Gender, Risk, and Climate Information

Relevance for Climate Change Adaptation in Ethiopia

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AGRICULTURAL PRODUCTION IN ETHIOPIA IS CHARACTERIZED BY ITS LOW INTENSITY, LOW PRODUCTIVITY, and high susceptibility to climate shocks. Because agriculture is the key sector of the country's economy, dramatic improvements are needed to sustain economic growth and confront the challenge of climate change. Adaptation can help farmers achieve their food, income, and livelihood security in the face of changing climatic and socioeconomic conditions, including changes in climate variability, the frequency of extreme weather events such as droughts and floods, and volatile short-term changes in local and large-scale markets.

While many studies have examined the factors influencing adaptation to climate change at the household level, lack of gender-disaggregated data have precluded gender-sensitive analysis of climate change adaptation. However, emerging research suggests that men and women are differentially affected by climate change and have different priorities and needs for adaptation. This policy note summarizes the results of a study that examined how gendered risk preferences and access to information influence the adaptation decisions of rural agricultural households in Ethiopia.

CONTEXT OF THE STUDY

The literature on adaptation to climate change in Ethiopia points to several factors that influence the decision to adapt, including risk preferences, access to information, extension, and credit, agroecological setting, and other individual and household-level characteristics. One shortcoming of most household-level adaptation studies is that they only include individual characteristics of the household head (typically male but sometimes female), such as their level of education and access to information. However, the decision to adopt new technologies is most likely not taken in isolation by the household head. Rather, it is the result of complex decisionmaking processes within households that depend on the characteristics, resources, bargaining power, and preferences of both male and female decisionmakers. This study, therefore, included characteristics of both the main male and female decisionmakers within the household to assess how both husbands and wives influence the household's decision to adapt to climate change.

DATA AND DESCRIPTIVE STATISTICS

The data used for this study were drawn from 20 *woredas* in the regional states of Amhara, Benishangul-Gumuz, Oromia, the Southern Nations, Nationalities, and Peoples' Region, and Tigray in the Nile Basin of Ethiopia. The questionnaire included modules on access to information, climate change perceptions and adaptation, membership in groups, social networks, and risk preferences. The survey distinguished between different types of climate information including information about extreme weather events, seasonal weather forecasts, and information about climate change and the appropriate responses. Risk preferences were elicited using a lottery choice experiment designed by Salvatore di Falco and Ferdinand Vieider.

We find that husbands are more likely to perceive climatic changes, such as a delay in the onset of rains, a decline in rainfall, an increase in temperature, and more erratic rainfall patterns, than their spouses. Men also tend to have more education and access to climate information than their spouses. Extension services, radio broadcasts, and community meetings were the main sources of climate information for men, while informal sources of information—that is, family members, neighbors, and friends—were the main sources of climate information for women. There are thus large gender gaps on climate change perceptions and access to information.

Most farmers who experienced climatic changes also reported adopting various adaptation strategies, with more men

reporting that they adapted to climate change than their spouses. Most of the reported adaptation measures relate to crop production, including implementing soil and water conservation strategies, planting trees, and changing crop varieties and types. The data show that female-headed households are much less likely to adapt to climate change than male-headed households, although female household heads were more likely than married women to report that they considered themselves to be well informed about climate change. This suggests that female-headed households face constraints to adaptation that are not experienced by male-headed households, such as a shortage of agricultural labor.

THE DETERMINANTS OF ADAPTATION TO CLIMATE CHANGE

When the characteristics of men and women in the same household are not considered, the results are quite similar to previous studies on this topic. Individual characteristics of the household head, such as level of risk aversion, age, and access to climate information, are shown to influence whether the household decides to adapt to perceived climate change. Credit access increases the probability of adaptation, while larger distance to input markets reduces likelihood of adaptation. As distance to markets increases, the cost and difficulty of obtaining inputs needed for adaptation also increases, posing a significant constraint to adaptation.

The gender-disaggregated results show that the level of risk aversion of the husband has a negative impact on adaptation while that of the wife is insignificant. The finding that risk aversion of the husband hinders adaptation is consistent with other studies that have shown that risk and risk aversion of household heads have a negative impact on the adoption of soil and water conservation practices in Ethiopia.

The gender-disaggregated results also show that wives' access to climate information, namely information on extreme events and climate change, has a significant positive impact on the probability of adaptation. Thus, increasing women's access to climate information appears to be a key pathway to promoting adaptation to climate change. In addition, access to extension has a positive impact on adaption to climate change. This finding further confirms the results of several other studies showing that contact with extension agents is an important avenue by which farmers receive information and advice needed to adapt to climate change.

POLICY IMPLICATIONS

Understanding the factors that induce farmers to act in response to the threat of climate change can help policymakers to encourage farmers to take needed steps to adapt to climate change. The results showed that age, access to information, distance to input markets, contact with extension agents, and risk preferences influence household adaptation decisions. The results also showed that gender-disaggregated analyses can reveal key insights into the process of adaptation. This study found that the individual attributes of both husbands and wives influence the likelihood that households adapt to climate change, suggesting that adaptation decisions are not taken in isolation but are the result of complex decisionmaking processes within households.

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The finding that women's access to climate information increases the likelihood of adaptation is noteworthy. Recent studies have shown that men and women have access to different forms of social capital and that women often have less access to information through formal and informal channels. The results of this study support these previous findings—showing that husbands are more likely to have access to both formal and informal sources of climate information (with the exception of family members). Yet when wives do have access to climate information, the household is more likely to adapt to climate change. These results suggest that ensuring that extension agents and other modes of information dissemination reach both genders would enable both men and women to support adaptation. Because women have different preferences and needs for adaptation given their unique role within the household, their information needs are likely to be different. This requires that information disseminated to women be tailored to fit their needs so that they may contribute to increasing household resilience in the face of climate change.

The finding that risk aversion is a key constraint to adaptation is consistent with other research on the impact of risk on adoption of new technologies. Providing climate information can reduce uncertainty and encourage farmers to adopt climate-smart strategies. Similarly, introducing technologies and adaption measures that are well-tested and have proven

effective in similar contexts, along with information about the technology and its application, may help to overcome risk-averse farmers' reluctance to adopt new adaptation strategies.

FOR FURTHER READING

Berga, H., and E. Bryan. 2014. "The Role of Gender in Climate Change Adaptation: Evidence from the Nile Basin of Ethiopia." Unpublished, International Food Policy Research Institute, Washington, DC.

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