## **Contents**

in	troc	luctic	on		1		
1	General Equilibrium						
	1.1	Forma	al Interpre	etations of General Equilibrium (GE)	5		
		1.1.1	GE Mod	lel in Pure Exchange (Robinson			
			Crusoe a	and Viernes): 2 Consumers	5		
		1.1.2	GE Mod	del with Production: 2 Consumers	8		
			and 2 Pr	roducers			
			1.1.2.1	Approach from the Agents as Producers	8		
				Approach from the Agents as Consumers	11		
	1.2			GE: From the Invisible Hand to the Walrasian Notion	13		
		1.2.1		lrasian GE Model with Production	13		
				Walras' Law	15		
				an GE Model with Production and Numerarie Money	17		
		1.2.3		an GE Model with Production and Circulating and			
				ry Money	19		
	1.3			of GE: From the Walrasian Notion to the			
				onstration	23		
		1.3.1		Model Extended by Arrow-Debreu	23		
				Existence Theorem (Canonic Approach)	25		
				Demonstration (Canonic Approach: Arrow-Debreu)	25		
				Existence Theorem (Game Theory Approach)	25		
			1.3.1.4	Existence Theorems (Topological Approach: Brower	_		
				and Kakutani)	26		
				Existence Demonstration	26		
	1.4			ge of GE: Unicity and Stability	27		
		1.4.1		lrasian GE Model Extended by Arrow-Debreu and			
			Gale-Ni		28		
			1.4.1.1	The Gale-Nikaido Unicity Theorem (Canonic			
				Approach)	28		
				Demonstration (Canonic Approach: Gale-Nikaido)	28		
			1.4.1.3	The Unicity Theorem (Revealed Preference			
				Approach)	29		
				Demonstration (Revealed Preference Approach)	29		
			1.4.1.5	Proposition of Perfect Static Stability	30		



		1.4.1.6 The Perfect Static Stability Theorem (Canonic Approach: Hicks)	30
		1.4.1.7 Demonstration (Canonic Approach)	30
		1.4.1.8 The Local Dynamic Stability (Canonic Approach)	31
		1.4.1.9 The Local Dynamic Stability Theorem (Canonic	J1
		Approach)	32
		1.4.1.10 Demonstration (Canonic Approach)	32
		1.4.1.11 The Global Dynamic Stability Theorem (Canonic	-
		Approach)	32
		1.4.1.12 Demonstration (Canonic Approach)	33
		1.4.1.13 The Global Dynamic Stability Theorem (Revealed	
		Preference Approach)	34
		1.4.1.14 Demonstration (Revealed Preference Approach)	34
	Bibl	iographic References	35
		• •	
2	Oth	er Models of General Equilibrium	37
	2.1	Model 1	37
		2.1.1 Assumptions	37
		2.1.2 Development of the Model	38
		2.1.3 The Solution	38
		2.1.4 The Li-Yorke Theorem (Baumol and Benhabid's Version)	42
	2.2	Model 2	43
		2.2.1 Assumptions of the Model	43
		2.2.2 Development of the Model	44
		2.2.2.1 Individuals' Behavior: Inter-temporal Maximization	44
		2.2.2.2 Equilibrium Dynamics and State	45
	2.2	2.2.3 The Solution	46 47
		Final Remarks	47
	BIDI	iographic References	4/
3		neral Equilibrium and Main Functional Forms of Utility and	
	Pro	duction	49
	3.1	The Pure Exchange Model for Cobb-Douglas Utility Function	49
	3.2	The Pure Exchange Model for Two Agents with Cobb-Douglas Utility	
		Functions and Constant Returns to Scale in Consumption, Different	
		Initial Assignments of (x, y) and Distinct Parameters in	
		Consumption $(\alpha, \beta)$	50
	3.3	The Pure Exchange Model with Cobb-Douglas Utility Functions,	
		Returns to Scale and a Price for One Good as Numerarie	52
	3.4	The Pure Exchange Model for a Specific Utility Function	53
	3.5	The General Equilibrium Model with a Representative Agent with a	
		Producer-Consumer (or of Robinson Crusoe)	56
	3.6	The Equilibrium Production Model with Constant Returns to Scale	57
	3.7	The Equilibrium Production Model with Decreasing Returns to Scale	58
	Bibl	iographic References	59

			Contents	VI		
Co	mputa	ble Gene	eral Equilibrium	6:		
4.1	The L	The Leontief Model				
		Applications. Economic Impact Models: Economic Impact Study				
		Introduc		64		
	4.2.2	Direct E	Effects of Port Industry	6		
			Port Authority	6		
			Customs	6		
		4.2.2.3	Other Port Industry	6		
		4.2.2.4	Direct Effects of Port Industry	6		
	4.2.3	Indirect	and Induced Effects of Port Industry	6		
		4.2.3.1 1	Regionalization of the National Input-Output Table	7		
		4.2.3.2	Indirect and Induced Impact Vectors	7		
		4.2.3.3	Indirect and Induced Effects of Port Industry	8		
		4.2.3.4	Total Effects of Port Industry	8:		
	4.2.4	Direct E	Effects of the Industry Depending on the Port	8:		
	4.2.5	Indirect	and Induced Effects of the Industry Depending on the	;		
		Port		8		
		4.2.5.1	Indirect and Induced Impact Vectors	8		
		4.2.5.2	Indirect and Induced Effects of the Industry			
			Depending on the Port	8		
	4.2.6	Total Et	ffects of the Industry Depending on the Port	9		
	4.2.7	Econom	nic Impact Study	9		
	4.3	Final Re	emarks	9		
	Bibli	ographic I	References	9		
We	elfare			9		
5.1 Positive Properties of the GE Model				9		
	5.2 The First Welfare Theorem					
	3.3 The Second Welfare Theorem					
5.4				9 9		
5.5	•			10		
5.6				10		
5.0	5.6.1		ns of Property Rights Allocation	10		
	3.0.1		Public Goods	10		
			Natural Resources	10		
			Common Property Resources	13		
			Externalities	13		
	5.6.2		tion and Election Problems between Agents	14		
	0.0.2		Non-Convexities in Preferences	14		
			Non-Convexities and General Equilibrium	14		
	5.6.3		ation Problems: Universality, Transaction Costs,	17		
	2.0.5		etries and Anonymity	14		
			Universality: The Conventional Theory of the Firm	17		
			and the Incomplete Contracts	14		
		5.6.3.2	The Theory of the Firm: Transaction Approach	15		
			y			

Bibliographic References

176