Parallel session 13 Lessons in delivering agricultural insurance

By Marie-Christine Bélanger

In this session, three schemes of livestock and crop insurance are presented, including results from an interdisciplinary research project conducted to improve the use of satellite data in index insurance in Africa and the developing world.

Taking pictures from the sky

Satellite imagery allows index insurance projects to scale across large geographic areas. Many index-based schemes are developed using satellite data, relying on satellite-derived estimates of vegetation abundance and estimates of rainfall.

The International Research Institute for Climate and Society (IRI) has now teamed up with remote-sensing specialists from NASA, the US Department of Agriculture (USDA), and the National Oceanic and Atmospheric Administration (NOAA) to improve the design process of index-based insurance schemes being offered in Ethiopia, Senegal, and Zambia. The team conducted multi-resolution, multi-sensor analyses that look at how different satellite-derived variables perform when detecting historical droughts in very different agro-climatic regions in Africa.

Further, the team analysed the data collected during the participatory design process in order to discern how space and time affect the relationship between farmer-reported drought years and satellite rainfall estimates.

Improving efficiency by implementing an app-based approach

In **India**, livestock insurance is not new. The current scheme has a low rate of penetration (14%), high premiums (12%) and trust among farmers is low, mainly due to long delays in enrolment (paperwork), claims processing and settlement (see Figure 37).

In October 2017, an app-based livestock insurance plan was launched. The enrolment and claims submission process are entirely digitised and enrolment and claims settlement times have been significantly reduced. All data is transferred in real time, reducing errors in data entry and saving time and transaction costs.

App-based livestock insurance (India)

Number of policies sold in 2017
Just launched

Insured risks
Death

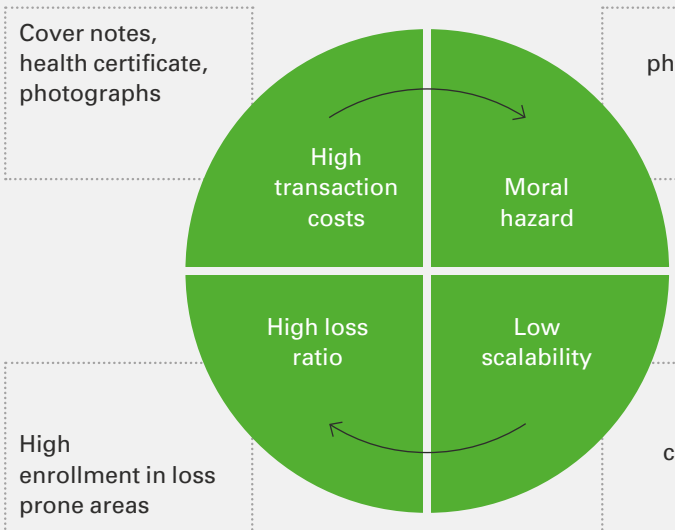
Premium range
4.7–6%

Sum insured
Assessed market value of non-loanee cattle

No subsidy

Source: IFMR-LEAD

Figure 37
Livestock insurance in India: supply side challenges



Source: Nair, Suraj. Presentation "Livestock insurance in rural India – Evaluating an app-based scheme". 13th International Microinsurance Conference 2017.

A step-by-step process

The design, development and implementation of this app-based scheme involved a step-by-step process. It started with a thorough evaluation of the local context drawn from scoping surveys, focus groups and interviews with key stakeholders. The development of the app and the insurance scheme were tested and modified in line with the feedback. Before launching the product, a team of trained agents held door-to-door meetings with clients to develop marketing and promotion plans. Focus was not only on disseminating information, but also monitoring its reception in the field. The first results show that the average time for enrolment using the app is normally under five minutes, with the issue of the policy, done at the cooperative level, taking under 24 hours. Farmers appreciate the efficiency, as the lower transaction costs are translating into a 1% reduction in premiums.

Index-based livestock insurance in Mongolia

Number of policies sold in 2017
About 25,000

Insured risks
Livestock mortality

Premium range
3.09 %

Sum insured
Value of the herd

Government subsidises by providing risk pooling and reinsurance

Source: Global Parametrics

Using three layers of risk-sharing

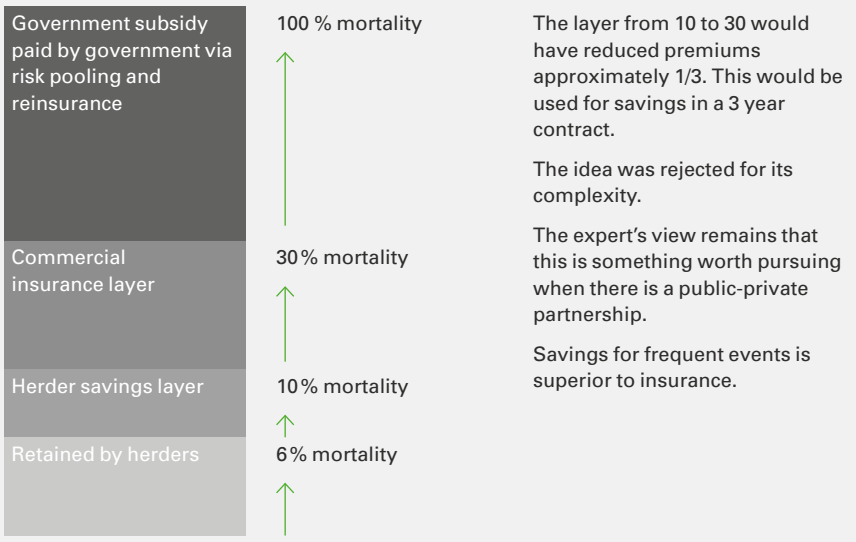
In **Mongolia**, livestock is an important asset, and as stated in the Constitution, "it shall be protected by the State". There are more than 50 million heads of livestock in the country, and a census has been conducted each year for the last 100 years. Index based livestock insurance started in Mongolia in 2005 as a pilot project and since 2012 has covered entire herds throughout the country. It protects the herders against livestock mortality, mainly caused by harsh winter weather.

The programme is structured in three layers of risk sharing. The first is the risk retained by the herders, up to 6% of mortality. The second layer, from 6 to 30% of mortality, is the commercial layer fully financed by the herder premium, and the third level from 30 to 100% covers catastrophic events that are fully subsidised by the government risk pooling and reinsurance.

Risk layering can serve as a new model for public-private partnerships. While the pilot project was scaled, one idea considered was adding a fourth layer for savings by herders, from 6 to 10%, thereby paring down the commercial layer to 10–30% and cutting premiums to finance savings (see Figure 38). For frequent events, saving is superior to insurance. However, implementation of the proposal so far seems to be facing challenges due to its increased complexity.

A pilot project in Vietnam in the Mekong delta involved rainfall insurance to cover the extra costs of irrigation prior to the onset of rain after coffee plants bloomed in Tan Chau, on the Mekong close to the Cambodian border. And in Dong Thap, farmers coped with business interruption as early flooding slowed the rice harvest.

Figure 38
Adding a savings layer to motivate renewals



Source; Skees, Jerry. Presentation "Lessons learned from projects in Mongolia and Vietnam." 13th International Microinsurance Conference 2017.

Conclusions drawn from the projects in Mongolia and Vietnam, along with index insurance in other countries served by Global Parametrics, are that

— delivery systems can be costly, and so can reinsurance for first efforts

— demand is an issue

— weather stations are not well suited for index insurance

— basis risk matters

— developing products that pay frequently is ill-advised; the regulatory environment is important

— pilot programs are difficult to scale

By framing index insurance as a form of contingent claims insurance, the legal and regulatory risk can be mitigated and issues tied to basis risk presented better. The contingent claims cover is similar to life insurance or insurance for a surgeon to protect eyesight loss – given an event that is well described, the burden is on the insured to select the financing needs (or level of coverage).

"Livestock is neglected in insurance even though it is an asset."

Jerry Skees

"Share your learnings along the way."

Suraj Nair

Lessons learnt

— Farmers and villagers react positively to satellite use for insurance purpose. They catch up with technology quickly.

— Capacity building and expertise transfer in remote sensing to local experts should be included in the process of satellite-based insurance.

— Global circulation models might reflect better the real distribution of rain than weather station networks.

— A multidisciplinary team can design indexes for varying drought detection, with subtle differences in specific environments.

— An app-based livestock insurance enrolment process can help reduce costs and premiums.

— For livestock insurance, a government subsidy is better delivered via risk-pooling and reinsurance for catastrophes than premium payment.

— Sound risk assessment is key.

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95 — Left to right: Bristol Powell, Senior Research Staff Assistant, IRI, Columbia University, United States; Suraj Nair, Senior Research Associate, IFMR LEAD – Institute for Financial Management and Research, India.

96 — Jerry Skees, Chief Strategy Officer and Director, Global Parametrics, United States.

97 — Dirk Reinhard, Vice Chairman, Munich Re Foundation, Germany.