

Environmental and Natural Resource Economics

A Contemporary Approach

Third Edition

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Contents

Note to the Reader

Key Terms are bolded in the text, with a sidebar definition.

All Key Terms in a chapter are listed at the end of the chapter, and the definitions are collected in the Glossary, noting the chapters in which they appear.

PREFACE TO THE THIRD EDITION ix

PART I. INTRODUCTION: THE ECONOMY AND THE ENVIRONMENT 1

1. CHANGING PERSPECTIVES ON THE ENVIRONMENT.....	3
1.1 Economics and the Environment.....	3
1.2 A Framework for Environmental Analysis.....	6
1.3 Environmental Microeconomics and Macroeconomics	9
1.4 A Look Ahead.....	12

2. RESOURCES, ENVIRONMENT, AND ECONOMIC DEVELOPMENT	16
2.1 A Brief History of Economic Growth and the Environment	16
2.2 A Summary of Recent Growth	21
2.3 The Future of Economic Growth and the Environment	22
2.4 Sustainable Development	26

PART II. ECONOMIC ANALYSIS OF ENVIRONMENTAL ISSUES 33

3. THE THEORY OF ENVIRONMENTAL EXTERNALITIES	35
3.1 The Theory of Externalities	35
3.2 Welfare Analysis of Externalities	43
3.3 Property Rights and the Environment	46
Appendix 3.1: Supply, Demand, and Welfare Analysis	57
Appendix 3.2: Externality Analysis: Advanced Material.....	66

4.	COMMON PROPERTY RESOURCES AND PUBLIC GOODS	76
4.1	Common Property, Open Access, and Property Rights	76
4.2	The Environment as a Public Good	85
4.3	The Global Commons.....	88
5.	RESOURCE ALLOCATION OVER TIME	93
5.1	Allocation of Nonrenewable Resources	93
5.2	Hotelling’s Rule and Time Discounting	101
6.	VALUING THE ENVIRONMENT	107
6.1	Total Economic Value.....	107
6.2	Overview of Valuation Techniques.....	110
6.3	Revealed Preference Methods	113
6.4	Stated Preference Methods	115
6.5	Cost-Benefit Analysis	119
6.6	Conclusion: The Role of Cost-Benefit Analysis in Policy Decisions.....	134
	Appendix 6.1: Advanced Material on Valuation Methods	143
	Appendix 6.2: Using Excel to Perform Present Value Calculations	146

PART III. ECOLOGICAL ECONOMICS AND ENVIRONMENTAL ACCOUNTING..... 149

7.	ECOLOGICAL ECONOMICS: BASIC CONCEPTS.....	151
7.1	An Ecological Perspective.....	151
7.2	Natural Capital.....	152
7.3	Issues of Macroeconomic Scale	154
7.4	Long-Term Sustainability	157
7.5	Energy and Entropy	160
8.	NATIONAL INCOME AND ENVIRONMENTAL ACCOUNTING.....	168
8.1	Greening the National Income Accounts.....	168
8.2	Environmentally Adjusted Net Domestic Product.....	171
8.3	Adjusted Net Saving.....	173
8.4	The Genuine Progress Indicator	178
8.5	The Better Life Index	182
8.6	Environmental Asset Accounts	188
8.7	The Future of Alternative Indicators	192
	Appendix 8.1: Basic National Income Accounting.....	198

PART IV. POPULATION, AGRICULTURE, AND THE ENVIRONMENT..... 203

9.	POPULATION AND THE ENVIRONMENT	205
9.1	The Dynamics of Population Growth.....	205
9.2	Predicting Future Population Growth.....	209
9.3	The Theory of Demographic Transition	215
9.4	Population Growth and Economic Growth	219
9.5	Ecological Perspectives on Population Growth.....	222
9.6	Population Policies for the Twenty-First Century	227

10. AGRICULTURE, FOOD, AND ENVIRONMENT.....	232
10.1 Feeding the World: Population and Food Supply.....	232
10.2 Trends in Global Food Production	235
10.3 Projections for the Future	240
10.4 Agriculture’s Impact on the Environment	243
10.5 Sustainable Agriculture for the Future.....	251

PART V. ENERGY AND RESOURCES 261

11. NONRENEWABLE RESOURCES:	
SCARCITY AND ABUNDANCE	263
11.1 The Supply of Nonrenewable Resources.....	263
11.2 Economic Theory of Nonrenewable Resource Use.....	265
11.3 Global Scarcity or Increasing Abundance?	268
11.4 Environmental Impacts of Mining.....	271
11.5 The Potential for Recycling	274
12. ENERGY: THE GREAT TRANSITION	282
12.1 Energy and Economic Systems	282
12.2 Evaluation of Energy Sources	284
12.3 Energy Trends and Projections	287
12.4 Energy Supplies: Fossil Fuels.....	291
12.5 The Economics of Alternative Energy Futures.....	297
12.6 Policies for the Great Energy Transition	304
13. RENEWABLE RESOURCE USE: FISHERIES	314
13.1 Principles of Renewable Resource Management	314
13.2 Ecological and Economic Analysis of Fisheries.....	315
13.3 The Economics of Fisheries in Practice	320
13.4 Policies for Sustainable Fisheries Management	324
14. ECOSYSTEM MANAGEMENT—	
FORESTS.....	335
14.1 The Economics of Forest Management.....	335
14.2 Forest Loss and Biodiversity	339
14.3 Politics for Sustainable Forest Management	344
14.4 Conclusion: Reconciling Economic and Ecological Principles	347
15. WATER ECONOMICS AND POLICY	352
15.1 Global Supply and Demand for Water.....	352
15.2 Addressing Water Shortages.....	357
15.3 Water Pricing	359
15.4 Water Markets and Privatization	365

PART VI. POLLUTION: IMPACTS AND POLICY RESPONSES..... 375

16. POLLUTION: ANALYSIS AND POLICY.....	377
16.1 The Economics of Pollution Control.....	377
16.2 Policies for Pollution Control.....	380

16.3	The Scale of Pollution Impacts.....	390
16.4	Assessing Pollution Control Policies.....	395
16.5	Pollution Control Policies in Practice.....	400
17.	GREENING THE ECONOMY.....	408
17.1	The Green Economy: Introduction.....	408
17.2	The Relationship between Economy and Environment	410
17.3	Industrial Ecology	417
17.4	Does Protecting the Environment Harm the Economy?.....	420
17.5	Creating a Green Economy	425
18.	GLOBAL CLIMATE CHANGE.....	433
18.1	Causes and Consequences of Climate Change	433
18.2	Responses to Climate Change.....	441
18.3	Economic Analysis of Climate Change	442
19.	GLOBAL CLIMATE CHANGE: POLICY RESPONSES	455
19.1	Adaptation and Mitigation.....	455
19.2	Climate Change Mitigation: Economic Policy Options	459
19.3	Climate Change: The Technical Challenge	468
19.4	Climate Change Policy in Practice	473
19.5	Economic Policy Proposals	477
19.6	Conclusion	483
PART VII. ENVIRONMENT, TRADE, AND DEVELOPMENT		489
20.	WORLD TRADE AND THE ENVIRONMENT.....	491
20.1	Environmental Impacts of Trade	491
20.2	Trade and Environment: Policy and Practice	495
20.3	Trade Agreements and the Environment	499
20.4	Strategies for Sustainable Trade	502
21.	INSTITUTIONS AND POLICIES FOR SUSTAINABLE DEVELOPMENT	509
21.1	The Concept of Sustainable Development	509
21.2	The Economics of Sustainable Development.....	510
21.3	Reforming Global Institutions	514
21.4	New Goals and New Production Methods	520
GLOSSARY.....		531
INDEX		553
ABOUT THE AUTHORS		569

Preface to the Third Edition

The third edition of *Environmental and Natural Resource Economics: A Contemporary Approach* maintains its essential focus on making environmental issues accessible to a broad range of students. The text is a product of twenty years of teaching environmental and natural resource economics at the undergraduate and graduate levels. It reflects the conviction that environmental issues are of fundamental importance and that a broad approach to understanding the relationship of the human economy and the natural world is essential.

Typically, students come to an environmental economics course with an awareness that environmental problems are serious and that local, national, and global policy solutions are needed. Some students may be interested in careers in environmental policy; others in gaining an understanding of issues that are likely to be relevant in their careers, personal lives, and communities. In either case, the current importance of the topics gives the course a special spark of enthusiasm that is a heaven-sent boon to any instructor trying to breathe life into marginal cost and benefit curves.

There is a distinct danger, however, that this initial enthusiasm can be dampened rather quickly by the use of a strictly conventional approach to environmental economics. One major limitation of this approach is its almost exclusive use of neoclassical microeconomic techniques. The standard microeconomic perspective strongly implies that anything of importance can be expressed in terms of price—even though many important environmental functions cannot be fully captured in dollar terms. Also, this perspective makes it difficult to focus on the inherently “macro” environmental issues such as global climate change, ocean pollution, ozone depletion, population growth, and global carbon, nitrogen, and water cycles.

For these reasons, the authors have developed an alternative approach that draws on the broader perspective that has come to be known as ecological economics, in addition to presenting standard economic theory. In our view, these two approaches are complementary rather than in conflict. Many elements of standard microeconomic analysis are essential for analyzing resource and environmental issues. At the same time, it is important to recognize the limitations of a strictly cost-benefit approach and to introduce ecological and biophysical perspectives on the interactions of human and natural systems.

NEW TO THE THIRD EDITION

The third edition of *Environmental and Natural Resource Economics: A Contemporary Approach* has been updated in response both to developments in the world of environmental policy and to comments and suggestions based on classroom use. New material in the third edition includes:

- a new chapter on water economics, including analysis of water demand management, water pricing, and water privatization
- a new chapter on the relationship between environmental protection and the economy, including analysis of decoupling output from resource and energy inputs and policies to promote a green economy
- new scientific evidence on climate change and a new chapter on global climate change policy, including technological potential, abatement costs, and proposals for an Earth Atmospheric Trust and Greenhouse Development Rights
- more on the application of economic valuation techniques, including evaluating new mercury regulations, valuing life, and estimating the impacts of the Gulf oil spill
- new material on “green” national income accounting, including adjusted net savings, the Genuine Progress Indicator, the Better Life Index, and environmental asset accounts
- new sections on recent population developments, including changing fertility rates, projections for 2050 to 2100, and the human ecological footprint
- changing projections for food supply and the impact of the “food crisis,” rising meat consumption, and biofuels
- new data on rising prices for minerals and new projections for fossil-fuel supply limits, discussion of fossil-fuel subsidies, and the potential for a transition to renewable energy

All data series have been updated to reflect recent trends. New appendices have been added to chapters dealing with formal analysis, providing greater depth in analytical techniques.

ORGANIZATION OF THE TEXT

The text is structured so as to be appropriate for a variety of courses. It assumes a background in basic microeconomics and can be used in an upper-level undergraduate course or a policy-oriented master’s-level course. Part I provides a broad overview of different approaches to economic analysis of resources and environment and of the fundamental issues of economy/environment interactions. Part II covers the basics of standard environmental and resource economics, including the theory of externalities, resource allocation over time, common property resources, public goods, and valuation. Part III offers an introduction to the ecological economics approach, including “greening” national accounts and economic/ecological modeling.

Parts IV and V apply these analytical approaches to fundamental environmental and resource issues. Part IV focuses on population, agriculture, and the environment, reviewing different theories of population, giving an overview of the environmental

impacts of world agricultural systems and discussing policy responses to population and food supply issues. Part V deals with the economics of renewable and nonrenewable resources at both the microeconomic and macroeconomic levels.

Part VI provides a standard analysis of the economics of pollution control, a new chapter on the relationship between environmental protection and the economy, and two chapters that address global climate change. Part VII brings together some of the themes from the specific topics of the earlier parts in a consideration of trade and development issues.

PEDAGOGICAL AIDS FOR STUDENTS AND INSTRUCTORS

Each chapter has discussion questions, and the more quantitative chapters have numerical problem sets. Key terms in each chapter are compiled in an extensive glossary. Useful Web sites are also listed. Instructors and students are urged to make full use of the text's supporting Web sites at <http://www.gdae.org/environ-econ>.

The instructor Web site includes teaching tips and objectives, answers to text problems, and test questions. The student site includes chapter review questions and Web-based exercises and will be updated periodically with bulletins on topical environmental issues.

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