The hidden cost of crime: Tanzanians pay as much as 7 percent to protect money from theft

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Credit: Institute for Operations Research and the Management Sciences

"Mobile money," a checking account attached to a mobile phone number, has revolutionized the financial lives of millions of people in many developing countries without access to a banking infrastructure. Using text messages or apps on consumer phones and in partnership with mom-and-pop retailers, who serve as cash-in and cash-out points, telecom companies have created an accessbile and cost-effective virtual banking infrastructure in many developing countries.

While sending money to others is often seen as the primary value arising from mobile money, a forthcoming study in the INFORMS journal *Marketing Science*, a leading scholarly marketing publication, shows that in developing countries, mobile money provides another important source of value - a form of theft insurance by protecting cash from street robberies and stealing by relatives or burglars at home.

The study "Mobile Money in Tanzania" is co-authored by Nicholas Economides of the Stern School of Business at New York University and Przemyslaw Jeziorski of the Haas School of Business at University of California, Berkeley. The authors study the transaction behavior of over 1.4 million customers of Tigo, the second largest Tanzanian mobile service provider and their change in transaction behavior due to a price change.

The authors find that more than 35 percent of funds entering the network did not involve transfers or exchanges across people. These transactions fell into two types. The first type was short-duration transactions that are cashed in and out within a couple of hours, and the distance between cashing in and out is between 5 and 6 km. Here, mobile money was simply being used to transport money for short distances. The second type of transaction had cash stay longer within the network - usually a few days - but it was cashed out pretty close to where it was originally deposited. This suggests that people were using it merely for storing cash for a few days.

"If these were costless, such transactions may be easy to understand. But what surprised us was that cash-out costs are about 7 percent. This means that that the poor people of Tanzania are willing to pay Tigo as much as 7 percent to avoid being robbed when transporting money or just to store cash at home safe from relatives or burglars. Surprisingly, mobile money is seen as theft insurance by folks," Jeziorski noted.

The authors estimated how much consumers are willing to pay for a kilometer of money transportation or for a day of storage based on the response to a price change. In urban Tanzania, they found that consumers were willing to spend an average of 1.52 percent of value per kilometer of transport and about 0.8 percent per day for storage.

The authors draw implications for how the mobile money provider should price the service given these insights. But the bigger wakeup call may be for the government and policy makers in developing countries. Economides notes, "Our discovery that people in Tanzania pay about 7 percent to transport money for a few kilometers or even simply store money for a few days shows the hidden costs of crime on an economy. Clearly, mobile money has offered these consumers a new way to protect money, but our surprisingly high estimate tells us how important it is that governments focus on reducing crime to help expand the economy."

Provided by Institute for Operations Research and the Management Sciences

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