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THE ROLE OF AGRICULTURAL INSURANCE
Gender and Nutrition Dimensions

Siwa Msangi

Smallholder farmers in Africa, Asia, and elsewhere are highly exposed to crises or "shocks" in both their physical and their socioeconomic environments. Like all households, smallholder farm households seek ways to reduce their exposure to these shocks and to find ways of smoothing their income streams and, hence, consumption levels to avoid volatile "feast and famine" cycles. Broadly applied, insurance has traditionally facilitated individuals and households in insulating themselves against the kinds of shocks that arise as part of everyday life. Whether for cars, homes, or even lives, insurance policies give those who are averse to risk the option of forgoing some of their income, in the form of insurance premiums, in return for the security of a payout in the event of a sudden or unforeseen event.

Traditional indemnity-based insurance, however, has long been recognized as inadequate in the context of smallholder farm households (Hazell 1992; Ceballos and Robles 2014). From an economic perspective, bearing the transaction costs of verifying the claims of numerous smallholders is prohibitive for insurance companies. Consequently, many households are left with no means of managing their risk other than diversifying their onfarm production and sources of income (by mixing farm with nonfarm activities) or by relying on reciprocity with family members, neighbors, or others in their social network—which is ineffectual in the case of mass exposure, such as to weather events.

For this reason, many social scientists have been exploring the use of index-based insurance instruments (Ceballos and Robles 2014; Hill, Robles, and Ceballos 2016). The basic idea of an index-based insurance policy is that, rather than farmers being compensated according to their individual losses, participants in the insurance scheme are compensated based on the performance of a predefined index—for example, when the observed rainfall at a particular station within a given region reaches a predetermined target level that triggers a payout, as stipulated in the insurance contract. This eliminates the need for insurance providers to verify individual farmer's losses by aggregating the payout criteria to a scale that is easy to verify. However, since the correlation between the performance of the index and the losses experienced by individual policyholders is almost always imperfect, index-based insurance carries what is known as "basis risk." Thus, farmers might experience a loss but not receive compensation, or they might receive a payout even though they experienced no loss. By conducting experiments with farmers in Bangladesh, Hill et al. (2017) note that offering a rebate with an insurance contract can help farmers cope with this kind of risk, and increase their interest in obtaining index-based insurance.

The Gendered Dimensions of Risk and Insurance

In examining agriculture-dependent rural households and how individual household members perceive risk and respond to shocks, the empirical literature notes significant differences between men and women. The work of

Delavallade et al. (2015) in West Africa indicates that men tend to put more weight on risks to their farm activities, whereas women are more concerned about shocks affecting the health and schooling of household members, in accordance with their customary role of providing domestic care and other unpaid work. This points to a sharp difference in the kinds of shocks that men and women are likely to insure against, and their willingness-to-pay for a given coping instrument. The coping strategies adopted by men and women can also be conditioned by their perceptions and the social capital they possess, which in turn determines their available options. Work by Rakib (2014) in Bangladesh shows that male-headed households are more likely to borrow money through informal channels as a coping mechanism (that is, friends, relatives, moneylenders), whereas female-headed households are more likely to reduce consumption, keep children out of school, or migrate in response to climate shocks.

A considerable body of work looking at the gender dimensions of asset ownership has demonstrated that strong differences exist between the kinds of assets that men and women control, and how they are used. In the context of Bangladesh, Rakib and Matz (2014) point to cultural norms that often prevent women from receiving their full share of inherited assets. For example, in order to avoid conflicts with their brothers, women may forgo transfers of land in lieu of cash. Such cultural factors tend to allocate a much larger share of monetary assets to men, whereas assets like jewelry tend to be more exclusively under women's control.

Other studies provide evidence of the significant differences in how male- and female-held assets are affected by shocks to a household's overall financial state. The work of Quisumbing, Kumar, and Behrman (2014) in Bangladesh shows that women's assets are more strongly (negatively) affected by shocks related to illness than those stemming from food prices, whereas the death of a family member appears to have a bigger impact on men's asset holdings. The study contrasted these results with the case of Uganda, where drought-related shocks affected women's assets but not men's. It could be concluded, therefore, that the demand for weather-index based insurance products might be high among Ugandan women, but that women in Bangladesh might have a preference for health insurance.

Kumar and Clarke (2014) make the point that women are just as likely as men to buy insurance, tending to see it as a substitute for borrowing money from their peers, and that women with more land tend to buy more of the insurance product being offered. The authors stress, however, that the issue of financial literacy is highly important in helping women understand the products being offered, and that marketing outreach of insurance products to women should include extensive training and information-sharing.

Insurance or Savings?

Aside from the gendered differences in how households perceive and cope with risk, the broader question of whether insurance is the best instrument for smallholder households also needs to be addressed. It may be that farm households would be better served by individual or group savings schemes that provide a financial buffer in times of need. Where smallholder households face multiple types of risks—such as reduced yields due to lack of rainfall or reduced income due to volatile labor markets—a mix of economic instruments might be optimal.

Delavallade et al. (2015) compared the experimental response of farmers in Burkina Faso and Senegal to weather index-based insurance and a variety of savings options, finding a strong gender-based difference in the demand for these products. Their results showed higher levels of input use, yields, and agricultural investment among those who adopted the insurance. In terms of gender differences, men were most concerned with drought-related risks affecting production, and generally favored index-based insurance as a coping mechanism. Women, on the other hand, were more concerned with shocks to health and other issues affecting income levels and their domestic burden of unpaid work, so were more inclined to favor the savings-based instruments offered.

It is important to note that households can combine both insurance and savings instruments to manage the various risks they face. As noted by Clarke et al. (2015), households could mitigate the basis risk associated with index-based insurance instruments by adding another type of instrument, such as a group savings scheme, a different type of insurance, or some type of contingent credit arrangement.

The Linkage to Nutrition

A large body of evidence points to the impacts of insurance on overall household income and asset levels, but a clear link to nutrition-focused outcomes has yet to be established. This is not to say that such a link does not exist, however. It would be logical to infer a generally positive association between improved or more stable incomes and increased food security, given that the conceptual framework offered by the Food and Agriculture Organization of the United Nations (FAO 2008) points to stability as one of the key components of food security (along with availability, access, and utilization of food). Ruel (2013) and others note, however, that there is a distinct difference between food security and nutrition security, and that one does not necessarily lead to the other. Nutrition security relates to choices surrounding how food is prepared, how it is allocated among household members, and how it is biologically absorbed in the body. Key determinants cited include household-level feeding practices (often grounded in cultural norms), hygiene and access to clean water, adequate sanitation, and other nonfood-related considerations (Ecker, Breisinger, and Pauw 2011; Ruel 2013).

To the extent that access to insurance can empower women to maintain control of their assets, productive potential, and financial position—and thereby their ability to make healthy choices about the purchase, preparation, and consumption food—it is reasonable to infer the existence of a positive linkage between insurance and nutrition outcomes. Nevertheless, the experimental approaches studies usually employ to empirically examine the demand for insurance and its potential benefits and impacts are not well-suited to a determination of effects beyond net returns or incomes. Furthermore, it is highly likely that other public investments in health services, water and sanitation facilities, and overall education about healthy feeding and food preparation practices would have much greater impact on nutrition than any single insurance instrument would. These issues need to be explored and tested empirically before firm conclusions can be drawn.

Synthesis

It seems clear that although men and women within (the same) farm households face the same kinds of physical and socioeconomic shocks, they perceive the overall importance and associated risks of various shocks quite differently. This, in turn, has significant implications for men's and women's preferences of coping mechanisms. Whereas women tend to be more concerned with health-related risks, men seemingly place more importance on risks affecting agricultural production. This suggests that, outside of specific insurance products targeting health outcomes, emergency and precautionary savings instruments might be as or even more important to women than index-based insurance instruments.

Households making use of index-based insurance instruments would benefit from combining additional measures—such as a group savings scheme, other type of insurance, or form of contingent credit—in order to compensate for the potential shortfall in coverage associated with index-based instruments. Increasing financial literacy and numeracy among women should be addressed in the outreach and marketing efforts of firms and nongovernment organizations involved in disseminating information about financial instruments, including index-based insurance, given that evidence indicates women may not fully comprehend how such insurance works or what benefits it offers. Such education could provide women with an additional source of empowerment with which to strengthen their participation in important household decisions.

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Siwa Msangi *(s.msangi@cgiar.org) is employed in the Environment and Production Technology Division of the International Food Policy Research Institute, Washington, DC, USA.*

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