PILOT STUDY SUMMARY

Marginal Rates of Substitution, Technology Adoption, and Welfare: Evidence from a Savings Experiment in Kenya

This pilot study was funded in Fall 2016 through CEGA's Financial Inclusion Lab (FIL), in an effort to seed promising new research on digital financial inclusion.

Policy Issue

In low-income countries, digitizing government-to-person (G2P) payments is one promising way to promote financial inclusion. Although allowing beneficiaries to save a portion of their benefits—or borrow against future benefits—is relatively easy, understanding the financial inclusion impacts of these products is hard. In order to estimate the welfare a given household derives from having access to a financial technology, researchers must understand that household's willingness to substitute income in one time period for income in another time period (otherwise known as their "inter-temporal marginal rate of substitution, or IMRS"), as well as their take-up of the technology.

Traditionally, researchers have relied on household surveys to elicit IMRS and other financial inclusion outcomes. However, this approach is time consuming, expensive, and often does not translate well to other contexts. Incidentally, many new financial technologies allow the sale or purchase of income in future periods at a fixed price via mobile phones (for example, using the M-Pesa platform in Kenya). With mobile money, measuring take-up and use of financial products can be done easily by observing digital transactions data. If IMRS can also be elicited using mobile phones, this method could drastically increase the speed and precision of financial inclusion measurements in low-income settings.

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COUNTRY

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PROGRAM AREA

Digital Financial Inclusion

TOPICS

Commitment savings accounts

TIMELINE

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FUNDING AMOUNT

$20,000

Project Summary

This pilot study tested the efficacy of a mobile phone-based method for estimating the welfare impacts of digital financial technologies. Naturally, its success hinges on the assumption that IMRS solicited through mobile phones is consistent with actual financial behavior. To test this, researchers provided 350 households in Nairobi with access to mobile phone-based savings accounts with different monthly interest rates (-3%, 0%, and 20%) and observed financial behavior over a period of 8 weeks. At the same time, they offered a single cash transfer in the amount of 8,000 KES (or 80 USD) to a random subset of 140 households. During the study, researchers measured participants' IMRS by conducting "money earlier or later (MEL)" games (common in behavioral economics), where households are asked about hypothetical tradeoffs between receiving money today versus receiving

money in the future. In the final week of the study, interest payouts were made into participants' savings accounts, and a final phone survey was administered to understand the experience and savings decisions of each during the 10-week period.

Early Results

Results from this pilot were surprising: researchers found almost no correlation between reported IMRS and actual savings behavior. Further, households appeared to respond much less to interest rates than was expected. While households generally responded to increases in interest rates by increasing the amount they deposited in their commitment savings account, whether or not the households saved at all was unaffected. Interestingly, households offered the -3% monthly interest rate were more likely to deposit into their savings account than those households offered the 0% monthly interest rate (the research team believes this was because during onboarding for the savings product, households offered the -3% interest rate were more likely to ask questions, thus increasing their familiarity with the product.

Policy Relevance

Numerous factors contribute to households' decisions about whether, when and how much to save and borrow. In low-income settings, identifying a simple and reliable way to understand how households value financial products is critical to advancing financial inclusion. Unfortunately, traditional approaches to measuring people's willingness to substitute income in one time period for income in another time period, or IMRS (both in a lab setting and over the phone) did not work well in the context of this pilot study. Several outstanding questions remain, including: *is there a problem with how MEL games are conducted? Is there something fundamentally wrong with using the neoclassical model of supply and demand for understanding savings and borrowing decisions? What are promising alternative approaches to measuring welfare gains that do not depend on precise and/or accurate measurements of IMRS?*

Next Steps

As a next step, the research team will use the method for eliciting IMRS described above to conduct a reanalysis of two other experiments measuring the welfare impacts of improved access to savings or credit. Due to the inconsistencies found in this pilot between reported IMRS and actual financial behavior, researchers hope to test a set of alternative approaches in the future.