



Hedging Natural Disaster Risks: What we know and don't know in the Far East

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The Far East has long been seen to be a difficult place to model natural hazards due to the issues of languages and data availability.

In this study, a review of vulnerability, exposure and hazard information for China and the Philippines is examined from the point of view of insurance, government and publicly available information in order to understand exactly what we know and don't know.

The study has examined vulnerability functions before and after examining local non-english sources for floods, typhoons and earthquakes. Over 50 studies were found for Chinese vulnerability functions for flood, and similarly many for earthquakes as opposed to very little information in english-based journal articles. For the Philippines, this was less of a problem.

Exposure models were also examined for the purpose of developing the building exposure of both nations based on previous studies like the PhD thesis of Daniell (2014). Multiple methods and datasets were used, however data scarcity for certain parameters leads to large uncertainties in the existing datasets available, meaning large uncertainties for certain hazards.

Loss databases including CATDAT were scoured for additional information for events with a marked increase in the early part of the century as well as loss events important for normalisation. This provided new loss estimates for past disasters which improve the information available for financial decision-making. A review of multiple-hazard data was also undertaken (see EGU2018-12606).

Finally, hazard information was also reviewed for each peril sourcing the newest maps and state-of-the-art of stochastic and probabilistic methodologies, leading to also an increase in information.

The combined approach of local and international sources, as well as a dedicated risk-data driven approach led to a dataset with large improvements in uncertainties across the two countries, leading to the possibility of a potential future mechanism for risk hedging, or other potential applications.