Climate Change Ethics: A survey-based study of public attitudes towards risk & inequality

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11 April 2007

'Climate Change – responsibility of generations'

Prague, Czech Republic

Acknowledgements

- Håkon Sælen
  MSc Environmental Change & Management
- Dr. Cameron Hepburn
  Environmental Economist,
  Environmental Change Institute, Oxford
- Dr. Giles Atkinson
  - Lecturer in Environmental Policy, London School of Economics
- Dr. Simon Dietz
  Lecturer in Environmental Policy, London School of Economics

Outline

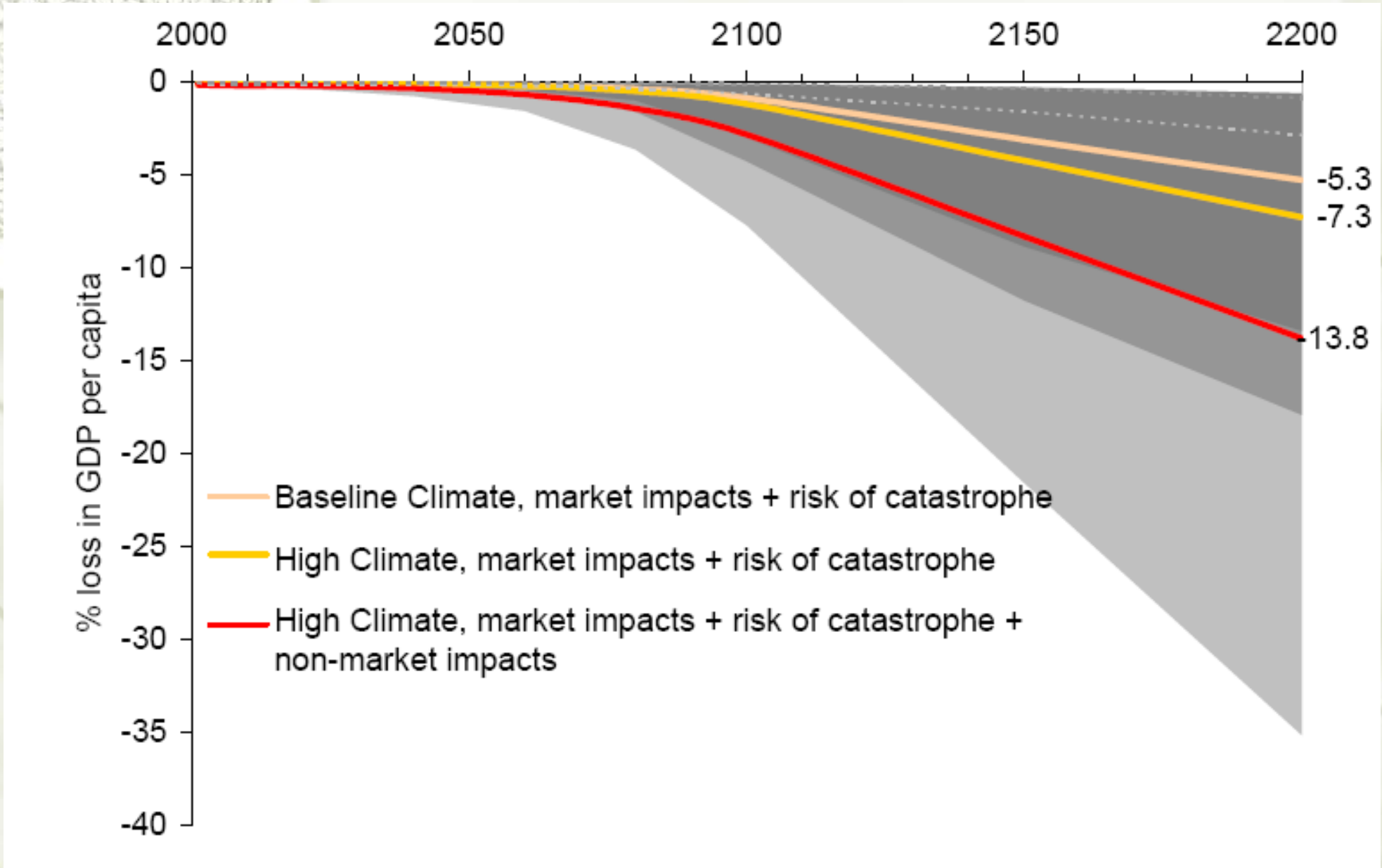
- Stern Review
- Discounting: Valuation of η / Current Practices
- Research Proposal / Aims
- Basic background theory
- Example research questions
- Methodology
- Projected outcomes
- Your feedback

Stern Headlines

*"If we don't act, the overall costs and risks of climate change will be **equivalent to losing at least 5%** of global GDP each year, **now and forever**. If a wider range of risks and impacts is taken into account, the estimates of damage could rise to **20%** of GDP or more.*

*In contrast, the costs of action – reducing greenhouse gas emissions **to avoid the worst impacts** of climate change – can be limited to around **1%** of global GDP each year."*

Losses Through Time



Discounting the Future

- $\rho = \eta * g + \delta$
- 3 relevant parameters:
  - 1. g: growth rate of consumption
  - 2. (delta – δ): Rate of pure time preference
  - 3. (eta – η): Intertemporal elasticity of substitution or elasticity of the marginal utility of consumption.
- Because people are expected to be richer in the future, their consumption is given less weight.

Discounting: Analysis Impacts

Parameter (based on Value judgments)	Variation	Change % Consumption Damages
Increasing the elasticity of marginal utility of consumption, η (inequality and risk aversion)	1-2	-7
Increasing the pure rate of time preference, δ	0.1-1.5%	-8

The Central Parameter: η

- The elasticity of marginal utility with respect to consumption.
- The percentage rate at which marginal utility falls for every per cent increase in consumption.
- Isoelastic utility function: η is constant.
- Plays three different roles in the EU framework. Is it being overworked?

Existing estimates of eta

Type of evidence	Data	Value for η	Source
Revealed individual preferences	Lifetime consumption behaviour (UK)	0.83	Blundell et al (1994)
Revealed individual preferences	Insurance	2 or slightly larger	Dasgupta (1998) Friend et. al. (1975)
Revealed social values	Income tax (UK)	1.28/1.41	Cowell and Gardiner (1999)
Revealed social values	Income tax (OECD)	1.4	Evans (2005)
Stated preferences	Leaky bucket experiment	0.2-0.8	Amiel et al (1999)

Current practices

- Same value used to evaluating risk, inequality within a generation, & inequality between generations.
- HM Treasury Green Book & the Stern Review both employ, $\eta=1$.
- *"Key observations show that the standard model is not rich enough to separate key ethical dimensions relevant to climate change…in particular, utility functions that separate risk from inequality would be a preferable starting point."* *(Beckerman & Hepburn 2007 World Economics forthcoming)*

Research proposal

- Value judgements determine the approach to risk, inequality and intertemporal substitution.
- It is inappropriate to make these ethical judgments simply by reference to observed market behaviour and political practices or by theoretical ethical arguments in isolation.
- Carry out a survey using choice experiments to investigate public attitudes on the value for η.

Research Aims

- Do public attitudes provide support for disentangling the three components of η?
- What absolute values for the three components best reflect public attitudes?
- Should intragenerational inequality be separated into inequality within a country and inequality between countries?
- What implications do these results have for the economic analysis of climate change?

Basic Theory

- Rawls:
  - Original position
  - Veil of ignorance
  - Maximin rule
- Bernoulli (1728): individuals consider more than just expected value.
- Von Neuman & Morgenstern (1944): utility function ranks outcome preferences outcomes by utility values, but also measures strength of preferences over outcomes.

Risk Perspectives

RESOURCES	DOMINANT SECTOR	GENERALISED MEDIUM	MOTIVATOR
Money	**Economy**	Transfer of capital	Economic incentives
Power	**Politics**	Force, authority	Punishment, compliance
Social influence	**Social system (gov't.)**	Reputation, reward	Trust, prestige
Value commitment	**Culture**	Persuasion, meaning	Solidarity, cultural utility
Evidence	**Sciences**	Methodology, rhetoric	Expected impacts

Risk: Question Example

- 1. ”Are you generally a person who is fully prepared to take risks or do you try to avoid risk-taking?" (scale from 0 to 10)

- 2. People tend to behave differently in different situations; please rate (scale 0-10) your willingness to take risks in the following situations:
  - Investing / finances
  - On the job
  - with your health
  - during leisure and sports activities

Risk: Question Example

- Imagine that you are endowed with 100,000£; every member of society is also endowed with a monetary sum that matches this 100,000£ in utility. You are faced with the following financial offer: 50/50 chance to either double or half the amount invested within the next year. What fraction of the 100,000£ would you invest?
  - a. 0
  - b. 20,000£
  - c. 40,000£
  - d. 80,000£
  - e. 100,000£

Inequality: Question Example

- Okun's leaky bucket:
- The per capita wealth in generation A is £50,000 and the per capita wealth in generation B is £10,000. Suppose that we are considering a policy that would reduce per capita wealth in generation A by £1 and increase per capita wealth in generation B by £x. What is the minimum value x can take before the policy ceases to be desirable?

Inequality & Risk Aversion: Question Example

- Asking respondents to make explicit trade-offs between the three components of η.
  - a) High intragenerational inequality & low intergenerational inequality
  - b) Low intragenerational inequality & high intergenerational equality.
  - c) similarly, risk vs. inequality.
- Can determine which component people are most averse to. Relative, but not absolute values for η.
- Can be combined with any of the former options.

Survey Methodology

- Market Stall Approach
  - Samples of 8-10 respondents
  - Two one-hour sessions one week apart.
  - Respondents are given information and time to consider their responses.
- On-line survey; software set up by Red Redemption Inc.

Points to consider

- Framing Questions
  - Loss aversion (damages vs. mitigation costs)
    - Endowment effect
      - Status quo effect
  - Isolation effect
  - Innumeracy

- Account for uncertainty reduction?
  (from intertemporal learning etc)

- Substitutability within the utility framework for environmental goods (Gerlagh et al. 2001)

Projected Outcomes

- Determine relative/absolute values for Eta from the survey responses.
- Incorporate results into the mainstream economic analysis of climate change.

Děkuju / Thank You

- I appreciate your time & attention.
- Now, I'm eager to hear your views!
- Please be in touch: jfhelgeson@gmail.com