

Affordability of the NFIP Newly Mapped Procedure: Case Study in Jefferson and Orleans Parishes, Louisiana

The National Flood Insurance Program (NFIP), initiated in 1968 and managed by the Federal Emergency Management Agency (FEMA), was designed to provide affordable flood insurance to all homeowners. Consequently, the premiums charged by the NFIP are less than what is actuarially sound. The NFIP mandates that all homeowners with federally-backed mortgages for property in 100-year flood zones must purchase flood insurance. However, because of its low premiums and large-scale disasters such as Hurricanes Katrina (2005) and Sandy (2012), the NFIP had about a \$30 billion debt in 2012. There have therefore been recent changes in the NFIP to address financial insolvency, and one such change is the newly mapped procedure which came into effect on April 1, 2015. The newly mapped procedure requires residential property owners with federally-backed mortgages on properties that are mapped into 100-year flood zones to pay flood insurance premiums that eventually transition to full-risk rates. Before the newly mapped procedure, homeowners of property that were mapped into 100-year flood zones could use the flood zone of the effective map that was in place when flood insurance was initially purchased for the property, as long as the policy never lapsed. Although homeowners have one year after the adoption of their community's new flood maps to pay the increased premiums, this could pose a financial burden on low-income households (FEMA 2015).

As the NFIP is undergoing changes to reduce its debt and make premiums more actuarially sound, affordability studies must be done to ensure that flood insurance does not impose unmanageable financial burdens to low-income households. Affordability studies are mandated by the Biggert-Waters Flood Insurance Reform Act of 2012 (NRC 2015). To that end, this paper examines Orleans and Jefferson Parishes in southern Louisiana because these two parishes currently have preliminary flood maps with substantial changes in extents of 100-year flood zones. If these preliminary maps are adopted, the newly mapped procedure may affect properties in neighborhoods with new 100-year flood zones. Active NFIP policies for 2012 in these parishes are mapped based on their associated census tracts. Then 2010 census tracts are intersected with the existing flood maps and the preliminary maps, and areas with changing flood zones are identified. An areal weighting methodology is implemented to estimate the proportions of tract areas that are (a) changing to 100-year flood risk, and (b) changing from 100-year flood risk to 500-year flood risk with levee protection. The proportions of tract areas that have changes in flood risk are used to estimate numbers of NFIP policies that might be impacted. Based on data from the 2010 census and the 2009-2013 American Community Survey five-year estimates, tract-level social vulnerability of neighborhoods undergoing potential flood map changes is described. Social vulnerability is estimated with variables such as racial minority, education, income, and homeownership status; and these are used as predictor variables in regression models that estimate changes in NFIP policies due to the newly mapped

procedure. Two sets of regression models are estimated: one for policies in areas of new 100-year flood risk, and one for policies in areas changing from 100-year flood risk to 500-year flood risk due to levee protection.

Results indicate that neighborhoods with fewer racial minority and low-income households are newly mapped into 100-year flood zones based on the preliminary maps. Conversely, neighborhoods with more racial minority and low-income residents are located in areas that are changing from 100-year flood zones to zones of 500-year flood risk with levee protection. These results suggest that affordability of flood insurance premiums of newly mapped 100-year flood zones in Jefferson and Orleans Parishes should not be a significant concern for residents. If residents that are newly mapped into 100-year flood zones have relatively higher incomes, perhaps they can afford additional mitigation activities such as raising their homes, which would lower their flood risk and insurance premiums (FEMA 2014). On the other hand, the higher social vulnerability of residents in neighborhoods of 500-year flood risk with levee protection warrants proactive efforts to educate residents on potential risks associated with levees. Furthermore, residents in 500-year flood zones with levee protection would have lower flood insurance premiums than those in 100-year zones, thus they should be encouraged to maintain flood policies since levees are not immune to failure and flooding (ASCE 2010). Research such as this of NFIP affordability concerns is important to ensure that flood insurance is not prohibitively expensive for low-income households, and contributes to a careful plan for the NFIP to raise premiums to be more actuarially sound and reflective of risk.

References

2010. American Society of Civil Engineers (ASCE). "So, you live behind a levee!" Last accessed 13 February at <<http://content.asce.org/files/pdf/SoYouLiveBehindLevee.pdf>>.
2014. FEMA. Flood Insurance Manual. Effective October 1, 2014. Last accessed 13 February 2016 at <<https://www.fema.gov/media-library/assets/documents/97901>>.
2015. FEMA. "Policies for Buildings Newly mapped into a High-risk Area". Last accessed 13 February 2016 at <<https://www.fema.gov/media-library/assets/documents/104200>>.
2015. National Research Council (NRC). Affordability of National Flood Insurance Program Premiums: Report 1. Last accessed 13 February 2016 at <<http://www.nap.edu/catalog/21709/affordability-of-national-flood-insurance-program-premiums-report-1>>.