PAST TRENDS IN WEATHER-RELATED INSURANCE IN NEW ZEALAND

An Executive Summary of Working Paper 1-09

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SUMMARY HAIKU

Climate change concern:
many insurance claims from
weather already.

INTRODUCTION

Insurance systems are a key financial risk transfer tool used by millions of households across the world to ameliorate adverse financial consequences from unlikely (small probability) disasters. As such, insurance systems have proven both popular and useful for the economic recovery and prosperity of entire regions, communities and households (Mills, 2005). In New Zealand, more than 90% of households purchase private residential property insurance.

The Earthquake Commission (EQC), covers homeowners for damage to land (and in some cases to dwellings) caused by landslip, storm or flood. We explore comprehensive EQC data to investigate these weather-related claims from 2000-2017 and to observe how weather-related events have translated into financial liabilities for the Crown.

METHODOLOGY

Generally, household-level private insurance information on claims is unavailable for research purposes. NZ's publicly funded insurance system therefore provides a novel and enlightening source of insurance data. For NZ, this study is the first in-depth analysis of EQC claims data for weather-related events.

Since 1980, EQC has received over half a million claims. Four percent of all claims have been classified under the "landslip/storm/flood" category, i.e. relate to weather events. This represents more than 25,000 claims paid by EQC as a consequence of weather shocks in the last 18 years. These have a total value close to NZ$ 300 million.

Further to the public insurance data, we utilise:

- extreme weather events across the country from the Historic Weather Events Catalog (NIWA, 2018a),
- neighbourhood demographic and socio-economic information from the NZ Census (StatsNZ, 2018),
- geo-spatial terrain and land cover features (LINZ, 2018), and
- aggregated private insurance payments for each weather event (ICNZ, 2018).

We used open-source QGIS software to map the main features of these datasets and merge them with the geo-located EQC claim information.

DAMAGES

Of the total number of claims that were settled, 41% record a pay-out of zero. Reasons that explain a zero pay-out include:

- the household did not have private insurance (3,785 households)
- claims referred to damages already assessed and covered (i.e. the record is a duplicate)
- the damage was outside scope (EQC's limits covered land damage to 8 meters around the covered buildings, plus the main access way to the property)
- the cost was under excess ($500 for land damages)
- the damage was assessed to be not caused by landslip/storm/flood (e.g. was pre-existing)
- the claim was made after the deadline for submitting claims had passed (the deadline to submit is 3 months after the event)

INDIVIDUAL EVENTS

This series of EQC weather-related claims shown in Figure 1 shows pay-outs by month, since 2000. There are five clear peaks in 2005, 2008, and on three occasions in 2011. There is no clear upward trend in this series.

Figure 1: **EQC weather-related claim pay-outs over time**

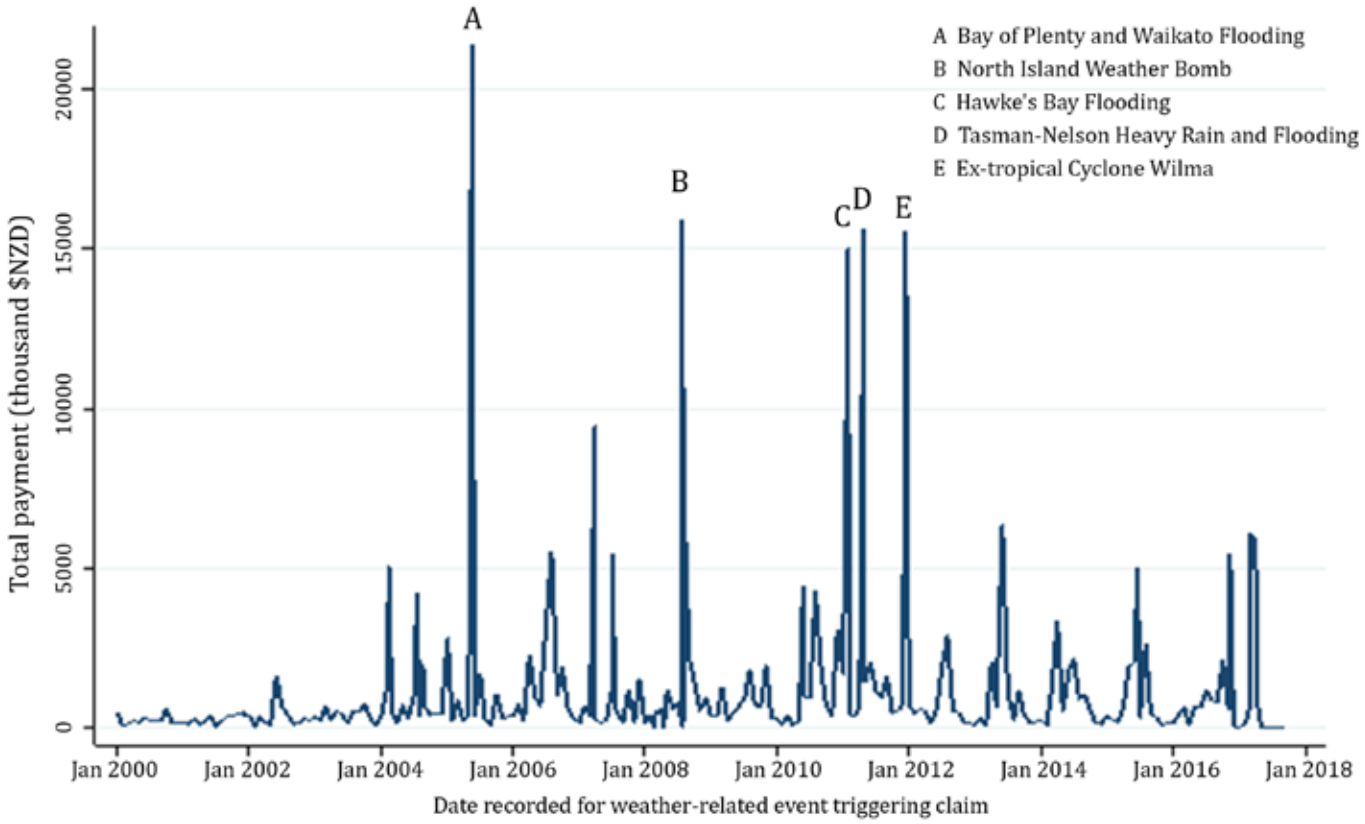
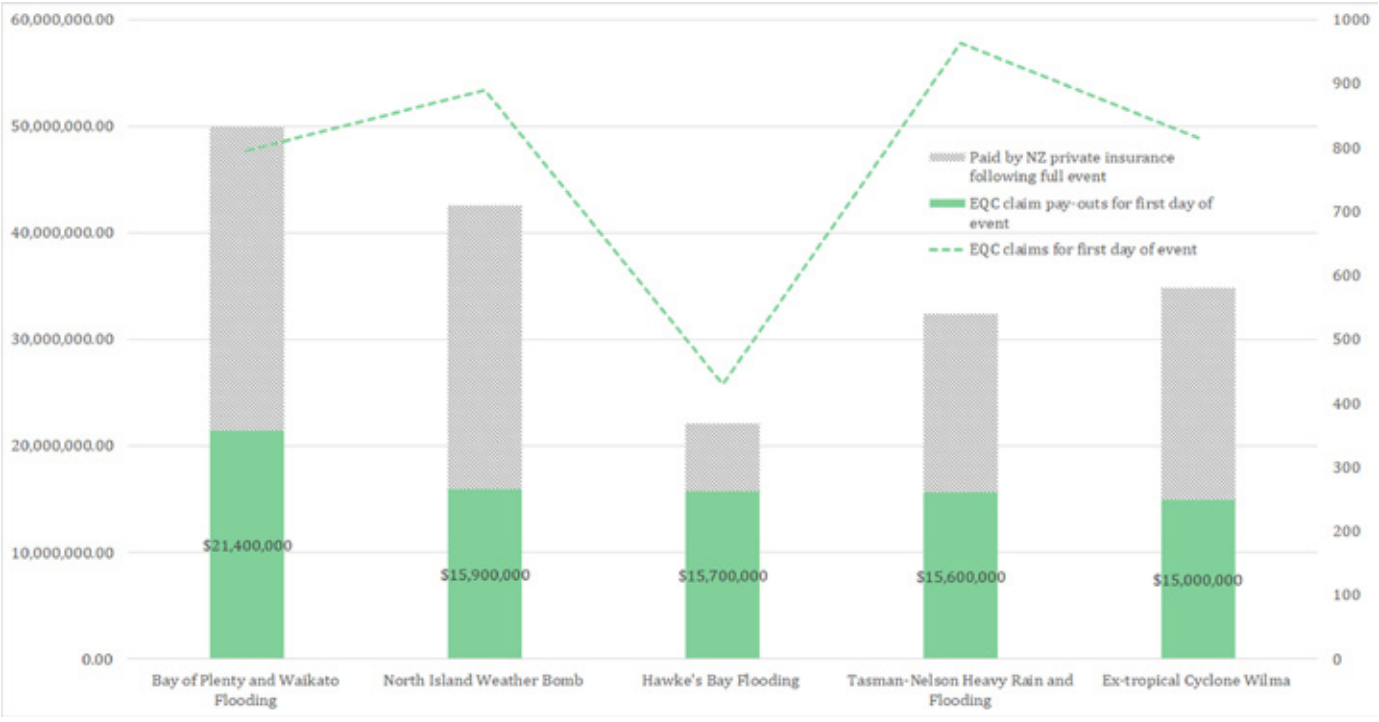


Figure 2: **Top five EQC weather-related pay-outs**

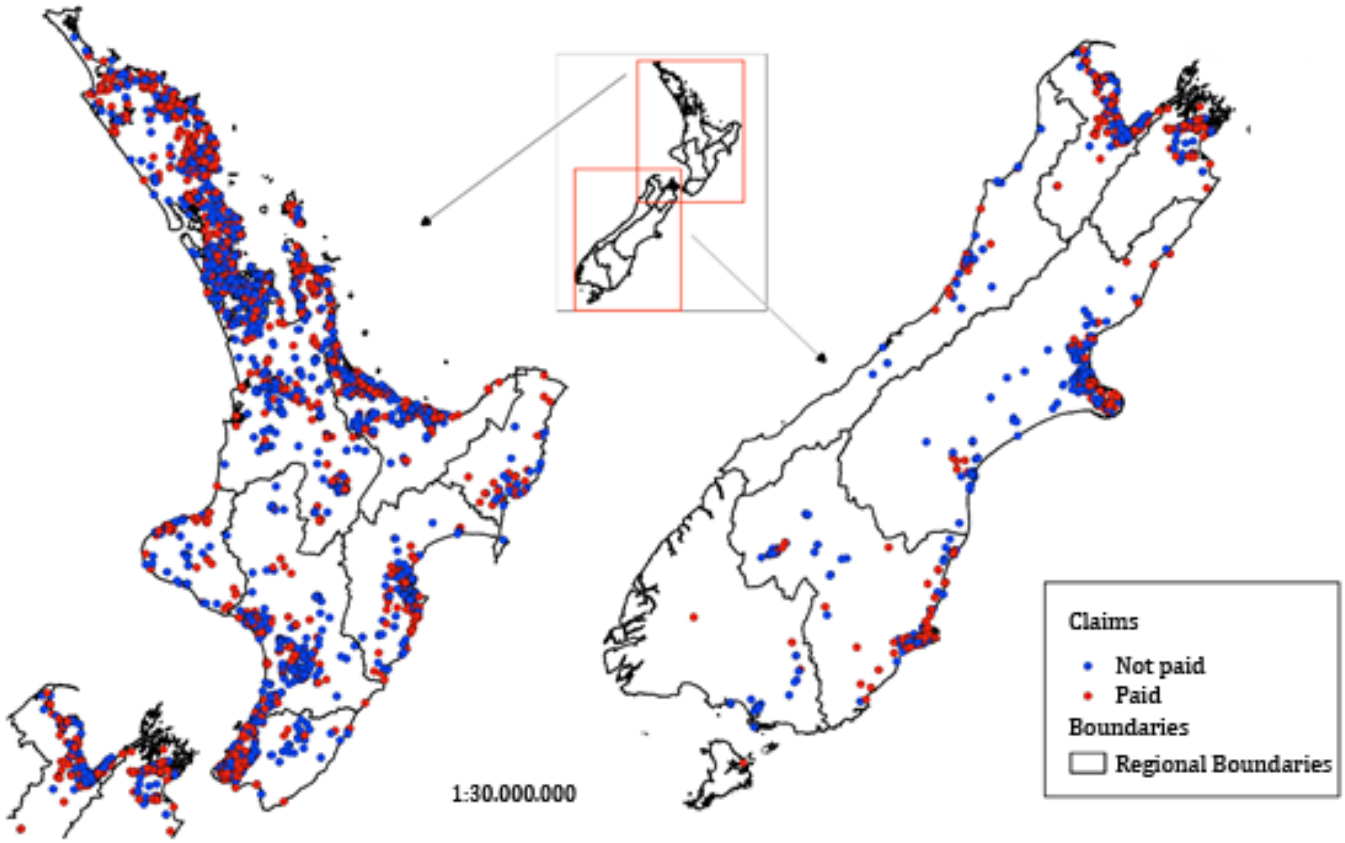


AFFECTED LOCATIONS

Northland and the Bay of Plenty are the regions with the highest proportions of people and properties affected by weather events in the North Island of New Zealand. In the South Island, the Nelson and Tasman regions are the most affected. Since 2000, there have been five extreme weather events (four of which happened in these regions), which account for around a third of the total weather-related pay-outs made by EQC.

Locations with a median income in the top forty percent of incomes tend to report more than half of the total claims and pay-outs made. This suggests that, after extreme weather events, higher-income families make more frequent use of EQC insurance and claim more payment than the average New Zealand family.

Figure 3: Map of locations of EQC-weather related claims



While the average property in NZ is approximately 11km away from the coast, the average property lodging a claim to EQC after a weather event is located only 6km away. Though quantity of claims is highly correlated with population, there is no clear correlation between claim numbers (or pay-outs) and population growth. In addition, properties on steeper land are more likely to be associated with landslip/flood/storm claims than properties on flatter land.

CONCLUSIONS

In New Zealand, properties where the owners make weather-related insurance claims through EQC are situated closer to the coast. However, claims are not necessarily associated with higher population growth areas. This can be seen in the high concentration of claims in the northern areas of both islands.

More EQC claims tend to come from locations with higher median incomes. The reasons for this increase in EQC pay-outs associated with higher income households are not yet entirely clear. They could be associated with better access to the system, higher exposure due to location preferences of various income groups, or higher damages caused by higher asset values (e.g. larger homes and larger land housing footprints).

The findings provided in this paper can also be considered in the context of discussions initiated by the Parliamentary Commissioner for the Environment, which proposes to institute an EQC-like scheme for dealing specifically with sea-level rise and flooding. It may also be useful for ongoing discussions about proposed revisions to the Earthquake Commission Act (1993) and the Insurance Law Reform Act (1985).

This paper is the first in a series. This work ultimately aims to identify the impact of the public insurance for weather events on adaptation and recovery, and to project the financial liability from climate change for the NZ Crown. This paper is only the beginning of insights about the increasing risk that current and future residential areas might face, given the high likelihood of increasing frequency and/or intensity of extreme weather events.

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