



Evaluating National Flood Insurance

Congress created the National Flood Insurance Program (NFIP) in 1968 in response to the ongoing unavailability of private flood insurance and the continued increase in federal disaster assistance. Few property owners purchased flood insurance in the early years of the program, and in 1973 and 1994, Congress passed laws requiring structures in Special Flood Hazard Areas (SFHAs) with loans from federally insured or regulated lenders to have flood insurance. Due in part to this “mandatory purchase requirement,” more than 4.5 million flood policies are now in place.

The Federal Emergency Management Agency (FEMA) administers the NFIP and is now evaluating the program’s goals and performance. The RAND Corporation contributed to that evaluation by developing more reliable estimates of the proportion of single-family homes (hereafter, “homes”) that have flood insurance (the market penetration rate); by identifying factors that determine the rate; and by examining some of the opportunities for, and benefits of, increasing the rate.

While there are data on the number of policies, reliable information on the number of structures in SFHAs and on the number of structures with mortgages subject to the mandatory purchase requirement is lacking. This research addresses these gaps by using property parcel data from 100 NFIP communities nationally. The analysis is based on 5,472 homes in SFHAs and 22,195 homes in NFIP communities but not in SFHAs.

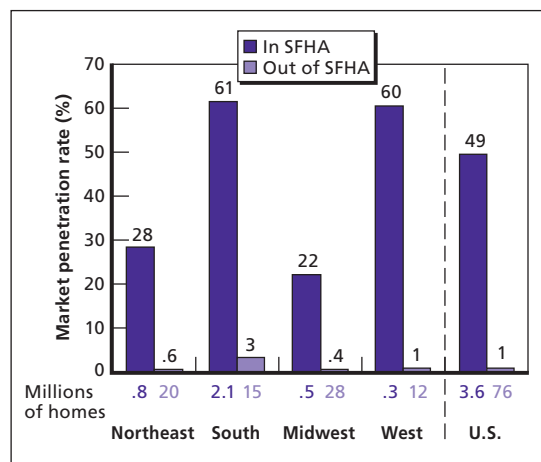
What Is the Market Penetration Rate?

The analysis suggests that about one-half of homes nationwide in SFHAs (out of a total of about 3.6 million homes) have flood insurance policies from the NFIP (see figure). That rate increases to between 50 and 52 percent when a rough estimate of the number of policies underwritten by private insurers is added in.

The figure shows that market penetration rates vary a great deal across the four geographic

Abstract

Based on property parcel data, flood insurance market penetration rates are around 50 percent for homes within SFHAs, with substantial variation across geographic regions; rates are only about 1 percent outside SFHAs. Nationwide compliance with the mandatory purchase requirement is considerable, but it varies geographically. Many factors determine market penetration rates, particularly the number of homes in a community’s SFHA. Increasing the market penetration rate has benefits, although it is unlikely to have much effect on FEMA disaster assistance to individuals following floods.



regions. The rates in the South and the West within SFHAs (indicated by the left-hand bars) are much higher (about 60 percent) than rates in the Northeast or Midwest (20–30 percent). Homes in SFHAs are concentrated in the South: Nearly 60 percent (2.1 million of 3.6 million homes in SFHAs) are located in the South, even though only

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about 20 percent of homes nationwide in NFIP communities are in the South (18 million of 79 million homes in NFIP communities).

Also, while a third of NFIP policies are written outside SFHAs, the nationwide market penetration rate outside SFHAs (indicated by the right-hand bars) is only about 1 percent; the rate is higher (3 percent) in the South.

Past studies imply that about 50–60 percent of homes in SFHAs are subject to the mandatory purchase requirement.

Under plausible assumptions, the compliance rate appears to be 75–80 percent—again, higher in the South and West (80–90 percent) than in the Northeast and Midwest (45–50 percent). Findings for the Northeast and Midwest should be viewed as tentative, however, because they are based on relatively small sample sizes. The results suggest that compliance is lower in communities with 500 or fewer homes in the SFHA, where less than 50 percent of homes in the community are in the SFHA, and where coastal flooding is not an issue. However, the market penetration rate for homes not subject to mandatory compliance requirements is much lower, on the order of 20 percent.

What Factors Determine the Rate?

Many factors determine the market penetration rate. While the decision to purchase insurance is determined partly by insurance price, the effect is not strong for modest changes in price. But the number of homes in a community's SFHA has a significant impact. The rate is 16 percent in communities with 500 or fewer homes in the SFHA; 56 percent, with 501 to 5,000 homes; and 66 percent, with more than 5,000 homes. The likelihood that insurers market less aggressively in communities with fewer homes in SFHAs, and that fewer agents there know about the program and are enthusiastic about writing policies, may explain the finding. Also, the mandatory purchase requirement appears to be less vigorously enforced in communities with few structures in SFHAs.

Analysis also showed that the probability of purchasing insurance is substantially higher in communities subject to coastal flooding than in communities that are not (63 percent versus 35 percent), possibly because there is less appreciation for flood risk in inland communities and because the NFIP coverage for basements—common in inland areas—is limited. Similarly, market penetration is greater in the South than elsewhere, even when other factors are controlled for (such as number of homes in the SFHA and source of flooding).

Finally, the mandatory purchase requirement is a critical determinant of whether a home in the SFHA has flood insurance.

What Benefits Come from Increasing the Rate?

Increasing the market penetration rate can have benefits along many dimensions, and this study examined benefits in a subset of these. We find little evidence that increasing market penetration would cause substantial reductions in FEMA disaster assistance outlays to individuals following floods unless flood insurance policies were broadened to cover other types of losses, particularly temporary housing assistance. The FEMA disaster assistance program is one of many forms of federal disaster assistance available to individuals, businesses, and governments following floods. We also found little evidence of a strong relationship between market penetration rates and compliance with floodplain management requirements. In some cases, other factors (such as community size or region) had more impact than market penetration rates.

But our results do show that annual variability in NFIP claims payments can be reduced by increasing penetration rates outside the Southeastern part of the country and the Gulf states. Such a reduction in variability would reduce the NFIP's need to borrow from the Treasury on a short-term basis.

Implications

The study findings can help inform discussions of NFIP goals and potential reforms in light of the uninsured losses after Hurricanes Katrina and Rita. For NFIP managers and policymakers, low rates in communities with relatively few structures in SFHAs present an opportunity to reduce uninsured losses in future storms, but the sheer number of such communities (about 95 percent of the 20,000 communities where federal flood insurance is available) makes developing an effective strategy difficult.

NFIP managers need to better understand why the rates are so much lower in communities not subject to coastal flooding—an estimated 1.7 million homes are in SFHAs of inland communities.

Financial regulators and NFIP managers should evaluate whether and how to improve compliance with the mandatory purchase requirement in important submarkets: communities with a relatively low number or proportion of homes in SFHAs, communities not subject to coastal flooding, and communities in the Midwest and Northeast.

Finally, the study highlights the continued unwillingness of most homeowners to buy flood insurance when not required, and can be used to assess the impacts of proposals to extend the mandatory purchase requirement. ■

This research brief describes work done for RAND Infrastructure, Safety, and Environment and Institute for Civil Justice and documented in *The National Flood Insurance Program's Market Penetration Rate: Estimates and Policy Implications*, by Lloyd Dixon, Noreen Clancy, Seth A. Seabury, and Adrian Overton, TR-300-FEMA, 2006, 136 pp. (available at http://www.rand.org/pubs/technical_reports/TR300/). The RAND Corporation is a nonprofit research organization providing objective analysis and effective solutions that address the challenges facing the public and private sectors around the world. RAND's publications do not necessarily reflect the opinions of its research clients and sponsors. RAND® is a registered trademark.



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