Contents

Preface xiii

Chapter 1 Introduction to Economic Analysis in Health Care 1
1.1 Life, Death and Big Business: Why Health Economics is Important 1
1.2 Health Care as an Economic Good 3
1.3 Health and Health Care 6
1.4 Wants, Demands and Needs 7
1.5 The Production of Health and Health Care 8
1.6 Deciding Who Gets What in Health Care 10
1.7 Is Health Care Different? 12
1.8 Describing versus Evaluating the Use of Health Care Resources 14
1.9 Judging the Use of Health Care Resources 17
Summary 20

Part 1 Health Care Markets

Chapter 2 The Demand for Health Care 23
2.1 Demand, Profits and Health Policy Targets 23
2.2 Consumer Choice Theory 24
  2.2.1 Preferences and Utility 24
  2.2.2 Budget Constraints and Maximisation 26
2.3 Demand Functions 30
  2.3.1 The Determinants of Demand 32
  2.3.2 Estimating Demand Functions 36
  2.3.3 Price and Income Elasticity of Demand 37
2.4 Modelling Choices About Health 40
  2.4.1 Understanding Consumption of Health and Health Care 41
  2.4.2 Understanding Investment in Health Care 43
  2.4.3 Predictions of the Grossman Model 45
2.5 Needs, Wants and Demands 47
2.6 Asymmetry of Information and Imperfect Agency 48
2.7 Aggregate Demand for Health Care: Theory and Evidence 51
2.8 Conclusion 55
Summary 56
Chapter 3  The Production and Costs of Health Care

3.1 Introduction 59
3.2 The Theory of Production
3.2.1 Production Functions 60
3.2.2 Isoquants 61
3.2.3 Marginal Products 62
3.2.4 Substitutability between Inputs 63
3.2.5 Production Frontiers 65
3.3 Multi-Product Firms 66
3.4 Returns to Scale, Additivity and Fixed Factors 69
3.5 Costs
3.5.1 Costs and Production 73
3.5.2 Cost Functions 77
3.5.3 Economies of Scale, Short-Run Cost Functions and Economies of Scope 78
Summary 85

Chapter 4  The Supply of Health Care

4.1 Firms, Markets and Industries in the Health Care Sector of the Economy 87
4.2 Structure, Conduct and Performance in the Health Care Industry 90
4.3 Profit Maximisation Models
4.3.1 How Firms Maximise Profits 96
4.3.2 Perfect Competition 100
4.3.3 Monopoly 103
4.3.4 Monopolistic Competition 105
4.3.5 Oligopoly 109
4.3.6 Game Theory 110
4.4 Goals Other than Profit Maximisation
4.4.1 Growth Maximisation 114
4.4.2 Behavioural Theories of the Firm 118
4.4.3 Utility Maximisation 119
4.4.4 Maximising Net Income per Physician 121
Summary 123

Chapter 5  Markets, Market Failure and the Role of Government in Health Care

5.1 Introduction 125
5.2 Using Perfectly Competitive Markets to Allocate Resources
5.2.1 Equilibrium in Competitive Markets 126
5.2.2 The Efficiency of Competitive Markets 126
5.3 Market Failure in Health Care
5.3.1 Externalities 129
5.3.2 Caring Externalities 130
CONTENTS

6.13.3 Taxation 176
6.13.4 The Key Features of Health Care Systems 176
Summary 179

Chapter 7 Equity in Health Care 183

7.1 Introduction 183
7.2 Equity in the Finance of Health Care 185
  7.2.1 Vertical Equity 186
  7.2.2 Kakwani’s Progressivity Index 187
  7.2.3 The Relationship between Progressivity and Health Care Financing Systems 189
  7.2.4 Horizontal Equity 190
7.3 Equity in Distribution 192
  7.3.1 Equity in the Distribution of Health Care, of Health or of Utility? 192
  7.3.2 Some Concepts of Equity 193
  7.3.3 Measuring Equity in Distribution 196
  7.3.4 Horizontal Inequity 197
  7.3.5 Vertical Equity 200
  7.3.6 Inequalities in Health 202
Summary 205

Part II Economic Evaluation in Health Care 209

Chapter 8 Welfarist and Non-Welfarist Foundations of Economic Evaluation 209

8.1 The Normative Economics Foundations of Economic Evaluation 209
8.2 Welfare Economics 210
8.3 The Pareto Principle 211
8.4 Potential Pareto Improvements 216
8.5 Social Welfare Functions 220
8.6 Measurability and Comparability of Utility 225
8.7 The Application of Welfare Economics 226
8.8 Non-Welfarism 231
8.9 Is There a Link Between Welfarism and Non-Welfarism? 236
8.10 Conclusion 237
Summary 238

Chapter 9 Principles of Economic Evaluation in Health Care 241

9.1 What is Economic Evaluation? 241
9.2 The Economic Foundations of Economic Evaluation 243
  9.2.1 Cost–Benefit Analysis 243
  9.2.2 Cost-Effectiveness Analysis 246
9.3 Economic Evaluation Applied to Health Care Programmes 248
### Contents

#### Chapter 9  Decision Rules for Cost-Benefit Analysis

9.4 Decision Rules for Cost-Benefit Analysis  
9.5 Decision Rules for Cost-Effectiveness and Cost-Utility Analysis  
9.5.1 Ratio Measures  
9.5.2 The Cost-Effectiveness Plane  
9.5.3 The Ceiling Ratio and Acceptability  
9.5.4 The Incremental Cost-Effectiveness Ratio  
9.5.5 Net Benefits  
9.5.6 Probabilistic Approaches  
9.5.7 Decision Analysis  
9.6 Equity in Economic Evaluation  
Summary  

#### Chapter 10  Measuring and Valuing Health Care Output

10.1 Introduction  
10.2 Monetary Valuations of Health Care Benefits  
10.2.1 Revealed Preference  
10.2.2 Stated Preference  
10.3 The Measurement of Health Outcomes  
10.4 Making Health Status Indicators Fit for Purpose  
10.4.1 Generic and Specific Measures  
10.4.2 Profiles and Indices  
10.4.3 Measuring Health-Related Quality of Life: an Indifference Curve Approach  
10.5 The Measurement of Health Gain  
10.6 Non-Monetary Valuation of Health States  
10.6.1 Rating Scales, Category Scales and Visual Analogue Scales  
10.6.2 The Standard Gamble  
10.6.3 Time Trade-Off  
10.6.4 How Do We Choose Between These Methods?  
10.7 Multi-Attribute Utility Measures  
10.8 The Valuation of Health States: Willingness to Pay for Health Changes  
10.9 The Value of Life  
Summary  

#### Chapter 11  Economic Evaluation Methods

11.1 Introduction  
11.2 Selecting the Viewpoint  
11.3 Estimating Costs  
11.3.1 Methods and Data Used in Estimating Costs  
11.3.2 Issues in Costing: Where Do We Draw the Line?  
11.3.3 Issues in Costing: Should Future Costs and Cost Savings Be Factored into Analyses?  
11.3.4 Issues in Costing: What If Cost Data Are Sourced from Different Time Periods?
11.4 The Measurement of Health Gain
   11.4.1 Measuring Quality-Adjusted Life Year (QALY) Gains 315
   11.4.2 Measuring Healthy Year Equivalents (HYEs) 317
   11.4.3 Measuring Disability-Adjusted Life Years (DALYs) 318
11.5 Discounting
   11.5.1 The Rationale for Discounting Monetary Costs and Benefits 319
   11.5.2 The Discounting Formula 320
   11.5.3 The Choice of Discount Rate 323
   11.5.4 Discounting Health Effects 324
11.6 Modelling-Based Economic Evaluation
   11.6.1 Using Multiple Sources of Data 327
   11.6.2 Decision Analysis 328
   11.6.3 Markov Models 332
11.7 Trial-Based Economic Evaluation 334
11.8 Dealing with Uncertainty: Sensitivity Analysis
   11.8.1 One-Way Sensitivity Analysis 336
   11.8.2 Multi-Way Sensitivity Analysis 337
   11.8.3 Statistically-Based Sensitivity Analysis 338
   Summary 340

Chapter 12 The Use of Economic Evaluation in Decision Making 343
12.1 The Decision-Making Context: Why is Economic Evaluation Used? 343
12.2 Who Buys Economic Evaluations? Does It Matter? 352
12.3 Is Economic Efficiency All That Matters?
   12.3.1 Need 353
   12.3.2 Equity 354
   12.3.3 Process-of-Care Considerations 357
   12.3.4 Ethical Imperatives 358
12.4 How is Economic Evaluation Used to Make Decisions in Practice? 359
12.5 Cost-Effectiveness League Tables 359
12.6 Programme Budgeting and Marginal Analysis
   12.6.1 Programme Budgeting 362
   12.6.2 Marginal Analysis 364
12.7 Cost-Effectiveness Thresholds 364
12.8 Evaluating Economic Evaluation
   Summary 369
   371

References 373

Author Index 387

Subject Index 391