Climate Change, Part II: Risk

PPE Capstone

Cost-Benefit Analysis

In determining what we ought to do in response to climate change, we must work out which course of action would be best in balance — for each policy, we need to weigh its costs and benefits. Doing so involves addressing several philosophical questions:

In Economics, "cost-benefit analysis" refers to a particular way of doing this, which makes certain (controversial) assumptions. We will be using the term more broadly here.

1. **What is ultimately good?** Among things that are good, some are *instrumentally* good and others are *non-instrumentally* good. What sorts of things are non-instrumentally good?
   (a) *The Loci of Value.* Surely, the wellbeing of people matter. But is that it? What about animals? Species? Ecosystems? Landscapes?
   (b) *Accounts of Well-being.* What makes one's life go best? Does it all boil down to pleasurable experiences (Hedonism)? Or to having your preferences satisfied (Preference-satisfaction)? Or are there some things—knowledge, friendship, etc.—that make you better-off whether you want them or not (Objective list)?
2. **How should well-being be aggregated?** How do the facts about how well-off everyone is determine how good the world is overall?
   (a) *Utilitarianism.* Take the total sum of well-being.
   (b) *Prioritarianism.* Weight the well-being of the worse-off more heavily than the well-being of the better-off.
3. **How should we address uncertainty?** We don't know how bad things might get. We don't know for certain what the consequences of various policy proposals might be.

Does the distribution of well-being matter? How should we weigh the interests of presently existing people against the interests of future people?

Future Discounting

With climate policies, the costs and benefits are distributed in various different ways throughout time. How do economists (typically) evaluate these kind of policies?

And, more importantly, how *should* they?

Economist's Procedure for Evaluating Policy:

1. Determine the value of the policy at each particular date (e.g., in 2019, 2020, 2021, ...), by aggregating the costs and benefits at that time.
2. Determine the overall assessment of the policy by aggregating these values across time (applying a discount rate).

This discount rate really matters. It makes a huge difference in evaluating policies because the discount *compounds*.

Example: 1,000 kilos of rice 100 years from now is worth the same as __ kilos today

1.4%	...	247
5.5%	...	4

The Stern Review discounts at 1.4%. Nordhaus' *A Question of Balance* discounts at 5.5%.

What determines the discount rate? Here are two schools of thought:

1. *Democracy.* We should base the discount rate on the market interest rate. In a democracy, we should evaluate policies using the values derived from the people's own values. These values are reflected in the money market.
2. *Ethical Principles.* There are various ethical principles that could justify the discount rate.
   (a) Diminishing marginal benefit of commodities.
   (b) Prioritarianism (diminishing marginal value of well-being).
   (c) Pure Temporal Partiality.

Weighing the Risks of Climate Change

Predictions of the future of climate change are uncertain. How should we take that into account when evaluating policies? How should we respond to uncertainty?

George W. Bush (circa 2000) view: "There's a lot of different opinions and before we react I think it's best to have the full accounting, full understanding of what's taking place."

Principle 15 of the Rio Declaration of 1993: "Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation."

The World Charter for Nature (General Assembly of the UN in 1982): "Activities which are likely to pose a significant risk to nature shall be preceded by an exhaustive examination; their proponents shall demonstrate that expected benefits outweigh potential damage to nature, where potential adverse effects are not fully understood, the activities should not proceed."

1. *Do Nothing.* A decision based on full information is better than one that is not. So if we don't yet have all the information, we should hold off on making any drastic decisions.
2. *Weak Precautionary Principle.* Lack of certainty about environmental risk is *not* a reason not to take precautionary measures.
3. *Medium-Strength Precautionary Principle.* If we cannot rule out the possibility of serious harm, we must take serious measures to prevent it. Lack of certainty is a reason to take precautionary measures.
4. *Very Strong Precautionary Principle.* We should not adopt a policy unless we are certain that it will be beneficial.
5. *Maximize the Expectation of Value.* Consider how good and how bad all the various consequences of a policy might be, weight these values by their probabilities. Add them up. [Broome's View]
6. *Future Risk-Avoidance Principle.* "If we are making a decision whose largest effects concern a large group of future individuals, then we should make a very risk-avoidant choice: a choice which weights the worse consequences proportionally much more heavily than the better consequences." [Buchak's view]

Suppose we have three policies: (1) We carry on with the status quo; (2) We take extreme preventative measures; (3) We invest heavily in mitigating the fallout from climate change (e.g., building seawalls). What should we do?