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Beneath the Surface: Analysis of NFIP Data Demonstrates Need for More Equitable Rates

Comprehensive Study Conducted
by the Scientists at:



HazardHub

EXECUTIVE SUMMARY

Using the most recent data available, this report details the findings of a comprehensive study conducted by the scientists at HazardHub, Inc., who specialize in translating geospatial data and providing property hazard risk databases. For this report, sponsored by Poulton Associates, LLC, HazardHub's team of scientists completed a detailed analysis of FEMA's National Flood Insurance Program (NFIP) data on policies and claims from 2010-2018 (relevant data are not available from the NFIP for prior years). The resulting report focuses on costs, benefits, income groups and geographic distribution. The basic question considered by the report is: Who benefits the most from the federal flood insurance program?

The results show that:

1. the NFIP provides a substantial subsidy to the upper-income groups; and
2. that loss ratios for the NFIP are dramatically higher in areas where property values are high and riskier development has been permitted.

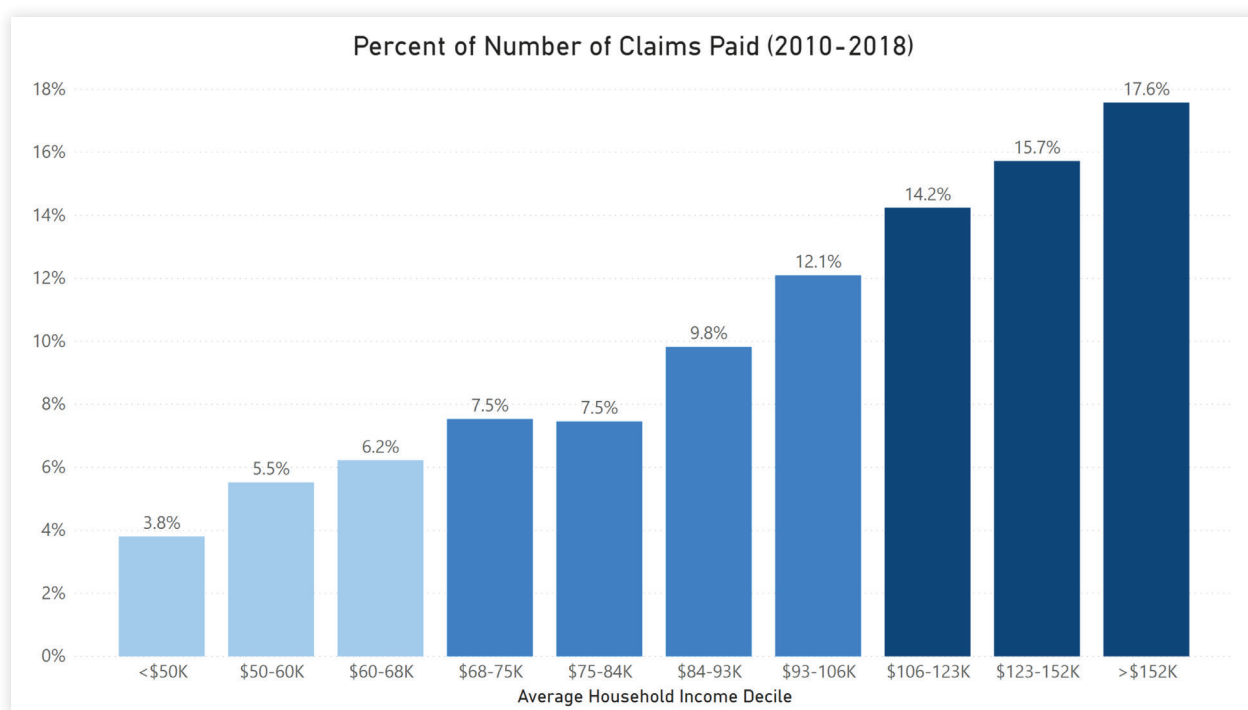
NFIP BACKGROUND

The NFIP was designed to provide affordable insurance for buildings and contents located in the 100-year floodplain. Federally regulated mortgage lenders are required to have their customers purchase flood insurance if their properties are located in the floodplain. The original program, the National Flood Insurance Act of 1968, was designed as a temporary reinsurance mechanism for private flood insurance. The long-term vision being a fully private flood insurance market. Over the past several decades, numerous floods have reached far beyond the 100-year boundaries, affecting areas in the 500-year floodplain and beyond. In addition, land developers have successfully lobbied to move the boundaries of floodplains to allow for more profitable development which has resulted in the concentration of property values in areas exposed to catastrophic flooding ([New York Times – 12/2/2017](#)).

KEY DATA ANALYZED

Figure 1 below shows the percentage of total claims paid from 2010 to 2018. Notice that the top three deciles of average household income account for 47.5 percent of the total number of claims while the bottom three deciles account for only 15.5 percent of the total number of claims. Please note that the graph measures number of *claims*, not the dollar amount claimed or paid out. The data clearly demonstrate that the upper income groups benefit much more from the NFIP than do lower income ones.

FIGURE 1



The rich/poor divide is especially evident when the average premium cost per policy is derived for the three per capita income groups by year. This is illustrated in Figure 2 below. In every year, the lowest income group has paid higher premiums per policy than the upper two groups (low = < \$35K, moderate = \$35K to \$125K, high = > \$125K).

FIGURE 2

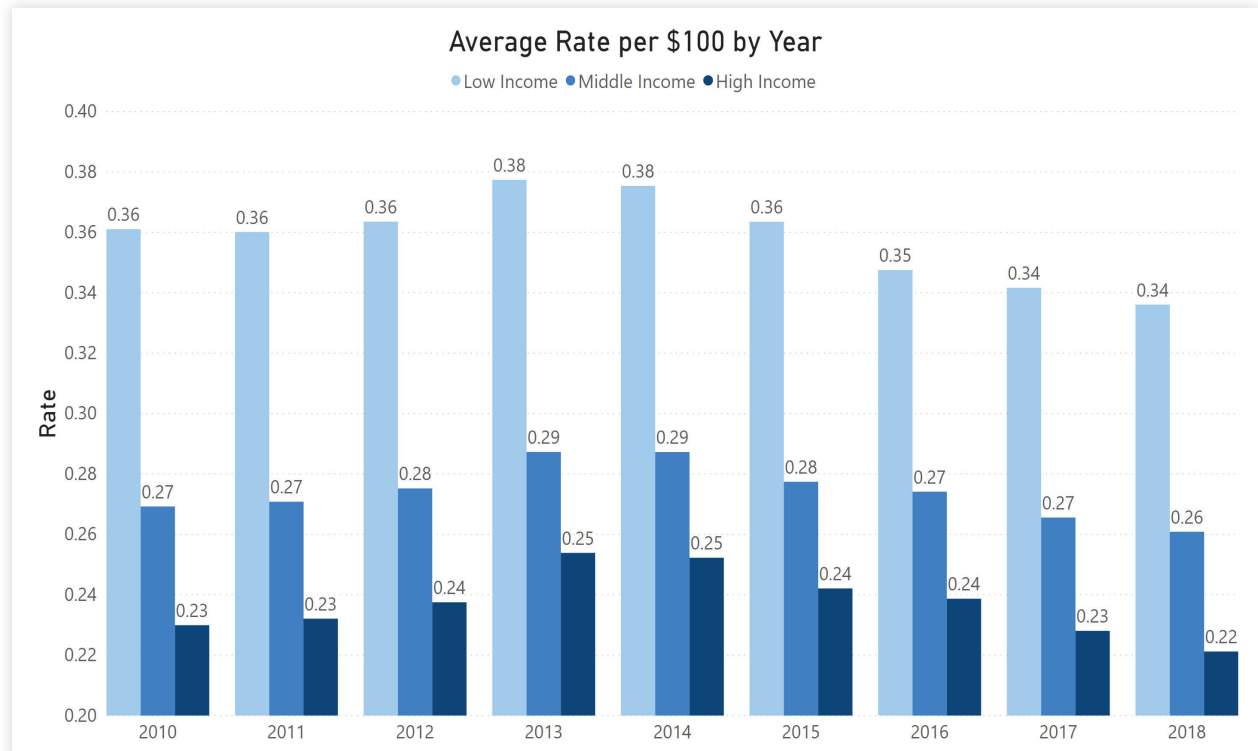
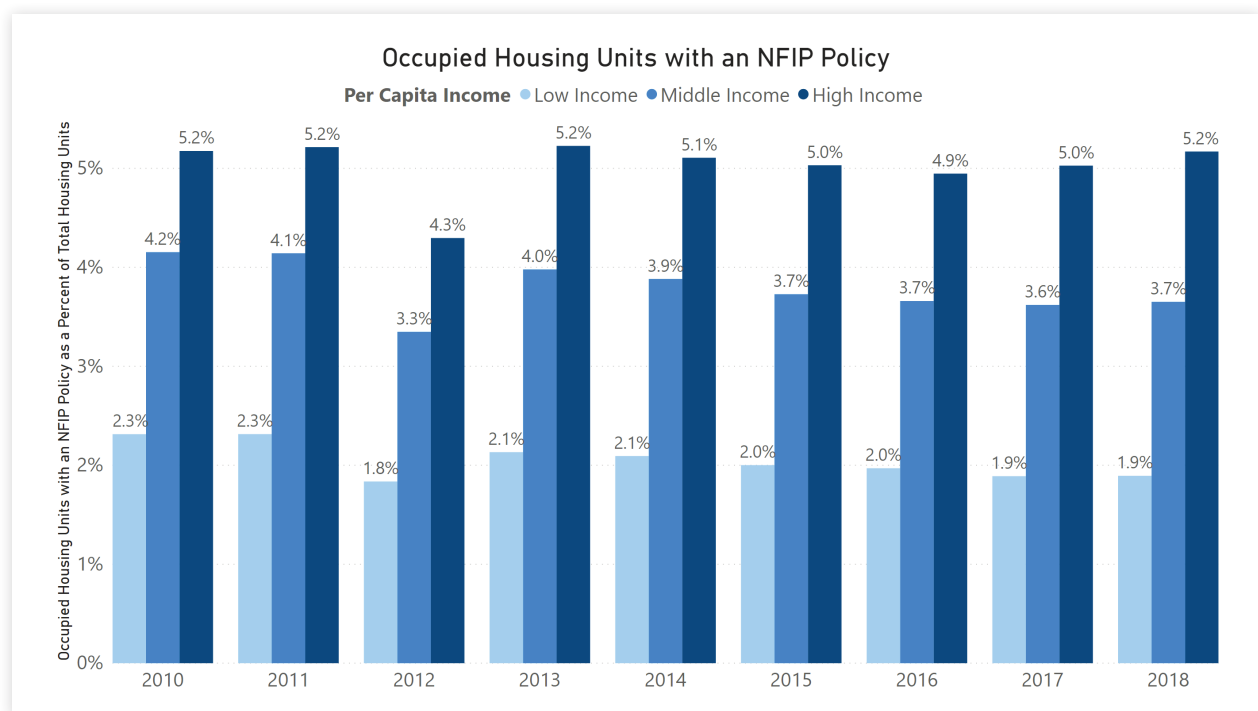


Figure 3 below illustrates the subsidy of the high-income sector even more emphatically. It shows the number of occupied housing units with NFIP policies as a percentage of total occupied housing units within census tracts by per capita income. The data confirm that the percentage of NFIP covered properties within low-income tracts is less than half of that of high-income ones. This may be because: 1) high-income tracts are more likely to be in flood-prone zones (coastal or on rivers/streams) than low-income tracts; or 2) the wealthy are more likely to purchase NFIP policies. In either case, the higher-income group is being subsidized by lower-income households, as well as taxpayers.

FIGURE 3



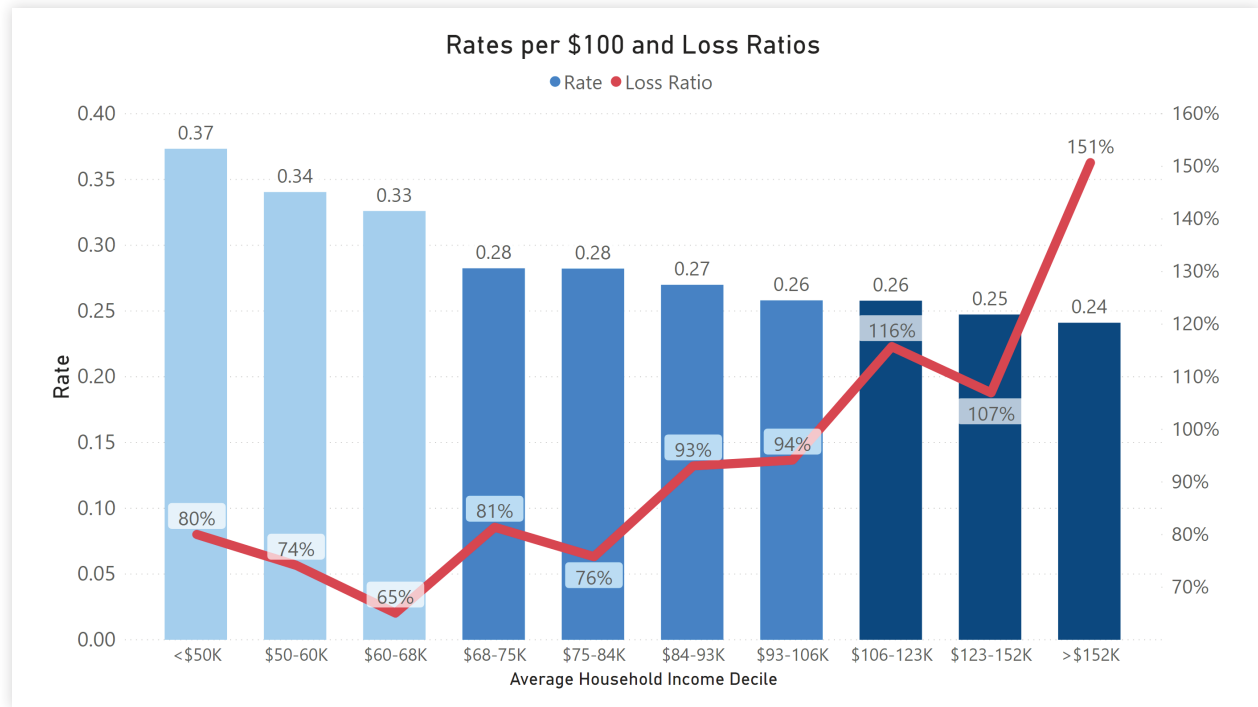
Further analysis of the NFIP data set provided by HazardHub reveals that the loss ratio by income, as shown in Figure 4, is dramatically higher among those properties in the top third income level census tracts. The rate per hundred of premium is significantly lower for that same subset. A loss ratio is the proportion of claims that an insurer pays in comparison to the premiums earned.

FIGURE 4



The loss ratios are even more evident when the income levels are broken out by deciles. Figure 5 shows the loss ratio of households earning more than \$152,000 per year exceeds 150 percent.

FIGURE 5



Continuing this analysis, the last measure to be examined is total claims dollars and total premiums. This analysis, as shown in Figure 6, demonstrates that once again, the wealthy are benefitting through use of the NFIP, for the most part — at the expense of taxpayers and the lower income participants. In rare instances, such as with the state of Alaska, lower income census tracts (those with per capita income below \$35,000) certainly benefit from the NFIP. But in Texas, as an example, the wealthy received four times the amount in benefits compared to the premiums that they paid in.

FIGURE 6

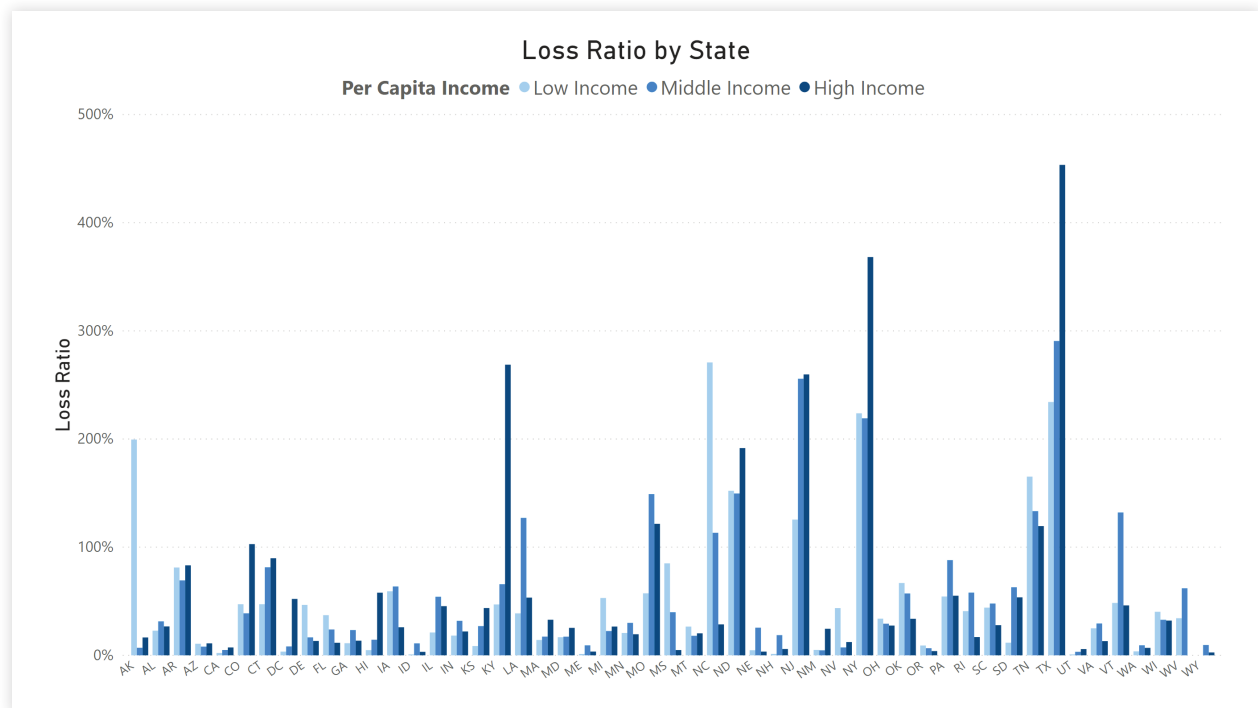
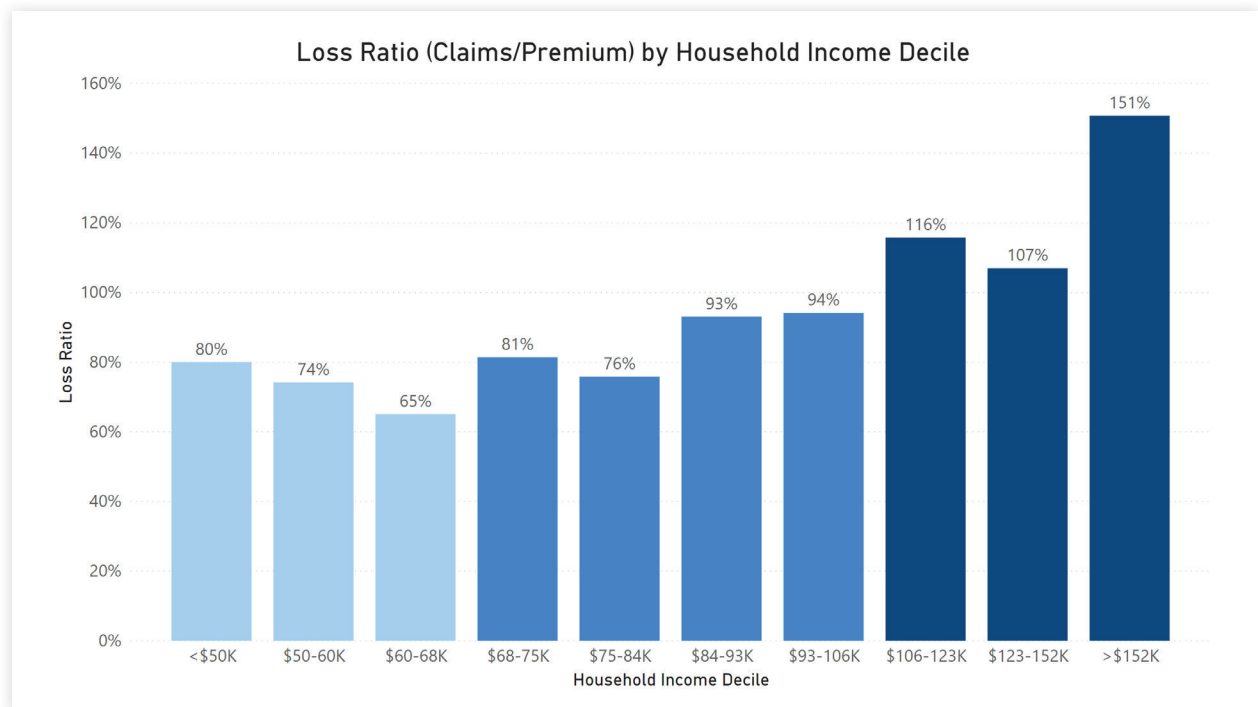


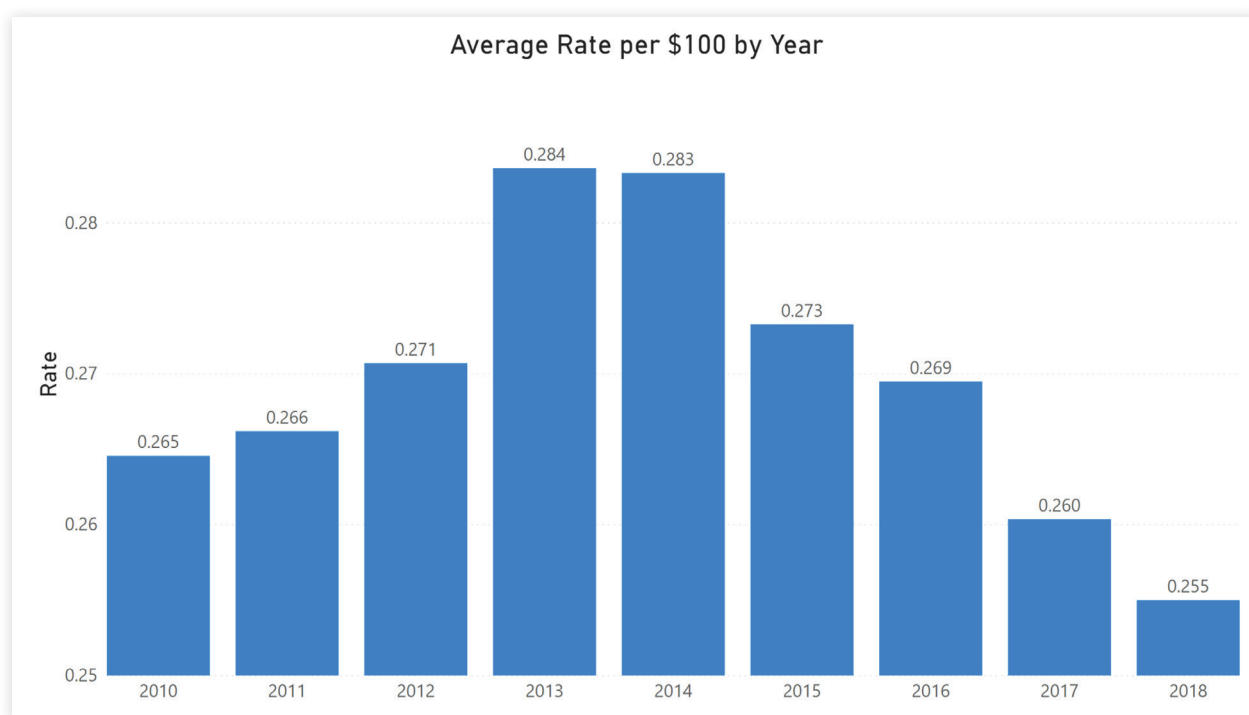
Figure 7 shows loss ratio by income decile. Almost all of the excess losses are in the highest income segments. The data indicate that insufficient premium is collected from the higher income groups. Buyers that can most afford the premium are not paying their proper rate.

FIGURE 7



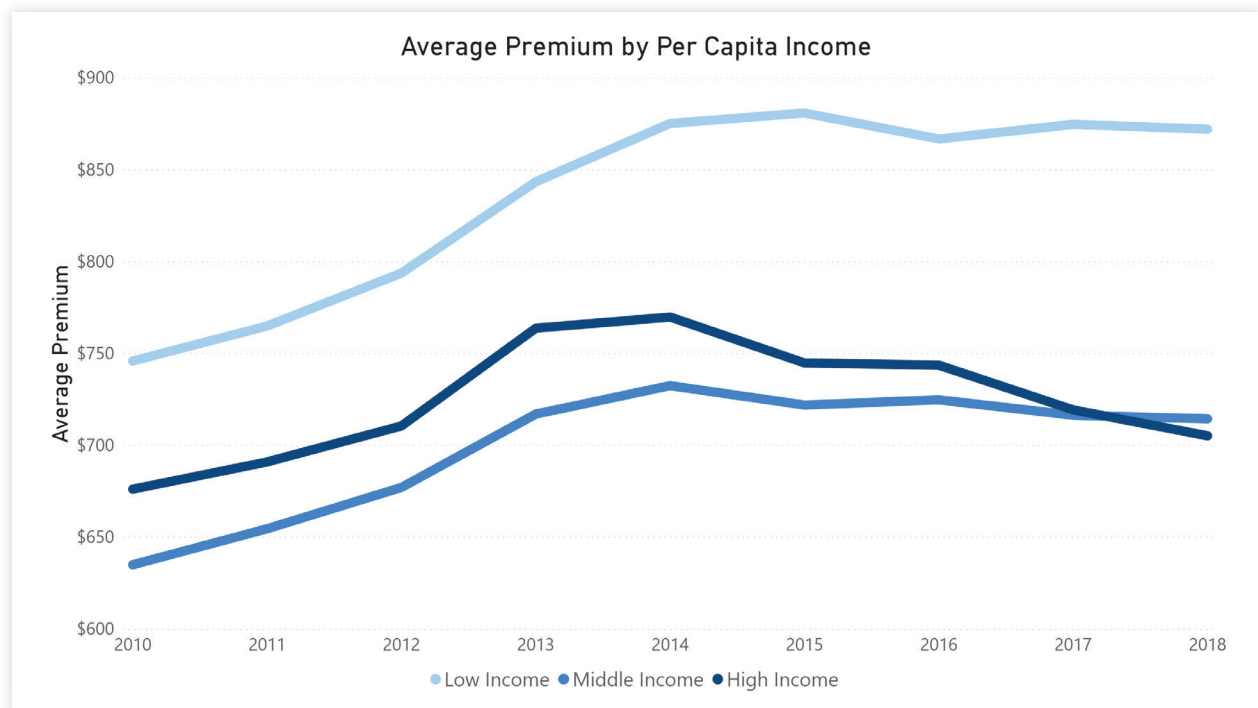
There are certain disruptions in the data caused by intersecting provisions of the Biggert-Waters Flood Insurance Reform Act of 2012 and the Homeowner Flood Insurance Affordability Act. However, it is clear from the overall average rate per \$100 in insured value (Figure 8) that the rates paid over the last five years of this analysis have actually gone down even when compared to the rates in place prior to Biggert-Waters. This is a direct consequence of the NFIP's failure to achieve the limited rate increases mandated by Congress and of Congress' failure to hold the NFIP accountable for not taking those increases. As indicated earlier, the beneficiaries of these overall rate decreases are primarily the wealthy.

FIGURE 8



In Figure 9 we see that with the passage of Biggert-Waters in 2012, premiums for all income sectors began to rise in 2013, but with the passage of the Homeowner Flood Insurance Affordability Act in 2015, the premiums were locked in for the lower-income property owners. At the same time, premiums began to fall for households located in the upper one-third of census tracts to the point where those households in the wealthiest census tracts now enjoy the lowest flood insurance premiums.

Figure 9



METHODOLOGY

The date range 2010-2018 was chosen because the NFIP claims database is limited to those years. Both data sets contained more than 30 million records, which required extensive processing to create usable databases for analysis and mapping. The numerical data for each year were summarized by: 1) census tract; 2) county; and 3) state. Most of the analysis is focused on census tracts because county and state data, due to their large sample size, mask significant differences in income, housing values, and geographic distribution.

For each year, the following data elements were derived as shown in Table 1 below.

Table 1

Claims Data Elements	Policy Data Elements
# of claims	Total policy cost (\$)
# of policies	# of policies
Amount paid in building claims (\$)	Total building coverage (\$)
Amount paid in content claims (\$)	Total content coverage (\$)
Total building coverage (\$)	Total premiums
Total content coverage (\$)	

The analysis considered the question of who benefits by separating all census tracts by average household income deciles (10 groups) and by per capita income groups into three categories: low-, medium-, and high-income (low = < \$35K, moderate = \$35K to \$125K, high = > \$125K).

Both redacted data sets (claims & policies) provided to the public by FEMA are extremely difficult to use. Manipulation of the data into a usable format is beyond the capacity of most members of the general public as well as Congressional committees charged with oversight of the NFIP. Each data set contains 30 to 50 million records. The only way to make sense of the data is to collapse them to the state, county, ZIP code, or census tract level, which requires a considerable amount of database skills and access to specialized programs. This data manipulation should be provided by FEMA for public access.

CONCLUSIONS

To its credit, the NFIP has recognized that the current risk assessment formulas do not accurately measure risk and has proposed corrective efforts in the form of its Risk Rating 2.0 initiative. Risk Rating 2.0 should be implemented in a manner that takes into consideration the data presented in this report. The continued suppression of accurate rates constitutes a gross injustice to the majority of U.S. taxpayers and, more tragically, places unfair burdens on low-income homeowners while greatly subsidizing those most able to pay.

The data presented in this report supports the NFIP's efforts to revise the risk analysis formulas for the flood insurance program. It points to an urgent need for immediate reform that aims to appropriately raise rates on those properties at the greatest risk and with the highest values. The continuance of the status quo is unfair to those living in less risky areas and to those in lower-income areas.

Most crucially the current risk rating system continues to incentivize the behaviors that have created the current crises. In effect, the NFIP has, and continues to, incentivize unsustainable development in low-lying areas where excessive losses are certain. The outcomes of the current program will continue to be disastrous for flood insurance buyers and taxpayers while lower income homeowners pay higher rates and receive reduced benefits.

This study began with no prior assumptions about what the data would produce, but with a hypothesis about geographic concentration and income group divisions. The hypothesis of the NFIP as a subsidy for the wealthy is supported by the data and the magnitude of that subsidy is much larger than expected.

The NFIP's monopoly on flood insurance has led to high-risk development on expensive flood-exposed property that has cost taxpayers more than \$40 billion over the life of the program. It is ironic that had the original intent of Congress been achieved, the invisible hand of the private market would have disallowed most if not all of the issues highlighted in this report. If the NFIP is to continue to function, the problem of wealthy participants not paying their fair share of premium must be addressed.



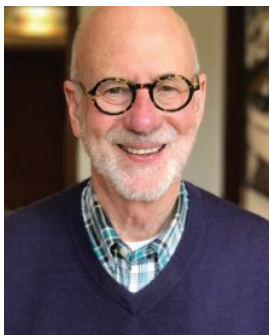
CRAIG K. POULTON

Craig Poulton is chief executive officer of Salt Lake City-based Poulton Associates, LLC, which administers the country's largest private flood insurance program, the Natural Catastrophe Insurance Program available at www.CATcoverage.com.

As CEO of Poulton Associates, Craig is responsible for creating and moving his organization to the electronic distribution of catastrophe-related insurance products and developed the Natural Catastrophe Insurance Program as the first private market online alternative to the National Flood Insurance Program. It is now used by more than 8,000 insurance sales organizations and more than 20,000 insurance sales professionals across the country and insures billions of dollars of property against the peril of flood.

An insurance broker for more than 40 years, he holds the professional designation of Certified Insurance Counselor and holds insurance licenses in all 50 states. As a member of the Independent Insurance Agents of America, he has represented the state of Utah on the Acord Standards Committee and has been widely cited and quoted in national media and insurance industry trade publications. He currently serves as a member of the Editorial Advisory Board for National Underwriter/PC360.

Poulton Associates was featured four times in the 2016, 2017, 2018 and 2019 Inc. magazine lists of the 5,000 fastest growing companies in America — a rare accomplishment according to the magazine. Craig has a Bachelor of Science degree in communications with an emphasis in finance from the University of Utah.



BRADY FOUST

Brady Foust is chief science officer of HazardHub and is a professional geographer with more than 40 years of experience in Geographic Information Systems. He specializes in the creation of large geospatial databases and the modeling of natural hazard risk. He holds a PhD in geography from the University of Tennessee and taught at the University of Wisconsin-Eau Claire for 39 years. Brady has been a founding partner of Matrix Research, Proxix Solutions, LeadValu and HazardHub. He created hazard databases for three of the four.



ABOUT POULTON ASSOCIATES, LLC

Poulton Associates, Inc. is a Utah-based managing general agent and insurance brokerage with expertise in property and casualty insurance. As administrator of the Natural Catastrophe Insurance Program, they make the program available to insurance professionals in all 50 states at www.CATcoverage.com. Follow Poulton on Twitter @NCIPtweets.



ABOUT HAZARDHUB

HazardHub is the only third-generation provider of property-level hazard risk databases. Their team of scientists translates huge amounts of geospatial digital data into easy-to-understand answers, providing risk assessments that can be used to make real-world decisions. HazardHub provides comprehensive, national coverage for risks that destroy and damage property, including perils from air (wind, hail, tornado, lightning), water (flood, coastal storm surge), earth (earthquake, brownfield, Superfund) and fire (wildfire and fire protection.)