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Why It Is Urgent to Rethink the Economics of Disaster Insurance Protection

W. KIP VISCUSI

As other contributors to this book have suggested, how people make decisions involving risk and uncertainty and how economists think people should make these decisions are often quite different matters.

For many decisions that we make the stakes are modest, so whether we stray a bit from economic efficiency norms may be of professional interest to economists but of little societal import. When the stakes are large, however, the soundness of decisions truly matters. In situations involving risks posed by disasters and catastrophic events, mistaken choices may impose considerable costs both on the individual and on society.

For example, although for decades economists have devoted substantial attention to the economic evaluation of the merits of flood control projects and other public works designed to offer protection from natural disasters, comparatively little attention has been given to individual decisions that affect the losses these disasters impose. Some economists, armed with expected utility theory and the economic analysis of insurance (both of which are discussed in previous chapters of this book), seem to rest assured that people perceive the risks accurately and make sound decisions regarding insurance and self-protection.

THE CASE OF FLOOD INSURANCE DECISIONS

It was in this context that Howard Kunreuther and his colleagues produced a landmark empirical investigation in the 1970s that documented the failures of

individual insurance decisions.¹ I would like to use this study as an illustrative example and source of information here. The original study focused on risks posed by earthquakes and floods. These hazards pose potentially large losses for which rational people should find actuarially fair insurance policies attractive. Because disaster insurance is heavily subsidized by the government, purchasing such insurance should be especially attractive. However, even under these favorable cost conditions, people often chose not to purchase the insurance. And indeed, they usually didn't even know the basic parameters of the available insurance opportunities. In the case of flood insurance, a 1976 study found that for those who were insured, 17 percent of consumers did not know the cost of their flood insurance and 44 percent didn't know the size of their deductible. Among those who were not insured, 68 percent didn't know the cost of the insurance and 82 percent didn't know the possible choices of the deductible. The failure of people to purchase insurance, coupled with this failure of knowledge that is counter to the usual economic assumption of perfect information, led to this strong conclusion: "The expected utility model, as traditionally used by economists, provides relatively little insight into the individual choice process regarding the purchase of insurance."²

Economists' expected utility theory predicts that the subsidized insurance should be more attractive for people who expect greater financial damage from a severe flood. Among those who believed their damage claims would be zero, 24 percent purchased insurance.³ Overall, 46 percent of those expecting finite damage claims not exceeding \$10,000 purchased insurance, with the percentages rising to 61 percent for those expecting a loss of between \$10,001 and \$30,000 and to 67 percent for those expecting a loss above \$30,000. Likewise, the purchase of insurance was positively correlated with the expected probability of a flood, which is what we would expect if people behave in a sensible manner.

What is to be concluded here? Certainly these data do not imply that all is well with rational economic theories of behavior. Rather, they suggest that, as indicated by Mark Pauly in the previous chapter, even for smaller potential losses the report card for insurance decisions for natural disasters is mixed. Some aspects of the choices are broadly consistent with rational choice, but there is also evidence that the standard economic paradigm fails to reflect the substantial failures in individual risk beliefs and decision making. One can, of course, mount other defenses of expected utility theory in this context, but

they tend to be somewhat ad hoc. The fixes represent possible amendments to the basic economic model rather than features already incorporated into it.

BEHAVIORAL CONSIDERATIONS

As discussed in previous chapters, how individuals treat low-probability events has continued to be a recurring concern in the economics and psychology literatures. People tend to both overestimate low-probability events and underestimate the very large risks that they face. Disasters often carry a low probability, so one would expect these risks to be easily overestimated. Moreover, highly publicized, dramatic events are prone to overestimation; natural disasters such as floods and earthquakes garner substantial press attention, which should lead the public to believe the risks are more common than they actually are. Given these biases, highly publicized risks would theoretically lead people to be excessively insured with respect to such hazards. However, insurance decision purchases seem to reflect biases in the opposite direction.

Another characteristic of disaster risks other than the level of risk probability is the precision of our knowledge of the risk. People may not know the actual probability of possible disasters, making the risks highly ambiguous. To the extent that people exhibit aversion to poorly understood risks (a widely documented phenomenon), one might expect them to err on the side of excessive insurance and self-protection. Yet, the apparent inadequacy of insurance purchases suggests that on balance this effect of risk ambiguity is not dominant.

Another possible explanation as to why individuals fail to purchase adequate coverage against disasters is that there are real personal costs to becoming fully informed. The percentage of people who have read their insurance contract in its entirety is likely to be very low. Learning about the terms of available insurance contracts involves transactions costs (e.g., making calls to different insurers to compare what they would offer, or carefully reading the entire car or home insurance contract; many consumers just don't), so people may not know all of the conditions under which they are covered or not.

However, given the opportunity to purchase subsidized insurance, people may need to know little about the insurance terms as long as they know that it is heavily subsidized by the government. Similarly, if purchase of insurance is a requirement of obtaining a mortgage, then no element of choice is involved. Those who expect the government to bail them out completely after a major

disaster may not see a need for insurance either, so here, too, the incentive to learn about insurance and to buy appropriate coverage is diminished.

The main implication of these and other findings is that decisions concerning low-probability events appear to be fraught with error. The low probabilities involved are hard for people to think about, and making reliable probability judgments requires substantial personal experience. Some people overestimate the risks, and others may underestimate the risk. The losses they suffer from the errors that lead to underinsurance and inadequate protection are likely to be greater than the losses from excessive insurance. Regardless of the direction of the errors people make, however, it is clear that many of their decisions fall short of the prescriptions of rational choice based on models of rational economic choice.

WHY WAS NEW ORLEANS, STILL HIGHLY EXPOSED TO FUTURE HURRICANES, REBUILT IN THE SAME PLACE?

A salient societal issue raised by these decision errors and the resulting market failure is determination of the appropriate role for government. After Hurricane Katrina in August 2005, the government initially fell short in its response but subsequently has spent billions to compensate the victims and increase the protections against future flood risks. Many economists debated the wisdom of rebuilding New Orleans and strengthening the protections against future flooding given the inherent riskiness of the Gulf Coast region. Such musings may have academic interest but are of little practical consequence: The city is being rebuilt. A well-established finding in behavioral economics is the “endowment effect,” whereby people place an inordinately large value on assets in their possession. New Orleans itself might be viewed as one such asset that we collectively possess, as it ranks among the most important cities in the United States in terms of historical and architectural interest. Individual property values there certainly understate the worth of New Orleans to the country. So, politically, any plan of action that does not ensure the survival of New Orleans is simply a nonstarter.

THE HOLD-UP PROBLEM

There are additional difficult policy issues pertaining to disaster assistance. What, for example, is the appropriate future compensation policy given that the

presence of hurricane risks to New Orleans is well known? If residents return to New Orleans and suffer from a future hurricane, should the government again provide substantial compensation for the losses incurred? A national survey undertaken in April 2006—eight months after Hurricane Katrina—found that a representative national sample expressed little support for additional aid. Specifically, whereas 82 percent of the American public supported compensation of disaster victims generally, only 36 percent supported compensation of victims in New Orleans after the next hurricane.⁴ Saying that one will not support assistance after a future hurricane may, of course, be a form of hypothetical trash talk. It is a very different matter to actually deny assistance once there are identified victims and their stories are featured on the evening news. In health-risk contexts, the sentiments people express about saving the identified lives of people who will otherwise die if there is no intervention are quite different from the valuations involved in reducing small probabilities of death within a large population, where the persons who will be saved are not known in advance. In much the same way, aiding those actually in need will be a more pressing concern than aiding those who may prospectively be in need.

As a society, then, we are faced with a *hold-up problem*. People may underinsure despite the offer of subsidized insurance and then seek and obtain post-disaster assistance, which is difficult to deny. The analytic phenomenon is not unlike that posed by aid to the elderly in the United States. If people did not save for retirement, there would be millions of destitute elderly who would be prime candidates for government assistance. Denying such aid would be difficult. To avoid these enormous aid costs, the government requires savings for retirement through Social Security. For those who do not have sufficient earnings to reap these retirement benefits, the Supplemental Security Income program provides assistance.

POLICIES TO FOSTER ADEQUATE SELF-PROTECTION AND INSURANCE

Cognizant of the failure of people to buy adequate disaster insurance coupled with the U.S. government's inability to deny post-disaster aid, Howard Kunreuther and Mark Pauly have proposed a comprehensive approach for disaster risks to deal with the possible consequences of disasters in a more anticipatory manner.⁵ Under their proposal, the government would impose zoning restrictions to prevent people from putting valuable property at un-

necessary risk and require insurance for people in disaster-prone areas so that they would be forced to have some coverage for the financial risks. Special accommodations would be made for those with low income, similar to those provided to the elderly poor by current programs of income assistance. The Kunreuther-Pauly strategy recognizes the failures of private decisions; it also recognizes the likely societal willingness to provide assistance to victims of disasters, even though the severity of the consequences is due to their own inadequate self-protection and underinsurance. If this policy strategy is adopted, it might compel people to internalize the disaster costs imposed by their choices—thereby influencing, in a socially efficient manner, longer-term decisions regarding the location of businesses and homes.

Risk-rated insurance and regulation proposals such as these work best in situations where we have substantial historical data, making it possible to distinguish the risk levels and differences in risk by locale. For other disasters, however, this is not feasible. The risks from mega-terrorism posed by events such as the 9/11 attacks are low-probability events that pose even greater challenges for rational choice than that posed by natural disaster risks. The single concentrated cluster of events associated with the 9/11 attack provides little basis for assessing the likely frequency of such attacks in the future or where they might occur. The risks themselves are dimly understood, involving considerable uncertainty and highly diffuse probability judgments. Research indicates an extremely wide range of assessed risks following the 9/11 attack. In a survey Richard Zeckhauser and I undertook after 9/11, the mean value of respondents' percentiles for the expected number of deaths due to terrorism in the next year was 33 at the 5th percentile, 404 at the median, and 35,200 at the 95th percentile—a very wide range indeed.⁶ The actual number of terrorism deaths in 2002 from attacks in the United States was zero, though 27 U.S. citizens were killed in anti-U.S. terrorist attacks in other countries.⁷ Although the analytical issues pertaining to terrorism risk insurance share many commonalities with natural disasters, they pose considerably greater obstacles for individuals and insurance firms.

Moreover, post-disaster compensation may become a potentially recurring policy issue for terrorist attacks just as it is for natural disasters. After 9/11, the government-funded compensation effort provided income support for the families of the deceased and limited the liability claims and costs imposed on the affected airlines and other businesses. In some respects, such post-disaster relief

parallels the assistance efforts that are undertaken for victims of natural disasters. However, perhaps because of the novel circumstances of the 9/11 attacks, the government-provided aid was even more generous than that provided to victims of Hurricane Katrina and other natural disasters. Whether very generous post-disaster assistance will be forthcoming for future terrorist attacks will depend on the frequency of terrorist attacks, whether the victims engaged in behavior that put them at risk, the cost of compensation, and the public's general concern with the welfare of those who have suffered the losses.

These less well anticipated disasters will pose problems that neither individual decisions nor insurance markets can address in a fully reliable manner. Even government policies may fall short. Understanding the sources of the failures and the likely departures from full economic rationality will continue to be a pivotal prerequisite for addressing the consequences of such disasters. The lessons learned from the literature on protection from natural disasters provide substantial guidance and cautionary warnings with respect to the ability of people to make the even more difficult decisions involving terrorism risks. There is no reason to believe that people will better understand these risks or make more rational insurance decisions, especially given that terrorism risks depend on many factors that evolve over time (protection in place, foreign policy, etc.). In addition, the societal response to those harmed by such hazards is likely to be fraught with errors. As with natural disasters, it is important to establish mechanisms that foster self-protection and insurance so as to bolster what is likely to be the inadequate role of individual decisions.

RECOMMENDED READING

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