

Economics of Sustainability

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Wintersemester 2022/23

Module content

The lecture course develops a set of economic ideas from economic theory that can be used to develop pragmatic policy solutions for the environmental crises the world faces today. A particular focus is on the implications of environmental impacts and environmental policy on inequality.

Topics include, but are not limited to: an economic analysis of the sustainable development goals and economic theories of sustainability, decision-making for situations of environmental catastrophes, applying theories of justice to assessing the urgency of environmental problems, the use of behavioural economics for advancing environmental policy (especially health co-benefits of environmental protection), economic analysis of critiques of consumerism, the role of economic rents in understanding the macroeconomics of climate change and land use, difficulties with valuing biodiversity and the role of animal farming, a formal analysis of arguments for and against economic growth, the role of fiscal policy for environmental protection and political economy of carbon pricing. The course covers a selection of policy examples from around the world, with a focus on political feasibility.

Prerequisites

A graduate-level understanding of microeconomics is a prerequisite. Knowledge of economic growth theory and public economics are desirable. The format is a set of weekly lectures that are complemented with weekly exercise classes taking various formats, including mathematical problem sheets, a group exercise of presenting a case study and a writing tutorial.

Module structure

The module will be organized in four phases.

PHASE I (week 1-2) – Introduction and Revision. We aim to provide, as non-experts, an overview of the current state of environmental crisis before thinking about which concepts from economics are appropriate.

PHASE II (week 3-8) – Normative perspectives on sustainability and the environment can be used to discuss how much environmental protection should happen.

PHASE III (week 9-12) – Public economics perspectives on environmental policy suggests how the state should intervene into the economy to achieve environmental protection.

Phase IV (week 13-14) – The final sessions examine why economic solutions to achieve sustainability are often not implemented.

Where, when, who

Lecture: Tuesday (starting Oct 19), 14.15-15.45 room tbf, Linus Mattauch
Exercise Class: Thursday (starting Oct 28), 8.15-9.45, room tbd, Théo Konc

Examination for MSc students

Combined exam (“Portfolioprüfung”). Written exam (“schriftlicher Test”, 75%) by default in the last week of term (date subject to confirmation.) Three sets of graded homework (25%).

Examination for PhD Students

Combined exam (“Portfolioprüfung”). Written exam (“schriftlicher Test”, 50%), three sets of graded homework (25%) and an extra task for each homework (25%). For the first and third homework, this consists of an additional, more demanding problem to be solved. For the second homework, a paper that is connected to the essay’s topic has to be read, understood and presented in class.

Module Outline

Syllabus preliminary (this version: **August 2022**) and subject to change, as the module is running for the second time.

Week	Description
Week 1	Lecture: The State of the Environment The session provides an overview of the global environmental crisis as they are in 2021. Logistics of the module. No exercise class.
Week 2	Lecture: Revision of undergraduate environmental economics Exercise class: Logistics, Q&A, calculate a Pigou tax
Week 3	Lecture: The economics Nobel Prize 2018 in context, CBA- and CEA-IAMs Exercise class: Dynamic Optimization
Week 4	Lecture: CEA-IAMs (cont.), Valuation and biodiversity Exercise class: Dynamic optimization, some practical work with the DICE-model
Week 5	Lecture: Sustainability: the Sustainable Development Goals, weak vs. strong sustainability, DHSS model Part I Exercise class: DHSS-Model

Week 6	<p>Lecture: DHSS model (cont.), Hartwick rule, application to carbon budget, green accounting, Henry George Theorem, weak sustainability policy implications</p> <p>Exercise class: Exercises on sustainability policy</p> <p>Graded homework 1: Problem Sheet on Sustainability, to be handed in by November 30.</p>
Week 7	<p>Lecture and Exercise class: Decision under uncertainty in environmental policy context. Dismal Theorem</p>
Week 8	<p>Lecture and Exercise class: The Environment and economic development</p>
Week 9	<p>Lecture: Economic Development continued. Elinor Ostrom applied to international environmental policy.</p> <p>Exercise class: Game on public good problems</p>
Week 10	<p>Lecture: Instrument choice, the second-best, the double dividend</p> <p>Exercise class: Session on how to write an academic essay</p> <p>Graded homework 2: Essay on Growth, Inequality and Environmental Policy (max. 1500 words), to be handed in Jan 18.</p>
Week 11	<p>Lecture: Behavioural economics I – default effects, the behavioural-environmental second-best, loss aversion and policy</p> <p>Exercise class: Exercise on interaction of public finance and environmental taxation.</p>
Week 12	<p>Lecture: Behavioural economics II – is economic growth desirable? Status consumption and happiness science</p> <p>Exercise class: Policy applications of behavioural environmental economics.</p>
Week 13	<p>Lecture: Public support for environmental policy</p> <p>Exercise: Policy applications of behavioural environmental economics</p> <p>Graded homework 3: Mathematical problem sheet on public finance and behavioural economics, to be submitted Feb 3.</p>
Week 14	<p>Lecture: Political economy of environmental policy</p> <p>Exercise: Solutions to graded homework 3.</p>
Week 15	<p>Lecture and exercise class: Revision</p>
Week 16	<p>Exam</p>

Readings: Recommended general literature

- Aldred, J. *The Skeptical Economist*. New York & London: Routledge, 2009
- Bowles, S. (2016). *The moral economy*. Yale University Press
- Fleurbaey, M., & Blanchet, D. (2013). *Beyond GDP: Measuring welfare and assessing sustainability*. Oxford University Press.
- Haensel, M. C., Drupp, M. A., Johansson, D. J., Nesje, F., Azar, C., Freeman, M. C., Groom, B. & Sterner, T. (2020). Climate economics support for the UN climate targets. *Nature Climate Change*, 10(8), 781-789
- Klenert, D., Mattauch, L., Combet, E., Edenhofer, O., Hepburn, C., Rafaty, R., & Stern, N. (2018). Making carbon pricing work for citizens. *Nature Climate Change*, 8(8), 669-677.
- Layard, R. (2006). Happiness and public policy: A challenge to the profession. *The Economic Journal*, 116: C24-C33
- Parry, I. (1998). The Double Dividend: When You Get it and When You Don't. *Proceedings. Annual Conference on Taxation and Minutes of the Annual Meeting of the National Tax Association* (Vol. 91): 46-51.
- Perman, R., Y. Ma, M. Common, D. Maddison, and J. McGilvray. *Natural Resources and Environmental Economics*, 3rd Edition. Pearson 2003.
- Shogren, J.F. and Taylor, L.O. (2008). On behavioral-environmental economics. *Review of Environmental Economics and Policy*, 2(1), 26-44

More specific literature to be communicated for individual sessions and exercise classes.