



Drivers of demand for index-based livestock insurance in southern Ethiopia

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Index insurance has garnered widespread interest as a means of enhancing the resilience of the rural poor against covariate climate risks. It is a form of micro-insurance that can be targeted at low income people generally excluded from traditional formal insurance markets. Designed to insure covariate risk which cannot be covered by traditional local informal risk-sharing arrangements, it is free from classical incentive problems inherent in conventional agricultural insurance, such as moral hazard and adverse selection, as well as the high transaction costs associated with information asymmetry as indemnity payouts are linked not to actual losses faced by policyholders.

Despite so much enthusiasm about the role of index insurance as a development tool, uptake remains disappointingly low, rarely above 30% of the intended population, across the several contexts in which it has been introduced. Low uptake suggests a clear need to identify and alleviate the constraints hindering demand. A host of potential reasons have been postulated to explain lower than expected demand, including poor understanding of the product and high prices.

This study investigates the drivers of uptake for an index-based livestock insurance (IBLI) product available in the Borena zone of pastoral southern Ethiopia. While many characteristics of the pastoralist households and product are considered, it focuses specifically on IBLI knowledge and price using two experimental interventions: the random distribution of discount coupons (to lower the

price) and 'learning kits' (to increase understanding of the product). This brief draws on an analysis of demand for the IBLI product in Borena by Takahashi et al. (2016) utilizing two years of household survey data.

IBLI in Borena

IBLI was introduced by the International Livestock Research Institute (ILRI) and Cornell University in collaboration with the Oromia Insurance Company in August 2012 in eight woredas (districts) in Borena. The basic product design is similar to a previously designed IBLI product in northern Kenya rolled out in January 2010. The standardized normalized differenced vegetation index (NDVI)—a numerical indicator of the degree of greenness based on remotely sensed data collected by satellites—was used to construct an index. This index was calibrated for high correlation with average livestock mortality rates from drought at woreda level. Indemnity payouts are triggered when the index falls below the fifteenth percentile of the historical index distribution since 1981.

IBLI is sold during two periods per year, directly preceding each rainy season (August–September and January–February). During each sales period, a household decides whether to buy IBLI and, if so, how many animals to insure. A premium payment is equal to the calculated total insured herd value (TIHV) multiplied by a woreda-specific insurance premium rate based on spatial differences in expected mortality risk.

If a household buys IBLI in the August–September sales period, it is insured from 1 October–30 September of the following year and may receive indemnity payouts in March and/or October of the year following purchase. If a household buys IBLI in the August–September and the subsequent January–February sales period, then insurance coverage periods for the two contracts overlap from March–September, and the household may receive indemnity payouts for both contracts in October.

Within the timeframe of the study, two sales periods occurred, August–September 2012 and January–February 2013, and no indemnity payouts were made to insured households.

Experimental interventions

To stimulate uptake of IBLI and construct an experimental research design, two interventions were offered to randomly selected subpopulations during each of the sales periods.

Learning kits: The first component of the experiment was intended to increase overall awareness of IBLI, improving knowledge of how the product worked and its potential benefits. This was done through the use of two tools referred to together as a ‘learning kit’—a comic and an audio tape of a skit—which were distributed randomly to households within randomly selected study sites in each sales period.

Discount coupons: The second component of the experiment was the distribution of discount coupons which lowered the cost of purchasing IBLI. With a coupon, the recipient could purchase IBLI at a discounted rate for the first 15 tropical livestock units (TLUs) insured. In each study site and sales period, households offered discount coupons were randomly chosen to receive coupons ranging from 10–80% of the value of the product purchased up to the first 15 TLUs; 20% of sample households were kept as a control group (with no discount coupon).

Demand for IBLI

A random sample of 474 households in Borena were studied to explore patterns in IBLI uptake. Baseline survey data was collected from March–April 2012 before the first IBLI sales period was announced, with a follow-up survey in April 2013 directly after the second IBLI sales period.

Approximately 30% of sampled households purchased IBLI during the first period, comparable to or higher than most other index insurance products in their pilot phases, but that rate declined to 18% in the second period (Table 1). Only 5% of households bought IBLI in both sales periods to generate overlapping coverage for the March–September 2013 period.

Table 1. IBLI demand by sales period

	Aug-Sep 2012	Jan-Feb 2013
% households buy IBLI	29.5	18.5
Insured TLU	2.7	2.7
Insured TIHV (1000 ETB)	14.1	14.4

Note: TLU and TIHV values are conditional on purchase.

Drivers of IBLI knowledge: In the 2013 survey, an eight question quiz about IBLI was implemented, including questions about the insurer, the conditions, frequency, and amount of indemnity payout, as well as to simple computations of premiums and payouts under hypothetical scenarios.

As expected, the second sales period random ‘learning kit’ assignments were found to be positively correlated with the number of correct answers to the quiz, while the first sales period assignments were not. This latter finding might be explained by implementation challenges to random assignment during the first sales period.

Drivers of IBLI uptake:

Regression analysis was used to study the drivers of IBLI demand in two ways:

1. It was independently conducted for each sales period (static framework).
2. The second sales period uptake was estimated conditional on the first sales period choice (dynamic framework), given the overlapping nature of the two insurance periods.

The binary purchase decision and the amount of insurance purchased by the insured individual were both studied. The main findings—mostly consistent between the static and dynamic models—are summarized below.

Higher levels of IBLI knowledge, as determined from the quiz, are not always positively related to IBLI purchase. In fact, knowledge is negatively correlated with the probability of IBLI purchase in the first sales period, but positively related in the second; and knowledge is statistically insignificant in relation to the amount of coverage purchased in the first and second sales periods.

Moreover, accurate IBLI knowledge was not associated with increased purchase of the product in the second sales period where a household had already bought insurance in the previous period, while it did for a household who had not previously purchased IBLI. While many hypothesize that a lack of understanding of index insurance products is a key adoption constraint—and indeed the survey respondents also reported it as a main reason for not purchasing IBLI—the empirical evidence does not support this argument.

Alternatively, the study does find that household demand for IBLI is price sensitive. In each sales period, the household-specific premium rates consistently and negatively affect the decision to purchase, as well as the value of animals insured. While there is a potential threat that a one-time price reduction creates a price reference point that decreases demand in subsequent periods, the study finds no evidence of such price anchoring effects. This means that price incentives created through the use of discount coupons effectively and substantially increase current period uptake rates without lowering future demand.

The study also examines a range of other important household characteristics. Households with a higher

proportion of income from livestock are more likely to buy IBLI during the first sales period. The number of livestock holdings were, however, found not to have affected the decision to purchase IBLI, while households with a higher wealth index were more likely to insure more animals in both sales periods. Male-headed households are more likely to buy larger insurance policies in the first sales period, although they are less likely to in the second sales period. Households that expect livestock prices to remain constant or rise are more likely to buy IBLI and tend to insure greater animal value. Consistent with theoretical predictions, risk-averse households are found to buy more IBLI, whereas contrary to expectations, education of the household head is negatively associated with IBLI demand.

Conclusions

Index insurance is increasingly recognized as a promising means of protecting the poor from losses associated with climate shocks, but low uptake suggests that the development community has much to learn about how to create products more attractive to the target population. Using an index-based livestock insurance product in southern Ethiopia as a case study, the study investigates demand for the new product among a sample of pastoral households. The key findings include:

- Uptake approached 30% of the sample in the initial year of product offer—meeting or exceeding that of most other index-based insurance products in their pilot periods;
- The reduced price of the insurance through the provision of discount coupons has an immediate and positive impact on uptake and does not decrease uptake in the subsequent period, implying that reference-dependent ‘price anchoring’ effects are weak if at all present. This suggests that offering price

discounts when the product is first introduced might be an important way to facilitate both immediate and longer-term demand.

- Information interventions boost understanding of the product, but better knowledge does not appear to consistently increase uptake of IBLI. This calls into question the major emphasis on product education campaigns in the absence of alleviating other constraints to uptake.

The study, however, only investigates uptake of the IBLI product in the first two sales periods. Longer-term studies are necessary to understand the dynamics of demand over time.

Reference

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Data used in this paper is publicly available at: <http://ibli.ilri.org/publications/>

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