

The Economics of Climate Change: Repetition and mock exam

10th of December 2014

Please consider the following questions as preparation for the lecture on 10th of December where we will discuss solutions in class.

1. Concepts

- In economics, what do we mean by "externality"?
- What is a public good?
- Explain whether investment in greenhouse gas abatement is (or is not) a public good.

2. The economic incentives behind pollution abatement

Assume that there are two polluters where both can either choose a strategy to "abate" or "pollute". The matrix form of this game is given below:

(A's Payoff, B's Payoff)	Pollute	Abate
Pollute	(0,0)	(9,-1)
Abate	(4,4)	(5,1)

- Find the Nash Equilibrium (equilibria).

Now assume that the payoff matrix net utilities change so that:

(A's Payoff, B's Payoff)	Pollute	Abate
Pollute	(3,3)	(12,2)
Abate	(2,12)	(11,11)

- Find the Nash Equilibrium (equilibria).
- Is this an example of a Prisoner's Dilemma? If so why?, if not, why not?
- In your view, which case (part (a) or (c)) represents the problem of climate change more accurately? Briefly state why.

3. Optimal instrument choice

- With relatively flat marginal damages and steeper marginal abatement cost curves, is a price or a quantity regime preferable in the context of an environmental problem?
- Would hence a harmonized global carbon tax be preferable to a global emissions trading system? Please, consider also issues of enforcement.
- Now let us consider a country that has implemented an emissions trading system. What arguments can support the introduction of an additional subsidy on research and development (R&D) in the field of abatement technologies?

4. Economics of the Clean Development Mechanism

Carbon offsets, such as generated by the Clean Development Mechanism, are often disputed as an instrument for effective climate policy.

Is Switzerland's decision to restrict the use of CDM certificates in the years to come economically sound? Discuss advantages and disadvantages from an economic perspective.

5. Voluntary approaches

Now consider corporate voluntary action against climate change, such as the initiative of the Swiss oil importing industry (Climate Cent Foundation, KliK) or the Carbon Disclosure Project:

- a) What are the two main motivations for companies to engage in voluntary measures for climate change mitigation?
- b) Under what circumstances are voluntary measures of private companies preferable to mandatory regulation?
- c) Why do economists still argue for mandatory regulation?