

Environmental Economics

References:

Zhang Fan, Environmental and Natural Resource Economics, Shanghai People's Publishing House, 1997

Varian, Hal, Intermediate Microeconomics.

Peter Berck and Glaria Helfand, The Economics of the Environment, Addison-Wesley, 2012

Structure of the Course:

1 introduction

- 1.1 environmental problems in China
- 1.2 economic system and environment
- 1.3 The basic characteristics of Environmental Economics

2 The basic theory of Environmental Economics

2.1 Welfare economics

- 2.1.1 a social welfare function — Arrow's Impossibility Theorem
- 2.1.2 Pareto Efficiency (Pareto Optimality、 Pareto Improvement)
- 2.1.3 The First Fundamental Theorem of Welfare Economics and The Second Fundamental Theorem of Welfare Economics

2.2 basic concepts

- 2.2.1 Market-based Resource Allocation
- 2.2.2 Market failure
 - 2.2.2.1 Externality
 - 2.2.2.2 Common Property Resources
 - 2.2.2.3 Public goods
 - 2.2.2.4 Intergenerational Equity
 - 2.2.2.5 Information asymmetry (Moral Hazard and Adverse Selection)
- 2.2.3 Value

3 The economics of environmental protection

- 3.1 The basic principle

3.2 Environmental policy choices

3.2.1 Emission standard

3.2.2 Emission charges (Pigouvian Taxes)

3.2.3 Emission trading

3.3 policy instruments for urban air pollution control

4 Social cost-benefit analysis

4.1 Basic knowledge

4.1.1 Static

4.1.2 Dynamic (two-period model)

4.1.3 The econometrics principle of welfare changes

4.1.4 Kaldor-Hicks compensation principle

4.2 Cost-Benefit Analysis

4.3 Environmental Economics Evaluation Methods

4.3.1 Market value method

4.3.2 Non-Market value method

5 Natural Resource Economics

5.1 The economics of natural resource use

5.1.1 effectively intergenerational allocation of resources

5.1.2 resource exploitation: transfer from non-renewable resources to renewable resources

5.1.3 transfer to another non-renewable resources

5.1.4 Hotelling theory of non-renewable resources exploitation

5.1.5 exhaustible and unrecyclable resources: oil, natural gas, coal

5.1.6 price regulation, cartel and national security

5.2 Renewable resources

5.2.1 Fishery resources

5.2.1.1 A single owner

5.2.1.2 Common property

5.2.1.3 Public policy related to the fishing industry (Aquaculture, The Cost of Fishing, Tax and Tradable quotas)

5.2.2 effective utilization of forest resources

5.2.2.1 The economics of wood utilization: determination of the optimal rotation age

5.2.2.2 The multiple benefits of forest resources protection, management and utilization

6 Several issues about sustainable development

6.1 four basic models of sustainable development

6.2 the economics of climate change

Course Objectives:

This course will, on the one hand, help students master the basic concepts of welfare economics and public economics, on the other hand, introduce some policy tools to solve the environmental problems effectively from an economic perspective. The main contents are as follows: the basic theory of environmental economics (such as welfare economics), social cost-benefit analysis, the economics of natural resource use and policy instruments for environmental protection. For the purpose of inspiring students to make empirical analysis, the course will focus on the practical application of economics and analysis tools. Besides, we try to discuss some hot environmental issues, such as policy instruments for urban air pollution control and climate change strategies.

Pre-requisites

As an applied economics course, some core courses such as microeconomics are needed.