Natural disasters: exposure and underinsurance

By Céline Grislain-Letrémy

Overseas households are more exposed to natural disasters than in mainland France, with a 20% increase in the sinistrality expected by 2050. However, far fewer of them are insured. Insurance supply is developed and regulated. The low subscription is mainly due to uninsurable housing and the anticipation of assistance.

Figure 1 : Effects of Hurricane Maria, Guadeloupe, 2017

Source: https://commons.wikimedia.org/wiki/File:Dégats_Ouragan_Maria_(Aprés_son_Passage).jpg

The macroimpact of uninsured losses due to natural disasters

Natural disasters have a considerable and growing impact on national economies. Over the last few decades, the damages associated with such events have frequently reached several percentage points of GDP (Ritchie and Roser, 2021). The uninsured losses are the main drivers in the subsequent drop in national output after natural disasters. Instead, the insurance coverage of private assets enables countries to partially transfer catastrophic risk to foreign actors.

However, insured losses represent a small fraction of the economic losses, even in highly exposed countries (MunichRe, 2020). In particular, Latin America and the Caribbean form one of the world's most disaster-prone areas with damages exceeding 50% of GDP in the last few decades. Yet these two regions have the lowest levels of insurance coverage, particularly

among households, and rank last among the world's regions along with Asia (4%), and behind Africa (9%) (Inter-American Development Bank report).

The reduced availability or the unaffordability of insurance supply are commonly identified as the primary causes for the low insurance coverage in hazard-prone regions of the world, such as Latin America and the Caribbean. This restricted insurance supply is mainly due to unavailable or unaffordable reinsurance and also to limited standardized information on risk exposure.

The French overseas departments provide a rare example of a well-developed and regulated supply of natural disaster insurance in Latin America, the Caribbean, and other exposed small island countries. They include French Guiana (South America), Guadeloupe and Martinique (Caribbean Sea), Réunion and - since 2011 - Mayotte (Indian Ocean). They have benefited from the French system of natural disaster insurance since 1990. This broad and regulated supply of coverage offers a unique opportunity to analyze the determinants of insurance coverage in these exposed areas while focusing on the demand side.

Figure 2: Subscription rate (%) for comprehensive home insurance

French Guiana	49
Guadeloupe	59
Martinique	62
Mayotte	6
Réunion	68
Metropolitan France	97

Source: INSEE family budget survey, 2017
Note: Comprehensive home insurance includes the natural disaster coverage in France.

The possible demand-side reasons for the low insurance take-up

My focus here and in my article (Grislain-Letrémy, 2018) is the demand-side reasons for the low insurance take-up in disaster-prone areas. Besides perception biases, several major reasons might explain the low demand for natural disaster insurance.

First, insurance might be too expensive for households. When insurance is available, the insurance premiums in Latin America and the Caribbean are high because of the restricted or expensive reinsurance supply.

Second, in Latin America, the Caribbean, many houses are of low quality, do not meet adequate building standards, which are in practice often either nonexistent or outdated. In particular, the French overseas departments do not require a permit to build a house because the property law allows households to own the walls of their home without owning the ground on which it is built. Because of their poor resilience to natural events, these legal houses could be considered as uninsurable by insurance companies.

Third, assistance is a substitute for formal insurance and decreases the demand for insurance. Households can garner financial assistance after natural disasters from local authorities, international and non-governmental organizations, or relatives. The French overseas departments also benefit from significant financial assistance from the French government via the emergency fund for the overseas territories. Besides, the neighbors' decision to be uninsured can increase the neighborhood's eligibility for assistance and so decrease the individual benefit of purchasing insurance, or on the contrary increase this benefit if assistance has to be shared among uninsured households.

Fourth, the neighbors' insurance choices also impact individual decisions through peer effects and sustain this way a low level of insurance take-up. Indeed, social norms impact the decision to purchase insurance, because individuals might think that their relatives have similar preferences to them or have already contributed the search costs of obtaining information on risk and insurance.

Fifth, although insurance obligations logically increase insurance demand, in reality they do not guarantee that targeted households purchase insurance. For example, even if purchasing home insurance is often a condition for obtaining a mortgage, some homeowners with outstanding loans might not renew their insurance contracts once they have settled in.

Uninsurable housing and anticipation of assistance

I show that the low demand is mainly due to low quality housing and also likely to the anticipation of assistance. The regulated insurance price in the French overseas departments does not significantly contribute to the low insurance demand. Further, I show that the neighbors' insurance choices impact the individual's insurance decisions through the neighborhood's eligibility for assistance and through peer effects. Having grown up in metropolitan France where the vast majority of people are insured also increases the probability of being insured. Finally, the existing insurance obligations are operant but do not guarantee that targeted households purchase insurance because of little monitoring of insurance renewals.

Figure 3: Magnitude of some determinants of insurance demand

Assumption	Percentage of insured households (%)
Low quality housing	
If all homes are houses …	
still under construction	18
without hot water	13
without drainage	36
without indoor toilets	18
Municipal insurance rate	
If municipal insurance rate is 75 % …	
and there are neighborhood's eligibility effects only	0,49 (*)
and there are peer effects only	0,59 (*)
Place of birth	
If all households are born…	
in metropolitan France	71
abroad	29
Insurance obligations	
If all households are…	
tenants	60
homeowners with outstanding loans	71

Source: Grislain-Letrémy (2018)
Note: Mayotte is excluded from the empirical analysis.
The initial percentage of insured households in 2006 is 48%.
(*) Individual probability of purchasing insurance.

Recommendations for overseas France

The 2020 report by the General Inspectorate of Finance, partly based on these results, offers various very relevant levers of action to increase the subscription rate in overseas France. It recommends the operational declination of the reflections carried out on local building techniques, the abolition of the emergency fund for the overseas territories, and the intervention of third parties to enforce the compulsory nature of insurance. It also proposes the promotion of insurance (including by non-insurance professionals) or the incentive for insurers to cover goods located overseas through an evolution of reinsurance contracts.