## **Contents**

Preface			
1	Intr	oduction and overview	1
2	Hist 2.1	orical survey of natural monopoly  Evolution of the theory of natural	12
		monopoly	13
	2.2	Natural monopoly and economies of scale	<u>(21)</u>
	2.3	Natural monopoly and destructive competition	24
	2.4	Concluding comments	28
3		ural monopoly and economic theory:	
		te basic results	29
	3.1	Competitive equilibrium and monopoly equilibrium	29
	3.2	General competitive equilibrium	33
		The theory of joint production	35
		Fixed costs and the theory of	
		cross-subsidization	37
	3.5	The theory of the firm and increasing return	s 42
	3.6	Public goods and collective choice	45
	3.7	Public enterprise pricing and the theory	
		of the second best	48
	3.8	Concluding comments	52
4	Natural monopoly and subadditivity of costs		54
	4.1	Natural monopoly in a single output market	57
	4.2	Multiple output natural monopoly:	
		basic results	62
	4.3	• • • • • • • • • • • • • • • • • • • •	
		in multiple output production	67
	4.4		73
	4.5		- 80
	4.6	Concluding comments	83

~			
- Co	nte	e n	ts

vi

		- $I$ . The second $I$			
5	Sustainability of natural monopoly				
	5.1	Sustainability of single output natural			
		monopoly	86		
	5.2	* 1			
		monopoly	90		
	5.3	A game theoretic approach to cross-			
		subsidization and the stability of			
		natural monopoly	102		
	5.4	Concluding comments	109		
6	A game theoretic analysis of destructive				
	competition				
	6.1	Game theoretic preliminaries	113		
	6.2	Sufficient conditions for a stable market	123		
	6.3	Destructive competition: examples of			
		unstable markets	134		
	6.4	Concluding comments	143		
7	Cor	npetition in natural monopoly and natural			
,	oligopoly markets				
	_	The rationale for regulation	145 147		
		Contestable markets and barriers to entry	151		
		Some complications in a dynamic natural	151		
	,.5	monopoly market	157		
	74	Limit and predatory pricing	159		
		Concluding comments	164		
8					
0		Preliminary results	165 166		
		A Bertrand-Nash model of competition	170		
		Concluding comments	179		
		_	1//		
9					
		ıstry	181		
		The nature of demand in telecommunications	182		
	9.2	Characteristics of telecommunications	400		
		technology	189		
	9.3	Econometric studies of the telecommunications	=		
		industry	197		
	9.4	Competition in telecommunications and			
		the changing structure of the industry	205		
	9.5	Concluding comments	213		
References			214		
Index		223			