

Background

The agricultural sector is a major economic sector and a critical source of livelihood in many developing countries. Agriculture is particularly exposed to adverse natural events, such as pest infestation and poor weather conditions, which negatively impact production. The economic costs of major climatic disasters may increase further in the future due to climate change. Farmers and herders have developed risk management strategies to cope with these adverse events, sometimes with government assistance. Agricultural insurance is one financial tool that agricultural producers can utilize to mitigate the impacts of unpreventable risks.

Although agricultural insurance has been offered in some industrialized countries for more than a century, the agricultural sector remains underserved in middle- and low-income countries. Since the late 1990s, however, dwindling public support to agricultural producers in emerging markets has led to a renewed interest in agricultural insurance. The development of agricultural risk modeling techniques and the emergence of insurance pools and index-based insurance contributed to a revisiting of the potential role of agriculture insurance in emerging economies.

A recent study conducted by the World Bank shows that agricultural insurance is currently available in more than 100 countries either as well-developed programs or pilots. While the vast majority of high-income countries have well-established agricultural insurance markets, only one-third of middle- and low-income countries currently offer such products and programs.

The World Bank supports the development of agricultural insurance as part of an overall agricultural risk management framework. The World Bank assists middle- and low-income countries in designing and implementing traditional and innovative agricultural crop and livestock insurance products and in forming agricultural insurance pools. These projects are often connected to agricultural finance support efforts and tied to complementary efforts in agricultural extension.

Financial Management of Agricultural Risk

Traditional subsidized agricultural insurance programs are not sustainable in the long run, especially in low-income countries that face fiscal constraints. The World Bank promotes a proactive, strategic approach for the

At a glance

- Developing countries are highly dependent on their agricultural sectors.
- Agricultural insurance is an important element of a comprehensive agricultural risk management strategy.
- Innovative agricultural insurance products and vehicles can lessen economic losses to farmers, herders, agricultural financing institutions, and governments in the case of adverse natural events.

financial management of agricultural production risks. This financial risk management model deals with residual risks that cannot be mitigated, that is, risks that remain after cost-effective risk mitigation techniques (e.g., irrigation, pest treatments) have been successfully implemented. The country agricultural risk financing model is based on four pillars and aims to offer countries an operational template to implement sustainable agricultural insurance (see Figure 1).

Agricultural Risk Layering

Agricultural risks can be financed with farmers' self-retention, private financial markets, governments, and international donors through an appropriate layering of risks (see Figure 2).

The *bottom layer of risk* includes high frequency but low consequence risks that affect farmers and/or herders from a variety of mostly independent risks. These losses may be caused by inappropriate management decisions and are thus exposed to moral hazard and adverse selection problems. They should be retained by the farmers/herders and financed by individual savings/credit.

The *mezzanine layer of risk* includes less frequent but more severe risks that affect many farmers/herders at the same time (e.g., locust swarms, hail). The private insurance industry has demonstrated its ability to cover these losses.

The *top layer of risk* includes low frequency but high severity risks such as major droughts or floods. These catastrophic risks, by definition, are not well-documented, and their probable maximum loss can be very large. Innovative financial products, backed by governments, may offer new risk transfer opportunities.

Figure 1: Financial Management of Agricultural Risk

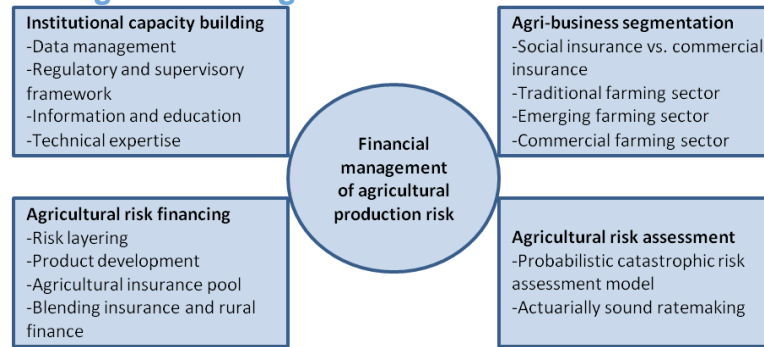
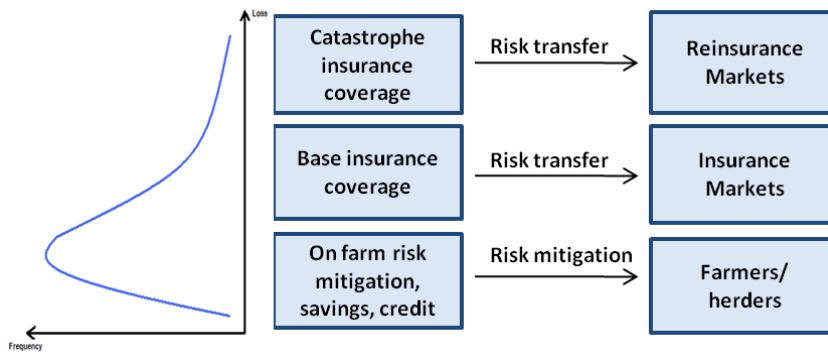


Figure 2: Agricultural Production Risk Layering



Index Based Insurance

Index-based agricultural insurance relies on the measurement of an objective and independent parameter that is highly correlated with the actual loss incurred by a farmer/herder. Under parametric index insurance, payouts are based solely on the measurement of a particular parameter (for example, rainfall at a named meteorological station) according to an agreed payout scale related to the rainfall actually recorded at a specific meteorological station. Under aggregate index insurance, payouts are based on an index developed from the aggregated statistics of farm production or yield in specified districts (e.g., area crop yield estimates for crops). Cost-effective agricultural insurance programs may combine traditional indemnity-based insurance (e.g., named peril insurance) with innovative index-based insurance solutions.

Interest in using index-based agricultural insurance has grown in recent years, particularly with respect to addressing the systemic component of agricultural production losses (e.g., widespread drought). Index-based insurance offers advantages over traditional insurance relying on individual losses, such as lower monitoring and loss adjustment costs and a more transparent indemnity structure. This type of insurance also faces challenges, however, such as basis risk caused by the imperfect correlation between the actual loss and the index, which make it cost-effective only for specific contexts.

The World Bank and the IFC are advancing index-based insurance through the Global Index Insurance Facility (GIIF). The GIIF promotes the development of effective and sustainable markets for index-based weather and catastrophic risk insurance, so as to foster the agricultural sector’s sustainable development in developing countries. Currently, using GIIF funding, IBRD supports public sector interventions in index insurance in 12 countries in Africa, the Caribbean, the Pacific, and Latin America, while IFC provides grants to seven private institutions implementing pilots in these regions as well as in Asia.

Further Reading

World Bank (2005). *Managing Agricultural Production Risks: Innovations in Developing Countries*. World Bank Agriculture and Rural Development Department, Report No. 32727. The World Bank. Washington, DC.

Mahul, O. and Stutley (2010). *Government Support to Agricultural Insurance: Challenges and Options for Developing Countries*. The World Bank. Washington, DC.

Contact

Olivier Mahul, Program Coordinator, Disaster Risk Financing and Insurance, Capital Markets Practice (NBFI), and GFDRR, The World Bank, omahul@worldbank.org, +1(202) 458-8955

Fatou Assah, Senior Financial Sector Specialist, Capital Markets Practice (NBFI), fassah@worldbank.org, + 228 92 37 8662



Updated March 2012 www.worldbank.org/fpd/drifp www.gfdr.org