Ecological Economics

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Course notes

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Contents

1 Warming up **3**
1.1 Constanza et al (2015) Time to leave GDP behind 3
1.2 Rodrik, D. (2015) Economics Rules: The Rights and Wrongs of the Dismal Science 3
1.3 The four laws of thermodynamis 3
1.4 Environmental Economics vs. Ecological Economics 4

2 The Economy as an Open System **4**

3 Price input-output model **5**

4 International Databases for the economy and the environment **5**

> "As economists we only see a part of the picture"
>
> *Monica Serrano Gutierrez*

1 Warming up

1.1 Constanza et al (2015) Time to leave GDP behind

by Costanza, R., I.Kubiszewski, E. Giovanini, H. Lovins, J. McGlade, K.E. Pickett, K.V. Ragnarsdóttir, D. Roberts, R. de Vogli & R. Wilkinson (2014), Nature (link)

> GDP measures "everything except that which makes life worthwhile"
>
> *Robert F. Kennedy*

GDP is a good measure for tne flow of everything that has a market price - mot as an indicator of well-being or environment.
Alternative measures should take into account

- Happiness
- Prosperity
- Environment
- Development

1.2 Rodrik, D. (2015) Economics Rules: The Rights and Wrongs of the Dismal Science

An economist should have as many different models as possible in her toolbox
$\rightarrow$ choose the better model(s) for the specific research question.
Our models are partial, thus, our conclusions are partial.

1.3 The four laws of thermodynamis

1st Law of thermodynamis: Energy can neither be created nor destroyed, but can change formms and flow from one place to another.

2nd Law of thermodynamis: The irreversibility of natural processes, and, in many cases, the tendency of natural processes to lead towards spatial homogeneity of matter and energy.

Important works on environmental economics

- Pigout (1920): Taxing externalities.
- Coase (NPE 1991): Contracting between parties.
- Elinor Ostrom (NPE 2012): Some communities use other mechanisms than the market for allocations etc. - and it's better than the market!
- Richard H. Thaler (NPE 2017): Behavioral economics (interests of firms).
- William Nordhaus (NPE 2018): For integrating climate change into long-run macroeconomic analysis.

1.4 Environmental Economics vs. Ecological Economics

> "We cannot solve our problems with the same thinking we used when we created them"
>
> *Albert Einstein*

Ecological Economics

- Sustainability of the world as a whole.
- Looking at the world as a whole, i.e. no such thing as externalities.

Environmental Economics

- Sustainability: Of the economy.
- Negative externalities: To the economy (the core).
  - Uncompensated (adverse) impact of one person's action on the wellbeing of a bystander.
  - Causes markets to be inefficient, and thus to maximize total surplus, e.g. pollution.
  - Coase theorem: if private parties can bargain without cost over the allocation of resources, they can solve the problem of externalities on their own.
  - Government action: Regulations (permits) or taxations (market correcting solution).

The Climate:
Average weather conditions that can be observed locally regionally or globally. Changes with or without human impact.

Global warming:

- This is what is important!
- Designates the increase of average temperature
- **Global public good:**
  Standard solutions to tragedy of the commons:
  - Price market-based policy: Carbon tax: Arthur Pigou (1920) *The Economics of Welfare*
  - Quantity market-based policy: Cap-and-trade system: Ronald Coase (1920) *The problem of social cost*
  - Alternative methods: Polycentric approach (consensus): Elinor Ostrom (2012) *GLobal Environmental Commons* (NP, 2009).

  Options to manage the "global common"
  - Free rider problem: Westphalian nature of the current system of nations
  - Problem of responsibiilty

History of international climate negotiations
1987: Montreal: Agreement about the Freon gas - the only succesfull negotiation.

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3 Price input-output model

Great because flows can be in all kinds of measures - we don't need to translate everything into Euroes.

4 International Databases for the economy and the environment

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