

CLIMATE CHANGE: INSURING RISK (*AND CHANGES IN RISK?*)

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Abstract

The prospect of future climate change poses some interesting challenges for insurance. The least of these is that insurers and policyholders will find it difficult to estimate future expected losses from shifting loss distributions. Perhaps the most important challenge is that the shifting loss distributions introduce a new type of risk; the risk that risk itself may change. This will manifest itself in forms such as future premium risk and changes in the prices of houses and other fixed assets. We model this by treating climate change as a compound lottery in which nature (or perhaps mankind through lack of pollution control) selects the distribution for each future year (Stage 1 risk) and then, on a second draw, actual losses are selected from the chosen Stage 1 distribution to reveal the Stage 2 risk. Because Stage 1 risk will be anticipated in the prices of current fixed assets changes in this risk lead to wealth transfers - thus there may be a demand to “insure” this risk. We examine the challenges to insurance markets when risk follows a compound lottery, including the particular forms of moral hazard stemming from the Stage 1 risk, and the forced assumption of this risk by insurers through wealth transferring regulation and/or litigation.