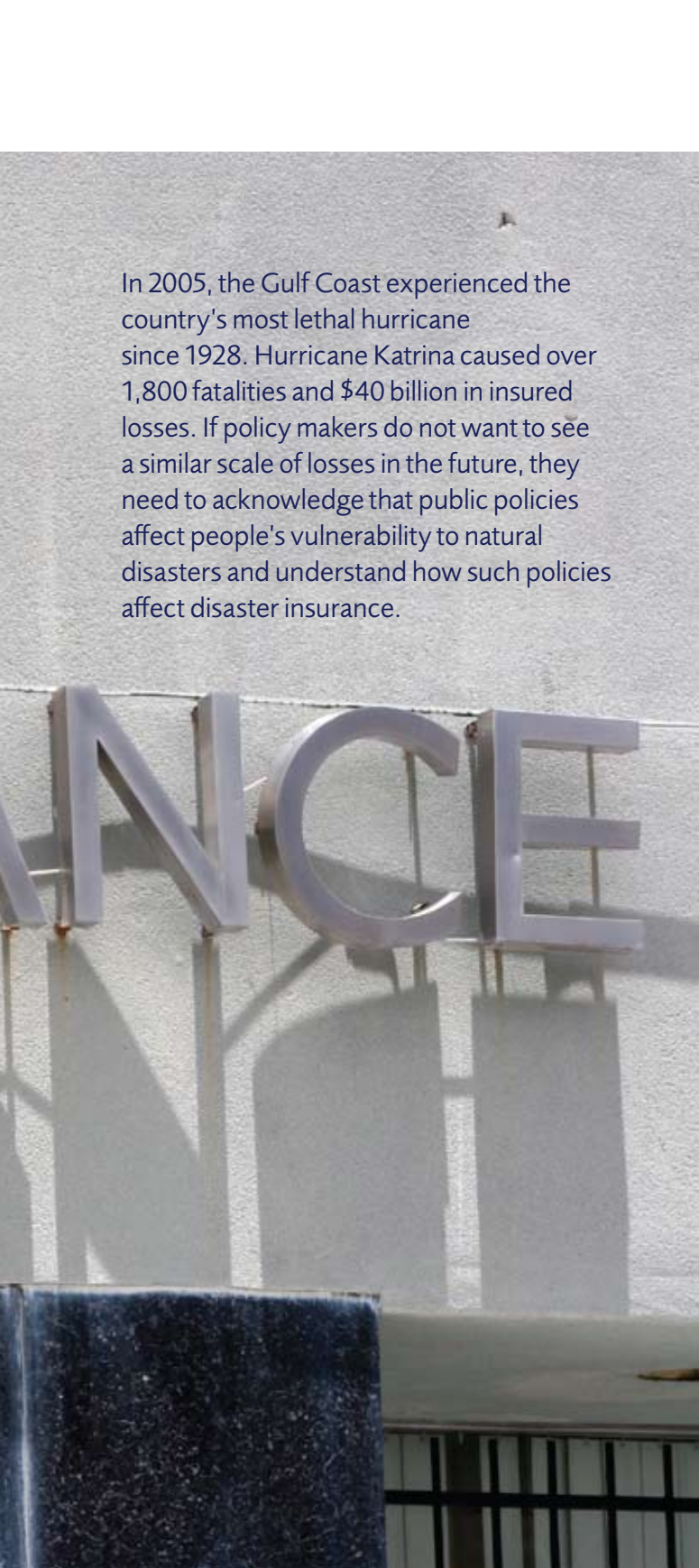


Ensuring Disaster

Daniel Sutter





In 2005, the Gulf Coast experienced the country's most lethal hurricane since 1928. Hurricane Katrina caused over 1,800 fatalities and \$40 billion in insured losses. If policy makers do not want to see a similar scale of losses in the future, they need to acknowledge that public policies affect people's vulnerability to natural disasters and understand how such policies affect disaster insurance.

NATURAL DISASTERS MAY be pure “acts of God,” but the amount of damage they do is anything but. Of course, no one can stop a hurricane from ravaging a vulnerable coastline, as Hurricane Katrina did to the Gulf Coast. However, individuals and businesses ultimately choose where and

how to build in different areas of varying risk, which means much of a natural disaster’s destruction can be avoided altogether. Of all the tragedies that befell the Gulf region owing to Katrina, this may be the most upsetting: much of the loss of life and property were ultimately avoidable.

Many factors influence people’s decisions about where to build and live (i.e., assume risk). From a public policy point of view, it may not be appropriate to try to control or eliminate all the risks associated with those factors. A more subtle, yet key, factor is insurance, which U.S. public policy plays an integral part in regulating. Insurance is a voluntary contractual means of securing relief in the event of a loss. In a robust and perfectly competitive market, insurance premiums reflect the true risk of whatever is being insured against, and thus the true expected cost of undertaking the activity in question. However, because insurance is a highly regulated industry in the United States, the outcome is significantly different. In particular, state regulation of wind, hail, fire, and other types of property and casualty insurance affect the vulnerability of U.S. society to hurricanes.

In 2005, the country observed its most lethal hurricane since 1928. With over 1,800 fatalities, \$40 billion in insured losses, and 90,000 square miles affected, it behooves policy makers to understand how they can affect vulnerability to such natural disasters. Understanding how public policies affect disaster insurance is one major step in avoiding the scale of losses seen in the wake of Hurricane Katrina.

What Does Vulnerability Mean to Society?

RISK, OR VULNERABILITY, is not a state of the world that comes in a binary flavor—either something is risky or it is not. Risk is a continuum with an often uncountable number of factors that determine its degree. Risk is also not, by itself, a bad thing. A complete elimination of risk would paralyze society. For example, the use of automobiles presents an underlying level of risk that everybody is familiar with, but a complete

elimination of that risk would mean the complete elimination of cars. Certainly most would agree this would do more harm than good. To do away with all home fires, we could simply do away with homes. With respect to Hurricane Katrina and similar future hurricanes, an analogous (though seemingly less ridiculous) solution proposed by some would entail limiting coastal development. Eliminating risk does away with the potential harms of certain choices while completely sacrificing the benefits associated with them. In most cases, the risk of a car accident or a home fire is outweighed by the benefit of driving or living in a house. Society is thus made better off by allowing such choices and seeking to balance the risk and the benefit. In the same way, society

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is better off when people are allowed to live, build, vacation, and invest in coastal areas that may have an obvious threat of disaster. In doing so, they express their preference for the unique bundle of attributes offered by a coastal residence or workplace (views, weather, recreation, etc.). Indeed, the preference for such a location is entirely subjective, but where the individually perceived benefits exceed the costs, a person is better off being allowed to make that choice.

By spreading the costs across many people, insurance provides a mechanism by which individuals can afford to assume these risks. In an unregulated market, this sharing of risk between an insurer and many policyholders represents a net gain to all involved parties because they have all agreed to the terms of the insurance, and the premiums paid reflect the true risk of being insured. In a regulated or subsidized market, however, costs may be shifted to individuals or parties who have not taken on such risk (such as the cost of coastal wind damage shifted to those who live nowhere near a coastal area).

When this shifting occurs, then coastal residents undertake inefficient risk—through excess assumption of risk. When the cost is shifted, some people who do not value living by the ocean more than the total costs of doing so will find it beneficial to move there, leading to a net loss for society. An issue of fairness also arises as those who do not benefit from the oceanside residences must help pay for them nonetheless.

The pooling of risk is a necessary component for the financing of large-scale investments like an individual's home or an oil company's platforms. Insurance allows investors to be compensated in the case of damage from disaster, like the more than one hundred offshore oil platforms that were destroyed by Hurricanes Katrina and Rita, and is indispensable for the modern economy.

Insurance Problems

INSURANCE CONTRACTS CAN be complicated by several factors. Insurance companies go to great lengths to avoid these problems, control costs, and keep their premiums competitively priced.

Moral Hazard

THIS REFERS TO a situation where a person increases the likelihood of damage once they become insured. For example, a person who knows that they will be compensated in the event of an accident may not exercise as much caution as they would if they were not insured.

Adverse Selection

ADVERSE SELECTION APPLIES to situations of asymmetrical information. When an insurer does not have as much information as the insured, the contract cannot be priced appropriately. If a homeowner knows there is some faulty wiring in the home that is likely to spark and cause a fire at some point but the insurer does not know this, the insurer will underprice the insurance premiums compared to how much they are likely to pay out. When this kind of information imbalance exists over a wide group of potential customers, it can cause significant disruptions in the market.



Problems Particular to Catastrophe Coverage

Correlation of Losses

FOR THE TYPICAL insured loss, there is a similar but independent chance that any two policies will require payment in a given year. In other words, the odds that one policyholder will get into a car accident has no effect on whether another policyholder will as well. Pooling risks becomes possible

when this is the case. For instance, if 5 percent of drivers have an accident each year, a company with 100,000 auto insurance policies can expect 5,000 claims in a year, with 6,000 claims being highly unlikely. Thus, each year's premiums can usually cover each year's losses, and the risk of the insurance company becoming financially insolvent is low.

In contrast to these independent risks, after Hurricane Katrina, instead of a small proportion of policyholders having a claim, virtually all policyholders along the Louisiana and Mississippi coasts had claims. Catastrophic disasters thus pose a greater risk of insolvency for insurance companies. In response, insurance companies must accumulate larger reserves or purchase reinsurance (an insurance policy for insurance companies). Either option will raise the price of insurance for disasters such as hurricanes.¹

Ambiguity

AS OPPOSED TO car or life insurance, where millions of previous events help to accurately predict the number of likely claims, hurricanes and other natural disasters are not nearly as common, making it difficult to do the same. This ambiguity in risk, in either the likelihood of the event occurring or the amount of

the loss, can lead to a 20–60 percent increase in premiums.² This ambiguity can stem from multiple sources, including government. Prior to Hurricane Andrew, insurers took into account that South Florida had one of the strictest building codes in the country. After the storm, it was discovered that code enforcement had been severely inadequate, and 25 percent of losses were due to the failure to build to code.³ Lawsuits stemming from Katrina have also contributed to ambiguity in the disaster insurance markets.⁴

This ambiguity leads to higher rates, which is the proper

1. It should be noted that the taxation of those reserves can substantially raise the cost of providing disaster insurance. Scott E. Harrington, "Rethinking Disaster Policy," *Regulation* 23, no. 1 (2000): 40–46.

2. Howard Kunreuther et al., "Ambiguity and Underwriter Decision Processes," *Journal of Economic Behavior and Organization* 26 (1995): 337–52.

3. Dennis J. Mileti, *Disasters by Design* (Washington, DC: Joseph Henry Press, 1999); Paul Fronstin and Alphonse G. Holtmann, "The Determinants of Residential Property Damage Caused by Hurricane Andrew," *Southern Economic Journal* 61, no. 2 (1994): 387–97.

4. The State of Mississippi has initiated a lawsuit to force insurance companies to pay for flood damage under wind damage policies that explicitly excluded flood losses.

response and not a market failure. This uncertainty would prompt any typical person to charge more for a policy, with their own wealth being at substantial risk should prices turn out to be too low. But because no single political policy maker is at risk of insolvency, especially over the long term, governments can assume such risks at a price that might be too low.

Higher premiums due to ambiguity will increase the cost of coastal development, which will slow growth in such areas. For this kind of irreversible long-term investment, reducing investment because of higher prices is the proper, efficient response to uncertain losses.⁵ Suppressing price increases due to ambiguity will put more property (and lives) at risk. State regulators often restrict insurance companies from raising rates based on newly revised loss estimates after a hurricane. But the government-imposed price ceiling then leads to a shortage, with companies canceling coverage or abstaining from creating new policies in a high-risk area. This, in turn, increases pressure on politicians to intervene in the market by creating publicly subsidized insurance pools.

State Involvement in Hurricane Insurance

STATES REGULATE INSURERS similarly to how they regulate utility companies. States license insurance companies and regulate rates, contracts, and conduct to prevent insolvency. Because most insurance companies provide multiple types of insurance and attempt to divide potential customers into groupings based on risk, the potential exists for cross-subsidization. Cross-subsidization involves some customers of a regulated, multi-product firm paying extra so that other customers can receive a product for less than cost.⁶ A simple example in a non-insurance context is the price of first-class postage, which is the same for every letter even though the cost clearly varies by distance.

State Insurance Pools

IN CONTRAST TO traditional cross-subsidization schemes, high-risk hurricane states have created state-run insurance pools called wind or beach pools. Federal legislation in the 1960s authorized states to create Fair Access to Insurance Requirements (FAIR) plans after urban riots, and seven states have used this authority to establish hurricane insurance pools. These pools insure high-risk properties at below-market rates. All licensed companies within the state must be members of the pool as a condition of their license, and they are assessed based on their share of premiums in the market when the pool experiences losses in excess of its own revenues. Under a state pool, the only way an insurance company can avoid exposure to high-risk areas is to exit the state completely, which it may understandably be hesitant to do because of long-term investments in brand awareness, customer loyalty, and so on. Even this last-resort exit option may not be possible since states may severely restrict non-renewal or cancellation of policies after a hurricane. In most cases, the state pool assessments are passed on to policyholders, so that the assessments essentially act like an excise tax on insurance.

Table 1: State Wind and Beach Pools

| STATE | CURRENT NAME | YEAR ESTABLISHED | POLICIES IN FORCE | TOTAL LIABILITY |
|----------------|--|------------------|-------------------|-----------------|
| Alabama | Alabama Insurance Underwriting Association | 1970 | 7,499 | \$1.313 Billion |
| Florida | Citizens Property Insurance Corporation | 1970 | 1,298,922 | \$408.8 Billion |
| Louisiana | Louisiana Citizens | 1968 | 129,203 | \$21.13 Billion |
| Mississippi | Mississippi Underwriting Association | 1987 | 30,962 | \$5.370 Billion |
| North Carolina | NC Insurance Underwriting Association | 1969 | 141,843 | \$57.27 Billion |
| South Carolina | SC Wind and Hail Underwriting Association | 1970 | 30,091 | \$12.17 Billion |
| Texas | Texas Windstorm Insurance Association | 1971 | 160,281 | \$50.23 Billion |

Source: Daniel Sutter, *Insuring Disaster*, Mercatus Policy Series, Policy Comment 14 (Arlington, VA: Mercatus Center at George Mason University, 2007).

5. Kenneth J. Arrow and Robert C. Lind, "Uncertainty and Evaluation of Public Investment Decisions," *American Economic Review* 60, no. 3 (1970): 364-78.
 6. Richard Posner, "Taxation by Regulation," *Bell Journal of Economics & Management Science* 22 (1971).



State Guaranty Funds

ANOTHER FORM OF regulatory subsidy for high-risk properties are state guaranty funds which pay claims for the policies of insolvent insurance companies. Forty-nine states currently have guaranty funds.⁷ Of course, ensuring solvency is the primary goal of insurance regulation.⁸ Before a company actually fails (or is “impaired” in regulators’ parlance), the state commission will often step in and attempt to combine the distressed company with another company or otherwise smooth over any financial woes. If a company does eventually fail, guaranty funds can impose assessments on the

state’s other insurers to cover the now insolvent company’s claims. Since 1978, state guaranty funds have imposed more than \$11 billion for this purpose.⁹ Were there no guaranty funds, more potential customers would instead diligently rely upon market ratings (such as A.M. Best) to judge the financial soundness of various insurers. The existence of a guaranty fund reduces the incentive of customers to consider financial stability and possibly pay extra for a more financially secure company. There is also evidence that guaranty funds cause insurers to engage in their own form of moral hazard, writing more policies than they would otherwise, especially for those near insolvency.¹⁰

7. New York is the one exception, but has its own form of insurance insolvency coverage: “a pre-assessment system, which requires insurers to contribute to a permanent insolvency fund.” Insurance Information Institute, “Issues Update: Insolvencies/Guaranty Funds,” May 2007, <http://iii.org/media/hottopics/insurance/insolvencies/>.

8. Kenneth J. Meier, “The Politics of Insurance Regulation,” *Journal of Risk and Insurance* 58, no. 4 (1991): 700-13.

9. Ibid.

10. James G. Bohn and Brian J. Hall, “The Costs of Insurance Company Failures,” in *The Economics of Property-Casualty Insurance*, David F. Bradford, ed. (Chicago: University of Chicago Press, 1998), 139-166.

Insurance Pools, Affordable Insurance, and Hurricane Vulnerability

FOR STATES, PROVIDING affordable insurance is the overarching goal of wind or beach pools, whether stated explicitly or not. But affordability is subjective and certainly there are some cases where most people would agree it is not a legitimate policy aim. Rising fuel prices may make fuel for private jets “unaffordable” for those rich enough to own one, but no one would argue that this merits a subsidy.

By looking at the 2000 census, one finds that coastal counties are not particularly poor when compared to their states as a whole. In most states, per capita income on the coast is actually very similar or even higher than state averages. House prices also can be significantly higher on the coast than elsewhere. This indicates that the properties receiving the highest subsidies are unlikely to be any poorer—and thus any more deserving of a subsidy—than their entire state population. In fact, much like private jet owners facing rising fuel prices, coastal homeowners may be less deserving of a subsidy.

When looking at only the census tracts most affected by Hurricane Katrina in Mississippi, Alabama, and Louisiana, the results are similar. The poverty rate, median incomes, and share of high-priced homes all indicate an advantaged coastal population when compared to inland populations. This contrast would likely become more dramatic without an insurance subsidy. In the absence of below-market insurance rates, some lower-income residents would certainly move out of the area, or even never move into the area at all. But because hurricanes have a disproportionate impact on poor residents, this would be a desirable outcome.¹¹

State hurricane pools are also offered as a way to accomplish policy goals other than affordability, such as inducing economic development in coastal regions. As mentioned above, at full insurance costs, individuals and businesses will only choose to live in a high-risk area if the benefits of doing so outweigh the costs. Thus, location-based economic development policy is often questionable no matter where it occurs, but especially so in coastal areas. Again, subsidizing the cost of living in a coastal area ultimately creates more potential for harm by making it more attractive for people to live and build there than would otherwise.

The extent to which insurance pools have increased

the number of people affected by hurricanes is difficult to calculate precisely, but a rough estimate is possible. Looking at censuses between 1950 and 2000, coastal counties in states with beach pools grew an average of 413,000 persons per decade, compared with growth of 154,000 persons per decade for states without a beach pool. Another way

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to determine the impact is to look at coastal county population growth in the seven states with wind pools during the decades immediately prior to and after establishment of the pool. These counties experienced an average 41.5 percent growth in the decade after the pool was established compared with 25.5 percent average growth in the prior decade.

Implications for Policy

FOR STATE INSURANCE pools, the problems are numerous. With premiums that do not cover costs and must be imposed onto others, cross-subsidies from low-risk to high-risk policyholders, and subsidies going to relatively more wealthy populations, state policy makers should seriously reconsider these pools and their role in regulating insurance markets.

Policy makers should start by introducing a moratorium on the creation of new or expansion of existing hurricane pools. They could go further by phasing out the existing subsidies over a given period (such as ten years). As subsidies phase out and premiums rise to market-determined levels, states could continue to maintain affordability for low-income residents by offering tax credits or vouchers to existing residents. Short of eliminating state pools, states should

11. Nicole Dash and Hugh Gladwin, “Evacuation Decision Making and Behavioral Responses in Individual and Household,” *Natural Hazards Review* 8 (2007): 69-77.



purchase reinsurance or issue catastrophe bonds to cover excess losses rather than continue to make assessments against insurers. Fortunately, elimination of these kinds of subsidies may prove to be quite popular. A recent survey indicated that 84 percent of respondents were unaware of subsidies for coastal properties, but 64 percent opposed them.¹²

Conclusion

INSURANCE AS A contract and a financial instrument can be very complex. The nature of natural disasters further complicates it. Without insurance, much of life's risk would be insurmountable, and many of society's greatest investments would never be made. Certain realities apply to any kind of insurance, such as moral hazard and adverse selection. Other factors, like ambiguity and correlation, also apply in the case of hurricane insurance and make risk trickier for insurers to calculate. But because this insurance is tricky does not necessarily merit intrusive state regulation. State regulation through pools and guaranty funds introduces its own set of complications and unintended consequences.

Policy makers must start with determining what their

underlying goal really is. It should not be making insurance for the riskiest types of investments affordable for all people. Only those people for whom the benefits from living in coastal and other high-risk areas exceed the costs should live and build there. The way to minimize damage and irreplaceable losses, and ultimately the disruption to the way of life of hurricane-prone regions, is to ensure that everyone assumes the full cost of the risks they choose. In this way, decisions will follow their most efficient path and future catastrophes, like the one experienced by the Gulf Coast in 2005, will not be followed by such unthinkable tolls.

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For more on this topic, read Daniel Sutter, *Ensuring Disaster: State Insurance Regulation, Coastal Development, and Hurricanes*, Mercatus Policy Series, Policy Comment 14, (Arlington, VA: Mercatus Center at George Mason University, September 12, 2007), http://mercatus.org/publications/pubid.4329/pub_detail.asp.

12. Stephen Pociask, *Consumer Opinions on Insurance Price Regulation* (Reston, Virginia: American Consumer Institute, 2007), 2.