Contents

Preface vii

PART I: THE THEORY OF THE MINING FIRM 1

Introduction to Part I 2

Essay 1 Toward a more general theory of the mining firm
M.C. Kemp and N.V. Long 5

Essay 2 The firm as resource-farmer
M.C. Kemp and N.V. Long 19

Essay 3 On the optimal order of exploitation of deposits of an exhaustible resource
M.C. Kemp and N.V. Long 31

PART II: AGGREGATIVE MODELS OF A CLOSED ECONOMY 41

Introduction to Part II 42

Essay 4 The optimal consumption of depletable resources
M.C. Kemp and N.V. Long 45

Essay 5 Eating a cake of unknown size: pure competition versus social planning
M.C. Kemp and N.V. Long 55

Essay 6 The management of a renewable resource: Monopoly versus competition
M.C. Kemp and N.V. Long 71

Essay 7 Optimal depletion of a nonrenewable resources when technical progress is endogenous
C. Chiarella 81

Essay 8 Optimal technical progress with exhaustible resources
A. Takayama 95

Essay 9 The underexploitation of natural resources: A model with overlapping generations
M.C. Kemp and N.V. Long 111

Essay 10 Resource extraction under conditions of common access
M.C. Kemp and N.V. Long 127

Essay 11 The optimal depletion of an exhaustible resource in a two-sector model
C. Chiarella 137

Essay 12 Optimal search and extraction: A general-equilibrium formulation
M.C. Kemp and N.V. Long 155

PART III: INTERNATIONAL TRADE WITH EXHAUSTIBLE RESOURCES 165

Introduction to Part III 166

Essay 13 International trade with an exhaustible resource: A theorem of Rybczynski type
M.C. Kemp and N.V. Long 169

Essay 14 Exhaustible resources and the Stolper–Samuelson–Rybczynski theorems
M.C. Kemp and N.V. Long 179

Essay 15 Exhaustible resources and the Heckscher–Ohlin theorem
M.C. Kemp and N.V. Long 183

Essay 16 Optimal tariffs and exhaustible resources
M.C. Kemp and N.V. Long 187

Essay 17 The interaction of resource-rich and resource-poor economies
M.C. Kemp and N.V. Long 197

Essay 18 International monopoly–monopsony power over exhaustible resources
M.C. Kemp and N.V. Long 211

Essay 19 Trade between resource-poor and resource-rich economies as a differential game
C. Chiarella 219

Appendix A modest defence of the use of Cobb–Douglas production functions in the analysis of exhaustible resources
M.C. Kemp and N.V. Long 247

Author Index 251

Subject Index 253