragile context such as Afghanistan. The price tag of nearly \$2000 per household generated considerable debate: why spend so much on so few, rather than spreading the resources out to support more people?

Questions We Should Be Asking

The debates reflected a very real challenge: there is little evidence about what works in countries affected by fragility, conflict, and violence (FCV), and it is often unclear how to effectively direct the significant financial support on offer. As the World Bank scales up its support to FCV countries, directing these resources efficiently becomes a first-order concern.

The collaboration faced numerous hurdles. The first challenge was whether something as complex as the TUP program could be implemented

in a setting like Afghanistan. DIME worked with the implementing partner and the World Bank Group's Finance, Competitiveness, and Innovation Global Practice to develop a rigorous set of monitoring tools to carefully track what was being implemented where. DIME also collaborated on a series of workshops that introduced tools and evidence from other settings to help give the project its best chance of success.

The second challenge was political pressure to redirect the funds to other initiatives given the high per capita costs of the intervention. In early 2016, the government considered closing the TUP program before implementation began. However, at the time, evidence of the transformational impact of the program in other countries was beginning to surface (Banerjee et al. 2015). DIME worked with the project task team leader to package the existing evidence and make the case to continue supporting the TUP program, despite initial concerns. Based on a more concrete understanding of the program's potential, the government eventually agreed with the World Bank to proceed with the TUP.

The third challenge was how to generate high-quality evidence in a setting where World Bank staff are restricted from traveling outside of Kabul. DIME developed a set of quality assurance tools in collaboration with the implementing partner and launched one of the first tablet-based surveys in the country in 2016. These tools are now being packaged to help other teams improve data quality in fragile settings.

To assess the impacts of programming, 1,219 of the poorest households from 80 villages in Balkh

province were randomly assigned to a treatment or control group. Women in treatment households received a one-off “big push” package, including a transfer of livestock (typically cows, and occasionally sheep or goats, worth approximately US\$1,312 PPP), a consumption stipend of US\$54 PPP delivered in 12 monthly installments, skills training, access to savings accounts and savings encouragement, facilitation of access to health care services, and coaching through biweekly visits for one year. Control households did not receive any of the program components.

of what can be achieved in FCV settings to improve the lives of the world’s poorest and most vulnerable (see figure 2.5). The TUP program increased household consumption by 30 percent and reduced poverty by 20 percentage points, with a conservatively estimated 26 percent internal rate of return and a benefit-cost ratio of 2.3. Even with very modest assumptions, the impact evaluation engagement, costing approximately \$1 million, likely paid for itself by helping ensure the program was delivered, and documenting its success.

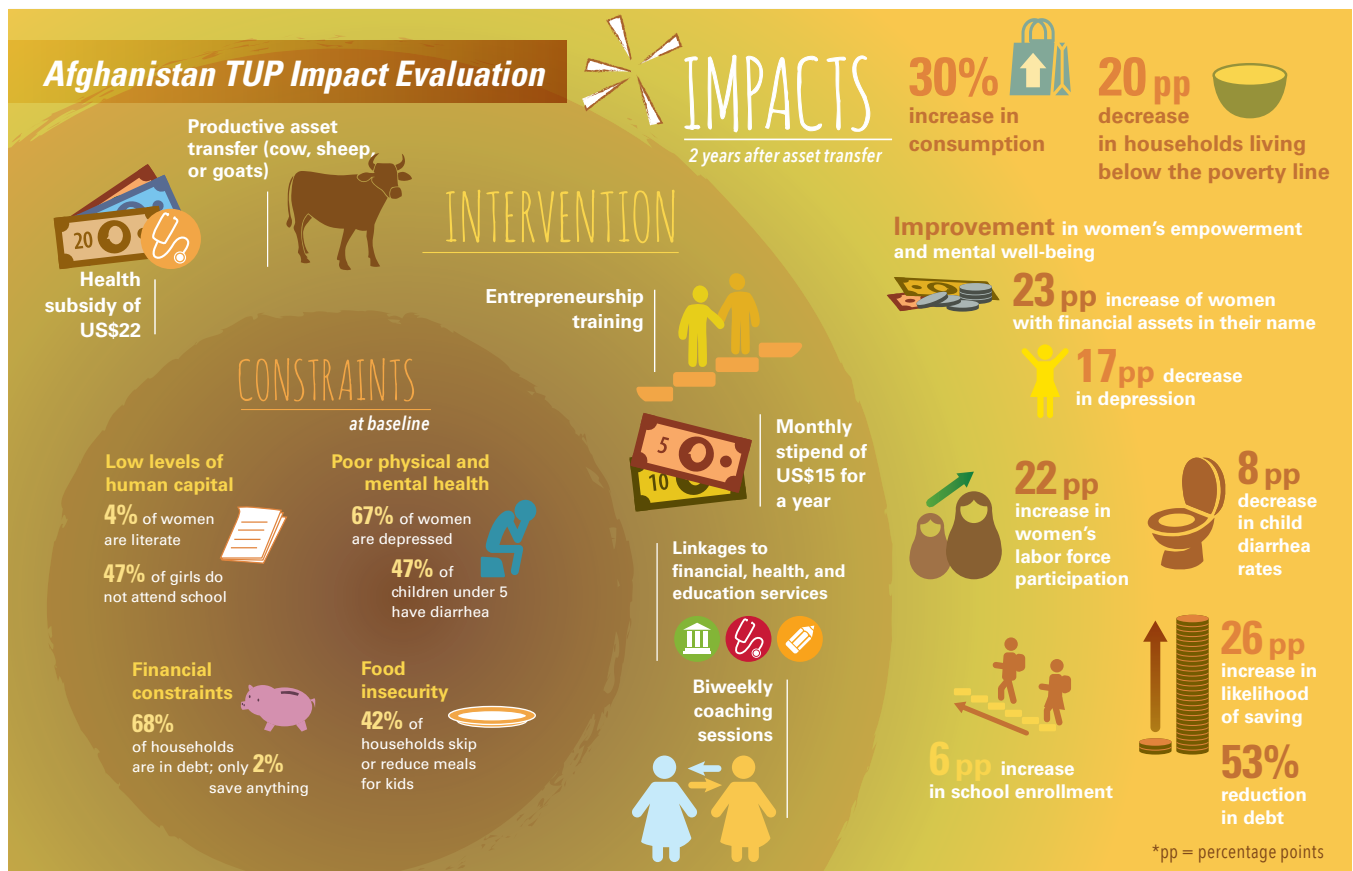
Our Findings

The impact evaluation results highlighted the program’s value and offered a tangible example

Policy Implications

The success of the program offers a roadmap for how to tackle poverty in FCV countries, and has

■ ■ **Figure 2.5** The Afghanistan TUP Impact Evaluation Summary



influenced the views of high-level World Bank management, the World Bank Group's Finance, Competitiveness, and Innovation Global Practice, and the World Bank Group's Social Protection and Jobs Global Practice.



This case study is based on an impact evaluation conducted within DIME's Gender, Economic Opportunity and Fragility research program. See: Bedoya, Guadalupe, Aidan Coville,* Johannes Haushofer, Mohammad Isaqzadeh, and Jeremy Shapiro. 2019. "No Household Left Behind: Afghanistan Targeting the Ultra Poor Impact Evaluation." Policy Research Working Paper 8877, World Bank, Washington, DC.*

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**Development Impact Evaluation (DIME), World Bank.*

Not All Programs Deliver the Same Value

ARIANNA LEGOVINI

Based on the experimental evidence, **UCT and TUP/economic inclusion programs are more effective than either Conditional Cash Transfers (CCTs) or Community-Driven Development (CDD) programs at persistently reducing household poverty.**

CCTs are widespread and part of many social protection systems worldwide. They target poor households, conditional on household investments in education or health (for example, sending children to school), with the idea of breaking the poverty cycle through human capital investments. CCTs have important impacts on reducing current poverty, increasing school attendance and health services utilization, and reducing child labor. In the form of Payments for Environmental Services, CCTs are also used to address climate change—impacting both reforestation and food security.

The evidence on CCTs, however, suggests they do not secure persistent impacts on household poverty and presents mixed evidence on other outcomes such as child nutrition and learning and female labor force participation. At least two factors may be at play: the conditionality and the long-term nature of the transfers. First, by the very nature of the condition, households cannot optimize the use of cash transfers. Second, without a graduation deadline, households may invest a relatively small share of CCTs, and as a result fail to generate the persistent increases in consumption observed in temporary UCT or TUP programs (see the previous case study).

In contrast, CDD projects encourage and facilitate the participation of communities in allocating resources for local public goods, often infrastructure

project construction or other productivity-enhancing investments. These programs are pervasive in World Bank and other institutions' portfolios. As of June 2020, there were 327 active World Bank-supported CDD projects in 90 countries, for a total lending of US\$33 billion, 65 percent of which was IDA (World Bank 2021). An additional US\$33.8 billion was provided by borrowers and other donors (World Bank 2021).

However, a deep literature review evaluating the impact of CDD programs finds no or negligible impact on consumption or poverty reduction across randomized controlled trials conducted in more than a dozen contexts (Arcand and Bassole 2008; Beath, Christia, and Enikolopov 2015; Deininger and Liu 2009; Casey, Glennerster, and Miguel 2011; Fearon, Humphreys, and Weinstein 2009; Labonne 2011; and Voss 2008). Even when short-term gains from CDD are recorded, the gains are not sustained over time (Chen, Mu, and Ravallion 2009; Mvukiyehe and van der Windt 2020). A more in-depth review of this literature suggests that the closer CDDs approximate the features of economic inclusion programs, the more their impacts increase.

Overall, CDD alternatives to temporary support do not secure the same large and sustained gains in consumption and poverty reduction as UCTs and TUPs. Yet CDDs capture the lion's share of social protection and sustainable development financing around the globe. Shifting the World Bank's US\$33 billion active portfolio in CDD (World Bank 2021) toward the comparably small US\$5.5 billion portfolio in economic inclusion programs, or redesigning CDD programs to

approximate the features of economic inclusion programs, could increase vulnerable populations' consumption by large margins (around US\$11 billion according to DIME estimates).

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HUMAN DEVELOPMENT ON MOBILE MOVE, PLAY, AND LEARN

ARIANNA LEGOVINI

The recent acceleration in the development and take-up of digital products and services has widely expanded opportunities to use mobile technologies to provide a means for traditionally excluded populations to accumulate human capital. While the expansion of digital access is not without challenges, the promise of digital platforms and services for solving intractable problems such as education, health, banking, mobile money, and market access—by connecting suppliers and buyers in e-commerce platforms, or drivers and riders in transport services, and so forth—is undeniable.

Mobile phones allow people to access digital banking and make person-to-person transactions, expand their economic activities, and reduce food insecurity. For example, Wieser et al. (2019) find phones increased households' use of mobile money by 4 percentage points, off-farm self-employment by 3 percentage points, and food security by 12 percentage points. In Kenya, a leader in mobile penetration, 95 percent of urban recipients prefer to receive government transfers in the form of mobile money. Educational apps loaded on mobile phones impact learning outcomes by large margins in short time periods (0.25–0.50 standard deviations). Phones can also improve health. For example, in one study in India, a combination of information and incentives increased immunizations by 44 percent.

Several governments have distributed phones as part of their effort to digitize government-to-person (G2P) transactions. Appropriately complemented with

apps and interventions these phones can add large value to households.

In this chapter, we make a case for thinking beyond traditional service delivery systems to using mobile technologies to close the human development gap. We present three cases to demonstrate the power of using technology to advance human development, address gender disparities, and improve the supply and demand for health and education. The examples clarify how technology can change how we do things, for instance, reaching unschooled children and helping them learn to read in their native language through gamified apps. The cases also show how we employ research to explore, experiment, and validate emerging technologies to solve development problems, and how we prototype digital tools to prioritize investments, monitor implementation, and evaluate the effectiveness of public policies. In so doing, we also learn much about the challenges of taking digital solutions to scale and the features and capabilities that digital tools should incorporate to ensure usefulness and sustainability.

The three cases help us draw some general lessons:

- 1. The economic costs of violence against women are high and pervasive.** In the past, it has been impossible to measure the extent of violence against women in public spaces, let alone the effect of that violence on women's mobility, education, and labor market decisions. Our study in Delhi shows how information on travel routes can be combined with crowdsourced safety data from two mobile phone applications (SafetiPin and Safecity) to understand how violence constrains women's physical mobility, lowering their human capital accumulation and potentially their long-term productivity and earnings.
- 2. The movie industry can help shape health prevention and other changes in behavior on a global scale.** Our study on MTV Shuga, a drama series, shows how professionally produced narratives can halve the transmission of sexually transmitted diseases through long-term engagement with audiences. The drama succeeds where information campaigns fail.
- 3. Introducing gamified educational apps in over 100 languages can teach literacy and numeracy quickly and efficiently.** Even among extremely vulnerable populations, the distribution of phones loaded with gamified apps can succeed in teaching literacy and numeracy in native languages and increase children's school preparedness at the modicum cost of a phone and the accompanying solar charger, far below its economic value.

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Women's Safety-Constrained Education and Labor Decisions

GIRIJA BORKER

Common Perceptions

There is limited evidence about the economic costs of daily harassment (Aguilar et al. 2021). One revealed-preference experiment estimated women's willingness to pay to avoid harassment using crowdsourced data from 22,000 rides on the public train system in Rio de Janeiro, Brazil (Kondylis et al. 2020). Participants were offered a series of paid opportunities to ride either a carriage reserved for women or a mixed carriage, with a pay differential between the women's and mixed carriages that varies from ride to ride. A fifth of riders were willing to forgo 20 percent of the fare to ride in the "safe space." This foregone payment equals \$1.17–2.25 per incident avoided, or approximately 0.4 percent of the minimum wage annually. Such a wage penalty would cause a 0.48–0.60 percent reduction in female labor supply (Vick 2017).

Questions We Should Be Asking

However, despite these early findings on the economic costs of fear of harassment and violence, there is no quantitative estimate of the economic costs of harassment in terms of women's longer-term educational attainment and earnings. One potential cost of an environment where street harassment is prevalent is that women may avoid opportunities that would otherwise be available.

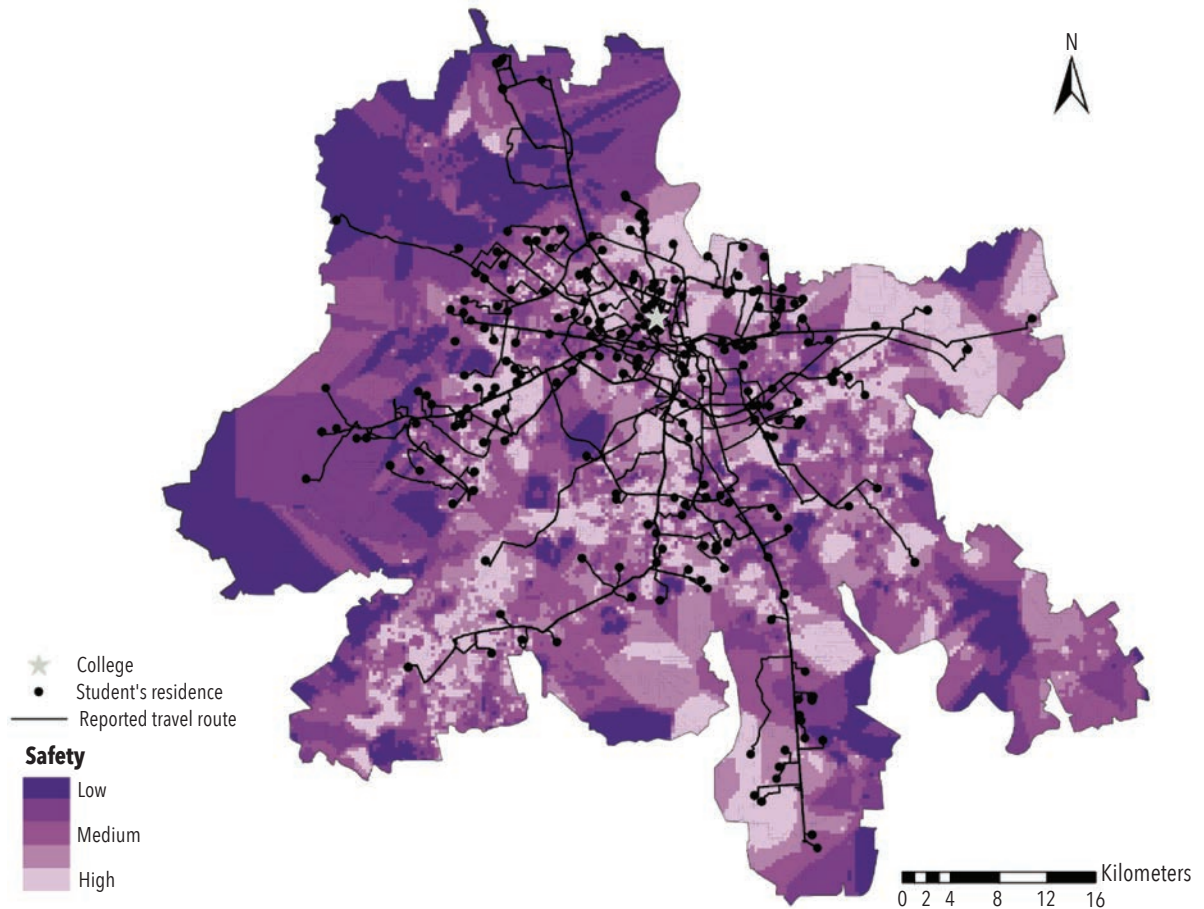
At Delhi University (DU) in India, women tend to attend lower-quality colleges than men, even

though, on average, they outperform men on the qualifying national high school exams. In Delhi, a staggering 95 percent of women aged 16–49 report feeling unsafe in public spaces (UN Women and ICRW 2013). The question is: do women choose to attend lower-quality colleges to avoid sexual harassment when traveling to and from college? This question is addressed in a context where 72 percent of enrolled students live at home with their families and travel to college every day, mostly by public transport, and where over 89 percent of female students have faced some form of harassment while traveling in the city.

To assess if women choose a low-quality college because it is located on a "safe" route, I evaluate the difference in female and male students' willingness to pay for travel safety in terms of college quality, travel costs, and travel time in a model of college choice. The difference captures the cost of street harassment for women, since men in Delhi do not face such harassment but are expected to have similar concerns about other forms of safety.

To do so, I assembled a unique dataset (see map 3.1). DU is composed of 77 colleges spread across Delhi. The colleges vary in quality, with each college having its own campus, classes, staff, and placements. Admission to DU is strictly based on students' high school exam scores. I infer students' comprehensive choice set of colleges using detailed information about 3,800 students from a survey conducted at the university. Using Google Maps and an algorithm developed for the project, I mapped students'

■ ■ -Map 3.1 Perceived Safety and Students' Reported Travel Routes to a College at Delhi University



Note: Crowdsourced safety data from two mobile phone applications show students' travel routes to university as well as the associated perceived levels of safety across New Delhi.

travel routes by travel mode, including both the reported travel route and the potential routes available to students for every college in their choice set.

Finally, I combine the information on travel routes with crowdsourced safety data from two mobile phone applications ("apps"). The first app, *SafetiPin*, provides perceived spatial safety data through safety audits conducted at various locations across Delhi. The second app, *Safecity*, provides analytical data on harassment rates by travel mode. Together, the route and safety data facilitated the assignment of

a safety score to each travel route. Map 3.1 shows the safety data and the reported travel routes for students of one college in the sample.

Findings

College Quality

Women were willing to choose a college in the bottom half of the quality distribution over a college in the top 20 percent for a route perceived to be one standard deviation (SD) safer. Conversely, men were only willing to go from

a top 20 percent college to a top 30 percent college for an additional one SD of perceived travel safety.

To put these findings into perspective, I used district-level data on rape from the National Crime Record Bureau. This data revealed that one SD of perceived safety while walking is equivalent to a 3.1 percent decrease in reported annual rapes.

Money

Women were willing to spend an additional INR 17,400 (\$290) per year on travel costs for a route perceived to be one SD safer (see figure 3.1). Men are willing to spend an additional INR 9,840. The difference of over INR 7,500 is a significant sum of money—75 percent of the average annual tuition at DU, and five times the monthly travel costs of a student at DU.

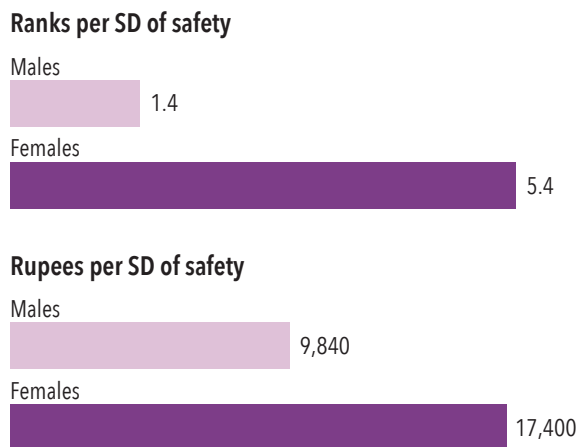
Post-College Salaries

Using data on placement offers at the time of graduation, women’s willingness to pay for safety amounts to an estimated decline of INR 82,000, or 27 percent, in terms of the average graduating salary at DU. Furthermore, using estimates from Sekhri (2019), women’s willingness to pay for safety translates to an estimated 17 percent decline in the present discounted value of their post-college salaries. The findings speak to the long-term consequences of everyday harassment: perpetuating gender inequality in both education and lifetime earnings.

Beyond Education

While this paper focuses on the effects of street harassment on women’s choice of college, these findings are also relevant for other economic decisions made by women. For instance, the propensity to avoid street harassment could impact

■ ■ **Figure 3.1** Women’s and Men’s Willingness to Pay for Travel Safety



Note: To gain an additional standard deviation of safety (equivalent to a 3.1 percent decrease in annually reported rapes), men were willing to attend a college that was 1.4 ranks lower in quality, while women were willing to attend a college that was 5.4 ranks lower. In terms of travel costs, men were willing to spend an additional 9,840 INR (125 USD) per year to travel on a road that is one standard deviation safer, while women were willing to spend 17,400 INR (223 USD) per year (78 percent more than men).

women’s employment decisions including where to work, how much to work, or even whether to work at all. This can potentially explain India’s low levels of female labor force participation.

Policy Implications

These results highlight the significant economic costs associated with unsafe travel and reinforce the need for policies to address violence against women in public spaces. Many governments recognize the safety constraints women face while traveling and have launched initiatives to tackle these issues. These include policies like the installation of CCTV cameras or panic alarms, street patrols targeting harassment, placement of marshals on public transport who can respond to women’s safety concerns, and the organization of information campaigns encouraging

women to speak-up or bystanders to intervene to promote women's safety in public spaces.

Other initiatives, like the creation of women-reserved spaces, are effective in the short-term but have been found to lead to unintended perverse consequences like stigmatizing the use of unreserved spaces. Little is known about the effectiveness of these measures in terms of their direct effects on women's physical mobility and even less is known about their impact on women's economic mobility. To fill these knowledge gaps, DIME is pushing past the frontier to measure women's safety concerns in rapidly urbanizing cities like Dar es Salaam. DIME will also evaluate the effects of policies being implemented to promote women's safety, for example a police street patrolling program on violence against women and their perceptions of safety.



For the full results of this case study, see: Borker, Girija. * 2021. "Safety First: Perceived Risk of Street Harassment and Educational Choices of Women." Policy Research Working Paper 9731, World Bank, Washington, DC.

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Streaming for Social Change at Scale

VICTOR OROZCO-OLVERA

Common Perceptions

Governments and development institutions spend billions each year trying to positively change social norms and behaviors. Yet systematic reviews show that traditional approaches are not effective in promoting behavior change, nor do they have reach and scale compared to mass entertainment media.

One promising area for changing social norms and behaviors on a large scale is HIV prevention. In 2017, an estimated 1.2 million people in Sub-Saharan Africa became infected with HIV. More than one-third of these infections occurred in young people between the ages of 15 and 24. Nigeria, where this study took place, has the second highest HIV/AIDS burden globally. Unsafe heterosexual sex is the primary source of transmission, causing approximately 80 percent of new cases of HIV in 2014. Systematic reviews of HIV prevention campaigns show that while they effectively promote awareness, they are often ineffective at reducing risky sexual behaviors and HIV transmission (Krishnaratne et al. 2016).

An alternative way of shaping social norms and behaviors is using mass media—commonly referred to as edutainment, which is short for education-entertainment. The media used to engage at scale includes television, movies, radio, social media, and app games, with streaming services being the largest growth industry.

People are biologically wired to remember and relate to experiential stories—much more than abstract concepts. Impact evaluations show that experiential stories are more effective at shifting social norms and behaviors than less emotive

and relatable content. However, despite this evidence and its potential to accelerate and scale influence, the use of mass edutainment has remained limited: why?

Questions We Should Be Asking

Governments and development agencies are increasingly turning to edutainment to communicate with young people and other high-risk populations. Edutainment programs can inspire audiences to engage in new thinking about what is possible, and change audience perceptions of what is “normal” and socially acceptable behavior. For example, the television series MTV Shuga seeks to address the spread of HIV/AIDS by fusing sexual health messaging with engaging storylines. Weki’s story aims to improve attitudes toward HIV-positive people.

This study (Banerjee, La Ferrara, and Orozco-Olvera 2019a) is a clustered randomized trial conducted in urban and semi-urban communities. Young people aged 18–25 were invited to a series of entertainment screenings. The treatment group viewed MTV Shuga, while the control viewed a placebo television drama that lacked educational messages. Hosting community screening events in both the treatment and comparison communities enabled researchers to attribute any impacts they found to the MTV Shuga program itself, rather than the community screening component of the activity.

The study measured impacts 8–10 months after program exposure using surveys and objective behavior change measures for HIV testing, condom demand, and Chlamydia biomarkers.

Our Findings

MTV Shuga improved participants' knowledge about HIV, including greater awareness about transmission, testing, and available drug therapies. Viewers were 14 percent more likely to know about needing to take a second HIV test and that this test should be done after at least three months. The show also positively influenced viewers' attitudes toward people living with HIV: viewers reported being more willing to buy from an HIV-positive shopkeeper; and closer to Weki's story, were more likely to allow an HIV-positive boy to play football.

Most importantly, the program promoted safer sexual behaviors (see figure 3.2). Young people in the treatment group were almost twice as likely to have visited local HIV centers and been tested in the last six months than youth in the comparison

group. Viewers were also less likely to report having concurrent sexual partners than those in the comparison group, particularly those who initially reported having more than two partners.

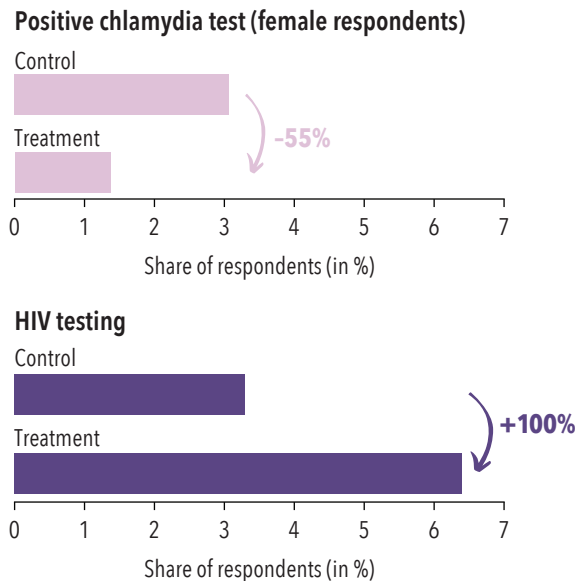
Exposure to MTV Shuga led to a 55 percent decrease in women's likelihood of testing positive for Chlamydia. Positive test results occurred in 3.1 percent in the comparison group versus 1.7 percent among viewers. The effects for men were in the same direction, though the difference was not large enough to be statistically significant. A recent meta-analysis also confirms that edutainment can effectively promote safer sexual behaviors among young people in both developed and developing countries (Orozco-Olvera, Shen, and Cluver 2019).

Policy Implications

Because mass media can reach large segments of the population at low costs, edutainment has the potential to be more influential and cost-effective than traditional HIV behavior change campaigns. MTV Shuga is broadcast on public and private channels in all Sub-Saharan countries. Preliminary results of a cost-benefit analysis suggest the investment could have been recovered by as little as 1 percent of the show's potential youth audience in its five main market countries.

Furthermore, even small "doses" of high-quality edutainment may prove effective. For example, MTV Shuga's short subplot on domestic violence improved the attitudes and behaviors of viewers (Banerjee, La Ferrara, and Orozco-Olvera 2019b). The incidence of sexual violence decreased by a third among Shuga viewers compared to the control group. Among women, the decrease was even stronger in the reporting of physical violence.

■ ■ **Figure 3.2** Select Impacts of MTV Shuga Viewership



Note: Exposure to Shuga led to a 55 percent decrease in the likelihood that women test positive for Chlamydia. Furthermore, the probability that viewers tested for HIV (as measured by the redemption of vouchers received at health camps) increased by 100 percent relative to the control group mean.

Evidence about the effectiveness of small doses of edutainment is reflected in a recent DIME trial in India (paper not yet circulated), which shows that short videos (less than 30 minutes) delivered through social media reshaped gender attitudes and reduced the social acceptability of violence against women. Moreover, who delivers the message also matters for combating vaccine hesitancy. For example, in Indonesia, immunization messages on Twitter were 70 percent more likely to be passed on when authored by celebrities (Alatas et al. 2021). Lastly, in India, 25 million people received an SMS with a link to a YouTube video of Nobel Laureate Abhijit Banerjee speaking about COVID-19. The result was increased symptom reporting, social distancing, and handwashing (Banerjee et al. 2020).

By partnering with the fields of behavioral science and impact evaluation, as well as researchers, technical specialists, and social media experts, we can maximize these initiatives' effectiveness and inclusiveness, and get a better sense of their impact.

There is still more to do to reach offline populations, and we need more ambitious public-private partnerships to target full ecosystems, especially in low-income settings. This is a task for everyone at the World Bank, as well as donors, private partners, and national governments. The call and challenge for scalable innovations in development investments for current and future crises is a great motivator.

The policy impact of DIME's research on development investments is being reflected across institutions, regions, and sectors. For example, in the Kyrgyz Republic and other Central Asia countries, the IFC Central Asian Financial Inclusion Project is supporting the production of a soap opera and complementary social media campaigns to improve financial literacy outcomes.

In Nigeria, the World Bank's Accelerating Nutrition Results in Nigeria Project is supporting the production of a mass media campaign across TV, radio, and social media aimed at promoting behavior change related to health and nutrition. The campaign includes a soap opera that will be translated into five languages and nationally broadcasted on public TV channels. Finally, in Iraq, the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) project for Strengthening Resilience in Dealing with Crises and Conflicts in Ninewa is supporting the production of a ten-episode docuseries aimed at promoting social cohesion objectives. Each episode is centered around the true-life stories of individuals living in Ninewa and their experiences rebuilding their community after the military defeat of ISIS. The World Bank's Mind, Behavior, and Development Unit (eMBeD) and DIME are supporting the intervention design and impact evaluation, respectively.



*This case study is based on an impact evaluation conducted within DIME's Gender, Economic Opportunity and Fragility research program. See: Banerjee, Abhijit, Eliana La Ferrara, and Victor Orozco-Olvera. * 2019. "The Entertaining Way to Behavioral Change: Fighting HIV with MTV (English)." Policy Research Working Paper 8998, World Bank, Washington, DC.*

The Narrating Behavior Change program of the World Bank's DIME department links project teams across Global Practices with researchers and edutainment producers to develop rigorous and innovative evaluations that both improve the evidence base for policy making and induce the systematic use of edutainment in development investments.

See also the following blog posts and articles:

- *"How to Tame COVID-19 Vaccine Hesitancy: Edutainment and Lotteries?" <https://blogs.worldbank.org>*

org/developmenttalk/how-tame-covid-19-vaccine-hesitancy-edutainment-and-lotteries.

- “Using Social Media to Change Norms at Scale.” <https://blogs.worldbank.org/voices/using-social-media-change-norms-and-behaviors-scale>.
- “Using Entertainment Media to Reach the SDGs.” <https://www.worldbank.org/en/news/feature/2019/11/12/using-entertainment-media-to-reach-the-sdgs>.
- “The Entertaining Way to Behavioral Change: Fighting HIV with MTV in Nigeria.” <https://www.nber.org/papers/w26096>.
- “Watch The MTV Soap Opera That Is Secretly Teaching Sex Ed.” <https://www.npr.org/sections/goatsandsoda/2017/04/18/522869551/watch-the-mtv-soap-opera-that-is-secretly-teaching-sex-ed>.

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ACKNOWLEDGMENTS

DIME conducted the MTV Shuga study from 2014 to 2019 in partnership with the MTV Staying Alive Foundation, the Nigeria National Agency for the Control of AIDS, and JPAL affiliates Professors Abhijit Banerjee (MIT) and Eliana La Ferrara (Bocconi University). Study donors included the Bill & Melinda Gates Foundation and FCDO. Funding partners for the program included African governments, UNICEF, PEPFAR, the Bill & Melinda Gates Foundation, and the Elton John Foundation.

**Development Impact Evaluation (DIME), World Bank.*

Edutainment and Edtech for Effective Home Learning

VICTOR OROZCO-OLVERA

Common Perceptions

Almost nine in ten children in Sub-Saharan Africa are learning poor, meaning that they are unable to read and understand a simple text by age 10 (Beeharry 2019). COVID-19 is worsening this “learning crisis,” especially for poor and vulnerable households that lack access to online resources (Azevedo 2020). A common perception is that distributing “edtech” in home-learning initiatives is costly and that money should go toward supply-side interventions, such as building schools or conducting lengthy after-school camps (Banerjee et al. 2016). Therefore, the potential for leveraging smartphones for home learning and broader development has remained largely untapped.

However, recent trends may reverse the trend of untapped smartphone potential in development: almost half of the world’s adults own a smartphone, with ownership rates rapidly growing in developing countries (Orozco 2021). Due to the social distancing imperatives of COVID-19, development interventions are increasingly using online approaches.

Smartphones can deliver persuasive social and behavioral change communications, from social media campaigns to edutainment narratives, complementing hardware solutions (Orozco 2021). A recent report concluded that for education technology to work, it needs to be accompanied by well-thought-out complementary tools (Global Education Evidence Advisory Panel 2020). The combined cost of a smartphone and a solar charger can be under US\$50, so the provision of smartphones preloaded with apps allows for relatively low-cost targeting of different household members.

Questions We Should Be Asking

With these trends in mind, DIME, with support from a World Bank education project and the Norwegian Agency for Development Cooperation (Norad), conducted a clustered randomized controlled trial in northern Nigeria of just over 9,000 households: “Movies and Mobiles.” In Northern Nigeria, less than 10 percent of parents read to their children, over 50 percent of children do not attend primary school, and over a third of girls marry before age 15. School instruction is often delivered in a language different from the one spoken at home.

The DIME trial tested a combined intervention that lasted five days. In all treatment communities, we invited households with children aged 6–9 to attend community screenings (produced by edutainment producer Impact(Ed), formerly Discovery Learning Alliance) aimed at motivating parents and reshaping their educational and gender attitudes. These involved aspirational animations and documentaries, a female NGO facilitator who led post-screening discussions, and a community leader who endorsed educational messages.

To study the additional effects of the mobile learning add-ons, we conducted a public lottery at the end of the community screening where a third of attendees won a smartphone. Phones were preloaded with two apps: Feed the Monster (which teaches reading foundations) and the Global Digital Library (an app that included hundreds of early literacy books). Multidonor initiatives co-led by Norad and USAID sourced the content, and adapted and translated these apps into over a hundred languages.

We were then able to compare the effects on parents' aspirations and children's learning outcomes across three groups:

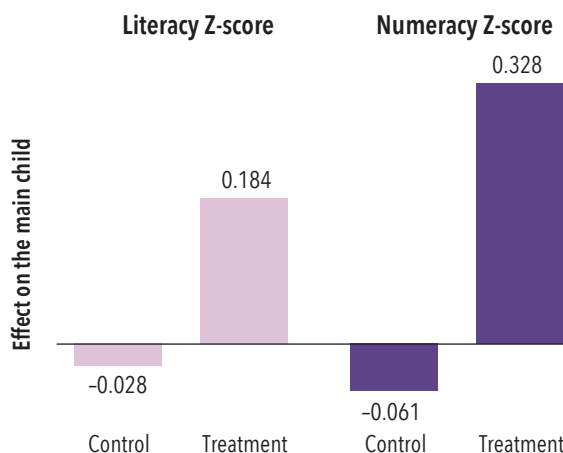
1. Not receiving any treatment;
2. Attending the community screenings; and
3. Attending the community screenings plus receiving a smartphone preloaded with literacy apps.

Our Findings

The community screenings and follow-up discussions increased parental aspirations for their daughters to attend school even when they reached the age of 15, increased parents' preference to delay their daughter's marriage, and increased school attendance by 34 percent. Though schools in all study locations had recently received a large supply-side investment, increased school attendance did not lead to increased learning outcomes, highlighting the important challenges faced by school interventions.

On the other hand, when households also received smartphones, we observed impacts on learning outcomes in the order of 0.20–0.50 standard deviations (see figure 3.3). Smartphones significantly improved not only literacy skills but, surprisingly because smartphones were not preloaded with numeracy apps, also numeracy skills. Parents in communities that received the combined intervention (edutainment and edtech) became more confident in their ability to help their children learn at home, regardless of the parent's education level. We found a 22 percent increase in parents reading to their children and a 25 percent decrease in parents' beliefs that their own education is an obstacle to helping their children learn. Importantly, we did not find that smartphone use negatively impacted school attendance.

■ **Figure 3.3** Impact of the Edtech Intervention on Literacy and Numeracy



Note: The control group attended community screenings, while the treatment group attended community screenings in addition to receiving smartphones preloaded with applications. Households in the treatment group saw a positive impact on both the literacy and numeracy skills of the main child targeted by the edtech intervention.

Furthermore, preloaded smartphones also improved learning outcomes and reduced teenage pregnancies of non-targeted older siblings, highlighting the spillover potential of smartphones within households.

Policy Implications

Improving learning outcomes is hard. Our results demonstrate that even "light" interventions such as our five-day initiative can be effective compared to most literacy interventions targeting primary school-aged children.

COVID-19 disrupted human capital gains in developing countries and the evidence base of mobile-based solutions remains scarce for both online and offline populations (Orozco 2021). To maximize their development impact, testing such interventions and other scalable innovations must continue. To increase demand for broadband services and smartphones, more engaging apps

need to be made available. The mEducation Alliance, which has expanded the global supply of literacy and numeracy apps and videos through innovative partnerships and competitions, is a leading example. Free and high-impact apps in a child's mother tongue can complement formal schooling efforts on a global scale. For instance, Feed the Monster and the Global Digital Library (content shown to work in the northern Nigeria trial) work with the vast majority of Android devices and have been translated to 50+ and 80+ languages, respectively.

Development partners need to support open-source and open-license content and the development of content that is as universal as possible. Country adaptations and complementary campaigns can happen in a second stage.

In partnership with Curious Learning, DIME is studying if this approach also works for smartphone owners already connected to the internet, focusing on poor households. This scalable approach could potentially be very cost-effective. For example, the trial's formative research shows that it costs less than five US cents for parents in Nairobi's poorest neighborhoods to download the literacy apps, with even lower costs for non-targeted campaigns.



This case study is based on an impact evaluation conducted within DIME's Gender, Economic Opportunity and Fragility research program.

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ACKNOWLEDGMENTS

This study was completed by DIME with support from a World Bank education project and the Norwegian Agency for Development Cooperation (Norad). Impact(Ed) produced the aspirational movie screenings. The EdTech apps were produced by Curious Learning and Global Digital Library. Multidonor initiatives co-led by Norad and USAID sourced the literacy apps' content and adapted and translated these apps into over a hundred languages.

**Development Impact Evaluation (DIME), World Bank.*





GOVERNMENT, DISRUPTED DATA LAKES, APPS, AI, AND HUMANS

ARIANNA LEGOVINI

Data, digital solutions, and artificial intelligence applications can revolutionize how government services are measured, understood, and enhanced. At DIME, we focus on improving the efficiency, accessibility, and effectiveness of government services. Our vision is to support the development of effective, reliable, transparent, and accountable institutions; advance equal access and opportunities; and promote economic development. We seek to bring scientific tools to public administrators to maximize the efficient and fair operation of government services.

We advocate for digitizing government functions on the basis of foundational research, prototyping, and ground testing to develop systems at scale that work for intended users, and as an opportunity to build local capacities for linking data and analysis to action. We focus on skills development and behavioral change to support deployment and secure usage. We deliver open-source prototypes that can be adapted to changing demands or different contexts. We advise against contracting expensive digital systems absent the necessary groundwork needed to ensure their usability, and advise against closed-source software, for which the design may quickly become obsolete and the recurring payments unsustainable.

New investments in digital infrastructure, solutions, and platforms generate a tremendous amount of data that can inform improvements in administrative efficiency and deliver more effective policies. Yet, even under the current scenario, the great majority of data goes unused. Thinking ahead to develop replicable code, dashboards, and analytical capacities can be transformational for processing and analyzing data, producing useful and actionable analytics, and averting a huge lost opportunity. Software can enable social change, especially when used to experiment and validate emerging technologies to solve development problems. Lastly, economic impact evaluation should be essential to the validation process.

In this chapter, we offer five examples to demonstrate how digitization and data integration, together with the digitalization of government processes, can transform the functioning of justice, cities, macroeconomic policy, public administration, and health. The disruption of old into new technologies increases public sector productivity with tremendous potential for economic revival. In the following case studies, we show that:

1. **Decreasing judicial delays by 20 percent can increase wages by 23 percent in contract-intensive industries.** We show that millions of paper records can be transformed into structured data as a resource to increase the efficiency of justice; that judicial processes can be rewired using digital applications to improve assignment, management, monitoring, and AI-supported quality of decisions; and that improvements in justice are a driver of productivity and economic growth.
2. **Prioritizing investments in just 1 percent of the road network can halve road mortalities.** We transform an open-source dataset like Twitter into a resource for urban planning and development. We show that bystanders' reports can be used to create location data for urban events like car crashes, scarce in most developing countries but essential for addressing the number one cause of mortality for children over five and young adults. We then identify the 1 percent of the road network that hosts 50 percent of the crashes, enabling road safety authorities to channel scarce resources to those locations and reach Sustainable Development Goal (SDG) 3.6: by 2030, halve the number of global deaths and injuries from road traffic accidents.
3. **Shaping fiscal response through analysis of daily tax data can support economic recovery.** We use the growing electronic filing and billing systems to better understand economic activity in real-time across geographies and sectors to deliver targeted policy responses, especially during crises.
4. **Understanding where and how to intervene can increase the productivity of public administration.** We integrate and analyze productivity data across a universe of public projects, ministries, departments, and agencies to identify where productivity improvements are dearly needed. In so doing, we experiment with training modalities and other interventions to optimize efficiency.
5. **Introducing an e-check inspection system with accompanying regulation and enforcement can increase patient safety by large margins at low cost.** We develop new digital tools to standardize and measure patient safety in health facilities to substantially increase safety compliance cost-effectively.

Through these examples, we hope to communicate the need to invest in knowledge and reach beyond digitization to secure real digital transformation in the productivity of government.

Incremental AI for Fairer and More Efficient Justice

DANIEL CHEN AND MANUEL RAMOS MAQUEDA

Common Perceptions

The digital reform of the judicial system involves transitioning from paper-based to digitized processes; recruiting new professionals, such as data analysts, computer scientists, and designers; promoting digital skills that allow judges, prosecutors, court staff, and other justice practitioners to use and apply digital technologies and tools effectively; improving the collection and management of digital information; and developing systems that allow actors to exchange information.

Recent years have seen a massive increase of data use in global judicial systems. Many countries have turned to electronic case management and filing systems. The shift from paper trails to digital ecosystems on a large scale and the advent of machine learning (ML) tools can create interpretable data from unstructured data, and support the development of predictive models to understand inconsistencies and biases in decision-making and address them with digital interfaces.

Rigorous research on how to improve judicial efficiency is limited, but studies have shown that procedural policy changes, effective case management tools, data-driven interventions that promote accountability, and the expansion of alternative dispute resolution (“ADR”) programs can have positive effects on the efficiency and accessibility of justice.

Questions We Should Be Asking

How can AI and humans work together to solve issues such as uncovering the obstacles to judicial efficiency; dissipating the factors contributing

to case backlog; and finding viable solutions or experiments that may be useful to deploy in different contexts? Can we build human-centric AI systems that increase efficiency and autonomy, enhance learning, cultivate trust, and reduce inconsistencies in human judgment? Ultimately, how can AI lead to improved delivery, efficiency, and fairness of justice?

Challenging Perceptions

Information technology (IT), AI, and ML are increasingly becoming integrated into global justice systems, a trend accelerated by the COVID-19 pandemic. Big data and digital tools hold the promise of making judiciaries more efficient, increasing access for citizens worldwide, and reducing human biases in judicial decision-making. This promise also carries a responsibility: to assess the use of IT, AI, and ML to ensure they are improving justice systems and leading to downstream benefits. Using AI as a tool for optimizing decisions has shown limited effectiveness. We advocate instead for an incremental approach to AI that seeks to learn, through experimentation, how different tools can support humans in improving judicial outcomes.

The main objective of the DIME research program on Data and Evidence for Justice Reform (DE JURE) is to discover if technological interventions can bolster legal institutions around the world. To explore such possibilities, the DE JURE team combed through thousands of hours of oral arguments, millions of court decisions, tens of millions of hearings, and billions of n-grams (sequences of words) spanning 17 countries and

a century and a half's worth of judicial and administrative data. To date, the curated databases total over 12 terabytes of information (the equivalent of 40,000 episodes of your favorite show).

The program explores several potential data-driven and AI-integrated solutions that we have developed and evaluated in different contexts as part of our global justice program. With digital tools and impact evaluation, these solutions have the potential to support multiple goals of judicial reform: digital transformation, court efficiency, quality and fairness of judicial decisions, and impact on economic outcomes.

Digital Tools

Data-Driven Diagnosis of Court Delays: This low-cost, information-based intervention utilizes a data-driven diagnosis of court delays delivered to court managers and Court User Committees in Kenya and the Chief Justice in Senegal. The intervention reduced adjournments by 20 percent and 40 percent, respectively, increasing the speed of justice and the accountability of justice systems.

Case Management and Smart Assignment Tools: These open source case management tools can facilitate the optimal assignment of cases to mediators and judges, enhance access to justice, reduce court backlogs, and strengthen alternative dispute resolution mechanisms.

Data-Driven Performance Monitoring App: Data-driven performance monitoring apps motivate judges, prosecutors, mediators, and other court actors to comply with performance goals and identify where improvements are most needed.

Decision-Support App for Court Staff: This decision-support app uses natural language

processing to improve the efficiency and consistency of judges' decision-making by enabling them to review a court's, or judge's, past decisions.

Training Tools for Staff: Various extended curricular experiences and light-touch interventions developed by our team have been proven to change attitudes, beliefs, and high-stakes decision-making, which can all improve the efficiency and motivation of court actors.

Impact Evaluation

Court Infrastructure Impact Analysis: Leveraging innovative data sources, we conduct impact analyses of investments in court infrastructure, evaluating the effects on judicial efficiency and firm outcomes. This may assist court systems in making data-driven budget and policy choices that can improve case processing and outcomes.

Impact Analysis on Judicial Speed and Firm Productivity: By merging court and firm data, we evaluate where firm revenue is most responsive to increases in judicial speed. This helps the government identify where the greatest investments in court improvements may have a higher return on investment.

Policy Implications

One of the objectives of DE JURE is to integrate AI into judicial systems to improve decision-making. Using AI to recommend decisions to judges is controversial and potentially counterproductive as they may simply reject the recommendations. For example, a recent study found that implementing such a system could increase disparities: not because the algorithm is biased (in fact, the algorithm's decisions would reduce disparities), but because judges selectively pay attention to the algorithm (Albright 2019).

DIME's DE JURE team instead advocates integrating AI incrementally into high-stakes decision-making through a four-stage process:

Stage 1: AI as a support tool to increase efficiency, reduce bias, and increase autonomy.

Stage 2: AI as a choice monitor that can highlight inconsistencies in human judges.

Stage 3: AI as a coach providing tailored, transparent explanations and optimized feedback to judges.

Stage 4: AI to incorporate peer-based private information to give recommendations.

Below we highlight some of DE JURE's projects at the various stages of integrating AI.

Stage 1—A Web-Based Support Tool for Asylum Seekers

DE JURE is developing a tool to assist asylum seekers and their advocates in making their case for receiving asylum in the United States. Our web-based application can predict the likelihood of an individual being granted asylum by considering information such as their nationality, the hearing location, and the judge. DE JURE is also exploring opportunities to use natural language processing to digitize asylum case data for asylum attorneys to use when building their cases for clients. These support tools reduce the economic and social costs of justice in asylum cases and can be easily extended to other types of cases.

Stage 2—Decision-Support App for Judges

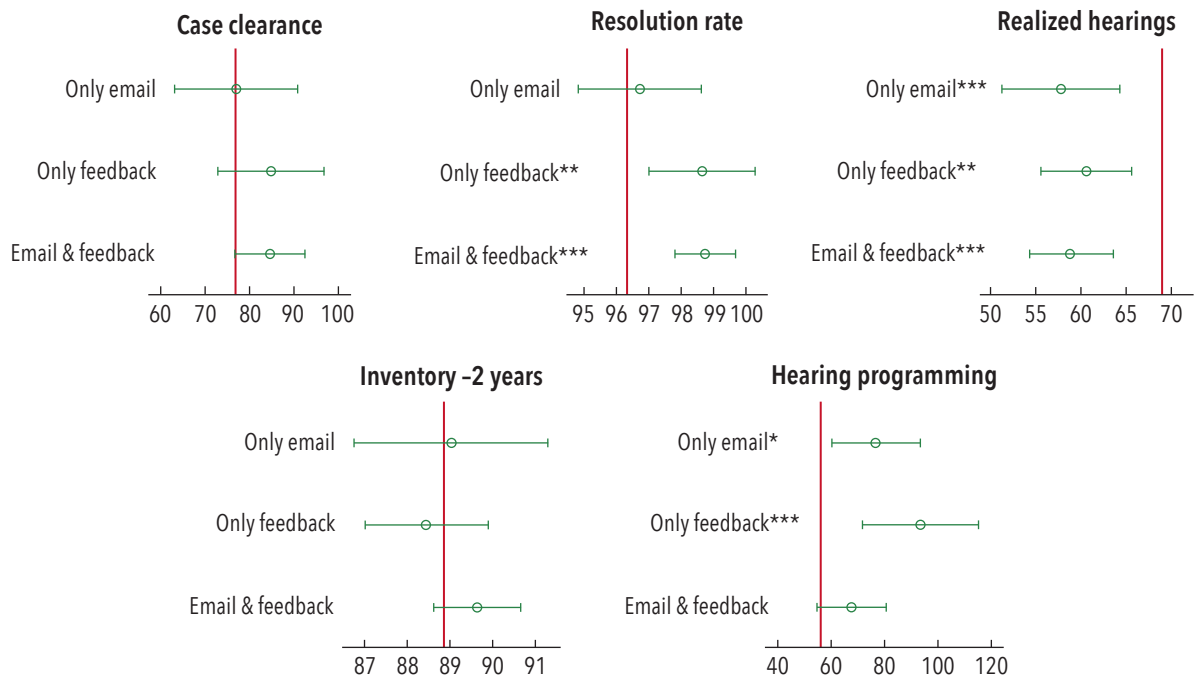
DE JURE has been working with judicial academies that are transitioning from theory to case-based teaching. Case studies allow students to apply and deepen knowledge previously acquired through exposure to real-life scenarios and good

role models. In this context, DE JURE is developing a tool that harnesses the history of past decisions. The platform can leverage the history of a particular judge's written decisions to evaluate how such a judge would decide a similar case compared to a curricular example or to other similar decisions by peer judges. The platform can also identify a judge's behaviors and provide personalized feedback about behavioral changes over time, suggesting how to improve decisions. This approach would augment the efficiency and consistency of judicial decision-making. It could take the judge's own decisions and cases, modify the cases, and indicate how changes in the way they would have been decided would have made a difference in the past. It could also help identify the characteristics of cases that the judge would likely decide differently, given the opportunity.

Stage 3—Data-driven Performance Monitoring that Improves Quality and Efficiency

Many courts worldwide report tracking their performance metrics, but few seem to use that data to inform court management decisions. In Chile, DE JURE partnered with the Department of Institutional Development (DDI) to test whether nudges informing court managers about their performance affected overall court productivity (see figure 4.1). DE JURE and DDI co-designed an online platform that displays performance metrics at the court and judge levels, such as the average case duration, the case clearance rate, and the rate of realized hearings. Through a randomized controlled trial, DE JURE demonstrated that the nudges resulted in behavioral change and improved court productivity. Simplified information presented court managers with social comparison cues that related their performance to that of their peers.

Figure 4.1 The Impact of Nudges on Court Productivity in Chile



Note: These graphs plot the average effects for three treatments: only email, only feedback, and email and feedback. The x-axis represents the monthly rate for each indicator. The red vertical line shows the mean average for the control group. Confidence intervals are at the 95 percent level, with *** corresponding to a significance level of 1 percent, **5 percent, and *10 percent.

Stage 4—Integrating Peer Recommendations to Improve Performance

DE JURE is collaborating with the Peruvian Ministry of Justice to improve the organizational efficiency of free mediation centers (Asistencia Legal Gratuita, also known as ALEGRA). ALEGRAs offer public defense and victims’ defense for free to low-income citizens, mostly in child support, custody, and alimony cases. In this setting, where one agent may have the power to influence the weaker agent to accept their offer, mediators play a crucial role in drafting agreements that minimize conflict. Improving the performance of extrajudicial mediators consequently carries important welfare implications for the most vulnerable. DE JURE is prototyping a tech-based, low-cost platform that allows mediators in ALEGRAs to monitor their performance and improve service quality.

The dashboard also aims to invite mediators to submit, rate, and answer doubts that arise while processing cases. The highest-rated answers will be disseminated among users to improve their performance. Sharing peer advice in an automated, simplified fashion addresses three practical and scholarly findings: (1) ALEGRA mediators frequently have difficulty identifying appropriate mediation strategies, (2) cognitive overload can lead to cognitive errors, and (3) conventional training for professionals is generally less effective than commonly expected.

To summarize the proposed incremental AI: the first stage (Predicted Self) reduces bias and increases autonomy; the second stage (Choice Monitor) predicts errors and uses nudges to direct attention; the third stage (Explainable AI) points out inconsistencies and delivers performance feedback; and the fourth stage (Community of Experts) incorporates peer-based, private

information into its behavioral recommendations. DIME believes that deploying such technological solutions can improve the quality and efficiency of judicial systems and, by doing so, increase the welfare of, and trust in, the state by vulnerable and marginalized populations.



This case study is based on a collection of work produced by DIME's DE JURE team that draws from the following working papers and published articles:

- Carrillo, Paloma, Daniel Chen,* Manuel Ramos-Maqueda,* and Bernardo Silveira. 2021. "Information Provision and Court Performance: Experimental Evidence from Chile." Working Paper.
- Chen, Daniel L.* 2020. "Incremental AI." NBER Working Paper.
- Chen, Daniel L.,* Tobias J. Moskowitz, and Kelly Shue. 2016. "Decision Making Under the Gambler's Fallacy: Evidence from Asylum Judges, Loan Officers, and Baseball Umpires." *The Quarterly Journal of Economics* 131 (3): 1181–1242.
- Dunn, Matt, Levent Sagun, Hale Şirin, and Daniel Chen.* 2017. "Early Predictability of Asylum Court Decisions." In *Proceedings of the 16th Edition of the International Conference on Artificial Intelligence and Law* (pp. 233–236).
- Ramos-Maqueda, Manuel,* and Daniel Chen.* 2021. "The Role of Justice in Development: The Data Revolution." Policy Research Working Paper 9720, World Bank, Washington, DC.

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AI to Save Lives on City Roads

GUADALUPE BEDOYA, ARIANNA LEGOVINI, AND SVETA MILUSHEVA

Common Perceptions

Road traffic crashes (RTCs) devastate the lives of victims and their families, while causing economic destruction in terms of property and lost earnings, especially for the poor. With 1.35 million deaths per year (World Health Organization 2018), RTCs are the primary cause of death among young people (World Health Organization et al. 2010), and the eighth leading cause of death globally (World Health Organization 2018). Each year, they cause an estimated 20–50 million nonfatal injuries globally, imposing heavy burdens on health systems (World Health Organization et al. 2010). The overall annual cost to countries is estimated between 1 and 2 percent of GDP.

Policy action should focus on Africa, where road traffic deaths are the highest (averaging 26.6 deaths per 100,000 people), and notably in contexts like Kenya, where rates rank among the highest in the world (World Health Organization 2018). These fatalities disproportionately affect the poorest inhabitants who rely on walking as their main commuting method. Pedestrian deaths in Nairobi represent 71 percent of all RTC deaths reported in police crash records. The Kenyan government's ability to develop effective road safety interventions has been historically constrained by poor quality data, limited analytics, and a lack of policy experimentation.

Questions We Should Be Asking

The Stockholm Declaration by the Third Global Ministerial Conference on Road Safety reiterated the call for increased country investments in road safety—from legislation and regulation,

safe urban and transport design, and safe modes of transport and vehicles, to modern technologies for crash prevention, trauma care, and urban management. Limited resources, however, make it unlikely that countries will be able to implement all of these recommendations across their entire road network. Instead, countries should invest where it matters most. This requires knowing where and when crashes happen, so that resources can be targeted to risky locations and times.

However, data gaps remain a fundamental limitation. Only 17 percent of road traffic deaths are estimated to be reported by low-income countries (World Health Organization 2018). Furthermore, available reports are often not digitized and are therefore difficult to analyze. In Kenya, the World Health Organization estimates the number of RTC fatalities to be 4.5 times higher than what is officially reported (World Health Organization 2018). What other data sources can decision-makers use to fill such data gaps? Can the large quantities of privately held data generated from smartphones and social media help geolocate RTCs? DIME's ieConnect for Impact team partnered with the Kenyan government to answer these questions; develop evidence-based, actionable policy insights; and improve the country's road safety and transport policy.

Challenging Perceptions

The partnership set out to produce analytics that could help identify adverse events, flag risk factors, reduce reaction time, and improve planning. The strategy adopted was to: invest in innovative ways to collect high-frequency, real-time data from multiple sources; understand

local constraints to road safety; and experiment with behavioral, infrastructure, and institutional approaches to improve road safety.

To meet the first objective, DIME combined thousands of administrative records (paper-based crash reports generated by the Kenyan National Police Service and digitized by the DIME team) with crowdsourced data from Twitter (see map 4.1). DIME researchers developed machine learning algorithms using natural language processing to geolocate the RTCs reported on Twitter. The data was validated in real-time by a motorbike dispatch service, which confirmed the accuracy of the geoparsed tweets in 92 percent of cases in the validation sample. Merging police and crowdsourced data showed at least 50 percent more crashes reported by bystanders than in police crash reports.

The second step was to use this new information to better understand how and why accidents happen.

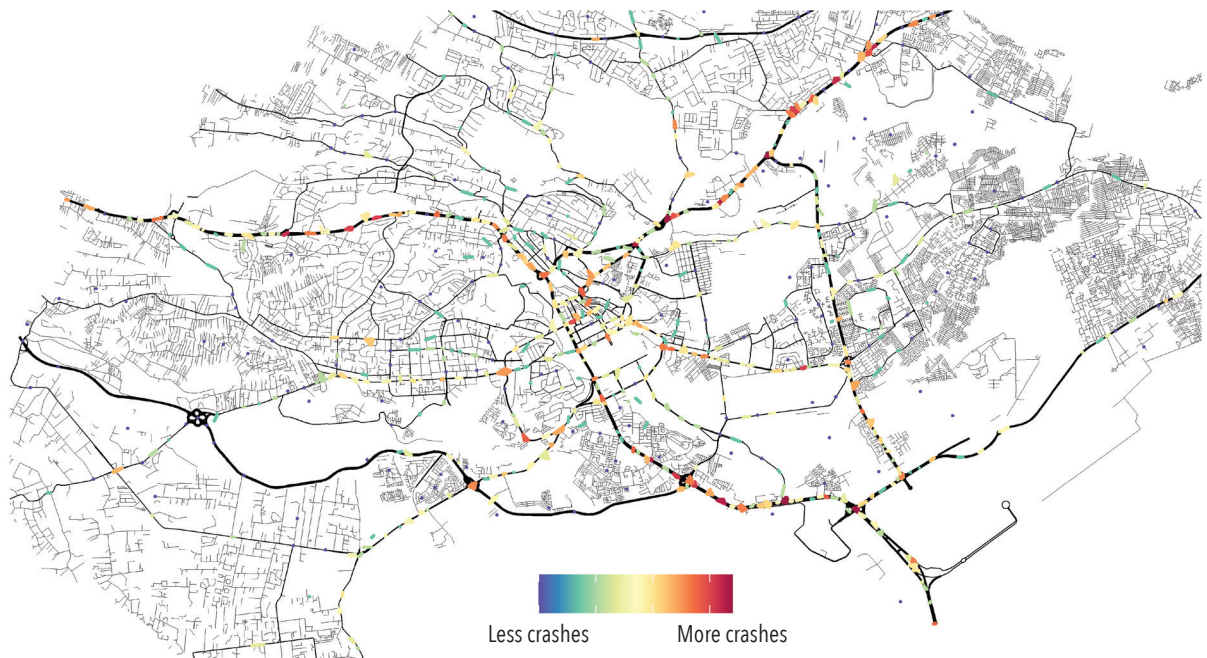
Although crashes occurred in 1,400 locations across the city, half of them were concentrated in clusters representing less than one percent of the road network (see map 4.2). Fifty-three percent of deaths and 50 percent of injuries occurred early in the morning (5–8 a.m.) and later in the day (5–11 p.m), highlighting the potential roles of low visibility, low alertness, and alcohol. Combing through the data also revealed that 35 percent of deaths occur within twenty meters of bus stops. The particularly hazardous locations where crashes frequently occur are referred to as blackspots. A diagnosis of their typology and associated risk factors was established by analyzing physical attributes such as the presence of sidewalks, streetlights, safety barriers, and pedestrian crossings. The team collected these in 200 high-risk locations using a survey that adapted the principles from iRAP (the lead organization for road assessment programs worldwide) and combined them with additional data collection on behavioral risk factors.

■ ■ Map 4.1 Nairobi Crash Map (individual events)



Note: The map displays crash reports in Nairobi, Kenya, obtained from digitized police records (in purple) and crowdsourced Twitter data (in green).

Map 4.2 Nairobi Crash Map (clustered)



Note: The map displays clustered reports of road traffic crashes in Nairobi, Kenya, obtained from digitized police records and crowdsourced Twitter data. 1% of the road network accounts for over 50% of all crashes, deaths and injuries.

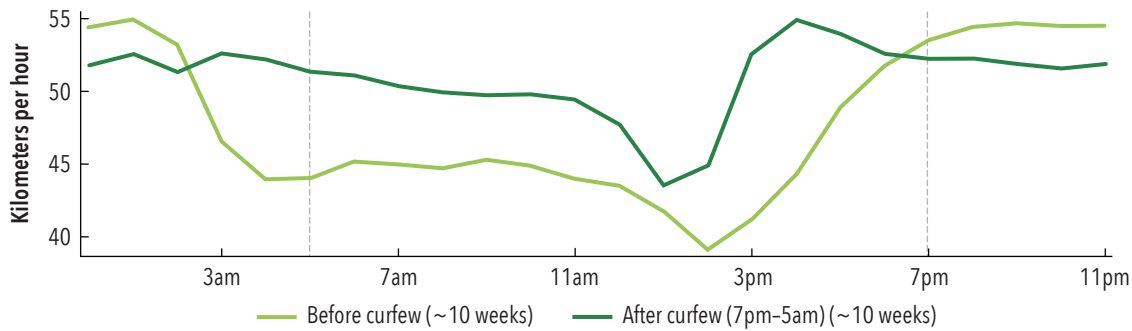
Additional data from a variety of platforms were integrated into the crash reports to produce an even richer picture. For example, Uber and Waze data provided information on average speeds on different road segments and on obstacles such as potholes. Weather data was used to understand driving conditions, and Google Maps data was used to help researchers understand land usage such as pedestrian traffic near educational and health facilities. This combination of high-frequency, spatially integrated data systems led to numerous actionable, real-time insights. For example, when the city of Nairobi implemented curfew measures to limit the spread of COVID-19, the change in average speed as people hurried home became immediately apparent (see figure 4.2). Because speed is a key risk factor for RTCs, these changes carry important implications for agencies looking to prevent crashes.

Policy Implications

The collaboration between DIME and the Kenyan authorities demonstrates that government policy can be effectively bolstered by building ecosystems that integrate machine learning algorithms with survey, administrative, and new data sources. In the case of Kenya, crowdsourced and private mobility data were merged with official records to build the first georeferenced, multi-year crash dataset for the city of Nairobi. The tools and instruments developed in this pilot can be deployed across Africa to facilitate appropriate planning and optimize resource allocation to improve road safety.

Analyzing such data shows how critical it is to clearly identify problems and prioritize policy interventions around them. In developed countries, safety strategies aimed at risky locations reduced the

■ ■ **Figure 4.2** Nairobi Crash Map (clustered)



Note: The graph shows the impact of implementing a COVID curfew on the average speed of commuters in Nairobi, Kenya. Road users significantly increased their average speed as they hurried home to avoid checkpoints before nightfall. The lower number of road users also contributed to higher speed averages.

concentration of crashes: most fatal and serious crashes now occur at locations on roads with no other injury crashes reported in the previous five years. Therefore, in countries where crashes are concentrated, which is likely the case for the deadliest countries in terms of RTCs, blackspots should be the focus of road-safety analysis and policy.

Such a strategy avoids dissipating scarce fiscal resources and instead uses them where policy action can most effectively reduce mortality. Targeting 1 percent of the road network in Nairobi where severe crashes have occurred most frequently and focusing enforcement efforts in the most dangerous hours of the day could potentially halve the number of deaths. Moving from addressing road safety on the entire road network to focusing on a relatively small portion reduces an intractable problem to a more manageable one, and can help cities reach their 2030 SDG target.

The Kenya Urban Roads Authority, the agency responsible for city infrastructure, used the data to inform the selection of 102 high-risk locations to install speed cameras and upgrade infrastructure.

The Kenyan example demonstrates how proper documentation and data extraction can create a roadmap to build innovative data systems in data-scarce settings to monitor and manage road safety policy, and support policy making. The wider significance of this work points to the possibility of harnessing time-stamped geolocated data and statistics on different events that are either recorded by the government or reported on social media. These improved tools could help geolocate victims during a natural disaster, locate crime scenes, or pinpoint areas needing immediate attention. Identifying the time and location of events can thus contribute to automating and accelerating policy responses across a wide set of contexts and issues that affect people's lives.



This case study is based on an impact evaluation conducted within DIME's Infrastructure and Climate Change research program. See: Milusheva, Sveta, Robert Marty,* Guadalupe Bedoya,* Elizabeth Resor, Sarah Williams, and Arianna Legovini.* 2021. "Applying Machine Learning and Geolocation Techniques to Social Media Data (Twitter) to Develop a Resource for Urban Planning." PLOS One 16 (2): e0244317.*

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ACKNOWLEDGMENTS

The research team comprises Guadalupe Bedoya,* Arianna Legovini,* Robert Marty,* Sveta Milusheva,* and Sarah Williams. This work is a collaboration between the World Bank Transport Global Practice, the National Transport and Safety Authority, the National Police Service, and other Kenyan government agencies. Amy Dolinger, Meyhar Mohammed, and Robert Tenorio provided research assistance throughout the project. Elizabeth Resor developed the first geocoded crash map and provided field support. Funding was provided by the DIME Impact Evaluation to Development Impact ieConnect program, which has been funded with UK aid from the UK government, the Transport Global Practice at the World Bank and the World Bank's Knowledge for Change Program.

**Development Impact Evaluation (DIME), World Bank.*

Electronic Billing to Shape the COVID-19 Recovery

KIERAN BYRNE, FLORENCE KONDYLIS, AND JOHN LOESER

Common Perceptions

The COVID-19 pandemic has been an unprecedented global crisis with economic consequences that are still unfolding. Understanding how various sectors of the economy have been affected is of particular importance to policy makers as they attempt to address and mitigate the impacts of the crisis. Careful consideration should be given to Sub-Saharan Africa, since most of the region may not have full access to a COVID-19 vaccine until 2023 (Economist Intelligence Unit 2020). Absent a widely administered vaccine, the status quo of COVID-19–related mortality, morbidity, and economic shock is likely to persist.

Although the early months of the COVID-19 crisis were characterized by lockdowns trying to contain the spread of the virus, recent policy responses have focused on easing restrictions and deploying targeted government interventions to support the most affected sectors of the economy (Djankov and Panizza 2020). In the developing world, an eventual recovery is likely to unfold unevenly across economic sectors, echoing the heterogeneity of the pandemic’s impact.

Questions We Should Be Asking

Similar to patterns observed in the developed world (Bartik et al. 2020; Brynjolfsson et al. 2020), several Sub-Saharan countries experienced a “K-shaped” recovery in the months following the initial shock of the pandemic. This characterization describes the fact that some sectors recovered (and at times even surpassed) their

pre-pandemic levels of turnover and employment, while others fared badly. This variance highlights the potential for efficiently allocated government interventions.

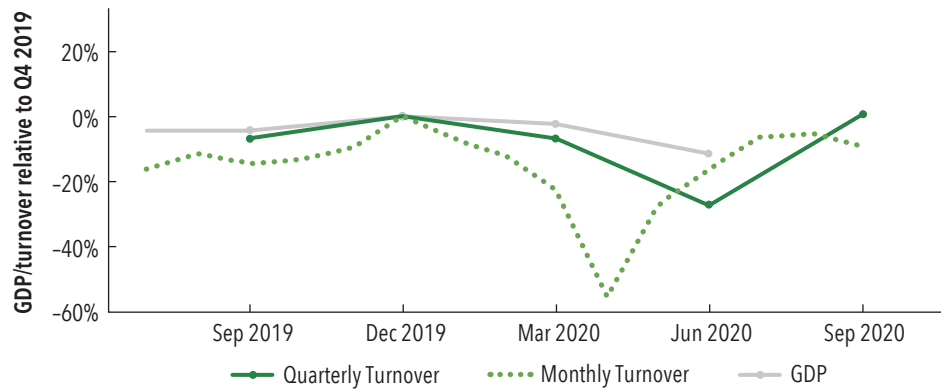
The traditional set of economic indicators available to policy makers (for example, national accounts data) is typically reported with a lag ranging from months to quarters. Reducing this lag allows for the delivery of more precise and targeted economic policies. What tools and resources can policy makers harness for this purpose? One option is to leverage administrative data, for example, high-frequency tax data.

Challenging Perceptions

By maintaining comparatively low case rates, Rwanda is widely considered to have successfully managed the COVID-19 pandemic. As such, the country’s recovery trajectory may offer a best-case scenario for other economies in Sub-Saharan Africa—until vaccines are widely administered. To better understand how individual economic sectors fared, DIME leveraged two sources of high-frequency administrative data submitted monthly to the Rwanda Revenue Authority (RRA): employment and social security tax filings (PAYE) by formal employers and electronic billing machine (EBM) transactions.

EBMs are teller devices that record transactions made by VAT-registered firms. This note uses transactions processed through EBM II, a popular software version of EBM. PAYE comprises the filings of 450,000 workers while EBM transactions

■ ■ Figure 4.3 GDP and Turnover



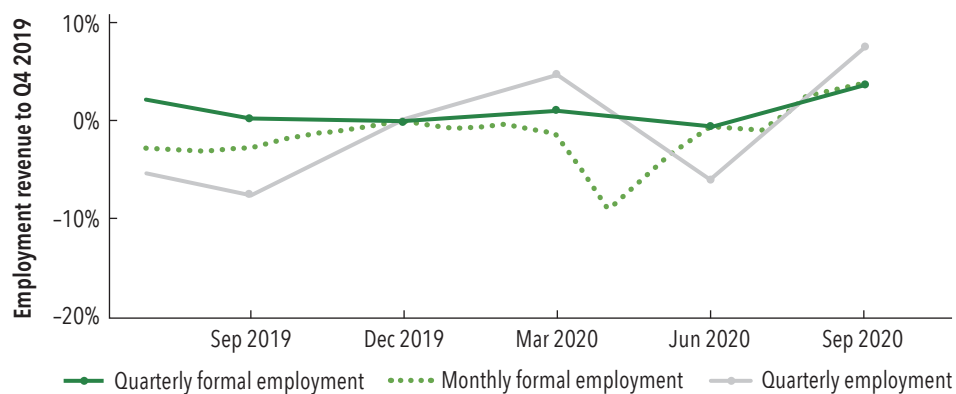
Note: GDP (as measured by the Rwandan government) is plotted on a quarterly basis, while turnover (as measured by DIME using EBM) is plotted on both a monthly and quarterly basis. All three series are plotted relative to their Q4 2019 level.

account for 1.2 trillion Rwandan francs (RwF) of value-added annually, each recording approximately one-tenth of the official national accounts data. The data was aggregated to construct a granular representation of employment (see figures 4.4, 4.6 and 4.7) and turnover at the firm-by-month level (see figures 4.3 and 4.5). Together, this high-frequency administrative data shows that Rwanda experienced a large shock to both employment and turnover, peaking in April 2020 and recovering by September 2020. These results are comparable to national statistics on aggregate employment and GDP compiled by the National Institute of Statistics Rwanda.

The granularity of the data allowed the team to describe recovery in the various sectors of the Rwandan economy. Results indicated that sectors dependent on face-to-face interactions between patrons and employees, such as accommodation and food, remained persistently below pre-COVID-19 levels. This pattern is likely similar in other developing countries (Bartik et al. 2020; Brynjolfsson et al. 2020).

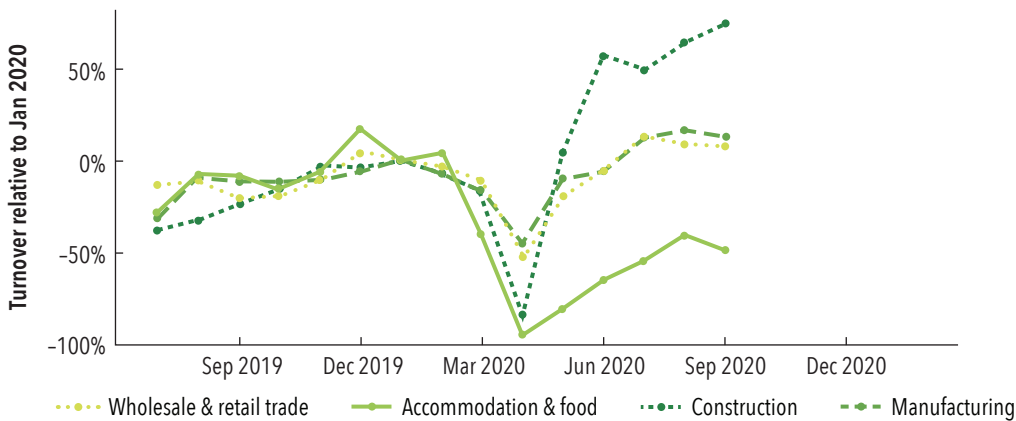
Finally, the team documented the differential impact of the COVID-19 shock on employment across the public and private sectors, with the latter being significantly more affected. This is

■ ■ Figure 4.4 Employment and Formal Employment



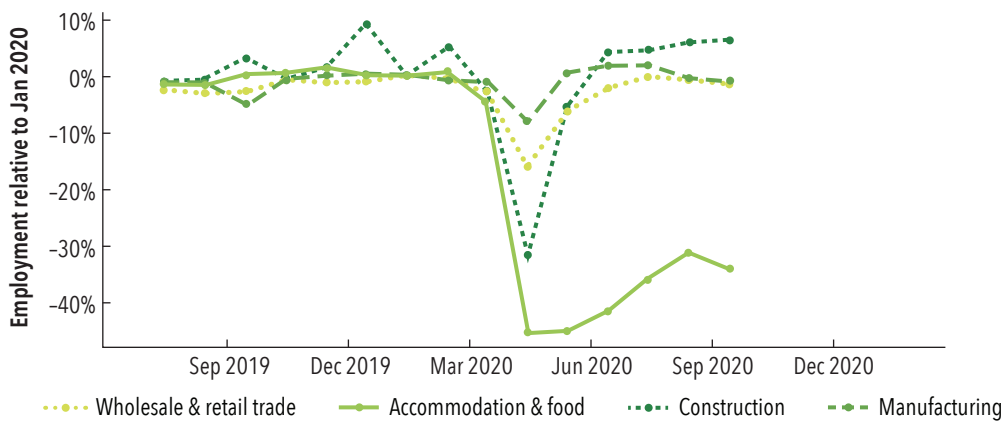
Note: Employment (as measured by the Rwandan government) is plotted on a quarterly basis, while formal employment (as measured by DIME using PAYE) is plotted on both a monthly and quarterly basis. All three series are plotted relative to their Q4 2019 level.

Figure 4.5 Turnover by Industrial Sector



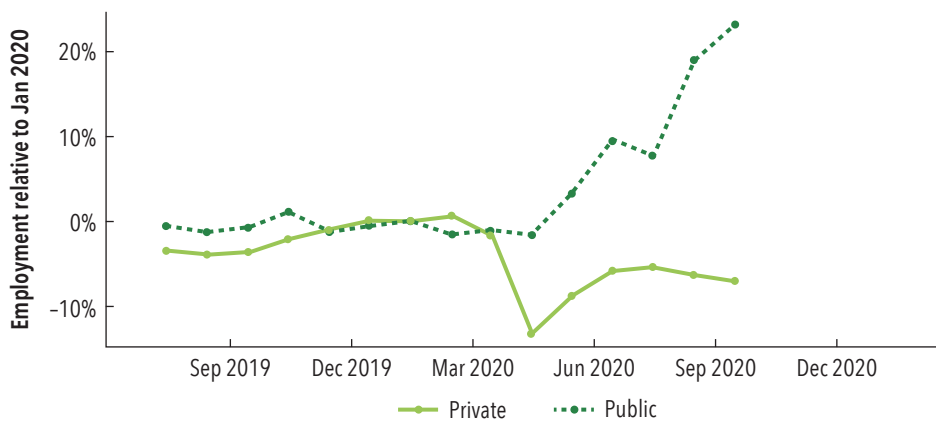
Note: Turnover (as measured by DIME using EBM) is plotted on a monthly basis relative to its January 2020 level. Each sector is defined according to the United Nations' 1-digit International Standard Industrial Classification (ISIC).

Figure 4.6 Employment by Industrial Sector



Note: Employment (as measured by DIME using PAYE) is plotted on a monthly basis relative to its January 2020 level. Each sector is defined according to the United Nations' 1-digit International Standard Industrial Classification (ISIC).

Figure 4.7 Employment by Type of Enterprise



Note: Employment (as measured by DIME using PAYE) is plotted for both public and private firms on a monthly basis relative to their January 2020 level.

consistent with a greater feasibility of remote work in the Rwandan public sector as well as additional employment protections for public sector employees. During the recovery, public and private sector employment continued to diverge, highlighting the effect of the fiscal stimulus on public sector employment.

Policy Implications

Digital technology is transforming governments. The growing use of electronic filing and high-frequency data collection offers opportunities for governments to better understand their economies and deliver targeted policy responses. DIME works alongside government partners to generate actionable knowledge, build their capacity to analyze vast amounts of data, and transform that data into insight. For example, online filings and digital payment systems can generate granular information on taxpayers' revenue in real-time. Likewise, VAT credit systems can decrease the probability of misreporting and improve the enforcement capacity of fiscal authorities.

DIME is committed to helping fiscal authorities use and design data systems to improve policy making, strengthen citizens' trust in institutions, and bolsters national revenue streams. It does so via a "data lab" approach consisting of three pillars:

The first pillar focuses on the rigorous evaluation of digital tools and data infrastructure for tax policy. Such evaluations explore the impact of data systems (for example, digital invoicing schemes and high-frequency data collection) on taxpayer uptake and experience. Evidence-based findings related to the regulation, monitoring, and incentivizing of taxpayers can then be used to design effective policy recommendations.

The second pillar focuses on the development of digital tools for fiscal administrations. Modernizing fiscal data systems can improve the effectiveness and efficiency of tax authorities, for example via the use of machine learning models that predict non-compliance and flag which firms should be audited as a priority.

Compared to national government instances, which collect income tax, subnational governments often rely disproportionately on property tax for revenue generation. As such, the third pillar focuses on deploying digital tools at the subnational level. In addition to behavioral interventions aimed at improving taxpayer engagement, modern tools such as remote sensing imagery (for example, via satellites) can help local governments better register and assess property values. Taken together, these three pillars can help governments across the world leverage the potential of fiscal data systems and deliver policies that are effective, targeted, and evidence-based.



This case study is based on an impact evaluation conducted within DIME's Economic Transformation and Growth research program. Kieran Byrne, Saahil Karpe,* Florence Kondylis,* Megan Lang, and John Loeser.* 2020. Sectoral Heterogeneity in the COVID-19 Recovery: Evidence from Rwanda." Working paper. <http://johnloeser.github.io/assets/bkkl.pdf>.*

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**Development Impact Evaluation (DIME), World Bank.*

Evidence-Based Training for Civil Servants

DANIEL ROGGER

Common Perceptions

Everyone makes mistakes. An increasing number of studies show that everyday decisions in a variety of contexts are plagued by random errors, biased or unbiased (Kahneman et al. 2016). When it comes to governance, it is often assumed that public officials ignore evidence when designing public policy. Past research at DIME asked officials to report their beliefs about key characteristics of the population they worked with (Roger and Somani 2018). In a minority of cases, the public officials made relatively accurate claims about their constituents. Many of them, however, were far from accurate: 47 percent of officials claimed their district's population was 50 percent bigger or smaller than it was.

When public officials hold mistaken beliefs, they can skew the distribution of public resources away from those most in need, and potentially undermine the effectiveness of policies designed to assist them. Since public officials sit at the front-line of development, it is crucial to minimize errors in the information they rely on to make decisions and implement policies.

Evidence-based policy making rests on the idea that policy makers should adopt a more rational, rigorous, and systematic approach to the policy-making process. When evidence is used to improve the quality of the public administration itself, it allows agencies to improve how government functions more broadly. DIME's Bureaucracy Lab has collaborated with the Ghanaian government since 2016 to understand how to best support its employees to deliver the highest quality of public service.

Questions We Should Be Asking

Together with the University of Oxford and University College London, DIME's Bureaucracy Lab partnered with the Office of the Head of the Civil Service (OHCS) in Ghana to conduct a baseline diagnostic on the state of the civil service. The goals were to understand the perspectives of public officials—and the systems and organizations in which they worked. For example, which government divisions were the most and least effective? What options were there to improve public service training, and to empower officials to lead reform?

A trove of microdata was leveraged to help answer these questions. The team digitized the records of 3,628 public projects, audited over 7,000 quarterly and annual progress reports, and surveyed 3,000 civil servants across 47 central ministries, departments, and agencies. Officials were invited to identify the organizational bottlenecks that hindered their productivity and constrained their ability to make better-informed policy decisions.

Challenging Perceptions

Four key insights stood out from the data analysis:

1. The Ghanaian civil service is characterized by substantial variation in productivity across and within organizations.
2. The quality of management across and within organizations (see figure 4.8) explains much of the variation in productivity.
3. Civil servants demonstrated a clear knowledge of the constraints they face in resolving

institutional problems, indicating a disconnect between identifying problems and tackling them.

4. Public officials were not satisfied with current training programs that aimed to help them overcome constraints.

The baseline analysis led to briefings for every agency head, a broad action plan for the OHCS, and an academic paper on the findings. Overall, the data provided a detailed quantitative picture of the status quo in the Ghanaian Civil Service.

If Ghanaian civil servants know the constraints they face in improving their work, can they be given the tools and capacities to reform government themselves? To this end, DIME’s Bureau-cracy Lab collaborated with Ghana’s Civil Service Training Centre and a consultancy firm to deploy a new package of trainings, dubbed the Training for Productivity (TFP) initiative. Officials who participated in the initiative designed action

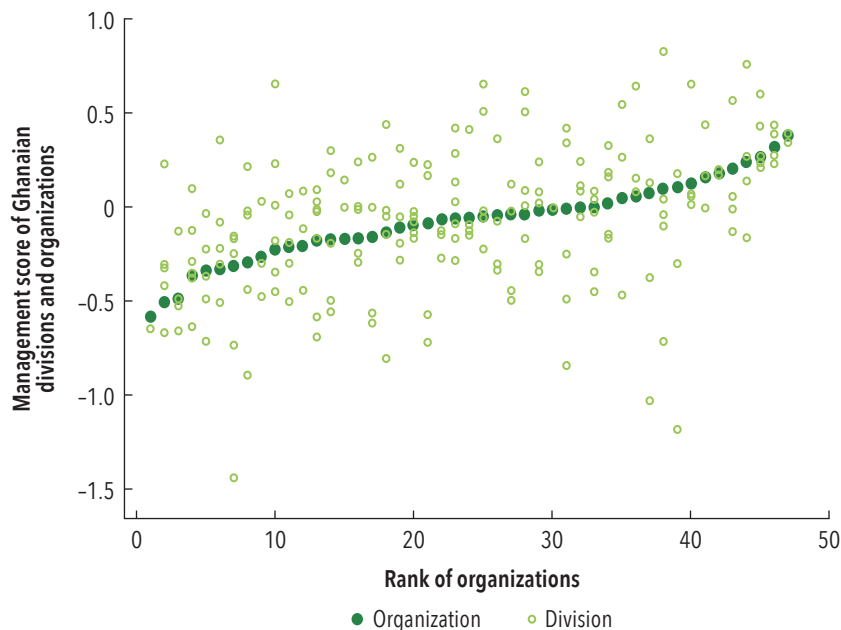
plans addressing constraints specific to their division. An impact evaluation tested different ways of delivering the new curriculum and found that individual on-the-job training resulted in the most benefits. The TFP initiative increased the overall productivity of participants, the quality of procedure with which government files were processed, and the likelihood that team tasks were fully completed.

Policy Implications

The work done in Ghana resulted in three major takeaways:

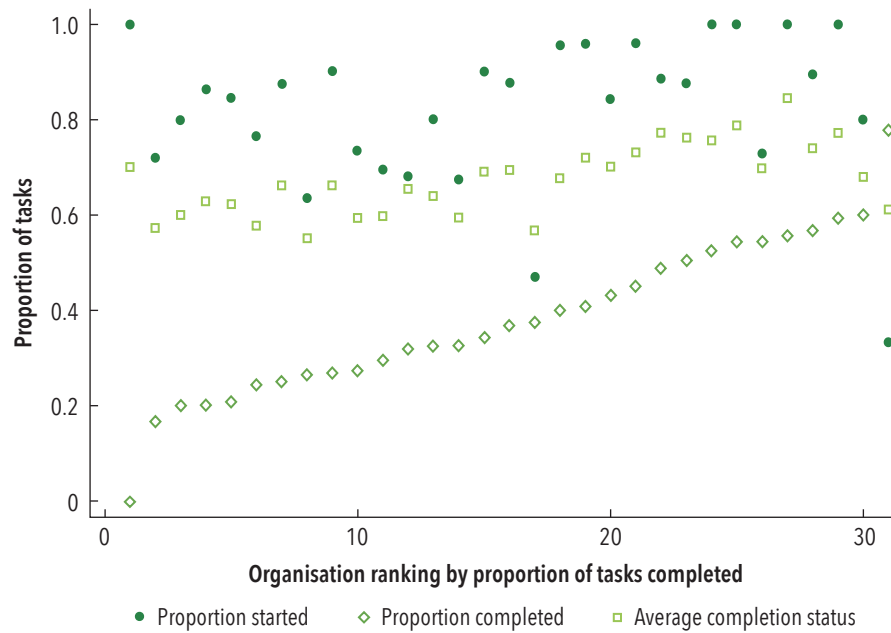
1. The work highlighted the importance of **measuring public service**. Most public policy is channeled through the public service, so understanding where the service is weak helps uncover barriers to effective policy implementation. This evaluation provided the basis for

Figure 4.8 Diversity in Management Scores Across Divisions in Ghana’s Civil Service



Note: Organizations in Ghana’s civil service comprise several divisions. Figure 4.8 shows the spread in perceived management quality across organizations (represented by the distribution of the solid dots), as well as across divisions within those organizations (represented by the hollow dots).

Figure 4.9 Distribution of Task Completion Rates of Ghanaian Civil Service Organizations



Note: Figure 4.9 shows the proportion of tasks completed, the proportion of tasks started, and the average completion status for each Ghanaian civil service organization.

a data collection system, where administrative data on productivity (see figure 4.9) was successfully integrated with reports of constraints faced by surveyed personnel. The evidence generated through this system pinpointed which government divisions needed reform.

2. The impact evaluation demonstrated that the **most impactful way to train public servants** is through in-service sessions, conducted at the individual level, that generate a clear plan of action for enacting recommended reforms. The effectiveness of training can be greatly improved by allowing participants to identify both the issues that need resolving and who they must work with to overcome those issues, and by helping them practice applying their training to their unit’s work practices. Tailoring training curricula to the reality that each team faces leads to a substantially higher

rate of solution implementation.

3. The project created a roadmap for **strengthening the analytical capacity** of government offices. The Ghanaian government leveraged DIME’s findings by implementing targeted institutional reforms, thereby improving senior officials’ performance agreements and accountability structures. DIME’s Bureaucracy Lab is now supporting the OHCS to undertake its own civil service analysis. By generating its own analytics, Ghana is strengthening its state from within.



This case study is based on an impact evaluation conducted within DIME’s Governance and Institution Building research program. See: Rasul, Imran, Daniel Rogger, and Martin J. Williams. 2018. “Management and Bureaucratic Effectiveness: Evidence from the Ghanaian Civil Service.” Policy Research Working Paper 8595, World Bank, Washington, DC.*

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**Development Impact Evaluation (DIME), World Bank.*

A Global Model for Improved Patient Safety

GUADALUPE BEDOYA

Common Perceptions

There is a consensus that universal health coverage defined solely in terms of increased access to care is insufficient. Quality health care is certainly key to improving outcomes; however, systems to report and diagnose the barriers to improving patient safety are underdeveloped, even in high-income countries. In Africa, only a handful of countries report national policies on safe healthcare practices and corresponding monitoring systems (World Health Organization 2014). There is little research that can guide policy maker's efforts: for instance, the common recourse of calling for better government stewardship and greater regulation is not backed by evidence (Flodgren et al. 2016).

Estimates suggest that 134 million adverse events from unsafe medical care occur in inpatient services globally every year in low- and middle-income countries (National Academy of Sciences 2018). However, there is scarce data on patient safety and quality of care in low- and middle-income countries, which constrains our ability to assess problems and design appropriate policies.

Therefore, interventions that illuminate the extent of the problem, and identify how resource-constrained governments can address this development challenge sustainably, are a global health priority.

Questions We Should Be Asking

The Kenya Patient Safety Impact Evaluation (KePSIE) team started working with the Kenyan government in 2013 to assess whether their

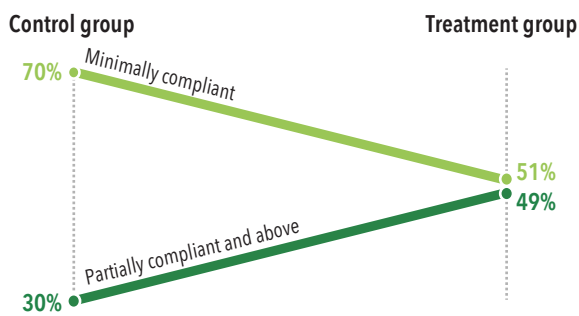
recently reformed health inspection system was improving patient safety. The KePSIE team found that the existing system lacked basic elements that, in theory, could improve patient safety, including clear and well-known guidelines, adequate capacity to monitor health facilities' performance, and consequences for underperforming facilities. After this assessment, and agreement with stakeholders, the government decided to embark on system reform. Prior to the intervention, only 3 percent of facilities complied with minimum patient safety standards according to KePSIE's baseline for the three study counties (Kakamega, Kilifi, and Meru).

As part of KePSIE, a new regulatory framework on health inspections was published in the Kenya Gazette Supplement in 2016, consisting of a standardized checklist, warnings and sanctions, a risk-based score system, a timeframe for facilities to improve, and the inclusion of both public and private facilities to be inspected (previously, only private facilities were inspected).¹

KePSIE was (and remains) the largest trial on patient safety in low- and middle-income countries—and the first randomized controlled study to look at the impact of regulations and inspections in health facilities. The overarching question the impact evaluation aimed to answer was whether regulation and inspections improve the quality of care when all facilities—public and private—are held to the same regulatory standard.

¹ The regulation provides licensed facilities time to improve, with lower performing facilities inspected more intensely and facing the risk of closure if they do not improve within a given timeframe.

Figure 4.10 Improved Facility Compliance in Treatment Versus Control Groups



Note: “Minimally compliant” health facilities score between 11 and 40 percent on the patient safety assessment, while facilities deemed “partially compliant and above” score above 40 percent.

The answer can provide much-needed policy for mixed health systems worldwide.

An electronic inspection system was piloted to assess the impact of the new reform in all health facilities (1,258 private and public) in Kakamega, Kilifi, and Meru counties. These facilities serve over 4.5 million people representing 7 million health visits annually.

The facilities were randomized into three groups:

1. High-intensity inspections with enforcement of warnings and sanctions for non-compliance;²
2. Same intervention as above, coupled with public disclosure of inspection results using scorecards; and
3. “Business-as-usual” with low-probability of inspection (the control group).

The impact of the interventions was assessed by comparing outcomes across the treatment and

² In practice, this means that facilities in the markets assigned to this treatment group will all be inspected by teams of dedicated inspectors using the new, enhanced regulatory framework. Boards and councils will use their legal authority to enforce any sanctions resulting from the inspection.

control groups one year after the start of the intervention (see figure 4.10).

At the outset, there was no job description for inspectors, no training materials or protocols, no monitoring or management system, and limited institutional links. The team worked to strengthen monitoring, evaluation, and delivery functions. Protocols and institutional arrangements were established with the government; as was a pilot Management and Information System designed to manage implementation, and monitor progress and challenges in real-time for adaptive learning and mid-course corrections.

Our Findings

Government regulation and enforcement of health inspections improved patient safety in public and private facilities in Kenya. In the year following the intervention, patient safety scores were 15 percent higher on average in treatment facilities compared to the control group, driven by private facilities (with a 19 percent improvement) and especially formal private facilities (24 percent). Public facility scores increased by a smaller, but still significant, 7 percent. In addition, the entire system moved from “minimally compliant” to “partially compliant” as a result of one-fifth of facilities in the treatment groups moving from the minimally compliant category to higher compliance categories.

The program’s operation cost (US\$95–165 per inspection visit, three visits per treated facility on average) qualifies this as a low-cost, scalable intervention. The study demonstrates that improving regulatory-based accountability in health care can increase safety scores without ancillary support such as private supervision services.

Policy Implications

The operational success of the inspections pilot proved that such a system can work in Kenya. The KePSIE pilot was designed to be cost-effective and illuminate how inspection systems operate when implemented “at scale.” As a result, the government is scaling up this intervention at the national level through a new World Bank operation, making Kenya one of the leaders in patient safety policy in Sub-Saharan Africa.

KePSIE is a country-led initiative, with all stakeholders deeply committed to the process. The team’s technical expertise and assistance strengthened the reform process’s outcome through data collection, field pilots, implementation monitoring, and data analysis to guide future choices.

The project is being scaled up at the national level. We are going to train inspectors in the remaining 44 counties and they will be doing inspections on a daily basis, just like KePSIE. And we will adopt almost everything from KePSIE, to improve both the quality and legality of services.

—IMPACT EVALUATION CLIENT

The institutional capacity, operational guidelines, and systems to carry out such an innovative system at scale did not exist prior to this intervention, and were developed and tested as part of KePSIE. The resulting package can be used to further improve patient safety and quality of care in countries around the world.



This case study is based on an impact evaluation conducted within DIME’s Gender, Economic Opportunity and Fragility research program. See: “Safety First: Improving Access to Quality Health Services in Kenya, Expanding Global Knowledge on Disease Prevention.” (November 2020) This technical note is based on the forthcoming working paper “Regulation as a Policy Lever to Improve Patient Safety and Quality of Care: A Process Evaluation of the Health Inspection Pilots of the Kenya Patient Safety Impact Evaluation” by Guadalupe Bedoya, Jishnu Das, Amy Dolinger, Rebecca de Guttry, Yoon Sun Hur, and Ju Young Lee.*

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The KePSIE team included members of the International Finance Corporation's (IFC) Health in Africa Initiative, other IFC staff, the Development Research Group (DECRG), and DIME, which led the monitoring, impact evaluation, and capacity-building components with both field- and remote-support.

**Development Impact Evaluation (DIME), World Bank.*





THE WAY FORWARD

ARIANNA LEGOVINI

As a leader in carefully integrating impact evaluation research into the design of its operations, the World Bank has demonstrated the high value of a trial-and-adopt technology to increase the impact of its operational portfolio. Introducing existing evidence in project design and embedding iterative trial-and-adopt approaches into projects to generate new knowledge optimizes project design and maximizes development impact. Learning from projects is the comparative advantage of WBG, and the knowledge this creates is a global public good that can be freely used by all.

The World Bank has accumulated deep expertise in implementing this technology. It has developed and tested approaches to improve project design and support project implementation by building local project management and analytical capacity and systematically using data and experiments to inform operational decisions. Small investments in this approach—as little as 1 percent of the overall project—can secure large increases in operational impact, in some cases up to 50 percent or more. Despite these high returns, the World Bank currently deploys modern iterative impact evaluation techniques in fewer than 5 percent of its projects. The World Bank is ready to expand this approach across its lending portfolio.

With adequate knowledge financing, the Bank can (a) systematize the adoption of evidence in project design across the entire project portfolio,

achieving economies of scale through batch approaches to incorporating knowledge in projects and introducing common measurement and data systems; (b) scale up iterative trial-and-adopt techniques to optimize delivery modalities, targeting, and other project design parameters to increase impact, increasing the share of projects with impact evaluations five-fold; and (c) build local capacity in data and analytical skills to serve as a foundation for optimizing the impact of all government programs in client countries, not just those funded by the World Bank.

Systematize Adoption of Evidence in Project Preparation

Diffusion and adoption of knowledge cannot be achieved on a piecemeal basis. To facilitate the systematic incorporation of existing evidence in project design and building on extensive World Bank experience in doing that for DIME programs, operational portfolios can be prepared in batches. Batch preparation has multiple advantages: it leverages economies of scale in learning, takes advantage of group dynamics in adoption, and, potentially, uses peer pressure to advance global agendas. In addition, batch preparation can be used to introduce common measurement frameworks and data systems that will support reporting on outcome orientation. Across more than 50 workshops since 2007, we have demonstrated that preparing projects in global workshops with project teams and government clients working intensively for a week is effective in improving intervention choice, project design,

and implementation features; lowering preparation costs; and motivating the adoption of impact evaluation. These workshops, organized as a collaboration between research and operations, count with the participation of sector directors and chief economists, key policy and technical counterparts, and project teams. Researchers provide training and facilitation with hands-on support to advance project design, operationalize evidence and develop data and learning strategies across the life cycle of the projects. Taking this to scale will require relatively small changes in the operational calendar, project cycle, approval processes as well as the assignment of small-batch preparation budgets.

Strategic Expansion of Impact Evaluation

Institutional collaboration between regions, sectors and research across the World Bank can help expand the generation of knowledge that will feed back into project preparation and implementation. To scale up iterative trial-and-adopt foundational learning and just-in-time decision-making, a proportion of projects would be selected to trial multiple interventions, delivery modalities, packages, parameters, targeting, etc. to identify and adopt proven ways to increase impact. The lessons would inform mid-course corrections and feed into lessons for the Bank portfolio. The studies will rigorously document impact for client, donor and investor reporting and address demands for outcome orientation.

Building Local Capacity to Improve Project Implementation

Over the last 15 years, the World Bank has developed a strong model of training and learning-by-doing with government counterparts that has been shown to speed up disbursements, increase compliance with plans, and increase development impact. Clients of projects selected for implementation support benefit from assistance across the project cycle for data management systems and digital tools capacities for analysis, and generation of just-in-time evidence to manage for greater impact. This can be scaled up in conjunction with a scale up of impact evaluation.

Combining these strategies will greatly increase the World Bank's impact and its role as a global knowledge leader.

In summary, the knowledge the World Bank generates by working with its projects is a non-excludable global public good that can help the development community improve resource allocations to maximize the impact of development finance. Optimizing funding for it, as for any other public good, requires a deliberate decision by donors and investors to establish a financial architecture for impact. Such architecture would provide the basis for improving global policy choices and for increasing the returns of local investments by large margins. Without such a deliberate decision, expectations for maximizing the effectiveness of development financing will remain unrealized.

APPENDIX A

About DIME

The DIME Model

Generating Evidence and Motivating Change

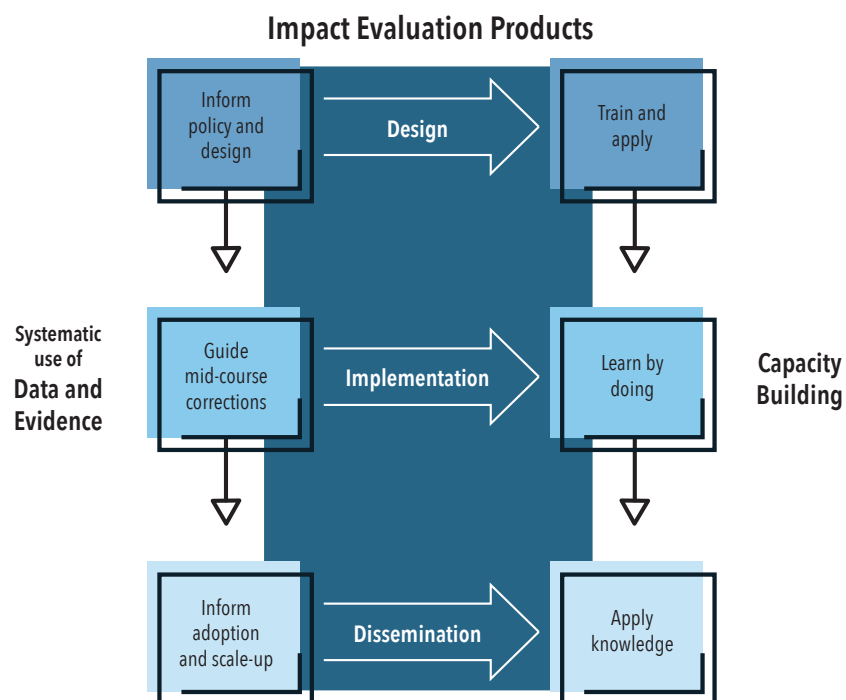
The World Bank’s Development Impact Evaluation (DIME) department generates high-quality and operationally relevant data and research to transform development policy, help reduce extreme poverty, and secure shared prosperity. It develops customized data and evidence ecosystems to produce actionable information, and recommends specific policy pathways to maximize impact. The goal is to use rigorous evidence to motivate policy change to save and improve lives.

DIME’s approach engages clients to define the content or purpose of an impact evaluation (IE) so

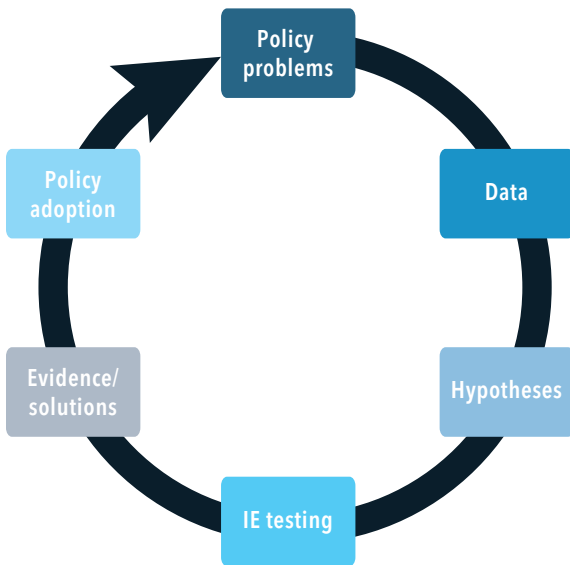
that they value its results and take action based upon its findings (figure A.1). Our model generates learning in each stage of the project cycle to demonstrate the value of an adaptive approach (see figure A.2) and maintain client engagement. At the project level, DIME’s model generates evidence throughout its life cycle (figure A.3). It is a model for real-time, evidence-based policy making. The work is based on co-production aimed at transferring capacity and know-how to partners to make mid-course corrections and scale-up successful policy instruments to achieve policy outcomes.

These corrections increase the rate of return on underlying investments by large margins, far exceeding research costs. The department

■ ■-Figure A.1 DIME’s Impact Evaluation Model



■ ■ **Figure A.2** DIME's Evaluation Cycle



conducts research in 64 countries across development sectors with a portfolio of over 240 engagements, leveraging a \$180 million research budget against \$26 billion in development finance. It also provides advisory services to 30 multilateral and bilateral development agencies.

DIME Analytics invests in public goods to improve the quality and reproducibility of development

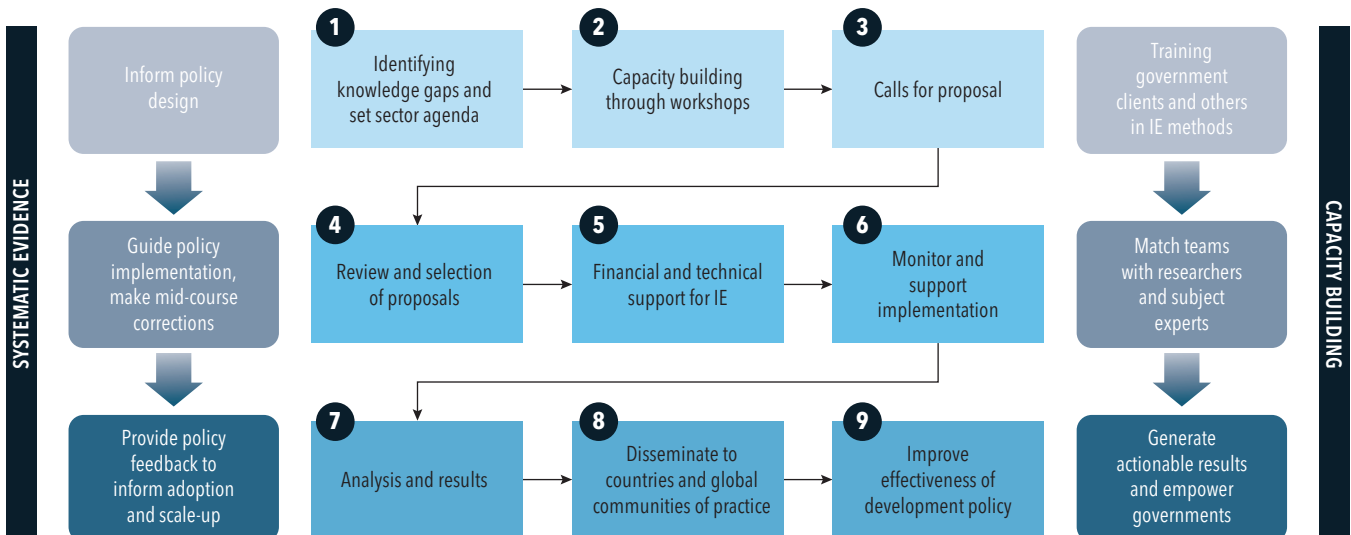
research worldwide. From DIMEWiki to tool-kits, training, and summer schools, DIME is servicing the global community of researchers and, in so doing, improving the quality of global policy advice.

By taking a programmatic approach to evidence generation and breaking ground in untapped sectors, DIME has helped shape an important part of the development research agenda into a coordinated framework, while leveraging economies of scale and successfully crowding in financing from the Bank and external donors to generate strong returns to investments.

Engagement with World Bank Global Practices and Cross-Cutting Solutions Areas

For DIME, engagement with World Bank sectors (Global Practices, or GPs) and thematic areas (Cross-Cutting Solutions Areas, or CCSAs) has helped to develop economies of scale in learning and has been a strategic approach to changing development practice. Partnerships across sectors and thematic areas serve multiple

■ ■ **Figure A.3** DIME's Operating Model



purposes: defining knowledge priorities; strategically selecting cases for evaluation; and promoting learning, externalities, and feedback across the portfolio.

Engagement with Global Practices and management aligns the priorities of World Bank staff by increasing incentives to invest in operational knowledge. These incentives are both financial and otherwise. They include communicating managerial preferences and incentives for project teams; developing group dynamics and competitions for excellence in learning; and providing direct financial incentives and research resources to conduct analytical work. This model has been adopted across all World Bank sectors that have a program with DIME.

Engagement with External Partners

DIME partners with many bilateral agencies, multilateral development banks (MDBs), and academic institutions. In 2014, the United Kingdom (through the Foreign, Commonwealth & Development Office—FCDO) partnered with DIME to create a multidonor trust fund for impact evaluation called i2i (Impact Evaluation to Development Impact) to take DIME’s model to scale. In 2020, this fund was elevated to Umbrella Facility status in the World Bank to coordinate donor financing for data and impact evaluation research. The fund is now co-financed by the European Union (EU), the Norwegian Agency for Development Cooperation (Norad), the Swedish International Development Cooperation Agency (Sida), the German Federal Ministry for Economic Cooperation and Development (BMZ), and the World Food Programme (WFP). Many other partners support the effort, including the Global Agriculture and Food Security Program (GAFSP), the Gates Foundation, and two dozen multilateral and bilateral organizations.

These partnership investments enable DIME to take a more programmatic approach to generating evidence and have brought i2i to the forefront of development discussions.

Engagement with Clients

Engaging with government agencies and other clients early and often in the IE design process ensures they actively participate in defining the research from day one. This sets the foundation for building client capacity and empowering policy makers and practitioners to exert control over their local environment, using data and evidence generated during an IE to make mid-course corrections or using final results to inform scale-up decisions. Ultimately, clients become educated producers and consumers of evidence, whether from IEs or other types of research, and local capacity for the systematic use of data, experimentation, and evidence for policy making is created.

At the same time, IE researchers benefit from relationships with policy makers and practitioners. It affords them a better understanding of the policy and institutional contexts, allowing them to better tailor the research, and the opportunity to introduce policy variants that can be rigorously tested.

Workshops to Build Capacity and Stimulate Thinking

The IE workshop is the vehicle for initiating, stimulating, and strengthening this process. Workshops are tailored to thematic groups of two-dozen or more projects with similar objectives. They are used to train government and operational staff, share relevant global evidence, and facilitate the process of project and IE design. Each project is assigned a research team to develop the initial IE design for submission to

i2i's competitive call for proposals. Over the last 8 years, DIME and the i2i Trust Fund have delivered around 30 global workshops, training over 3,000 participants.

The Impact Evaluation IE Design

After DIME workshops, consistent follow-up helps consolidate ideas and turn them into a series of concrete actions that, ultimately, lead to the successful completion of a program of IEs. A critical first step is securing buy-in from a broad range of stakeholders, including decision-makers in government, World Bank operational and country management staff, and the IE research team.

The possibility of seed funding from i2i is an important impetus for building such a coalition. In preparing their expressions of interest (EOI), teams build on the initial concept developed at the workshop by refining key details of IE design. i2i's double-blind external technical review process selects the set of technically viable proposals. Once seed funding is secured, IE and operational teams work toward fully defining the research design, which is documented in a concept note. The full design is subject to peer review for both technical quality and policy relevance. The results of the technical review are submitted to the World Bank for internal review. Completing the concept note review is the final step in the IE design process and represents a formal commitment by all parties to continue working on the IE through to completion.

Moving to Implementation

The IE concept note defines a data strategy tailored to the IE's needs and the project's monitoring needs. The approach integrates existing data with newly generated data, using DIME's established capacity—from collecting survey data; to leveraging innovations in digital data collection

tools, remote sensing techniques, and big data processing; to integrating data from administrative information systems. The goal is to construct improved data infrastructure, use it to generate useful and actionable information from the early stages of implementing the program, and increase the rate and frequency of experimentation and knowledge generation. The idea is to motivate responsive policy actions and build sustainable systems.

DIME applies rigorous scientific methods of inquiry to obtain actionable and precise answers to the important questions policy makers put forth. We use multiarm, randomized controlled trials (RCTs) in 80 percent of IEs, and we complement these RCTs with other causal inference methods. We embed analytical thinking at all stages of collaboration with country partners to constantly and iteratively suggest ways to improve and maximize the impact of development policies and interventions.

The IE team merges research, operations, and project management, and implements these activities with the technical support of a field coordination team based in each country involved in the evaluation. DIME's work is part and parcel of the operational work, and research teams work with implementing teams daily. The DIME model seeks to work with both producers and consumers of evidence throughout the life cycle of the evaluation, from setting the agenda to implementation and analysis. This process ensures research is relevant, and fosters a process of learning by doing through which the implementers become informed consumers of impact evaluations. In this sense policy dialogue and capacity building become intertwined.

DIME IEs are designed to yield actionable recommendations that support operational decisions

with hard evidence. DIME embeds the latest available evidence into project design, and sets up the necessary data systems. We also:

- Provide support for defining the research agenda;
- Execute implementation protocols and support;
- Collect data;
- Conduct analysis and report results;
- Inform policy dialogue;
- Build capacity by offering formal trainings, and by developing analytical frameworks, protocols, measurement instruments, and other tools; and
- Engage the local research community through impact evaluation summer schools, local university partnerships, and internships.

Through this approach, DIME builds ownership of the results among all stakeholders, which is critical to achieving policy impact.

Ensuring Quality and Monitoring Performance

A Review Process that Ensures High Technical Quality

DIME uses a double-blind external review process and technical committee oversight at all stages of the IE process. Proposals also are scored by World Bank Global Practices and regional focal points on policy relevance and feasibility of implementation. Final decisions are made by a technical committee comprised of senior economists

from the World Bank's Research Group. At the final report stage, a similar review process takes place. Concept notes and IE reports are also submitted to the standard World Bank review process to ensure accountability to country and sector teams.

Monitoring Our Products

DIME has created a one-of-a-kind monitoring system to track the evolution and progress of the IE portfolio and to identify ways to increase our impact. **MyIE** is a web-based database management system covering 200 indicators about the impact evaluation's profile and status, evaluation design, data collection aspects, monitoring and quality indicators, counterpart details, influence on programs and policies, and documentation. The system facilitates the management of the DIME IE portfolio and allows users to produce tailored reports on different variables—including cost, timeline, analytical design, data collection, and geographic area.

The system was developed to include additional functionalities: it serves not only as a data collection tool, but also as a knowledge tool for teams, who can download reports and data (including data and IE outputs) from the system at any time. In the future, the system will provide public access to aggregated descriptive statistics and documentation for completed evaluations. The objective is for MyIE to be a recording system for all DIME evaluations, and potentially record all World Bank impact evaluation work.

APPENDIX B

i2i Umbrella Facility

Delivering on Our Commitments

Between 2014 and 2022, DIME launched a global portfolio of impact evaluations supported by the i2i trust fund. Internally, a newly created, World Bank-wide governance model, establishing partnerships with the World Bank's Global Practices (GPs) and Cross-Cutting Solutions Areas (CCSAs), was used to define knowledge priorities, select strategic cases for impact evaluation, and secure portfolio learning and feedback. These partnerships engage senior leadership and dedicated sector teams to shape project designs and structure experiments to guide project implementation toward greater effectiveness (Legovini, Di Maro, and Piza 2018). This has helped speed up the implementation rate of these projects and steer decisions toward improving results.

DIME has secured program participation from many development partners interested in DIME's operating model and evidence. These partners also contributed ideas, projects, and resources to our global effort to improve development practice. Some notable participants—both funders and partners—include:

- Bilaterals such as the United Kingdom, Norway, Germany, and Sweden;
- Multilaterals including the EU, AfDB, EBRD, laDB, and IsDB;
- Global funds such as GAFSP, Gates Foundation, CIF, and WFP; and
- Other World Bank single-donor and multidonor funds including SIEF, Jobs Umbrella MDTF,

SANAFSI, SPF, Korea-World Bank Group Partnership Facility, CEGA, IGC, the Japan Policy Fund, IIIE, the Umbrella Facility for Gender Equality, KCP, SEED, PROFOR, and ID4D.¹

Through these partnerships, we:

- Built a portfolio of over 240 impact evaluation engagements across 64 countries that shaped the design and implementation of \$20 billion in development financing (see map B.1; for a complete list, see Appendix C).
- Built the capacity of 400 partner institutions and trained more than 3,000 policy makers and development practitioners through 30 global workshops and more than 500 training events, as outlined in table B.1 at the end of this Appendix.
- Achieved a high level of policy influence: 74 percent of projects adopted the recommendations of the arm of the randomized controlled trial

¹ European Union (EU); African Development Bank (AfDB); European Bank for Reconstruction and Development (EBRD); Inter-American Development Bank (laDB); Islamic Development Bank (IsDB); Global Agriculture and Food Security Program (GAFSP); Gates Foundation (Gates); Climate Investment Fund (CIF); World Food Programme (WFP); Strategic Impact Evaluation Fund (SIEF); Jobs Umbrella Multidonor Trust Fund (MDTF); South Asia Food and Nutrition Security Initiative (SAFNI); State and Peace Building Fund (SPF); Korea-World Bank Group Partnership Facility (K-WBP); the Economic Development and Institutions Initiative of the Center for Effective Global Action (CEGA); the International Growth Centre (IGC); Japan Policy and HR Development Fund (PHRD); International Initiative for Impact Evaluation (IIIE); the Umbrella Facility for Gender Equality Knowledge for Change Program (KCP); Stanford Institute for Innovation in Development Economics (SEED); the Program on Forests (PROFOR); and Identification for Development (ID4D).

■ ■ Map B.1 The Worldwide i2i Portfolio



(RCT) proving more effective; 67 percent scaled up or down their programs depending on the IE results.

- Increased returns to development finance by large margins and improved livelihoods in 26 million households and at 25,000 firms.

We have achieved these results by:

- Developing an innovative, bottom-up operating model.
- Transferring IE knowledge and tools to clients and matching them with technical experts to deliver the highest quality products of policy relevance.
- Adopting high standards of IE research through a rigorous, three-stage technical and policy review process drawing on external technical experts, internal policy experts, and an independent technical committee for assessment of feasibility and the contribution to knowledge gaps, registration of trials, and ethical review.
- Launching DIME Analytics, a centralized unit responsible for developing and ensuring the adoption of best practices in data collection and analysis across DIME's portfolio, as outlined above. DIME Analytics identifies inefficiencies and practices that compromise research quality, develops improved workflows, creates and tests tools needed for their adoption, and

then provides the training and technical support necessary to sustain adoption.

- Investing in improving global standards of IE research by producing public goods such as:
 - **DIME Wiki**, a one-stop shop for guidance and resources on IE research, with over 850,000 views since launching in 2018;
 - **ietoolkit** and **iefieldkit**;
 - Stata statistical software packages featuring commands to routinize common IE data tasks; and
 - **Manage Successful Impact Evaluations**, an annual, hands-on course designed to improve the skills and knowledge of IE practitioners.
- Publishing *Development Research in Practice: The DIME Analytics Data Handbook*, a step-by-step guide to achieving high-quality, reproducible data over the lifecycle of a research project. It is a full-length reference text detailing data and research workflows at each stage of a research project, guiding readers through best practices for code and data handling from inception to publication. It is a complete introduction to modern, reproducible code and data work to be used as a training manual for new staff, a textbook companion to an undergraduate or graduate-level empirical methods course, or a desk reference for practitioners at any level. A seven-week virtual training course was also delivered to accompany the book, which attracted 2,813 students from around the world, 70 percent of whom were from Sub-Saharan Africa. Participants rated the course highly, and tests on the subject matter administered before and after the course showed knowledge gains of 64 percent.
- Making all data from DIME's published impact evaluation studies available to the global research community through the World Bank's Microdata Library.

■ ■-Figure B.1 i2i Thematic Pillars



The i2i provided seed financing for all activities in its portfolio. The teams also fundraised for the World Bank budget and clients. Fifty percent of IE portfolio costs are covered by the i2i trust fund, with the other 50 percent funded by a combination of other World Bank trust funds, the World Bank budget, and government client contributions. Beyond what was agreed to with donors, DIME has surpassed its **donor results framework** commitments to produce additional programs and systems of great value to development research and development finance. These include frameworks, tools, and services geared toward increasing the quality of research, including improvements in research standards and reproducibility, data quality investments, and measurement of policy influence.

Figure B.1 presents the organization of i2i topics around thematic pillars. Between 2014 and 2022, the i2i program completed 11 calls for proposals in the areas of fragility, conflict, and violence; agriculture; energy and environment; governance; trade and competitiveness; transport and digital development; edutainment; and legal identity—all with an underlying gender subtheme. Repeated rounds of program development, increasing the number of operations and IEs through follow-up workshops and funding windows, and an expanding donor base, have contributed to changing the World Bank’s Global Practices’

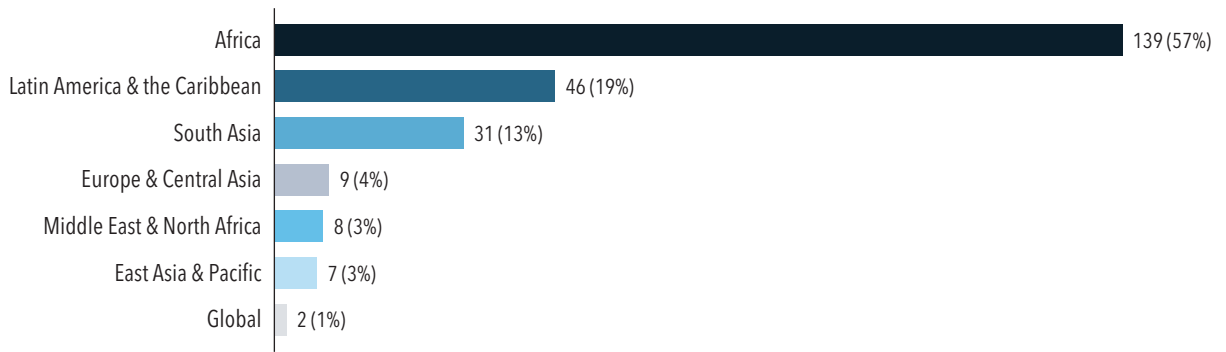
approach to operations, shaping perceptions of what is needed to improve results, and providing evidence to inform specific ways of making operations more effective.

All targets in the i2i results framework have been met or exceeded. Figures B.2 and B.3 show the distribution of the i2i portfolio by region and thematic areas.

The program has met targets for gender (figure B.4) and fragile and conflict-affected situations (figure B.5). At least 21 percent of the portfolio evaluates a gender-specific intervention and 55 percent of the portfolio conducts disaggregated gender analysis, with 33 percent of the portfolio falling under the World Bank’s Gender Cross-Cutting Solutions Area. The program greatly contributed to expanding IE research in fragility, conflict, and violence (FCV) globally. In the portfolio, 25 percent of IEs are in fragile and conflict-affected countries, and 22 percent are in fragile and conflict-affected settings, focusing our interventions on issues of great relevance to those settings.

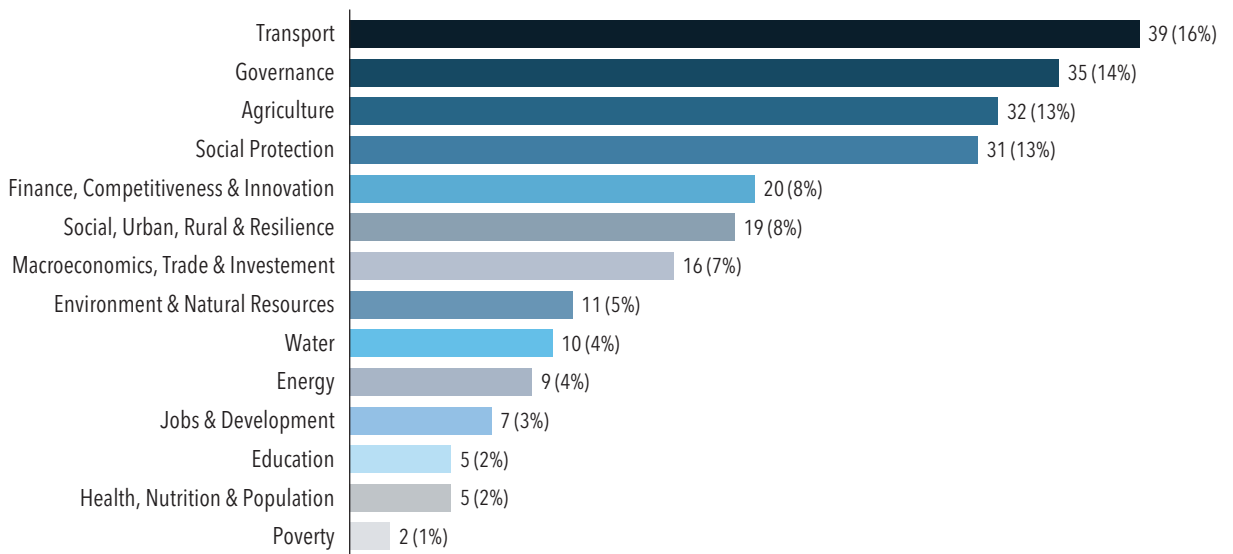
While our research is problem-driven and prioritizes questions over methods, the reality is that every engagement turns into a menu of products, from the descriptive to carefully identified causal inference products. In most cases (77 percent), the IE includes at least one RCT. In 23 percent

Figure B.2 Distribution of the i2i Portfolio by Region



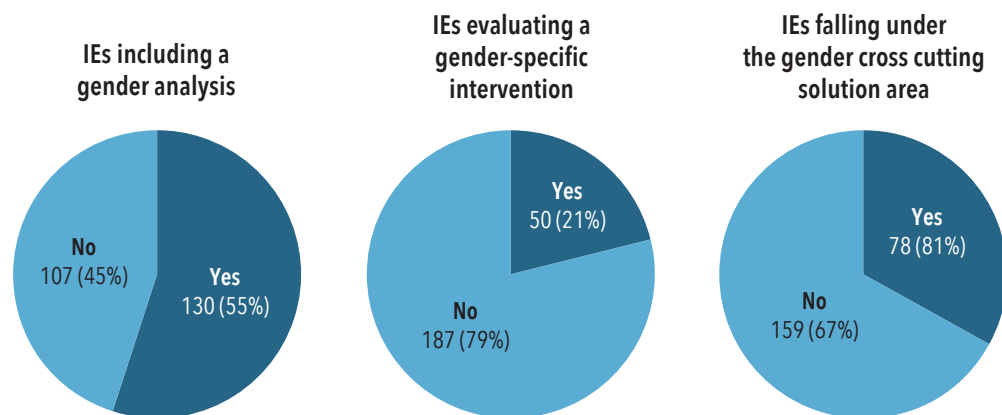
Note: The sum of percentages may not equal 100 due to rounding.

Figure B.3 Distribution of the i2i Portfolio by Global Practice



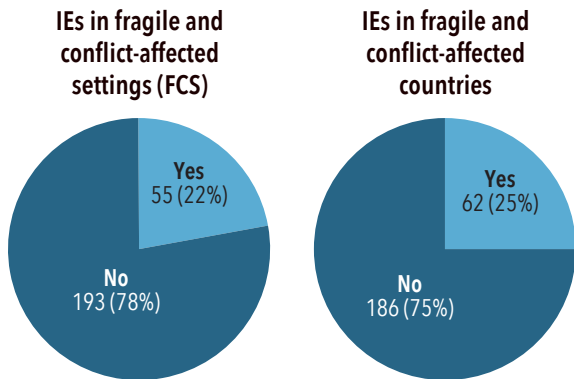
Note: The sum of percentages may not equal 100 due to rounding.

Figure B.4 Distribution of the i2i Portfolio by Gender



Note: The sum of percentages may not equal 100 due to rounding.

Figure B.5 i2i Portfolio in Fragility, Conflict, and Violence

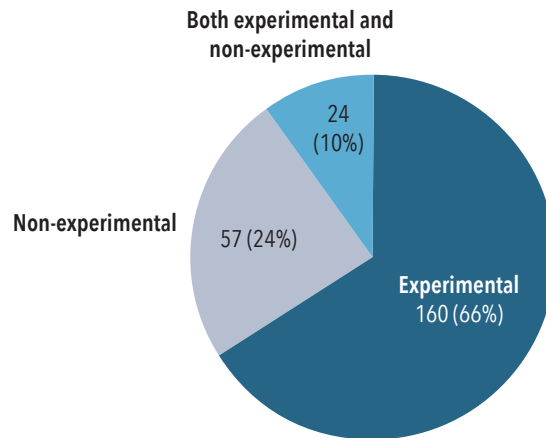


Note: The sum of percentages may not equal 100 due to rounding.

of cases, we use or complement the approach with non-experimental designs. In almost all cases, we also produce descriptive analyses at various points in the data collection cycles. These products all inform a better understanding of the problem and/or provide evidence around the solutions (figure B.6).

Portfolio implementation is on track. As of March 2022, 54 percent of the portfolio was completed, 35 percent under implementation, and the remaining 11 percent under preparation. All IEs are expected to produce working papers and short policy briefs that summarize study results

Figure B.6 Distribution of the i2i Portfolio by Evaluation Method

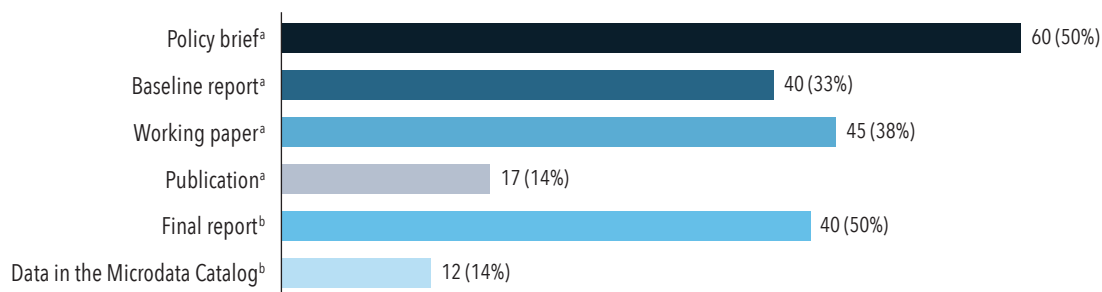


Note: The sum of percentages may not equal 100 due to rounding.

and policy implications (for a list of publications, see Appendix D).

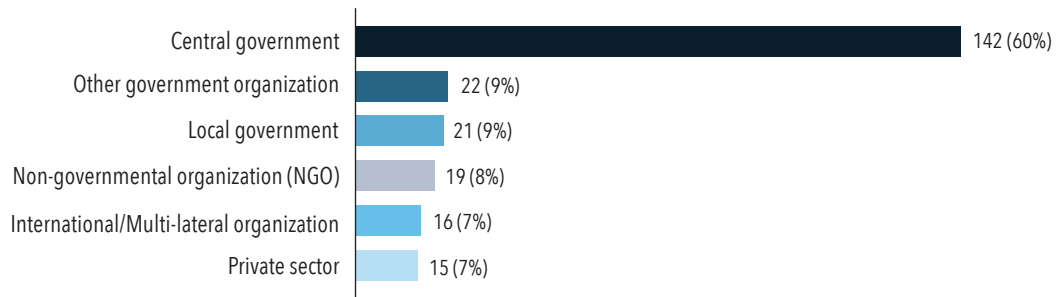
Depending on counterpart demand, some IE teams generate additional products such as baseline and final reports. The latter differ from working papers as they provide wider coverage of results and a more detailed description of project and IE histories. Figure B.7 shows the availability of these products at this stage of the portfolio. Some IE teams also write public-facing products, such as briefs and blogs (published on Medium), to raise the profile of impact evaluation work. DIME's work with the

Figure B.7 Portfolio Products



Note: a) Applicable after baseline results are available; b) applicable after final results are available. The sum of percentages may not equal 100 due to rounding.

■ ■-Figure B.8 IEs By Type of Main Counterpart



Note: The sum of percentages may not equal 100 due to rounding.

World Food Programme’s Office of Evaluation exemplifies this.

Close counterpart collaboration from the early phases of IE design is at the heart of i2i’s operating model. In practice, central and local government agencies are our most common counterparts (figure B.8).

In addition to supporting IE products, the i2i program committed to delivering 14 IE global workshops from 2014 to 2019. We overdelivered on this target, undertaking 30 workshops in close collaboration with the World Bank’s Global Practices and other external partners that have co-financed the activities, thus expanding our ability to deliver more.

As a result, all targets have been met for people trained, participation of organizations, and dissemination to policy makers. The latest data from the i2i monitoring system show that 90 percent of baseline results and 84 percent of the final results from the IEs have been discussed with clients. In addition, IE teams delivered 299 dissemination events at the country level to share findings and results with counterparts and the broader set of

stakeholders. As evidenced by their responses in our client survey, these events are highly valued by clients and there is appetite for more.

Overall, the i2i Umbrella Facility has helped DIME scale-up its activities in a way that is institutionally important and incentive-compatible within the World Bank. It is an example and resource to other development institutions seeking to adopt IE research in order to improve the effectiveness of their support to developing countries. The i2i has also been critical in moving DIME from ad hoc to lasting relationships with country clients, engaging with them in an iterative process of data and evidence generation, and making policy decisions ever more data- and evidence-based.

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Legovini, Arianna, Vincenzo Di Maro, and Caio Piza. 2018. “Impact Development Helps Deliver Development Projects.” Policy Research Working Paper 7157, World Bank, Washington, DC. <http://hdl.handle.net/10986/21154>.

Note: Due to its worldwide status, the impact evaluation “IE Helps Deliver Development Projects” is not included in this report.

■ **Table B.1** Workshops and Dissemination Events, 2014–22

Event	Year	City	Sector	Participants
Evaluating for Peace	March 2014	Lisbon, Portugal	Fragility, Conflict, and Violence	95
Innovations for Agriculture	June 2014	Kigali, Rwanda	Agriculture	126
Annual Conference on Measurement Technology	August 2014	Berkeley, California, USA	Energy and Environment	60
Local Solutions to Global Problems	October 2014	Lisbon, Portugal	Energy and Environment	71
ieGovern Program Launch	January 2015	Istanbul, Turkey	Governance	143
Trade and Competitiveness	May 2015	Istanbul, Turkey	Trade and Competitiveness	139
Global IE Workshop on Transport and ICT	June 2015	Rio de Janeiro, Brazil	Transport and Digital Development	148
Energy and Environment Research Design Follow-Up	July 2015	Chicago, Illinois, USA	Energy and Environment	20
Understanding Bureaucracy through Anthropology and Sociology	February 2016	Washington, DC, USA	Governance	179
Edutainment/ Narrating Behavior Change	May 2016	Mexico City, Mexico	Edutainment	168
Using Evidence to Improve Policy and Program Designs	June 2016	Nairobi, Kenya	Transport and Digital Development	52
Transport and ICT Follow-Up	June 2016	Nairobi, Kenya	Transport and Digital Development	66
Evidence for Agriculture	November 2016	Washington, DC, USA	Agriculture	58
Distributional Impact Analysis	December 2016	Washington, DC, USA	Methods	33
IE Target for Growth	February 2017	Mexico City, Mexico	Trade and Competitiveness	97
Beyond the Status Quo: Using Impact Evaluation Research to Drive Innovation and Improve Outcomes in Health	May 2017	Lagos, Nigeria	Health	82
Identification for Development (ID4D)	May 2017	Washington, DC, USA	Governance	49
DE JURE: Data and Evidence for Justice Reform	June 2017	Washington, DC, USA	Justice	76
ieConnect for Impact	July 2017	Lisbon, Portugal	Transport and Digital Development	136
Development Impact Evaluation Evidence for Agricultural Transformation	November 2017	Rome, Italy	Agriculture	40
Impact Evaluation Workshop: Mass Media Entertainment to Improve Development Outcomes	February 2018	New Delhi, India	Edutainment	82
Policy Research Talk: Employment and Violence in Fragile States	January 2018	Washington, DC, USA	Fragility, Conflict, and Violence	172
Cash for Peace? How Interventions with Cash Can Reduce Violence	March 2018	Washington, DC, USA	Fragility, Conflict, and Violence	28
Kenya Evidence for Policy in Transport	May 2018	Nairobi, Kenya	Transport	50
Road Safety and Emergency Response Impact Evaluation Workshop	November 2018	Dar es Salaam, Tanzania	Transport	40
Forcibly Displaced Impact Evaluation Workshop	November 2018	Niamey, Niger	Fragility, Conflict, and Violence	19
Evidence for the Rural Transformation	November 2018	Maputo, Mozambique	Agriculture	37
Bureaucracy and State Capability	November 2018	Washington, DC, USA	Governance	73
Utilisation des Données Innovantes et des Preuves Empiriques pour Informer les Politiques sur le Transport et la Mobilité à Dakar	December 2018	Dakar, Senegal	Transport	58
Development of Data for Ethiopia's Public Service Commission	December 2018	Addis Ababa, Ethiopia	Governance	32
Workshop on Developing the Public Service Reform Roadmap	December 2018	Addis Ababa, Ethiopia	Governance	21
IsDB-World Bank DIME Impact Evaluation Event: Transforming Development through Evidence-Based Policy	January 2019	Dakar, Senegal	Transport	61
Measuring Development 2019: Crisis Preparedness and Response	March 2019	Washington, DC, USA	Data	171

(continued on next page)

■ **Table B.1** Workshops and Dissemination Events, 2014–22 (Continued)

Event	Year	City	Sector	Participants
Impact Evaluation Workshop on Cash-Based Interventions and Gender	May 2019	Rome, Italy	Cash-Based Interventions and Gender	43
Firm Up Performance	September 2019	Athens, Greece	Trade and Competitiveness	68
Transparency, Reproducibility, and Credibility: A Research Symposium	September 2019	Washington, DC, USA	Data	80
Impact Evaluation Workshop on Resilience in the Sahel	September 2019	Dakar, Senegal	Fragility, Conflict, and Violence	42
Launch Workshop: Measuring and Evaluating Determinants of Public Administration Productivity	October 2019	Brussels, Belgium	Governance	53
ieConnect for Impact, Impact Evaluation Workshop	December 2019	Marrakesh, Morocco	Transport	68
Measuring Development 2020: Data Integration and Data Fusion Co-Hosted with the Center for Effective Global Action	March 2020	Virtual	Data	389
Manage Successful Impact Evaluations	June 2020	Washington, DC, USA	Data	271
Manage Successful Impact Evaluation Surveys	July 2020	Virtual	Data	298
Measuring Development 2021: Emerging Data and Methods in Global Health Research Co-hosted with the Center for Effective Global Action	March 2021	Virtual	Public Health	618
Manage Successful Impact Evaluation Surveys	May–June 2021	Virtual	Data	1,524
WFP Impact Evaluation Training	May–June 2021	Virtual	Data	208
Development Research in Practice (DRiP) Course	July–August 2021	Virtual	Data	2,813
DIME Workshop: Measuring and Evaluating Public Administration Efficiency	September 2021	Virtual	Governance	213
EU-DIME Workshop: Using Big Data, Innovation, and Impact Evaluation to Address Human Development Challenges in Nigeria	February 2022	Virtual	Data	78

APPENDIX C

List of Impact Evaluations

IE Title	Country	Global Practice	Sub-Theme	Summary
Targeting the Ultra-Poor in Afghanistan	Afghanistan	Finance, Competitiveness and Innovation	Jobs and Development	This IE examines the impact of a package of interventions—including productive assets, skills-related training, and consumption support, and complementary services such as healthcare support, community mobilization, and access to microfinance services—on the following outcomes: economic well-being, labor occupation status, and psychological well-being.
Impact Evaluation of the Angola Local Development Project	Angola	Social Protection	Education Governance	This IE examines the impact of community-school scorecards* on the following outcomes: learning outcomes, school enrollment and attendance, teacher performance, and social capital dimensions. *Scorecards include questionnaire for parents to rate teachers and schools; and bringing together parents and schools to discuss an action plan to address issues raised in the questionnaires.
Countering Coercion and Collusion: E-Procurement in Bangladesh	Bangladesh	Governance	Governance	This IE examines the impact of baseline e-government procurement and baseline e-GP plus contract management module on the following outcomes: access and efficiency (e.g., bidder number, agency spending concentration, local bidders, perception of impartiality), cost overrun, delay, unit price, winning rebate, administrative cost, and scandals reported in media.
Integrated Agriculture Development Project	Bangladesh	Agriculture	Social, Urban, Rural and Resilience	This IE examines the impact of promoting improved agricultural technologies through Farmer Field School methodology on the following outcomes: technology adoption, yields, and farmer incomes.
Impact of e-KYC on Access to Finance: Evidence from Bangladesh	Bangladesh	Finance, Competitiveness and Innovation	Governance Poverty	Existing Know Your Customer (KYC) rules for mobile money and agent banking in Bangladesh require customers to initiate the application for a mobile money account with a Mobile Financial Service (MFS) Provider's agent. This IE examines how on-the-spot verification using biometrics improves take-up and affects utilization of mobile money, fraudulent activities, profitability of agents and the composition of the client base.
Examining Social Protection Interventions for Rohingya Refugees	Bangladesh	Social Protection	Social Protection	This IE aims to estimate the psychosocial costs of the loss of home among adolescent refugees; and design and estimate the impact of programs that may help reduce these costs by supporting the development of a new sense of home and belonging in the refugees' current space.
Delivering HIV/AIDS Life Skill the Traditional Way and Through Peers	Benin	Health, Nutrition and Population	Health, Nutrition and Population	This IE evaluates the impact of sex education in secondary schools. The study found improvements in knowledge of and attitudes towards HIV, but no effects on sexual behaviors, including no impacts on sexually transmitted infections.
Do Financial Incentives Increase Pick-Up of STI Test Results Among Youth?	Benin	Health, Nutrition and Population	Finance, Competitiveness and Innovation	This IE evaluates the impact of different levels of financial incentives on the likelihood that students would collect their STI results. Small incentives were very effective in increasing take up rates.
Impact Evaluation of the "Entrepreneur Status" in Benin	Benin	Macroeconomics, Trade and Investment	Finance, Competitiveness and Innovation	This IE examines the impact of the introduction of the entrepreneur status on the following outcomes: formalization, business performance, business skills, accounting systems, level of trust, access to new markets, level of advertising, access to banking, tax payments, investment, employment, and standards of living.

IE Title	Country	Global Practice	Sub-Theme	Summary
IE of a Land Certification Program	Benin	Agriculture	Governance Social, Urban, Rural and Resilience	This IE examines the impact of a large-scale land right formalization program in Benin, which included community identification and demarcation of all parcels and legal documentation of customary land ownership, on the following outcomes: agricultural investments and production.
Benin Apprenticeship IE	Benin	Jobs and Development	Poverty Social Protection	This IE measures the impact of the dual apprenticeship system on the economic inclusion of vulnerable youth; and the costs/ benefits for the firm and the apprentices of including a complementary intervention to support master artisans.
Ceara Rural Development and Access to Markets Project	Brazil	Agriculture	Agriculture	This IE examines the impact of technical assistance and matching grants for the adoption of new technologies and identification of new markets on the following outcomes: organizational capacity, access to credit, sales value, agricultural production, commercial activities developed, and investment.
Rio de Janeiro Gender Segregated Public Transport	Brazil	Transport	Social, Urban, Rural and Resilience	This IE examines the impact of gender segregated public transportation on the following outcomes: revealed choice to ride the women's-only or mixed car and WTP, measures of harassment and subjective well-being by car type, and compliance with the law by men.
The Impact of an Online Platform to Disseminate Business Practices on Business Performance	Brazil	Finance, Competitiveness and Innovation	Finance, Competitiveness and Innovation	The IE tests whether showing firms what their management practices look like and how they compare with their competitors incentivize them to improve firms' management and performance. It tests low-cost and scalable information interventions to see whether these can promote adoption of better business practices and impact firms' performance.
Sao Paulo Matching Grants IE	Brazil	Agriculture	Finance, Competitiveness and Innovation	This IE examines the impact of a package of technical assistance and matching grants to rural organizations for the adoption of new technologies and identification of new markets on the following outcomes: organizational capacity, access to credit, sales value, agricultural production, commercial activities developed, and investment.
The Virtual Minas Facil Evaluation	Brazil	Social, Urban, Rural and Resilience	Finance, Competitiveness and Innovation	The IE examines the impact of a virtual one-stop-shop for business registration on the following outcomes: registration rates.
The Impacts of a School-Based Information Campaign in Reducing Teenage Pregnancy and the Mediating Role of Social Networks	Brazil	Health, Nutrition and Population	Education	This IE studies the effectiveness of a comprehensive sex education program in middle schools that aims to increase aspirations and reduce teenage pregnancies in Bahia state. The study also experimentally studies the effectiveness for selecting peer educators based on the network centrality measures.
SEBRAE na sua Empresa	Brazil	Finance, Competitiveness and Innovation	Finance, Competitiveness and Innovation	This IE aims to understand how to boost adoption of good management practices and how that adoption affects firms' performance. It tests whether providing small firms with informational packages regarding potential benefits associated with the adoption of good management practices incentivizes them to improve. It also tests whether combining information with a coaching intervention increases adoption.
IE of Brazil's Financial Literacy 2	Brazil	Education	Finance, Competitiveness and Innovation Social Protection	This IE presents the findings of a large-scale, experimental evaluation of a financial education pilot program for primary school students in Brazil. The objective was to increase students' financial proficiency and change attitudinal and behavioral outcomes regarding consumption and savings. The results suggest that the program increased financial literacy for the overall sample and for middle school students. It also found positive results on attitudes towards consumption and savings.
Pedagogical Innovative Program (PIP)	Brazil	Education	Social Protection	This IE tests whether the Rio Grande do Norte PIP improves the quality of education in the state, measured in terms of learning outcomes. To shed light on the causal chain underlying the intervention, the IE also measures effects on non-cognitive skills, promotion, and dropout and repetition rates.

IE Title	Country	Global Practice	Sub-Theme	Summary
Impact of H1N1 Pandemic on Learning Outcomes	Brazil	Education	Social Protection	This IE explores the 2009 H1N1 pandemic in the state of São Paulo to benchmark the impacts of school shutdowns during Covid-19. It leverages existing data and a recent episode of school closures during a pandemic crisis. Results indicate that fifth-graders' math skills decreased by around 0.2 of a standard deviation, equivalent to two months of learning loss. The impacts are most pronounced in schools in the lower deciles of math test scores, suggesting the effects were stronger among vulnerable students.
IE of Brazil's Financial Literacy	Brazil	Finance, Competitiveness and Innovation	Education	This IE assesses the impact of a financial literacy program for high school students in six states of Brazil on the following outcomes: financial proficiency score, savings, budget planning, parent's financial knowledge, and student graduation rates.
Reducing Informality Among Firms in Minas Gerais	Brazil	Macroeconomics, Trade and Investment	Finance, Competitiveness and Innovation	This IE assesses the impact of business registration promotion activities (information, reduced fees) on firm formalization.
Long-Term Effects of a Financial Literacy Program	Brazil	Finance, Competitiveness and Innovation	Education	This IE presents the findings of a large-scale, experimental evaluation of a financial education pilot program for primary school students in Brazil. The pilot was carried out during the 2015 school year and included students from four different grades in 201 municipal schools in Manaus and Joinville. The objective was to increase students' financial proficiency and change attitudes and behaviors regarding consumption and savings. The goal of the long-term analysis is to assess whether the intervention impacted reading and math scores, as well as progression and dropout rates.
Municipal Performance Scorecards in Burkina Faso	Burkina Faso	Governance	Social, Urban, Rural and Resilience	This IE tests whether municipal governments can be nudged to fix performance issues in public service delivery by informing decision-makers about specific performance shortfalls and facilitating the internal assignment of responsibilities. It developed an annual municipal government performance monitoring system. Local decision-makers were provided with a scorecard that explained performance standards and actual performance on service delivery and institutional capacity.
Citizen Observers at Municipal Councils in Burkina Faso	Burkina Faso	Governance	Social, Urban, Rural and Resilience	The IE evaluates the impact of personal invitations for individual citizens to attend municipal council meetings on civic participation, interest in and knowledge of local governance, and public trust; municipal councilors' attendance and speaking behavior at council meetings and their ability to communicate their agenda and responsibilities to citizens; and basic municipal service delivery. This is a low-cost, replicable intervention designed to increase accountability between local politicians and their constituents.
Protecting Livelihoods and the Environment: Sustainable Forest Management in Burkina Faso	Burkina Faso	Environment and Natural Resources	Environment and Natural Resources	This IE analyzes the impact of a package of interventions on forest cover changes in 12 Burkina Faso gazetted forests, using synthetic control as the main identification strategy. In addition, it examines how contract design options impact the effectiveness of payments for ecosystem services. It tests this in the context of payments for reforestation activities where contracts are signed with communities to take care of newly planted trees.
Performance Information and Voting Behavior in Local Elections in Burkina Faso	Burkina Faso	Governance	Social, Urban, Rural and Resilience	This IE tests whether providing information on the performance of the incumbent municipal government affects turnout and support for the incumbent (vote choice). Information is provided in the form of nine indicators of municipal service quality in health, primary education, water access, and civil services. The indicators reflect national standards for municipal services such as widely accepted service delivery targets. Results suggests that, in general, voters do not react to performance information in the expected way.

IE Title	Country	Global Practice	Sub-Theme	Summary
Partnerships with Community-Based Organizations to Improve Municipal Government Performance in Burkina Faso	Burkina Faso	Governance	Education Finance, Competitiveness and Innovation Health, Nutrition and Population Water	This IE tests whether community-based organizations can be incentivized to lobby for better municipal services by creating a financial stake in the municipality's performance. The idea is to build on existing, high-functioning local collective action structures such as hometown associations, savings groups, farmer cooperatives, and other membership-based organizations. The IE will assess whether this is an effective means of improving municipal service delivery.
Incentivizing Social Learning for the Diffusion of Climate-Smart Agricultural Practices	Burkina Faso	Agriculture	Agriculture Environment and Natural Resources	This IE test the effectiveness of subsidizing the adoption of sustainable land management practices (SLMPs). It does so in the context of a so-called cascade training program, in which some farmers are trained in SLMP implementation, and are expected to disseminate their knowledge through their social networks. The study finds that within one agricultural season, peers of the trained farmers ask for advice more frequently, and adopt significantly more SLMPs when offered financial payments conditional on adoption.
Promoting Productive Inclusion and Resilience among the Poor: Multicountry RCT of the Sahel Adaptive Social Protection	Burkina Faso Mauritania Niger Senegal Chad	Social Protection	Agriculture Social, Urban, Rural and Resilience	This IE assess the effectiveness of accompanying measures to promote productive inclusion and resilience among the poor in the Sahel. The multicountry randomized controlled trial (RCT) will inform the rollout of large-scale productive safety nets in the Sahel. Key questions addressed are: <ul style="list-style-type: none"> • What is the impact of economic inclusion interventions on the resilience, consumption and food security of cash transfer beneficiaries? • How to optimize the package at scale? • How to ensure inclusiveness of the package and impacts on the extreme poor?
Risk of Social Isolation by Contraceptive Users and New Ways of Scaling Up Family Planning Methods in Burundi	Burundi	Health, Nutrition and Population	Social Protection	This IE will examine different strategies that aim to facilitate the transition from traditional birth control measures to a more self-injection-centered approach. The trial compares the impacts of extending performance-based financing arrangement to community health volunteers and administering the injection through those community health volunteers, as opposed to specialized staff. The objective is to reduce the risk that community members infer the utilization of family planning methods.
Impact Evaluation of Cambodia's Social Accountability for Improved Service Delivery Project	Cambodia	Social, Urban, Rural and Resilience	Governance	This IE uses a randomized controlled trial conducted across 42 districts in 15 provinces of Cambodia to determine whether the coordinated interventions mandated by the Social Accountability Framework improve the quality of education, health, and community services in rural Cambodia and increase villagers' engagement with local government.
Impact Evaluation of Cambodia's Livelihood Enhancement and Association of the Poor (LEAP) in Siem Reap	Cambodia	Agriculture	Social, Urban, Rural and Resilience	The IE examines the impact of set-up and support to sub-village level women's self-help savings groups on the following outcomes: economic activities, savings, income, trust, trustworthiness, and willingness to contribute to public goods. The IE finds that the program successfully increased participation in self-help groups, strengthened related networks, increased household saving, and shifted household production towards livestock. However, no impacts were documented on household income, assets, or expenditures. Furthermore, no wider effects on social capital and networks were found.
Behavioral Nudges to Improve Judicial Performance in Chile	Chile	Governance	Digital Development	This IE tests whether nudges providing information to court managers about their performance affects overall court productivity. The team co-designed an online platform that displays performance metrics at the court and judge levels, such as the average case duration, the case clearance rate, and the rate of realized hearings. The IE demonstrates that nudges to court administrators in the platform increased usage of the platform and reduced information friction. More importantly, the nudges also resulted in behavioral change and improved productivity.

IE Title	Country	Global Practice	Sub-Theme	Summary
Impact of the Electronic Processing Law on the Efficiency, Quality, and Access to Justice in Chile	Chile	Governance	Digital Development	This IE assesses the impact of the Electronic Processing Law (LTE) reform. LTE was implemented in a staggered fashion nationwide, mandating the electronic processing of judicial cases in all courts. The reform aimed to improve judicial productivity, expand access to justice, and promote transparency in the judicial system. The staggered implementation offers an opportunity to estimate its causal effects. This study evaluates the impact of this reform on the performance of courts as well as on firm and citizen outcomes.
Colombia Mobile Victims Unit IE	Colombia	Governance	Poverty Social Protection	This IE estimates the effects of a national government program that serves as a front door for victims to access justice services under Mobile Victims Unit (MVU) legislation. It estimates the short-term effects on reception of reparations, knowledge of rights, access to justice, social and economic integration into the community, and perceptions of justice and the State.
The Impact of a Targeted Fare Subsidy Program on Public Transportation Usage and Labor Market Outcomes: A Regression Discontinuity Analysis from Bogota	Colombia	Transport	Jobs and Development Poverty Social, Urban, Rural and Resilience	Bogota is a pioneer in implementing fare policies for public transport, including fare discounts for the poor, based on a city-wide and targeted scheme that is unprecedented in public transport. In 2017 the municipality implemented a new fare policy by changing the subsidy program while providing additional benefits. This IE aims to quantify the impact of these fare policy changes on mobility, labor market outcomes, time use, and quality of life.
Can a Reality TV Show Promote Entrepreneurship?	Colombia	Finance, Competitiveness and Innovation	Education Social Protection	This IE studied the effectiveness of a reality TV show similar in format to “Shark Tank” aimed at improving entrepreneurial attitudes among viewers. The data collection and the intervention (30 minutes) were conducted online.
Impact Evaluation of Technology Extension Pilot	Colombia	Macroeconomics, Trade and Investment	Finance, Competitiveness and Innovation	This IE examines the impact of two competing interventions—individual consulting services support and group consulting services support—on improvements in management and productivity in the Colombian auto-parts manufacturing sector, based on the following outcomes: productivity, production levels, machine downtime, inventory levels, defect rates, worker hours, sales, and rates of worker absenteeism.
Impact Evaluation on a Framework Agreement for Colombia’s School Meals Program: Does Centrally Coordinated Buying Get Better Meals to More Students?	Colombia	Governance	Finance, Competitiveness and Innovation	This IE examines the impact of procurement through framework agreements, citizen information, and a grievance portal on the following outcomes: <ul style="list-style-type: none"> • value-for-money (student coverage, price paid, order quantity, quality of product, timeliness); • firm-level outcomes (firm bids, characteristics, profit and loss, performance); and • student educational welfare (attendance, enrollment, drop-outs).
Microenterprise Supply Chain Intermediation Pilot	Colombia	Finance, Competitiveness and Innovation	Finance, Competitiveness and Innovation	This IE assesses the impact of a mobile platform to lower costs for small vendors purchasing produce and to improve the supply chain. The following outcomes were included: time spent travelling to obtain inputs, prices, and firm profits.
The Direct and Indirect Effects of Public Works Programs: A Randomized Control Trial of a Cash-for-Work Program in the Comoros Island	Comoros	Social Protection	Jobs and Development Macroeconomics, Trade and Investment Poverty	This IE examines the impact of a Labor-Intensive Public Works Program on the socio-economic outcomes of individuals and households. The program had substantial effects on labor market outcomes, including employment and income. It also appears to have had a sizeable and positive impact on investments in migration. The program also increased the probability of women having an income generating activity; however, no compelling evidence was found that the program outcomes varied by gender.

IE Title	Country	Global Practice	Sub-Theme	Summary
From Workfare to Well-Being: A Randomized Evaluation of the Effects of Labor-Intensive Public Works on the Urban Poor in Eastern DRC	Congo, Dem. Rep.	Social Protection	Jobs and Development Macroeconomics, Trade and Investment Poverty	This IE assesses the impact of a Labor-Intensive Public Works program—with or without an extended training program and/or incentivised savings accounts—on socio-economic outcomes. The IE found that the program increased employment, including self-employment, but not income. Positive welfare impacts contrasted with negative impacts on wellbeing, as certain beneficiaries were more aware of criminal groups, engaged less in pro-social behavior, and held more negative gender views. This occurred when different components of the program were offered; however, there was a strong positive impact for beneficiaries when they receive cash for work, as well as the savings and training component. The program also had lasting impacts on women and displaced persons.
Making Services Work for the Poor in Fragile and Conflict-Afflicted Contexts: An Impact Evaluation of Tuungane Interventions to Strengthen Accountability of Service Providers—T2+	Congo, Dem. Rep.	Social, Urban, Rural and Resilience	Social Protection	This IE assesses the impact of a Community Driven Development (CDD) program, which is a bottom-up model of development that aims to put the people in the driver's seat. The program involved bottom-up community involvement; top-down ministry involvement; and combined bottom-up and top-down approaches on socio-economic outcomes. The IE did not find any evidence that involving the community, the government, or both in the T2+ program improves local accountability. There is little evidence that the program as a whole influenced information sharing or stakeholder involvement.
Participatory Development in Fragile and Conflict-Affected Contexts: Tuungane 1	Congo, Dem. Rep.	Social, Urban, Rural and Resilience	Social Protection Finance, Competitiveness and Innovation	This IE investigates the long-term effects of the Tuungane 1 program, a major Community Driven Development (CDD) initiative that uses a bottom-up model to put people in the driver's seat. The IE found that the program had a positive impact on the quality of primary schools and health facilities, and on the presence of materials and supplies. However, the IE found no evidence that the program had an effect on other dimensions of service provision, including health and education outcomes.
Participatory Development in Fragile and Conflict-Affected Contexts: Tuungane 2	Congo, Dem. Rep.	Social, Urban, Rural and Resilience	Social Protection Finance, Competitiveness and Innovation	This study evaluates Tuungane 2, a major CDD program in Eastern Congo that included scorecards, more intensive work within communities, and larger grants. The rollout of the program was not randomized; non-experimental techniques were used to estimate the impacts of the program. The program performed well on outcomes related to the relationship between villagers and service providers. It also improved outcomes on tangible items provided, such as the quality of building infrastructure for both education and health facilities. However, it did not improve outcomes related to health or education indicators. There is scattered evidence that the program contributed to women's empowerment.
Attracting and Deploying Talent to Reform Civil Service in DRC	Congo, Dem. Rep.	Governance	Governance	This IE assesses the impact of civil service retirement and recruitment reform on the following outcomes: age structure of the civil service, qualifications and skills of young professionals, and perception of fairness of retirement and recruitment process.
Strengthening Community Resilience in Conflict-Affected Societies: A Randomized Impact Evaluation of a CDD Intervention with a Conflict Resolution Dimension in Eastern DRC	Congo, Dem. Rep.	Social, Urban, Rural and Resilience	Poverty	This IE measures the impact of CDD-chosen infrastructure projects, with or without a conflict mediation component on the following outcomes: infrastructure, access to public services, access to health, social cohesion, and access to education. The program took place in six provinces of Eastern DRC. The IE found that the CDD or CDD+ interventions with the mediation component had no impact on access to infrastructure or strengthening of community cohesion. The IE found no evidence of impact on socio-economic wellbeing, including economic welfare, income generating activities, or subjective wellbeing.

IE Title	Country	Global Practice	Sub-Theme	Summary
Thimo Ruraux–Targeting DRC STEP	Congo, Dem. Rep.	Social Protection	Social, Urban, Rural and Resilience	The IE tests, by way of experimental methods, the efficacy of alternative targeting systems that feature different community agents in the selection process, in addition to testing the overall socioeconomic impacts of public works schemes on socioeconomic welfare of recipient households and communities.
The People's Water: A Randomized Control Trial of a Community-Driven Water, Health, and Sanitation Program in the Democratic Republic of Congo	Congo, Dem. Rep.	Water	Health, Nutrition and Population Social, Urban, Rural and Resilience	The IE measures the impact of the Healthy Villages and Schools (VEA) program delivered by UNICEF through local NGOs and government actors across the Democratic Republic of Congo. It explores the impact of providing a big-push towards improvements in water, sanitation, and hygiene on mental well-being, willingness to pay for water, school attendance, time use, wasting/ stunting and water point functionality. The IE found that the VEA produced large increases in access to and satisfaction with water and sanitation services, in self-reported hygiene and sanitation behavior, and in measures of water governance.
Cote d'Ivoire Apprenticeship IE	Cote d'Ivoire	Social Protection	Jobs and Development	This IE assesses the impact of provision of formal apprenticeships on the following outcomes: employment, earnings, among youths, workforce, intake of apprenticeship, value of work and profits among firms.
Cote d'Ivoire Micro-Entrepreneurship and Social Cohesion IE	Cote d'Ivoire	Social Protection	Social Protection	This IE evaluates an intervention seeking to improve livelihoods for vulnerable groups in post-conflict Côte d'Ivoire. The intervention provides capital, training, and encourages social cohesion. The IE tests the overall effectiveness of the integrated package, as well as the relative cost-effectiveness of alternative instruments to relax capital constraints: cash grants, semi-credit and village savings and loan association.
Cote d'Ivoire Public Works IE	Cote d'Ivoire	Social Protection	Education Poverty Social, Urban, Rural and Resilience Jobs and Development	This IE measures the impact of labor-intensive public works and related graduation strategies on employment, earnings, and risky behavior among young people.
IE of Como va mi Escuela	Dominican Republic	Governance	Education Health, Nutrition and Population	This IE investigates whether increased access to information through scorecards and face-to-face meetings between key stakeholders improves the decision-making process and learning outcomes in Dominican Republic schools. It tests the effectiveness of two complementary strategies: increasing the direct participation of parents in school decisions, and increased engagement with their children's education daily.
Public Works and Welfare: A Randomized Control Trial of the Emergency Employment and Investment Project in Egypt	Egypt, Arab Rep.	Social Protection	Poverty Social, Urban, Rural and Resilience	This IE assesses the impact of a Labor-Intensive Public Works program on semi-skilled and unskilled unemployed workers on the following outcomes: food security/ consumption, assets, labor market outcomes, and social cohesion. Project implementation and delivery was through NGOs. The IE found the project had positive impacts on participants and their families including improvements in economic wellbeing such as employment and income, as well as on consumption and assets. These program participants were also more likely to save. There is evidence of gender specific effects with regards to positive impacts experienced by female-headed households, or higher savings driven by female participants.
Public Works and Welfare: A Randomized Control Trial of Infrastructure Projects Targeting Poor Communities in Egypt	Egypt, Arab Rep.	Social Protection	Poverty	This IE analyzes the direct effects of the project on the economic, social, and psychological welfare of program participants, as well as the community. It does so by using a phased-in randomized design at the village level and randomizing worker-level participants. The specific programs in the IE sample are cash-for-work projects focusing on school, youth center, and social unit rehabilitation. We find no evidence that the program had any significant effects on economic, social or psychological outcomes.

IE Title	Country	Global Practice	Sub-Theme	Summary
Impact Evaluation of Gender and Cash Transfers in El Salvador	El Salvador	Social Protection	Social, Urban, Rural and Resilience	International institutions increasingly favor the transfer of assistance to women in the household to provide women with more power in that context. However, there are reasons to believe that transferring additional assets and income to women might not achieve its desired effects. This IE tests the impact of various strategies designed to increase women's ability to retain the income and assets they receive from international institutions.
Do Public Health Interventions Crowd Out Private Health Investments? Malaria Control Policies in Eritrea	Eritrea	Health, Nutrition and Population	Health, Nutrition and Population	This IE evaluates the impact of indoor residual spraying for malaria control on bed net use and incidences of malaria. It is often argued that engaging in indoor residual spraying in areas with high coverage of mosquito bed nets may discourage net ownership and use. This IE shows the opposite: indoor residual spraying encouraged net acquisition and use. The evidence points to the role of imperfect information.
Evaluating the Rollout of Estonia's Enhanced Care Management System (ECM)	Estonia	Governance	Finance, Competitiveness and Innovation Health, Nutrition and Population	Estonia faces an aging population with an increasing burden of non-communicable diseases such as hypertension, diabetes, and depression. Using claims data from the Estonian Health Insurance Fund, this IE tests the impacts of strategies to increase physicians' adoption of a quality enhancement program for high-risk patients, including a week-long mentoring visit from a peer-doctor with a structured curriculum, weekly coaching sessions, and a combination of mentoring and coaching sessions.
Estonia Civil Service Dashboard (EU: Measuring and Evaluating Determinants of Public Administration Productivity)	Estonia	Governance	Digital Development	This IE aims to identify the impact of the dashboard on public officials, citizens, and their interactions to determine its effectiveness in shifting service delivery outcomes. It also seeks to further understand which dashboard features might increase the influence and legitimacy of the tool.
Evaluation of the Women's Development Initiatives Project (WDIP)	Ethiopia	Social Protection	Jobs and Development	This IE evaluates the impact of the organization of women's groups for productive activities, and provision of working capital on the following outcomes: economic, social, and psychological empowerment.
The Impact of Community-Led Total Sanitation and Hygiene (CLTSH) in Ethiopia	Ethiopia	Water	Environment and Natural Resources	This IE examines the impacts of an enhanced, demand-side sanitation and hygiene intervention in Amhara. It looks at the sustainable adoption of improved Neglected Tropical Disease (NTD)-preventive water, sanitation, and hygiene practices, and health. The study tests hypotheses set by team's theory of change through the measurement and evaluation of process indicators, intermediate and shorter-term behavioral outcomes, and longer-term behavioral and health impacts, including mental well-being.
Hawassa Industrial Park COVID-19 Impact Evaluation	Ethiopia	Jobs and Development	Social Protection	This IE conducts high-frequency phone surveys on a panel of workers in the ready-made garment industry in Ethiopia's largest industrial park in the city of Hawassa to document how their lives are changing during the COVID-19 crisis. It investigates the economic impacts of the pandemic and the interaction between health behaviors, trust in government, and economic preferences. It aims to inform the government's response and development partner programming by rapidly reporting key areas of vulnerability and their predictors.
Ethiopia Expressway	Ethiopia	Transport	Social, Urban, Rural and Resilience	This IE evaluates the impact of the Ethiopia Expressway on the following outcomes: trade, investment, income, land use, environmental outcomes, and poverty.

IE Title	Country	Global Practice	Sub-Theme	Summary
Ethiopia Governance IE	Ethiopia	Governance	Education Finance, Competitiveness and Innovation Health, Nutrition and Population Poverty	This IE tests the knowledge of Ethiopian civil servants at the three tiers of government, aiming to understand whether local tiers of government make fewer errors regarding citizen characteristics than regional or federal tiers. It experiments by sending packets of information to a random subset of the officials. Though the average treatment effect is significant at the usual levels, the effect is driven by organisations with a weak culture of information management.
Evaluating the Impact of Urban Corridor Improvement in Addis Ababa	Ethiopia	Transport	Social, Urban, Rural and Resilience	This IE aims to understand the causes of road safety risks at key intersections and along five selected transit corridors in Addis Ababa, Ethiopia; and to assess the most effective interventions to reduce road safety risks and improve traffic and pedestrian flow. It also aims to improve police traffic management in Addis Ababa through the application of data diagnostics and technology.
Hawassa Industrial Park Community Impact Evaluation	Ethiopia	Transport	Finance, Competitiveness and Innovation Social Protection	The Hawassa Industrial Park is one of ten industrial parks that are currently being planned and built all over Ethiopia. This IE uses a unique, large-scale, government-led industrialization project in Hawassa to understand the impact of factory employment on workers and the rural communities from which they originate.
Scaling up the Productive Safety Nets Programme (PSNP) in Ethiopia	Ethiopia	Social Protection	Jobs and Development	The IE will be implemented as a multiarm randomized controlled trial to test different approaches to scaling a comprehensive livelihoods program through national government systems, as part of one of the largest social safety programs in Africa.
Georgia: Internet for Firm Innovation	Georgia	Finance, Competitiveness and Innovation	Digital Development	This IE explores barriers to e-commerce participation and the impacts of using e-commerce for firms.
Evaluating Efficient Ways to Promote Sustainable Land and Water Management and Payments for Ecosystem Services in Ghana	Ghana	Environment and Natural Resources	Agriculture	This IE assesses the impact of a program designed to encourage sustainable land and water management through agricultural extension and a new payment for environment services scheme for farmers. Impacts were evaluated based on the following outcomes: adoption of sustainable land management technologies, awareness of environmental impacts of technologies, and sustained use of behaviors promoted through PES.
Assessing Civil Service Training in Ghana	Ghana	Governance	Finance, Competitiveness and Innovation	This IE evaluates the Training for Productivity project, the focus of which is to improve the capacity of the Ghanaian Civil Service by implementing novel individual and group-based training methods for bureaucrats. The training programs will be experimentally implemented as part of a standard package of training sessions coordinated by the Office of the Head of Civil Service and the Civil Service Training Centre of Ghana.
Guinea-Bissau Rural Transport Project: Impact Evaluation on Women's Access to Essential Services and Economic Opportunities	Guinea-Bissau	Transport	Poverty	This IE helps quantify the impact of better road infrastructure for women and will provide policymakers in Guinea-Bissau clarification about whether the infrastructure is leading to equitable access for all or if additional interventions are necessary to increase the impact of road rehabilitation for women. It will also test whether investment in a complementary policy (feeder roads connection to the main trunk road) can help magnify the wider economic benefit of the road project.
Impact Evaluation of the Technology Transfers for Small Farmers (PTTA) Project	Haiti	Agriculture	Jobs and Development	This IE measures the impact of providing subsidy vouchers for agricultural inputs on the following outcomes: yields, farmer income, and farmer profit.

IE Title	Country	Global Practice	Sub-Theme	Summary
Haiti: Strengthening Agriculture Public Services II (RESEPEG II) and Women in Leadership of Small and Medium Enterprises (WLSME)	Haiti	Agriculture	Agriculture	This IE measures the impact of matching grants provided to cooperatives and agricultural service providers for input provision, post-harvest processing, and business training for women based on the following outcomes: production and income of farmers, especially women.
Moving Youth Out of the Market for Crime: Interventions in the Honduras Safer Municipalities Project	Honduras	Social, Urban, Rural and Resilience	Jobs and Development Social Protection	This IE tests a skills development and labor market readiness program targeting at-risk youth living in high-violence communities in Honduras. The program includes technical/ vocational training, soft skills training, group-based cognitive behavioral therapy and a temporary job. The study tests the impact on the life outcomes of young people including reduced participation in crime and violence, improved soft skills and mental health, and better labor market outcomes.
Improving Citizen Access to Basic Services	India	Governance	Social, Urban, Rural and Resilience	This IE assesses the impact of privately run kiosks offering access to government services under the Right to Public Services Act. The evaluation was based on the extent of appropriate access to government services among excluded groups.
Safety First: Perceived Risk of Street Harassment and Educational Choices of Women	India	Transport	Social Protection	This IE examines the impact of perceived risk of street harassment on women's human capital attainment. It assembles a unique dataset that combines information on students at the University of Delhi. Using a random utility framework, it estimates that women are willing to choose a college in the bottom half of the quality distribution over a college in the top quintile in order to travel by a route that is perceived to be safer.
Benefits of Drip Irrigation	India	Water	Agriculture	This IE evaluates the impact of drip irrigation for groundwater-based dry season cultivation in southern India, based on the following outcomes: irrigated area, pumping hours, yield, crop profits, and farm income.
Impact Evaluation of the Andhra Pradesh Rural Poverty Reduction Project	India	Agriculture	Social, Urban, Rural and Resilience	This IE measures the impact of women's group formation, social mobilization, savings and credit, and skills formation based on the following outcomes: consumption, assets, education, health, empowerment, and access to programs.
Punjab: IE on Rural Water and Sanitation Sector Improvement Project	India	Water	Social, Urban, Rural and Resilience	This IE assesses the impact of the construction of sewerage schemes aimed at facilitating behavioral change to improve utilization of sewers to convey waste water based on the following outcomes: incidence of water-borne, water-washed, water-related and excreta-related disease; children nutritional outcomes; educational outcomes; beneficiary households' income; and ODF status.
Measuring Violence Against Women in Public Spaces: Drawing on Experimental Evidence	India	Social Protection	Social, Urban, Rural and Resilience Transport	How can gender-based violence (GBV) be prevented? Can increased quantity and quality of police presence help? Does improved safety for women change their beliefs and choices about mobility and labor force participation? This IE aims to answer these questions through a novel policing program in Hyderabad, India. The Safety, Health and Environment Program increases police patrol interventions at hotspots, with the aim of addressing and deterring GBV. The study evaluates the effects of this program.

IE Title	Country	Global Practice	Sub-Theme	Summary
Using Safety Technology to Improve Training Opportunities and Labor Force Participation for Women	India	Social Protection	Transport	<p>How are perceptions of safety formed and what aspects of women's lives are affected by them? This IE provides evidence about the effects of personal technology on individual behavior. Some of the questions addressed are:</p> <ul style="list-style-type: none"> • Can wearable technology devices be used to better measure the incidence of GBV and change of public safety for women? • Do wearable technologies improve women's labor force participation and reduce gender inequalities in wages, take-up of opportunities, job performance and psychological well-being in low-skill science, technology, engineering and mathematics (STEM) careers?
India: Using Machine Learning to Improve the Fairness and Efficiency of Courts	India	Governance	Digital Development Finance, Competitiveness and Innovation	Does the gender and religious imbalance of the courts affect judicial outcomes? Using data on over five million court cases filed under India's criminal codes between 2010-18, this IE examines whether defendants receive better judicial outcomes when their cases are heard by judges with the same gender or religious identity (male/female or Muslim/ non-Muslim).
Using Social Media and Edutainment to Reduce GBV Among Youth	India	Digital Development	Education	This IE studies the effectiveness of edutainment aimed at reducing gender-based violence (GBV) among 15-24-year-old urban youths that have access to social media. The study contrasts two common formats: an entertainment drama versus a documentary.
Aceh Community Ranger Program (CRP) IE	Indonesia	Environment and Natural Resources	Social, Urban, Rural and Resilience	This IE examines the impact of a multifaceted intervention that includes: training at-risk youth rangers; patrols; community livelihood and training; and an outreach campaign about environmental and other issues. The results show that the CRP succeeded in improving economic outcomes for rangers on a number of dimensions. The economic outcomes of interest included both objective measures of wellbeing such as income and household poverty, as well as more subjective measures associated with perceptions of economic status and economic conditions. The program had positive impacts on life satisfaction. The effect of the CRP on other social outcomes, such as social integration and acceptance, is weaker. With regards to environmental outcomes, the evidence is mixed. While the program improved attitudes towards environmental conservation, behaviors were not impacted.
Evaluating Early Childhood Education and Development (ECED) Services	Indonesia	Education	Jobs and Development	<p>This IE measures the impact of a package for villages with the following components:</p> <ul style="list-style-type: none"> • facilitator to raise community awareness on the importance of early childhood services; • block grants for three years per village to be spent on establishing or supporting two centers; and • 200 hours of teacher training per center. <p>Evaluation was based on the following outcomes: enrollment rates and duration of enrollment in ECD services and primary school, early childhood development outcomes, and test scores in primary school.</p>
Impact Evaluation of Iraq Transport Corridor Project	Iraq	Transport	Transport	This IE uses geographically precise information on the timing and location of road improvements to examine whether transport investments in Iraq are associated with increased level of economic activity, measure through nighttime lights; and market access as measured by urban growth of sectors relative to their income and other sectors.

IE Title	Country	Global Practice	Sub-Theme	Summary
Promoting Youth Engagement through Learning and Life Skills Training: a Randomized Control Trial in Kazakhstan	Kazakhstan	Jobs and Development	Social Protection Social, Urban, Rural and Resilience	This IE tests the effects of the Kazakhstan Youth Corp Project's two main components: support for community-based service learning through a grant; and training and mentorship activities designed to enhance life/ non-cognitive skills of participating youth. The study ascertains short-term effects of the pilot program on key outcomes of interest, including civic and community engagement, socio-emotional skills, and anti-social behavior of participants. The IE finds limited evidence that the beneficiaries benefitted significantly from the activities.
Kenya Patient Safety Impact Evaluation	Kenya	Health, Nutrition and Population	Governance	This IE examines the impact of top-down and bottom-up accountability systems through inspections of private and public health facilities based on the following outcomes: patient safety and quality of care, prices and demand of health services.
The Social and Economic Impacts of Rural Electrification: Evidence from Kenya	Kenya	Energy	Environment and Natural Resources	This IE measures the impact of national grid electricity connections for rural households against the following outcomes: energy consumption, human capital, household wealth and income, and empowerment.
Matatu Efficiency and Safety in Nairobi	Kenya	Transport	Finance, Competitiveness and Innovation	Technologies that allow firms to monitor employees are becoming more widespread. This IE examines how these technologies affect contracts and firm productivity. It introduces monitoring devices into commuter minibuses in Nairobi that track real-time vehicle driving behavior and daily productivity. The IE finds that treated vehicle owners modify the terms of the contract to induce higher effort and lower risk-taking. Drivers respond by working more hours and decreasing risky driving behavior associated with higher repair costs. As a result, firm costs fall and profits increase.
Gender and Ethnic Biases in Judicial Decisions in Kenya	Kenya	Governance	Social Protection	Evidence from high-income countries suggests that judges often exhibit in-group bias, favoring litigants that share an identity with the judge. However, there is little research on this phenomenon. Collecting the available decisions in Kenya, this IE finds that relative to a baseline win rate of 43%, defendants are four percentage points more likely to win if they share the judge's gender and five percentage points more likely to win if they share the judge's ethnicity.
Water and Sanitation Service Improvement Project (WASSIP) Impact Evaluation– Nairobi	Kenya	Water	Social, Urban, Rural and Resilience	This study estimates the impacts of two interventions implemented as field experiments in informal settlements by Nairobi's water and sanitation utility to improve revenue collection efficiency and last mile connection loan repayment. These interventions were face-to-face engagement between utility staff and customers to encourage payment and contract enforcement of service disconnection due to non-payment in the form of transparent and credible disconnection notices.
Kenya: Impact Evaluation of the Judicial Performance Improvement Project	Kenya	Governance	Digital Development Governance	This IE assesses the impact of alternative implementation strategies for court performance feedback and management, based on the following outcomes: timeliness of case resolution and quality of court user satisfaction.
Microfranchising Nairobi IE	Kenya	Social Protection	Finance, Competitiveness and Innovation	This IE analyzes the impact of a microfranchising program operated by the International Rescue Committee, based on the following outcomes: income, occupational choice, empowerment, and skills.
Road Safety in Kenya: Matatu and Insurance Markets	Kenya	Transport	Health, Nutrition and Population Transport	This study uses new tools and technologies to develop a rider feedback data system to elicit rider feedback and measure the impact on matatu driver behavior. Feedback is elicited via stickers on matatu buses that display SMS-based shortcode and QR code options. Ground truth data is also collected through sensors that detect driver behaviors. The study tests the role of information provided to different actors in the road safety system.

IE Title	Country	Global Practice	Sub-Theme	Summary
smarTTrans: Road Safety in Kenya	Kenya	Transport	Transport	This IE seeks to build on previous work by combining multiple interventions adapted to the Nairobi context, taking into consideration constrained resources and in line with the Kenyan Road Safety Strategic Plan. Developing a low-cost data system and incorporating low-cost, behavioral and educational targeted interventions into the IE in ways that may provide easily scalable solutions, are part of national and global priorities.
Technological Innovations to Improve Court-Annexed Mediation in Kenya	Kenya	Governance	Digital Development	This IE examines the impact of a tech-enabled innovation on the efficiency, quality, and productivity of Court-Annexed Mediation in Kenya. This has the potential to support the Kenyan Judiciary in reducing backlogs and increasing citizens' access to justice. The intervention consists of a data management platform called "Cadaster," with two primary sets of features available only to the treatment group of users: 1) allowing users to query and manage a list of mediators, and 2) allow users to create, query and manage mediation cases.
Investment Readiness Impact Evaluation	Kosovo North Macedonia Serbia Montenegro Croatia	Finance, Competitiveness and Innovation	Macroeconomics, Trade and Investment	This IE measures the impact of an Investment Readiness Program for start-ups and SMEs, based on the following outcomes: investment readiness as measured by judge's scores, investments made, and firm growth.
Experimental Evidence on UNMIL Radio's Electoral Programmes and Female Political Participation in Rural Liberia	Liberia	Governance	Digital Development	This IE measures the impact of rural women's organization listening to the United Nations Mission in Liberia (UNMIL) Radio's electoral programs in a series of weekly group listening sessions. Evaluation was based on women's political attitudes and participation. The IE found positive, significant effects on female political participation arising from access to UNMIL Radio, both at a national and a local level. Communities that received the intervention also exhibited smaller gender gaps across the majority of outcome indicators.
Promoting Democracy in Fragile States: Behavioral and Experimental Evidence from Liberia	Liberia	Governance	Finance, Competitiveness and Innovation	This IE examines the impact of different strategies to promote democracy in fragile states using Liberia as a setting. The evaluation was based on the following outcomes: voting in 2011 elections, contributions to political campaign, contacts with a government agency or official, community meetings, and peaceful protests attendance. The IE finds that civic education increased enthusiasm for electoral participation, produced a coordinated shift from parochial to national candidates, and increased willingness to report on manipulation. An intervention combining the civic education and security committees had similar effects. The security committee's program produced a modest reduction in parochial voting.
Impact Evaluation of Smallholders Agricultural Productivity and Commercialization (SAPEC)	Liberia	Agriculture	Poverty	This IE measures the impact of the subsidized delivery of agricultural inputs on food security and agricultural revenue, with a particular emphasis on youth. Within the sample, farmers of varying ages are offered subsidized seeds and tools and also sent an SMS based e-voucher enabling them to buy rice or fertilizer. The IE studies the impact of these inputs on household outcomes and tests whether young people or more experienced farmers are the best targets for similar programs.
Promoting Political Participation in War-Torn Countries: Microlevel Evidence from Postwar Liberia	Liberia	Governance	Finance, Competitiveness and Innovation	This study evaluates the effects of United Nations Mission in Liberia (UNMIL) operations (military and non-military) on the political participation of ordinary Liberians after civil war. The IE found positive effects on political participation, with most impacts concentrated around measures associated with participation in national politics as well as political efficacy. The IE also found that self-reported citizen interactions with UNMIL personnel and exposure to human rights campaigns are strongly associated with political participation.

IE Title	Country	Global Practice	Sub-Theme	Summary
Elections and Collective Action	Liberia	Governance	Macroeconomics, Trade and Investment	This IE examines the introduction of elections in traditional settings based on the following outcomes: voting, community meeting attendance, contact with political and community leaders, collective action and trust participation, and governance procedures. The IE found that introduction of elections for clan chiefs had little effect on community and national level political participation, but that it increases contentious collective action and results in lower levels of contributions to public goods.
Liberia Youth Opportunities Project	Liberia	Social Protection	Finance, Competitiveness and Innovation Poverty	This IE assesses the impact of cash grants to young people, with or without skill development opportunities such as development of psycho-social skills, basic business skills and apprenticeships. The evaluation was based on the following outcomes: employment, income, consumption, and well-being.
Measuring the Effect of Extrinsic and Intrinsic Factors in Improving Performance in the Public Sector	Liberia	Governance	Finance, Competitiveness and Innovation	This IE examines the impact of improved methods of appraisal and promotion within the civil service by the Employment Services Department of the Civil Service Agency. The assessment was based on the following outcomes: quality of civil servant's appraisals and corresponding promotions, and motivation of civil servants within affected organisation.
Impact Evaluation of Road Safety Initiatives in Liberia	Liberia	Transport	Transport	This IE aims to build evidence on which road safety interventions are most effective in Liberia and to inform policy decisions. The types of evidence that will be developed in this IE may include estimates of changes in driving behavior, as well as road crashes and injuries when different road safety interventions are implemented; the change in impacts when interventions are implemented as a package; and the size of spillover effects.
Lithuania Mental Health Service Delivery Chain (EU Measuring and Evaluating Determinants of Public Administration Productivity)	Lithuania	Governance	Education Health, Nutrition and Population	In Lithuania, nearly one third of school students report experiencing low levels of psychological well-being. Evidence suggests that these rates may be higher in the wake of Covid-19. This IE examines interventions aimed to optimize the service delivery chain of youth mental health services in schools. These interventions aim to increase school capacity to facilitate the mental well-being of students and to foster co-production between a range of institutional players involved in service delivery.
Combatting Customs Fraud: Experimental Evidence from Madagascar	Madagascar	Macroeconomics, Trade and Investment	Governance	This IE examines how the provision of information to and monitoring of customs inspectors impacts tax revenue collection and fraud detection. It documents the results of a nationwide, randomized risk management control trial to increase revenue collection by increasing information provision and monitoring of customs inspectors' actions.
The Impacts of Vocational Training on Labor Outcomes	Malawi	Health, Nutrition and Population	Jobs and Development	This IE provides experimental evidence on the effects of vocational and entrepreneurial training for Malawian youth in an environment where access to schooling and formal sector employment is extremely low. The training results in skills development, continued investment in human capital, and improved well-being, with more positive effects for men, but no labor market improvements in the short-run.
The Short-Term Health Impacts of Emergency Response and Trauma Registry: An IE of the Health Services Improvement and Emergency Response of the Southern Africa Transport and Trade Facilitation II (SATT-SOP2) Program	Malawi	Transport	Health, Nutrition and Population	This IE assesses the effectiveness of a pilot program aimed at reducing adverse health outcomes from road traffic injuries through improved medical care. While some of the measures have been implemented in other contexts, there is scant evidence on the effectiveness of the implementation of this specific combination of interventions, especially in a low income, high incidence setting such as Malawi. The comprehensive data system that is developed can be used to improve the intervention and increase its cost-effectiveness.

IE Title	Country	Global Practice	Sub-Theme	Summary
Protecting Early Childhood Development in Malawi (PECD)	Malawi	Education	Health, Nutrition and Population	<p>This IE examines the impact of the Protecting Early Childhood Development Project, focused on:</p> <ul style="list-style-type: none"> • play and learning materials; • teacher/caregiver training and mentoring; • teacher/caregiver cash incentives based on regular attendance; ad • parenting education. <p>The evaluation is based on the following outcomes: language development, fine motor skills, sustained attention, memory and problem solving, basic math skills, and socio-emotional development. Parental knowledge of child development and household stimulation for learning was also assessed.</p>
Teaching Farmers through Social Networks	Malawi	Agriculture	Agriculture	<p>This IE measures the impact of teaching farmers about a new agricultural technology, and communicating this knowledge to other farmers to encourage adoption. The assessment is based on the following outcomes: knowledge and adoption of new technologies, maize yields, and social network relationships and perceptions.</p>
The Impacts of Soft and Hard Skills Training on Sexual Health Outcomes	Malawi	Health, Nutrition and Population	Social Protection	<p>This IE analyses to what extent hard skills (vocational training) and soft skills (aspirational pep talk) interventions affected childbearing decisions, HIV testing, and transactional sex in young people. Using baseline and follow-up data of a randomized control trial in Malawi, the authors find that receiving an offer to attend a vocational training program decreased the likelihood of childbearing in females and increased the likelihood of being HIV tested in both females and males.</p>
Malawi Customs, Border Management and Traders IE	Malawi	Macroeconomics, Trade and Investment	Transport	<p>This IE assesses an ongoing reform in Malawi designed to simplify the clearance process at the border and connect main agencies to the same database for data sharing. In particular, the research team will look at impacts on revenue mobilization; customs clearance times, total export or import crossing time and associated costs; and trade volume and value. Overall, the reform is anticipated to augment revenue collection by customs, reduce the time spent at the border, and support overall economic growth.</p>
Resilience in the Sahel–Mali	Mali	Social Protection	Social, Urban, Rural and Resilience	<p>This IE aims to understand how integrated resilience programs can promote capacities to absorb shocks, adapt to risk, and transform livelihoods to help people exit poverty. Specifically, it aims to examine what combinations and sequences of interventions are most effective in building and strengthening resilience capacities related to food security, nutrition, health, and education in Mali.</p>
Sahel Shock-Responsive Cash Transfers in Mauritania, Niger, and Senegal	Mauritania Niger Senegal	Social Protection	Finance, Competitiveness and Innovation Health, Nutrition and Population Poverty Social, Urban, Rural and Resilience	<p>This IE measures the relative effectiveness of early responses to drought—providing temporary cash transfers after the weather shock but before peak impact on household food security and welfare; versus traditional responses to drought—providing temporary cash transfers at the peak of the food insecurity crisis.</p>
Can Entertainment Education Prevent Youth Addiction?	Mexico	Health, Nutrition and Population	Education Poverty	<p>This IE examines the impact of “Addicted to Life,” an edutainment production designed to prevent the use of alcohol and drugs by young people. The study is the first large scale, randomized controlled trial investigating the effects of educational entertainment on substance use by young people. The evaluation also tests the effectiveness of two delivery modes: screenings in movie theaters and in schools.</p>

IE Title	Country	Global Practice	Sub-Theme	Summary
Neighborhood Gentrification and Development of the Private Sector	Mexico	Finance, Competitiveness and Innovation	Governance	This IE investigates the links between public sector infrastructure investment and private sector growth in urban environments by assessing the impacts of a randomized infrastructure investment in urban Mexican neighborhoods (2008-2010). It finds that residential infrastructure investment has a strong, positive effect on firm concentration, business investment, and profitability, and that these impacts grow over time.
Impact Evaluation of a Large-Scale Female Entrepreneurship Pilot in Mexico	Mexico	Jobs and Development	Finance, Competitiveness and Innovation	This IE measures the impact of Mujeres Moviendo Mexico, a program offering comprehensive business support for female microentrepreneurs in Mexico, based on the following outcomes: firm outcomes, innovation and the decision to continue or quit as an entrepreneur. These measures were evaluated for high-potential vs low-potential entrepreneurs.
Mexico's Payment for Environmental Services Scheme: A Retrospective Evaluation	Mexico	Environment and Natural Resources	Environment and Natural Resources	This IE measures the impact of payment for environmental services provided to communities in order to reduce deforestation and forest degradation. The study measures impacts on social capital, livelihoods, forest management activities at the community and household levels, and deforestation rates.
Promoting High Impact Entrepreneurship	Mexico	Macroeconomics, Trade and Investment	Finance, Competitiveness and Innovation	This IE assesses the impact of funding on start-up firms and scale-ups with high impact potential; as well as alternative methods to select applicants, specifically traditional reviewers vs. expert investors. The impact evaluation is based on the following outcomes: matching grant take-up, investment, sales, revenues, jobs created, increase in innovation, and investment received.
Land Conservation Payments Also Conserve Social Capital in Mexico	Mexico	Environment and Natural Resources	Social Protection	This IE assesses the impact of payment for environmental service on social capital outcomes. These included actions that indicate cooperation, investments that benefit the whole community, and attitudes demonstrating the foundations of social capital. The IE also examines institutional structures that support social capital, including the range of decisions made by the community assembly, and whether a wide variety of community members participate in decisions.
The Impact of Targeting Mechanisms on Efficiency and Equity of Irrigation in Mozambique	Mozambique	Agriculture	Water	This IE examines whether different approaches to selecting beneficiaries can reduce elite capture and result in more equitable distribution of benefits. It exploits exogenous variations in the composition of water user groups induced by random assignment to two targeting regimes in order to understand the causal relation between group composition and collective action over operation and maintenance of the schemes, and final impact on production.
Evaluation of the Maputo Infrastructure Corridor	Mozambique	Transport	Transport	This IE assesses the impact of rehabilitation of the Maputo Transport Corridor on the following outcomes: firm growth, investment, and regional growth.
Seeing Is Believing: Evidence from a Field Experiment in Rural Mozambique	Mozambique	Agriculture	Environment and Natural Resources	The IE examines the impact of extension training through lead farming, gender leadership, and performance-based incentives on the following outcomes: agricultural knowledge, adoption, perception.
Group Interventions for Agricultural Transformation in Mozambique	Mozambique	Agriculture	Water	This IE uses high frequency, crowd-sourced irrigation water usage data in combination with a quarterly agriculture production survey to develop personalized feedback on water use, timing of planting, and coordination within schemes to increase water efficiency and coordination and reduce conflict over water resources.
The Route for Development: Complementary Effects of Improved Roads and Agricultural Extension Services	Mozambique	Transport	Agriculture	This IE will measure the effect of a program of transport infrastructure improvements on agricultural intensification in rural Mozambique. It will leverage remote sensing data as well as advances in machine learning to measure changes in land use that would indicate agricultural intensification, such as predicted presence of irrigation, dry season NDVI, plot size and forest cover. This data will be complemented by high-frequency data on market prices and road quality.

IE Title	Country	Global Practice	Sub-Theme	Summary
Impact Evaluation of Farmer Field Schools in Mozambique	Mozambique	Agriculture	Social, Urban, Rural and Resilience	The IE seeks to assess the impact of the Farmer Field School (FFS) methodology of agricultural extension service provision by the UN's Food and Agriculture Organization (FAO) in Mozambique. The evaluation aims to understand and test different measures to strengthen the FFS model to disseminate information and empower farmers; and evaluate initiatives to overcome constraints faced by female community members to become FFS facilitators, The IE will also study the impact of facilitator gender on FFS outcomes.
Optimal Incentives for Adoption of Improved Agricultural Inputs	Mozambique	Agriculture	Social, Urban, Rural and Resilience	This IE aims to generate substantial evidence about the impact of the electronic voucher (e-voucher) subsidies for agricultural inputs offered by the UN's Food and Agriculture Organization (FAO) in Mozambique. It will assess the impact on the adoption of improved agricultural technologies and crop productivity, as well as exploring which types of farmers benefit most from e-vouchers in the short and long run. In order to maximize program and policy impact, the IE will test varying subsidy levels and technology compositions early on to inform program implementation in subsequent years.
Sunaula Hazar Din Community Action for Nutrition IE	Nepal	Health, Nutrition and Population	Social, Urban, Rural and Resilience	The IE assesses the impact of a community-driven development approach to provide health and nutrition projects to adolescent girls, pregnant women, and mothers of small children. The evaluation is based on the following outcomes: nutritional practices for mothers and pregnant women, and delayed marriage for adolescent girls.
Complementarities of Irrigation and Extension Services	Nepal	Water	Agriculture	This IE assesses the impact of the modernization of irrigation canals and agricultural extension on the adoption of promoted technology and yield. The extension training schedule was randomly assigned among eligible farmers groups to allow testing whether farmers groups that have the biggest expected changes from irrigation have the biggest responses to irrigation.
Evaluation of Agricultural and Food Security Project (AFSP)	Nepal	Agriculture	Health, Nutrition and Population	This IE examines the impact of agricultural technology adoption and dissemination of information on best-practice nutrition for children and pregnant women on the following outcomes: improved agricultural productivity and improved nutritional practices for mothers and pregnant women.
Do Matching Grants Create Agricultural Productivity: IE of the Project for Agriculture Commercialization and Trade (PACT) in Nepal	Nepal	Agriculture	Finance, Competitiveness and Innovation	Very often, individual firms are constrained by the lack of forward and backward linkages to other players in the market. By providing matching grants to groups of firms, this intervention tests the transformative nature of such a scheme and the multiplicative effect that bringing together actors within a value chain might have on medium-term business development.
Dedicated Energy Distribution Feeders Evaluation	Nepal	Energy	Environment and Natural Resources	The proposed research aims to advance global understanding of the relevance of reliability of energy access for economic growth and job creation. Specifically, it will examine the way hours of electricity supplied and hours of uninterrupted supply transform firm behavior and productivity. It will also analyze the extent to which the assumed industrial transformation translates into poverty eradication and shared prosperity.
Nepal's Export Incentive	Nepal	Macroeconomics, Trade and Investment	Finance, Competitiveness and Innovation	This IE examines the impact of a cash incentive scheme provided to exporters of 30 products, conditional on complying with a threshold of domestic value added, and exporting to countries other than India, based on the following outcomes: export growth in high value added products, diversification to markets other than India, and firm entry into exporting targeted products.

IE Title	Country	Global Practice	Sub-Theme	Summary
Food and Nutrition Security Enhancement Project	Nepal	Agriculture	Agriculture	The Food and Nutrition Security Enhancement Project (FANSEP) aims to improve agricultural productivity and food security of smallholder farmers in Nepal. The project forms Farmer Field Schools (FFS) to provide training on climate smart agricultural practices and livestock rearing, and to help farmers access key inputs. A randomized control trial measures the impact of FFS on farmers' learning, adoption of new agricultural practices, and ultimately their food security and income.
Increased Market Access IE	Nicaragua	Transport	Poverty Social Protection Finance, Competitiveness and Innovation	This pilot aims to improve access to existing financial infrastructure by facilitating the opening and operation of saving accounts at rural financial institutions. It is expected to contribute to developing an investment-enabling environment and to have broader effects on welfare, specifically labor market outcomes such as investment and diversification of productive activities, moving up the value chain, and reduction in underemployment.
Slow Down! Pilots to Decrease Speeding and Incidence of Fatal Traffic Accidents at Black Spots	Nicaragua	Transport	Health, Nutrition and Population	This IE will study the use of a cost-effective technology for decreasing driver speeds on dangerous sections of road. Specifically, it studies the effects of providing drivers with information on their speed through a digital speed sign, intensive policing, and a combination of the two, on driver speeds and accidents. It also aims to calculate how many lives were saved as a result of implementing proposed treatments.
Pilots to Increase Productivity and Empowerment Impacts of Remittances	Nicaragua	Poverty	Social Protection	Remittance inflows are large relative to GDP in Nicaragua, lifting thousands of people out of poverty every year. Remittances are typically sent by the male head of household to their spouse to finance daily consumption without much room for savings. We offer households a combination of mobile money savings accounts with digital remittance service and trainings aimed at facilitating joint decision-making on savings and investments. The IE tests the impacts of each of the components.
Enhancing Female Participation in Household Decision-Making for Improved Impacts of Rural Roads on Factor Accumulation and Productivity in Nicaragua	Nicaragua	Transport	Social Protection	This IE first follows a non-experimental approach to assess the economic effects of rural road infrastructure investments on women. It also conducts an experiment as part of the follow-up data collection round to capture intra-household decision-making.
Niger Forcibly Displaced Support Project Impact Evaluation	Niger	Social, Urban, Rural and Resilience	Social Protection	This IE aims to generate rigorous evidence on the welfare impacts of an entrepreneurship support package for forcibly displaced persons and host populations in a fragile context. It assesses the socio-economic and psychological impacts of an entrepreneurship support package that targets both forcibly displaced individuals in Niger and the communities hosting them. The study will focus on outcomes for program beneficiaries as well as community-wide effects.
Resilience in the Sahel–Niger	Niger	Social Protection	Social, Urban, Rural and Resilience	This IE aims to understand how integrated resilience programs can promote capacities to absorb shocks, adapt to risk, and transform livelihoods to help people exit poverty. Specifically, it aims to examine what combinations and sequences of interventions are most effective in building and strengthening resilience capacities related to food security, nutrition, health and education in Niger.
Enlisting Community Volunteers and Patent Medicine Vendors in the Fight Against Malaria	Nigeria	Health, Nutrition and Population	Jobs and Development	This IE measures the impact of a community-based anti-malaria intervention—training volunteers to provide malaria-related care to members of their extended families; and a private sector one—training and subsidized high-quality drugs to local medicine vendors known as patent medicine vendors—on the following outcomes: bed net use, access to malaria diagnosis and treatment, and incidence of malaria.

IE Title	Country	Global Practice	Sub-Theme	Summary
Nigeria Subsidy Reinvestment and Empowerment Program (SURE-P) Maternal and Child Health (MCH) Project IE	Nigeria	Health, Nutrition and Population	Governance Social Protection	This IE evaluates the impact of a comprehensive, supply side maternal health services program including increasing supply of midwives and other health workers, health facility infrastructure upgrades, and the provision of commodities. The primary outcomes from Nigeria's Subsidy Reinvestment and Empowerment Programme Maternal and Child Health Project, or SURE-P MCH, are antenatal care-seeking and skilled birth attendance.
Nigeria Subsidy Reinvestment and Empowerment Program (SURE-P) Maternal and Child Health (MCH) Midwife Incentives IE	Nigeria	Health, Nutrition and Population	Governance Social Protection	This IE assesses the impact of providing incentives to midwives to prevent attrition from their assigned health posts, including high-powered monetary incentives, non-monetary incentives, and both combined. The study finds that incentives in the form of a bonus payment are effective in improving retention. Results suggest that this is related to mechanisms including reciprocity and by changing the perception of what is socially acceptable.
Impact Assessment of Financial Literacy	Nigeria	Finance, Competitiveness and Innovation	Education	This IE examines the impact of a financial education movie and the opportunity to open a microsavings account on the following outcomes: perceptions, trust, intention to save/ borrow from formal institutions, and saving and borrowing behavior.
Mafita Skills Program: A Randomized Control Trial of Apprenticeship Schemes in Northern Nigeria	Nigeria	Social Protection	Jobs and Development	This IE measures the impact of the Mafita apprenticeship program in Northern Nigeria's Kano State. Young people trained with master craftspeople to develop trade-specific skills. The IE found the apprenticeship program had strong, positive effects on participants' employment, productivity, job search behaviors, and economic welfare. The study also found mixed evidence of impact on non-material outcomes, mainly positive outcomes on social networks and self-esteem for female participants. We did not find evidence of impact on crime and violence outcomes.
Quality Enhancement of Facility-Level Health Services	Nigeria	Health, Nutrition and Population	Social, Urban, Rural and Resilience	This IE measures the impact of a healthcare quality consulting program in Nigeria, studying the role of information, training, and supervision on the adoption of improved organizational practices.
Using Social Norm Marketing Campaigns to Increase Girls' Primary School Enrollment	Nigeria	Education	Education	This IE studies the effectiveness of community sensitization campaigns in changing attitudes and behaviors towards primary education in northern Nigeria. The campaigns are co-led by community leaders and female facilitators from NGOs. They use edutainment screenings produced by ImpactEd, formerly Discovery Learning Alliance.
Mafita Skills Programme: A Randomized Control Trial of Community Skills Development Centers (COSDECs) in Northern Nigeria	Nigeria	Social Protection	Jobs and Development Poverty Social, Urban, Rural and Resilience	This IE examines the impact of the Mafita COSDEC program in the Kduna and Katsina States. Young people were provided vocational and technical training aimed at developing trade specific skills through a classroom-based approach. The IE found the COSDEC program had strong and positive effects on participants' employment, productivity, entrepreneurship behaviors, and economic welfare. The study also found mixed evidence of impact on non-material outcomes, mainly positive outcomes on social networks and subjective well-being by female participants. We also found that the program improved attitudes towards female empowerment, both among participants and their caregivers. We did not find evidence of impact on crime and violence outcomes.
Using Mobile Games and Books to Improve Literacy in Northern Nigeria	Nigeria	Education	Finance, Competitiveness and Innovation	This IE studies the effect of literacy apps have in addition to a social norms campaign on gender-equality attitudes and literacy outcomes. The apps utilized were Feed the Monster and Global Digital Library, a game aimed at teaching how to read and an electronic library with hundreds of books translated into the local language, respectively. These apps are supported by multidonor initiatives.

IE Title	Country	Global Practice	Sub-Theme	Summary
Changing Norms and Behaviors through Entertainment TV: Impact Evaluation of the MTV Series Shuga	Nigeria	Health, Nutrition and Population	Health, Nutrition and Population	This IE measures the impact of community screenings of TV drama MTV Shuga on the following outcomes: knowledge, attitudes and behavior related to HIV/AIDS, and gender-based violence. The randomized control trial (RCT) also studied spillovers and, experimentally, the mediating factors of social norms and peer effects.
Growth and Employment IE	Nigeria	Finance, Competitiveness and Innovation	Jobs and Development	Many small firms lack the finance and marketing skills needed for growth. A standard approach is to train the entrepreneur in these skills. An alternative is to link firms to these skills in a marketplace through insourcing workers, or outsourcing tasks to professionals. This IE tests the relative effectiveness of these different approaches.
Efficiency of Informal Transit Networks: Evidence from Lagos, Nigeria	Nigeria	Transport	Social, Urban, Rural and Resilience	In collaboration with the Lagos State Authorities, this IE measures the impacts of the Bus Reform Initiative. This initiative covers the introduction of a new, formal bus system consisting of 820 high-capacity vehicles across 50 routes in the city of Lagos. The research project focuses on the reaction of an informal system to competition from an expanding formal system, and aims at providing policy-relevant research on an understudied area of urban transport economics.
SEE Trade Facilitation Impact Evaluation	North Macedonia Serbia Albania	Macroeconomics, Trade and Investment	Finance, Competitiveness and Innovation	This IE examines the impact of several interventions: <ul style="list-style-type: none"> • improvements of risk management procedures in technical-control agencies in Macedonia; • delays in customs examining following a substantial reform in customs experienced in the 2000s in Albania; and • the costs of delays in customs for the private sector in Serbia. The evaluation was based on the following outcomes: reduction in time to trade, effectiveness to detect non-compliance, changes in firm's behavior, changes in trade flows, and changes in the distribution of trade across firms.
Improving Bureaucratic Information in the Civil Service of Pakistan	Pakistan	Governance	Finance, Competitiveness and Innovation	This IE measures the impact of an ICT platform with virtual assessments of public sector schools. It seeks to understand the mechanisms through which the ICT network has impact, and what kinds of information are useful and likely to have the largest impacts.
Pakistan: Impact Evaluation of Biometric Identification Based Cash Transfers	Pakistan	Social Protection	Governance Poverty Transport	This IE examines the impacts of biometric verification systems (BVS) on early adopter districts using administrative data and a quasi-experimental approach. The evaluation estimates the broader impacts of BVS on efficiency, targeting, leakage, ease of access, and female empowerment using a phased-in, randomized controlled trial of the rollout of BVS in the remaining districts; and tests complementary solutions that could improve service delivery.
Carrots or Sticks: The Impact of Incentives and Monitoring on the Performance of Public Extension Staff	Pakistan	Poverty	Agriculture Governance Social Protection Social, Urban, Rural and Resilience	This IE measures the impact of performance-based incentives, with credible monitoring, on the following outcomes: extension staff outreach to farmers, and small farmers in particular; farmer feedback on extension staff availability and information quality; improvement in cropping practices, technology adoption and ultimately crop yields.
Evaluation of PPAF Partner Organizations: NRSP and MRDO [Using Inclusion and Governance Mandates to Increase Accountability in Participatory Development]	Pakistan	Governance	Finance, Competitiveness and Innovation	This IE evaluates the impact of women inclusion mandates and ratification in village-level grant management on the following outcomes: type and location of public goods built, attitudes and behaviors of women as leaders.

IE Title	Country	Global Practice	Sub-Theme	Summary
Understanding the Impacts of CAREC Corridor Investments in Pakistan on Connectivity and Local Economic Development	Pakistan	Transport	Social, Urban, Rural and Resilience	This IE examines the impact of economic corridors in Pakistan on regional integration, transport and logistic costs, firms and job creation, household welfare, and air quality. It addresses the distributional impacts of the investments within Pakistan, paying attention to regional inclusivity. It looks at the heterogenous effects of the road infrastructure projects for firms in sectors that produce goods with different sensitivity to transport costs and with different exposure to global trade.
Training Effective Altruism	Pakistan	Governance	Jobs and Development	Randomizing different schools of thought—via a 3 months-long training—finds that training deputy ministers in effective altruism renders 0.4-0.6 sigma greater altruism, cooperation, coordination, and teamwork. Trained ministers increased mentalizing of others, not only in strategic dilemmas measuring theory of mind, but also in the field: orphanage visits, volunteering in impoverished schools, and blood donations roughly double, noting that blood donations only increased when the blood bank requested their exact blood type. One year after training, amid official duties, ministers were 50-100% more likely to choose social policies and recommend over 4-fold additional funding for them.
Training Policymakers in Econometrics	Pakistan	Governance	Jobs and Development	This IE provides experimental evidence that training policymakers in the school of thought associated with the credibility revolution increases demand and responsiveness to causal evidence.
Effects of a Risk-Based Inspections System on Business Safety Conditions	Peru	Finance, Competitiveness and Innovation	Governance	This IE measures the impact of risk-based inspection systems on the following outcomes: compliance with regulation, the degree of building safety, the efficiency and quality of the system, and other firm-level outcomes such as production losses and compliance cost.
Impact Evaluation of Peruvian Support of the Subnational Transport Program Project	Peru	Transport	Agriculture Poverty Social, Urban, Rural and Resilience	This IE assesses the impact of rural road rehabilitation on the following outcomes: poverty, access to and use of basic services, access to jobs, reduction in local prices, health, education, and production.
Impact Evaluation of Legal Aid in Peru	Peru	Governance	Digital Development Poverty	Peru's Ministry of Justice, in cooperation with the World Bank, is revamping the legal aid services provided by Alegra Centers in Peru. These centers are responsible for providing free judicial advice and assistance to vulnerable populations throughout the country. This IE aims to leverage the data that these centers collect in order to improve the efficiency and quality of the service.
Improving Legal Training: The Impact of Social-Emotional Learning and Class Monitoring on Judicial Performance	Peru	Governance	Education	This IE works with the Judicial Academy of Peru, the organization responsible for delivering mandatory training to aspiring judges and prosecutors, as well as current professionals seeking to progress in their judicial career. It studies the impacts of monitoring teachers, social-emotional learning exercises on the work performance of judges and prosecutors, as well as on the outcomes of citizens and firms involved in judicial cases.
Effects of an Electronic Inspection System on Inspection and Inspector Performance	Peru	Finance, Competitiveness and Innovation	Digital Development Governance	This IE examines the effects of introducing electronic government inspections on inspector productivity, efficiency, and quality of inspections.
LWH Rural Finance Evaluation	Rwanda	Agriculture	Poverty	This IE evaluates the impact of innovative financial products designed to help farmers save for agricultural inputs (targeted savings and commitment savings) on the following outcomes: use of agricultural inputs, savings patterns, use of input credit, and household expenditures.

IE Title	Country	Global Practice	Sub-Theme	Summary
Land Husbandry, Water Harvesting and Hillside Irrigation Project (GAFSP, WB)	Rwanda	Agriculture	Water	The IE measures the impact of a large investment in agricultural productivity on land husbandry, water harvesting, and hillside irrigation in Rwanda, based on the following outcomes: agricultural income and commercialization, cropping pattern, and use of improved technologies.
DIME RWA Irrigation	Rwanda	Agriculture	Social, Urban, Rural and Resilience Water	This IE aims to measure the impact of irrigation on the following outcomes: gross and net agricultural yield, income, expenditure, migration, land transactions, irrigation fee collection, crop choice, sale of production, and time use. It also address the challenges in sustaining the returns to irrigation investments.
Impact Evaluation of Rwanda Rural Feeder Roads	Rwanda	Transport	Agriculture Social, Urban, Rural and Resilience	This IE measures the impact of investment in feeder roads on the following outcomes: household income and agricultural production, market prices, market structure, access to services, land transactions, and private sector development.
LWH One Acre Fund	Rwanda	Agriculture	Poverty	This IE examines the impact of various feedback tools to client farmers of a fee-based extension service provider, based on the following outcomes: farmers' attendance, interactions with the extension services, propensity to experience problems and the response to them, service perceptions, knowledge score, and take-up among existing and new members.
Lake Victoria Transport Program–Rwanda Corridor	Rwanda	Transport	Agriculture Social, Urban, Rural and Resilience	The IE studies the effects of the construction of the Ngoma-Nyanza Highway in Rwanda, a 130-kilometer section of road linking southern Rwanda with border crossings accessing Tanzania and the DRC. The southern corridor is currently unpaved and consequently services no long-range traffic. The spirit of the study is to leverage the government's investment in administrative data collection, complemented with surveys, to document the national impact of a large infrastructure program.
Leveraging Land Markets Towards Rural Transformation	Rwanda	Agriculture	Environment and Natural Resources Governance Social, Urban, Rural and Resilience	This IE investigates the role of land and labor markets in improving agricultural productivity, against the backdrop of large-scale irrigation investments in the agricultural ecosystem. A key component of the evaluation is understanding the role that social networks play in land and labor markets.
Impact Evaluation of the SAIP Project	Rwanda	Agriculture	Environment and Natural Resources Governance Social, Urban, Rural and Resilience	The IE examines the Sustainable Agricultural Intensification and Food Security Project (SAIP), and specifically investigates the roles of small scale irrigation technology and improved market access in improving agricultural productivity against the backdrop of large-scale irrigation investments in the agricultural ecosystem.
Gender and Cash Transfers IE Rwanda	Rwanda	Social Protection	Social, Urban, Rural and Resilience	International institutions increasingly favor the transfer of assistance to women in the household. This move is designed to empower women. However, there are reasons to believe that transferring additional assets and income to women might not achieve the desired effects. This IE will vary existing programmatic features of interventions in this space to see at what stage women's control can be most dramatically improved, and whether this translates into improved gender equality.
Relieving Capital Constraints for Rice Farmers–Warehouse Receipts System	Senegal	Finance, Competitiveness and Innovation	Social, Urban, Rural and Resilience Agriculture	This IE studies the effects of introducing a warehouse receipts system in Senegal's rice sector. Farmers' access to collateral and finance, agricultural sales, storage, and income were assessed. The findings suggest that the implementation of effective WRS warrants careful consideration of cost factors and expected price arbitrage opportunities to ensure farmers benefit.

IE Title	Country	Global Practice	Sub-Theme	Summary
The Speed of Justice: Pop-Up Reminders	Senegal	Macroeconomics, Trade and Investment	Governance Finance, Competitiveness and Innovation	This IE assesses the impact of a pop-up window reminder displaying a number of ongoing cases and their treatment duration to judges, based on the following outcomes: trial duration, split among steps in the legal chain, hearing-level decisions and actions, firm perception of the justice system, and firm outcomes.
Senegal Solar Lights Quality Assurance and Guarantee Impact Evaluation	Senegal	Energy	Energy	This IE seeks to overcome the problem of asymmetric information, which has been identified as a significant issue in the solar lighting market in rural Senegal. It aims to test different approaches to help consumers better assess quality solar lighting products. It includes providing households with direct information about product quality or a scheme offering the chance to purchase a solar lighting product with a money-back guarantee.
Group Incentives for the Public Good: A Field Experiment on Improving the URS/URL Environment	Senegal	Social, Urban, Rural and Resilience	Environment and Natural Resources Social Protection Water	This IE investigates the impact of an intervention that provides non-monetary incentives to local community-based organizations to improve and maintain the cleanliness of public spaces and drainage infrastructure in peri-urban Dakar. Results show that households in intervention areas were less affected by flooding after the rainy season, and that the intervention decreased illness due to flooding. This suggests that community engagement can be an important tool in resolving collective action problems in urban settings.
Senegal Behavior Change Campaign and Solar Light Evaluation	Senegal	Energy	Environment and Natural Resources	This IE evaluates the impact of a radio campaign, radio campaign in combination with community campaign, and provision of Pico PV lighting product, on the following outcomes: applications of the Pico PV unit, operation and maintenance knowledge, product recognition, quality perceptions, purchasing decisions, and benefits of pico-PV.
The Speed of Justice: 2013 Reform	Senegal	Macroeconomics, Trade and Investment	Finance, Competitiveness and Innovation Social Protection	This IE studies the impact of a procedural reform on the efficiency and quality of adjudication in Senegal. The reform gave judges the duty and powers to conclude pre-trial proceedings within a four-month deadline. The analysis found a reduction in procedural formalism, as the length of the pre-trial stage decreases and the number of case-level pre-trial hearings is reduced, while judges are more likely to impose deadlines.
Effects of Large Transportation Infrastructure Projects on Worker Well-Being	Senegal	Transport	Jobs and Development Social Protection	This IE examines the welfare of individuals employed to work on large infrastructure projects. Set in the context of a large, African city with a relatively high level of unemployment or employment informality, the findings will be relevant for future phases of the infrastructure expansion in Senegal and other developing countries.
Measuring and Enhancing Mobility in Dakar	Senegal	Transport	Social, Urban, Rural and Resilience	This IE will bring together different types of data to quantify the impact of large infrastructure projects in Dakar on a variety of important indicators such as urban mobility, commuting patterns, congestion, air quality, housing prices, gentrification, and road safety.
Quality Signaling and Consumer Demand for Renewable Energy in Senegal	Senegal	Energy	Energy	This IE tests approaches that help consumers in rural Senegal better distinguish quality differences between lighting products. It tests the importance of constraints to demand by providing consumers with the option to buy a high-quality solar lantern and combine this with either a third-party quality guarantee, a 2-year warranty to address durability uncertainty, or a money-back guarantee to address uncertainty in product utilization potential, and assessing how these interventions affect demand.
The Social Costs and Benefits of Infrastructure Construction: Air Pollution and Bus Rapid Transit (BRT) in Dakar	Senegal	Transport	Education Environment and Natural Resources Social, Urban, Rural and Resilience Transport	The IE will pilot a new data system collecting air quality data throughout the city over both the construction and operation phases of Bus Rapid Transit development. This will allow comprehensive measurement of the effects of building public transport infrastructure on air quality. In particular, it will focus on measuring anticipated pollution increases during construction and decreases during the operational phase.

IE Title	Country	Global Practice	Sub-Theme	Summary
Doing the Math on a Math and Science Program: South Africa's Dinaledi	South Africa	Education	Jobs and Development	The IE measures the impact of providing supplementary inputs, including teachers, training, textbooks and calculators, as well as close monitoring by the National Department of Education, on student achievement in secondary schools.
How Far Is Too Far? Relocating Households in the Eastern Cape	South Africa	Social, Urban, Rural and Resilience	Social Protection	The IE studies the impact of relocating households to fully serviced houses, based on the following outcomes: health, security, employment, social cohesion, time use, and satisfaction.
Improving Your Lot: Impact Evaluation of a Relocation Project in Limpopo, South Africa	South Africa	Social, Urban, Rural and Resilience	Social Protection	The IE studies the impact of relocating households to fully serviced houses, based on the following outcomes: health, security, employment, social cohesion, time use, and satisfaction.
Land Reform	South Africa	Agriculture	Governance	The IE examines the impact of land reform on socio-economic wellbeing.
Slum Electrification in Western Cape, South Africa	South Africa	Social, Urban, Rural and Resilience	Energy	This IE measures the impact of the provision of electricity to slum dwellers on the following outcomes: health, security, employment, social cohesion, time use, and satisfaction.
Stand and Deliver (More?): A Comparison Between Serviced Stands and Housing Top Structures in Free State, South Africa	South Africa	Social, Urban, Rural and Resilience	Poverty	This IE examines the impact of the provision of utilities, or top structures, to slum-dwellers on the following outcomes: health, security, employment, social cohesion, time use, and satisfaction.
World Food Programme (WFP) Resilience: South Sudan	South Sudan	Agriculture	Social, Urban, Rural and Resilience	This IE aims to understand how integrated resilience programs can support participants' capacity to absorb shocks, adapt to risk, and transform livelihoods to exit poverty. Specifically, it examines what combinations and sequences of interventions are most effective in building resilience capacities related to food security, nutrition, health, and education in South Sudan's urban and peri-urban settings.
International Interventions to Build Social Capital: Evidence from a Field Experiment in Sudan	Sudan	Social Protection	Social, Urban, Rural and Resilience	The IE studies the impact of block grants for communities with participatory decision-making over the use of funds, based on the following outcomes: trust, trustworthiness, and willingness to contribute to public goods. The study finds that the program did not affect either networks or norms, but civic participation and the participatory nature of local government increased. The increase in citizen participation is attributed to more open local governing institutions, rather than to the growth of social capital.
Impact Evaluation of E-Filing and an In-Depth Study of Risk-Based Audits in Tajikistan	Tajikistan	Macroeconomics, Trade and Investment	Governance	This IE studies the impact of adoption of electronic tax filing on the following outcomes: adoption, tax compliance costs, tax behavior of firms, and perceptions of corruption in tax administration.
Accelerated Food Security Project	Tanzania	Agriculture	Social, Urban, Rural and Resilience	The IE assesses the impact of a voucher system for fertilizers on agricultural productivity.
IE of an Urban Local Government Strengthening Program	Tanzania	Governance	Poverty	This IE studies the impact of performance targets for local government on service delivery performance.
Impact Evaluation of Scaling Up Handwashing and Sanitation Behavior Project in Rural Tanzania	Tanzania	Water	Health, Nutrition and Population	This IE measures the impact of a handwashing campaign and sanitation marketing on the following outcomes: child health and development (anthropometrics and hemoglobin levels), handwashing behavior, and latrine construction.

IE Title	Country	Global Practice	Sub-Theme	Summary
Impact Evaluation of Upgrading Community Infrastructure	Tanzania	Social, Urban, Rural and Resilience	Environment and Natural Resources	The IE examines the impact of community infrastructure upgrades in slums based on the following outcomes: health, security, employment, social cohesion, time use, and satisfaction.
Impact Evaluation of Emergency Response and Post-Crash Care in Tanzania	Tanzania	Transport	Health, Nutrition and Population Transport	This study aims to generate a dataset to evaluate the effectiveness of a pilot program aimed at reducing adverse health outcomes from road traffic crashes through increased quality of medical care at a future date. While some of the measures have been implemented in other contexts, there is scant evidence about the effectiveness of this specific combination of interventions, especially in a low income, high incidence setting such as Tanzania. The comprehensive data system that is developed can be used to understand trauma outcomes and care in Tanzania.
SMS Nudges to Improve Hygiene Behavior in Tanzania	Tanzania	Water	Health, Nutrition and Population	The association between hygiene, sanitation, and health is well documented, yet thousands of children die each year from exposure to contaminated fecal matter. At the same time, evidence on the effectiveness of behavior change interventions to improve sanitation and hygiene practices is limited. This IE consists of a series of randomized controlled trials embedded in SMS surveys, trialing different strategies to design behavior change campaigns.
Building a Supportive Environment for Operation and Maintenance in the Tanzanian Rural Water Supply Subsector	Tanzania	Governance	Water	This study conducts two evaluations around the Payment-by-Results (PbR) water project in Tanzania, both measured against rural water access as the outcome. First, it conducts an IE of "Maji Endelevu," which is a complementary intervention overlaid onto the wider PbR. "Maji Endelevu" aims to improve coproduction between water civil servants and village community organizations through repeat, action-learning consultations. Second, it conducts a performance evaluation of PbR itself, to feed learning into the project's iterative programming.
Experimental Evidence on Urban Transport and Mobility: Impact Evaluation of the Dar es Salaam BRT System	Tanzania	Transport	Macroeconomics, Trade and Investment Social, Urban, Rural and Resilience	The Dar es Salaam Bus Rapid Transit (BRT) system consists of six phases. This IE evaluates the economic impacts of Phase 1, focusing on access to jobs, markets, and services for the urban poor; changes in land value, rent, and access to amenities; and mode shift from private cars to public transport.
Tanzania Revenue Collection	Tanzania	Governance	Health, Nutrition and Population	This IE examines the impact of introducing an electronic taxation system and of nudges such as digital reminders to taxpayers to increase tax morale and subsequent tax payments on property tax compliance.
Understanding and Addressing Gender-Based Violence in Public Transportation in Dar es Salaam	Tanzania	Social, Urban, Rural and Resilience	Social, Urban, Rural and Resilience	<p>This IE seeks to:</p> <ul style="list-style-type: none"> • Develop a reliable gender-based violence measurement system that crowdsources data collection to document the nature and extent of GBV experienced by women at high-risk during their daily commute; • Test the reliability of this data reporting system; and • test interventions to incentivize reporting in crowdsourced GBV data. <p>The resulting data collection system will provide an evaluation tool for future public policies to address the problem.</p>
Tunisia Community Works and Local Participation (JSDF) Impact Evaluation	Tunisia	Social Protection	Social, Urban, Rural and Resilience	This IE measured the impact of a Labor Intensive Public Works Program for the long-term unemployed in Jendouba, Tunisia, based on the following outcomes: employment, productivity, income, consumption, human capital, assets, and credit resources. The IE found evidence of positive impacts on economic outcomes such as employment, expenditures, asset holdings, and savings. Among socio-psychological outcomes, the program improved participant wellbeing and civic engagement.

IE Title	Country	Global Practice	Sub-Theme	Summary
Enhancing Entrepreneurship of Vulnerable Women through Unconditional Cash Grants	Tunisia	Jobs and Development	Social Protection	This IE investigates the effects of offering unconditional cash grants to a random sample of female participants who participated in a Labor Intensive Public Works Project. It also offered gender dialogue sessions, where women could participate in the trainings with their male counterparts. The IE found that the cash grant intervention had no clear effect on participants' income generating activities. While there is some evidence that women who received the cash grant only (and not the gender dialogue component) are more likely to have an income generating activity, this effect is not observed for women who benefited from both the cash grant and the gender dialogue interventions. The cash grant intervention also did not have a measurable impact on indicators of women's autonomy and agency; however, the effect on life satisfaction was positive and statistically significant.
How Effective Is a Matching Grant in Promoting Export Competitiveness	Tunisia	Finance, Competitiveness and Innovation	Finance, Competitiveness and Innovation	This IE measures the impact of a matching grant and rebate scheme on firms' export performance, specifically on the following outcomes: product quality and diversification, destination of exports, job creation, firm's profitability, sales, and productivity.
Impact of Highway Upgrades on National Integration and Local Economic Development	Tunisia	Social, Urban, Rural and Resilience	Poverty Social Protection	This IE provides evidence on the impact of the highway improvements on local output, employment, and market access. That evidence adds to the existing literature on market access and local development, providing insight into the evolution of spatial disparities between hinterland and coastal areas. It gathers evidence of the impact of road upgrading and improved access to coastal cities on local output growth.
Evaluating the Permanence of Forest Conservation Following the End of Payments for Environmental Services	Uganda	Environment and Natural Resources	Environment and Natural Resources	This IE examines whether forests included under a payment for environmental services (PES) program remained conserved once payments ceased; and, if not, the rate and extent to which deforestation occurred. Secondly, it examines the extent to which the results vary among different sub-groups.
Social Protection, Governance and Fragility	Uganda	Social Protection	Finance, Competitiveness and Innovation Jobs and Development	This IE analyzes whether providing monitoring skills and encouraging the reporting of cases of mismanagement, as well as disseminating information on project performance, allows citizens to improve local development projects.
Coastal Resources for Sustainable Development (CRSD) Vietnam: Evaluation of Fisheries Co-Management	Vietnam	Environment and Natural Resources	Governance	This IE assesses the impact of the formation of community-based coastal fisheries co-management groups on the following outcomes: longevity, adherence to the co-management scheme, and uptake of sustainable fisheries practices.
Impact Evaluation of the Central Highlands Poverty Reduction Project in Vietnam	Vietnam	Social, Urban, Rural and Resilience	Poverty Social Protection	This IE measures the impact of the Central Highlands Poverty Reduction Project, which provides a package of local infrastructure and livelihood interventions. The study is based on the following outcomes: identified development priorities, access to services, quality of local infrastructure, objective and subjective economic wellbeing, and participation of marginalized groups in decision-making.
Vietnam: Results-Based Rural Water Supply and Sanitation Under the National Target Program: Impact Evaluation	Vietnam	Water	Social, Urban, Rural and Resilience	This IE induces random variation in the marginal price of piped water to estimate demand and thereby willingness-to-pay (WTP) for a piped water connection. WTP estimated from the experiment will be compared to household waiting times to obtain piped water connection; and WTP measure (Becker-DeGroot-Marshak) elicited from unconnected households at baseline.

IE Title	Country	Global Practice	Sub-Theme	Summary
Fostering Long-Term Savings	Zambia	Finance, Competitiveness and Innovation	Finance, Competitiveness and Innovation	This IE uses a text-messaging-based intervention to identify the behavioral barriers that lead to low engagement with formal financial services. It also test strategies to help people overcome those barriers to increase engagement and financial security. It provides the first evidence on the impact of conversational, two-way text messaging designed to encourage savings and loan repayment.
Reforming Village-Level Governance via Horizontal Pressure: Evidence from an Experiment in Zimbabwe	Zimbabwe	Governance	Finance, Competitiveness and Innovation	This IE examines the effectiveness of horizontal pressure from civil society leaders in reforming the local governance of village heads. Two different scenarios are compared: one in which a capacity building exercise is offered purely to village heads, and another in which civil society leaders are also present and involved in the sessions. The IE found evidence that horizontal pressure from CSO leaders can improve governance at the local level, including raising trust among citizens. The results offer evidence that horizontal pressure can serve as a mechanism for change in the absence of complementary pressures from above or below.

APPENDIX D

Publications

Journal Articles

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