Analyzing Repetitive Loss Properties in the U.S. National Flood Insurance Program: Mitigation Efforts and Insurance Choices

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Abstract

Properties that flood repetitively account only for 1% of policies but make up 25–30% of claims in the U.S. National Flood Insurance Program (NFIP). We examine how characteristics of repetitive loss properties (RLP) and non-RLPs differ and examine how policyholders respond to their properties being designated RLPs. The Flood Insurance Reform Act of 2004 constitutes a natural experiment, which lies in our policy-level observation period of 2001–2012. This setting allows us to examine the effect of the law on households' mitigation decisions by comparing mitigation efforts before and after the reform act went into effect. We additionally compare RLPs and non-RLPs with respect to their insurance choices. Owners of RLP properties are more than twice as likely to elevate their homes and are less likely to partially insure than owners of non-RLPs. Our results are informative for subsequent NFIP reforms and the expanding private flood insurance market.

Keywords: Repetitive Loss Properties · Flood Insurance · Insurance Choices · Mitigation

JEL Classifications: D81 · G22 · H31 · H53

Executive Summary

Properties that flood repetitively account only for 1% of policies but make up 25–30% of claims in the U.S. National Flood Insurance Program (GAO, 2010). These repetitive loss properties (RLP) have usually been constructed before flood maps have been developed and rely on notable subsidizations. GAO (2008) estimates that owners of properties that were built before flood zones were included in the program pay only 35–40% of the actuarially fair premium for their insurance. Since its establishment in 1968, the National Flood Insurance Program (NFIP) has continuously been criticized for providing flood risk protection below actuarially fair rates (Michel-Kerjan, 2010). Currently, the NFIP faces deficits and currently has outstanding debt of $20.5bn (FEMA, 2018), due in part to its payments to RLPs.

To counter these deficits the Flood Insurance Reform Act of 2004 (so called "Two Floods and You Are Out of the Taxpayers' Pocket Act of 2003") targeted repetitive loss properties. Properties that since 1978 have faced either four claim payments exceeding $5,000 or two or more claim payments that in aggregate exceed the property value are marked as repetitive loss properties. If the owner of such a property subsequently declines mitigation obligations, her premium increases by 50%. In addition, it increases by a further 50% for every future payment in excess of $1,500. Kousky and Michel-Kerjan (2017) provide first insights into characteristics of RLPs. Continued borrowing of the world's largest flood insurance program with 5 million insured policies (FEMA, 2018) and a developing private flood insurance market (Wall Street Journal, 2019; Swiss Re, 2019) call for further research on how premium increases affect policyholders' mitigation efforts and how RLP owners make their insurance choices.

We use detailed policy-level and claims-level data on the NFIP to answer the following research questions. Firstly, we examine how characteristics of RLPs and non-RLPs differ. Kousky and Michel-Kerjan (2017) provide some initial analysis of RLPs, and we expand on their findings. Secondly, we examine how policyholders respond to their properties being designated RLPs. Especially, we focus on RLP owners' mitigation efforts threatened by a potential 50% premium increase. We also examine how policyholders' contract choices are affected by RLP designation. The Flood Insurance Reform Act of 2004 constitutes a natural experiment, which lies in our policy-level observation period of 2001–2012. This setting allows us to examine the effect of the law on households' mitigation decisions by comparing mitigation efforts before and after the flood insurance reform act went into effect.

This policy-level data comprises detailed information on mitigation measures (e.g., elevation, obstruction, wall structure, location of contents), provides coverage and deductible choices, and finally indicates paid premiums. Additionally, claims-level data between 1977 and 2012 provides granular information on damages, current property values, replacement costs and whether the property is a RLP. Merging policy-level and claims-level data therefore allows us to examine the relation between losses and premium increases and subsequently the relation between premium increases and mitigation efforts.

First results confirm Kousky and Michel-Kerjan (2017) that the magnitude of damages as percentage of property values are higher for RLPs than for non-RLPs. Additionally, we verify that approximately three-fourths of RLPs lie in flood zone A. While Kousky and Michel-Kerjan (2017) find no difference in the ex-ante flood risk of RLPs and non-RLPs, we use a more granular flood map and can document marked differences. Additional first results show that RLPs compared to non-RLPs are more likely to have been constructed before flood maps have been developed (so called pre-FIRM properties).

We additionally find that the RLP designation increases property owners' mitigation efforts: owners of RLP properties are more than twice as likely to elevate their homes than owners of non-RLP properties. This seems to be a reasonable consequence of avoiding premium increases by implementing mitigation measures. Interestingly, RLPs and non-RLPs also differ in their insurance choices. Whereas non-RLPs exhibit deductible values consistent with default deductibles for pre-FIRM and post-FIRM properties, owners of RLPs choose higher deductibles. Furthermore, owners of non-RLPs are more likely to be partially insured than owners of RLPs. RLP owners therefore seem to take up as much insurance as possible and keep insurance premiums at affordable levels by choosing higher deductibles.

Our results are of importance for both the NFIP and the development of a private flood insurance market. RLPs are likely to be subject of future NFIP reforms such as the Biggert-Waters Flood Insurance Reform and Modernization Act of 2012 that phases out subsidies for repetitive loss properties. In this respect, it is important to know what incentives lead policyholders to implement mitigation measures. Additionally, private insurance companies must be able to avoid adverse selection through proper underwriting. Therefore, it is crucial to identify and accurately price RLP properties.

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