

Building evidence for risk-based insurance

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Professor John McAneney and Andrew Gissing were invited to contribute to the 2016 World Disaster Report by the International Federation of Red Cross and Red Crescent Societies. Their contribution is provided below.



Improving societal resilience in the face of the growing cost of disasters triggered by natural disasters and how to do so in a fair and affordable manner is an increasing challenge. Many governments are looking to insurance as a partial solution to this problem.

Insurance is a contract between a policy-holder and a company that guarantees compensation for a specified loss in return for the payment of

a premium. Conventional insurance works by pooling risks, an approach that works well for car accidents and house fires but not for the spatially-related nature of losses from disasters caused by natural hazards. It is the global reinsurance market that ultimately accepts much of this catastrophe risk (Roche et al., 2010). Relatively new financial instruments such as Catastrophe Bonds and Insurance-Linked Securities are also being employed to transfer some catastrophe risks to the capital markets.

Insurance is part of the essential infrastructure of a developed economy but it would be a mistake to see it as an instrument of social policy. It cannot in itself prevent flooding or earthquakes. On the other hand, insurance can promote socially desirable outcomes by helping policy-holders fund their post-disaster recovery more effectively. The greater the proportion of home-owners and businesses having insurance against naturally-triggered disasters, the more resilient the community will be.

Insurers can also help promote risk awareness by property owners and motivate them and communities, as well as governments, to take mitigation actions to reduce damaging losses (McAneney et al., 2016). The mechanism for doing this is by way of insurance premiums that properly reflect risk. Insurance is not the only means of providing transparency on the cost of risk, but private insurers are the only ones with a financial incentive to acknowledge such costs. Moreover, they are the only entities that can reward policy-holders when risks are reduced (Kunreuther, 2015; McAneney et al., 2016).

It is in the interest of communities to have a viable private sector insurance market and, arguably, governments should only become involved in the case of market failure (Roche et al., 2010). Of those government-authorized catastrophe insurance schemes examined by

McAneney et al. (2016), many are actuarially unsound and end up creating a continuing liability for governments, and/or, in not pricing individual risks correctly, they encourage property development in risky locations while failing to provide incentives for retrofitting older properties at high risk. In less-developed insurance markets some government involvement may encourage the uptake of insurance (e.g., Tinh and Hung, 2014).

How do we assemble the evidence to support risk-reflective insurance premiums? New technologies such as catastrophe loss modelling, satellite imagery and improved geospatial tools are proving helpful in allowing insurers to better understand their exposure to natural hazard risks. While these technologies are increasingly available, in some countries the normal outcomes of such data gathering and analysis – insurance premiums – are constrained politically. This is the case in the United States of America where there has been a tendency to keep premiums low across the board and to have policy-holders in low-risk areas cross-subsidizing those at higher risk (Czajkowski, 2012). Such practices do little to constrain poor land-use planning decisions that lie at the heart of many disasters triggered by natural hazards (e.g., Pielke Jr et al., 2008; Crompton and McAneney, 2008). McAneney et al. (2010) show that most of the homes destroyed in the 2009 Black Saturday fires in Australia were located very close to fire-prone bushland with some 25 per cent actually constructed within the bushland. Effectively these homes were part of the fuel load and their destruction was unsurprising.

One way to build a wider evidence base for collective action to support risk-based insurance policies is for governments to share information on risks of disasters related to natural hazards, both with insurers as well as the community. This information might be hazard footprints as well as the likely cost of the damage (The Wharton School, 2016). In Australia, governments have been reluctant to do this. In some developing insurance markets, homeowners or farmers may have a better understanding of the risks than do insurers, who will price this uncertainty into premiums. Unrestricted access to hazard data for all parties would encourage fairer insurance pricing.

Gathering hazard data for building evidence for risk-reflective premiums depends on the type of hazard. For example, the distance of buildings from fire-prone bushland or the local likelihood of flooding are key determinants of vulnerability to these location-specific hazards. In other areas, or within the same areas in some cases, the annual likelihood of exceeding damaging levels of seismic ground-shaking, wind speed or volcanic ash are important metrics, as are distance from the sea and the elevation of a property when it comes to coastal hazards like tsunami and storm surge.

When this risk evidence is established and becomes reflected in national construction standards, improvements in resilience follow. For example, improvements in construction standards introduced in Australia after the destruction of Darwin by Tropical Cyclone Tracy in 1974 have been credited with reducing subsequent losses from tropical cyclones by some 67 per cent (McAneney et al., 2007).

The availability of such data may result in reductions in some insurance premiums, an increase for others, or, in extreme cases, the withdrawal of insurers from areas where the



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risk is considered to be too high. The latter outcome will send a strong signal to communities and government for investments in mitigation; subsidized insurance is not the answer. Governments should also ensure that humanitarian aid provided after disasters is targeted effectively, in order to avoid creating disincentives for people to purchase insurance.

Lastly, and to return to the issue of poor land-use planning, it is worth remembering that the 1945 thesis of the famous American geographer, Gilbert White, that “Floods are an act of God, but flood losses are largely an act of man”, still rings true and applicable to a wider range of disasters triggered by natural hazards than just floods.

A full copy of the report can be found at
http://www.ifrc.org/Global/Documents/Secretariat/201610/WDR%202016-FINAL_web.pdf.