

Abstract

We apply a new mathematical modeling framework to examine how the magnitude and nature of the natural disaster risk being managed affects insurer and homeowner risk management decisions and outcomes. The framework includes three interacting models representing the insurer's pricing and risk transfer decisions, each homeowner's insurance and retrofit decisions, and regional hurricane loss. By comparing runs that consider only wind-related damage to those that consider only storm surge flood-related damage, the analysis demonstrates how differences in size and geographic extent of the insurance market, loss distributions of the individual homes and entire region, and available retrofit alternatives affect the optimal insurer and homeowner choices and outcomes. The framework could be adapted for earthquake or multihazard application.

Citation

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