



The Role of Geo-science in Natural Hazard Risk Management:

Evidence from web-based experiments

B. Brookshire(1), G. Ganderton(1), B. Bernknopf (2)

1. University of New Mexico, Department of Economics, Albuquerque, New Mexico
(brookshi@unm.edu, gandini@unm.edu/ Fax 505-277-9445)
2. Center for Science Western Mapping, Menlo Park, CA (rbern@usgs.gov / Fax
650-329-4710)

We investigate the value of geo-science information in helping manage natural hazard type risks. A web-based experiment is used to present subjects with a low-risk, high-loss hazard that they can insure against, with the aid of two levels of geographic risk-related maps. Subjects choose to buy the geo-science information separately from the decision to insure against the hazard in a series of repeated exposures. The web-based mechanism provides subjects with considerable textual and graphical information, and time to process it. Over a period of three months, almost 400 subjects participated in on-line experiments that generated approximately 22,000 usable data points for the empirical analysis. In the design of the experiment, we modeled the decisions: (1) to purchase a detailed map giving subjects more information regarding the distribution of losses from a hazard, and (2) to purchase insurance to indemnify them from any losses should they occur. Based on this design, we find strong evidence in support of the expected utility theory. We also find interactions between the decision to become better informed and the decision to insure. The results suggest that subjects recognize the benefits of greater geo-science information, that they take advantage of it, but are sensitive to its cost. When subjects use the more detailed information, they are more likely to purchase insurance when it offers a net benefit.