



Cost Risk Analysis: Dynamically Consistent Decision-Making under Climate Targets

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The climate problem poses a fundamental challenge not only to society, but also to climate economics. Up to date it remains debated what could be called a ‘rational response’ in view of deep uncertainty on global warming impacts and non-negligible mitigation costs.

The two most prominent schools of thought within climate economics that we cluster around cost benefit analysis (CBA) and temperature target-based cost effectiveness analysis (CEA) both have their pros and cons in adequately representing society’s preferences. The latest IPCC report as of 2014 could not come to a conclusion which method to use. We argue that given the present stock of consolidated knowledge on global warming impacts, a hybrid decision-analytic tool that we call ‘cost risk analysis’ (CRA) might be an attractive intermediate alternative that would harvest most ‘pros’ of both methods. It combines dynamic consistency of CBA under uncertainty and learning with the target-based precautionary attitude of CEA.

Here we summarize the structure, the key assumptions of that method and review three applications, assuming the 2°C target as prescribed: (i) the expected value of perfect climate information, (ii) the effect of delayed participation on mitigation cost in contrast to CEA, and (iii) the optimal mix of the climate engineering option ‘solar radiation management’ and mitigation when taking one risk category into account.