FACTORS THAT AFFECT IF HOMEOWNERS PURCHASE FLOOD AND WIND INSURANCE

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What influences a homeowner’s decision to purchase insurance for hurricane-induced wind and flood damage? This question is crucial to increasing the number of homes that are properly insured for hurricane damage. It also matters for reducing losses from hurricanes.

INTRODUCTION

Insurance is an important tool to reduce national exposure to disasters. As we draft this brief, Maria marks the third hurricane related major disaster declaration in one month. Harvey, Irma, and now Maria have wrought extensive wind, rain, and flood damages. These disasters will have cost homeowners, business owners, and the government hundreds of billions of dollars, an almost incomprehensible level for most people. Further these events have stretched the capacity of local, state, and national response and recovery systems to their limits. We must find ways to reduce and/or redistribute these risks through mitigation and insurance if we intend to continue living in coastal areas. Given the strong individual property rights we enjoy in the United States and our capitalist economic system, any attempt to manage risk must include government, insurance companies, and individual homeowners. As such, it is important to understand better how these groups affect each other. This brief is part of a broader project working on that problem. Here we focus attention on the factors that our work suggests encourage or dissuade homeowner purchase of insurance. More specifically, the following brief presents a simplified discussion of a published academic paper that statistically analyzed what increases or decreases the likelihood that a homeowner will purchase flood or wind insurance (Wang et. al, 2017.) The findings suggest a number of important factors that policy makers should consider when trying to reduce risk.
KEY FINDINGS

Findings from our work suggest the following relationships:

- **Premium and deductible** – We asked people if they would buy insurance policies that were identical except for different hypothetical annual premiums and deductibles. As you might imagine, fewer people would buy insurance (i.e. market penetration rates would decline) as the premium and deductible go up (both flood and wind models had similar patterns). Although penetration rates would decline with higher premiums and deductibles, one interesting note is that price changes did not result in big changes in how many people would buy insurance (it was price inelastic). Also it is important to note that people varied on how they dealt with the tradeoff between a higher premium or higher deductible with some respondents willing to pay much higher premiums for small reductions in deductibles.

- **Previous hazard experience** – We considered homeowners’ prior experiences with hurricanes in two ways: 1) the number of hurricanes they had been through and 2) how recent their last hurricane experience was. Both of these ways of measuring experience helped predict who might purchase flood insurance but neither helped predict the purchase of wind insurance. Within this model, the study also examined the homeowners’ experience with personal damage (or lack thereof). How recently the last hurricane experience was, as one might imagine, was more influential for homeowners who experienced damage than for homeowners that did not.

- **Risk/geographic proximity to hazard** – People with property closer to the coast and/or located in floodplains were more likely to purchase both flood and wind insurance.

- **Previous retrofit actions** – Retrofit features such as wind resistant shingles, hurricane straps and hurricane shutters reduce the likelihood that a home will be severely damaged in the event of a hurricane. The survey provided some interesting results about the relationship between these home improvements and insurance. People who
had retrofitted their homes were more likely to purchase insurance. This pattern suggests that retrofitting and purchasing insurance can be seen as complimentary behaviors for people.

- **Income and age** – Homeowners with higher incomes were more likely to purchase insurance, as has been found in other studies. This study also found that age has a significant influence on purchasing probability, with younger homeowners shown to be more likely to purchase insurance for flood and wind damage.

**POLICY IMPLICATIONS**

In thinking about the implications of our findings for policy and practice we are able to make some suggestions related to policy and or policy ideas that could be explored based on these patterns. While some of these suggestions might require further analysis and consideration we propose the following for consideration:

- The empirical results outlined in this brief suggest that premium and deductible are important factors that can be used to predict insurance penetration rates for a region. The results indicate that although homeowners do respond to insurance pricing (premiums and deductibles) they are not highly sensitive to the tradeoff between premium and deductible. Understanding homeowners’ relative sensitivity to premiums and deductibles may help to identify premium and deductible combinations that help increase penetration, reduce risk, but not significantly affect insurance profitability.

- Since higher income is shown to be associated with increased insurance purchase, this study provides supporting evidence that affordability is an important factor in determining insurance purchase. It is critical to continue exploring affordability and policies that will facilitate risk reduction.

- Also, government could target information towards first-time homebuyers in order to encourage insurance purchase.
Given that the number of previous experiences and how recent events were experienced, especially for people with damage, one might consider broadly marketing insurance products in a region recently exposed to an event in order to increase penetration.

Finally, given that prior retrofit actions to strengthen the home are significant predictors of insurance purchase, one might consider programs that link information about one risk reduction method with the other. For example, insurance companies might provide information on retrofitting and/or greater incentives to homeowners that retrofit.

**METHODS OVERVIEW**

The results discussed above were developed based on responses to a survey of homeowners living in eastern North Carolina, a region at risk for hurricane damage. For all of the questions, we asked people to tell us if they would hypothetically purchase insurance (stated preference questions) under different circumstances (e.g., would they buy for a particular premium and deductible). We also collected other information about past experiences, perceptions, demographics, and location. As in previous studies, flood and wind insurance decisions were analyzed separately to identify any disparities or similarities in the decisions for these different hazards.

The analysis used a mixed logit statistical method to analyze stated preference survey data. Stated preference surveys ask respondents “what if” questions about how their purchasing behavior would respond to different prices and deductibles. The survey focused on hurricane-related wind and flood insurance decisions within a specific region. The goal is to apply the findings here to other places as well in order to help create an insurance market that, coupled with other risk reduction measures, effectively reduces hurricane wind and flood losses. One limitation of the findings is a limited understanding of if the results will apply to other coastal regions, or residents in areas that experience riverine flooding or straight-line windstorms.
REFERENCES


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