Warming the World

Economic Models of Global Warming

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Preface

Dealing with complex scientific and economic issues has increasingly involved developing scientific and economic models that help analysts and decision makers understand likely future outcomes as well as the implications of alternative policies. This book presents the details of a pair of integrated-assessment models of the economics of climate change. The models, called RICE-99 (for the Regional Dynamic Integrated model of Climate and the Economy) and DICE-99 (for the Dynamic Integrated model of Climate and the Economy), build upon earlier work by Nordhaus and collaborators, particularly the DICE and RICE models constructed in the early 1990s. The purpose of this book is to lay out the logic and details of RICE-99 and DICE-99. Like an anatomy class, this description highlights internal structure of the models and the ways different segments are connected.

The book is organized into two parts. The first part describes RICE-99 and its globally aggregated companion, DICE-99. This part contains an introduction (chapter 1) and a brief description of RICE-99 (chapter 2) that includes all the model equations. The details of the derivation of these equations and their parameterization are presented in chapters 3 and 4. Chapters 1 through 4 present RICE-99, leaving explicit discussion of DICE-99 to chapter 5. Chapter 6 explains how the models are solved. Part II presents the major results of RICE-99 and applies it to the questions surrounding climate change. The appendixes provide a summary listing of the equations, a variable list, and the programs for the RICE-99 and DICE-99 models. The models and spreadsheets are also available on the Web.

Those interested in this exciting field will recognize that this book builds on earlier work of the authors and of many others. Although it bears the names of two authors, the intellectual inspiration and contribution of many should be recognized. Among those we thank for

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