

NATURAL DISASTER PREPAREDNESS AND RECOVERY: ISSUES AND POLICY OPTIONS

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In October 2012, Superstorm Sandy caused nearly \$50 billion in damages and claimed 72 lives. Soon after, Congress passed \$60 billion in disaster relief and recovery aid. Superstorm Sandy illustrates the toll such events can have for people...and for the Federal budget. Scientists predict that global warming will lead to an increase in the frequency of extreme weather events (Huber, 2011). As shown in Figure 1, the number of Federal disaster declarations has increased substantially over time. What are the implications of this trend for society and government? How can policies be designed to reduce disaster vulnerability, improve resilience, and reduce Federal expenditures?

A number of factors determine the degree to which society is prepared for and able to recover from natural disasters. Consider two cases where earthquakes of similar magnitude resulted in dramatically different impacts. Earthquakes in Haiti (2010) and Japan (1995) killed 300,000 and 6,434 respectively, even though the two seismic events were of similar magnitude. While much of the difference in the impacts of these two quakes is due to the quality of infrastructure and the level of economic development, there are also major differences in the effectiveness

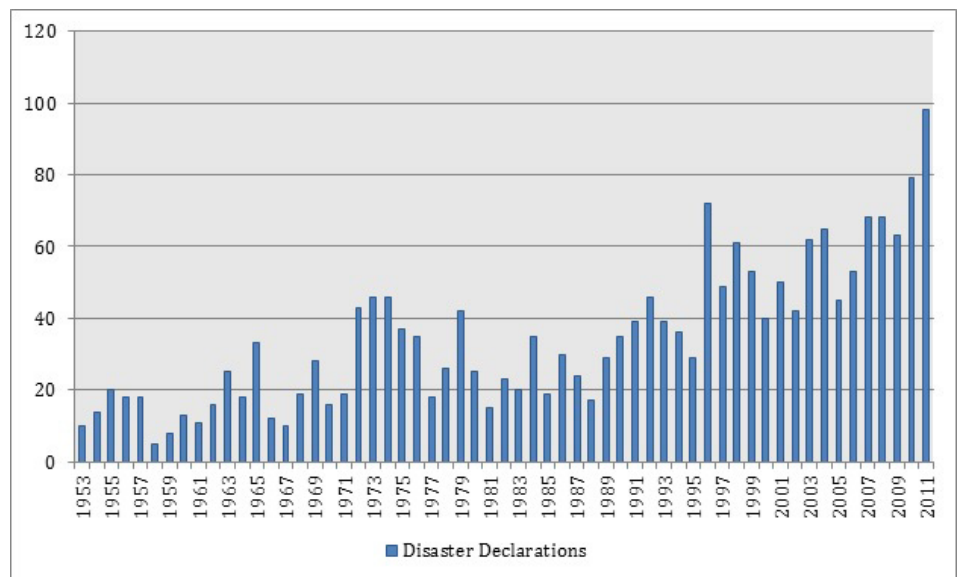


Figure 1. Number of Disaster Declarations: 1953- 2011.
Note: This graph is created based on data from U.S. GAO (2012).

of government policies with regard to preparedness and recovery.¹

While access to economic resources is important for preparedness and recovery, the focus of this brief is on the role of government: Policymakers in the United States and elsewhere have significant control/influence over a number of factors that determine preparedness and resilience. Importantly, policies designed to provide disaster recovery relief can also weaken incentives to prepare on the part of the private sector and subnational governments. The discussion below offers

a brief summary of US disaster policies and their implications.

FEDERAL DISASTER ASSISTANCE

Over 70 Federal programs offer disaster assistance to households, businesses, not-for-profit organizations, local governments, and states. These programs include direct grants to individuals and communities, low interest loans, public works projects to remove debris and rebuild, disaster unemployment benefits, mental health and legal services, environmental clean-up, and Federal income tax deductions

¹For example, in Japan government sets and enforces building code standards, whereas in Haiti there are no established building codes.

for uninsured losses. These programs help to spread losses over the entire US population, thus alleviating the burden of local disaster recovery. As shown in Figure 2, Disaster Relief Fund (DRF) expenditures (excluding Hurricane Katrina) are concentrated in sixteen states, primarily located in the central states and in the south. Per capita contributions to the DRF were about \$127 (\$256 with Hurricane Katrina) across the United States over the 2004-2011 period. Most states make contributions in the form of tax dollars far in excess of disaster relief resources that flow into the respective states. That is, contributions to the DRF are not adjusted by the risk factors associated with living in different areas. For this reason, disaster relief can significantly dampen incentives for households and firms to take responsibility and adopt appropriate risk reduction measures. Why invest in preparedness when one knows that Federal assistance is available should a disaster strike? Building vacation homes on an exposed beach in a hurricane-prone region isn't quite as risky for owners if they know the government will help repair or rebuild in the aftermath.

Similarly, the nature of the Federal disaster aid can weaken incentives for state and local governments to make the appropriate policy and financial preparations as well as invest in needed infrastructure. The catastrophic damage from Hurricane Katrina is, in part, blamed on the failure of subnational governments to maintain critical infrastructure.

Effective disaster preparation and response requires coordination and the sharing of financial costs between national and subnational governments in a way that does not discourage preparedness among private sector and subnational government actors. Currently, most Federal disaster

assistance comes in the aftermath of significant events to assist in recovery; far less is available to support preparedness or risk reduction. However, recently Congress authorized funds to acquire and demolish flood-prone structures. Along similar lines, in 2010 the Federal Emergency Management Administration (FEMA) implemented the 2010 Hazard Mitigation Assistance (HMA) grant program to provide funding for eligible mitigation activities that reduce disaster losses and protect life and property from future disaster damages. In addition, FEMA now requires state and local governments to develop hazard mitigation plans as a condition for receiving certain types of non-emergency disaster assistance, including funding for mitigation projects. Each of these programs is a move in the right direction.

SUBNATIONAL GOVERNMENT AUTONOMY
Research also shows there are fewer

disaster-induced fatalities in countries where subnational governments have greater decision making autonomy (Skidmore and Toya, 2013). Subnational authorities are better able to customize disaster preparations and response investments and policies because they are more familiar with needs specific to their particular region. In the United States, subnational governments have substantial autonomy, which is to some degree supported by Federal intergovernmental transfers. However, as discussed above, Federal recovery assistance flowing to state and local governments in the wake of disasters can weaken incentives for state and local authorities to make the needed investments prior extreme events.

Zoning and land use planning, local public infrastructure, as well as emergency management planning/services are also important for preparedness and recovery. Local governments make critical decisions

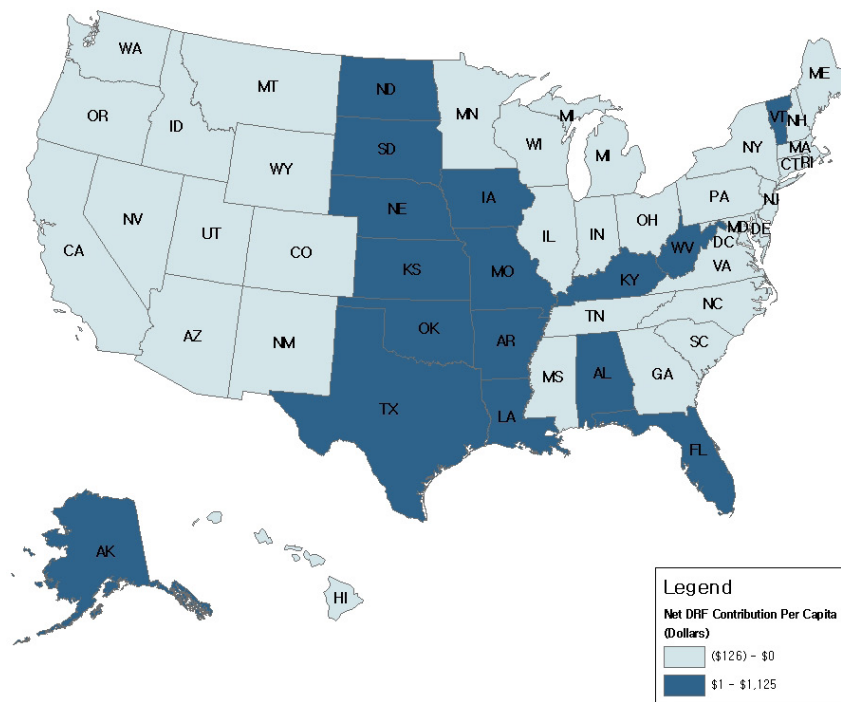


Figure 2. Net DRF Contribution Per Capita: FY 2004 – FY 2011.*

*Net DRF Contribution = State Contribution to DRF – DRF Funds Received by State. DRF Expenditures for Hurricane Katrina are excluded. Data for map are taken from U.S. GAO (2012).

regarding the design and enforcement of region-specific building codes and land use planning. In addition, coherent and rehearsed emergency plans can improve resiliency.

Federal, state, and local authorities each play an important role in disaster preparedness and recovery. At the Federal level, current policies emphasize funding for recovery, not preparedness and mitigation. As the frequency and severity of extreme weather events grow, the costs of such policies can be expected to increase. It will therefore be increasingly important for Federal policies to encourage disaster preparedness, mitigation, and risk reduction efforts in the private sector and subnational governments.

REDUCING EXPOSURE AND FEDERAL EXPENDITURES OVER TIME

One way to more closely align risks and costs associated with that risk is to fund Federal disaster assistance in a way that is more consistent with differences in disaster risks. As one example, areas that are more prone to disasters would pay a higher “tax” to reflect the risks associated with living in these areas. The payments would force those living in riskier areas to consider the costs to society as a whole of decisions to live in places with greater exposure. Conversely, those living in safer places are no longer penalized. Changes to funding mechanisms such as this serve to better align exposure to disaster risk with the costs of disaster relief assistance, thereby providing incentives for people to live in safer locations. Over time, the shift in policy will encourage businesses and residents to take risk reduction measures, thereby reducing Federal disaster relief



expenditures. Similarly, disaster relief expenditures could be administered in a way that reduces the incentive to rebuild in risky locations.↓

DATA SOURCE

U.S. General Accounting Office. “Federal Disaster Assistance: Improved Criteria Needed to Assess a Jurisdiction’s Capability to Respond and Recover on Its Own” Pub. No. GAO-12-838, USGAO, Washington DC, September 2012.

REFERENCES

Huber, D.G. (2011). “Extreme Weather and Climate Change: Understanding the Link and Managing the Risk.” Center for Climate and Energy Solutions, Arlington, VA.

Skidmore, M. and H. Toya (2013). “Natural Disaster Impacts and Fiscal Decentralization.” *Land Economics* 89 (1): 101-117.

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