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  59

3.1 Introduction  59
3.2 The Theory of Production  60
  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  73
  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  87

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  95
  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  114
  4.4.1 Growth Maximisation  116
  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  125

5.1 Introduction  125
5.2 Using Perfectly Competitive Markets to Allocate Resources  126
  5.2.1 Equilibrium in Competitive Markets  126
  5.2.2 The Efficiency of Competitive Markets  126
5.3 Market Failure in Health Care  129
  5.3.1 Externalities  129
  5.3.2 Caring Externalities  130
<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.4</td>
<td>Decision Rules for Cost–Benefit Analysis</td>
<td>250</td>
</tr>
<tr>
<td>9.5</td>
<td>Decision Rules for Cost-Effectiveness and Cost-Utility Analysis</td>
<td>252</td>
</tr>
<tr>
<td>9.5.1</td>
<td>Ratio Measures</td>
<td>253</td>
</tr>
<tr>
<td>9.5.2</td>
<td>The Cost-Effectiveness Plane</td>
<td>253</td>
</tr>
<tr>
<td>9.5.3</td>
<td>The Ceiling Ratio and Acceptability</td>
<td>255</td>
</tr>
<tr>
<td>9.5.4</td>
<td>The Incremental Cost-Effectiveness Ratio</td>
<td>255</td>
</tr>
<tr>
<td>9.5.5</td>
<td>Net Benefits</td>
<td>258</td>
</tr>
<tr>
<td>9.5.6</td>
<td>Probabilistic Approaches</td>
<td>260</td>
</tr>
<tr>
<td>9.5.7</td>
<td>Decision Analysis</td>
<td>261</td>
</tr>
<tr>
<td>9.6</td>
<td>Equity in Economic Evaluation</td>
<td>262</td>
</tr>
<tr>
<td></td>
<td>Summary</td>
<td>263</td>
</tr>
<tr>
<td></td>
<td><strong>Chapter 10</strong> Measuring and Valuing Health Care Output</td>
<td></td>
</tr>
<tr>
<td>10.1</td>
<td>Introduction</td>
<td>265</td>
</tr>
<tr>
<td>10.2</td>
<td>Monetary Valuations of Health Care Benefits</td>
<td>266</td>
</tr>
<tr>
<td>10.2.1</td>
<td>Revealed Preference</td>
<td>266</td>
</tr>
<tr>
<td>10.2.2</td>
<td>Stated Preference</td>
<td>267</td>
</tr>
<tr>
<td>10.3</td>
<td>The Measurement of Health Outcomes</td>
<td>274</td>
</tr>
<tr>
<td>10.4</td>
<td>Making Health Status Indicators Fit for Purpose</td>
<td>275</td>
</tr>
<tr>
<td>10.4.1</td>
<td>Generic and Specific Measures</td>
<td>277</td>
</tr>
<tr>
<td>10.4.2</td>
<td>Profiles and Indices</td>
<td>279</td>
</tr>
<tr>
<td>10.4.3</td>
<td>Measuring Health-Related Quality of Life: an Indifference Curve Approach</td>
<td>282</td>
</tr>
<tr>
<td>10.5</td>
<td>The Measurement of Health Gain</td>
<td>285</td>
</tr>
<tr>
<td>10.6</td>
<td>Non-Monetary Valuation of Health States</td>
<td>288</td>
</tr>
<tr>
<td>10.6.1</td>
<td>Rating Scales, Category Scales and Visual Analogue Scales</td>
<td>289</td>
</tr>
<tr>
<td>10.6.2</td>
<td>The Standard Gamble</td>
<td>290</td>
</tr>
<tr>
<td>10.6.3</td>
<td>Time Trade-Off</td>
<td>292</td>
</tr>
<tr>
<td>10.6.4</td>
<td>How Do We Choose Between These Methods?</td>
<td>294</td>
</tr>
<tr>
<td>10.7</td>
<td>Multi-Attribute Utility Measures</td>
<td>295</td>
</tr>
<tr>
<td>10.8</td>
<td>The Valuation of Health States: Willingness to Pay for Health Changes</td>
<td>296</td>
</tr>
<tr>
<td>10.9</td>
<td>The Value of Life</td>
<td>301</td>
</tr>
<tr>
<td></td>
<td>Summary</td>
<td>302</td>
</tr>
<tr>
<td></td>
<td><strong>Chapter 11</strong> Economic Evaluation Methods</td>
<td></td>
</tr>
<tr>
<td>11.1</td>
<td>Introduction</td>
<td>305</td>
</tr>
<tr>
<td>11.2</td>
<td>Selecting the Viewpoint</td>
<td>306</td>
</tr>
<tr>
<td>11.3</td>
<td>Estimating Costs</td>
<td>310</td>
</tr>
<tr>
<td>11.3.1</td>
<td>Methods and Data Used in Estimating Costs</td>
<td>312</td>
</tr>
<tr>
<td>11.3.2</td>
<td>Issues in Costing: Where Do We Draw the Line?</td>
<td>313</td>
</tr>
<tr>
<td>11.3.3</td>
<td>Issues in Costing: Should Future Costs and Cost Savings Be Factored into Analyses?</td>
<td>314</td>
</tr>
<tr>
<td>11.3.4</td>
<td>Issues in Costing: What If Cost Data Are Sourced from Different Time Periods?</td>
<td>315</td>
</tr>
</tbody>
</table>
# CONTENTS

11.4 The Measurement of Health Gain 315
  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 319
  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 326
  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 335
  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? 353
  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 362
  12.6.1 Programme Budgeting 363
  12.6.2 Marginal Analysis 364
12.7 Cost-Effectiveness Thresholds 364
12.8 Evaluating Economic Evaluation 369
  Summary 371

References 373

Author Index 387

Subject Index 391