

## Response to Solicitation for Comments on a “Study and Report to Congress on Natural Catastrophes and Insurance”

### Introduction

The Natural Hazard Mitigation Association (NHMA) is a grassroots, educational, charitable corporation, wholly supported by the donations by members, and occasional project income. We are largely a volunteer-managed and volunteer-staffed organization, passionately committed to lessening the awful and unnecessary misery, vast environmental despoliation, and huge expense caused by human failings to design and build safely and properly in areas subject to foreseeable natural hazards. The NHMA mission is to educate and advocate for safer, sustainable development and redevelopment in both the United States and throughout the world.

*The Natural Hazard Mitigation Association strongly supports the pursuit of a catastrophe insurance program here in the United States, to help promote orderly reconstruction following catastrophic events and to encourage communities to adopt risk mitigation strategies to cope with the consequences of natural hazards.*

On April 24, 2013 you requested general comments including supporting and illustrative information in support of such comments where appropriate and available, regarding natural catastrophes and the current state of the market for insurance for natural catastrophe perils in the United States. You also requested additional specific comments. By way of this correspondence the NHMA is submitting both general comments, illustrative information, and specific comments regarding (a) current ability of States, communities, and individuals to mitigate their natural catastrophe risks, including the affordability and feasibility of such mitigation activities and (b) the current state of catastrophic insurance and reinsurance markets and the current approaches in providing insurance protection to different sectors of the population of the United States, (c) the current role of the Federal Government and State and local governments in providing incentives for feasible risk mitigation efforts and the cost of providing post-natural catastrophe aid in the absence of insurance, and (d) detailed information about the experiences and successes of the State of California in reducing the risks and consequences associated with earthquakes. We believe that much of the information we are submitting to you will be most helpful to you as you research, reference and cite materials within your *Study and Report to Congress on Natural Catastrophes and Insurance*. We also hope that our material will assist your Office in its development of an acceptable definition of the word “catastrophe.”

As the United States Department of Treasury, Federal Insurance Office receives and evaluates the many submitted comments, the NHMA would be pleased to provide additional support to

you, as an association, to help evaluate options, shape and better define workable strategies for realizing a natural catastrophe insurance option here in the United States.

## General Comments

The NHMA carries out its mission by conducting workshops, seminars, and webinars; preparing articles and publications; and performing research which advocates for safer hazard mitigation and climate adaptation planning, preparedness, and design. This year, in conjunction with the Brookings Institute, noted environmentalist David Conrad and Edward A. Thomas Esq., the President of NHMA, co-authored a white paper which strongly suggested that the federal government promote much higher hazard mitigation and climate adaptation standards for all development supported by both federal appropriated or non-appropriated funding. That paper, *Reforming Federal Support for Risky Development*, is central to any discussion of Catastrophic Insurance and is incorporated in our comments by reference. The paper is available at: <http://www.brookings.edu/research/papers/2013/02/reform-federal-support-risky-development>

An April 16, 2013 op-ed article written by Edward Thomas and David Conrad in the *Los Angeles Times* also discusses the need for higher federal standards and an expanded insurance program to provide both support for higher development and redevelopment standards, as well as better organized and efficient indemnification of disaster survivors. That article is incorporated in our comments by reference. That article is available at: <http://www.latimes.com/news/opinion/commentary/la-oe-conrad-disasters-20130416,0,6173190.story>

For a variety of reasons, the United States continues to experience escalating damages from natural hazards such as severe weather and earthquakes. In spite of progressive mitigation initiatives in recent decades, we see higher cost, greater destruction and increased disruption to communities and citizens. We believe that reinvigorating the role of insurance as part of our national strategy to better manage risks from these hazards is the appropriate action for our nation to take at this time. We believe that actuarial insurance should be elevated in importance as a mitigation strategy, including a program of catastrophic insurance, which through economic incentives can encourage risk and consequence reduction, by activities such as higher building code standards, hazard based zoning and improved emergency management.

There are essentially three economic situations in which disaster victims/survivors find themselves following a natural event that leads to a disaster:

- a) Survivors who have adequate insurance promptly begin to rebuild their lives;
- b) Survivors who have some insurance that can serve as a foundation to help them recover use the vast, complicated, conflicting and disorderly set of post-disaster programs managed by federal, state, local and private organizations. Ideally, one or more organizations organizes this mélange of programs into a more orderly but still exceedingly complicated “Patchwork Quilt” of programs and funding available from federal, state, local government resources combined with

assistance available from charities, foundations, private industry, and the Voluntary Organizations Active in Disasters (VOAD);

- c) Survivors who must totally rely on the vast complicated mélange of post disaster programs, hopefully assisted by someone knowledgeable in “Patchwork Quilt” techniques.<sup>1</sup>

It is well established that communities, families, and individuals rebuild better, quicker, and with considerably less stress when they have insurance to cover the necessary expenses. While many factors will influence the speed and smoothness of disaster recovery, including community cohesiveness and economic forces beyond the control of any family or community, it is clear that insurance and pre-disaster mitigation together are the most expedient and effective factors.

### **Current ability to mitigate natural catastrophe risks**

When considering the nation’s current ability to mitigate natural catastrophe risks, it’s important to look to the fire hazard and the combination of awareness, prevention, insurance and first-responder services that have come together to reduce the devastation associated with losses due to fires. The FEMA publication, *America Burning Re commissioned II*, addresses progress and also the remaining unmet needs in fire protection, proposing to improve systems of preparedness and firefighting.

*“One hundred years ago, American cities faced a devastating challenge from the threat of urban fires. Whole cities had become the victims of these events. Entire neighborhoods lived with the very real threat that an ignited fire would take everything, including their lives.”*

*“Today, the threat of fires is still with us. But we have done a lot to address the risk, minimize the incidence and severity of losses, and prevent fires from spreading. Our states and localities have an improving system of codes and standards; most of us are aware of the risks. We have accomplished a lot, but we have much more to do.”*

*“...the success of America’s fire services over the past 100 years is instructive for the strength and sustainability of America’s communities for the next 100 years as well.”*

*“Today, we must not only continue and reinvigorate our successes, but also expand them to include the natural and man-made threats that each of our counties, cities, towns and villages face every day – floods, earthquakes, hurricanes, hazardous material spills, highway accidents, acts of terrorism, and so much more.”*

The report also recognizes that firefighters assist in all kinds of emergencies, including natural disasters. Therefore when their department’s resources are upgraded in terms of staffing, equipment, public infrastructure, training citizen outreach and prevention programs, there is a

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<sup>1</sup> For a more complete explanation of the complicated Patchwork Quilt of disaster assistance programs see: *Planning and Building Livable, Safe & Sustainable Communities: The Patchwork Quilt Approach*, by, Edward A Thomas Alessandra Jerolleman, Terri Turner, Darrin Punchard and Sarah Bowen, Natural Hazard Mitigation Association, 2011, available at: [http://stormsmart.org/uploads/patchwork-quilt/patchwork\\_quilt.pdf](http://stormsmart.org/uploads/patchwork-quilt/patchwork_quilt.pdf)

profound increase in the resilience of that community. A community with a better prepared fire department is better able to cope with disasters of all kinds, including human-caused events.

The NHMA would like to note that the life safety of firefighters and other emergency personnel should be a critically important factor in evaluating the merits of proposed development or redevelopment in areas prone to foreseeable hazards.

The report stresses that the procedures, processes and methods we used to reduce the risks and consequences of urban fires can provide a means of considerably reducing risks and consequences of foreseeable natural disasters as well as terrorist incidents. We can change our future risks and consequences based on past successes; or continue to do business as usual and increase risks and consequences of foreseeable events. The choice is ours as a society.

One of the key recommendations in the FEMA Report has implications beyond fire reduction:

*...the identification of improved or enhanced **insurance incentives** for community-based fire loss prevention measures and homeowner loss reduction implementation, especially fire sprinklers and alarms.*

Such examples show how actuarial insurance risk rating rewards excellent local system improvements and discourages practices that support unsafe development. In this manner a sound insurance program provides strong financial encouragement for community-resilience efforts such as zoning and building codes, infrastructure upgrades and emergency-management preparations. Such community efforts enhance community resilience and can combine to significantly reduce the consequences of disasters.

There are more than 47,000 fire-response jurisdictions across the United States. All jurisdictions are rated by the Insurance Service Office (ISO).<sup>2</sup> In each jurisdiction, the ISO rating system determines the annual cost of property insurance, usually “homeowners” policies for residences, but other property categories as well. Not only are fire services evaluated (see below), but significant attention is paid to building codes and enforcement of safety requirements.<sup>3</sup>

*ISO collects information on municipal fire-protection efforts in communities throughout the United States. In each of those communities, ISO analyzes the relevant data using our Fire Suppression Rating Schedule (FSRS). We then assign a Public Protection Classification from 1 to 10. Class 1 generally represents superior property fire protection, and Class 10 indicates that the area's fire-suppression program doesn't meet ISO's minimum criteria.*

*By classifying communities' ability to suppress fires, ISO helps the communities evaluate their public fire-protection services. The program provides an objective, countrywide*

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<sup>2</sup> <http://www.isomitigation.com/ppc/0000/ppc0001.html>

<sup>3</sup> <http://www.isomitigation.com/building-code-regulation.html>

*standard that helps fire departments in planning and budgeting for facilities, equipment, and training. And by securing lower fire insurance premiums for communities with better public protection, the PPC program provides incentives and rewards for communities that choose to improve their firefighting services.*

*In the early 1900s, major U.S. cities suffered disastrous fires that destroyed billions of dollars' worth of property. In the aftermath, insurance companies realized that they needed advance information on the fire-loss characteristics of individual communities.*

*The National Board of Fire Underwriters (NBFU) had opened its doors in 1866 to promote fire prevention and public fire protection. After a number of conflagrations, including the great Baltimore fire of 1904 — which claimed 140 acres, more than 70 blocks, and 1,526 buildings — the NBFU expanded its scope, developing the Municipal Inspection and Grading System. Under that program, engineers evaluated the fire potential of many cities. In response, those cities improved their public fire-protection services.*

*Since 1909, the Municipal Inspection and Grading System and its successors have been an important part of the underwriting and rating process for insurers writing personal and commercial fire policies. ISO's Public Protection Classification (PPC™) Service is a direct descendent of the earlier grading systems. The PPC program gives insurers credible data to help them develop premiums that fairly reflect the risk of loss in a particular location.*

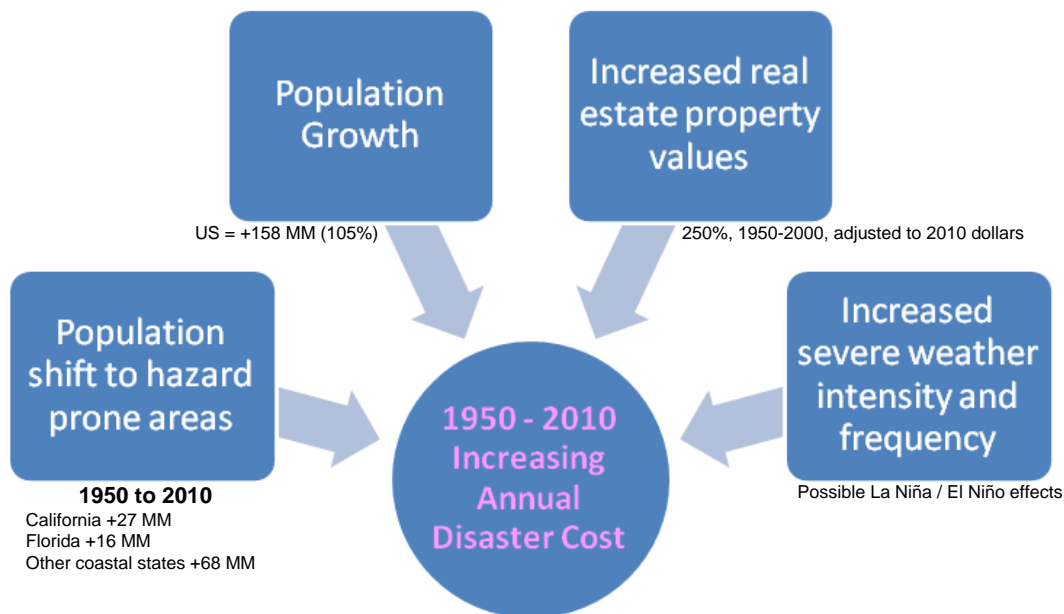
Individual site mitigation investments lead directly to reductions in homeowner's insurance rates. For residences, a property owner may add an alarm system or a sprinkler system and receive an insurance premium rate reduction of 15% for each mitigation measure. In such cases, the insurance systems incentivize both the community's mitigation (fire response services) and property-based mitigation (fire prevention). The combined effect is reduced losses. Similar mechanisms work within the NFIP, incentivizing flood mitigation investments and practices at both the community and individual property levels through programs like the Community Rating System (CRS) that allows for community's mitigation efforts to drive down NFIP premiums for residences throughout the participating community.

In a manner similar to the effect of insurance risk rating on managing the risk of urban fires, it is possible to apply this economic factor to other hazards. The University of Pennsylvania's Wharton School of Business studied the effects of flood insurance in two very dissimilar counties in Texas, Galveston and Travis, one subject to coastal flooding and the other to riverine flooding. The study's findings stress the significant effects of risk calculations in establishing insurance price structures and the incentives to employ mitigation techniques for damage reduction. Although the analysis pertains to operations of the NFIP, the principles of risk and actuarial based pricing apply to all disaster categories.

## Current approaches in providing insurance protection to different sectors

A number of research efforts have studied the effect of private insurance in bringing new economic factors into the decision process of both individuals and communities. In the realm of structural fires, insurance has motivated society with incentives for better risk management and provided economic inducements to alter behaviors. As a result, losses due to urban fires have declined substantially over the past 100 years. One important factor is due to property insurance incentives that lowered risk over time. The variable cost of insurance tends to place a price on risk, such that the property owner can see the benefit of mitigation. This insurance pricing mechanism has helped instill society's rationale for higher building and zoning code standards, building safer and more resilient structures, buying protective equipment, embracing professionalism in fire departments, designing water supply systems that are adequate to fight fires, and treating fire mitigation as an essential part of emergency preparedness.

### Factors in US Disaster Damages



*Figure 1 – Factors in U.S. Disaster Damages*

However, in other areas at risk of property damage no sufficient insurance mechanism has been in place to bolster mitigation by applying higher premiums for insuring riskier properties. Flood insurance through the National Flood Insurance Program (NFIP) operates partially in this way but has historically been hampered by inadequate flexibility to reflect true actuarial pricing. Thus, poorly designed, engineered, constructed and/or poorly sited development continues on high flood-risk properties, especially in our nation's coastal areas.

Particularly for weather events, the annual rate of disaster losses has increased in recent decades, as illustrated in the following chart.

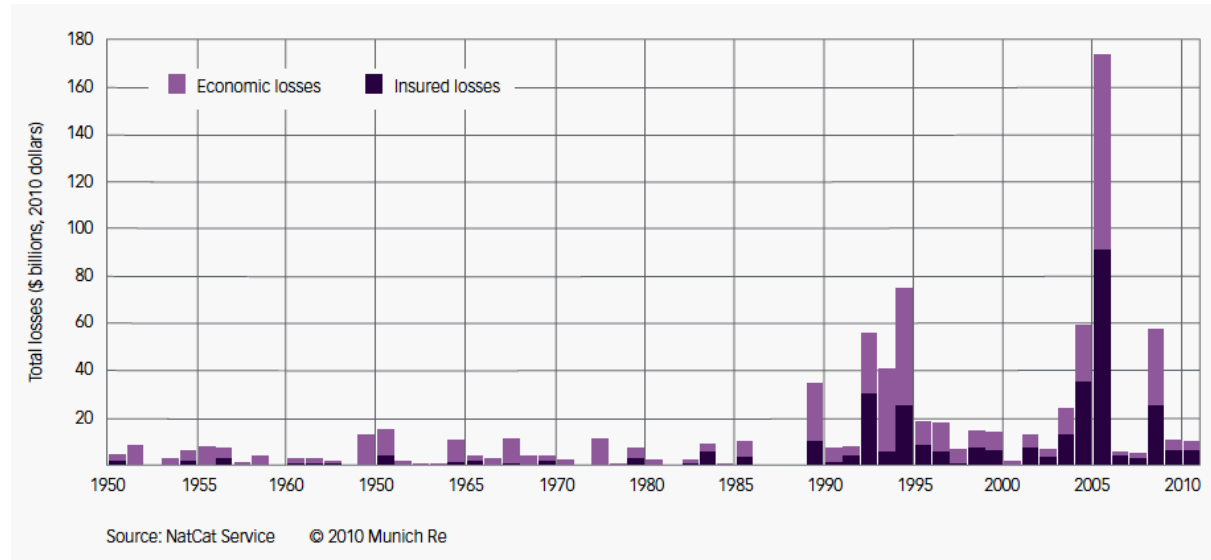


Figure 2. Annual Rate of Disaster Losses over Time

Given the continuing trend toward higher disaster damages in the United States, we can look at an example in the State of California of earthquake hazards to illustrate how positive changes can be undertaken in concert with an insurance strategy.

**Current role of governments in providing incentives for feasible risk mitigation efforts**

A key role of our government is to provide the ‘backstop’ not the ‘first stop’ to finance the recovery efforts following a catastrophe. Unfortunately, the government has moved far beyond the traditional, compassionate role of helping communities and individuals rebuild into a position that reinforces the poor land-use decisions that have been made in the years of land development and redevelopment in the United States. Rather than expending these resources at the point of recovery, it is more impactful for governments to establish and enforce standards for building codes and to guide the first-time development or rebuilding and/or improvement of property in ways that are suitable to the natural hazards specific property’s face. In addition, the benefits of the dollars allocated toward mitigation actions are undeniable and provide a sound business case for reducing risk.

The American Bar Association adopted resolutions strongly supporting the creation of state programs of catastrophic insurance coverage made affordable through efforts to reduce the risks and consequences of disasters through zoning and building codes. (See, ABA Resolutions 107 A-G, especially 107 E and 107 F adopted by the ABA Board of Governors February 16, 2009). These ABA actions, in combination with the FEMA publication *America Burning Re-commissioned II*, help provide a vision of where our nation needs to go to reduce risk and

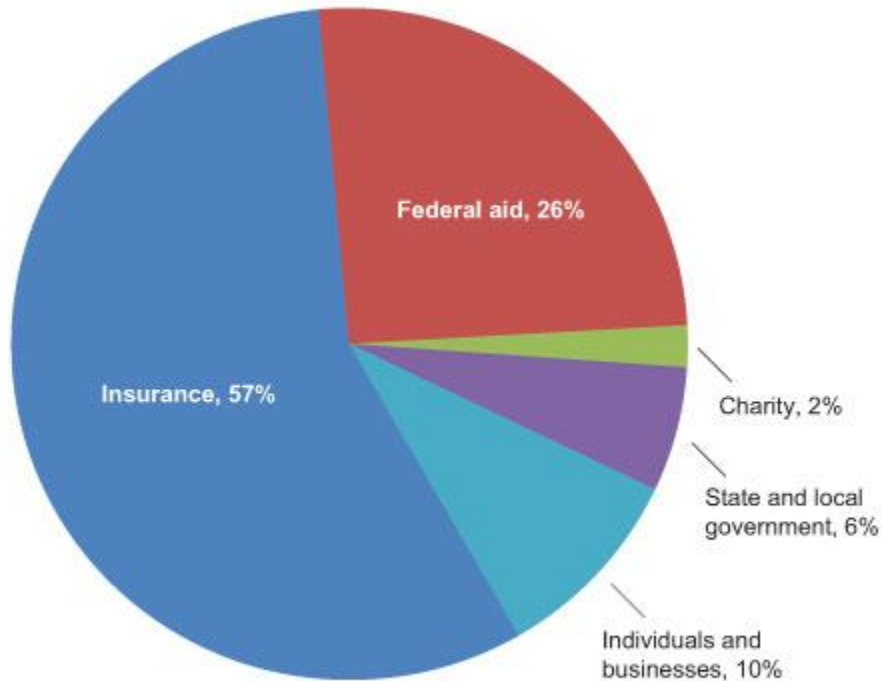
provide a means to recover more effectively and efficiently from the toll of both natural and human-caused disasters events.

The Federal Reserve Bank of New York published a report, "*How Will We Pay For Superstorm Sandy?*" by Jaison R. Abel, Jason Bram, Richard Deitz, and James Orr. They stated,

"It's useful to group the parties that will ultimately bear the economic costs of Sandy into five categories: private insurance companies, the federal government, state and local governments, charities such as the American Red Cross, and the individuals and businesses in the communities directly impacted. The chart below, which is based on data from a recent study, provides a rough estimate of how the economic costs have been shared during major U.S. hurricane events from 1989 to 2004, just before Hurricane Katrina struck the Gulf region. During this period, private insurance companies paid about 57 percent of the cost on average. Federal disaster relief—primarily funds distributed through the Federal Emergency Management Agency (FEMA)—accounted for another 26 percent, although this figure is likely low as it doesn't include funds provided by the National Flood Insurance Program. Estimates based on typical government cost-sharing arrangements that exist for natural disasters put the state and local government share at about 6 percent of the overall cost. Charities tend to contribute a couple percent. Finally, individuals and businesses affected by a major hurricane during this period covered about 10 percent of the cost."



### Share of Costs Paid for Major U.S. Hurricane Events, 1989-2004



Source: Authors' calculations, based on "Federal Financial Exposure to Natural Catastrophe Risk," by J. David Cummins, Michael Suher, and George Zanjani, 2010. In *Measuring and Managing Federal Financial Risk*. NBER Conference Report. Chicago: University of Chicago Press.

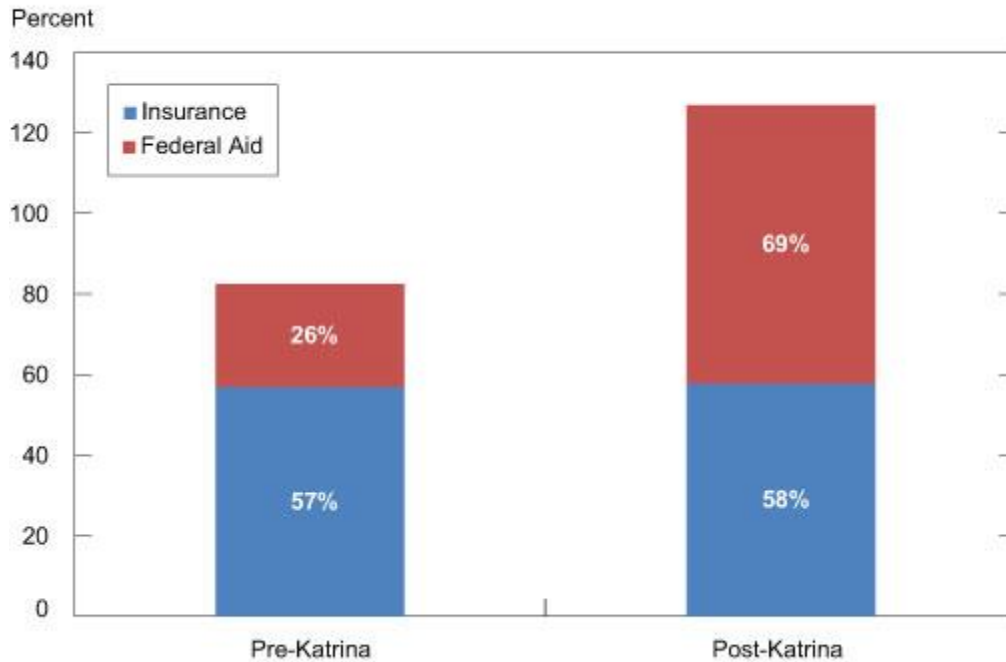
Figure 3. Sharing the Costs of Losses

The story continues:

"The story changes significantly following Katrina. As the next chart shows, the share paid by insurance companies held steady, while the share paid by federal disaster relief increased substantially, from about 25 percent before Katrina to nearly 70 percent after. Some of this increase reflects more generous federal reimbursement to state and local governments, in part for projects to help mitigate the effects of future storms. The Stafford Act, a 1988 law designed to guide the process of relief following a natural disaster, stipulates that the federal government reimburse a minimum of 75 percent of state and local government costs. In hurricanes prior to Katrina, the rate was generally between 75 and 90 percent. However, beginning with Katrina, state and local governments often received 100 percent reimbursement. With this expansion of federal disaster assistance, payments from private insurance companies and the federal government exceeded the total economic cost of events since Katrina by about 25 percent. This pattern suggests that an excess amount was distributed to state and local governments and affected individuals and businesses, although it's not clear in what proportion. Clearly, though,

some businesses or individuals may not have been fully reimbursed for their out-of-pocket expenses, despite the excess payments in aggregate."

### Share of Costs Paid by Insurance and Federal Aid for Major Hurricane Events Before and After Katrina



Source: Authors' calculations, based on data in Cummins, Suher, and Zanjani (2010).

Figure 4. Comparing the Costs of Losses Pre- and Post-Katrina

The entire NY Federal Reserve blog article is located at:

<http://libertystreeteconomics.newyorkfed.org/2012/12/how-will-we-pay-for-superstorm-sandy.html>

We believe that a major article on the economic costs of disasters, *Unmitigated disasters? New evidence on the macroeconomic cost of natural catastrophes*, by Goetz von Peter, Sebastian von Dahlen and Sweta Saxena strongly supports our beliefs about the need for catastrophic insurance. One especially important conclusion in this excellent article is:

“Our main results are that major natural catastrophes have large and significant negative effects on economic activity, both on impact and over the longer run. However, it is mainly the *uninsured* losses that drive the subsequent macroeconomic cost, whereas sufficiently insured events are inconsequential in terms of foregone output. This result helps to disentangle conflicting findings in the literature, and puts the focus on risk transfer mechanisms to help mitigate the macroeconomic costs of natural catastrophes.”

The authors go on to conclude:

"Our main and novel finding is that it is the uninsured part of catastrophe-related losses that drives macroeconomic costs, whereas well insured catastrophes can be inconsequential or even positive for economic activity. The strongest growth-enhancing effects from insured losses appear in the three years following a catastrophe, in line with the average timing of insurance payouts. This suggests that insurance facilitates the financing of the reconstruction effort that contributes to measured GDP. Distinguishing the effects by physical type of catastrophe shows that insurance coverage at best neutralizes the contractionary effects of earthquakes and volcanic eruptions, while the growth effects of storms, flooding and climatological events can be weakly positive when insured."

Additional support for the concept of catastrophic insurance can be found in *Measuring and Managing Federal Financial Risk*; especially the Chapter: Federal Financial Exposure to Natural Catastrophe Risk. Authored by J. David Cummins, Michael Suher and George Zanjani

This chapter is available at <http://www.nber.org/chapters/c3036>

### **Experiences and successes of the State of California**

The State of California has gone beyond its long-standing emphasis on codes and standards for structural resiliency for seismic events. Out of necessity, the state embarked on a new public-private partnership to achieve insurance coverage for earthquakes.

The State of California is recognized as a leader for the substantial investment it makes to reduce the risks and consequences of earthquakes.

- Following the 1971 San Fernando earthquake (which claimed 65 lives and caused more than half a billion dollars in damage), the US Department of Housing and Urban Development and the National Science Foundation developed best-practices standards for the design of wood-frame houses. FEMA updated those standards after the 1989 Loma Prieta (San Francisco) earthquake, the hugely damaging and expensive 1994 Northridge earthquake, and again in 2006 through a major scientific research project.
- Based on these events and authoritative research efforts, California has extensively updated its building codes to reflect the important lessons learned: Code changes in 1976, 1997, 2000, and 2006 have resulted in the measurable improvement of residential construction over time and an observed decrease in earthquake losses to houses built under successively newer codes.

While experts learn from each new earthquake and then refine best engineering practices, building codes in California have been and will continue to be updated to reflect the best available science in earthquake-resistant design.

Dwellings and structures designed and constructed to modern building codes typically perform vastly better than buildings built without due regard to the natural hazard of earthquakes. For

this reason, implementing seismic building codes is an extremely important part of mitigation or loss reduction.

- All new buildings in California intended for human occupancy must be designed and constructed to resist earthquakes in accordance with the California Building Code (CBC) — California Code of Regulations, Title 24.
- In 2010 the State of California adopted the Residential Building Code (RBC), which provides conventional design and construction requirements for one- and two-family dwellings that meet certain requirements (dwellings with unusual conditions must be designed to the CBC). Dwellings designed and constructed in accordance with modern building codes have typically performed well in large nearby earthquakes. Clearly, implementation of seismic building codes is itself an important form of mitigation.
- In addition, the California Existing Residential Building Code was revised to include seismic retrofitting upgrades to cripple walls and mud sills.

California already has limited constraints on building large (over four units) multi-unit residential buildings on earthquake faults that are considered active (those who have shown surface rupture in the past 11,000 years).

Since its inception in 1996 the CEA has recognized that mitigation and insurance are effective tools to lower loss exposure due to earthquake hazards for homeowners and renters. In addition to being required by law to set aside money each year to encourage residential seismic-risk reduction through mitigation, the CEA has helped establish the California Residential Mitigation Program and entered into a Joint Powers Agreement with the California Emergency Management Agency for targeted seismic mitigation activities.

The CEA's mitigation program would satisfy the mitigation requirement in the proposed national Earthquake Insurance Affordability Act (EIAA). A fact sheet on the EIAA is available at: <http://www.earthquakeauthority.com/UserFiles/File/Release/EIAAFactSheetold.pdf>

We believe that ongoing efforts in California for a multi-pronged program addressing both structural enhancements to harden buildings as well as private insurance to cover earthquake damage shows promise as a strategy to bring about these desired changes.

Motivation for this new approach results from recent work of the American Bar Association, National Institute for Building Sciences, The University of Pennsylvania's Wharton School of Business, Lloyd's of London, the Federal Emergency Management Agency (FEMA), and others.

## **Conclusion**

The NHMA will be able to effectively influence a number of additional organizations in this same direction, because it is central to the NHMA's mission. NHMA members tend to understand the domain of the National Flood Insurance Program (NFIP), which is to date the largest public insurance endeavor dealing with hazards and resulting losses. The NFIP is the

nation's primary mechanism for influencing standards and mitigation methods such as floodplain mapping, designated flood zones and their respective regulatory components for elevations, construction standards and land use controls. While systematic improvements to the NFIP are still needed, its actuarial calculations drive the economic factors, such that risk is managed via the influence of insurance rates charged for policies, in addition to codes, standards for construction, and a number of community-wide mitigation strategies in floodplain management. Furthermore, FEMA's Risk Mapping Assessment and Planning (Risk MAP) program is succeeding in supporting communities as they consider the risks associated with all forms of natural hazards and to select specific actions to mitigate those risks. We believe that a combination of sound building codes, mitigation incentives, and natural catastrophe insurance will work well together to create more resilient communities in the face of natural catastrophes here in the United States.

*The Natural Hazard Mitigation Association strongly supports the pursuit of a catastrophe insurance program here in the United States, to help promote orderly reconstruction following catastrophic events and to encourage communities to adopt risk mitigation strategies to cope with the consequences of natural hazards.*

*We also endorse the excellent and thoughtful comments provided by a letter of June 21, 2013 from the Institute for Business and Home Safety (IBHA), in response to the April 24, 2013 Federal Register Notice from the Department of the Treasury soliciting comments on Catastrophic insurance. We particularly and especially endorse idea expressed by IBHS that safe and proper construction is affordable. We would add to their comments concerning the 4-1 payback for safe construction mentioned in the report cited by IBHS from the Multihazard Mitigation Council, that that report primarily focuses on the payback garnered by more safely reconstructing development which was damaged by foreseeable natural events. We believe that the payback to society from designing and constructing development safely from the beginning of a project is much higher, perhaps more like 100-1 or more.*

*Please contact me if NHMA can clarify these comments or otherwise offer support and help on this vitally important effort*

*Sincerely,*

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