

EE475: Natural Resource Economics

On other related fields (1): Ecological Economics

Wednesday 6th May 2015
by
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Final Exam

- Date and Time: Wednesday 20th of May 2015, 09.00-12.00 hrs.
- Room 202, Faculty of Economics
- 6 main questions with possible sub-questions, No selection
- Covering all topics and articles after the midterm exam
- Close book exam, no sheets or any documents

Outline

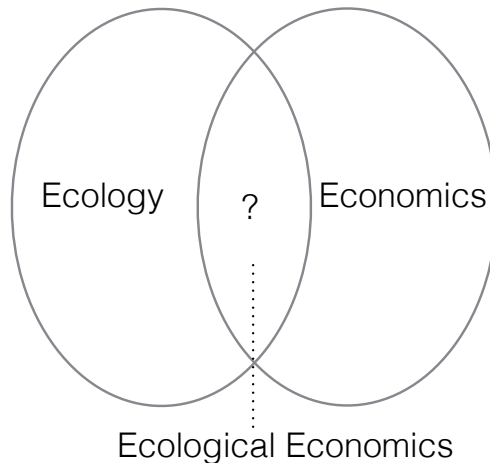
- Some details about the final exam
- What is Ecological Economics?
- Initial debate: Technological Optimism vs Prudent Pessimism
- Schools of thought
- Some topics in Ecological Economics
- Some criticisms

On Ecological Economics

- What do you think is missing from the mainstream Macroeconomic models, especially those related to growth and development?

What is Ecological Economics?

- Economics only treats nature and natural resource as input for production. —> How to use resource efficiently as long as possible?
- Ecology focuses on natural system and most of the time exclude human and society out of the picture, except when studies human impacts on ecology.



What is Ecological Economics?

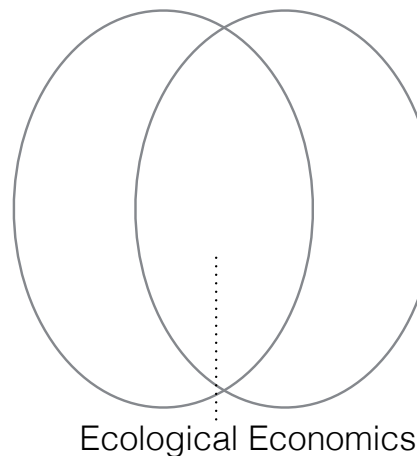
- “*Ecological Economics* addresses the relationships between ecosystem and economic systems in the broadest sense. These relationships are the locus of many of our most pressing current problems (i.e. sustainability, acid rain, global warming, species extinction, wealth distribution) but they are not well covered by any existing discipline. Environmental and Resource economics as it is currently practiced, covers only the application of neoclassical economics to environmental and resource problems. Ecology, as it is currently practiced, sometimes deals with human impacts on ecosystems, but the more common tendency is to stick to “natural” systems. *Ecological Economics* aims to extend these modest areas of overlap. It will include neoclassical environmental economics and ecological impacts studies as sub-sets, but will also encourage new ways of thinking about the linkages between ecological and economic systems.”

- Costanza (1989) pp.1.

in Costanza, Robert. 1989. “What is Ecological Economics?” *Ecological Economics*. Vol.1 pp. 1-7.

What is Ecological Economics?

- Natural resource and system are not only input but foundation of the society.
- Interaction between natural system and social and economic system is more closely linked and cannot be considered separately.
- There is limit to growth and uncertainty in the world.



Initial debate: Technological Optimism vs Prudent Pessimism

• Current Economic Paradigms: Technological Optimism

- Continuing and unlimited economic growth
- Problems of intergenerational, intragenerational, and interspecies equity and sustainability
- Energy and resource limits to growth will be eliminated by development and deployment of new technology.
- Healthy economic: stable and high rate of growth

• Opposing thoughts: Technological Pessimism

- Technology will not be able to circumvent fundamental energy and resource constraints and that eventually economic growth will stop.
- Natural systems do stop growing when they reach fundamental resource constraints.
- Ecologists and and life scientists (a notable exception among economists is Daly, 1977)
- Healthy ecosystem: the one that maintain a stable level
- Unlimited growth is cancerous.

Initial debate: Technological Optimism vs Prudent Pessimism

• Technological Optimism

- Human systems are fundamentally different from other natural systems because of human intelligence.
- Malthus's prediction on population pressures has not come to pass and we circumvented "energy crisis" in the 1970s.

• Technological Pessimism

- Human systems are still a part of nature, not apart from it.
- Just because we have circumvented local and artificial resource constraints in the past does to mean that we can circumvent the fundamental ones in the future.
- Malthusian prediction has not come to pass yet.

Initial debate: Technological Optimism vs Prudent Pessimism

- Simple optimal strategy: MaxiMin strategy
- "Ecological Economics will encourage elaboration of these prudently pessimistic policies and issues and compare them to alternative optimistic policies while trying to help reduce our uncertainty about the real state of the world vis a vis the ability of technology to circumvent fundamental resource and energy limits."

- Costanza (1989, pp.5)

	Optimists right	Pessimists right
Technological Optimist Policy	High	Disaster
Technological Pessimist Policy	Moderate	Tolerable

Initial debate: Technological Optimism vs Prudent Pessimism

- There is still high uncertainty about the impacts of energy and resource constraints in the future.
- Ultimately no one knows what would happen.
- a more ecological approach to economics and more economic approach to ecology will be beneficial. —> Ecological Economics



Schools of thought

Resource and environmental Economics

Heterodox Economics



Beijer International Institute of Ecological Economics

European Society for Ecological Economics



Some topics in Ecological Economics

- Methodology
- Allocation of resource: Equity, and the scale of the economy relative to the ecosystem upon which it is reliant
- Weak and Strong Sustainability
- Energy economics and energy accounting and balance
- Environmental Services
- Not externalities but cost shifting
- Ecological-economic modeling

Some criticisms

- On ecosystem services
 - Ecosystem services are not necessarily financially beneficial. Ecosystem does not act in favor of any single species. Certain services might be beneficial to human, some are not.
 - Binding ecosystem services value to market value can lead to devaluation of ecosystem services.

McCauley D. Selling out on nature. *Nature*. 2006;443(September):7–8.

Some criticisms

- Criticisms to the field in general
 - Both ecology and economics have changed not because of the Ecological Economics, but because economists have turned to more empirical approaches to economics, such as behavioral and experimental economics.
 - Ecological economists drain away the moral power that once sustained environmentalism. The science should be use to help society achieve environmental goals, not to prescribe the goals.

Sagoff, Mark. 2012. "The rise and fall of ecological economics: A cautionary tale". *The Breakthrough Journal*. Issue 2. Fall 2011. <http://thebreakthrough.org/index.php/journal/past-issues/issue-2/the-rise-and-fall-of-ecological-economics>