

Delineating a Credible Boundary for Catastrophic Assistance

Marcel A.P.M. van Asseldonk^a, Kyösti Pietola^b and Miranda P.M. Meuwissen^c

^aAgricultural Economics Research Institute, Wageningen University and R.C., The Netherlands

^bMTT Agrifood Research, Finland

^cBusiness Economics Group, Wageningen University and Research Centre, The Netherlands

In accordance with OECD definitions, agricultural risks are characterized into three distinct layers. The first consists of production risks that occur frequently and are typically managed by means of on-farm instruments, such as diversification and adoption of risk reducing technologies. Within the second layer, given that risk events are infrequent and idiosyncratic, different risk sharing instruments, such as private insurance schemes, are more appropriate to manage them. When adverse events are more systemic and catastrophic, the market for insurance fails and can break down completely. These catastrophic production risks (3rd layer) are those events with a low probability of occurrence (rare events) leading to major and typically irreversible losses with a potentially adverse impact on regions because of its systemic component (correlation), and ultimately on business results. Rarity and severity are typically associated with catastrophic risks: the more severe a risk, the rarer it is, and vice versa.

There are several reasons that explain the market's failure to protect against catastrophic risks (3rd layer); these include the farmer underestimating the catastrophic risks and the difficulty of insurance companies to provide sufficient reinsurance capacity. Public policies that intervene on the insurance market also play an important role in either solving or exacerbating market failures and, thus in defining the boundary between the second and the third layer.

Public policies typically focus on two objectives. The first is to enhance the supply of insurance and to promote insurance markets for risks that would be otherwise non-insurable and non-tradable. These policies seek to expand the layer of marketable risks through different private-public partnership arrangements so as to extract at least some of the insured's willingness to pay and co-finance protection that would otherwise fall within the sole responsibility of the public sector.

A second objective has been to deliver disaster assistance. The experience, however, has been that disaster assistance programmes have been more or less *ad hoc* and *ex post*. *Ad hoc* payments could be effective in achieving disaster relief and almost all EU member states provide *ad hoc* payments. However, procedures and compensation have been decided under political pressure after an adverse event. Assistance has been unconditional so that farmers' eligibility for the disaster aid has not been conditioned on his/her prior participation in insurance policies. Therefore, *ad hoc* disaster assistance has had a tendency to distort the market for risk rather than provide some form of complementarity and to promote the insurance market.

The final effects of the disaster assistance programmes on the insurance market depend on their anticipated trigger (the strike), the scale and the coverage. In particular, the determination of the trigger, i.e. what level of rarity, severity and correlation should be defined as a catastrophe – is arbitrary. For example, Article 70 of the European Commission specifies certain conditions related to the design of public-private insurance schemes. A premium subsidy may only be granted if a climatic event destroys more than 30% of the average annual production. The need to delineate a boundary of what is a catastrophe and thus justifying catastrophic assistance is of eminent importance. Clearly, different definitions may lead to significantly different calls on public funds.

1 | In: Proceedings of the XIIIth Congress of the European Association of Agricultural Economists, August 30-September 2, 2011, Zurich, Switzerland. - EAAE, 2011. - Zurich, Switzerland.

It is evident that these two objectives with arbitrary definitions are conflicting and inconsistent in drawing the boundary between marketable risks and non-marketable catastrophic risks. The first expands the layer of marketable risks, whereas the second downsizes it. We argue that a well-defined trigger level designed *ex ante* and drawing a credible line between the two layers is needed to avoid that insurance subsidies become just an (inefficient) form of support; for example, the potential disadvantage of rent seeking by (re-)insurance and reinsurance companies that off-load their worst risks onto the government. Further, farmer eligibility for disaster aid should be conditioned on his/her participation in the insurance programmes to increase consistency between the programmes and to enhance market for risk within the second layer. Producers can only benefit if they have purchased insurance, and assistance is not provided for events that are insurable. This hybrid insurance system combines marketable risks as well as non-marketable catastrophic risks and has several advantages in comparison to *ad hoc* disaster assistance in dealing with catastrophic risk. First, the system is transparent and losses are appraised by experienced experts, while the indemnities are paid rapidly. Second, farmers participate financially in the scheme and share responsibility for risk management. Third, the main administrative burden of the system is transferred to insurers. The government can either be the lender of last resort by providing reinsurance, or subsidise the insurance premiums. The latter has the advantage that governments need not bear the risk in their budgets because the risk is transferred to private (re-)insurers. It is expected that complementary or supplementary between the two programmes have considerable implications to their efficacy. If governments continue to provide free and unconditional *ad hoc* disaster relief, the producer's belief on the availability of disaster relief will remain, and thus an important incentive to participate in an *ex ante* insurance scheme will be severely undermined.

Our normative analysis addresses the trade-offs between policies promoting adoption of voluntary insurance and providing disaster aid. By means of a Monte Carlo approach we simulate alternative insurance and disaster aid policies that affect the boundaries between insurable risks (2nd layer) and catastrophic risks (3rd layer). The policy scenarios involve complementarity or substitutability between participation in insurance programmes and access to disaster aid. We also simulate the credibility of the *ex-ante* boundaries between these programmes with a view that disaster aid programmes will not erode the insurance market.

Our analysis is highly policy relevant, since disaster assistance will continue to be an important policy measure in times of such severe crises that go beyond insurable risks and the coverage of agricultural insurance. An unconditional *ad hoc* disaster assistance is not, however, the most efficient approach to providing protection against catastrophic risks while enhancing insurance programmes for more tradable risks. It is unlikely that subsidized insurance programmes alone could fully substitute for the politically appealing disaster aid. Thus, new information on the trade-offs between alternative insurance and disaster aid programmes is valuable for designing consistent policies. A major challenge is to ensure that the system deters *ex post* assistance and is efficient in defining the boundaries of catastrophic risk. In summary, public insurance systems may play two different roles: one as a device to deliver disaster assistance and another to enhance insurance for marketable risks. We argue that a well-defined trigger level is needed so that insurance subsidies avoid becoming an (inefficient) form of support.