

Statistical analysis of high impact climate projections and their economic consequences

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Background and Motivation

There are two main factors that motivate this project. One, climate change is intrinsically uncertain. Two, people are not perfectly rational. This combination sets the stage for a framework in which bounded rational individuals must make decisions in a hazardous world. These limitations are emphasized when facing low-probability and high-consequence climatic events. Individuals stray from economic predictions by making choices that systematically deviate from the benchmark economic models. These deviations will be examined through the lens of behavioral economics in order to better understand and advice climate adaptation decision-makers.

Conceptual model/theory

How people make decisions involving risk and uncertainty and how economists think people should make these decisions are often quite different. The project aims to align this disparity by drawing from prospect theory, present bias, inequity aversion and other theories that have undergone the neo-classical repair shop. This will be applied to a framework where choice under climate extremes is a dynamic game, where there is incomplete information about uncertainties and risks. The decision-maker's opponent is the disinterested, non-strategic and stochastic nature. The decision-maker follows a strategy that specifies a complete contingency plan or decision rule, which asserts how he will act in every possible condition in which he might be called upon to move. The framework facilitates the study of choice under uncertainty. The observations of these choices can improve the understanding of how cognitive biases and other-regarding preferences affect the way individuals perceive, store, process and retrieve information on low probability-high consequence climatic events. This understanding can in turn facilitate the construction of a decision tool that can account for such behavioral anomalies.

Method

Field research will play a central role in the project. This may be in the form of field survey and natural or framed field experiments. A field survey would enable the determination of divergences between different subgroups in catastrophe prone areas. Natural field experiments combines the most attractive elements of the laboratory and naturally occurring data - randomization and realism. Framed field experiments would also draw from the population of interest and would have a field context in the commodity, task and information set. Irrespective of the chosen field research method, it will subsequently be tested in the laboratory. This will be done to eliminate alternatives and to refine concepts, such as identifying causal relationships through controlled manipulation of relevant variables.



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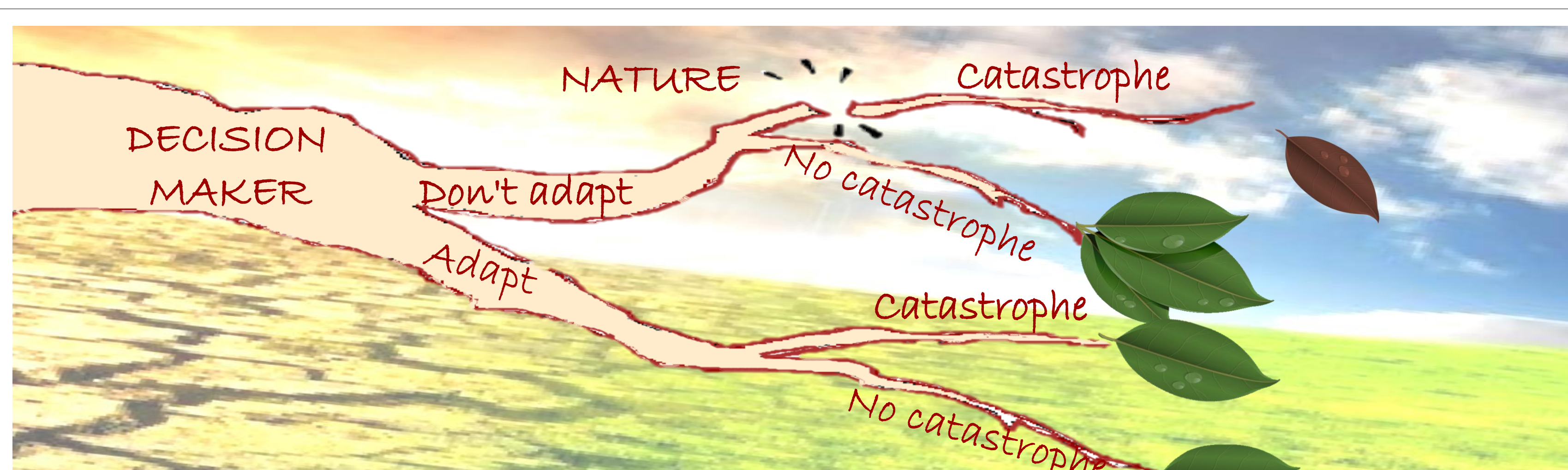


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December 15th 2013 to December 15th 2016



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