ETH zürich

Governance of SG deployment under conditions of uncertainty – Response

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"Rational" Decision-Making

How much of what SG will produce is known, not yet known, or simply unknowable?

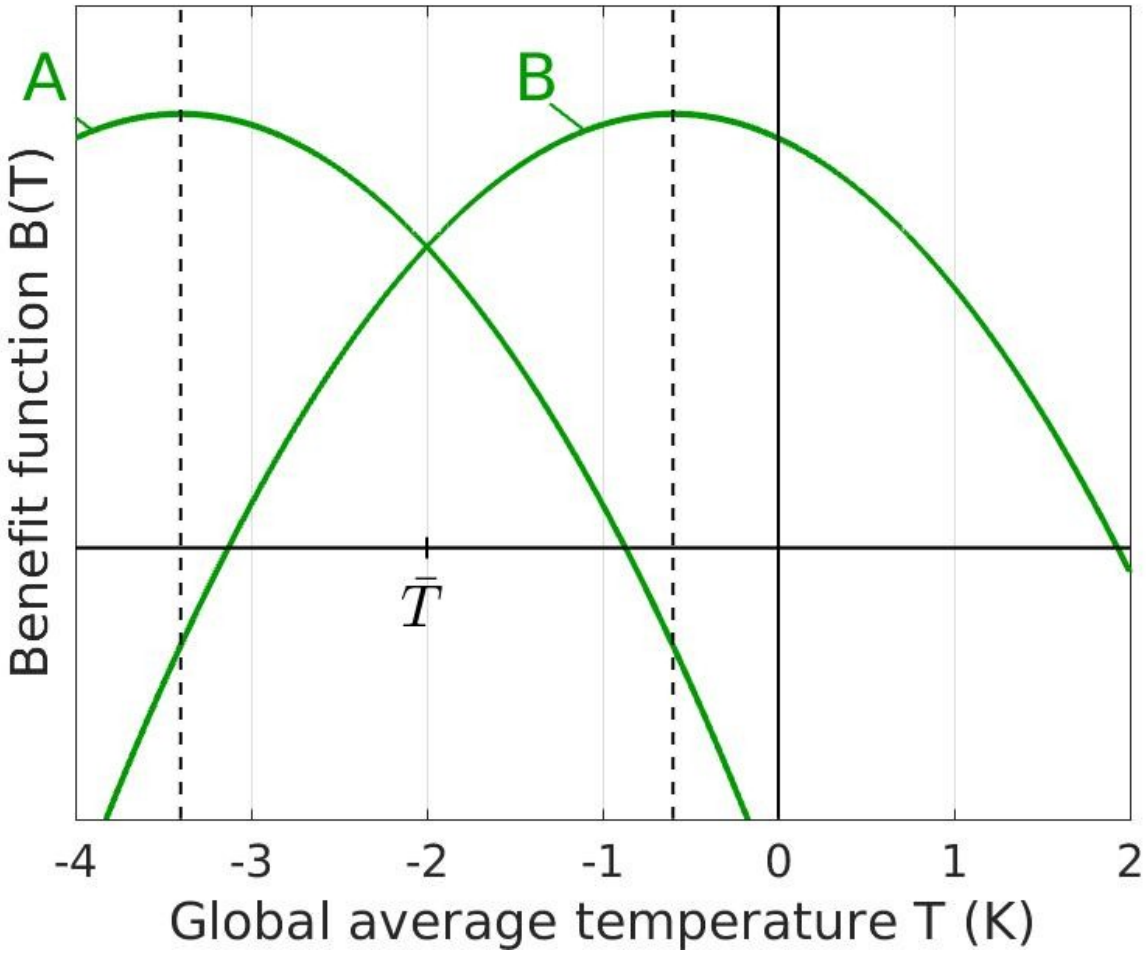
- Do not ignore what is not (yet) quantifiable
- But how to deal with uncertainty/ignorance?
- Fierce debate on two layers
  - Regulatory practice. Precautionary Principle?
  - Decision Theory. Non-SEU?
- Possibility of **surprises**. "Awareness of unawareness"
  - Karni & Vierø (2013, AER); Grant & Quiggin (2013, JEBO); Karni and Vierø (2017, JET)
  - Note: Surprises not necessarily bad
- Decision-theoretic underpinning is not our biggest problem

Comments on Model

- Topic: optimal experimentation when damages uncertain
  - “Look before you leap”
  - “watch closely as you inch forward”
- Related literature on learning and experimentation in EnvEcon and monetary policy
  - Epstein (1980); Gollier et al. (2000); Wieland (2000); Moscarini & Smith (2001); Lange & Treich (2008); Lemoine & Traeger (2014); Cogley et al. (2008); Ahlvik & Iho (forthcoming)
- Bayesian updating, recursive structure
- Possible extensions to address ignorance
  - Deep uncertainty: robust control etc.
  - Ignorance: Include possibility of surprise

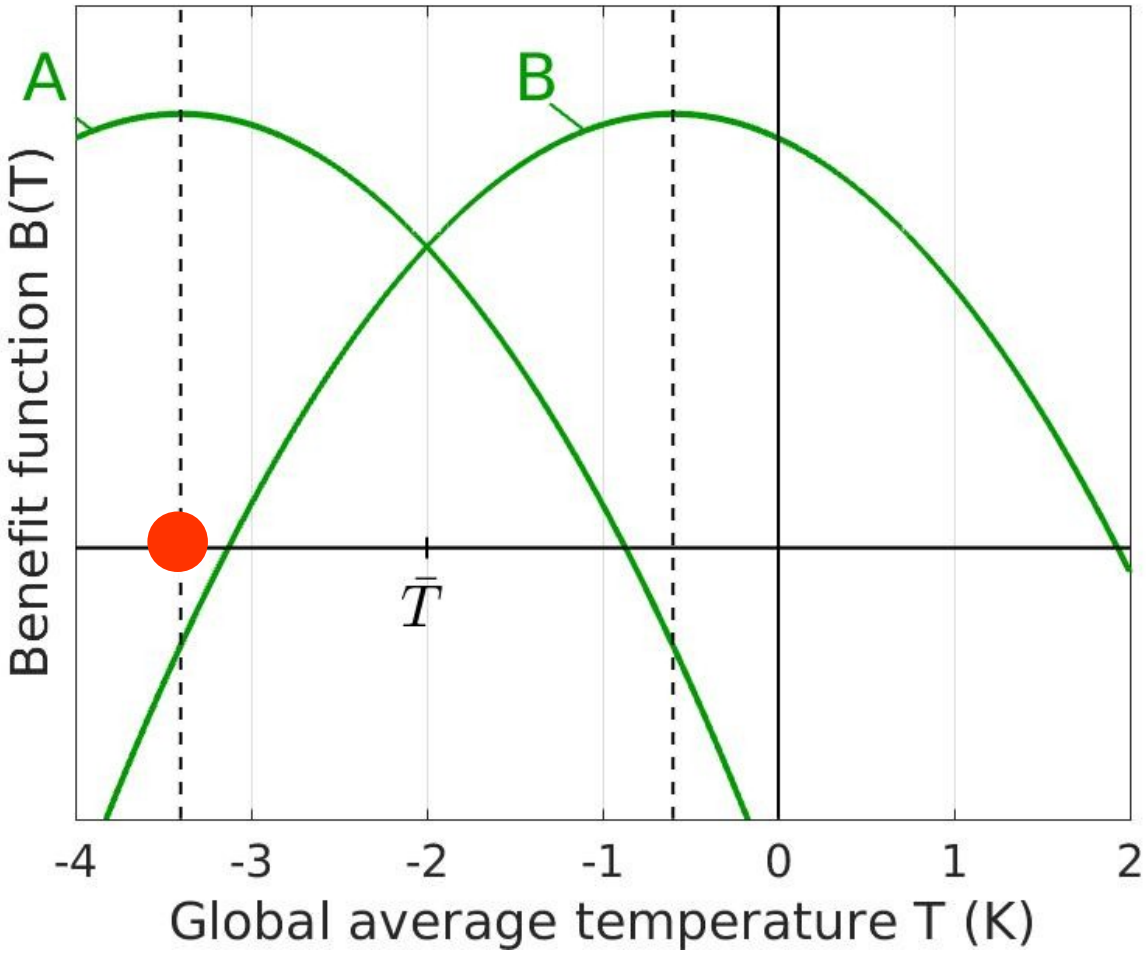
Free-driver setting

Different bliss points



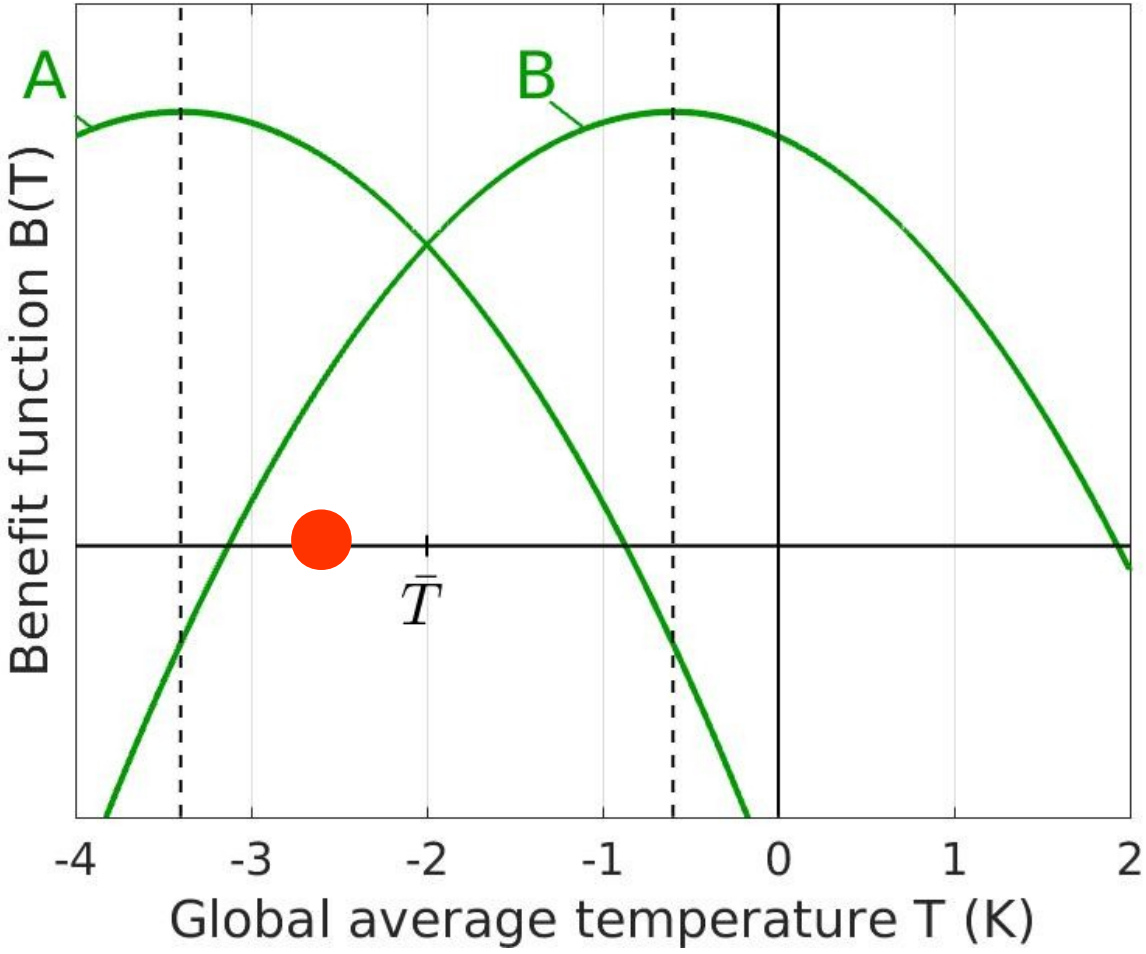
Free-driver setting

Free-driver outcome w/o deployment costs, w/o SG damages



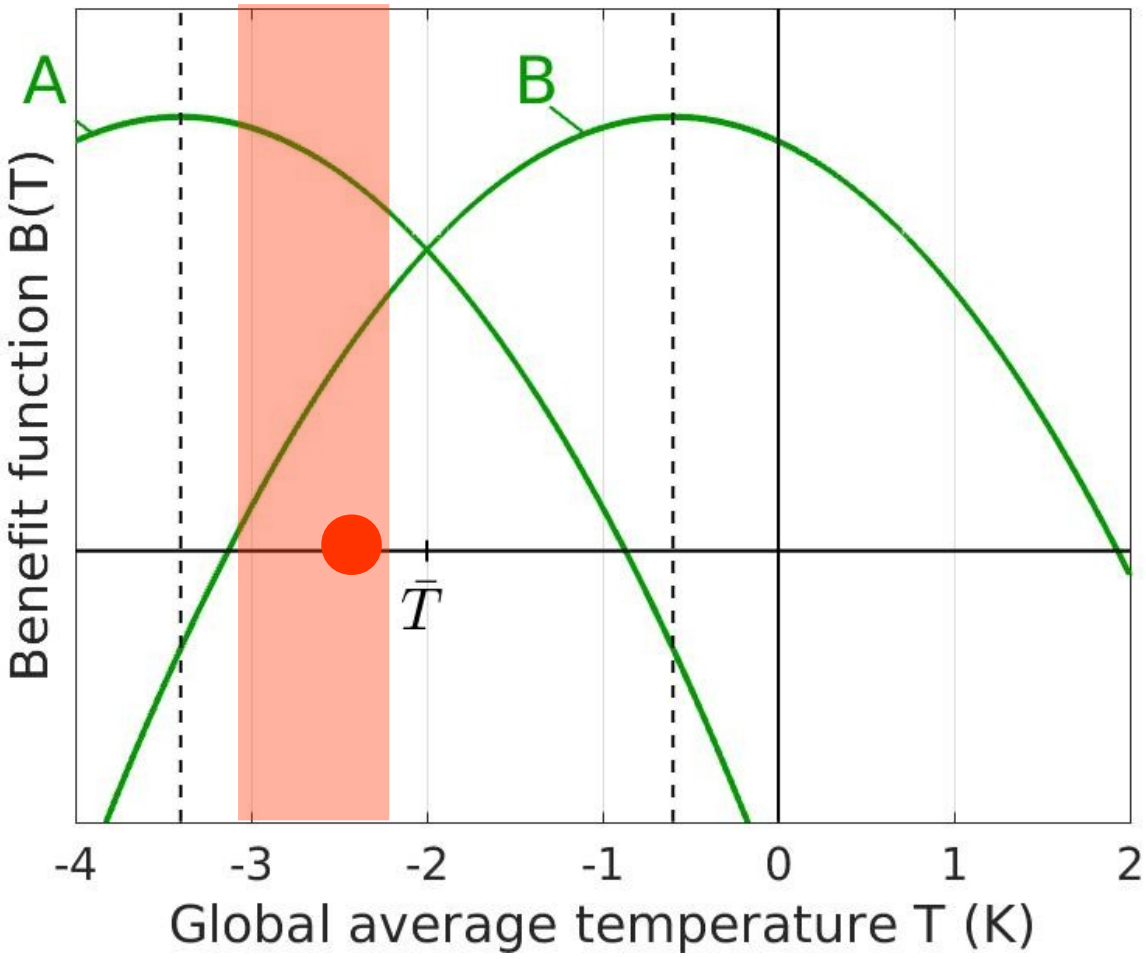
Free-driver setting

SG damages: B reduces SG



Free-driver setting

Uncertain SG damages: B has incentive to increase uncertainty.
Uncertainty is socially beneficial



Other strategic aspects under uncertainty

- Veil of ignorance might be helpful for willingness to cooperate
  - “normative value of ignorance”
- “Cooperation is more difficult to achieve when the likely winners and losers are known when negotiation takes place” (Na & Shin, 1998)