Disaster Relief as a Bad Public Good

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There are classes of problems that free markets simply do not deal with well.

– Thomas Schelling[1]

1. Introduction

At first blush, disaster relief belongs to a class of problems ill-suited for private market solution. It seems obvious that coordinated emergency responses on a scale and scope far beyond the capacities of individual actors, charitable organizations, and even local and state governments are indispensable when Mother Nature strikes with the wrath of a Hurricane Camille, Andrew or Katrina, when levee breeches cause massive flooding of towns and farmland along the upper Mississippi Valley, or when tornadoes and earthquakes shatter lives and wreck property in the blink of an eye. Disaster relief arguably is, in short, something of a public good that would be undersupplied if responsibility for providing it were left in the hands of the private sector. If this line of reasoning is sound, the Federal Emergency Relief Administration (FEMA), or something like it, is a proper function of the national government.

But I don't think that it is. A pure public good, as we know, is both non-rival in consumption – one person can consume the good without reducing the amount available for others to consume – and non-excludable, meaning that access to the good cannot be denied even to those consumers who have not contributed to financing its provision. Weather forecasts (Ewing, Brown and Sutter 2007, p. 319), national defense and some types of intellectual property qualify by that definition; other examples are hard to come by. Indeed, the stereotypical pure public good – the coastal lighthouse (see, e.g., Sidgwick 1901, p. 406) – was in fact supplied quite successfully by the private sector for decades (Coase 1974).

[1] Quoted in Gosselin (2005). Professor Schelling was commenting on the problems of coordinating the return of population and the rebuilding of New Orleans in Hurricane Katrina's wake. See Landry et al. (2007) for some evidence on the economic determinants of Katrina survivors' return migration decisions.

In this essay, I argue that one should resist justifying federal government provision of disaster relief on the basis of its ostensible public goods character. Disaster relief is a bad example of a public good for several reasons. For one, the immediate task required of first responders is to supply what essentially are private goods. Rescuing survivors from the rooftops of flooded homes and businesses or digging them out of the rubble are rivalrous activities. Everyone in immediate danger cannot be moved to safety simultaneously and when a rescue crew is working to locate survivors at one disaster scene, others necessarily must wait their turns. Emergency relief supplies, such as drinking water, meals ready to eat, blankets and temporary housing likewise are fully private goods, whose consumption by one victim reduces the amount available for all. The critical responsibility of first responders to natural disaster is rapidly to mobilize and distribute such aid and, as we shall see, the mass distribution of private goods is not an activity in which government has a distinct comparative advantage.

Second, the modern theory of property rights (e.g., De Alessi 2001) and public choice reasoning both emphasize that governments, like markets, can fail to produce ideal results and, moreover, that government failure occurs, not because of differences in the motives of the actors in the public and private sectors – all are assumed rationally to pursue their self-interests – but rather because the institutions governing collective action differ in important ways from those which organize private action. In a proprietary market setting, decisions are made in response to price and profit signals and outcomes can readily be judged by reference to a bottom line. Because market participants by and large capture the benefits and bear the costs of their own decisions, they have strong incentives to allocate scarce resources to their highest

valued uses. Free and open competition between resource owners helps keep prices in line with costs, push costs to their minimum and hold profits to normal levels.

Government, by way of contrast, operates in a nonproprietary setting with weaker links between effort and reward for effort. Incentives tend to be low-powered in an institutional environment where explicit price and profit signals are missing, where compensation is based primarily on seniority or longevity, and where the bulk of the benefits and costs of decisions are borne by others. Because in a democracy, outcomes are determined, not by a benevolent despot, but by a complex political process requiring a balancing of the interests of many participants (Buchanan [1975] 2000, p. 21), actors in the public sector accordingly respond to the demands of well-organized pressure groups and to the rhythms of the election cycle, where success or failure is judged on the basis of vote margins rather than in terms of the efficiency with which the public's resources have been deployed.

Two implications for disaster preparedness and disaster relief follow directly from recognizing the differences in the incentives and constraints facing private market participants on the one hand and public officials on the other. One is that the democratic process provides a larger political payoff to new public works projects and real estate development initiatives than to maintaining existing infrastructure. Because building a convention center, a highway or a bridge is visible to voters, creates temporary construction jobs and benefits local businesses by injecting "new" money into the economy, politicians can claim credit and garner votes on Election Day by supporting such apparently progressive spending programs. Expenditures for maintaining existing infrastructure, in contrast, are for the most part invisible. Because officials will be penalized for neglecting repairs only in the event of catastrophic failure (and things are

likely to go wrong on some future official's watch), it is politically rational to do so. Failure to shore up New Orleans's defenses against storm surge, to repair an interstate highway bridge in Minneapolis, or to strengthen levees along the upper Mississippi River therefore are predictable consequences of the vote motive that animates human action in the public sector.

Implication two is that the absence of well-defined property rights in the governmental sphere produces an aversion to risk-taking. Better to do nothing than to take actions that in hindsight might expose officials to criticism. Such considerations explain why, prior to Hurricane Katrina's landfall, New Orleans's Mayor C. Ray Nagin delayed ordering a mandatory evacuation – he apparently hesitated to force people out because the city might be held liable for unnecessarily closing hotels and businesses if the levees held (Ripley et al. 2005, p. 36) – why, despite forewarning of impending disaster, public officials failed to pre-deploy emergency supplies in adequate quantities and why, once the storm struck, FEMA and other agencies were slow to react. Government failure is predictable because politicians and bureaucrats have relatively weak incentives to prepare for emergencies and to mobilize at full speed the resources necessary to alleviate hardship when catastrophe strikes. "Risk management" is not in government's lexicon.

Third, disaster relief is a bad public good owing to one of its "unintended" consequences. No matter how well-meant, generous injections of public money and in-kind assistance to succor a disaster's victims; commitments to spend billions of tax dollars to rebuild the areas laid waste by Mother Nature; promises of grants, tax breaks and low-interest loans for property owners, including those who failed to obtain private or federally subsidized hazard insurance; and lawsuits against private insurers aimed at forcing them to pay for losses not

explicitly covered by the policies they sold all reduce the cost of living in disaster-prone regions and, hence, create incentives for individuals and businesses to put themselves in harm's way. Publicly financed disaster relief, in short, creates moral hazard (Pauly 1968), ensuring that future natural catastrophes will produce more fatalities and more property damage than the last one did.

In the remainder of this essay, I flesh out the foregoing arguments. In doing so, I update and extend my earlier study of the public and private responses to Hurricane Katrina, which slammed into the Gulf Coast on or about Monday, August 29, 2005 (Shughart 2006). Section 2 provides an overview of events during the week preceding that disaster, emphasizing the advance warning of impending tragedy available to local, state and federal officials. Section 3 focuses on the institutional factors that led to the catastrophic failure of New Orleans's floodwalls. Section 4 shifts attention to explaining why the immediate governmental emergency response was so leaden-footed. The moral hazard of disaster relief is addressed in Section 5. Section 6 documents the prompt and effective aid provided to Katrina's victims by leading for-profit businesses, such as Wal-Mart, Home Depot and FedEx; Section 7 concludes.

2. Prelude to disaster

Hurricane Katrina formed in the Bahamas on Thursday, August 25, and soon thereafter reached Category 3 strength (Ripley with Bennett et al. 2005, p. 56). Two days later, storm-surge models run at Louisiana State University's Center for the Study of the Public Health Impacts of Hurricanes predicted that Katrina would hit New Orleans hard enough to inundate the city (ibid.). Indeed, LSU's Katrina simulations generated results eerily similar to those of a training

exercise staged by FEMA the previous summer. In that July 2004 drill, “Hurricane Pam”, a hypothetical Category 3 storm assumed to make landfall at New Orleans, produced catastrophic flooding (Block, Schatz and Fields 2005; NBC 2005, p. 7). Although the results of that exercise were greeted with skepticism by some of FEMA’s own officials and by the US Army Corps of Engineers (ibid.), the threat posed by “Pam” (and by Katrina) was all too real.

Because it lies almost entirely below sea level, “New Orleans is uniquely vulnerable to flooding” (NBC 2005, p. 3). “Nowhere is [the city] higher than the river’s natural bank.... Every drop of rain that falls on New Orleans evaporates or is pumped out” (McPhee 1989, p. 59). It went under in 1735, and did so again in 1785 (ibid., p. 33) and 1849 (Barry 1997, p. 34). Hurricane Betsy flooded 20% of New Orleans in 1965 (Thomas et al. 2005b). The city narrowly avoided similar fates in 1973, 1997, and, most famously, in 1927, when it was saved at the eleventh hour by levee breaches upriver that diverted rising floodwaters produced by months of heavy rains to low-lying areas further North (Barry 1997, pp. 257–258; Barry 2005).

FEMA’s mock “Hurricane Pam” exercise had not been the first harbinger of the Big Easy’s vulnerability. As a matter of fact, “scenarios projecting a major hurricane making landfall near New Orleans have been studied for the last 20 years” (Ewing, Kruse and Sutter 2006, p. 315). In 2002, yet another publicly funded study also concluded that a slow-moving Category 3 storm would cause major flooding “in the bowl of New Orleans north of the Mississippi River” (Carrns et al. 2005). Although the 350-mile-long levee system protecting the city supposedly had been designed to withstand storms of that strength, the Corps of Engineers repeatedly had warned state and local officials that soil erosion and subsidence had caused long stretches of

the flood barrier to sink as much as three feet below original grade and urgently needed to be "lifted" (Carrns 2005b).

After a last-minute course change caused Katrina to veer to the East of New Orleans, local officials may have congratulated themselves on being as lucky as they had been in 1988, when Hurricane Georges narrowly missed hitting the city head-on. Their luck soon ran out. Pushed by wind speeds of between 125 and 140 miles per hour (Pain 2005), Katrina's powerful storm surge caused the first of three major levee breaches allowing the Mississippi River and Lake Pontchartrain to flood the city. The levee system sprang leaks in dozens of other locations (Carrns 2005a, b). Soon, nearly 80% of New Orleans was under water, in some places as deep as 20 feet (Carrns et al. 2005).

On the National Hurricane Center's radar screen for days before making landfall in Mississippi (Ewing, Kruse and Sutter 2007, p. 315) and fully informed as to the threat Katrina posed, public officials nevertheless failed to prepare for disaster and then mounted a response that was both sluggish and inept. The following sections explain why disaster preparedness and disaster relief are bad public goods.

3. The levees fail

Politicians and bureaucrats, as noted above, are self-interested actors who, because the mass of voters is unorganized and rationally ignorant about policy processes, are more responsive to the demands of special interests than to the interests of the public at large. Insofar as they are motivated primarily by the goals of reelection or reappointment to office, agents in the public sector assign less weight to the future benefits and costs of any action than they do to those

which will materialize in the nearer term. Most public decisions are influenced by results that are highly visible and for which credit can be taken before the next election or the next opportunity for promotion to higher office. Actors in the private sector, on the other hand, are less shortsighted because markets impound in current prices the appropriately discounted future consequences of any present decision or choice. Since publicly financed infrastructure deteriorates slowly and often invisibly, politicians and bureaucrats have little to lose from deferring repairs and neglecting routine maintenance. Political myopia also explains why it is politically rational to postpone developing plans for coping with disasters that in all likelihood strike after incumbent officeholders' careers in the public sector have come to an end (Sobel and Leeson 2006).

The combination of benign and malign neglect vouchsafed to New Orleans's protective barriers thus is unsurprising given the institutional environment within which public decision-makers operate. In the disaster of Katrina, political shortsightedness was reinforced by the Balkanization of public responsibility for flood control on the lower Mississippi River. Most of the levees currently in place were built by the US Army Corps of Engineers with federal funds.[2] However, the daily operations of the complex system of floodwalls, floodgates, earthen embankments and pumping stations arrayed along the river's course from East of Baton Rouge to just beyond New Orleans were at the time of Katrina overseen by four separate levee district boards. Each of these boards, whose memberships included both gubernatorial and local political appointees, wielded broad taxing and borrowing powers for financing routine levee maintenance and for contributing a share (usually 30%) of the cost of major repairs or of other

[2] See McPhee (1989) for a perceptive history of the Corps of Engineers' costly – and in all likelihood ultimately futile – efforts to keep the lower Mississippi River in its present channel.

flood control work recommended by the Corps as a result of its annual spring inspections. In the City of New Orleans itself, an independent water and sewer board ran and maintained the pumps and canals for draining low-lying areas (Carrns 2005b).

This fragmentation of bureaucratic responsibility, between construction and maintenance on the one hand, and between independent, geographically defined levee districts on the other, had foreseeable consequences. “So often compared to the Great Wall of China, the levees had more in common with the Maginot Line” (McPhee 1989, p. 46). A National Science Foundation-funded team sent to investigate New Orleans’s post-Katrina flooding concluded that many of the weak spots breached by the storm resulted from unclear lines of authority and insufficient coordination amongst the various agencies having jurisdiction over the levee system. Floodwalls were built of different heights in some locations and of different, ineffectively joined materials in others. At one pumping station, for which at least three separate agencies were responsible, for example, a concrete floodwall connected to an earthen levee that was much lower. Katina’s storm surge overtopped the shorter structure, rendering the more substantial one useless (ibid.).

As a matter of fact, the first waters to enter the city gushed through a floodgate at a railroad crossing along the Industrial Canal, which had been damaged by a train derailment in September 2004, but not yet repaired owing to a dispute over funding between the railroad and the Orleans Levee District board responsible for that section of the levee (Carrns 2005b). In addition, most of the levee along the same river stretch was built around a steel floodwall that had no horizontal footing, was surrounded by protective pilings that may not have been driven deeply enough to provide stability, was compromised further by seepage underneath its base,

and consequently was simply pushed aside by Katrina's storm surge, creating an opening so large that a river barge was swept through it (Carrns 2005a).

Perhaps lured into complacency by the comparatively mild hurricane activity in the Atlantic from the mid 1960s to the mid 1990s (Thomas et al. 2005a, p. 45), and undoubtedly responsive to the interests of local developers, realtors, financial institutions and other benefiting groups, Louisiana's levee district boards expanded their bureaucratic fiefdoms far beyond their original mandates. Over time, using its powers of eminent domain for flood-control projects, the board of the Orleans Levee District became the largest landlord at Lake Pontchartrain. It built two marinas there, constructed parks, walking paths and other amenities along the lakefront levees and, in order to spur development at its marinas, built roads, a commuter airport, and a dock it leased to the Belle of Orleans, a floating casino, in return for a cut of the gaming revenue. The Orleans district board also considered, but ultimately abandoned, a plan to lay fiber-optic cable through 26 miles of the levee system (ibid.). The humdrum, largely invisible job of levee maintenance took a backseat to more newsworthy – and more politically rewarding – lakefront development initiatives. In the words of one board member, "We never talked about levees" (quoted in Ripley et al. 2005, p. 36).[3]

Although Katrina initially was classified as a Category 4 storm, one more powerful than New Orleans's levee system was intended to withstand, it is now thought to have been weaker. Indeed, because Katrina's eye made landfall on the Mississippi Gulf Coast, it is probable that most of the Big Easy experienced a hurricane of at most Category 2 strength; the maximum

[3] Louisiana's levee district boards, it should come as no surprise, "became vehicles for [bloated] government contracts and political patronage" (Carrns 2005b) that contributed to the faulty construction and poor maintenance of New Orleans's defenses against flooding.

wind speed recorded by a National Aeronautics and Space Administration office on the eastern side of the city was 95 miles per hour (Pain 2005). But then again, "it's never been a secret" that "even a [Category] 2 would be a problem for certain areas" of the city, according to a reporter for the *Times-Picayune* (National Broadcasting Co. 2005). As such, faulty construction and poor maintenance – the hallmarks of public works – were proximate causes of the massive failure of New Orleans's defenses on August 30th.

4. The public sector procrastinates

Government agencies are created by legislation, overseen by elected officials, and operated by huge bureaucracies. Fear of being blamed if public employees do something wrong (or fail to do something right) produces risk aversion, leading each level of government to attempt to control the one below it by writing and imposing detailed operating rules that restrict underlings' discretionary authority. One result of top-down control is that the people who set priorities and make decisions are often separated by multiple layers of management from those on the ground who know what really needs to be done. Relevant information becomes impacted in semi-autonomous centers of government authority and little incentive exists for sharing that information in mutually beneficial ways (Sobel and Leeson 2007).

The public response to Katrina was hampered by a confused chain of command, which began at the top. Officials at the White House and the Defense Department apparently dithered for days about whether to "federalize" National Guard units in the impact area, as the president's father had done after the 1992 Los Angeles riots (Thomas et al. 2005a, p. 48). That debate may have had partisan overtones. On his first post-Katrina visit to Louisiana, on Friday,

September 2, President George W. Bush is reported to have asked Louisiana Governor Kathleen Babineaux Blanco, a Democrat, to relinquish control of the local law enforcement and National Guard troops under her command. She refused, after thinking about it for 24 hours, evidently believing that the proposal was motivated by the president's eagerness to claim credit for a relief operation that at long last was showing progress. No such request was made of Mississippi's Governor Haley Barbour, a Republican (Ripley et al. 2005b, p. 39).

Nearing the end of a five-week-long vacation at his Crawford, Texas, ranch (Thomas et al. 2005b) and evidently unaware of the magnitude of the disaster on the Gulf Coast, President Bush's attention was elsewhere. On the day Katrina made landfall, he kept two previously scheduled speaking engagements at senior centers, one in Arizona, the other in California, to promote the new Medicare Part-D drug benefit program (Katrina Timeline 2005). The next day, Tuesday, August 20, with the USS Ronald Reagan as backdrop, the president spoke on the Iraq war at a naval base in San Diego, California, and then returned to Crawford for the final night of his vacation (ibid.). On the way back to Washington on Wednesday, Air Force One flew over New Orleans for 35 minutes to give him a bird's eye view of conditions on the ground (Katrina: What Happened When 2005).

Appearing "listless and confused" (The Shaming of America 2005), "casual to the point of carelessness", as the *New York Times* editorialized on September 1st, reality did not sink in for President Bush until Thursday night (Thomas et al. 2005b). He reacted initially to the mounting criticism of the federal relief effort by praising the people in charge ("Brownie, you're doing a heck of a job") and attempting to shift the blame to state and local officials (Katrina Time Line 2005). It was not until Tuesday, September 13, the day after FEMA director Michael

Brown had resigned, that the president accepted personal responsibility for the government's sluggish response (Katrina: What Happened When 2005).

Politics may have played a role in President Bush's failure quickly to take charge of the federal relief effort. Serving his second term in the White House, he had little incentive to worry about the future consequences of inaction. By way of contrast, when Hurricane Charley struck the electoral-vote-rich, battleground state of Florida the previous August – and with his own reelection campaign in full swing – the president was on the ground two days later (CNN 2004). Like his father before him, who had toured the parts of the same state within hours after Hurricane Andrew made landfall in 1992 (Wolffe et al. 2005), President Bush seized the photo-op moment in 2004, but waited a full four days before visiting Katrina's impact area.

Bureaucratic paralysis extended throughout all levels of authority as Katrina headed toward the Gulf Coast. It continued in the storm's immediate aftermath.

Forewarned of Katrina's severity, as all public officials had been (Excerpts from Brown Hearing 2005), Governor Blanco likewise was slow off the mark. Although she proclaimed a state of emergency on Friday, August 26, thereby triggering her state's disaster plan, she deferred to Mayor Nagin on the all-important decision to order a mandatory evacuation of New Orleans (ibid.). After Katrina struck, disrupted communication systems prevented Governor Blanco from gathering information from officials on the ground (Carrns et al. 2005). Perhaps that is why, despite her call to the White House for federal assistance on Monday, it was Thursday, September 1, before she was able to transmit to Washington a list of specific requests (Ripley et al. 2005, p. 38). Appearing "dazed and unsteady" for much of the week (ibid.), one of the governor's first public post-Katrina appearances was to lead a 30-minute

prayer service televised locally from the state's emergency headquarters in Baton Rouge (Carrns et al. 2005).

New Orleans Mayor Nagin "panicked" (Melloan 2005). Despite the alarms being sounded by LSU's storm-trackers and a personal telephone call on Saturday from the director of the National Hurricane Center warning him of the seriousness of the threat New Orleans faced (Ripley et al., 2005, p. 37), he did not issue an order to evacuate the city until Katrina was within 48 hours of making landfall and did not make evacuation mandatory until late Sunday morning, when fewer than 24 hours remained (ibid., pp. 36–37). He and his crisis team opted for refuge at the Hyatt Regency hotel rather than taking charge at the city's Mobile Command Center or joining other local and state officials at Louisiana's emergency operations facility in Baton Rouge. In consequence, Mayor Nagin and his advisors were cut off for two days, spending most of their time warding off looters, as telephones went dead and the radios used by police and other first responders drained their batteries (ibid., p. 37).[4]

At the end of the day, most of the blame for the listless public response has been laid at the door of the Federal Emergency Management Agency. "Katrina exposed FEMA as a dysfunctional organization" (Grunwald and Glasser 2005; Steinhauer and Lipton 2005). "A parking lot for political allies since its creation in 1979" (Ripley et al. 2005, p. 40), it has been shown to be responsive more to the political interests of the White House than to the needs of the victims of disaster on the ground. Other things being equal, including the severity of damage, Garrett and Sobel (2003) report evidence that, once a disaster has been declared,

[4] Corruption may be responsible for Mayor Nagin's isolation in the days immediately after Katrina's storm surge deluged his city: A $7 million federal grant to New Orleans in 2003, intended to pay for a communications system that would connect all of the region's first responders, has not been accounted for (Ripley et al. 2005, p. 37).

more federal disaster relief funds tend to be allocated disproportionately to electoral vote-rich states that are important to the sitting president's reelection strategy.

The catalogue of reasons for the failure of federal officials to respond promptly to the disaster of Katrina is nearly endless.[5] As part of the massive reorganization of the federal government prompted by 9/11, FEMA was absorbed into the maw of the fledgling Department of Homeland Security (DHS) in 2003 (Block 2005). Over the next two years, the agency gradually was stripped of responsibility for disaster preparedness and its duties limited to disaster response (Grunwald and Glasser 2005; Ripley et al. 2005, p. 40). Moreover, in its new bureaucratic home FEMA's mission and budgetary resources were reoriented towards dealing with future terrorist attacks. Natural disasters got pushed far down the priority list; bureaucratic turf battles took their toll, "morale plummeted" and "senior career staff members left in droves" (Grunwald and Glasser 2005).

Bled of expertise as its primary mission was shifted toward terrorism, still in the midst of reorganization within the Brobdingnagian Department of Homeland Security, and in the charge of people who had little relevant experience, FEMA was caught completely flat-footed when Katrina struck the Gulf Coast. At FEMA's urging, President Bush did in fact declare an emergency in the State of Louisiana on Saturday, August 27 (Ripley with Bennett et al. 2005, p. 56; Wolffe et al. 2005), an event that should have signaled the agency to begin working in coordination with state and local authorities to prepare for the looming disaster (NBC 2005). But that did not happen. According to a former senior FEMA official, the agency failed to pre-

[5] FEMA has been plagued by waste and abuse. Federal auditors discovered in late 2005, for instance, that, after Hurricane Frances struck Florida the year before, the agency had distributed $31 million in emergency funds to residents of Dade County, an area 100 miles south of the point where the storm's eye made landfall (Ripley et al. 2005, p. 40).

deploy enough assets – food, water and medical supplies – before the storm made landfall: "Nobody pulled the trigger on resources. The director of FEMA didn't pull the trigger…. The Department of Homeland Security didn't pull the trigger. The resources simply did not get there" (ibid.).

5. The moral hazard of disaster relief

Hurricane Katrina is estimated to have caused more than $200 billion in economic losses (Burby 2006, p. 171). The eventual public response was equally massive, but a full accounting of the resources mobilized and dispatched to the storm's impact area has yet to be produced. We do know that more than 16,000 federal employees were deployed to the Gulf Coast, that Congress initially appropriated $88 billion for relief, recovery and rebuilding and that another $20 has been requested for future efforts. In addition, the Small Business Administration has underwritten $5.8 billion in disaster loans and the term of federal unemployment insurance eligibility was extended for workers displaced by storm (Chappell et al. 2006, p. 346). Requested by President Bush two weeks after Katrina hit, Congress also passed legislation designating a "Gulf Opportunity (GO) Zone" to help jumpstart revitalization by providing temporary tax reductions, investment incentives and regulatory relief to "formerly booming neighborhoods that have lost their economic bases" to Mother Nature's wrath.

Moral hazard refers to the reduction in the price of carelessness as an individual becomes more fully insured (Eisenach, Higgins and Shughart 1986). The term was coined by health economist Mark Pauly (1968) to describe the behavior of people who have insured themselves against sickness and injury.

Because a large fraction of the costs of visiting the doctor, of being hospitalized or of buying prescription drugs is shifted to other policyholders, individuals who have purchased health insurance tend to consume more of those goods and services than they would if they had to pay their medical bills in full out of their own pockets. And so, rather than relying on home remedies for simple colds and minor injuries, they make appointments to see their doctor or go to an emergency room. The fact that insured patients pay less than the full cost of care also leads them to demand more extensive diagnostic testing, more referrals to medical specialists and more follow-up office visits than otherwise. This insurance-driven over-utilization of scarce healthcare resources raises the costs of medical care for everyone, insured and uninsured alike.

The same reasoning applies to relief for the victims of Hurricane Katrina or any other natural disaster. Meeting the immediate needs of the victims of natural disaster is one thing. Providing billions of tax dollars in the form of outright grants, low-interest loans, and other aid intended to help finance a return to pre-storm normalcy is quite another. Shifting a large portion of the cost of recovery to the taxpayers encourages people to rebuild who would not have chosen to do so if they instead shouldered the full cost themselves. The prospect of receiving federal and state reconstruction assistance after the next hurricane strikes supplies incentives for others to relocate their homes and businesses from inland areas of comparative safety to vulnerable coastal areas. And so, over the past several decades, “the coastal population growth rate was more than double the national growth rate”; the percentage of property under development or already developed as well as the value of real property in coastal zones has risen *pari passu* (Ewing, Kruse and Sutter 2006, p. 319).

People who voluntarily put themselves in harm's way, taking on the additional risk of living and working in disaster-prone areas, adequately insuring their lives and property against wind and flood – and paying actuarially fair premiums reflecting that greater risk – have every right to expect prompt reimbursement for the damages they have sustained and every right to rebuild if they wish. But both before Katrina and since, public policies have significantly lowered the price of populating areas vulnerable to natural disaster.

For example, after the widespread flooding along the Mississippi River in 1993, FEMA initiated a "mitigation program", buying up floodplain property to prevent the rebuilding of homes and businesses that in due course would be swept away again. That program was one of the bureaucratic casualties of FEMA's absorption by the Department of Homeland Security (Carey et al. 2005). Hoping to score political points with the victims of Hurricane Katrina, Mississippi's Attorney General, Jim Hood, filed a lawsuit against three of the impact area's largest insurers, State Farm, Allstate and Nationwide, seeking to force them to pay claims for flood damage even on policies containing riders explicitly excluding that hazard (Simons 2005).[6] Although the attorney general's lawsuit has not yet been resolved, the threat to private contracting it poses may have been mooted by Congress's subsequent enactment of a $29 billion hurricane relief package for the Gulf Coast, brokered by Mississippi Senator Thad Cochran, who chaired the Appropriations Committee of the US Senate. That package includes $11.5 billion in non-repayable "community development block grants" for Alabama, Florida,

[6] Populist anger at private insurance companies was more properly directed at FEMA, which manages the federal flood insurance program (see below). Starting in 1983, a program called "Write Your Own" (WYO) allowed private insurers to issue federal flood insurance policies and collect policyholders' premiums. The premiums, minus an administrative fee, are then transferred to FEMA, which also pays all claims. As of 2002, 86 private insurance companies participated in WYO, accounting for 95% of all federal flood insurance policies (Young 2008).

Louisiana, Mississippi and Texas, providing payments of up to $150,000 for homeowners who want to rebuild, whether or not they were insured (Cogswell 2005; Hsu 2005).

The expectation of receiving publicly financed disaster relief may explain why 69% of the residents of Mississippi's Gulf Coast did not have federal flood insurance at the time of Katrina (Chappell et al. 2007). If history is any guide, many of the uninsured property owners simply may have chosen to ignore requirements to purchase such insurance (Kunreuther and Pauly 2006).[7] But rates of participation in the federal flood insurance program have consistently been low since it was created by the National Flood Insurance Act of 1968 (Young 2008). The reluctance of large numbers of owners of property in hazardous areas to insure against flood, even when required to do so and even though the insurance is sold at subsidized rates,[8] may suggest that, because of biases in risk perception or myopia, "people treat low-probability catastrophe events as if they are zero-probability events" (Ewing, Krause and Sutter 2007, p. 318). It is also true, however, that federal flood insurance is mandatory only for property that is mortgaged and then only up to the outstanding balance on the property owner's loan. Hence, it is banks and other lenders, not property owners per se, that are the principal beneficiaries of the flood insurance program as currently structured. And, because the program now collects only about $2 billion in premium income every year, it is chronically insolvent (Young 2008).

And so, with its premium balances rapidly depleted by Katrina-related claims and its borrowing authority at the statutory limit, FEMA was forced to suspend payments to flood insurance policyholders on November 16, 2005. The payments were not resumed until the

[7] Of the 84% of uninsured property owners who applied for public disaster assistance to pay for damage caused by flooding in northern Vermont in 1998, 45% were in fact required to have purchased federal flood insurance (Kunreuther and Pauly 2006, p. 107). See also Kunreuther and Pauly (2004).
[8] Owing to the subsidy for federal flood insurance, private insurers cannot profitably offer competing policies in high-risk areas (Young 2008).

following March when Congress raised the program's debt ceiling (ibid.). Knowing that most of the flood insurance claims for a major disaster like Katrina will be paid mostly out of the general revenues of the federal government in any case, property owners in flood-prone regions have little incentive to participate.

Rushing to the aid of the victims of natural disaster is a very human impulse. The lesson of moral hazard is simply that, by lowering the costs of populating known hurricane pathways, taxpayer-financed disaster relief has an unintended consequence: more lives lost and a bigger price tag the next time around. Moreover, if the residents of New Orleans bore more of the cost of flooding, they would have stronger incentives to see that the tax dollars flowing to local levee boards and other agencies responsible for building and maintaining the city's defenses actually were spent in ways that reduced their vulnerability to breach.[9]

6. The private sector acts

In his testimony before a special congressional investigative committee on September 27, 2005, former FEMA director Michael Brown admitted that his agency was "bad at logistics, and often was unable to track shipments of emergency supplies" (Block 2005). In combination with lethargic decision-making at the top, an inability to coordinate efforts with first responders at the state and local levels owing both to storm-wrecked communications and jurisdictional conflicts, and a bureaucratic mindset that favored rule-following over discretionary action,

[9] Drawing an analogy to the so-called natural resource curse or the "Dutch disease", Boettke et al. (2006) identify yet another unintended consequence of disaster relief: corruption. The "windfall" of money and other resources that pour into the impact area, the chaotic atmosphere in which it is distributed and the public relations imperative to be seen "doing something" quickly to alleviate the suffering of victims creates circumstances ripe for corruption and waste. In fact, Boettke et al. report evidence suggesting that public officials are more likely to be convicted of corruption in states that are more disaster-prone.

logistical breakdowns fatally compromised FEMA's reaction to the crisis of Katrina. It became part of the problem rather than part of the solution. Indeed, bureaucratic glory-seeking (Sobel and Leeson 2006) may have led it to block the efforts of non-governmental first responders. Anecdotes are legion of volunteers from other states and shipments of needed supplies being delayed or turned away by FEMA officials on the ground (e.g., NBC 2005; US House of Representatives 2005). On September 1, Louisiana officials may have denied a Red Cross request to begin moving emergency supplies into New Orleans (Katrina: What Happened When 2005).

While logistic breakdowns plagued FEMA, many of the nation's leading private enterprises owe their success to efficient, large-scale distribution networks. In Katrina's aftermath, companies like Wal-Mart, Home Depot and FedEx confronted a challenge less daunting than did their counterparts in the public sector. After all, the private sector's main task was to restore business operations in the affected area. Nevertheless, these companies did not tend only to their narrow interests when catastrophe struck. The disaster plans they had in place allowed them to fill broader needs far in advance of the official first responders: "Wal-Mart frequently beat FEMA by days in getting trucks filled with emergency supplies to relief workers and citizens whose lives were upended by the storm" (Zimmerman and Bauerlein 2005). For more than a week, Wal-Mart and a handful of other private enterprises served as the storm-wrecked area's "only lifeline" (Leonard 2005) to the outside world.

Katrina shut down 126 Wal-Mart stores, including 12 in the New Orleans metropolitan area, and two of the company's distribution centers, as she barreled ashore on Monday, August, 29. Half of the stores lost power, some were flooded and 89 sustained physical

damage. By Friday, September 9 – less than two weeks later – all but 15 of these facilities had reopened (Zimmerman and Bauerlein 2005). Two more of them were back up and running the next Friday and by then Wal-Mart had located 97% of the employees displaced by the storm, offering them jobs at any company operation in the country (Leonard 2005, p. 77).

Wal-Mart's rapid response to Hurricane Katrina was coordinated by its Emergency Operations Center, sited near corporate headquarters in Bentonville, Arkansas, and staffed by meteorologists and loss-prevention specialists. Planning began on August 23, six days before the storm made landfall on the Gulf Coast. Based on detailed information about customers' buying patterns in hurricane-prone areas, Wal-Mart began pre-positioning supplies it knew would be in high demand: bottled water, flashlights, batteries, generators and tarpaulins, before the storm hit; mops, chainsaws and Strawberry Pop-Tarts afterwards. Backup generators and dry ice also were pre-deployed to help store managers cope with power outages; teams of roofers were mobilized to deal with building damage; and company employees outside the impact area were alerted to prepare to substitute for locals unable to get to work. Many of these resources were pre-deployed on both flanks of Katrina's predicted path in order to increase the chances that no damaged store would be inaccessible. In addition to addressing the disruption of its own business operations, after Katrina struck Wal-Mart delivered $3 million worth of emergency supplies for general distribution in the disaster area and donated $17 million in cash to the relief effort (ibid., pp. 77–80).

Home Depot began preparing for Katrina four days in advance of landfall. All but 10 of its 33 stores in the impact area were open the next day, and only four remained closed a week later. Like Wal-Mart, Home Depot pre-positioned generators and extra workers on both sides of

Katrina's path to ensure a rapid response (Fox 2005, p. 52). FedEx supplies a similar story. Before the storm moved ashore, the company had deployed 30,000 bags of ice, 30,000 gallons of water, and 85 generators in Baton Rouge, Louisiana, and Tallahassee, Florida, so that it could move quickly to meet the needs of its employees in the disaster area, prearranged temporary housing for those workers, and dispatched four self-contained "facility repair kits" to fix any damaged physical assets. FedEx also assisted the Red Cross by pre-positioning 60 tons of relief supplies before Katrina hit; afterwards, usually at no charge, it delivered another 440 tons of supplies to the Gulf Coast for that organization. The company's Kinko's division pre-deployed photocopiers, toner cartridges and 700 cases of paper for FEMA's and the Red Cross's use (Kratz 2005, p. 84).

While it is true that private firms "had to get [their] stores open, not evacuate a city" (Fox 2005, p. 52), it is also true that disaster planning and response are only minor, albeit critical components of their organizational functions. On the other hand, responding to disaster is FEMA's only mission. Nevertheless, for the reasons given earlier, it and other public agencies performed poorly when Katrina struck. Incentives evidently matter.[10]

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[10] For an instructive comparison between the methods (and costs) of private contractors retained by some cities on the Gulf Coast to remove the debris left in Katrina's wake and those of contractors hired and supervised by the US Army Corps of Engineers, see Lipton (2005). By Christmas Day, just short of four months beyond the disaster, cleanup was approximately 60% to 70% complete in communities that hired private contractors, but only 40% or 45% complete in jurisdictions that called in the Corps. Levy (2005) reports on another striking contrast between public and private institutions in Katrina's aftermath. Two months after the storm made landfall, eight of New Orleans's 35 Catholic schools were open, with several more in operation within the next few weeks. The public school system, on the other hand, was in total disarray. "Plagued by bad management, low test scores and corruption" before Katrina hit – in 2004, the FBI had set up an office in the city school system's headquarters after local officials could not account for $70 million in federal aid – the Louisiana legislature, at Governor Blanco's request, authorized a state takeover of most of New Orleans's public schools.

7. Summary and conclusions

Nothing about Hurricane Katrina should be cause for surprise. New Orleans's vulnerability to flooding has been known for years. That the city's inadequate defenses were not fortified in anticipation of the threat posed by the inevitable landfall of a Category 2 or stronger storm is a predictable consequence of the incentives and constraints that shape the behavior of governmental institutions at all levels of authority. The same factors also explain the lethargy and politicization of the public sector's response to disaster. Katrina did not reveal anything that could not have been anticipated on the basis of public choice reasoning. Self-interested politicians are no different when confronted by an emergency than they are in more ordinary times.

In sum, disaster relief is a bad public good indeed. As a matter of fact, it does not fit the definition of a pure public good to begin with. A successful disaster relief effort demands, first and foremost, the pre-deployment and mass distribution of emergency supplies, nearly all of which are private goods. Not surprisingly, it is the private sector that, with distribution networks already in place, along with the organizational structure, equipment and practical knowledge required for their smooth operation, has a comparative advantage in swiftly meeting the needs of a disaster's victims. Owing to weaker incentives for using resources efficiently, planning horizons attuned, not to the long run, but rather to the election cycle, an aversion to risk-taking and the absence of a bottom line for evaluating performance, the public sector institutionally is incapable of anticipating and responding to catastrophe in a timely manner. Only 25% of the respondents to a post-Katrina survey conducted on the Mississippi identified government "as their most important source of aid" (Chappell et al. 2007, p. 360).

Disaster relief also is a bad public good because it encourages people to put themselves in harm's way. Moral hazard may be an unintended consequence of publicly financed responses to acts of God, but by lowering the cost of building homes and businesses in hazardous areas, it nonetheless continuously raises the values of property and numbers of lives at risk. And it hardens hearts: "two-thirds of Americans oppose extensive assistance if another hurricane were to strike New Orleans again in the near future" (Ewing, Kruse and Sutter 2006, p. 322), as sooner or later assuredly it will.

Armed by days of pre-storm planning, the immediate reactions of for-profit businesses, non-governmental organizations both large and small, and countless individual volunteers to news of Katrina's wrath amply demonstrate that the private sector can and will supply disaster relief in adequate, perhaps socially optimal, quantities. Other than the deployment and coordination of National Guard units, local police, and firefighters to enforce the rule of law and to protect private property, along with some gap-filling by public health officials, there are no justifications for treating disaster relief as a public good. That should be the lesson of Katrina.

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