



[Registration No.] 157

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[Abstract No.] 18022

[Abstract Title]

Projecting the effect of climate change on residential property damages caused by extreme weather events

[Abstract]

New Zealand's public insurer for natural hazards, the Earthquake Commission (EQC), provides residential insurance for some weather-related damage. The effect of climate change is likely to translate into higher damages from extreme weather-related events and thus an additional financial liability for the EQC. We project future insured damages from extreme precipitation events associated with future projected climatic change. We first estimate the relationship between extreme precipitation the EQC's and insurance claims for the period 2000-2017. We then use this estimated relationship, together with climate projections based on future greenhouse gases concentration scenarios from six different regional climate models, to predict the impact of future extreme precipitation events on EQC liabilities up to the year 2100. Our results show predicted adverse impacts that vary over time and space. The percent change between projected and past damages—the climate change signal—ranges between an increase of 7% to 8% in liabilities for the period 2020 to 2040, and between 9% and 25% higher for the period 2080 to 2100. The projected increase in the public insurer's liabilities could be used to inform private insurers and policymakers who are assessing the future performance of the insurance industry in the face of climatic change.



[Keywords]

Insurance; precipitation; extreme weather; loss projection; New Zealand