

# **Privatization, Restructuring, and Regulation of Network Utilities**

The Walras-Pareto Lectures

David M. Newbery

The MIT Press  
Cambridge, Massachusetts  
London, England

# Contents

Preface	ix
Abbreviation and Units	xiii

## **1 Introduction** 1

1.1 Privatization in Britain	6
1.2 U.K. Privatization Program	13
1.3 Property Rights, Structure, and Efficiency	17
1.4 Ownership and the Boundaries of the State	18
Appendix: Enterprises Privatized, 1979 to 1994	24

## **2 The Problem of Regulatory Commitment** 27

2.1 Modeling the Regulatory Compact as a Game	30
2.2 Playing the Game: Commitment, Credibility, and Repetition	35
2.3 Rate-of-Return Regulation	38
2.3.1 <i>Extensions: The "Used and Useful" Doctrine</i>	44
2.4 Price Regulation	50
2.5 Design of Regulatory Institutions	52
2.6 Role of Licenses in U.K. Utility Regulation	57
2.7 Privatization and Regulation in Transitional Economies	60
2.7.2 <i>Telecommunications Privatization in the Czech Republic</i>	65
2.7.2 <i>Preparations for Electricity Privatization in Hungary</i>	66
2.8 Conclusions	72
Appendix A: Modeling Regulation as a Dynamic Game	73
Appendix B: U.K. Legislative Framework for Telecoms and Electricity	78

<b>3</b>	<b>Ownership of Network Utilities</b>	<b>81</b>
3.1	Local Utilities and Municipal Ownership	82
3.2	Nationwide Network Utilities	82
	3.2.2 <i>Capitalism and Pragmatic Nationalization</i>	83
	3.2.2 <i>Public Ownership as Ideology or Default</i>	84
3.3	Macroeconomic Performance of Public Enterprises	86
	3.3.2 <i>Public Enterprise Performance in the United Kingdom</i>	95
3.4	Efficiency of Public and Privately Owned Network Utilities	95
3.5	Effects of Ownership Changes	106
	3.5.2 <i>Nationalization</i>	106
	3.5.2 <i>Privatization</i>	111
	3.5.3 <i>Case Studies of Electricity Privatization</i>	119
	3.5.4 <i>Case Studies of Telecommunications Privatizations</i>	122
	3.5.5 <i>Lessons from the Privatization Case Studies</i>	126
	Appendix: Evaluating Distributional Impacts	128
<b>4</b>	<b>Theories of Regulation</b>	<b>133</b>
4.1	Normative and Positive Theories of Regulation	136
	4.2.2 <i>Positive Theories of Regulation</i>	139
	4.2.2 <i>Interest Group Theories of Regulation</i>	141
4.2	Interest Group Influence on the English Electricity Industry	144
4.3	Dynamics of Regulatory Reform in the Bell Telephone System	152
4.4	Assessment of the Dynamics of Regulatory Change	160
4.5	Competition versus Regulation	162
	4.5.2 <i>Evidence from U.S. Airline Deregulation</i>	167
<b>5</b>	<b>Introducing Competition into Network Utilities</b>	<b>171</b>
5.1	State Ownership and Competition	176
5.2	Liberalizing Entry while Retaining State Ownership	178
5.3	Procompetitive Reforms of State-Owned Utilities	180
5.4	The Case for State Ownership of the Network	185
5.5	Assessment of Competition and State Ownership	186
5.6	Vertical Separation or Liberalized Access?	187
	5.6.2 <i>Restructuring Options in Different Utilities</i>	188
	5.6.2 <i>Restructuring Choices and the Dynamics of Unbundling</i>	191

<b>6 Reforming the Electricity Supply Industry</b>	199
6.1 Vertical Separation in Electricity: The English Example	201
6.2 Creating Markets for Electricity	204
6.3 Restructuring the CEGB and the Creation of the Electricity Pool	207
6.3.2 <i>Dealing with Risk and Transition: The Role of the Contract Market</i>	211
6.3.2 <i>Progress in Introducing Competition</i>	221
6.3.3 <i>Competition in Supply</i>	228
6.3.4 <i>Competition in the Capital Market</i>	229
6.3.5 <i>Vertical Re-integration and the MMC Generator References</i>	231
6.4 Was the Restructuring of the CEGB Worth It?	235
6.4.2 <i>Cost-Benefit Studies of the Rest of the U.K. ESI</i>	241
6.4.2 <i>An Assessment of the Three ESI Privatizations</i>	243
6.5 Creating Electricity Markets in Other Countries	246
6.5.2 <i>Scandinavia</i>	246
6.5.2 <i>Latin America</i>	250
6.5.3 <i>Australia</i>	255
6.5.4 <i>New Zealand</i>	258
6.5.5 <i>United States</i>	258
6.5.6 <i>Transmission Pricing and Investment</i>	264
6.6 Electricity Markets: Lessons from the Case Studies	269
6.7 Conclusions	279
Appendix: Modeling the Electricity Pool	282
<b>7 Liberalizing the Telecommunications Industry</b>	291
7.1 Pricing and Regulatory Inefficiencies	292
7.2.2 <i>Pressures for Competition in International Telecoms Markets</i>	301
7.2.2 <i>Regulatory Inefficiencies</i>	306
7.2.3 <i>Cross-country Comparisons of Telecoms</i>	307
7.2 Distinctive Features of the Telecoms Industry	309
7.3 Possibility of Competition	315
7.3.2 <i>Liberalization in the United States</i>	316
7.3.2 <i>Reforms in Britain</i>	322
7.4 Lessons to Be Drawn	329
7.4.2 <i>Restructuring at Privatization</i>	329
7.4.2 <i>Creating a More Competitive Structure</i>	331

7.4.3	<i>Restrictions on Competition and Asymmetric Regulation</i>	332
7.4.4	<i>Design of Regulation</i>	333
7.4.5	<i>Access Pricing</i>	335
7.5	Conclusions	337
	Appendix: Telecoms Costs and TELRIC	338
<b>8</b>	<b>Deregulation and Restructuring in Gas</b>	343
8.1	Similarities and Differences between Gas and Electricity	346
8.1.1	<i>Technical Characteristics of Gas</i>	353
8.1.2	<i>Market Structures and Access Arrangements in Gas</i>	355
8.1.3	<i>Requirements for Liberalization</i>	357
8.2	Experience of Liberalization in the United States	361
8.3	Restructuring British Gas	363
8.3.1	<i>Restructuring and Competition</i>	370
8.3.2	<i>Regulating Transmission and Further Unbundling</i>	374
8.4	Gas Liberalization on the Continent	379
8.5	Conclusions	383
<b>9</b>	<b>Conclusions</b>	385
9.1	Restructuring Network Utilities	389
9.2	Entry	392
9.3	Institutional Innovations Needed for Liberalization	395
9.4	Dispute Resolution	399
9.5	Differences between the Network Utilities	406
9.5.2	<i>Liberalizing Telecoms</i>	406
9.5.2	<i>Access Pricing and Vertical Integration</i>	408
9.5.3	<i>Introducing Competition into Electricity</i>	410
9.5.4	<i>Liberalizing Electricity: Pools versus the Single-Buyer Model</i>	412
9.5.5	<i>Gas Liberalization</i>	419
9.6	End of Regulation?	421
	Appendix: Excess Entry in Oligopolies	423
	<b>Notes</b>	425
	<b>References</b>	439
	<b>Index</b>	453