

# Fingerprinting in Malawi: The Challenges of Scaling Up a Complicated Technological Solution in a Resource-Constrained Setting



Convincing lending institutions to provide credit to the poor can be a challenge given that poorer clients often have limited to no credit histories and are therefore deemed high risk. A pilot study in Malawi showed that using fingerprints as unique IDs to track credit histories increased repayment behavior of microfinance borrowers, holding promise as a way to help more poor borrowers access credit. With support from [USAID's Development Impact Ventures](#), researchers collaborated with lenders and a centralized credit data repository in Malawi to evaluate the impact of this approach prior to its transition to scale. The implementation of the scale-up faced many challenges and researchers saw relatively low adoption of fingerprint identification by local microfinance institutions. These results highlight the challenge of scaling up a complicated technology in a resource-constrained setting, and the broader importance of evaluating interventions beyond the pilot scale before expanding them to reach larger populations.



## The Challenge

Credit enables small-scale farmers and business owners in developing countries to finance crucial inputs such as fertilizer, improved seeds, and business assets, but in Sub-Saharan Africa, fewer than a quarter of adults have access to formal financial services<sup>1</sup>. Formal lenders may be discouraged from lending to the rural poor due to difficulties in ensuring repayment from borrowers who lack adequate collateral or verifiable credit histories. Obtaining reliable information on individual credit histories can be difficult in countries without unique identification systems, like social security numbers or government-issued photo identification. Borrowers can avoid sanction for past default by simply applying for new loans under different names

or from different institutions. When lenders are unable to sanction unreliable borrowers or reward reliable borrowers, they respond by limiting the supply of credit, which may hurt poor borrowers.

Malawi is a country facing this challenge, as few rural households have access to credit for business and agriculture. According to the International Monetary Fund only 11.7 percent of the population has access to loans and among these loans only 40.3 percent were from formal lenders<sup>2</sup>. In the [World Bank's Doing Business Report](#), which ranks countries on the ease of owning and operating a local business, Malawi ranked 109 out of 129 countries in terms of the supply of private credit.

<sup>1</sup> Demircug-Kunt, Asli, and Leora Klapper. Measuring financial inclusion: The global index database. The World Bank, 2012.

<sup>2</sup> International Monetary Fund. 2015. "Malawi: Selected Issues." IMF Staff Country Reports 15 (346): 1. <https://doi.org/10.5089/9781513522784.002>.

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### SECTOR

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### TOPICS

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## The Evidence

In rural Malawi, researchers evaluated the impact of using fingerprints as unique identifiers to track credit histories among rural farmers. [The evaluation](#), conducted from 2007-2008, found that fingerprints increased loan repayment by 40 percent among the riskiest borrowers. A rough cost-benefit analysis of the pilot suggested that benefits from improved repayment greatly outweighed the costs of biometric equipment and fingerprint collection, resulting in a benefit-cost ratio of 2.27. These findings were driven in part by the fact that fingerprints lead the riskiest borrowers to take out smaller loans, perhaps to be sure of their ability to repay. In contrast, fingerprinting had no impact on repayment for farmers with low default risk. Those who had their fingerprints taken also used more agricultural inputs and cultivated more land than their high-risk peers who did not have their fingerprints taken. The increased use of inputs may have also led to higher revenue and profits among fingerprinted farmers, but the estimates weren't precise enough for the researchers to make strong statements about the impact on revenue or profits. Still, the technology proved to be cost-effective for the lender, as the benefits (in terms of loan repayment) outweighed the costs by more than two to one.

These findings influenced Malawi's central bank to support the scale-up of the fingerprinting program nationwide. IPA partnered with the Malawi Microfinance Network, four microfinance institutions (MFIs), and two credit bureaus (Credit Data Malawi and CRB Africa) to expand the use of fingerprinting and introduce a fingerprint-based credit bureau that would enable information sharing across lenders. The evaluation was designed to capture roughly 50 percent of Malawi's microfinance borrowers.

From 2014-16, Development Innovation Ventures (DIV) at USAID funded an evaluation of the intervention as it transitioned to scale. The objective was to identify whether the positive effects found in the pilot could be sustained in a broader context. Despite the promising results of the original evaluation, the scale up faced many implementation challenges, including:

- » the commercial credit bureaus were not up and running yet (though legally established, they weren't operational at the time of the scale-up)<sup>3</sup>

- » the customized software for collecting fingerprints and integrating them with lenders' own management information systems was sometimes difficult to use; and
- » infrastructure challenges such as power outages or poor cellular data coverage made it hard for loan officers to connect to the central database in real time.

Despite providing technical solutions or work-arounds to these issues, researchers saw relatively low adoption of fingerprint identification by local microfinance institutions.

These technical challenges could have discouraged loan officers from collecting fingerprints. They also could have chosen to focus on other tasks that comprised their performance indicators, such as loan recovery rates, specified in their contracts. Also, while microfinance agencies keep records for individual borrowers, researchers learned that many only monitor repayment or default at a group level, and therefore loan officers did not see substantial advantages to collecting biometric data for individuals.

## Learning and Insights

While weak or null results can be disappointing, particularly after positive pilot results, this research highlights the importance of evaluating promising interventions at larger scale, where implementation, intensity, and fidelity can change, and "real-world" challenges can emerge. Further, it shows the importance of defining the conditions or factors required for successful implementation before expanding funding to reach even larger populations of people. This case also emphasizes the challenge of implementing a complicated technology in a resource-constrained setting.

Efforts to incorporate fingerprinting directly into credit records ended with this project, as Malawi established a national biometric ID project in 2017. Public and private sector organizations are slowly incorporating those IDs into their own systems, and the Reserve Bank has directed that the national IDs are to be used to follow Know Your Customer guidelines for new account openings.

<sup>3</sup>While the credit bureaus had been established and were legally authorized to operate, in practice they were not functioning and were involved in contentious disputes with each other. Read more [here](#) and [here](#).

