

WATER SCIENCE AND TECHNOLOGY BOARD, DIVISION ON EARTH AND LIFE STUDIES
 BOARD ON MATHEMATICAL SCIENCES AND THEIR APPLICATIONS, DIVISION ON ENGINEERING AND PHYSICAL SCIENCES
 COMMITTEE ON NATIONAL STATISTICS, DIVISION ON BEHAVIORAL AND SOCIAL SCIENCES AND EDUCATION
 MARCH 2015

Affordability of National Flood Insurance Program Premiums — Report 1

THE BIGGERT-WATERS ACT OF 2012 WAS DESIGNED to move the National Flood Insurance Program (NFIP) toward risk-based premiums that better reflect expected losses from floods at insured properties. The result of this legislation would have been premium increases for some households which had been paying less than NFIP risk-based premiums, and increased risk-based premiums for all policy holders. Recognizing this possibility, the legislation called on the Federal Emergency Management Agency to propose and evaluate an affordability framework to guide the design of a targeted assistance program to help individuals afford risk-based premiums. This congressionally mandated study from the National Research Council reviews alternative concepts for defining affordability, explains the decisions that must be made when designing an assistance program, and describes alternative ways premiums might be made more affordable. The study also provides insights on the potential conflict between the desires for both risk-based premiums and increasing the purchase of flood insurance.

Established in 1968, the National Flood Insurance Program (NFIP) is administered by the Federal Emergency Management Agency (FEMA) and offers flood insurance policies to property owners. The policies are marketed and sold by

private insurers, but the revenues are collected by the NFIP and claims are paid from those revenues or with loans from the U.S. federal government.

There are roughly 5.5 million NFIP policies across the nation, and more than 20 percent of those policies pay less than current NFIP risk-based premiums. Paying the claims for these subsidized policies contributed in part to the NFIP having to borrow from the Treasury after Hurricane Katrina and subsequent storms (see Figure 1). The concern over this debt

Box 1. The Origins of the National Flood Insurance Program

Created in 1968, the NFIP was envisioned as a partnership in which private insurers would rate risk relying on NFIP flood risk maps and set premiums accordingly, and in which the private sector and government would share financial burdens. As originally conceived, the program for federal flood insurance was designed to replace disaster aid to the extent possible. In an effort to keep premiums reasonable, that legislation allowed for the U.S. Treasury to help pay claims in catastrophic loss years, as well as subsidize premiums for existing properties in high-risk areas. The partnership with the private sector eventually was replaced by the NFIP taking responsibility for rate-setting, issuing policies, collecting premiums, and paying claims, as the program was moved from the U.S. Department of Housing and Urban Development to FEMA in 1979.

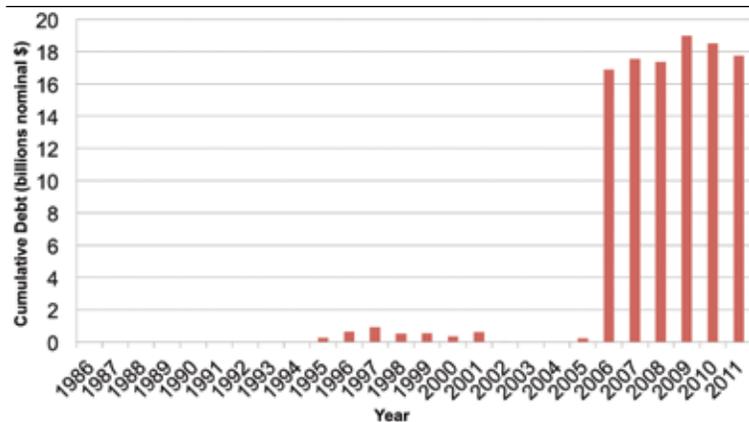


Figure 1. This chart shows NFIP cumulative debt in millions of dollars. The catastrophic loss year of 2005 led to an increase in NFIP debt that exceeded the NFIP ability to repay its loan. As of December 31, 2013, the debt stood at roughly \$24 billion.

and how it might grow was among the reasons for the reforms to the NFIP included in the Biggert-Waters Flood Insurance Reform and Modernization Act (Biggert-Waters 2012).

Biggert-Waters 2012 directed the NFIP to charge premiums that better reflected expected losses from floods at insured properties. The NFIP was to phase out “pre-FIRM subsidized policies,” which allowed owners of homes built before a local flood insurance rate map (FIRM) was issued to pay premiums that are lower than risk-based premiums, and “grandfathered” policies, which allow a given insurance premium to continue for a property, even if a new FIRM indicates a higher level of flood risk. In addition, other provisions of the legislation could result in across-the-board increases in all premiums if NFIP rates were raised to account for storm events that caused catastrophic losses.

Recognizing that premiums would be increasing, Biggert-Waters 2012 mandated an “affordability study” from FEMA, to include “...methods to aid individuals to afford risk-based premiums under the National Flood Insurance Program through targeted assistance rather than generally subsidized rates, including means-tested vouchers.” The study was to inform FEMA’s creation of an affordability framework for providing guidance on assistance decisions. As Biggert-Waters 2012 went into effect, constituents from multiple communities expressed concerns that it was creating great financial burdens on NFIP policy holders. Some concerns reflected the reality that purchase of the more expensive insurance, in some instances, was mandatory.



Figure 2. The town of Hannibal, Missouri flooded in June 2008 when the Mississippi River burst its banks after months of heavy rain. Credit: Jocelyn Augustino/FEMA

Other concerns were based on the expectation that higher premiums would depress home values, or that the higher premiums would decrease the number of properties covered by flood insurance (known as “take up rate”). In response to these concerns, Congress passed The Homeowner Flood Insurance Affordability Act of 2014 (HFIAA 2014). This legislation changed the process by which pre-FIRM subsidized premiums for primary residences would be removed, and reinstated grandfathering. HFIAA 2014 further emphasized the need for FEMA to propose an affordability framework. The National Research Council study was to provide input to FEMA’s affordability framework and describe ways FEMA might evaluate the effects of policies to make premiums affordable.

The National Research Council study will produce two reports; this first report discusses the underlying definitions and methods for an affordability framework and describes the affordability concept and applications and program policy options. The second report will propose alternative approaches for a national evaluation of affordability program policy options, informed in part by lessons learned from a proof-of-concept study.

NFIP POLICY PRICING AND EFFECTS OF BIGGERT-WATERS 2012

Over the history of the program Congress has sought to achieve multiple objectives including (1) ensuring reasonable

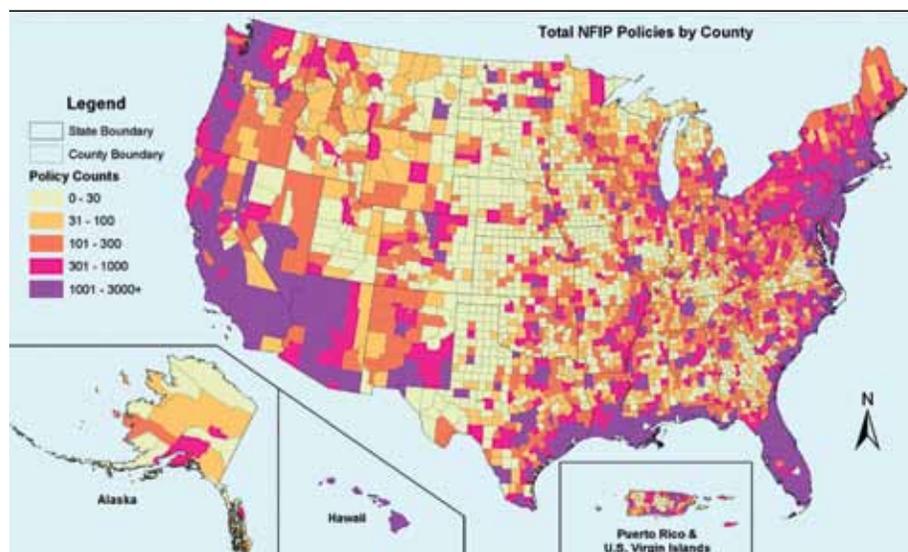


Figure 3. There are 5.5 million NFIP policies across the nation. About 60 percent of all NFIP policies are in three states—Florida, Texas, and Louisiana. Other states with high numbers of NFIP policies are California, New Jersey, and South Carolina. This map presents county-level data. Source: AECOM, 2014.

insurance premiums for all; (2) having NFIP risk-based premiums that would make people aware of and bear the cost of their floodplain location choices; (3) securing widespread community participation in the program and significant numbers of insurance policy purchases by property owners; and, (4) earning premium and fee income that covers claims paid and program expenses over time. These objectives are not always compatible, and may at times conflict with the actuarial principles that are a basis for evaluating insurance premiums (see Box 2).

Prior to Biggert-Waters 2012, NFIP rates were set so that total revenue from all policies was sufficient to replace the premium revenue loss from offering pre-FIRM subsidized policies. A loan from the federal Treasury was taken to pay claims in high-loss years, and was paid back in years of fewer losses. For many years, this pricing and funding strategy proved to be a workable financial management approach, as much of the NFIP history was largely free of major flooding losses. These conditions changed in the very active hurricane year of 2005, which included Dennis, Emily, Katrina, Rita, and Wilma. Biggert-Waters 2012 emphasized the fourth objective--ensuring that premium revenues would be adequate to pay claims and expenses over time.

PROGRAMS TO ENHANCE AFFORDABILITY

There are alternative ways to measure the cost burden of flood insurance on property owners and renters, but there are no objective definitions of affordability.

If a premium is deemed unaffordable, the household paying that premium might receive assistance through the NFIP. In addition, the report describes actions that could make insurance more affordable for all policy holders.

Implementing a combination of policy measures could help NFIP transition to risk-based premiums while addressing affordability issues, the report says. The report does not make recommendations about whether specific policies should be implemented. Possible measures include:

- Means testing as the basis for prioritizing mitigation grants. Mitigation could help lower the risk of flood-related damage, in turn reducing expected claims and premiums.

What is meant by “Affordability”?

There is no objective definition of affordability; however, the Homeowners Flood Insurance Affordability Act of 2014 suggests that premiums are unaffordable if the premium exceeds 1 percent of a property’s insurance coverage. Other measures of affordability relate household income to the cost of housing, or are based on household income.

Box 2. Principles for Setting Insurance Premiums

Well-established actuarial principles generally determine the setting of insurance premiums:

- Insurance premiums combined with other income sources are required to yield revenues that will pay expected future claims and insurance program expenses (costs) over time.
- Premiums for an individual policy should be based on the expected claims, plus fees for each individual policy.
- There should be no cross subsidy where one group of policy holders has higher premiums so that others will have lower premiums.
- Premiums will be no higher than necessary to ensure that these principles are met.

- Loans that would enable low-income residents to invest in mitigation measures without having to depend solely on grants.
- Vouchers issued to financially burdened policy holders for use in paying premiums or offsetting mitigation costs.
- Expanding the range of mitigation measures that can result in reduced premiums.
- Encouraging homeowners to choose higher deductibles.
- Expanding the role of insurance agents for educating policy holders about mitigation and other premium reducing alternatives.

Box 3. Insurance Demand

One motivation for keeping premiums affordable is the NFIP’s longstanding objective of promoting widespread adoption of flood insurance. Estimating take up rates is difficult due to the lack of data on households and policies in floodplains. It appears that take up rates are particularly low in areas where purchase is voluntary; but, it also seems that many who are required to purchase the coverage, do not purchase it. These analyses, and the limited available data, suggest that in some areas, meeting the goal of widespread take up rates for flood insurance would require a significant increase in insurance policy purchases. There has been an assumption that the level of the premium determines the willingness and ability to purchase a policy. Property owners’ decisions to purchase flood insurance, however, include other considerations and influences unrelated to price, and no single strategy will increase purchase of NFIP policies. A multipart strategy to motivate purchase of NFIP policies, which includes keeping premiums at reasonable levels, can be designed using insights from the behavioral sciences.

- Relying on the federal Treasury for helping pay claims in catastrophic loss years to allow for lower risk-based premiums and less spending for an assistance program.
- Community measures that can lower premiums such as enrollment in the Community Rating System and supporting mitigation that benefits clusters of structures, especially multifamily properties.

A FRAMEWORK FOR ASSISTANCE PROGRAM DESIGN DECISIONS

In choosing among affordability policy options, policymakers need to make several decisions, including: who will receive assistance, what assistance will be provided, how assistance will be provided, how much assistance will be provided, who will pay for assistance, and how an assistance program will be administered (see Figure 4). Many of these decisions will entail tradeoffs among different policy objectives. Technical analyses can inform decision makers about implications of the tradeoff decisions, but resolving between these tradeoffs is the responsibility of policy makers.

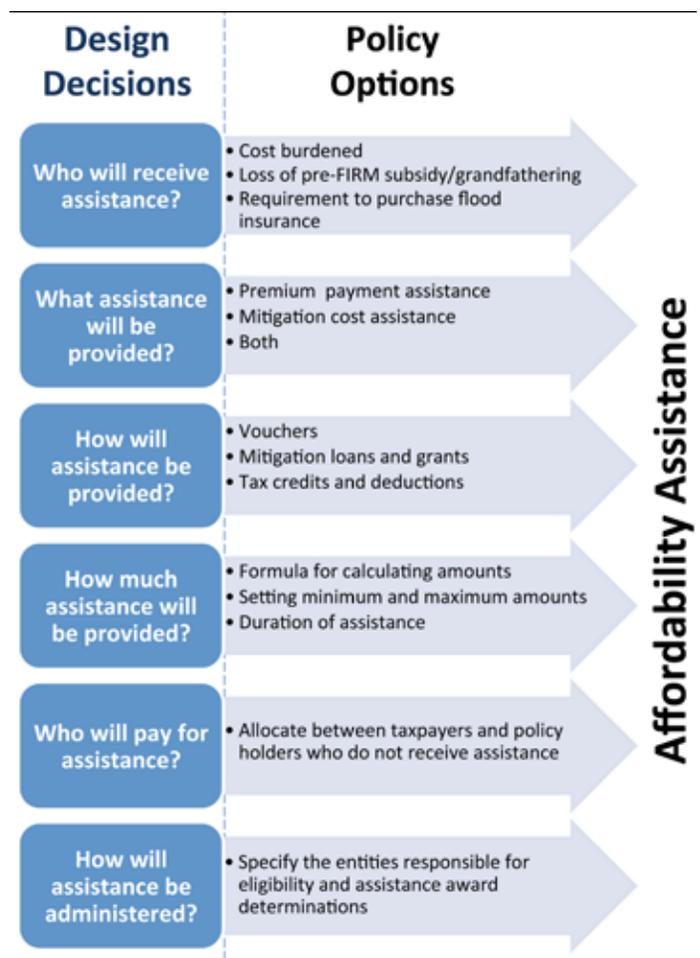


Figure 4. This figure summarizes considerations and policy options when designing an assistance program for an affordability framework.

Locate additional information & related reports at <http://dels.nas.edu/wstb>
 Read, purchase, or download a free PDF of this report at <http://www.nap.edu>

Committee on the Affordability of National Flood Insurance Program Premiums: Leonard A. Shabman (*Chair*), Resources for the Future, Washington, DC; Sudipto Banerjee, University of California, Los Angeles; John J. Boland, Johns Hopkins University; Patrick L. Brockett, University of Texas, Austin; Raymond J. Burby, University of North Carolina, Chapel Hill; Scott Edelman, AECOM, Greensboro, NC; W. Michael Hanemann, Arizona State University, Tempe; Carolyn Kousky, Resources for the Future, Washington, DC; Howard C. Kunreuther, University of Pennsylvania; Shirley Laska, University of New Orleans; David R. Maidment, University of Texas, Austin; David Maurstad, OST, Inc., Washington, DC; Allen L. Schirm, Mathematica Policy Research, Inc., Washington, DC; Jeffrey Jacobs (*Study Director and Director, Water Science and Technology Board [WSTB]*), Constance F. Citro (*Senior Board Director, Committee on National Statistics*), Scott T. Weidman (*Director, Board on Mathematical Sciences and Their Applications*) Ed J. Dunne (*Staff Officer, WSTB*), Michael J. Stoeber (*Research Associate, WSTB*), Anita A. Hall (*Senior Program Associate, WSTB*), National Research Council

The National Academies appointed the above committee of experts to address the specific task requested by the Federal Emergency Management Agency. The members volunteered their time for this activity; their report is peer-reviewed and the final product signed off by both the committee members and the National Academies. This report brief was prepared by the National Research Council based on the committee's report. For more information, contact the Water Science and Technology Board at 202-334-3422 or visit <http://dels.nas.edu/wstb>. Copies of *Affordability of National Flood Insurance Program Premiums—Report 1* are available from the National Academies Press, 500 Fifth Street, NW, Washington, DC 20001; (800) 624-6242; www.nap.edu.

Permission granted to reproduce this document in its entirety with no additions or alterations.
 Permission for images/figures must be obtained from their original source.