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

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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