

## Final findings

### Weather insurance for Ethiopian farmers

The research project ‘The cost effectiveness of integrating weather index agricultural insurance into the Productive Safety Net Programme (PSNP) in Ethiopia’ investigates whether or not weather index insurance (WII) can be a form of social protection and integrated cost effectively into existing national social safety net interventions. The project worked with 1,150 rural households in 32 rural villages in the Tigray region of Ethiopia. These households were poor and on average owned about 1.6 tsmdi of farmland (about 0.4 hectare) and about ETB 5,660 (USD 250) of livestock. In the first year (2015), the project evaluated the impact and cost effectiveness of three different social protection scenarios among poor rural households in Ethiopia: 1) the PSNP alone (control group); 2) the PSNP with ETB 300 (USD 13) of WII and ETB 200 (USD 9) of Agricultural Input Coupons (AICs) (WII + AIC group); and 3) the PSNP with ETB 400 (USD 18) of AICs (AIC group). In the second group, the insurance demand by PSNP farmers was further examined by randomizing the subsidy level for insurance premiums. In the second year (2016), farmers who participated in the study in the first year farmers were offered Agricultural Input Coupons and an opportunity to purchase weather index insurance with different levels of discount. The following are the overall findings and policy messages.

#### Final findings

- The study found that the demand for WII among PSNP farmers dropped quickly when the subsidy was reduced. This is in line with other results in the literature. When our sample farmers received a generous subsidy and only needed to contribute 20% of the premium, insurance participation rate was high, at around 80%. However, when the subsidy rate was lowered to 40%, only 25% of the farmers still chose to take the insurance.
- Being issued with an insurance policy in the first year was found to raise demand for WII in the second year, however, the increase was small, only a few percentage points, and was weaker than the effect of increasing the subsidy rate by 10 percentage points.
- Insurance demand statistically decreased with the farmer’s age as well as their participation in local informal savings and credit associations, but was not influenced by fundamental economic attitudes, such as risk aversion or time preference.
- On average, rainfall insurance failed to stimulate agricultural activity or increase farm yield, but there is evidence that insured farmers increased income by contributing labour off the farm.
- While WII is designed to relax agricultural risk constraints, we found that the risk aversion level of farmers is not associated with their demand for insurance. Surprisingly, rainfall insurance raised total agricultural costs among farmers who were relatively more patient and reduced costs for those relatively less patient. In other words, WII was able to support forward-looking farmers to make investments for possibly higher returns later in the season, but demotivated present-concerned farmers (possibly due to the prospect of getting an insurance pay out, which does not depend on their farming efforts).
- Our results highlighted the importance of considering time when looking at the benefits of WII, as farmers’ reactions to WII depend on how they trade off present consumption (less investment) with future consumption (higher investment). Our findings are of particular importance as the government safety net programmes already provide farmers with partial insurance for rainfall risk.
- As patient farmers did not exhibit a strong demand for insurance, simple, across-the-board marketing strategies will not help them to harness the possible benefits of insurance adoption and more sophisticated promotion and targeting techniques are needed.
- The average benefits of WII were clearly outpaced by those of AICs, making the later more worthwhile as a standard inclusive development measure. Unlike some previous studies that found that general cash

transfers had limited effects on agricultural activities<sup>1</sup>, our study had large, positive effects on both the purchase and use of seed and fertilizer. Total agricultural costs increased from 40% to 60% of the coupon value, suggesting a considerable amount of the voucher value produced an effect on actual farm inputs. This effect was greater among farmers who had small scale of farming in the baseline.

- Farmers on average also increased land use by conducting less sharecropping outward (sharing labour/crop on own land), more sharecropping inward (sharing labour/crop on others' land) and leaving less land fallow, indicating that the AIC intervention produced important complementary effects on increasing farming scale.
- Somewhat surprisingly, farmers who received AICs reduced their own effort and hired more casual labour. These substitutions, which were about 20% of the coupon value, represent a spill-over benefit of the intervention to local economy.
- Although no statistical effects were found on yield or household welfare, taking all of the evidence together, AICs are still generally a better programme instrument for stimulating agricultural activity among PSNP farmers, whereas WII is more likely to benefit those who are more patient and forward looking.

## Policy messages

- **Consider interventions such as AICs to supplement the PSNP:** Beneficiaries of the PSNP in Ethiopia are generally poor and have a low level of consumption. Therefore, innovative additional interventions such as AICs can play a significant role in boosting investment in agricultural inputs and help PSNP members to improve their productivity, which, in turn, will help them to graduate from the programme. Policies aimed at integrating AICs with the PSNP in a cost-effective way can help to speed up graduation and self-reliance.
- **Identify effective methods for targeting forward-looking farmers to take up weather index insurance as part of social protection policies:** In general, WII was not found to improve the adoption of technologies by farmers in Ethiopia. But the insurance had positive effects among farmers who were more patient and forward looking. It is possible that insurance helps these farmers to better hedge against weather risk during the agricultural season. Insurance demand, however, is not correlated with the level of patience among farmers at the baseline. As such, further efforts are needed to identify farmers who can better harness the benefits of WII.

## Knowledge product

Karlan, D., Osei, R., Osei-Akoto, I., & Udry, C. (2014). Agricultural decisions after relaxing credit and risk constraints. *The Quarterly Journal of Economics*, 129(2), 597-652.

## Contact:

Prof. Alex Wong, research project leader, [wongholun@ln.edu.hk](mailto:wongholun@ln.edu.hk)

## Web link:

<http://includeplatform.net/research-group/cost-effectiveness-integrating-weather-index-agricultural-insurance-productive-safety-net-program-ethiopia/>