Understanding Risks and Uncertainties in Energy and Climate Policy

Multidisciplinary Methods and Tools for a Low Carbon Society

- Open Access
- Presents a toolbox with a diverse range of methods for devising energy and climate policies
- Focuses on methods that are sufficiently robust and adaptive to mitigate risks
- Investigates climate change mitigation policies’ implications for various sectors

This book is open access under a CC BY 4.0 license. The book analyzes and seeks to consolidate the use of robust quantitative tools and qualitative methods for the design and assessment of energy and climate policies. In particular, it examines energy and climate policy performance and associated risks, as well as public acceptance and portfolio analysis in climate policy, and presents methods for evaluating the costs and benefits of flexible policy implementation as well as new framings for business and market actors. In turn, it discusses the development of alternative policy pathways and the identification of optimal switching points, drawing on concrete examples to do so. Lastly, it discusses climate change mitigation policies’ implications for the agricultural, food, building, transportation, service and manufacturing sectors.

Order online at springer.com/booksellers
Springer Nature Customer Service Center GmbH
Customer Service
Tiergartenstrasse 15-17
69121 Heidelberg
Germany
T: +49 (0)6221 345-4301
row-booksellers@springernature.com

Prices and other details are subject to change without notice. All errors and omissions excepted. Americans: Tax will be added where applicable. Canadian residents please add PST, QST or GST. Please add $5.00 for shipping one book and $1.00 for each additional book. Outside the US and Canada add $10.00 for first book, $5.00 for each additional book. If an order cannot be fulfilled within 90 days, payment will be refunded upon request. Prices are payable in US currency or its equivalent.
Hypothesis for a Risk Cost of Carbon: Revising the Externalities and Ethics of Climate Change

Delton B. Chen¹, Joel van der Beek² and Jonathan Cloud¹

1 Center for Regenerative Community Solutions (501c3 Non-Profit), NJ, USA
Email: deltonchen@crcsolutions.org
2 EconoVision & EconoTalent, Doorn (Utrecht), The Netherlands

Abstract Standard market-based policies for addressing climate change mostly aim to internalize the Social Cost of Carbon (SCC) into the economy with either carbon taxes or cap-and-trade schemes. Standard policies are failing to manage the systemic risk of dangerous-to-catastrophic climate change for a variety of reasons. In this chapter we clarify and expand on a market hypothesis that argues for a second externalized cost of carbon, called the Risk Cost of Carbon (RCC), as the appropriate solution to this risk problem.

The combination of the SCC and RCC creates a new paradigm of complementary market pricing for the dual objectives of maximizing economic welfare and managing systemic risk, respectively. Introducing the RCC addresses the problem of how to decouple Gross World Product (GWP) from carbon emissions, and how to solve the paradox of time discounting under systemic risk. Subsequently the RCC could have major implications for climate change economics, public policy, and sustainability theory. The hypothesis is novel by taking into consideration both the entropy and the mass of the carbon budget.

The RCC is technically defined as the cost of imposing risk tolerances (%) on climate mitigation objectives, and it has units of US$ per tonne of carbon dioxide equivalent (CO₂-e) mitigated. The RCC is internalized with a ‘global carbon reward’ that manages a tradeoff between market efficiency and climate certainty. The carbon reward is issued as a parallel currency, and with an exchange rate that is managed by central banks over a rolling 100-year planning horizon. A key recommendation is to test the hypothesis with experiments.

JEL Codes E5, F5, H23, I3, O19, O2, O44, P2, Q01, Q43, Q5

Keywords Climate change, Systemic risk, Risk management, Carbon price, biophysical, thermodynamics, entropy, Central bank, Monetary policy, Parallel currency, macroprudential.

Acknowledgements

The work carried out by the authors received no financial support from industry or government. The Global 4C Risk Mitigation policy is hosted by the Center for Regenerative Community Solutions 501(c)(3) (non-profit), NJ 07920, USA.

1. Introduction

The topic of this chapter is the theoretical plausibility of a second externalized cost of anthropogenic greenhouse gas (GHG) emissions, called the Risk Cost of Carbon (RCC), whereby the first externalized cost is already established as the Social Cost of Carbon (SCC). Chen, van der Beek and Cloud (2017) originally postulated the existence of the RCC, which they describe as the cost of managing climate risk with positive incentives guided by cost-effectiveness analysis. The possible existence of the RCC