

Lecture # 1 -- What is Environmental Economics?

I. What is Environmental Economics?

- Economics is the study of the allocation of scarce resources.
 - Note that the theories of economics can be applied to any scarce resource, not just traditional commodities.
 - Economics is not simply about profits or money. It applies anywhere constraints are faced, so that choices must be made.
 - Economists study how incentives affect people's behavior.
- Environmental and natural resource economics is the application of the principles of economics to the study of how environmental and natural resources are developed and managed.
 - Natural resources – resources provided by nature that can be divided into increasingly smaller units and allocated at the margin.
 - Environmental resources – resources provided by nature that are indivisible.
 - Natural resources serve as inputs to the economic system. Environmental resources are affected by the system (e.g. pollution).

II. Why Study Environmental Economics?

- Economic analysis is valued in the policy process and by NGOs
 - Need to be able to “speak the language”
- In general, prices reflect the relative scarcity of goods.
 - However, in environmental economics, markets, and thus prices, often do not exist.
- Our goal is to apply economic tools to environmental problems
- What aspects of environmental and natural resource economics make it unique?
 1. Market failures
 - When market failures exist, government intervention may be appropriate.
 2. Dynamics
 - The decision to consume a good today typically does not affect the ability to consume it tomorrow. However, the decision to use natural resources today does affect what will be available tomorrow.
 - Note that prices will influence this.
 - Higher prices both provide incentives to conserve resources, encourage exploration for new sources, and the development of technologies to better obtain resources.
 3. Irreversibility
 - Damage to natural resources has long-term effects. For example, if the Grand Canyon were flooded, future generations would be unable to enjoy its beauty. This is not as large a problem for normal consumer goods.

4. Linkages between the economic and ecological system
 - An interdisciplinary understanding of the environment, political science, etc. necessary to be a good environmental economist.

III. Key questions for environmental economics

1. What is the market failure?
 - Typically, externalities are a problem. However, we will also deal with other market failures.
 - For example, imperfect competition leads to regulated utilities.
2. What type of intervention works best?
 - The problem in environmental economics is often that there is no market for environmental resources. Thus, one option is to create a market.
 - However, economists realize that this is not always the best solution.
 - After discussing market failures, we will discuss various types of remedies.
3. How to evaluate environmental programs?
 - Ideally, we need to know what level of environmental protection is desired.
 - Economists focus on decisions at the margin: equating marginal costs and marginal benefits.
 - The choice is not between clean air and dirty air, but rather between levels of pollution.
 - Note that this requires placing a value on environmental protection.
 - However, this valuation is complicated by the lack of market prices for environmental goods.
 - We will discuss various techniques for valuation in the middle section of the course.
4. Efficiency versus equity
 - Finally, we need to remember that even when an efficient solution occurs, it might not be desirable.
 - Recall that the fundamental theorem of welfare economics says nothing about the distribution of resources in an efficient solution.
 - Equity issues are also important.
 - Policymakers need to consider how various groups will be impacted.
 - This can be complicated in environmental economics.
 - For example, how should the welfare of future generations be weighed when making global warming policy?

- Note that there are two types of economic analysis:
 - Positive economics – studies how the economy actually functions. It is purely descriptive.
 - E.g.: how do people respond to higher energy prices?
 - Normative economics – the study of whether or not the economy produces socially desirable results.
 - Requires value judgments
 - E.g.: What is the best way to reduce gasoline consumption (e.g. tax, fuel economy regulations, oil import tariff)?
 - Even though we cannot prove scientifically which values are correct, we can have rational discussions about them, and can evaluate what goals are being met – leaving it to politics, etc. to decide which goals should be met.