

Growing risks: the role of insurance

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We are living through a time of records. Never have there been so many humans alive on this planet. It is estimated that the 8 billion people populating the Earth represent about 7% of all the human beings who have ever lived. Also, the value of our economic output has never been so high. In 2023, the global GDP was US\$ 105.4 trillion. Not so long ago, in year 2000, this value was of US\$ 33.84 trillion, inflation adjusted. That means that in less than a quarter of the 21st century, and according to the World Bank accountings, the economic value of the human output has more than tripled. The yearly mean of the GDP growth rate in the decade elapsed between 2014 and 2023 has been of 2.76%, including even in that period the largest global pandemic of the past 100 years that meant an important recession in 2020. In summary, there has never been in the world so much exposure in terms of both human lives and economic value.

This demographic and economic growth has not been homogeneous across regions. Some of them have had a way larger growth rate than others, but what keeps being common is that this growth is still based on a consumer economy that still generates the most part of their also growing energy demands by burning fossil fuels. Thus, we are also at record levels of energy generation, energy demand and greenhouse gas emissions. In 2022, these emissions reached 58.85 billion tonnes CO₂ eq¹. Though the rise of emissions has been proportionally smaller (in 2000 global emissions rose to 44.77 billion tonnes CO₂ eq¹ implying that per capita emissions *only* rose globally from 4.1 to 4.7 tonnes/year), in the course of this century an additional 1.92 billion people has been added to world population, which is the main cause of the emissions' rise.

There is no shade of scientific doubt about the attribution of global warming to this change in atmospheric composition induced by human activity, through the radiative forcing that greenhouse gases create in the Earth's Climate System. This global temperature rise, currently of practically 1.5 °C above preindustrial levels, is besides more than likely the cause of changes in weather patterns and of a greater irregularity and more intensity of rainfall, when precipitations finally occur. All this evidence implies that hazard levels are also being aggravated by global warming.



Given this increasingly complex environment, insurance can keep being a tool adding resilience and sustainability, providing the own insurance schemes are so and are designed in such a way that the economic resilience they provide is added to the effort of other bodies, in a coordinated manner, to add physical resilience.

¹ CO2 eq or CO2 equivalent is a measure in tonnes of the carbon footprint, where greenhouse gases other than carbon dioxide are converted into their equivalent greenhouse effect capacity.

Explained with a simple analogy, more and more of us are locked in a room with a boxer punching in all directions and we feed the boxer to make him or her stronger and stronger. By both rising exposure (the number of people in the room) and hazard (the strength and stamina of the boxer), it is increasingly difficult not to get hit. Long term solutions would include trying to weaken the boxer, but for the time being we keep feeding him or her more and better (in large part because the producers of sport supplements control the economy of the room and influence the decisions taken by their dwellers); by learning the paths where the boxer moves more frequently and trying to avoid those areas; and by wearing helmets and other protections so that we can be less vulnerable to the blows.

Coming back to reality, global warming is aggravating the hazards impacting an ever-increasing human and economic exposure, and both are the causes of the growing loss that societies have to face. Another consequence of this rise in population and economic activity is the urban and industrial development of large areas that, in preindustrial times when humans had the innate ability to read and interpret the landscape, were devoted to, at most, agricultural uses. The massive occupation of these alluvial plains, areas where it is relatively easy to build and set all kind of infrastructure, inevitably leads to a rise of exposure in, for instance, flood prone areas. Given that risk is the result of the multiplication of hazard (that in most cases is rising due to global warming), exposure (that as we have just seen has grown almost exponentially) and vulnerability, the most feasible way to keep risk under check is to try controlling the latter.

Vulnerability has two components: susceptibility – the greater or lesser capacity of an exposed asset to be damaged by a hazard – and response capacity – a social concept that has to do with the greater or lesser velocity with which a society impacted by the materialization of a risk goes back to normality –. Insurance is a mechanism to which society, individually or collectively, transfers those risks when they materialize.

By means of loss indemnification, insurance allows for a better capacity response and, thus, social vulnerability reduction. Therefore it is important that catastrophe insurance works appropriately, as it is a contract-binding way to compensate loss to the insured affected and it is also a useful way for public budget protection, allowing that this can be devoted to other purposes, such as risk reduction. The proportion between total loss and insured loss is called protection gap. It is deemed that, globally, two thirds of catastrophic losses are not covered by insurance, causing a financial burden on individuals, societies and governmental and multilateral bodies that can help compensate, at least, part of those losses.

The rising levels of hazard and exposure are putting pressure on insurance in some cases and jurisdictions, showing obvious evidence of adverse selection: as a consequence of the growing number of losses and loss events, premiums rise, less people has the financial capacity or willingness to pay them and consequently the insurance protection gap widens. In the case of reinsurance, requirements for cedents harden and the final result is that there have already been concrete cases, especially in the US market, of insurers and reinsurers limiting *their* exposure. This is obviously bad news, as insurance business is made viable by ceasing to be relevant where it is most needed.

That is the reason why other complementary ways for insurance to keep being relevant are being sought after. These ways include a better definition of covers and conditions in insurance and reinsurance contracts, the search of new products such as parametric insurance or insurance linked securities. Other options involve the inclusion of the public sector somehow, be it from the regulation, opening ways for insurance, like the engagement of public insurers covering loss caused by certain hazards. In fact, this is not about substituting the markets and their traditional functioning model of insurance and reinsurance, it is rather about complementing and reinforcing the market so as to it can keep working correctly and providing its fundamental protection mission. In no jurisdiction where any of these solutions is being applied they are substituting the market, on the contrary, they are incorporated in certain sections, cases or hazards to the previous basic model.

Spain is one of those examples. In order to insure property and persons, business interruption included, the policies sold by insurance companies are complemented by the inclusion of a list of hazards, called 'extraordinary risks' that have to be compulsorily included into those policies. Among these hazards are floods, windstorms, earthquakes or terrorist attacks, whose cover is provided automatically by a public insurer, *Consorcio de Compensación de Seguros* (CCS). In order to finance that cover, a surcharge is applied to those policies (140 million of them in 2023) depending on the kind of asset insured and the sum insured. All other perils, included some weather-related, such as snow or hail, are directly covered by private insurers, which reinsure their portfolio in the market. This legal arrangement making the extension of the cover compulsory is the reason why insurance protection gap for catastrophic hazards is significantly smaller in Spain than in other similar countries. If, globally, the protection gap is of about 66%, in the [EMEA region is of 70%](#). In Spain, according to the most recent estimates, this gap is [of about 45%](#), which makes our situation comparatively better than that of other surrounding countries. For instance, in Spain the [insured residential properties average at 74%](#) and, by definition, the complete car stock is. This implies that all vehicles and three out of four homes are automatically insured against the most frequent catastrophic hazards, and this is a rather singular feature.

Spain is not, of course, the only country with such an arrangement, involving public-private partnership to insure a list of catastrophic perils. Among the [examples](#) we may list the French Cat Nat model, involving the public reinsurer *Caisse Centrale de Réassurance*; New Zealand's Natural Hazards Commission or the Natural Catastrophe Insurance of Iceland. All of them share the same philosophy of CCS, with a universal extension of the cover to a list of several hazards, applying flat rates for all their jurisdictions. Others provide insurance or reinsurance covers for a given hazard, such as earthquake in California, Türkiye or Taiwan or flood in the United Kingdom. Some of these entities, such as the Turkish Catastrophe Insurance Pool are currently evolving into covering more hazards, thus becoming a multi-peril scheme, just as the Australian Terrorism Reinsurance Pool did a few years ago, including now tropical cyclone into their original cover. Other countries, such as Italy, are at the moment designing and implementing schemes based on public-private partnerships for some hazards and kinds of exposed properties. Nevertheless, the Spanish Extraordinary Risk Scheme is the model that, in a very cost-effective way, covers more hazards in more insurance classes by an entity, *Consorcio de Compensación de Seguros* that, apart from the Extraordinary Risk insurance performs many other functions intended to make the Spanish insurance market work better.

Spain has another application of public-private partnership for insuring potentially catastrophic risks in the agricultural sector. In this case, partnership is articulated by means of a coinsurance pool in which about 20 private insurers and the CCS participate, managed by a private company, *Agroseguro*, of which CCS is the reinsurer. Premiums for agricultural producers are subsidised by the National Entity of Agricultural Insurance (ENESA, by its Spanish denomination) and regional governments. It is a model with more than 40 years of experience, a high degree of take up rate and comprehensive covers for practically the whole agricultural output.

It is increasingly obvious, as unfortunately we experienced in Spain last October 29th 2024 that, as a result of the reasons previously explained, we face another dimension of catastrophes. Spain has entered the era of multi-billion insurance losses, as no doubts will be those of the flood event to the west and south of the metropolitan area of Valencia. In addition to the pain for the loss of human life and for the impact to the lives of tens of thousands, this event has created huge physical devastation. For CCS this has been the largest loss event of its 70 years of history. At the time of writing, CCS has filed more than 237,000 claims, an amount practically quadrupling the previous record for a flood loss event, the floods of September 2019 affecting especially Murcia and Alicante. This is also the opportunity to show that the Spanish Extraordinary Risk Scheme can provide a response to this kind of huge events, with an original solution allowing universal cover for all insureds at a much lower cost than in other countries and with which, in spite of the enormous dimension and complexities to be faced, insureds can recover the economic loss up to the limit of the sums insured in their respective policies in a reasonable time.

In sight of this context of very high exposure and growing hazards, insurance, in order to provide more effective answers or even to keep being relevant in certain locations, must be adapted and must be made more resilient. Some possible ways to do so are:

- Maximising mutualisation so that it keeps being economically reasonable to underwrite an insurance policy, keeping adverse selection at bay. For that purpose, options implying some kind of binding degree of insurance take up or binding cover extension should not be ignored. With a larger insurance mass, both in number of policies and sum insured, the protection gap can be reduced and the capital needed to face potential loss can be raised.
- Establishing partnerships between private insurance and the public sector. The latter can be involved through regulatory measures and/or by facilitating that public insurers, or licensed private insurers, deal with the cover of certain hazards the private market could find less appetizing. Nevertheless, it is important that the market retains a part of the risk so that it can perform its function of risk selection, providing incentives for the adoption of risk control and risk reduction measures at insured property level.
- Facilitating the cooperation of the insurance industry as a whole with all the bodies dealing with emergency and risk management: administrations at all levels, scientific and technical bodies and the academia. The insurance expertise in risk knowledge, as well as loss data and assessment records can be used for better mapping of risk zones, better legislation on land uses and building codes considering the hazards that exposure must face in each area, and also in risk management and risk reduction, lowering the susceptibility of the existing exposure. The goal of creating a more resilient society must be shared. Otherwise, the cost of not taking into account the risks at the time of urban planning and developing a given place relies exclusively on some tiers, such as individuals, insurance and public budgets, potentially compromising their future viability.
- Communicating clearly what risks communities face and the importance of being insured as one of the better protection options against them.

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