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Understanding the Voluntary Purchase of Flood Insurance[1]

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KEY FINDINGS

- Disclosure about flood risk outside the Special Flood Hazard Area (SFHA) is limited and purchase of flood insurance is not required.
- We identified three drivers of flood insurance take-up outside the SFHA: (1) recent or repeated flooding outside the SFHA; (2) active and continuing outreach and education about flood risk and flood insurance; and (3) enough personal disposable income among consumers to afford flood coverage.
- This work suggests targeted outreach, particularly in the aftermath of a flood, could help encourage greater purchase of flood insurance outside the SFHA. In addition, a program to help lower income households with the costs of flood insurance is needed.

INTRODUCTION

Flood insurance is a vital part of household resilience. Insured households are able to recover faster and more completely after a flood than those without coverage.[2] Insurance provides dependable funds to finance repair and reconstruction without needing to use savings, alter consumption, take out loans, or hope for what is often insufficient and delayed federal disaster assistance. Yet, despite the resilience benefits of insurance, many households at risk of flooding do not have a flood policy, even though the National Flood Insurance Program (NFIP) has made flood coverage available to participating communities for the last 50 years (see Box 1).

Early in the history of the NFIP, Congress responded to low take-up rates for flood insurance with the mandatory purchase requirement: federally regulated lenders or issuers of federally-backed mortgages must require flood insurance on all loans secured by property in the FEMA-mapped 100-year floodplain, also referred to as the Special Flood Hazard Area (SFHA).[3] This helped increase the number of flood insurance policies purchased, but many at risk still do not insure against flooding when they are not mandated to do so. This is observed following

[1] This report is based on work supported by the Science and Technology Directorate of the US Department of Homeland Security for the Flood Apex Program under Contract HSHQDC-17-C-B0032. The views and conclusions contained in this document are those of the authors and should not be interpreted as necessarily representing the official policies, either expressed or implied, of the US Department of Homeland Security. We would like to thank Brett Lingle for helpful contributions and Marina Dauer for excellent research assistance with this project.

[2] Kousky, C. (2019). "The Role of Natural Disaster Insurance in Recovery and Risk Reduction" Annual Review of Resource Economics 11(3).

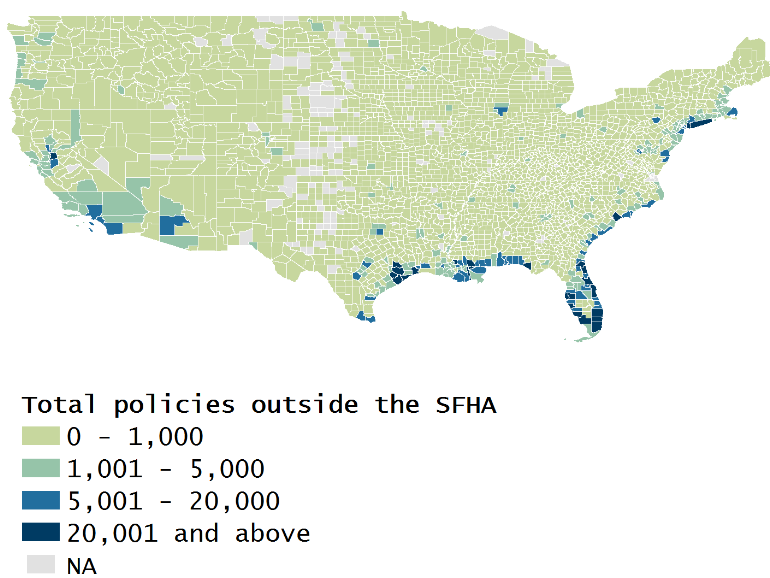
[3] For more on the mandatory purchase requirement, see: Shabman, L., Kousky, C. and B. Lingle (2019). The Mandatory Purchase Requirement: Origins and Effectiveness in Achieving NFIP Goals. The Wharton Risk Center, University of Pennsylvania, September.

major flood events. For example, less than a third of the buildings flooded by Hurricanes Sandy, Harvey, and Irma had flood insurance and many were located outside the SFHA.[4]

There are many reasons that those at risk of flooding may choose not to insure. Observers have argued that the SFHA designation misleads people about flood risk, suggesting they are safe if they are outside this zone. Outside the SFHA, there is no national requirement to disclose about flood risk, few state-level disclosure requirements, and no flood insurance mandate for federally-backed loans. Logically, residents outside of this zone may interpret such lack of mandates as a proxy for being at low or no risk. In the absence of such disclosures, they also likely receive less information about flood risk and may be uniformed. In addition, those at risk of flooding may not understand insurance and the role it could play in their financial protection, may not be able to afford the cost of flood insurance, or simply may not think it is worth it.

That said, there are a number of counties throughout the US where the vast majority of all policies in-force are actually outside the SFHA and places where there is a high absolute number of flood policies outside the SFHA. Figure 1 shows (a) the total number of residential flood policies outside the SFHA, and (b) the share outside the SFHA. This was calculated using 2018 NFIP data made available on OpenFEMA. While non-SFHA purchase of flood insurance is noticeably higher along the hurricane-prone coasts, there are other communities, as well, where there is higher voluntary purchase. Nationwide, just over half of all NFIP policies are outside the SFHA. Note, even in areas with a large share of policies outside the SFHA, the overall take-up rate outside the SFHA (that is, the share of all buildings outside the SFHA with flood insurance) is typically still very small, often in the single digits.

Figure 1: NFIP Purchases Outside the SFHA by County, 2018



a) Total NFIP contracts outside the SFHA by county

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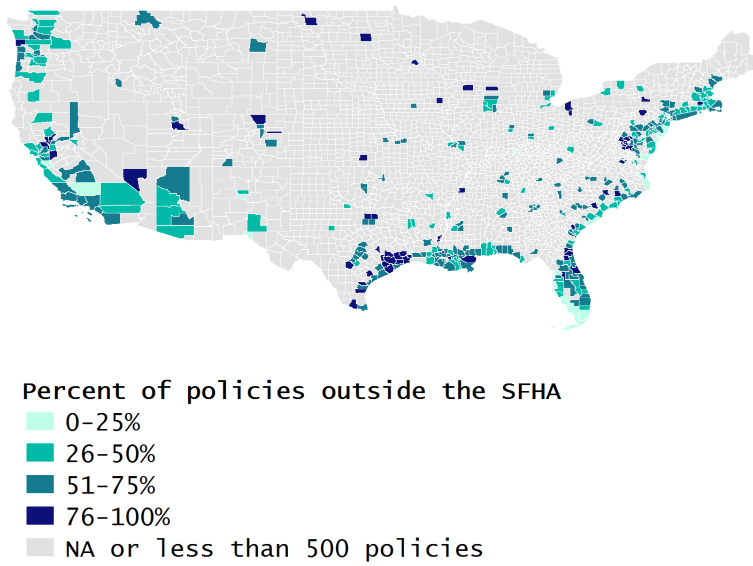
[4] See: (1) PlaNYC (2013). A Stronger, More Resilience New York. The City of New York; Kousky, C. and Lingle, B. (2018). "The 3 Maps that Explain Residential Flood Insurance." BRINK, September 13; (2) Cusick, D. (2017). "Mostly uninsured victims could face losses of $65B — report." E&E News, September 20.



b) Share of NFIP contracts outside the SFHA by county

To better understand the possible reasons for these pockets of voluntary purchase, we interviewed floodplain and emergency managers, city planners, and community officials in counties with a large number or share of flood insurance policies outside the SFHA. In this brief, we detail the findings of these interviews and identify lessons that may be used to encourage more households across the US to insure against flood risk.

Box 1: The National Flood Insurance Program

The National Flood Insurance Program (NFIP), housed within the Federal Emergency Management Agency (FEMA), is a voluntary partnership between the federal government and local communities. Communities that join the NFIP implement minimum floodplain management regulations that govern new construction in the Special Flood Hazard Area (SFHA). Residents of enrolled communities are then eligible to purchase flood insurance through the program.

Residential property owners can purchase up to $250,000 of building coverage and $100,000 of contents coverage. Nonresidential policyholders can purchase up to $500,000 of coverage for each structure and its contents. Currently, premiums for an NFIP policy vary within FEMA mapped flood zones, as well as by other characteristics of the building, including when it was constructed and its elevation. In 2018, the median premium for residential, single family homes inside the SFHA (and not in a storm surge area) was $786 and the mean was $1,186. Outside the SFHA, properties with a favorable loss history may qualify for a Preferred Risk Policy (PRP), which costs substantially less. The median for a PRP policy was $450 (mean was $459). As noted above, inside the SFHA, properties with a loan from a federally-regulated lender or purchased with a federally-backed mortgage must purchase flood insurance. As of September 2019, there were more than 5 million policies in force nationwide, accounting for nearly $1.32 trillion in coverage.

Since 1990, the NFIP has encouraged communities to join the Community Rating System (CRS), a voluntary program designed to encourage more investment in flood risk reduction. A CRS community earns points for activities undertaken to better manage flood risk, including providing improved information on flood risk and flood insurance to residents. As a community moves up through levels in the program, their residents are rewarded with discounts on flood insurance. Note that PRP policies do not receive CRS discounts, as they are already a more favorable price.

METHODS

The findings of this report are based on in-depth, semi-structured interviews, as well as responses to an online questionnaire, conducted with community officials – such as floodplain managers, emergency managers, and city planners. We targeted officials in counties that had either a high share of all their flood insurance policies outside the SFHA or that had a high absolute number of policies in force (PIF) outside the SFHA. This was calculated using the OpenFEMA data on NFIP policies from 2018.[5]

All interviews were phone-based, semi-structured, and lasted between 15 minutes and 30 minutes. Interviews followed the same set of questions as the online questionnaire. We notified participants in either an interview or the questionnaire that their specific comments would remain confidential. In total, we heard from 23 individuals. Many communities with high levels of non-SFHA flood policy purchases did not respond to our request for an interview or we could not find contact information for the appropriate community official. As such, the responses may reflect bias in that those we spoke with are most likely representing communities that are more actively engaged in flood risk management. In addition, we supplemented these interviews and the questionnaire with a comprehensive search of articles, reports, and scholarly literature on flood insurance demand outside the SFHA. This literature review provided more robust support for some of our conclusions.

FINDINGS

Across respondents, there were three frequently identified determinants of voluntary purchase outside the SFHA: (1) recent or repeated flooding outside the mapped SFHA; (2) active and continuing local outreach programs that educate the community about flood risk and availability and affordability of flood insurance; and (3) residents with enough personal disposable income to afford flood coverage.

1. Flooding outside the SFHA drives voluntary purchase of flood insurance.

Almost every respondent from Maryland to Louisiana, and from Florida to Tennessee to Texas said that flooding outside of the SFHA brought attention to the need for flood insurance beyond the 100-year floodplain. Statistics from Harris County, Texas, shared with us by a respondent, demonstrate the point: Hurricane Harvey flooded over 31,000 homes but only 32% were in the SFHA. It is not just the very extreme events like Hurricane Harvey, however, that lead to flooding outside the SFHA; Tropical Storm Imelda flooded over 1,000 homes in Harris County, with only 38% in the SFHA.[6] It is perhaps not surprising then, that in 2018, Harris County had over 270,000 flood policies outside the SFHA.

As another example from a different part of the country, a report from the Federal Reserve Bank of Minneapolis noted that experience with flooding explained why some communities in its jurisdiction had high levels of flood policies outside the SFHA. The report also concluded that there was substantial voluntary purchase of flood insurance around the Red River in North Dakota and Minnesota and around the Souris River in North Dakota—all areas that have seen recent floods.[7]

The overwhelming majority of our respondents also specifically mentioned the role of pluvial flooding and coastal tidal flooding in driving interest in flood insurance (these types of flooding go by many names, such as nuisance flooding,

[5] Data online at: https://www.fema.gov/media-library/assets/documents/180376.
[6] Thank you to Jon Steiber in the Harris County Engineering Department for providing these statistics.
[7] Tran, T. (2019). "With Floods, Come a Torrent of Data." Federal Reserve Bank of Minneapolis, September 23. Online at: https://www.minneapolisfed.org/article/2019/with-floods-comes-a-torrent-of-data.

rainfall flooding, stormwater flooding, and urban flooding). NFIP flood maps do not adequately capture these sources of flooding and, as such, this type of flooding may occur routinely outside the mapped SFHA. One official, for example, noted that their community has insufficient drainage such that "rain waters collect very quickly" and "every time we receive heavy rains, the streets get flooded and…it overflows into residential property." Others noted that these types of flood events seem to be increasing, and indeed, researchers have found that heavy precipitation events in most parts of the United States have increased in intensity and frequency over the last century and are predicted to continue to increase.[8]

Additionally, respondents noted that rainfall flooding also caused homeowners to realize the limitations of the existing FEMA maps as a guide to flood risk. One person noted that, "everyone knows that right now our floodplain [map] doesn't show where it floods." Similarly, another respondent stressed that the flood maps did a poor job of showing current risk and had not been revised in decades to reflect changes in impervious cover. This may lead to flood insurance purchases being more related to recent flood events than the SFHA zone on the FEMA map.

2. Flood risk communication drives voluntary purchase of flood insurance.

Many of those interviewed cited the role of their community's outreach and educational programs and noted that learning about flood risk broadly, and flood insurance in particular, can increase purchase of flood insurance. Community outreach programs took different forms, including in-person community meetings, tables at community events, direct mailings, local advertising, social media posts, and web materials. Some communities used FEMA materials and others prepared their own. In some cases, promotion of flood insurance purchase was a direct component of the messaging and other times other messages were prioritized.

The flood risk communication messages that respondents felt most drove voluntary purchase include statements that everyone needs flood insurance, that it can flood anywhere, and/or that flood insurance is inexpensive outside the SFHA and a "good buy." For example, a few communities highlight in their communication materials that Preferred Risk Polices, available outside the SFHA, are inexpensive and important financial protection for residents. One community also emphasized the limitations of federal disaster aid and that to be eligible for future aid, flood insurance was required.

We heard about different messengers. Many communities try to make their floodplain manager or another official available to answer phone calls or emails from residents that have questions, especially when a property is being bought. One respondent noted that residents will not listen as much to state or federal messages, but do pay attention to "friends, local businesses, and respected community members." Similarly, a couple of other respondents told us that neighbors talk to each other about flood insurance and that helps spur demand. On the other hand, a different respondent noted that FEMA had been doing outreach in their community and they thought that it was probably having an impact.

Several respondents and interviewees mentioned the important role of risk communication coming from insurance agents and real estate agents. As one example of a program aimed at these communicators, Pinellas County, Florida, which has a large absolute number of NFIP policies outside the SFHA (25,912 in 2018), has developed a Real Estate Flood Disclosure training program.[9] The program has classes for agents and has developed an informational brochure that real estate agents can use to talk about flood risk and flood insurance with their clients or leave at open houses.

[8] USGCRP (2017). Climate Science Special Report: Fourth National Climate Assessment, Volume I [Wuebbles, D.J., D.W. Fahey, K.A. Hibbard, D.J. Dokken, B.C. Stewart, and T.K. Maycock (eds.)]. U.S. Global Change Research Program, Washington, DC.

[9] Information is online here: http://www.pinellascounty.org/flooding/real_estate_disclosure.htm

This brochure stresses that flooding can occur outside of designated high-risk zones and that flood insurance can be inexpensive in these areas if a PRP policy is purchased.

Most communities fund flood outreach efforts and the staff to conduct those efforts from general revenues, while a few had dedicated funding sources, such as stormwater fees. Additionally, a small number had received grant funds for some of their outreach activities. Las Vegas appears to be a bit of an exception with dedicated sales tax revenue for communication and infrastructure projects related to flood risk (see Box 2).

Several communities linked their outreach to CRS points and activities. The CRS program gives discounts ranging from 5% to 45% on flood insurance premiums as communities undertake more flood mitigation, education, and preparedness activities. Some of FEMA's eligible activities include: maintaining FEMA elevation certificates, updating local community institutions' websites to include flood insurance and flood protection information, and preserving open space to keep floodplain areas free from development. Possibly one of the most effective activities eligible for points are outreach projects. These can include a variety of strategies and messaging about flood hazards, flood insurance, and flood protection.[10] While the CRS program is largely beneficial to current flood insurance policy holders, many of these activities, especially the outreach projects, may increase risk awareness and thus raise policy take-up, even among those who do not see a price discount, such as PRP policyholders.

When asked what might help further increase voluntary purchase of flood insurance, many respondents noted even more outreach, including campaigns targeted to specific populations that may not be receiving as much information or education. One respondent commented that maintaining ongoing outreach was essential. They noted: "people have amazingly short memories about risks, so it is our responsibility to keep the public well informed." Another stressed that federal funding for information dissemination and stronger disclosure laws at the state level would both help with ongoing communication efforts.

Box 2: Flood Risk Communication in Clark County, NV

Clark County, Nevada is an example of a community with ongoing flood risk communication, much of it focused on the flash floods that occur in the region. Clark County has a public information campaign for flood awareness which includes print, television, radio, and digital public service announcements, as well as billboard messages. County flood-related outreach also includes activities in the public schools for elementary school students, social media campaigns, and the creation of a virtual reality program aimed at showing teen drivers the dangers of driving in a flood.

Local media coverage of flooding is also a likely contributor to the high level of risk awareness in the county. And, like many other places, a major flood in recent history contributes to residents' awareness. Almost all Clark County residents can clearly recall the severe flash flood event of 1999, as well as a smaller but still damaging flood event in 2003. Beyond just communication, Clark County has an ongoing and well understood flood mitigation program, often with Federal agency partners. This includes relocation of buildings out of the SFHA and creation of large detention basins for floodwaters. The on-going flood risk communication programs, and the highly publicized flood risk management efforts, keep the problem of flooding on the public agenda and help explain why 82% of all flood insurance policies in Clark County, Nevada are outside of the SFHA.

[10] FEMA (2018). Community Rating System: A Local Official's Guide to Saving Lives, Preventing Property Damage, and Reducing the Cost of Flood Insurance. Washington, DC: Federal Emergency Management Agency.

3. Price drives voluntary purchase of flood insurance.

Several respondents noted that flood insurance can be unaffordable for some families. We heard from different officials that those most likely to voluntarily purchase flood insurance are more affluent.[11] For instance, one person remarked that they have “a large, affluent, elderly population that can both afford optional flood insurance and value the security of insurance.” Low income households outside the SFHA are likely unable to afford flood coverage. While we heard that PRP prices outside the SFHA can make flood insurance seem like a “good buy” to many, there are households for whom even PRP prices are unaffordable. And for those that do not qualify for PRP policies, X zone rates may not be cheap. In 2018, the median X zone, non-PRP NFIP policy cost $1,486.

CONCLUSION

We have identified three drivers of the purchase of flood insurance outside the SFHA: recent history of flooding, strong educational programs, and price. It is important to note, however, that even in areas of the country where there are a large number or share of NFIP policies outside the SFHA, overall take-up in these areas (the share of all non-SFHA homes with flood insurance) is quite low. And there are also many inside the SHFA, not mandated to insure, who choose not to purchase flood coverage.

The findings of this brief suggest a few promising approaches to help close the flood insurance gap. First, communities and FEMA should communicate the importance of flood insurance immediately after flooding in a community. Improving financial resilience going forward can be an important part of recovery. Second, targeted and ongoing outreach appears to be effective. The exact message and messenger may vary with the community. A multitude of socio-economic and cultural factors, as well as available resources for staff and outreach program development, can affect the design of an outreach program. For example, in one interview, we were told Hispanic households were the most likely to voluntarily purchase flood insurance. Each community will need to craft the outreach program that can best work for them. One factor that is universally true is the need to have staff and financial resources to run an outreach program.

Finally, many of those interviewed believed that price matters. We heard that PRP rates can be a draw, but even those can exceed what some households can pay. FEMA has also called attention to the challenges of flood insurance affordability.[12] As FEMA is pursuing risk-based pricing for the NFIP in the coming years, this may make flood insurance prices in areas at higher risk of tidal or rainfall flooding more expensive. As others have suggested, a means-tested assistance program at a federal level could help low and middle-income households afford the protection that flood insurance provides.

[11] This is echoed in a survey of residents insuring outside the SFHA in Florida and Texas, which finds they tend to live in more expensive homes and for whom flood insurance is affordable. See: Brody, S., Highfield, W.E., Wilson, M. Lindell, M. K., and R. Blessing (2017). “Understanding the Motivations of Coastal Residents to Voluntarily Purchase Federal Flood Insurance.” Journal of Risk Research 20(6): 760-775.

[12] FEMA (2018). An Affordability Framework for the National Flood Insurance Program. Washington, DC, Department of Homeland Security, Federal Emergency Management Agency.