Policy brief
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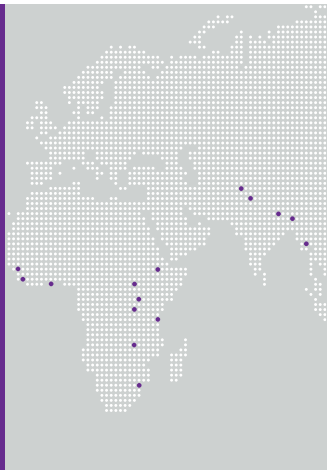
Marcel Fafchamps, Joshua Blumenstock and Nathan Eagle

International Growth Centre

Social Networks, Phone Money Transfers and Shocks

Evidence from Rwanda



In brief

- Mobile phones are revolutionizing the way developing countries operate, especially in sub-Saharan Africa. In addition to facilitating communication, mobile phones have also opened the door to numerous innovations, the most radical of which is the introduction of mobile banking.

- This research project, drawing on evidence from Rwanda, investigates whether phone-to-phone airtime transfers can help people deal with large shocks.

Key findings:

- **Phone-to-phone airtime transfers can help people deal with large shocks**
  There was a significant increase in airtime transfers to regions of Rwanda affected by earthquake or flood. The increase was immediate (within 48 hours of the shock). Given that Rwandans use pay-as-you-go and keep minimal airtime balances, the transfers probably helped individuals seek emergency assistance and assist friends and relatives.

- **Only a small proportion of affected individuals currently benefit from such transfers**
  The airtime transfers were from private individuals. A small proportion of affected individuals benefitted. We recommend setting up an emergency procedure whereby, in the aftermath of a major disaster, a small amount of airtime or mobile money is sent automatically to all phone numbers associated with cell towers in the affected area. An emergency assistance system must be set up in collaboration with phone providers.

- **For phone service providers to undertake the required action, a formal agreement must exist between the government, or a third party, and phone service providers**
  A structure of guarantees and compensations, bringing in government, NGOs and other actors, is recommended to support collaboration.

Policy Motivation

Mobile phones are revolutionizing the way developing countries operate, especially in sub-Saharan Africa where land line telephones never reached a sizeable proportion of the population. In addition to facilitating communication, mobile phones have also opened the door to numerous innovations, the most radical of which is the introduction of mobile banking.

Project Summary

"Mobile phones have opened the door to numerous innovations, the most radical of which is the introduction of mobile banking"

This research project investigates whether phone-to-phone airtime transfers can help people deal with large shocks. Airtime transfers are the immediate predecessor to mobile banking. We show that there was a significant increase in airtime transfers to regions of Rwanda affected by earthquake or flood. The increase in transfers was immediate – i.e., within 48 hours of the shock. Given that people in Rwanda use pay-as-you-go and keep minimal airtime balances, the transfers probably helped affected individuals seek emergency assistance and assist friends and relatives. Airtime could also be redeemed against money at a time when local banks were disrupted and cash was needed for food and shelter.

Project Findings

The airtime transfers we document were from private individuals. Only a small proportion of affected individuals benefitted from them. We therefore recommend setting up an emergency procedure whereby, in the immediate aftermath of a major disaster, a small amount of airtime or mobile money would be sent automatically to all phone numbers associated with cell towers in the affected area. For this to be possible, an emergency assistance system must be anticipatively set up in collaboration with phone providers.

The emergency system we propose would work as follows:

"We show that there was a significant increase in airtime transfers to regions of Rwanda affected by earthquake or flood. The increase in transfers was immediate"

- Following a major disaster (earthquake, tsunami, hurricane/typhoon/cyclone, flood, fire, avalanche, mud flow, volcano eruption, nuclear evacuation), the government would declare an emergency and clearly identify the affected region. This information would be immediately relayed to phone service providers according to a pre-defined protocol.
- This would automatically trigger a transfer, by phone service providers, of a pre-agreed amount of mobile money to phone numbers in the affected region. If the country's regulation does not allow mobile money, an equivalent amount of phone airtime would be transferred. (In an emergency, airtime can become a temporary currency as long as it can be transferred from phone to phone.)

Implementation

For phone service providers to agree to undertake the required action, a formal agreement must exist between the government (or a third party) and phone service providers to:

- Guarantee a refund for emergency transfers of airtime or mobile money. This can be organized in various ways, e.g., as an insurance policy guaranteed by the government, a development agency, or an NGO. In case the government is unwilling or unable to participate, a donor or NGO could substitute itself to the government to declare emergencies and guarantee the insurance policy for phone service providers.
- Compensate phone service providers for setting up emergency procedures so that they can respond immediately to a call for emergency transfers of airtime or mobile money. We expect this to be a one-off setup cost.
- Compensate phone service providers for monitoring the recent geographical (cell tower) location of phone numbers and keeping an up-to-date list of phone numbers operating in various parts of the country. We expect this to be a recurrent expenditure that increases as mobile phone coverage increases.

"Our proposal should save lives in a simple and cost effective way by enabling people to call for help if trapped under collapsed buildings or surrounded by water. It should help emergency services function and locate individuals needing assistance"

This study is relevant for all countries where phone users use a pay-as-you-go system, and is thus particularly relevant for all developing countries and for parts of the world affected by earthquakes and tsunamis. Our proposal should save lives in a simple and cost effective way by enabling people to call for help if trapped under collapsed buildings or surrounded by water. It should help emergency services function and locate individuals needing assistance. Mobile money, if allowed by the country's regulation, should also help overcome disruptions to local banks and cash dispensers and thus enable people to pay for clean water, food, shelter, and medical assistance. The policy can be seen as a way to palliate the worst effects of global warming, which is expected to trigger more extreme weather events such as hurricanes and floods.

Further Reading

"Mobile Divides: Gender, Socioeconomic Status, and Mobile Phone Use in Rwanda", Joshua Blumenstock and Nathan Eagle, UC Berkeley (mimeograph)

About the authors

Marcel Fafchamps is a Senior Fellow at the Freeman Spogli Institute for International Studies (FSI) and a member of the Center on Democracy, Development and the Rule of Law. Fafchamps is a professor (by courtesy) for the Department of Economics at Stanford University. His research interest includes economic development, market institutions and social networks. His current research focuses on entrepreneurship, factor markets, and the efficiency of social networks in Africa and South Asia. Fafchamps was previously a Professor of Development Economics for the at Oxford University, and has served as Deputy Director and then Co-Director of the Center for the Study of African Economies. Fafchamps has held positions at Harvard University, Stanford University and the World Bank.

Joshua Blumenstock is an Assistant Professor at The Information School, Adjunct Assistant Professor in the Computer Science and Engineering Department, and Director of the Data Science and Analytics Lab at the University of Washington. His work focuses on the economic and social impacts of new technologies, and the development of new methods for the quantitative analysis of massive, spatio-temporal network data. Most of this work is based in developing and conflict-affected countries.

Nathan Eagle is an Adjunct Assistant Professor of Epidemiology at Harvard University. His research involves engineering computational tools, designed to explore how the petabytes of data generated about human movements, financial transactions, and communication patterns can be used for social good.

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enquiries, please contact
mail@theigc.org

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International Growth Centre,
London School of Economic
and Political Science,
Houghton Street,
London WC2A 2AE

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