# Mobilized Communities

## Impact Evaluation

Summary of Findings - Year 2

IDinsight

November 2025

## Mobility Poverty in Rural, Remote Communities

More than 3.1 billion people live in rural, isolated areas in low-income countries, and this problem is particularly pronounced in Africa, where 70% of the rural population lack access to reliable, safe, and affordable transportation.

Transportation challenges contribute to a myriad of negative socioeconomic outcomes. For instance, marginalized/vulnerable individuals without access to transportation may struggle to reach healthcare facilities, resulting in delayed treatment and worsened health outcomes.

Students may find it difficult to attend school regularly, which can hinder their educational progress and future employment prospects. Limited access to markets can restrict economic opportunities, perpetuating cycles of poverty.

To improve transportation options and associated socioeconomic outcomes for remote communities, governments have invested in a variety of large public works projects, including building new roads, bridges, railways, bus networks, and other types of infrastructure. However, these projects can be costly, and many of the most isolated communities are in countries with limited sources of domestic revenue and high levels of government debt that constrain further spending.

In such environments, a more targeted approach that increases mobility for the individuals and communities with the highest need may be the most cost-effective solution to reducing transportation poverty in the medium-term.

# World Bicycle Relief and the Mobilized Communities Program

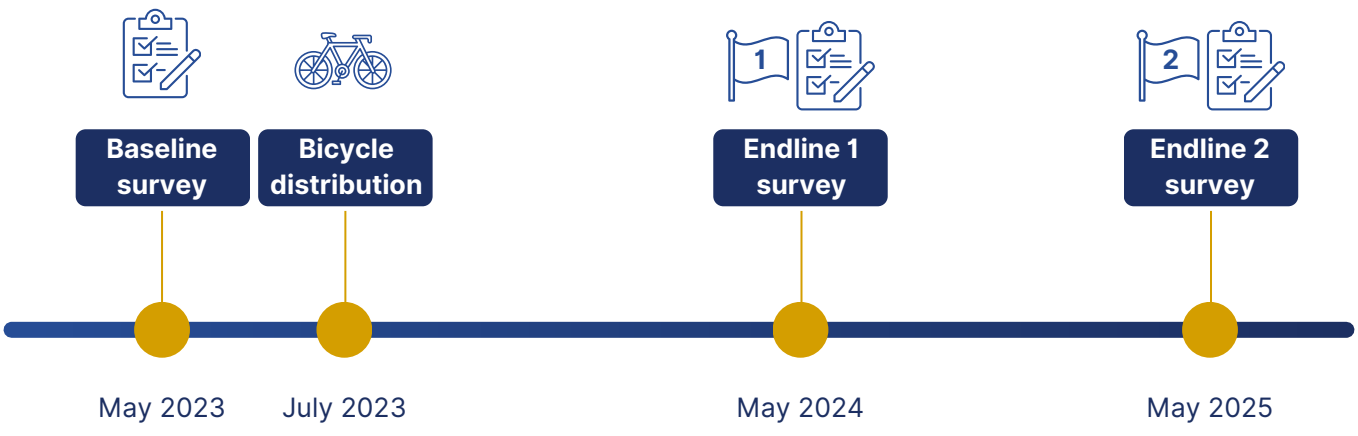
This study evaluates one such targeted approach involving distributing bicycles to vulnerable rural households. The Mobilized Communities program was implemented by World Bicycle Relief (WBR), a non-profit social enterprise that owns 100% of Buffalo Bicycle Limited with a retail network in Colombia, Kenya, Malawi, Uganda, Tanzania, Zambia, and Zimbabwe. WBR sells and donates Buffalo Bicycles to students, health workers, and entrepreneurs in low-income regions to expand access to education, markets, health facilities, and other vital services.

Prior studies of the effects on bicycle distribution have largely focused on educational outcomes. An RCT of WBR's education program in Zambia found that girls who were offered bicycles were 19% less likely to drop out of school, scored higher on a mathematics assessment test, were 29% less likely to be absent, and were 66% more likely to arrive at school on time (Fiala et al. 2022). A quasi-experimental evaluation of a similar bicycle program in India found similar effects (Muralidharan and Prakash, 2017). However, limited evidence exists on the economic effects of bicycle distribution to adults.

WBR has been operating in Zambia since 2007 and started implementing the Mobilized Communities (MC) program, which is the focus of this study, in Mumbwa District in 2021. The MC program aims to build sustainable bicycle ecosystems in rural communities to improve access to education, healthcare, and livelihoods, especially for women and girls. To date, 9,789 bicycles have been distributed in Mumbwa district as part of the MC program.

IDinsight partnered with WBR to conduct an impact evaluation to estimate the causal impact of the MC program on economic outcomes, including household consumption, income, savings, improved productivity, and empowerment measures. In the first year of the evaluation, Zambia experienced its worst drought in over four decades, and communities across the country faced a severe humanitarian crisis, with widespread crop failures and critical shortages in food. Mumbwa, where this study took place, was one of 27 significantly affected districts. Our evaluation sheds light on the potential for bicycles to protect or improve livelihoods in the context of extreme environmental and economic shocks. In the second year of the evaluation, 2025, our findings illustrate the sustainability and effects of bicycles in an economic recovery year.

### *Timeline of events for the MC program and the evaluation*

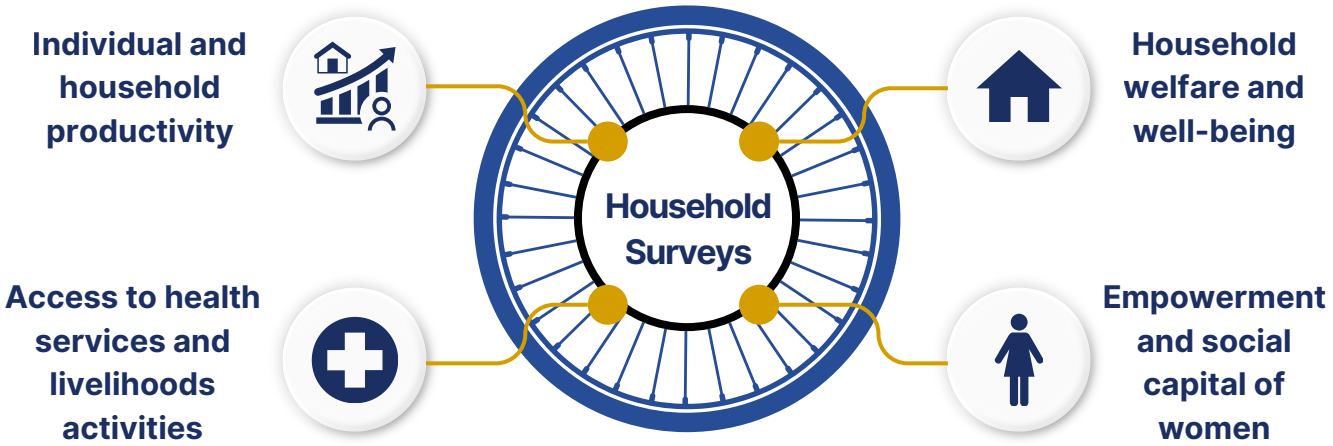


# Study Design

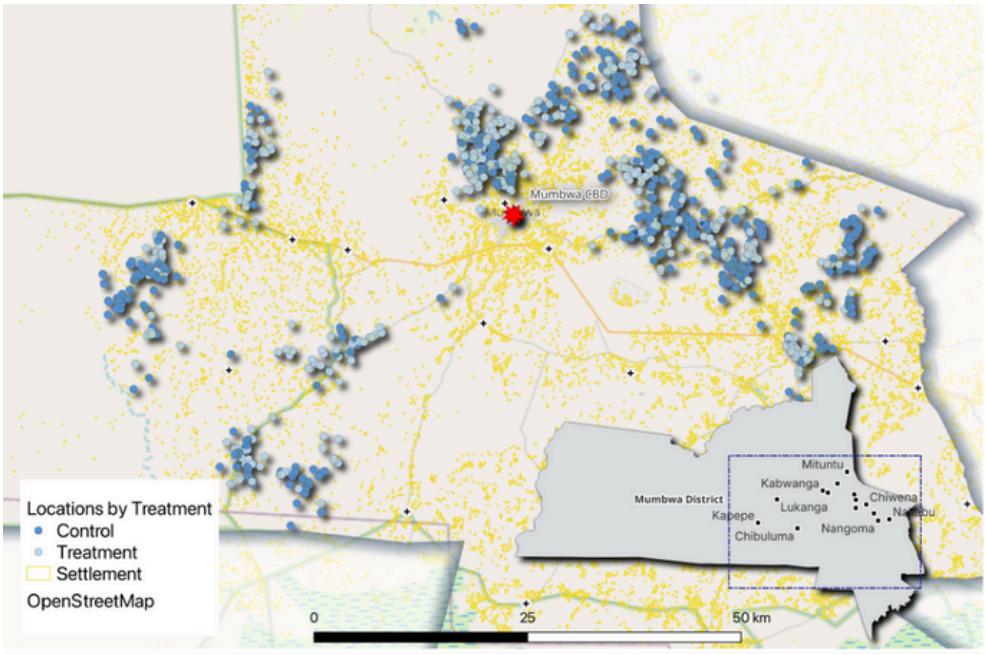
To estimate the impact of the MC program, we designed and conducted a randomized controlled trial (RCT) over two years. The study sample consisted of members of livelihoods groups (LGs) including village savings and loan associations, co-operatives, women's clubs, and youth clubs, as well as community service workers (CSWs) in the health, environment, and agriculture sectors. We randomized LGs and CSWs into treatment and control groups; 1,297 LG members from 120 LGs and 273 CSWs, or 1,570 respondents in total, participated in the study. Individuals in the treatment group received a bicycle in 2023, whereas individuals in the control group did not receive a bicycle. Control group program participants received bicycles after the completion of the study.

We conducted a baseline survey in May/June 2023, prior to bicycle distribution in July 2023. The first endline survey data was collected one year later, in May and June 2024, and the second round of data was collected two years later, in May and June 2025 to measure the program's outcomes and impact. We collected data on several outcomes, including:

## *Study Outcomes*



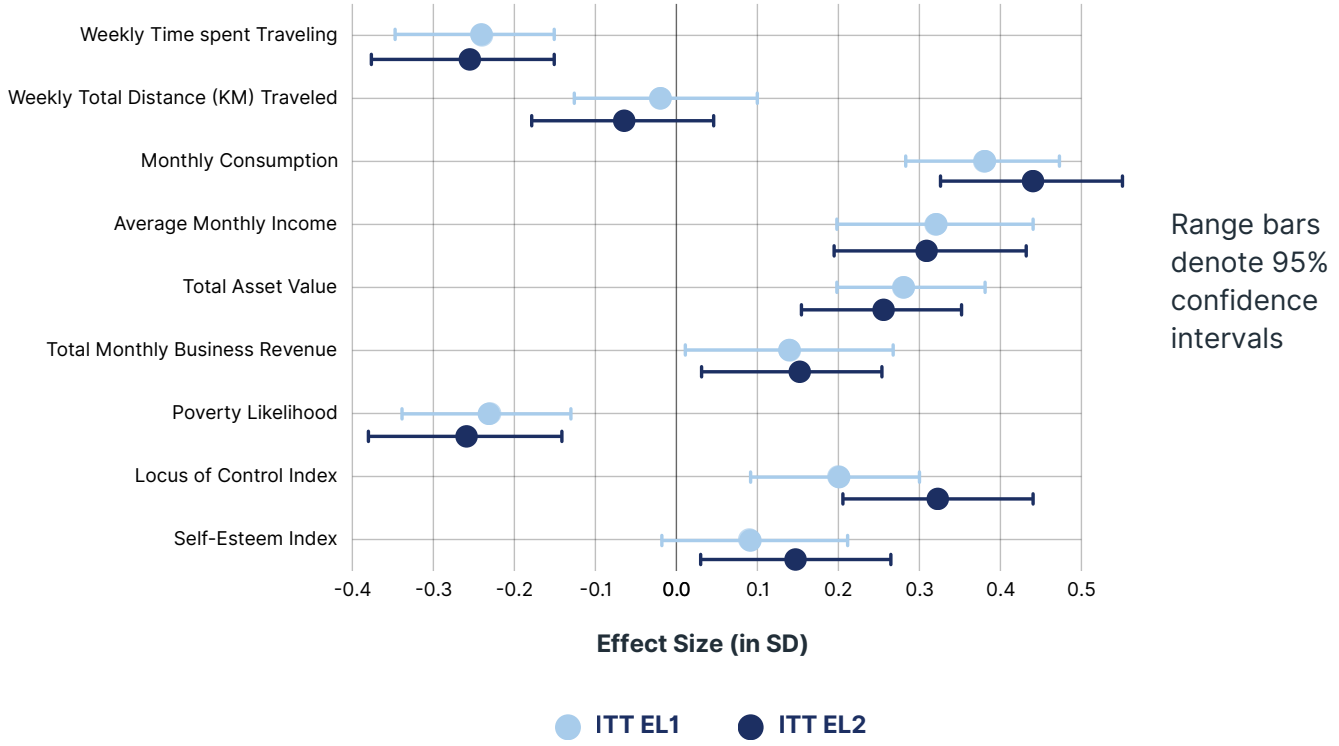

## *Map of Study Area*



# Overview of Results

Endline 1 in 2024 showed bicycles helped households maintain economic stability during Zambia's worst drought in decades. Endline 2 in 2025 reveals bicycles accelerate economic recovery, highlighting their dual role as resilient assets during crises and growth accelerators during recovery.

### *Standardized treatment effects on all main outcomes*




## Household Welfare

For Livelihood Group Members, bicycle access provided a buffer during the nationwide drought. Households that received bicycles reported **29% higher monthly consumption** (ZMW 1,190, $47) compared to those without at Endline 2, and helped them maintain living standards while others saw declines at Endline 1. Their **monthly income was 36% higher** (ZMW 743, $29), and they held **28% greater household assets** (ZMW 14,653, $575), demonstrating that bicycles not only protected welfare during the crisis but also supported asset accumulation for recovery.

Community Service Workers with bicycles reported **30% higher monthly consumption** (ZMW 1,326, $52) and a **77% higher monthly income** (ZMW 1,438, $56), reflecting how bicycles directly expanded earning opportunities during and after the drought. They also held **34% greater household assets** (ZMW 20,896, $820), underscoring how bicycles strengthened household resilience and accelerated long-term recovery.

Together, these results highlight the critical role of bicycles in sustaining household consumption during crisis conditions and in promoting both income growth and wealth-building in the years that follow.

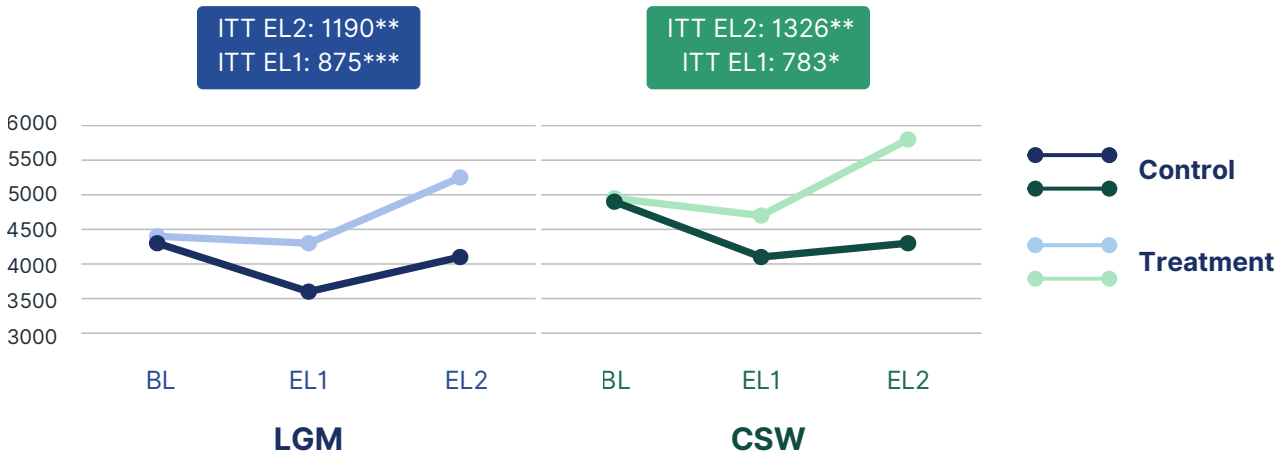
**For Livelihood Group Members:**

- **Y1:** 24% higher monthly consumption ($33) → **Y2: 29% higher monthly consumption ($47)**
- **Y1:** 49% higher monthly income ($24) → **Y2: 36% higher monthly income ($29)**

**For Community Service Workers:**

- **Y1:** 21% higher monthly consumption ($30) → **Y2: 30% higher monthly consumption ($52)**
- **Y1:** 12% higher monthly income ($7) → **Y2: 77% higher monthly income ($56)**

### *Treatment effect on monthly household consumption*

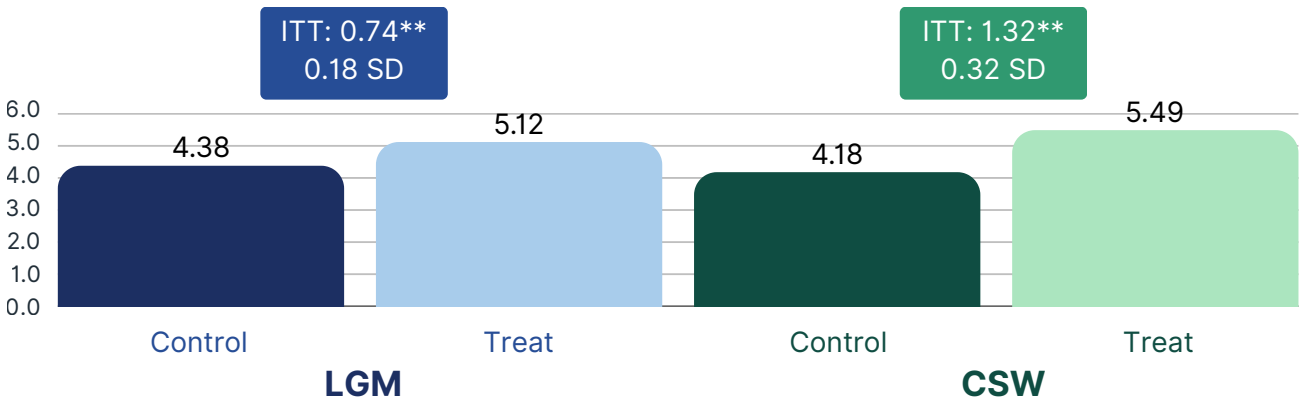



## Mobility and Time Use

Bicycle access also transformed how households used their time and moved around their communities. For LGM recipients, travel time was lower by 57 minutes per day, and time spent on productive work was 0.7 extra hours greater, which amounts to **4.4 hours over a 6-day work week**. Treatment LGM households earned ZMW 262 ($10, 28%) more in monthly business revenue.

These findings reflect the efficiency and convenience that bicycles brought compared to walking long distances as patterns of mobility shifted significantly. On average, bicycle recipients made **11 more bicycle trips per week** and **11 fewer walking trips**.

### *Hours spent on productive activities in the previous 24 hours*



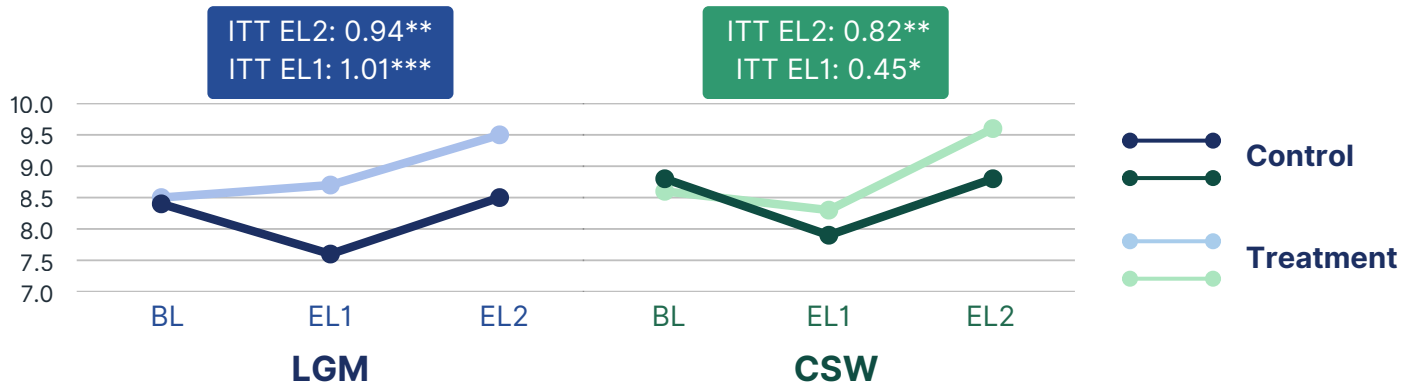

Treatment participants primarily redirected time savings toward income-generating activities, with LGMs focusing on business activities (+0.7 hours daily) and CSWs on farming and livestock (+1 hour daily).

## Food Security and Nutrition

Bicycle access also helped households eat better and stay food secure during and after the drought. LGM families who received bicycles sustained an **11% higher dietary diversity score at Endline 2 (compared to 13% at Endline 1)**, showing that they could afford a wider variety of foods. They also shifted toward higher-value foods like meat and fish, rather than relying mainly on cereals.

Treatment households are also **less likely to experience severe hunger**. Analysis using the Household Hunger Scale (HHS), which measures household food security levels focusing on food quantity (on a scale of 0-9, with higher scores indicating more severe hunger), shows that treatment LGM households have significantly lower (58%) HHS scores compared to control group LGM households.

### *Household Dietary Diversity Score*




## Community Service Workers

Bicycle access reshaped how CSWs delivered services and sustained their livelihoods. On average, CSWs with Buffalo Bicycles **transported six patients to health centers each month**, at Endline 2. By endline 2, they were **86% less likely to report lack of transportation as a challenge**, as well as long distances, lack of transport, high costs, and physical fatigue.

The impact of bicycles went beyond service delivery. In the first year, CSWs primarily used bicycles to reach and served 63% more households monthly than their control counterparts. By the second year, this pattern had shifted: bicycles continued to support service delivery, but they also became vital tools for **balancing client service with improved livelihoods**, allowing CSWs to engage in income-generating activities alongside their community roles.

## Wellbeing and Empowerment

Between Baseline, Endline 1 and Endline 2, participants experienced a significant improvement in overall well-being, with life satisfaction for households with bicycles increasing from 47% at Baseline, to 59% at Endline, and to 77% at Endline 2. Participants reported a stronger sense of agency and greater control over their life circumstances, reflecting enhanced empowerment. Women, in particular, saw a larger increase in locus of control and self-esteem indices compared to men, indicating meaningful gains in economic autonomy.

Importantly, these benefits were distributed equitably, reaching participants across different genders, age groups, and wealth levels, demonstrating the intervention's inclusive impact.

# Conclusion

Two years after distribution, Buffalo Bicycles continue to generate substantial economic and social benefits for recipients. The Buffalo bicycles have proven to be versatile assets that both protect households during economic shocks and accelerate growth during recovery.

These findings provide compelling evidence for scaling mobility through bicycles as a cost-effective intervention to reduce transportation barriers, improve household welfare, and strengthen community resilience in rural Zambia.

**Authors**
Frazer Bwalya: frazer.bwalya@IDinsight.org
Nakubyana Mungomba: nakubyana.mungomba@IDinsight.org
Jeff McManus: jeffery.mcmanus@IDinsight.org
Kashif Ahmed: kashif.ahmed@IDinsight.org*
Winnie Sambu: wsambu@worldbicyclerelief.org
*Corresponding author

**Acknowledgments**
We would like to thank World Bicycle Relief (WBR) for their commitment to realizing true social impact based on data and evidence; for coordinating and implementing the Mobilized Communities program, and for supporting all data collection activities.

We would also like to thank the Livelihood Impact Fund (LIF) for their generous financial support for the Mobilized Communities Impact Evaluation Endline II. Their timely partnership and dedication to generating rigorous evidence on cost-effective livelihood interventions made this follow-up study possible.

IDinsight

IDinsight is a non-profit, mission-driven global advisory, data analytics, and research organization that helps global development leaders maximize their social impact. We use a wide range of data and evidence tools, including randomized evaluations, monitoring services, and machine learning to help decision-makers design effective programs and rigorously test what works to support communities. IDinsight works with governments, multilateral agencies, foundations, and non-profit organizations in Asia and Africa. We work across a wide range of sectors, including agriculture, education, health, governance, sanitation, social protection, environment and financial inclusion.