

ECONOMICS OF CLIMATIC CHANGE, ECON 347, Winter 2021

R.D. CAIRNS

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This is a course in economics, not in the cause of climate change or in science. I am not an expert in the science. My treatment of the science will be cursory. I am going to begin with an assumption that there is a problem of emissions of greenhouse gases, CO₂ in particular. The problem is an *economic problem*, of decisions taken by individuals and groups. I invite you “to think like an economist” in your thinking about the economic features of the problem and proposals to solve it.

Economic thinking is the consistent way of making evaluations that concern different individuals and different generations. Economics endeavours, quite imperfectly, to be holistic. The analysis is complicated and uses tools from many branches of the discipline. Climatic change has been described as the greatest externality humanity has ever faced. In economics, externality is primarily an environmental problem and fundamentally the course is one in Environmental Economics...and then some.

TOPICS

1. The systematic way to evaluate policy is through cost-benefit analysis. A response to climate change is a policy, one among several possibilities. The basics of cost-benefit analysis are presented. A major part of the analysis is discounting, which is a topic within the topic.
2. Discounting. Climate change and the policy response is not a matter of a few months; it involves the future of humanity over many, many generations, notionally to “infinity”. Evaluations of policies have to take into account all who are affected. The interest or discount rate is an overriding issue. The interest (discount) rate is used to relate flows and stocks (capital goods). Understanding the relationship requires having a facility in manipulating the formula for net present value.
3. The fishery. The fishery is the concrete prototype for Environmental or Ecological Economics because the effects of externalities (of ill-defined property rights) in a fishery have analogies in many other types of environmental problems. The externalities are studied in simplified models and the implications for corrective policies are discussed.
4. Non-renewable resources. Fossil fuels are major resources and provide much of the energy, as well as the emissions, which must be traded off in transition to a “low-carbon future”. The allocations usually studied are in abstract markets and obey a condition called Hotelling’s rule. Thinking in these terms can be

- misleading. Two misleading features of climate policy, the green paradox and the stranding of assets, are studied in the context of investment in fossil resources.
5. The forest. Historically the forest provided the foundation for capital theory and dynamic economics. The fact that rotations in a plantation forest recur through time makes the analysis subtle. A forest can also provide environmental benefits during a rotation and their role is considered with reference to a classic cost-benefit study that includes a consideration of climate effects among the benefits of planting a forest.
 6. Policy. An important distinction in economic policy for the environment, including climate change, is summarized in the choice of “prices vs. quantities”, or “taxes vs. cap & trade”.

TEXTBOOK:

In my lectures I do not follow a textbook. There is no prescribed textbook for the course. It is important that you attend lectures and consult the reading list (in a separate file).

EVALUATION

Evaluation timing and methods are subject to change in circumstances outside the university's control. Evaluation consists of three papers. Each paper is to be typed double-spaced in Word (no pdf or other form) using font-size 12 with one-inch margins around and submitted electronically in a way to be announced. No title page; please put your name and student number at the top of page 1. The page limits are strict but do not include diagrams or references.

While the questions themselves appear innocuous, I am looking for economic sophistication in the answers. It is crucial that you have at least the economic background required by the prerequisites.

Paper 1, due 25 January: Thirty (30) Points, two pages (two sides of a sheet of paper)
Do a précis of the paper, Pindyck, Robert S. (2013), “Climate Change Policy: What Do the Models Tell Us?”, *Journal of Economic Literature* 51, 3, pp. 860-872 (available as an e-journal from McGill). *Please make strictly no evaluation of the points.*

Paper 2, due 22 February: Thirty (30) Points, two pages
Make a *précis* (no evaluation) of the ideas of Ross McKittrick in his proposals for carbon taxation in
<https://www.thegwpf.org/content/uploads/2013/07/McKittrick-Carbon-Tax-10.pdf>.

Paper 3, due 31 March: Forty (40) Points, three pages
Use an economic analysis to assess the points, made by several authors, about questions concerning climate change, in the review of policy on climate change, “Climate: The Next Threat”, *TSE Magazine*, Issue 21, Winter 2021, pp 14 – 25, <https://www.tse-fr.eu/tse-mag>.

Statements

McGill University values academic integrity. Therefore, all students must understand the meaning and consequences of cheating, plagiarism and other academic offences under the code of student conduct and disciplinary procedures.

In the event of circumstances beyond the University's control, the content and evaluation scheme in this course are subject to change.