

Breaking the cycle of “free” disaster assistance,
subsidized insurance, and risky behavior

Rethinking Disaster Policy

BY SCOTT E. HARRINGTON



ARTHQUAKES, FLOODS, HURRICANES, DROUGHTS, and other weather-related events since the late 1980s have led to large government outlays for disaster assistance and higher premiums for disaster insur-

ance. State governments are seeking ways to make private disaster insurance more affordable and available. Congress and several federal agencies are considering reforms to improve federal crop insurance and flood insurance programs. Congress also is weighing a federal reinsurance program for residential property.

Government-provided disaster insurance and other interventions in private disaster insurance markets often are justified as necessary to overcome the failure of private markets to offer adequate and affordable disaster insurance. The argument goes that government programs reduce dependence on “free” disaster assistance and promote efficient risk management by property owners and farmers.

I explore this conventional view of disaster policy and come to these main conclusions:

- The narrow scope of private-sector disaster insurance reflects in large part the low demand for coverage and the high cost of supplying coverage. Demand is low in part due to the availability of disaster assistance, which substitutes for insurance. Federal tax policy reduces supply by substantially increasing insurers’ costs of holding capital to cover very large but infrequent losses.
- Because of subsidized rates and limited underwriting and risk classification, government insurance programs fail to encourage efficient risk management.

- The practice of subsidizing government insurance—while giving disaster assistance to people who eschew coverage and to some people who have it—is more likely to raise taxpayers’ costs than to reduce them.

A government that cannot say “no” to generous disaster assistance is unlikely to implement an insurance program with strong incentives for risk management. A more likely result is an increase in the costs borne by taxpayers. A clear outcome, however, is larger government.

I begin by describing the factors that limit the supply of and demand for private disaster insurance. I then explain why the combination of government disaster insurance and disaster assistance may fail to promote efficient risk management or reduce taxpayers’ costs. Next, I assess legislation approved in November 1999 by the House Committee on Banking and Financial Services that would further expand the role of government in disaster insurance by creating a federal catastrophe reinsurance program. I conclude with a summary and policy recommendations.

INSURABILITY OF DISASTER LOSSES

A COMMON RATIONALE FOR DISASTER ASSISTANCE AND government intervention in disaster insurance markets is that private markets fail to provide socially adequate levels

Scott E. Harrington (scotttnet@darla.badm.sc.edu) is a professor of insurance and finance at the Darla Moore School of Business, University of South Carolina.

of insurance. But private insurance markets invariably develop when the prices that potential insurance buyers are willing to pay exceed those needed by insurers to provide coverage. The key question is whether there are influences on supply or demand that preclude private insurance coverage of particular types of risk.

Expense Loadings Insurance prices must reflect insurers' necessary sales and administrative costs as well as the expected cost of claims. Thus, premiums generally exceed the discounted present value of the cost of claims. The excess is a direct cost that reduces the attractiveness of insurance to buyers. Buyers also incur indirect costs associated with arranging for insurance (e.g., selecting coverage and choosing an insurer or agent). Because of these direct and indirect costs, buyers often elect partial coverage. Some risks may be uninsurable, a result that is most likely in three instances: (1) the expected loss is high compared with the value of the property at risk, (2) the maximum potential loss is small relative to the property owner's wealth, or (3) the property owner's loss is potentially very large but also very unlikely to occur.

As I will discuss later, these conditions help to explain why there is often low demand for disaster insurance.

Moral Hazard Insurance and other contracts that shift risk generally entail moral hazard: an insured party has little incentive to take steps that would prevent or limit a loss because insurance rates cannot precisely reflect such steps. Moral hazard arises because it is economically infeasible for insurers (1) to monitor the steps that insured parties may take to limit losses and/or (2) to design premiums that offer sufficient incentives to limit losses.

Moral hazard has an *ex ante* (before loss) dimension: being insured affects decisions about undertaking risky activity and taking precautions to prevent a loss. Moral hazard also has an *ex post* (after loss) dimension: once a loss has occurred or become very likely, the insured party has less incentive to take costly actions to limit the resulting loss.

Moral hazard drives up the premium needed to cover expected claims and thus reduces the attractiveness of insurance to buyers. Private insurers use contract provisions and other means to mitigate moral hazard, for example, deductibles and other loss-sharing between the insured and the insurer, experience rating (modifying renewal premiums based on the insured's loss experience), premium credits or surcharges based on observable precautions, and investigation of claims.

Disaster insurance may involve somewhat more moral hazard than other types of insurance. Nonetheless, there is little reason to believe that moral hazard alone precludes substantially broader private-sector coverage of disasters. The inability of policyholders to influence the probability of a disaster reduces *ex ante* moral hazard. Standard contractual devices, such as deductibles and experience rating, also can be used to reduce moral hazard. Government has no comparative advantage in controlling moral hazard, and it

may have less incentive than private insurers to do so.

Adverse Selection Adverse selection arises when (1) the risk of loss varies across buyers, (2) insurers are imperfectly informed about those differences, and (3) buyers have superior information (information is asymmetric). At a given premium rate, buyers with higher-than-average risk of loss are likely to purchase more insurance than are buyers with lower-than-average risk of loss. Adverse selection therefore increases the premium that an insurer must collect in order to cover claims.

To reduce adverse selection, private insurers seek to group buyers into classes with different expected claim costs. Risk classification in competitive insurance markets reflects low-cost information that insurers can use to predict differences in future claim costs among buyers. The more accurate the classification, the less adverse selection. Buyers also have more incentive to take steps to limit losses and thus qualify for lower premium rates. But because classification cannot be perfect, some degree of adverse selection is inevitable.

Adverse selection might make some types of insurance infeasible by causing markets to unravel. Low-risk buyers might be unwilling to buy coverage at a premium rate that is sufficient to allow an insurer to cover average expected costs for both low- and high-risk buyers. High-risk buyers might be unwilling to buy coverage at a premium rate that is not subsidized by low-risk buyers. Compulsory insurance requirements can constrain adverse selection by forcing low-risk buyers to buy coverage. But this "solution" simply forces low-risk buyers to subsidize high-risk buyers.

Some observers argue that adverse selection is especially pronounced for disaster losses. Studies in the crop insurance literature, for example, suggest that adverse selection could make private multiple-peril insurance infeasible. Before the creation of the federal flood insurance program in 1968, adverse selection often was blamed for the dearth of private flood insurance on residential properties. However, it is difficult to determine whether adverse selection—or something else—was fatal to private markets for crop and flood damage. Insurers could readily assess many of the factors that affect the risk of loss and set premiums accordingly.

Adverse selection sometimes is confused with low demand. For example, it is said that the only parties who wish to buy flood insurance are those with material exposure to damage. Even if that were true, it would not imply adverse selection, which requires asymmetric information; that is, insurers must be unable to identify high-risk buyers. Low-risk parties may rationally not insure. Parties with high risks that are observable to insurers may not insure because of the high cost of coverage, the availability of alternative risk-management tools, and risk characteristics (e.g., frequent losses of modest size).

In any event, markets for insurance against individual or firm-specific risks are more likely to see adverse selection than are markets for insurance against natural disasters.

There generally is less asymmetric information about disaster risks than about individual and firm-specific risks.

As with moral hazard, government does not have a comparative advantage in mitigating adverse selection, apart from its ability to force low-risk buyers to buy coverage to subsidize high-risk buyers. As I will discuss, government insurance is likely to aggravate adverse selection because of relatively crude pricing and risk classification.

Correlated Losses The ability of private insurers to bear risk hinges on their ability to diversify losses across many policies. When losses are uncorrelated across contracts, insurers can reduce their risk by selling large numbers of contracts. In many cases, however, losses are positively correlated across policyholders; natural disasters, for example, affect many policyholders at once. And many policyholders can incur higher-than-predicted losses at the same time because of unexpected increases in the costs of damage repair, medical care, and jury awards.

A related problem, sometimes known as parameter uncertainty (or ambiguity), is that insurers may lack the information they need to estimate loss probabilities accurately. Parameter uncertainty can lead to large estimation errors for many policyholders, resulting in large, unexpected losses.

Insurers can diversify risk to some extent through world reinsurance markets. In addition, the development of new financial instruments, such as catastrophe bonds and catastrophe derivatives, allow the spreading of correlated losses more broadly in the economy.

Nonetheless, just as investors cannot completely eliminate risk by holding a diversified portfolio of common stocks, because stock prices move together, insurers cannot readily diversify against correlated losses or parameter uncertainty. Correlated losses increase the amount of capital that insur-

ers and reinsurers must hold to provide credible coverage, and a higher premium loading is necessary to cover the cost of holding the additional capital. The additional cost of capital may, at some point, make private-sector coverage infeasible.

Large losses from correlated risk or parameter uncertainty also can cause significant, short-run increases in premium rates. Such volatility can further reduce the attractiveness of coverage to buyers.

Taxes and Low-Probability Events Corporate income taxes increase insurers' costs of holding capital and, in turn, the premiums they must charge for a given level of disaster coverage. Because private insurers cannot set up tax-deferred reserves, they must increase premiums by enough to cover the taxes on investment income in order to generate returns equivalent to those that investors could earn elsewhere. This tax disadvantage is especially pronounced for disaster insurance because insurers must hold huge amounts of capital to pay claims that have a low probability of occurrence.

Moreover, premium increases to cover taxes on investment income result in higher expected before-tax income, thus further increasing expected taxes and premiums. Loss carry-back and carry-forward provisions in the tax code result in high taxes in years when disaster claims are low but yield limited deductions in years with high claims.

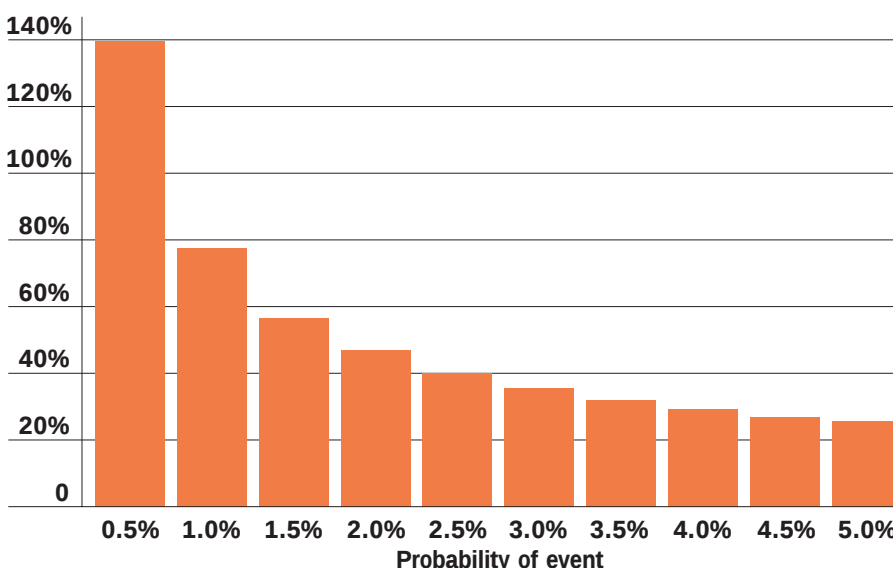
Figure 1 illustrates the effects of taxes on premiums, under simplified assumptions. Each vertical bar represents federal income taxes as a percentage of (discounted) expected claim costs for a catastrophe of fixed size, where the probability of occurrence in a given year ranges from 0.5 percent to 5 percent. To focus on tax costs, I have assumed that the insurer in this example incurs no underwriting or other costs, and that premiums are set to yield an expected after-

tax return on capital of 5 percent. I made these additional assumptions:

- The insurer (or reinsurer) holds an amount of capital that, when combined with premiums and investment income, allows payment of all losses if a catastrophe occurs.
- Capital and premiums are invested in U.S. government bonds yielding 6 percent before tax.
- If a catastrophe does not occur, premiums and investment income are taxed at an effective rate of 25 percent, which is below the standard corporate rate to allow for tax-reduction strategies.
- If claim payments exceed revenue, the value to the insurer of loss carry-backs or carry-forwards is equal to 50 percent of the deficit.

Figure 1

Federal Tax Loading as a Percentage of Expected Claims Costs for Private Disaster Insurance



The key point illustrated by Figure 1 is that the tax loading on premiums is inversely related to the probability of loss: the tax code significantly increases the premium rates for large disaster losses that have a low probability of occurrence.

To be sure, there are several ways in which insurers and reinsurers can reduce the tax loading in disaster insurance premiums. They can spread risk across national borders to reduce the total amount of capital needed; they can purchase some reinsurance from non-U.S. insurers that are permitted to establish tax-advantaged reserves; and they can substitute debt financing (including catastrophe bonds) for equity financing.

The tax code nonetheless materially increases the price of coverage for relatively rare but potentially large catastrophe losses.

Low Demand A variety of factors can reduce demand for insurance in general and disaster insurance in particular:

- Risk-management methods can reduce the attractiveness of insurance. Such methods include locating property in less hazardous areas and the timely application of pesticides and crop diversification by farmers.
- Insurance can become unattractive when expected losses and required premiums become high in relation to property values. The preferred strategies are risk avoidance and loss mitigation.
- There is less willingness to insure, because there is less uncertainty, when losses are expected to be frequent but of modest size in relation to property values. For example, relatively frequent but modest flood losses probably reduce demand for flood insurance in some regions.
- Consumers may be reluctant to pay high premium loadings to insure potentially large but rare disaster losses.
- Some parties may be naturally hedged against certain losses. Many farmers, for example, are partially hedged against crop losses from bad weather because lower yields reduce supply and therefore tend to raise prices.
- Some people may underestimate the risk of loss or be unaware of the availability of insurance.
- Property owners generally do not have to bear the full cost of uninsured losses because of the tax deductibility of uninsured losses, limited liability and bankruptcy laws, and the availability of disaster assistance or private charity and relief efforts.

The academic literature and the policy debate about the demand for crop insurance and other forms of disaster insurance emphasize the possible effects of disaster assistance on demand. In principle, the availability of disaster

assistance, primarily in the form of heavily subsidized loans (modest cash grants also are available in some cases), should significantly reduce the demand for disaster insurance, even though demand would already be low in some cases.

Long-term, subsidized loans greatly reduce the effective cost of disaster losses to property owners, even apart from the tax deductibility of such losses. Such loans currently have an annual interest rate of 3.625 percent, eligibility rules are not restrictive, and repayment schedules are flexible. In some instances, homeowners who experience large losses can borrow at the subsidized rate to repair damage and refinance an existing loan. Some homeowners may be able to extinguish existing loans through bankruptcy, then rebuild by borrowing at subsidized rates.

Consequences of High Costs, Low Demand, and Government Intervention

In the long-run—and ignoring for the moment the potentially chilling effects of government intervention—high prices for disaster insurance reflect the high cost of providing it. High prices, and the limited willingness of many consumers to pay for disaster insurance, reduce the scope of protection. That leads to greater reliance on disaster assistance and higher costs for taxpayers.

High long-run costs and low demand have led to the creation of subsidized federal flood and crop insurance programs with perhaps more to come (e.g., catastrophe reinsurance, discussed later). State governments also have intruded on insurance markets by capping rates, mandating supply, and creating state pools to provide catastrophe insurance or reinsurance coverage at subsidized rates. (States are permitted to accumulate tax-exempt reserves.) The combined effect of federal and state programs and policies is to further reduce demand for private insurance.

Given high costs and low demand, private insurers will tend to hold smaller reserves to cover risks. Smaller reserves will have severe short-run consequences in the event of a large disaster, namely, increased insolvency, higher price increases, more cancellations and nonrenewals, and pressure for more government intervention.

The risk that a large catastrophe will lead to more government intervention reduces insurers' incentives to serve disaster-prone areas or requires them to charge even higher prices.

GOVERNMENT DISASTER INSURANCE

THE RATIONALE FOR GOVERNMENT INTERVENTION TO provide disaster insurance is deceptively simple:

- Disaster assistance, a form of free insurance, is costly to taxpayers.
- The benefits from disaster assistance are less certain and less complete than the benefits from formal insurance.
- The availability of disaster assistance distorts property owners' incentives, leading to more risky activities and fewer loss-limiting measures.

- Although catastrophe losses cannot be diversified across insurance buyers, they can be diversified over time. Given its taxing and borrowing authority, government has a theoretical advantage in bearing the timing risk associated with disasters.

- Government insurance therefore will have several beneficial effects: less reliance on disaster assistance and thus lower costs to taxpayers, superior protection against risk, and smaller losses when disasters strike.

This simple view ignores underlying reasons for the limited scope of private insurance protection: free disaster assistance reduces demand for private (and public) coverage, and tax policy drives up its cost. Moreover, with free or subsidized government insurance, property owners have less incentive to reduce risky activities and to take loss-limiting measures.

Inevitability of Generous Assistance The government seems unable to withhold disaster assistance from people who fail to buy private or government insurance. Politicians enjoy exercising their charitable impulses—with taxpayers' money—and many taxpayers are sympathetic to helping disaster victims. Moreover, many property owners and farmers strongly resist cutting disaster assistance because that would increase their risk and reduce their property values.

Consider Congress's backpedaling on mandatory crop insurance and disaster assistance for farmers. Legislation enacted in 1994 required farmers to pay a nominal fee for compulsory coverage of catastrophic crop losses. Compulsory coverage was dropped in 1996, when farmers were allowed to opt out if they agreed to be ineligible for disaster assistance. That restriction was then eliminated in the 1998 farm bill, which provided \$2.4 billion of disaster assistance to farmers for weather-related losses (as well as large payments for "market" losses). Farmers who had purchased federal crop insurance were eligible for larger disaster payments than uninsured farmers.

Since 1973, the federal flood insurance program has required coverage of properties financed by federally insured loans that are located in specified flood zones. That requirement has been flouted consistently; many policyholders have dropped coverage soon after obtaining a mortgage. Tighter enforcement began in 1994; it includes penalties for lenders who fail to ensure that flood coverage is procured. The Federal Emergency Management Agency (FEMA) is working on a system that would require insurers to report cancellations and nonrenewals of flood insurance policies.

Alluring Efficiency Arguments Government insurance might be seductive to some efficiency-minded economists because, unlike free disaster assistance, it should encourage property owners and farmers to reduce risky activities and take loss-limiting measures. In practice, however, the same political pressures that make disaster assistance inevitable prevent the government from offering insurance at prices that reflect the full costs of coverage. Given

low demand, government disaster insurance must be subsidized heavily or coverage must be compelled.

Subsidies, Cross-Subsidies, and Other Problems Federal crop insurance premiums are heavily subsidized. The government pays direct subsidies as percentages of premiums collected—that is, the greater the risk, the greater the subsidy—and pays the expenses of private insurers who issue and service policies on behalf of the government. Coverage is voluntary, except that the 1998 farm bill requires farmers who receive disaster assistance to buy coverage for two years.

Federal flood insurance premiums are heavily subsidized for properties that existed when the program was created. Those properties, which receive an average discount of about 60 percent from actuarial rates, represent roughly one-third of all properties insured under the program. Periodically, some properties in more hazardous flood zones are reclassified, but because the owners are not required to pay the higher applicable rates, their premiums are effectively subsidized. (FEMA may drop that exception.)

The flood insurance program has been self-supporting since the mid-1980s, which means that the owners of lower-risk properties have been subsidizing the owners of higher-risk properties by paying higher premiums than necessary. Those higher premiums have reduced demand for coverage of lower-risk properties. That could help to explain why only a fourth of eligible homes have flood coverage, and why it has been necessary to mandate coverage for properties with federally insured loans.

When subsidized insurance, with its certainty of coverage and payment, is more attractive than disaster assistance, it can encourage new property development or crop production in hazardous areas. Although subsidized flood insurance is linked to community participation in flood plain management programs, that linkage does not ensure against inefficient development. If Congress could credibly commit to the withholding of disaster assistance, eligibility for assistance could be linked to flood plain management, and the benefits of flood plain management could be achieved without federal insurance.

Subsidies could be reduced if people who failed to buy insurance were to forfeit their eligibility for disaster assistance. The expansion and enforcement of coverage mandates also could reduce subsidies. But neither approach seems politically feasible.

More generally, government insurance lacks the features of private insurance that help to promote risk management—competitive, cost-based pricing with highly refined systems of underwriting and risk classification. For example, FEMA recently decided that properties that have had repeated, large losses should no longer have subsidized coverage; instead, the agency will buy the properties or pay to relocate them. By contrast, in a private market, where the price of coverage would be related to risk and coverage might not be renewed, property owners would have a strong inducement to take loss-limiting measures or to relocate at their own expense.

The Bottom Line Government insurance programs fail to promote efficient risk management for at least three reasons: subsidization of premiums (especially premiums for high-risk properties), loose underwriting and risk classification rules, and continued availability of free disaster assistance. The “stick” of withholding disaster assistance from communities that do not undertake flood plain management and from farmers who plant crops in marginally productive and disaster-prone regions is politically untenable. The political solution is to offer a potentially sweeter “carrot”—subsidized insurance—and then to give free disaster assistance to most of the parties who decline coverage.

Effects on Government Expenditures Would taxpayers’ costs rise or fall if the government simply eliminated insurance subsidies and gave free disaster assistance? If the scope of insurance coverage were relatively narrow and the total cost of subsidies were small, government insurance would reduce costs. But as coverage and subsidies increase, there is a point at which the total cost of a subsidy-and-assistance program exceeds that of an assistance-only program.

It is not obvious that an assistance-only program would cost more. Subsidized government insurance programs tend to increase taxpayers’ costs for several reasons:

- Subsidized insurance and free assistance often go together, particularly in the case of crop insurance, where the insurance program is heavily subsidized and disaster assistance has been granted to both insured and uninsured farmers. The consequences are less clear in the case of flood insurance because (1) the program is less heavily subsidized and (2) flood insurance proceeds usually reduce the amount of disaster assistance granted to a property owner.
- The scope of losses covered by subsidized government insurance is probably much greater than the scope of losses covered by disaster assistance because government insurance pays for idiosyncratic losses, for example, damage to basement equipment and appliances following heavy rains. Such losses often would fail to qualify for disaster assistance. Similarly, an unlucky or careless but insured farmer who loses crops from untimely or inappropriate application of pesticides is eligible for crop insurance payments, even though such a loss is unlikely to be covered by disaster assistance.
- Reliance on subsidized government insurance may stand in the way of actions that could lead to a viable private market for insurance (e.g., revising the tax code to allow private insurers to create tax-deferred reserves).

In any event, even the best econometricians probably would be hard-pressed to estimate with reasonable accuracy the effect of government insurance on the total cost of government disaster programs. The crop and flood insurance programs are complex and correspondingly opaque. Behavioral responses to changes in those programs are complex

and not easily measured. And we cannot know how much disaster relief would be authorized in the absence of government disaster insurance.

I do not mean to imply that careful and creative empirical research will not produce evidence that is useful in the policy debate, but significant progress will be difficult. Changes in policy probably will depend on logic and anecdote.

FEDERAL CATASTROPHE REINSURANCE

Pending Legislation The proponents of federal catastrophe reinsurance for residential property say it would encourage the private sector to supply primary coverage and thereby reduce reliance on disaster assistance and promote efficient risk management. In November 1999, the House Committee on Banking and Financial Services approved H.R. 21, the Homeowners Insurance Availability Act of 1999. The legislation would authorize the Secretary of the Treasury to sell reinsurance contracts for insured natural catastrophe losses on residential properties. Contracts would be sold to state catastrophe insurance programs and auctioned to private and state entities.

Each contract would apply to a specified region and would cover up to 50 percent of insured losses in excess of the largest of three values: (1) \$2 billion, (2) the estimated magnitude of a one in 100-year event, or (3) the claims-paying capacity of the applicable state plan. (Lower thresholds would apply during a phase-in period.) Total coverage available under all contracts would be set so that the annual loss payment is “unlikely” to exceed \$25 billion, with an expected annual cost no greater than the difference between the estimated cost of a one in 500-year event and that of a one in 100-year event.

An Unnecessary Program Given the federal government’s ability to bear timing risk because of its taxing and borrowing authority, it might seem that the government can improve the efficiency of private catastrophe insurance markets by acting as a reinsurer of last resort for truly large losses. Certainly, the proposed program has some desirable features: the use of markets to determine some prices, the use of regional contracts with payoffs linked to regional losses, and partial coverage of losses above specified thresholds.

But there is no need for a federal reinsurance program at this time. Private reinsurance capacity has expanded substantially since the early 1990s. Private insurers covered losses from Hurricane Hugo, Hurricane Andrew, and the Northridge earthquake with few insolvencies and limited assessments on state insurance guarantee funds, even though insurers were surprised by the magnitude of those events—especially Hurricane Andrew and the Northridge earthquake. Moreover, the development of new financial instruments to fund catastrophe coverage has further expanded the supply of private catastrophe insurance and reinsurance since the early 1990s.

Rather than create a new insurance program, the federal government could encourage expansion of private coverage, for example, by permitting insurers to reduce their

costs by establishing tax-deferred catastrophe reserves.

Crowding-Out, and More The proposed reinsurance program is not only unnecessary but it would crowd out much private-sector coverage—a point emphasized in the Congressional Budget Office's analysis of H.R. 21. Although the broad language of the bill has safeguards against crowding-out (e.g., minimum price provisions), those safeguards probably would be ineffective for several reasons:

- The coverage triggers are far too low compared to current private-sector capacity.
- As with federal flood and crop insurance, it seems likely that pressure would build for artificially low prices and program expansion—with similar results: less private coverage, higher costs for taxpayers, and poorer risk management by property owners.
- H.R. 21 could encourage creation of state programs, which could negotiate deals directly with the Treasury, thus further crowding out the private sector and distorting resource allocation.
- In crowding out private-sector reinsurance, the federal government inevitably would extend its reach to the pricing and underwriting of individual policies backed by federal reinsurance, with unfavorable consequences for efficiency.

SUMMARY AND RECOMMENDATIONS

GOVERNMENT INTERVENTION UNDERCUTS PRIVATE markets and thus creates pressure for expansive government programs. The predictable result is less economic efficiency and more government spending. We can see the pattern at work in disaster insurance and other government programs, including social security, proposed subsidized health insurance for low-wage workers, and compulsory auto liability insurance. Here is the pattern:

- Parties engage in behavior or activities that produce loss.
- Losses spill over onto other parties, in part due to government policies and in part because of the desire to help people in need.
- Insurance is viewed as a means to reduce spillover costs and encourage efficient behavior.
- The government provides coverage or intervenes in private insurance markets to expand the number of people covered by subsidizing coverage or making it compulsory.
- Intervention creates dependency on the government, limits private-sector prerogatives, and does little, if anything, to encourage efficiency or contain cost.

With respect to disaster policy, the inability of the government to withhold disaster assistance and the perverse

effects of federal tax policy on the private supply of disaster insurance create pressure for government insurance at subsidized rates. In theory, such insurance might promote better risk management and reduce taxpayers' costs. In practice, government insurance invariably entails subsidies (especially to higher-risk buyers) and limits underwriting and risk classification, which discourages efficient risk management and increases taxpayers' costs—probably without significantly reducing the cost of disaster assistance.

A government that cannot restrict disaster assistance is unlikely to design and implement insurance programs that lead to better risk management and less government spending in the aftermath of natural disasters. Although it might be politically infeasible to reduce disaster assistance, the government could do two things to make overall disaster policy more effective:

- Enable private insurers to offer more affordable coverage by allowing them to establish tax-deferred reserves.
- Encourage better risk management through government insurance programs by applying private-sector underwriting and risk classification techniques.

r e a d i n g s

- Ross Davidson Jr. "Toward a Comprehensive National Strategy for Funding Catastrophe Exposures." Paper presented at Competitive Enterprise Institute conference, Rethinking Insurance Regulation, April 13, 1998.
- Barry K. Goodwin and Vincent H. Smith. *The Economics of Crop Insurance and Disaster Aid*. Washington, D.C.: American Enterprise Institute, 1995.
- Scott E. Harrington. "Taxes and the High Cost of Catastrophe Insurance: The Case for Tax-Deferred Reserves." Competitive Enterprise Institute Insurance Reform Project, September 1999.
- Scott E. Harrington and Greg Niehaus. "The Tax Disadvantage of Equity Finance: The Case of Catastrophe Insurance." Darla Moore School of Business, University of South Carolina, December 1999.
- Louis Kaplow. "Incentives and Government Relief for Risk." *Journal of Risk and Uncertainty* 4 (1991): 167.
- Christopher M. Lewis and Kevin C. Murdock. "The Role of Government Contracts in Discretionary Reinsurance Markets for Natural Disasters." *Journal of Risk and Insurance* 63 (1996): 567.
- Edward T. Pasterick. "The National Flood Insurance Program," In *Paying the Price: The Status and Role of Insurance against Disasters in the United States*, edited by Howard Kunreuther and Richard Roth. Washington, D.C.: Joseph Henry Press, 1998.
- Jerry R. Skees. "Agricultural Risk Management or Income Enhancement?" *Regulation* 22, no. 1 (1999): 35.