

SUBSCRIBE NOW AND RECEIVE *CRISIS AND LEVIATHAN** FREE!



"*The Independent Review* does not accept pronouncements of government officials nor the conventional wisdom at face value."

—**JOHN R. MACARTHUR**, Publisher, *Harper's*

"*The Independent Review* is excellent."

—**GARY BECKER**, Noble Laureate in Economic Sciences

Subscribe to [*The Independent Review*](#) and receive a free book of your choice* such as the 25th Anniversary Edition of *Crisis and Leviathan: Critical Episodes in the Growth of American Government*, by Founding Editor Robert Higgs. This quarterly journal, guided by co-editors Christopher J. Coyne, and Michael C. Munger, and Robert M. Whaples offers leading-edge insights on today's most critical issues in economics, healthcare, education, law, history, political science, philosophy, and sociology.

Thought-provoking and educational, [*The Independent Review*](#) is blazing the way toward informed debate!

Student? Educator? Journalist? Business or civic leader? Engaged citizen? This journal is for YOU!



*Order today for more **FREE** book options

SUBSCRIBE

Perfect for students or anyone on the go! *The Independent Review* is available on mobile devices or tablets: iOS devices, Amazon Kindle Fire, or Android through Magzter.



Property Insurance for Coastal Residents

Governments' "Ill Wind"



JEFFREY J. POMPE AND JAMES R. RINEHART

It's an ill wind that blows nobody any good.
—Proverb

Living in coastal areas entails the risk of property damage from catastrophic storms, such as hurricanes and northeasters.¹ In recent years, costs associated with such storm damage, which disproportionately affect property owners living near the coast, have risen precipitously. In reaction, property owners have successfully applied pressure on lawmakers to intervene on their behalf. Unfortunately, government policies have been counterproductive, shifting costs to taxpayers at large and actually encouraging growth in such hazardous areas.

The greatest likelihood of severe damage from hurricanes is along the coastlines of the southeastern Atlantic and Gulf of Mexico states, where 112 major hurricanes

Jeffrey J. Pompe is Sparrow Professor of Business and Trustee Research Scholar at Francis Marion University. **James R. Rinehart** is professor emeritus of economics at Francis Marion University.

1. Northeasters are winter storms that bring winds and waves from the northeast, and can pound the shore for days. The 1962 Ash Wednesday Storm, the most destructive northeaster of the twentieth century, destroyed or damaged hundreds of houses from northern Florida to Massachusetts.

The Independent Review, v. 13, n. 2, Fall 2008, ISSN 1086-1653, Copyright © 2008, pp. 189-207.

Table 1
The Ten Most Costly Hurricanes in the United States, 1989–2005
 (estimated insured loss, in millions of dollars)

Rank	Date	Name	Cost in Current \$	Cost in 2006 \$ ¹
1	Aug. 25–29, 2005	Katrina	\$40,600	\$41,910
2	Aug. 23–24, 25–26, 1992	Andrew	15,500	22,272
3	Oct. 24, 2005	Wilma	10,300	10,632
4	Aug. 13–15, 2004	Charley	7,475	7,978
5	Sept. 16–21, 2004	Ivan	7,110	7,588
6	Sept. 17–18, 21–22, 1989	Hugo	4,195	6,820
7	Sept. 20–26, 2005	Rita	5,000	5,809
8	Sept. 5, 2004	Frances	4,595	4,904
9	Sept. 15–25, 2004	Jeanne	3,440	3,671
10	Sept. 21–28, 1998	Georges	2,900	3,587

¹ Property coverage only.

Source: Insurance Information Institute 2007a.

struck between 1851 and 2006 (Blake, Rappaport, and Landsea 2007).² Although predictions of where the next major storm will hit are problematic, some locations clearly are more prone to suffer from storms than are others. In the past, 39 percent of all major hurricanes in the United States have battered Florida, and 71 percent of category 4 or 5 hurricane strikes have pummeled either Florida or Texas.

After a period of infrequent hurricane activity between 1971 and 1994, hurricane activity has increased in recent years. The five most intense consecutive storm seasons on record occurred between 1995 and 2000. In 2004, an unprecedented four hurricanes (Charley, Frances, Ivan, and Jeanne) damaged Florida communities. The 2005 hurricane season was the busiest and costliest in U.S. history, with twenty-eight named storms, fifteen of which were hurricanes, including the most devastating one, Hurricane Katrina (South Carolina Department of Insurance 2007, 14). Katrina caused at least twelve hundred deaths along the Gulf Coast from Mobile, Alabama, to New Orleans and was especially damaging to New Orleans, large areas of which are below sea level. Total insured losses from all 2005 hurricanes are estimated to have been more than \$60 billion, with private insured losses alone estimated at \$40 billion (South Carolina Department of Insurance 2007). The 2004 and 2005 hurricane seasons produced seven of the ten costliest insured losses ever in the United States; the costliest losses were from Katrina, which caused \$40.6 billion in damages (table 1). In total, the seven hurricanes caused \$79.3 billion in insured losses.

2. A major hurricane is one whose winds exceed 110 miles per hour—category 3, 4, or 5 on the Saffir/Simpson Hurricane Scale. In this grouping, the states include Texas, Louisiana, Mississippi, Alabama, Florida, Georgia, South Carolina, and North Carolina.

In part, recent storms have become costlier because of rapid population growth in coastal areas, with the consequent construction of more homes and businesses. The National Oceanic and Atmospheric Administration's report on coastal population trends in the United States shows that from 1980 to 2003, coastal population increased from 120 million to 153 million, an increase of 28 percent (Crossett et al. 2004, 1). Current projections indicate that another 11 million people will have moved to coastal counties by this year (2008), producing a further 7 percent increase. Much of the coastal population growth has occurred on the shorelines of southeastern and Gulf Coast states. Coastal population density of the Southeast region increased from 142 to 224 persons per square mile between 1980 and 2003, and is expected to increase to 241 by 2008 (Crossett et al. 2004, 16). The current population density of the Southeast region is two and a half times the average population density of the nation, which is 98 persons per square mile. The 2006 population of Dade, Broward, and Palm Beach counties, along Florida's eastern coast, was 5.5 million, which was greater than the population of thirty states together. Gulf Coast population growth has also been rapid. In 2005, there were 9.46 million people living in coastal counties stretching from Louisiana to the Florida Keys. The sixty-seven coastal counties in these four states had a population density of 188.8 people per square mile (U.S. Department of Commerce 2005).

Storm-damage costs are also rising because property values along coastlines have risen dramatically, especially since 1970. The estimated value of properties in coastal areas has doubled in the past decade. In 2004, the total value of insured residential and commercial coastal property was \$7.2 trillion (AIR Worldwide Corporation 2005). In South Carolina alone, insured coastal property value was \$148.8 billion in 2004, an increase of 377 percent since 1988 (South Carolina Department of Insurance 2007, 17). Stricter building standards have increased construction costs, but more significant has been the trend toward bigger and more elaborate structures. Costs from storm damage also rise because of the skyrocketing cost of building materials and labor after hurricanes. In a storm's aftermath, a "demand surge" for materials and labor drives up their prices and hence the amount of insured losses (Tibbetts 2007).

Storm surge—the rapid rise of sea level that accompanies hurricanes—creates the greatest flood damage to shoreline properties. The risk of damage from storm surge decreases significantly as distance from the shore increases. A very strong hurricane can produce a storm surge of as much as twenty feet, which generally would dissipate within ten miles of the shoreline (Pielke and Pielke 1997, 120). Hurricanes also cause wind damage, which is not covered by flood insurance and accounts for the largest portion of property loss associated with storms. Although wind velocity decreases as hurricanes make land, serious wind damage can still occur many miles inland.

Insurance is an important means of mitigating the adverse effects of storm damage, but as premiums rise, alternative locations away from the coast become more attractive. Individuals ordinarily respond to the rising costs associated with storm

damage by moving out of harm's way, if ever so reluctantly. Unfortunately, as we show in this essay, governmental policies have had the effect of keeping insurance premiums below projected losses, especially with respect to flood insurance, thereby neutralizing the market incentives that would have encouraged a retreat from the seaside and discouraged excessive building in high-risk coastal zones. We argue that government involvement in private insurance markets should be limited in order to allow private insurers to meet coastal residents' needs.

Government Involvement in the Coastal Property Insurance Market

After offering flood insurance in the early twentieth century, insurance companies determined that adverse selection and high correlation of risks caused premiums to be too high for consumers (Kunreuther and Roth 1998, 40). Flood insurance was thereafter generally unavailable until 1968, when Congress created the National Flood Insurance Program (NFIP), which provided federally backed flood insurance for property owners. A community can participate in the NFIP if it agrees to establish land-use direction that limits damage exposure to storms in flood-prone areas. Under the supervision of community management, the NFIP was intended to guide development away from flood-prone areas and to enforce building standards, thus reducing federal disaster-relief payments arising from loss of life and property.

NFIP insurance, which is administered by the Federal Emergency Management Agency (FEMA), covers property damage for homeowners up to a maximum of \$250,000 for structures and \$100,000 for contents. In addition, it is possible to buy additional flood insurance from private companies. In 2006, the average amount of flood coverage was \$190,849, and the average annual premium was \$474 (Insurance Information Institute 2007b). There are four categories of flood zones: V, A, C, and X. Zones V and A are hazard areas, and properties in zone V are subject to the greater risk. In zones C and X, which are nonhazard zones, flood insurance is optional. For coverage up to \$250,000, an NFIP insurance premium is, on average, approximately \$317 per year for a low-to-moderate-risk residence and \$4,323 per year for a high-risk coastal property (FEMA 2007a). In 2007, the NFIP collected \$2.2 billion in total premiums on \$1 trillion of coverage for almost 5.5 million policies, covering nearly twenty thousand communities (FEMA 2007a).

Communities in certain high-risk areas, which are included in the 1982 Coastal Barrier Resource Act (CBRA), are restricted from receiving NFIP insurance. CBRA prohibits federal financial assistance, post-storm reconstruction, and erosion control in undeveloped areas of barrier islands designated by the Department of Interior. Barrier islands parallel mainland areas and thus provide a buffer against storms and offer a valuable habitat for fish and wildlife. The goal of CBRA, which was amended by the Coastal Improvement Act in 1990, is to protect barrier island ecosystems by

not encouraging their development with federal subsidies. The original 186 CBRA locations were expanded to 590 in 1990 (Pasternick 1998, 146).

Besides enacting and amending CBRA, legislators have made numerous other policy modifications that deal with problems of the initial NFIP. The Flood Disaster Protection Act of 1973 requires those who receive federal disaster assistance to purchase flood insurance. In 1983, the NFIP began the Write-Your-Own Program (WYOP), which allows private companies to sell federally underwritten flood insurance policies. WYOP companies write 95 percent of all NFIP policies (U.S. GAO 2007). The 1988 Stafford Disaster Relief and Assistance Act made disaster assistance available and attempted to lessen the moral hazard that federal disaster assistance creates.

The National Flood Insurance Reform Act of 1994 created incentives to encourage mitigation measures and floodplain-management plans. The Disaster Mitigation Act of 2000 increased funding for state and local government activities that improve hazard preparedness and response. The Flood Insurance Reform Act of 2004 was designed to reduce the number of repetitive property losses, which represent 1 percent of all properties insured, but 25 to 30 percent of all claims (Kunreuther 2006, 8). A recently proposed revision, the Flood Insurance Reform and Modernization Act of 2006, did not pass.³

Coverage of wind and hail damage from storms requires a separate insurance policy for most coastal residents. In nonhazard zones, wind and hail coverage is usually part of a person's general homeowner's property insurance policy, and flood insurance is optional. However, in hazard zones V and A, property owners must purchase wind and hail insurance as a separate policy.

Wind and hail damage associated with hurricanes has caused very heavy costs for insurance companies. As a result, coastal residents have seen their wind and hail insurance premiums soar, and in a growing number of cases insurers have cancelled this coverage altogether. Consequently, state governments have been pressured to intervene in the wind and hail insurance market, as they have with flood insurance. Each southeastern coastal state has set up a state-run Windstorm Underwriters Association, called a "wind pool," that offers coverage where private insurance is not available, generally at lower rates than individual insurers charge. Each state establishes the hurricane-prone areas that qualify for the insurance coverage. Private insurance companies are required to participate, thus sharing in risk and premiums. Wind pools currently cover more than \$17 billion worth of property in Texas, Louisiana, Mississippi, Alabama, Florida, South Carolina, and North Carolina.

Growth in the number of policies and premiums for wind insurance has been rapid. For example, total residential premiums for South Carolina's wind pool rose from slightly more than \$15 million in 2001 to more than \$28 million in 2006. This

3. We list only some of the more important policy changes. A more extensive list of the many changes that have been enacted appears in American Institutes for Research 2002.

growth in residential premiums is the result of an increase in the number of policies in the wind pool (from 16,430 in 2001 to 21,920 in the third quarter of 2006) as well as higher premiums. From 2001 to 2005, the average wind pool premium in the state rose 49 percent for residential policies because of higher prices per thousand dollars' worth of insurance and higher property values (South Carolina Department of Insurance 2007).

Flood insurance is also offered through state-run insurance companies. For instance, although Florida has had a Windstorm Underwriters Association since 1970, after Hurricane Andrew the state created the Florida Residential Property and Casualty Joint Underwriting Association (JUA). The JUA provides coverage for property owners who cannot find insurance in the private market. In 2002, Florida combined the state wind pool with the JUA to form the Citizens Property Insurance Corporation (CPI), a state-run insurance company. The CPI, which was intended to be an insurer of last resort, is a tax-exempt entity that charges premiums, issues policies, and pays claims just as a private insurance company does. As of December 2006, the program had issued 1.3 million policies for \$400 billion of coverage.

Growing Pressure for Further Government Intervention

Risks are inherent in all decision making. To reduce the cost of such risks, individuals purchase insurance to cover health risk and loss of property, such as boats, houses, and cars. We even buy insurance to minimize risk associated with investments. Indeed, insurance companies buy insurance (called reinsurance) from other firms to reduce their own risk. The need to transfer risk has made the insurance industry, which collected \$3.7 trillion in premiums in 2006, the world's largest industry (Insurance Information Institute 2007c). Insurance is bought and sold in markets along with thousands of other goods and services. Prices emerge from the dynamic forces in these markets, where millions of buyers and sellers make independent decisions. As prices (including insurance premiums) are nudged up and down by buyers and sellers' actions, individuals adjust their behavior, buying a smaller quantity of increased-price items and a greater quantity of reduced-price items. This competitive process leads to efficient outcomes. In many respects, property insurance decisions are no different from other purchasing decisions. A key difference, however, stems from heavy government involvement in insurance markets.

Before providing insurance for a particular market, private insurers require that a series of conditions be met. The conditions, sometimes referred to as "Standards of Insurability," are: (1) risks must be estimable and manageable, yet random and spread sufficiently broadly among the insured population; (2) prices must be set by actuarial processes and be affordable to consumers; and (3) fraud and complacency must be controllable (Mills, Roth, and Lecomte 2005, 12). Even with the government-subsidized flood insurance, private insurers are having difficulty in satisfying these

standards.⁴ Insured U.S. weather-related losses, which grew ten times faster than both premiums and the overall economy between 1971 and 2004, have risen much faster than non-weather-related losses (Mills, Roth, and Lecomte 2005, 2). In addition, because many consumers expect governments to bail them out if a disaster is severe, many choose not to buy insurance, even in hazardous areas.

In light of the recent frequency of storms and hurricanes, insurance companies have reassessed their business activities in many coastal markets. Companies began to change their policy-writing practices for the coast shortly after Hurricane Andrew (1992), which struck southern Florida and caused an estimated \$32 billion in property damages. Insurers immediately attempted to limit coverage and to raise rates for coverage in areas subject to hurricanes (Pielke and Pielke 1997, 176). Additional heavy losses in the post-Andrew years have caused coastal insurance for flood, wind, and hail damage to become much more expensive and even difficult to obtain in many areas as insurance companies have attempted to reduce their exposure to risk.

In Florida, Allstate stopped writing commercial insurance policies and decided not to renew ninety-five thousand residential homeowner policies (about 15 percent of its portfolio there) because of the four hurricanes that hit the state in 2004 (Harrington 2005). Premiums doubled for windstorm insurance in many parts of the state, with owners of 1,500-square-foot homes facing premiums of \$10,000 per year for wind damage alone and total insurance costs of \$13,000 per year, despite deductibles of as much as \$18,000 (“Florida Tornados” 2007). In South Carolina, insurers dropped more than twenty thousand coastal policies between August 2006 and March 2007 (Ryan 2007). In most coastal areas, wind and hail policies generally have large deductibles, which range from 1 percent to 10 percent of the insured value of the property for any named storm. In 2006, insurance companies in Louisiana raised homeowner rates by an average of 13.2 percent. Commercial rates for Mississippi’s wind pool jumped 268 percent after Katrina.

As insurance companies have reduced coverage and raised rates, consumers have become increasingly concerned about insurance availability and affordability. Coastal property owners and interest groups such as the real estate industry have called for increased state and federal government intervention in coastal property insurance markets. In July 2007, the House Financial Services Committee passed the Flood Insurance Reform and Modernization Act, which includes a proposal by Congressman Gene Taylor (D-Miss.) to add wind coverage to the NFIP (Kelly 2007). Some legislators have proposed an increased role for the federal government by calling for a national catastrophic insurance fund, which would help to control rising premiums and lost availability of insurance (Radelat 2007). Such a fund would cap the maximum liability that an insurance company would bear. Campaigning in Florida recently,

4. Private insurers may have some difficulty in providing flood insurance because property damage from natural disasters can be positively correlated. As explained in the text, risk must be random and broadly spread for a firm to make a profit.

Senator Hillary Clinton called for a national “backup insurance system” (Fleck 2007, 24).

In addition, individual states are becoming more heavily involved in coastal insurance. The South Carolina Wind and Hail Underwriting Association expanded the geographical area of the current wind pool, qualifying more homeowners for insurance (Insurance Information Institute 2007a). In 2007, Governor Sanford and South Carolina legislators enacted new legislation that, besides expanding the wind pool area, offers tax credits for lower-income property owners, tax-free savings accounts for homeowners who carry large deductibles, tax credits for building supplies that make homes storm resistant, and premium discounts for those who have made homes storm resistant (Faber 2007). Florida offers free wind inspection for homeowners, and, if the property owner upgrades the property according to the inspector’s recommendation, lower premiums and grants are available.

States are setting increasingly stringent building standards for construction near the coast, although the initial impetus for stricter building standards came in 1992, when Hurricane Andrew struck Florida (“After Katrina” 2006). In South Carolina, for example, the first living floor of houses must be built above the one-hundred-year flood mark, and hurricane straps must be used to tie the roof and walls to the foundation. Louisiana enacted legislation in December 2006 that requires the eleven parishes hit hardest by Katrina to begin within ninety days to meet the wind and flood provisions of the International Building and Residential Codes. One of these codes require homes built along the Gulf Coast to withstand winds of 130 to 150 miles per hour. In order to meet this standard, builders will rely more heavily on steel and concrete in construction. In addition, hurricane-resistant windows, metal strapping from the foundation to the roof, and houses wrapped with plywood will become common (McLeister 2007). Mississippi and Alabama are moving in a similar direction by requiring new construction that can withstand hurricane-force winds in their coastal counties. In Florida, Georgia, Alabama, North Carolina, South Carolina, and Louisiana, new building codes require shutters on windows or impact-resistant glass to protect homes (Gunderson 2007).

Failure of Government Policies

Calls for more government “solutions” should be examined carefully, however, given the deleterious effects of policies currently in place. Government involvement in property insurance has encouraged coastal development in hazardous areas, which is responsible, in part, for increased damage costs from storms. Subsidized flood insurance is one such policy. The NFIP represents a subsidy for policy owners because premiums are not sufficient to provide a catastrophe reserve that can be used in years with extraordinary losses. In years when losses are greater than premiums collected, the NFIP borrows from the U.S. Treasury. For example, the NFIP had to borrow \$20 billion from the federal government in 2006 to meet its Katrina claims. Approximately

one-quarter of the NFIP policies is sold at subsidized rates, principally for structures built prior to 1975. The subsidized premiums are set at 35 to 40 percent of the true risk premium (Jenkins 2005).

Even at subsidized rates, many property owners choose not to buy flood insurance. As little as 50 percent of exposed properties are covered by insurance, even in the most flood-prone areas (Hartwig 2007). In Orleans Parish, which includes the city of New Orleans, the coverage rate was only 40 percent at the time Katrina struck, and in parts of Mississippi it was even lower (Bayot 2005). This fact, however, does not keep those experiencing flood losses from clamoring for government assistance. Indeed, one reason some residents choose to remain uninsured is that they expect disaster relief if flood damage is severe. Moreover, individuals with greater financial resources, who are presumably economically able to purchase insurance at market rates, are more likely to take advantage of the government's flood insurance program (Kreisel and Landry 2004; Dixon et al. 2006).

The government-subsidized insurance for high-risk coastal areas makes the risk to the individual property owner less than the aggregate risk, thereby shifting part of the cost to citizens at large via state and federal governments. Another effect of this policy is that individuals are encouraged to build in high-risk locations, hence increasing the cost that shifts to citizens at large. The NFIP has not directed development away from hazardous areas as it was originally intended to do; instead, the subsidized insurance has encouraged more development in high-risk areas. More than one-third of the 6.6 million buildings located in the one-hundred-year floodplains of participating communities was built after the start of the NFIP floodplain-management plan (Burby 2001). The program clearly has not directed development away from the path of floods.

In addition, as discussed earlier, repetitive-loss properties (properties that suffer repeated flooding, but generally receive subsidized policies) absorb a large percentage of the NFIP funds. The NFIP has also been criticized for not providing effective oversight of the nearly one hundred insurance companies and thousands of insurance agents and claims adjusters who participate in the flood program (Jenkins 2005, 5).⁵ Given the numerous policy changes that legislators have made to the NFIP, the program is clearly flawed.

The NFIP is in serious financial trouble as well. A U.S. Government Accountability Office (GAO) report found that "the federal flood insurance program faces major financial difficulties as the Gulf Coast recovers. The program is essentially bankrupt" (U.S. GAO 2006, 38). NFIP payouts have increased in recent years, reflecting the increasing costs of coastal storms. From 1968 to February 2007, the NFIP paid out \$32.6 billion in insurance claims to victims of both inland and coastal flooding. However, the payments in 2004 and 2005 amounted to 47 percent of the

5. However, the NFIP does not have the authority to regulate insurance companies directly. Each state has an agency that regulates the insurance industry in the state (Meier 1991).

total payments made in the program's thirty-nine years of operation—\$13.1 billion was paid out in 2005 alone.

In recent years, the number of policies and the dollar payments for storm damages have increased more in southeastern states than in other areas. The six states receiving the most NFIP payments are southeastern coastal states; the \$26.1 billion in benefits paid represents 80 percent of total payments, and four states—Alabama, Florida, Mississippi, and Texas—have received 75 percent of the total amount (table 2). In addition, the distribution of NFIP policies reflects the increasing threat to the program that coastal storms present. In 2006, the more than 2.1 million policies in Florida (approximately 41 percent of all policies) represented almost \$314 billion of insurance coverage. Seventy-two percent of all policies are in the eight southeastern coastal states. Unless a wider market penetration is achieved, the NFIP will be increasingly unable to cover policy losses.

Given the NFIP's failure to direct development away from hazardous areas, perhaps the best that can be expected of government policies, such as CBRA, is that they not *encourage* development with public subsidies. Unfortunately, such policies' effectiveness in this regard—for example, the CBRA was intended to stop subsidized development in hazardous areas—is questionable. A 1992 review found that new development was continuing in CBRA areas and that 9 percent of the residents received NFIP insurance (Pasternick 1997, 146).

Removing other perverse incentives that now encourage development in hazardous coastal areas would help to reduce building in such places. Burby (2006) explains how numerous government programs, such as levee construction, contributed to New Orleans's development in low-lying areas and ultimately to much of the

Table 2
Selected National Flood Insurance Program Statistics

State	Total Payment ¹	Payment per Capita ²	Number of 2006 Policies
Louisiana	\$15,333,428,021	\$3,576.1	489,094
Florida	3,415,229,965	188.8	2,162,239
Texas	2,880,604,018	122.5	615,686
Mississippi	2,775,070,673	953.5	74,296
Alabama	910,890,597	198.1	52,268
North Carolina	749,512,364	84.6	127,914
South Carolina	426,150,454	98.6	184,215
Georgia	166,429,165	17.8	84,621
Total U.S. Median	92,290,896	20.7	22,182

¹ January 1, 1978, through February 2007.

² 2006 population.

Source: FEMAb (authors' calculations).

Katrina disaster. However well intentioned, beach nourishment, replacement of public infrastructure, disaster relief, and other government programs (such as subsidized insurance rates) that bail out people in all disasters actually encourage riskier choices that lead to repeated disasters. Indeed, individuals have little interest in not building in a hazardous area if someone else incurs the cost. This problem is known as moral hazard: individuals have no incentive to guard against a risk if they are already protected from loss in the event of the contingency.

In addition to increased development in hazardous areas, another cost of government subsidies is that insurance claim payments are made more slowly. Following the 2004 hurricanes, for example, 56 percent of policyholders who filed insurance claims had not received checks months after the events (Copeland and Reed 2004). Following Katrina, policyholders filed more than 1.7 million claims, almost 75 percent of which were for personal property (Insurance Information Institute 2007a). In addition, the numerous lawsuits that arose from claims' disputes have clogged the courts. The large population increase in certain areas, encouraged by the subsidies, is partially responsible for the large increase of insurance claims.

State policies have also performed poorly. Programs such as Florida's CPI and state wind pools that provide insurance in effect subsidize development in coastal areas. The four hurricanes that hit Florida in 2004 severely stressed Florida's CPI. The CPI provides 1.3 million policies and more than \$400 billion of coverage, but it currently has a \$1.7 billion deficit (Gelinas 2006). Given this large amount of exposure in a state prone to frequent hurricanes, taxpayers in the state can expect to pay higher taxes to cover the damage costs.

Recognizing the importance of storm-resistant construction, states have building code regulations, but in southeastern states building codes have not always been enforced strictly. One-quarter of the \$16 billion in insured losses in south Florida in 1992 from Hurricane Andrew was attributed to Dade County's failure to enforce building codes (Building Performance Assessment Team 1992). Building codes were likewise poorly enforced at the time of the Gulf Coast hurricanes in Alabama, Louisiana, Mississippi, and Texas in 2005 (Burby 2006).

After Katrina, state agencies in Louisiana, Mississippi, and Alabama, recognizing the importance of hurricane-resistant construction, adopted stricter building standards. States are obviously becoming more involved in setting building standards because they are shouldering more of the insurance costs. However, undistorted market signals would achieve similar outcomes more efficiently. Had governments not been so quick to provide insurance, competitive market incentives would have driven insurance companies and individual policyholders to pay more attention to building standards, relieving the governments of these responsibilities.

The problems created by government involvement in insurance markets can be explained and understood more clearly by using public-choice analysis. The various groups that benefit from the government largesse actively lobby for the subsidies. The real estate industry, for example, gains economically when the government bails out

property owners. Caplan (2007) suggests that special-interest groups capture subsidies readily because the general population is biased against market solutions. Such a bias helps to explain why groups that favor coastal development, such as the real estate industry, enjoy such success.

Local politicians favor federal subsidies, such as flood insurance, because these policies encourage local growth, which most constituents support. Bringing taxpayers' dollars to constituents increases politicians' votes. Politicians have an incentive to spend taxpayers' dollars on projects that enhance their chances of reelection, regardless of the projects' merits. In addition, policies that subsidize growth are popular with politicians because the benefits are current, and the costs are not immediately recognized. Such shortsighted policies are common outcomes of government intervention.

Policies that subsidize coastal residents at the expense of citizens at large also sail through the legislative process because of a flaw in the way the legislative process works. Coastal property owners, who constitute a minority, have much to gain from government help and hence actively promote such policies, whereas the more numerous noncoastal residents, who pay only a nominal amount in higher taxes, have little incentive to incur the higher personal cost of trying to stop the bailout for the coastal residents. As a friend of ours is fond of saying, "If a government proposal surfaces that would provide a program to benefit Paul at Peter's expense, you certainly would expect that proposal to have Paul's full support," but you would also expect Peter's lackadaisical acquiescence. Providing assistance to those in need in the aftermath of natural disasters is expected, but also politically popular and, as Garrett and Sobel (2003) remind us, often politically motivated.⁶

Insurance companies are popular targets for politicians because public misunderstanding and mistrust of the industry are widespread. A popular misconception, for example, is that insurance companies make excessive profits, although the industry is very competitive (Grace and Klein 2007). Unlike some industries, the insurance industry has not captured the regulatory agencies and therefore has not been able to shape policy for its own purposes. Meier (1991) explains how a lack of cohesiveness and poor tactics among insurance companies have fostered regulatory agencies that the industry cannot manipulate. Another inefficiency created by government insurance programs is that the subsidized insurance is likely to crowd out private companies' attempts to enter the market. The reduction in competition limits and impairs consumer choices.

Meeting the Insurance Needs of Coastal Residents

The myriad problems that beset the NFIP and other government programs that attempt to mitigate the costs of property insurance emphasize the attractiveness of

6. Garrett and Sobel (2003) show that almost half of all disaster relief is politically motivated. Aid amounts depend on how politically important a state is to a president as well as on congressional representation on FEMA oversight committees.

private markets, which operate much more effectively than government programs. As Sobel and Leeson (2007) show, markets provided Hurricane Katrina disaster relief much more efficiently than governments did. Their point that central planners fail to acquire and exploit essential information explains why more revisions of the NFIP will continue to provide inefficient outcomes and why market incentives are needed instead.

Residents will ultimately deal with most storm-damage costs in one or more of the following ways: by building sturdier buildings, by moving away from the coast, by self-insuring, or by paying the higher premiums. A careful look at residents' behavior reveals that all four actions are being taken, but these actions would be much more common if continual government interference were not lessening a property owner's costs for building in a high-risk area.

It is possible to build homes and commercial buildings that can withstand hurricane-force winds and storm surge. Several casinos in Biloxi, Mississippi, were back in operation fairly soon after Katrina, although the buildings around them were destroyed. The question is one of weighing the greater construction costs of building storm-resistant buildings against greater insurance premiums. As insurance premiums rise, building sturdier buildings makes more sense because insurers have an incentive to offer lower rates to those who stormproof their buildings. Fronstin and Holtman (1994) found that Hurricane Andrew caused less damage in subdivisions with greater average home prices. Although property values were greater in higher-income areas, homes there were more storm resistant, which in turn reduced the damage to nearby homes from wind-blown debris.

We would also expect insurance companies to find it more to their advantage to charge lower rates to homeowners who stormproof their homes. American National Property and Casualty Company, for example, is offering premium discounts to Louisiana homeowners who build fortified homes. Residents in Florida, South Carolina, North Carolina, and other states are responding predictably by building fortified homes (Anderson 2006). In South Carolina, some homeowners in coastal areas can expect to save as much as 15 percent of their insurance premium by taking certain storm-mitigation actions (Hull 2007). This trend surely will continue. A drive-by comparison of homes built thirty years ago in areas prone to flooding and wind damage and homes currently under construction in the same areas makes it clear that the new homes will better survive floods and strong winds.

Our experience with hurricane damage in recent years has taught us what to do and what not to do in stormproofing structures. Private insurance rates are based on risks that a policyholder faces and thus will be large if the risk is great. This relationship will encourage mitigation measures regardless of building codes.

Market incentives also encourage movement away from vulnerable areas. As damage costs increase for insurance companies, property owners can expect to pay greater premiums with larger deductibles. As insurance costs continue to rise, home-

owners will increasingly look for less-risky locations, which implies a move away from the coast. Hairston (2007) reports on the waves of transplants from Florida coastal communities who are relocating to Atlanta because of increased property insurance costs. A RAND report claims that higher insurance premiums have delayed some business investments in the gulf states since Katrina. According to this report, more than half of the lenders interviewed indicated that they knew of delayed and cancelled business projects in 2006 because of high insurance rates and unavailable insurance coverage (Dixon, Macdonald, and Zissimopoulos 2007).

Of course, there are other options: to self-insure or to pay higher premiums. Both options are being taken. We have already examined the recent large increases in premiums, coupled with high deductibles. Self-insurance occurs when property owners simply do not purchase wind and flood insurance. There is strong evidence that property owners took this option subsequent to Katrina along the Gulf Coast. Kunzelman (2007) points out numerous instances in which individuals either eliminated or reduced wind and flood insurance. One problem with self-insurance is that when storms do hit, the self-insured may become a liability to governments.

Private insurance companies continue to explore measures that can help to provide protection for those who choose to live in hazardous areas despite rising damage costs. Catastrophe (CAT) bonds, for example, are high-yield, insurance-backed bonds that contain a provision that causes interest or principal payments to be delayed or lost in the event of loss caused by a catastrophe. Although the market for CAT bonds has so far been limited, they may provide a mechanism to finance repairs after future severe storms.⁷

The political pressures and other problems that beset government policies explain why government involvement has exacerbated the problem of damage cost from natural disasters, as discussed earlier. Markets will work even more effectively if government removes subsidies that encourage development in high-risk locations. Increased efforts to reduce subsidies in undeveloped floodplains, erosion zones, and hazardous areas, especially those recognized in the CBRA, should be undertaken seriously. More locations might be added to the CBRA (assuming the program can be administered more efficiently), which shifts the cost of building and rebuilding to residents living in the coastal areas, thus reducing subsidies in some of the most hazardous areas. Government agencies involved in flood insurance and wind pools should make it clear that buildings in such areas will not qualify for government-subsidized insurance. If such a policy is made clear prior to any construction in such areas, less development will take place because risk costs will be higher and alternative locations will become more attractive.⁸

7. Cummins discusses CAT bond markets (2006, 352–357).

8. However, removing such policies certainly will not stop development in coastal regions. Cordes and Yezer (1998) find that although the NFIP has stimulated coastal development, coastal growth is principally the result of rising incomes and employment in inland areas.

Conclusion

The interaction of natural events and human activities is responsible for increasingly costly property damage in coastal areas. The combination of densely populated areas, high-valued property, and vulnerability to extreme storm activity in coastal areas makes the likelihood of additional costly events a certainty. Such was not always the case. For example, on North Carolina's Outer Banks, a prime location for hurricanes, the few people who lived there before the mid-twentieth century understood well the potential threat from hurricanes. Few were so foolish as to build on the oceanfront, where storms and shoreline erosion were constant threats; most built on the sound side instead. Those who built near the oceanfront constructed simple, functional, and mobile homes. Constructed from salvaged materials from shipwrecks, these houses could be slid along the sand on rollers so that owners could move a house back from the shoreline if erosion brought the sea too close to their homes. If a storm destroyed the home, little monetary value was lost. Today, more than 140 years after these first oceanfront homes were built, nine of the original thirteen cottages, known as the Unpainted Aristocracy, still stand, despite having been buffeted by countless storms (Bishir 1997).

Until recent decades, when the NFIP and other government subsidies changed the cost equation, most development along the southeastern coast, like the initial Outer Banks' development, was modest. Today, not only are many more people crowding southeastern states' shores, but they are building bigger houses and placing them closer to the shore. Unfortunately, hurricanes present at least as great a threat as previously. If predictions by Colorado State University hurricane forecasters are correct and increased storm activity continues for the next ten to forty years (Goldenberg et al. 2001), insurance will become increasingly important, but also increasingly expensive for coastal property owners. If expectations are correct that global warming will increase hurricane intensity, occurrence, and landfall frequency (Trenberth 2007), insurance will become an ever-growing and greater concern for coastal residents.

Private insurance firms, which have raised premiums and limited their exposure in high-risk areas, have reacted predictably to increased storm risk. The higher premiums for flood, wind, and hail insurance in coastal areas simply reflect the high-cost payouts insurance companies must absorb when storms strike with such frequency and cause such severe property damage. Market forces will inevitably produce a solution, but because many do not like the solution, government is brought into play in an effort to soften the impact.

Most government solutions to the coastal property insurance problem have involved subsidizing coastal residents at the expense of those living inland, which is inequitable and inefficient. Federal and state policies, such as subsidized flood and wind insurance, encourage development in hazardous areas and send the wrong signal to coastal residents. Indeed, despite the increasing threat of catastrophic storms,

residents often rebuild in the same place that their destroyed property previously occupied.

Encouraging people to build in hazardous areas should clearly not be an outcome of government policy. Although “ill winds” will continue to bedevil coastal residents, governments should not contribute to the damage from natural disasters. Instead, they should play a secondary role in dealing with the problem, allowing the market to nudge individuals in the right direction, which includes building sturdier buildings and moving farther from the coast (in response to higher insurance premiums and increased building costs). All of us make many decisions that involve risk, but the beauty of free markets is that individuals voluntarily bear the costs of those decisions and reap the benefits. There is nothing intrinsically undesirable about taking risks, even for those who build in harm’s way. The problem arises when risk takers use the government to shift the costs of their risky decisions onto others. Those who choose to live in areas prone to natural disasters should be expected to bear the cost of their decisions, just as those who incur risks by driving on our highways must bear the insurance and collision costs. Given the current love affair with water and the prevailing prosperity, no one should expect a huge coastal exodus, but if market forces are heeded, residents will weigh more carefully their future decisions about building in coastal areas and assess the benefits of coastal living against its risks and costs.

References

- After Katrina, Ala. Gulf Coast Building Codes Getting Stricter. 2006. *Insurance Journal* (July 10): 1–4. Available at: <http://www.insurancejournal.com/news/southeast/2006/07/10/70180.htm>.
- AIR Worldwide Corporation. 2005. The Coastline at Risk: Estimated Insured Value of Coastal Properties. Available at: http://www.air-worldwide.com/_public/NewsData/000797/The_Coastline_at_Risk-AIR_Worldwide.pdf.
- American Institutes for Research. 2002. *A Chronology of Major Events Affecting the National Flood Insurance Program*. Washington, D.C.: American Institutes for Research. Completed for the Federal Emergency Management Agency under contract 282-98-0029.
- Anderson, John. 2006. Insurance Industry Noticing “Fortified” Homes. *The Morning News: Business* (Fayetteville, Ark.), February 4.
- Bayot, Jennifer. 2005. Hurricane Katrina: Insurance; Payouts Hinge on the Cause of Damage. *New York Times*, late edition, August 31.
- Bishir, Catherine. 1980. *The Unpainted Aristocracy: The Beach Cottages of Old Nags Head*. Raleigh: Division of Archives and History, North Carolina Department of Cultural Resources.
- Blake, Eric S., Edward N. Rappaport, Christopher W. Landsea. 2007. *The Deadliest, Costliest, and Most Intense United States Tropical Cyclones from 1851 to 2006 (and Other Frequently Requested Hurricane Facts)*. National Oceanic and Atmospheric Administration Technical Memorandum NWS TPC-5. Miami: National Weather Service.

- Building Performance Assessment Team. 1992. *Preliminary Report in Response to Hurricane Andrew, Dade County, Florida*. Washington, D.C.: Federal Emergency Management Agency.
- Burby, R. J. 2001. Flood Insurance and Floodplain Management: The U.S. Experience. *Environmental Hazards* 3, no. 3: 111–22.
- . 2006. Hurricane Katrina and the Paradoxes of Government Disaster Policy Bringing about Wise Governmental Decisions for Hazardous Areas. *Annals of the American Academy of Political and Social Science* 3, no. 604: 171–91.
- Caplan, Bryan. 2007. *The Myth of the Rational Voter: Why Democracies Choose Bad Policies*. Princeton, N.J.: Princeton University Press.
- Copeland, Larry, and Matt Reed. 2004. Slow, Small Payouts Leave Hurricane Victims in Lurch. *USA Today*, December 8.
- Cordes, Joseph J., and Anthony M. Yezer. 1998. In Harm's Way: Does Federal Spending on Beach Enhancement and Protection Induce Excessive Development in Coastal Areas? *Land Economics* 74, no. 1: 128–45.
- Crossett, K. M., T. J. Culliton, P. C. Wiley, and T. R. Goodspeed. 2004. *Population Trends along the Coastal United States: 1980–2008*. National Oceanic and Atmospheric Administration (NOAA), National Ocean Service, Special Projects. Silver Spring, Md.: NOAA.
- Cummins, J. David. 2006. Should the Government Provide Insurance for Catastrophes? *Federal Reserve Bank of St. Louis Review* 88, no. 4 (July–August): 337–79.
- Dixon, Lloyd, Noreen Clancy, Seth A. Seabury, and Adrian Overton. 2006. *The National Flood Insurance Program's Market Penetration Rate: Estimates and Policy Implications*. Report prepared by RAND for the American Institute for Research. Santa Monica, Calif.: RAND Corporation, February.
- Dixon, Lloyd, James W. Macdonald, and Julie Zissimopoulos. 2007. *Commercial Wind Insurance in the Gulf States: Developments Since Hurricane Katrina and Challenges Moving Forward*. Santa Monica, Calif.: RAND Corporation.
- Faber, Jim. 2007. See How the State's New Coastal Insurance Law Could Affect Your Wallet. *The Island Packet* (Hilton Head Island, S.C.), June 18. Available at: <http://www.islandpacket.com/news/local/story/6554778p-5833850c.html>.
- Federal Emergency Management Agency. 2007a. Estimate Your Premium. Available at: <http://www.fema.gov/plan/prevent/floodins/infocon.shtm>.
- . 2007b. Policy and Claims Statistics for Flood Insurance. Available at: <http://www.fema.gov/business/nfip/statistics/pcstat.shtm>.
- Fleck, Carole. 2007. Home Insurance Hell. *AARP Bulletin* (July–August): 24.
- Florida Tornadoes and Scientific Reports Bad News for Homeowners. 2007. *Mortgage News Daily*, April 19. Available at: http://www.mortgagenewsdaily.com/262007_Homeowners_Insurance.asp.
- Fronstin, Paul, and Alphonse G. Holtman. 1994. The Determinants of Residential Property Damage Caused by Hurricane Andrew. *Southern Economic Journal* 61: 387–97.
- Garrett, Thomas A., and Russell Sobel. 2003. The Political Economy of FEMA Disaster Payments. *Economic Inquiry* 41, no. 3: 496–509.

- Gelinas, Nicole. 2006. Hurricanes in Hamptons. *WSJ.com*. Available at: <http://www.opinionjournal.com/cc/?id=110008646>.
- Goldenberg, Stanley, Christopher Landsea, Alberto Mestas-Nunez, and William Gray. 2001. The Recent Increase in Atlantic Hurricane Activity: Causes and Implications. *Science* 20, (July): 474–79.
- Grace, Martin F., and Robert W. Klein. 2007. Facing Mother Nature. *Regulation* (fall): 28–34.
- Gunderson, Amy. 2007. Home Away: The Latest in Shutters for Storm Protection. *New York Times*, May 9.
- Hairston, Julie B. 2007. Insurance-Scarred Florida Émigrés Stream to Atlanta: Wave of Transplants Affects New Architecture, Real Estate Marketing Campaigns, Schools. *Atlanta Journal-Constitution*, June 23. Available at: <http://www.ajc.com/metro/content/printedition/2007/06/23/biztransplants0623a.html>.
- Harrington, Jeff. 2005. Another Insurer to Drop Policy. *St. Petersburg Times*, September 1. Available at: http://www.sptimes.com/2005/09/01/Business/Another_insurer_to_dr.shtml.
- Hartwig, Robert P. 2007. Testimony before the United States House of Representatives Committee on Financial Services on H.R. 920, the Multiple Peril Insurance Act of 2007, July 17. Available at: http://www.house.gov/apps/list/hearing/financialsvcs_dem/hthartwig071707.pdf.
- Hull, Peter. 2007. Battening Down: Grants, Discounts Encourage Owners to Upgrade Storm Resistance. *Post and Courier, Business Review* (Charleston, S.C.), December 10.
- Insurance Information Institute. 2007a. Hurricane and Windstorm Deductibles. Available at: <http://www.iii.org/media/hottopics/insurance/hurricanwindstorm/>.
- . 2007b. The National Flood Insurance Program. Available at: <http://www.iii.org/media/facts/statsbyissue/flood/>.
- . 2007c. Industry. Available at: <http://www.iii.org/media/Facts/statsbyissue/industry/>.
- Jenkins, William O., Jr. 2005. *Federal Emergency Management Agency: Challenges Facing the National Flood Insurance Program*. GAO-06-174T. Washington, D.C.: U.S. General Accounting Office.
- Kelly, Susan. 2007. Fed Flood Insurance May Get Wind Rider. *Financial Week* (August 6): 1–3.
- Kreisel, Warren, and Craig Landry. 2004. Participation in the National Flood Insurance Program: An Empirical Analysis for Coastal Properties. *Journal of Risk and Insurance* 71, no. 3: 405–20.
- Kunreuther, Howard. 2006. Reflections on U.S. Disaster Insurance Policy for the 21st Century. National Bureau of Economic Research Working Paper No. W12449. Available at: <http://ssrn.com/abstract=924539>.
- Kunreuther, Howard, and Richard J. Roth Sr., eds. 1998. *Paying the Price: The Status and Role of Insurance Against Natural Disasters in the United States*. Washington, D.C.: Joseph Henry Press.
- Kunzelman, Michael. 2007. As Insurance Premiums Soar after Katrina, Some in La. Are “Go-

- ing Bare.” *Claims Journal*, March 20. Available at: <http://nwitimes.com/articles/2007/03/20/business/business/doc5520dba925a837b6862572a300712fef.txt>.
- McLeister, Dan. 2007. Lessons from Katrina: Better Building, Codes, Materials. *Periodical Title* (July 7): 2. Available at the HGTVPro Web site: http://www.hgtvpro.com/hpro/nws_dstr_huric_torndo/article/0,2624,HPRO_26522_4503255,00.html.
- Meier, Kenneth J. 1991. The Politics of Insurance Regulation. *Journal of Risk and Insurance* 58, no. 4: 700–13.
- Mills, Evan, Richard J. Roth Jr., and Eugene Lecomte. 2005. *Availability and Affordability of Insurance under Climate Change: A Growing Challenge for the U.S.* Report commissioned by Ceres. Boston: Ceres, December.
- Pasternick, Edward T. 1998. The National Flood Insurance Program. In *Paying the Price: The Status and Role of Insurance Against Natural Disasters in the United States*, edited by Howard Kunreuther and Richard J. Roth Sr., XXX–XX. Washington, D.C.: Joseph Henry Press.
- Pielke, Roger, Jr., and Roger Pielke Sr. 1997. *Hurricanes: Their Nature and Impact on Society*. New York: John Wiley and Sons.
- Radelat, Ana. 2007. Lawmakers Press for Catastrophic Insurance Fund. *Shreveport Times*, March 28.
- Ryan, Jason. 2007. Governor Seeks Aid for Coast. *The State Newspaper* (Columbia, S.C.), March 23.
- Sobel, Russell S., and Peter T. Leeson. 2007. The Use of Knowledge in Natural-Disaster Relief Management. *Independent Review* 11, no. 4 (winter): 519–32.
- South Carolina Department of Insurance. 2007. *Coastal Property Insurance Issues in South Carolina*. Columbia: South Carolina Department of Insurance.
- Tibbetts, John H. 2007. Will Climate Change Devastate Coastal Property Insurance? *Coastal Heritage* 22, no. 1 (summer): 3–11.
- Trenberth, Kevin E. 2007. Warmer Oceans, Stronger Hurricanes. *Scientific American* (July): 45–51.
- U.S. Department of Commerce. 2005. Population Density More Than Double the National Rate in Louisiana, Mississippi, Alabama, and Florida Coastal Counties along the Gulf of Mexico. *U.S. Census Bureau News*, July 8. Available at: http://www.census.gov/Press-Release/www/releases/archives/hurricanes_tropical_storms/005345.html.
- U.S. Government Accountability Office (GAO). 2006. *Hurricane Katrina: GAO’s Preliminary Observations Regarding Preparedness, Response, and Recovery*. Washington, D.C.: U.S. GAO.