

INFORMED DECISIONS ON CATASTROPHE RISK

Does Federal Disaster Assistance Reduce the Demand for Insurance Protection?

Empirical Evidence

The number of U.S. Presidential disaster declarations has risen in recent years, as has the proportion of disaster losses paid by taxpayers for large catastrophes.

Federal disaster relief potentially creates *moral hazard*: receiving or expecting to receive money from the government after a disaster might reduce demand for insurance, resulting in even greater need for government relief when another disaster hits.

We study the effect of federal disaster aid – both grants and loans – on insurance purchases.

Overall, we find that federal disaster assistance grants result in decreased demand for insurance. The size of the effect depends on the grant size.

Low-interest SBA disaster loans have no systematic impact on insurance purchase decisions.

This year marks the 10th anniversary of Hurricane Katrina, an opportunity to reflect on improving our resilience to future disasters.

- Surprisingly, despite the important policy implications of moral hazard, there have been no empirical studies conducted to validate or invalidate this effect.
 - We focus on flood events, as they are responsible in the United States for the greatest number of lives lost and the most damage of all natural disasters over the last century, and they account for nearly two-thirds of all Presidential disaster declarations.
 - We examine the influence of federal disaster relief grants provided under the Individual Assistance (IA) program of FEMA directly to affected households for uninsured losses related specifically to flood events.
 - We also study the effect of low-interest loans from the U.S. Small Business Administration (SBA) (which despite its name offers loans to homeowners, too).
 - These two programs are the primary sources of direct federal aid for households that sustain damage from a disaster.
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- We find that increasing the average disaster grant by \$1,000 in a ZIP code reduces the average individual demand for insurance in that ZIP code by up to \$6,000.
 - Larger grants lead to a more significant decrease of insurance purchase; lower grants actually lead to higher demand for insurance, maybe because residents now realize they actually need to purchase adequate protection on their own.
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- These and other studies can inform the discussion on the roles and responsibilities of the public and private sectors in creating long-term strategies for managing and financing extreme events.

Introduction

In 2011, the president of the United States issued 99 disaster declarations. This was a historic record, but in keeping with recent trends. Over the period 1950 to 2010, the average number of such declarations increased three-fold (often with peaks during presidential election years). It is not just the number of declarations that has increased but the proportion of the economic losses covered by taxpayers through federal post-disaster relief (versus through insurance payments or other means).

Federal aid is now routinely offered following a wide variety of disaster events, from floods, hurricanes, and earthquakes to terrorist attacks and, as observed recently, financial crises. This is true in the United States and in many other countries around the world.

In recent years, policymakers, business leaders and academic experts have become more interested in individuals' and firms' potential underinvestment in financial protection against natural disasters in response to government assistance. Indeed, post-disaster government relief may inhibit insurance purchases if individuals treat federal aid as a (partial) substitute for insurance and thus fail to insure, or underinsure.

As yet, however, there has been no detailed empirical study undertaken to specifically measure if this type of "moral hazard" is actually occurring and, if so, how large of an effect it is. Nor is it known if all forms of government relief (e.g., grants versus loans) trigger the same behavior.

Data and Methodology

We undertake the first such study by observing how insurance purchases change after individuals in the United States have received government disaster aid. We examine the influence over an entire decade of disaster grants from the Individual Assistance (IA) program of FEMA provided directly to affected households for uninsured losses related specifically to flood events. We are also able to distinguish these findings from the effects of low-interest disaster loans from the U.S. Small Business Administration (SBA). These two programs have long been the primary sources of direct federal aid for households that sustain damage from a disaster.

We obtained individual-level data on IA payments and SBA loans (both specific to flood events), flood insurance purchases, and flood insurance claims for the state of Florida from 2000 to 2009. Florida is an ideal case for this analysis since it is the largest flood insurance market in the United States, with more than 2 million policies as of December 2014, and because the state received federal disaster aid multiple times during our study period. Due to federal privacy restrictions, the smallest identifying geography we have for our data is the ZIP code; we believe this provides a good micro-level of analysis. We combine our data with socioeconomic control variables from the U.S. Census. We then run a series of econometric regressions (both fixed effects and instrumental variables approaches) and robustness checks (these can be found in the full article; see the reference at the end of this brief).

Findings

1. How does the receipt of government disaster aid impact the demand for insurance?

While Individual Assistance (IA) grants provide important financial help to those in need after a disaster, we find that it creates a significant moral hazard effect. Increasing the average IA disaster grant in a ZIP code by \$1,000 reduces the average individual demand for insurance in that ZIP code by up to \$6,000.

2. Does the impact depend on the size of the grant?

Yes. As theory would predict, the higher the grant, the more significant the effect. In fact, we found that when the grant was on the high end of the distribution (top 75% quartile), then the moral hazard effect could be up to three times larger. Interestingly, when the grant is on the lower end (lower 25% quartile), individuals in that same ZIP code actually purchased more insurance, probably because they found federal aid to be insufficient to cover their costs.

3. Do people cancel their insurance policy after they received disaster relief grants?

No. We find that free relief mostly has an impact on the quantity of insurance purchased, not the decision to buy it. Government relief is typically associated with legal requirements to purchase disaster insurance, and those requirements seem to be well enforced, at least for the years that immediately follow the disaster.

4. Do all government relief programs have the same effect of creating additional risk taking?

No; this is another important finding. We looked at whether individuals change their insurance purchase behavior after receiving a low-interest disaster loan from the SBA and found no systematic effect. The difference is that one program provides free grants while the other provides liquidity to victims of disasters to repair or rebuild, but they then have to repay the loan to the federal government over time with interest.

Conclusions

The question of the future of disaster risk financing has been raised several times after recent disasters. Here we focus on federal government relief to individuals. A complementary question is whether the Stafford Act, which guarantees that 75% of a state's disaster losses (after a Presidential disaster declaration) will be paid by federal taxpayers, also creates moral hazard. While likely, the size of this effect is a matter of empirical analysis and has yet to be quantified.

Reference: C. Kousky, E. Michel-Kerjan and P. Raschky. *Does Federal Disaster Assistance Crowd Out Private Insurance?* Wharton Risk Center Working Paper. 2015. Available at: http://opim.wharton.upenn.edu/risk/library/WP201404_CK-EMK-PAR_Does-assistance-crowd-out-insurance.pdf

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