



Too Certain to Invest? Public Safety Nets and Insurance Markets in Ethiopia

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Summary. — Researchers' efforts to introduce index insurance in developing countries have met with little demand despite its great potential to help farmers mitigate economic risk. I argue that researchers have overlooked institutional context's critical role in the formation of private markets when designing insurance contracts. Using micro-level evidence from Ethiopia, I show that recipients of a preexisting effective, large-scale public safety net fail to take-up a new highly subsidized private insurance offer. Government safety net programs can decrease demand for private index insurance, forming an additional barrier to index insurance take-up. A direct implication of this research is that policymakers should design private and public insurance products that account for, or even complement, each other.

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1. INTRODUCTION

Economic risk is critical for the large population living in rural areas of developing countries, where a bad harvest can mean forgoing food consumption or selling productive assets. Household-level impacts on health and well-being have aggregate effects on economic growth and broader development objectives. Despite the great potential for insurance to help farmers, numerous recent experimental studies offering index insurance were met with surprisingly low demand. This paper adds to the growing literature delineating barriers to index insurance take-up by demonstrating that pre-existing public safety net programs decreased demand for private index insurance.

Government programs change the incentives to participate in private arrangements. Policymakers and researchers are attempting to introduce index insurance to farmers, a form of insurance that is indexed to measures of weather, such as rainfall, that are highly correlated with yields. However, governments or international organizations may also be operating in this environment, providing farmers with transfers, such as food aid or cash, to help them cope with weather shocks. In some cases, the government transfers reduce households' risk exposure or provide competing state-contingent transfers that decrease demand for private insurance.

This paper uses data from a recent pilot program in the Amhara region of Ethiopia that offered farmers an insurance product to cover losses in crop inputs caused by insufficient rainfall. Adoption was extremely low despite the study farmers residing in an extremely risk-prone region and even among the subsample of farmers offered highly discounted insurance. The study region partially overlaps with villages receiving the Productive Safety Net Program (PSNP), a large public safety net program, which comprises both a transfer and insurance component, intended to increase resiliency to shocks. A propensity score-matching technique is used that attempts to isolate the characteristics of households that receive PSNP in order to present the treatment effect of PSNP on insurance take-up. Results show that in PSNP villages and among PSNP beneficiaries, demand for index insurance was significantly lower than the already low levels observed elsewhere. The provision

of PSNP formed an additional barrier to index insurance take-up.

A number of additional tests, based on the rules governing PSNP's distribution, confirm that PSNP decreases demand for private index insurance. PSNP is first targeted at the village level and then at the household level, with some annual adjustments occurring among household recipients due to changes in need. Therefore, non-PSNP recipients within PSNP villages can reasonably expect to receive PSNP, or share in recipients' benefits, unlike residents of non-PSNP villages. Within the study region, individuals who reside in villages that receive PSNP purchased less private insurance than non-PSNP villagers, irrespective of their current beneficiary status. And, this effect compounds the greater the share of villagers receiving PSNP. Finally, among individuals who receive PSNP, those with a stated confidence in district government or who have political connections bought less index insurance than PSNP beneficiaries lacking such confidence or connections. These four tests support the explanation that individuals with a greater ability to access government support are less likely to purchase market index insurance.

This paper attempts to help understand the disconnect between the promise and reality of index insurance, and offers policy solutions to it, by highlighting how public programs can compete with private insurance. Although the particular index insurance offer examined here was not commercially sustainable irrespective of the public safety net program, the large and significant effects found in this study show that public programs are an important component of insurance demand. Increasing the viability of index insurance will require consid-

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ering whether preexisting risk-management arrangements will interact with index insurance and designing the products to complement each other.

2. INSTITUTIONAL CONTEXT

(a) *Institutional influences on insurance demand*

Private insurance markets are missing in many areas of developing countries despite great potential benefits. A large body of evidence exposes the debilitating impacts that vulnerability, risk, and economic shocks have on the livelihoods of the poor in developing countries (Baulch & Hoddinott, 2000; Dercon & Krishnan, 2000; Morduch, 1995; Yamano, Alderman, & Christiaensen, 2005). Lack of insurance also has economy-wide consequences as uninsured individuals are deterred from taking on loans and growth-enhancing investments, such as productivity-enhancing technologies. Moral hazard, adverse selection, and lack of contract enforcement are well-established explanations for the lack of private insurance supply in developing countries.

Policy-makers' anticipation for the introduction of private insurance markets grew over the past decade with the formation of a new insurance product. The product, index insurance, overcomes the fundamental supply problems that inhibit the formation of insurance markets in developing countries: that insurance providers cannot know the risk level nor monitor the risk-taking behaviors of beneficiaries, and oftentimes, operate in an environment where they cannot enforce their contracts (Finkelstein & McGarry, 2006; Rothschild & Stiglitz, 1992). Index insurance overcomes these problems by basing individuals' payments on an exogenous, publicly observable index (such as local rainfall) that is easily measured and not manipulable (Barnett, Barrett, & Skees, 2008).

The introduction of formal, private insurance in developing countries revealed that the missing market for insurance is largely attributable to determinants of demand and not just supply. Demand for insurance products, especially to cover losses related to agriculture, should theoretically be high in developing countries: large swaths of the population are uninsured despite the vast majority of their income fluctuations deriving from frequent, observable variation in rainfall. Yet, numerous recent experimental studies offering insurance to farmers reveal that they buy the least amount of coverage possible in the rare instances that they do purchase insurance (Binswanger-Mkhize, 2012; Cole, Giné, Tobacman, Townsend, Topalova, & Vickery, 2013; Giné & Yang, 2009, with the exception of Norton *et al.*, 2014). A growing literature provides explanations for the lack of demand, including high price elasticity, liquidity constraints, and lack of trust in the product (Cole *et al.*, 2013).

The logic for private insurance markets in Ethiopia is particularly compelling. In comparison to many other African countries, Ethiopian state capacity is strong and the economy is growing (Dercon, Hoddinott, & Woldehanna, 2012) but the environment is extremely risk-prone. Ethiopia remains an agrarian-based economy that suffers from high poverty rates and frequent droughts. Demand for agricultural index insurance within the study region should be particularly high, as the study team selected the region because of its agricultural potential and susceptibility to droughts. Furthermore, the study offered price discount vouchers to a subsample of the study population.

The logic for private insurance markets in Ethiopia becomes less compelling after taking into consideration the presence of

a large, institutional competitor to private insurance and its history of food aid reliance. As yet, the relationship between formal, public insurance programs and private insurance has not been explored in the index insurance demand literature despite the economic literature showing that the provision of public insurance influences participation in the private insurance market (Cutler & Gruber, 1996; Kronick & Gilmer, 2002). That government provision of insurance can substitute for private insurance may not seem surprising. However, it is difficult to isolate PSNP's causal relationship with private index insurance. The causal relationship may be under- or over-estimated without an attempt to control for selection. Even after controlling for selection, PSNP's treatment effect is uncertain: PSNP could theoretically either increase or decrease demand for private index insurance.

In order to assess the relationship between PSNP and private insurance it is important to isolate the characteristics of households that receive PSNP and compare insurance demand among comparable individuals. The different characteristics of PSNP recipients are likely to have countervailing effects on insurance demand. For example, PSNP is targeted toward very low-income households and very low-income individuals have lower demand for index insurance (see Clarke, 2011 on wealth and risk aversion and Hill, Hoddinott, & Kumar, 2013 on models of technology adoption). However, PSNP is also likely to be targeted toward households that are susceptible to droughts and such households have greater demand for index insurance.

Once all the factors that affect selection of households into PSNP are isolated, the treatment effect of PSNP on insurance demand can be determined. PSNP was designed to make households more resilient to income shocks through its two transfer features: one that lowers household sensitivity to income risk (the "risk reducing" feature) and another that compensates households in response to shocks (the "scalable" feature) (a detailed program description is provided in Section 2(b)). Both features could theoretically either increase or decrease demand for index insurance.

PSNP's first transfer feature provides known, timely transfers, year after year, to chronically food-insecure households. These transfers should prevent households from needing to sell off their productive assets in response to shocks. The transfers shift the distribution of expected losses in the event of drought away from extremely bad outcomes, reducing the amount of risk households face. Therefore, PSNP households may demand less index insurance because they are less exposed to risk. Furthermore, households' receipt of the transfers is generally contingent on their participation in public works projects. Many of the projects provide local public goods such as community roads, irrigation, and soil fertility restoration. These public works projects should also decrease households' exposure to weather shocks. Roads, for example, decrease households' sensitivity to shocks by connecting them with other unaffected markets, driving down demand for index insurance.

It is equally possible, however, that PSNP's transfer and public works aspects increase demand for index insurance. The index insurance in question in this paper provided compensation for input costs, although the logic extends to other types of index insurance (for example, index insurance that provides compensation for the value of harvest loss).¹ It may be that households spend their increased income from PSNP on agricultural activities, such as inputs. In this case, they will have increased demand for index insurance because they have larger investments to protect. Or, it may be precisely because PSNP households are less exposed to risk that they

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