Gender Gaps in the Diffusion of Agricultural Technology in Malawi

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Sector(s): Agriculture, Gender

Location: 8 districts across Malawi (Rumphi, Neno, Chikwawa, Balaka, Zomba, Mchinji, Dedza, and Mzimba districts)

Sample: 143 maize farming communities

Research Papers: Gender gaps in technology diffusion

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

While increasing the use of technology might improve agricultural productivity, male farmers might be unwilling to learn about agricultural technology from female counterparts due to gender discrimination. Researchers studied the impact of the gender of communicators on the effects of a program to train farmers to communicate information on agricultural technology to other farmers. While there was no gender gap in communicators' ability to acquire, retain, and use the information about the technology, other farmers were less willing to learn from female communicators. In spite of this, other farmers learned just as much about the technology and experienced similar farm yields when the communicator role was reserved for women.

Policy issue

Agricultural yields have remained low in Sub-Saharan Africa over the last 40 years relative to the rest of the world. Low adoption of productive technologies is considered to be a major reason for low agricultural productivity. Given that women's participation in farming tasks is common in Africa, understanding the role of gender discrimination in the adoption and diffusion of a new agricultural technology is important. Farmers might be less receptive to information provided by female counterparts, which might affect their adoption of a technology, and in turn, their agricultural yield.

To be successful in many jobs, women must rely on or interact with male (or female) colleagues. In such situations, equally able women may underperform relative to men due to several factors, including lack of cooperation from colleagues and discriminatory gender norms and attitudes.

When farmers are educated on new technologies, is there a gender gap in their ability to acquire, retain, and use this information? Further, are male farmers less willing to learn from female counterparts, and does this affect their agricultural productivity?

Context of the evaluation

Malawi is predominantly agricultural, and 85 percent of the population lives in rural areas. More than half of the rural population in Malawi was classified as poor in 2011. Maize is the primary staple food in Malawi, and 48 percent of the maize farms in the study area were cultivated by women.

Information deficiencies are a key challenge that hinder the adoption of agricultural technology to increase yield. As part of the country's decentralized agriculture extension system, an Agricultural Extension Development Officer (AEDO) in each agrarian area is responsible for providing information on agricultural technologies to an average of 1,465 households. AEDOs are typically male: on average, there were eight male AEDOs to every female AEDO between 2005 to 2010.

To extend the reach of the extension system, the Ministry of Agriculture appointed "lead farmers" who could communicate information on agricultural practices to their neighbors. These lead farmers were more likely to be men, and given that a large proportion of the maize farms were cultivated by women, involving more women in the communication strategy could encourage technology adoption.

Researchers partnered with the Ministry of Agriculture and Food Security (MoAFS) in Malawi to conduct a randomized evaluation to study the impact of a training and communication program on adoption of agricultural technology and agricultural yield. Researchers also examined gender gaps in the ability to acquire, retain, use, and communicate knowledge about agricultural technologies

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Details of the intervention

Out of a set of 143 villages, 95 were randomly selected to receive the training and communications program, and the rest formed the comparison group. In each of the villages that received the program, researchers selected a few residents to be agricultural extension partners, or "communicators." Communicators were well-integrated individuals chosen in conjunction with the community. Out of the 95 villages that received the program, in a randomly selected set of 48 villages, researchers reserved the role of communicator for women. In the remaining 47 villages, the role of communicator was open to men and women. The chosen communicators (1) received a training program on an agricultural technology, which they could use on their farms, and (2) were assigned the task of communicating this knowledge to other (non-communicator) farmers. The program promoted yield-enhancing conservation farming technologies which did not, by themselves, provide additional benefits to one gender over

another.

In villages that were part of the comparison group, “shadow communicators” were chosen, who would have received the training had they lived in villages that received the training program. This enabled researchers to compare communicators in villages that received the program to counterparts in comparison villages.

Researchers collected data on communicator and non-communicator farmers’ knowledge and adoption of the promoted techniques, along with agricultural production, household demographics, individual characteristics, perception, and social network relationships. They collected information through surveys and direct observations.

Results and policy lessons

Behavior and knowledge of communicators: Communicators in villages that received the program were more likely than shadow communicators in comparison villages to participate in trainings about the new technology and to adopt it. Participation in training and adoption of the technology did not differ between program villages that had reservations for women communicators and those that did not. The program effectively trained communicators to use the technology: when tested on their knowledge of the technology, communicators in villages that received the program had double or triple the test scores of their counterparts in comparison villages.

Communication: Farmers were less engaged with information on the new agricultural technology or on farming in general when it originated from a female communicator. While male and female communicators were equally likely to organize trainings for other farmers, other farmers were five percentage points less likely to attend trainings organized in female-reserved villages. Informal discussions about the new technology between farmers and communicators were also four percentage points less likely to occur when the communicator role was reserved for a woman. In general, other farmers were six percentage points less likely to have ever discussed farming with the communicator in female-reserved villages, relative to unreserved villages.

Perception of communicators: Farmers perceived communicators in non-reserved villages to be more hardworking, skillful, and knowledgeable than in female-reserved villages. Both male and female farmers perceived non-reserved communicators to be better at agriculture. This supports the claim that discrimination against women may not be solely perpetrated by men. Researchers found that these gaps in perceptions were not a result of women being less visible or more socially isolated, but because farmers believed that women should not occupy the communicator role or teach other farmers.

Outcomes for non-communicators: Communicators successfully transferred knowledge of the new technology to other farmers in their villages. Knowledge scores increased by five to seven percentage points, which constituted a 62.5 to 87.5 percent increase over the comparison group, with no significant difference between female-reserved and non-reserved villages. However, these knowledge gains did not translate to increases in adoption of the technology in female-reserved or non-reserved villages. Further, female farmers in female-reserved villages were slightly less likely to adopt the technology relative to those in non-reserved villages.

Similarly, there was no difference in the agricultural yield of farmers in the non-reserved and female-reserved villages. This indicates that when women managed to teach and convince others to adopt the technology, the recipients did just as well.

Taken together, these results suggest that communicators in female-reserved villages were just as effective at acquiring and retaining knowledge about a new agricultural technology and adopting it. However, other farmers perceived communicators in female-reserved villages to be less knowledgeable and were less likely to interact with them in formal and informal settings. Despite these gender gaps in perception and attention, communicators in female-reserved villages performed just as well in diffusing the new technology to other male and female maize farmers resident in their village.

BenYishay, Ariel, Maria Jones, Florence Kondylis, and Ahmed Mushfiq Mobarak. "Gender gaps in technology diffusion." Journal of Development Economics 143 (2020): 102380.