Making Networks Work for Policy: Evidence from Agricultural Technology Adoption in Malawi

Researchers:

Lori Beaman

Ariel BenYishay

Jeremy Magruder

Mushfiq Mobarak

Sector(s): Agriculture

Fieldwork: Innovations for Poverty Action (IPA)

Location: Malawi

Sample: 200 villages

Initiative(s): Agricultural Technology Adoption Initiative (ATAI)

Target group: Farmers

Outcome of interest: Technology adoption

Intervention type: Fertilizer and agricultural inputs Information Social networks

AEA RCT registration number: AEARCTR-0002017

Données: ICPSR

Research Papers: Can Network Theory-Based Targeting Increase Technology Adoption?

Partner organization(s): Malawi Ministry of Agriculture and Food Security

Policy issue

Crop yields in developing countries are often many times lower than those that could be achieved using readily available technologies and farming techniques, and food security can be a serious problem. Agricultural incomes and food security can depend on farmer adoption of these tools and techniques. Despite a long-standing awareness that adoption of agricultural technologies is low, and that information on using new technology can flow through social networks, there has been little research on how best to harness social networks to promote technology adoption.

Context of the evaluation

Agriculture is central to Malawi's economy and national life, comprising 36% of its GDP[1], and occupying more than 80% of its workforce[2], . Tobacco is the leading export crop, followed by tea, sugar and cotton. The staple food crops are maize, cassava and millet, grown by smallholder farmers mostly at the subsistence level. Most rural families have too little land to produce sufficient food and too little income to buy extra. According to some reports, a quarter of the population runs out of food only five months after the harvest[3].



Rural community in Malawi.

Photo credit: Shutterstock.com

Details of the intervention

This study is a follow-up to Promoting Sustainable Farming Practices in Malawi. In partnership with the Malawi Ministry of Agriculture and Food Security, researchers investigated how social networks can be used to overcome information barriers that may prevent farmers from adopting profitable technologies. The project will promote pit planting, a method of planting that has been shown to increase agricultural productivity in many regions of Africa. Malawi has a widespread system of agricultural extension workers to spread information about agricultural methods and technologies. In this evaluation, well-connected "seed" farmers are partnered with agricultural extension workers to promote adoption of the pit planting technology.

Using a social network census, researchers identified individuals in the community who would be the most effective "seed" farmers based on their positions in their village networks. Which farmers are optimal depends on how much exposure to information is needed to motivate adoption. Villages are randomly divided into one of several treatment groups, with comparison villages receiving the existing extension practices in Malawi.

The first treatment group ("simple contagion") will utilize four "seed" farmers from within the village, who have the greatest number of social contacts. The second group ("complex contagion") will select "seed" farmers based on connections to other "seed" farmers. A third treatment group will use geographic location within the village to proxy the social network and mimic the "complex contagion group", assuming that the network is perfectly correlated with geography. Comparisons of treatment and comparison villages will estimate the potential of social networks to enhance technology adoption, and whether extension efforts

need to allow for multiple information sources.

Results and policy lessons

Results forthcoming.

[1], US Department of State, Bureau of African Affairs. “Background Note: Malawi.” January 11, 2011

[2], World Vision. “Country Profile: Malawi.” http://worldvision.com.au/Libraries/3_1_2_Country_Profiles_-_Africa/Malawi.sflb.ashx

[3] ibid

Beaman, Lori, Ariel BenYishay, Jeremy Magruder, and Ahmed Mushfiq Mobarak. “Can Network Theory based Targeting Increase Technology Adoption?” Working Paper, November 2014. (DO NOT UPLOAD TO WEBSITE)