

Cambridge University Press

0521833213 - Sectoral Systems of Innovation: Concepts, Issues and Analyses of Six Major Sectors in Europe

Edited by Franco Malerba

Table of Contents

[More information](#)

Contents

<i>List of figures</i>	<i>page</i> ix
<i>List of tables</i>	x
<i>List of contributors</i>	xii
<i>Acknowledgements</i>	xv

Introduction	1
FRANCO MALERBA	

Part I Sectoral systems: concepts and issues

1 Sectoral systems of innovation: basic concepts	9
FRANCO MALERBA	
1 Introduction	9
2 Antecedents and theoretical bases	11
3 Sectoral systems of innovation and production: a proposed definition and a framework	16
4 The building blocks of a sectoral system of innovation	17
5 The dynamics and transformation of sectoral systems	29
6 The regional and national dimensions	33
7 The next chapters	35
2 Sectoral dynamics and structural change: stylized facts and “system of innovation” approaches	42
FABIO MONTOBBIO	
1 Introduction	42
2 Innovation, performance and structural change in European Union countries, the United States and Japan	44
3 The aggregate analysis of four sectors: pharmaceuticals (and biotechnology), telecommunications, chemicals and machinery	54
4 Structural changes and national trajectories in an “innovation system perspective”	63
5 Conclusions	65
Appendix	67

Cambridge University Press

0521833213 - Sectoral Systems of Innovation: Concepts, Issues and Analyses of Six Major Sectors in Europe

Edited by Franco Malerba

Table of Contents

[More information](#)

vi Contents

Part II Six sectoral systems

3	Pharmaceuticals analyzed through the lens of a sectoral innovation system	73
	MAUREEN McKELVEY, LUIGI ORSENIGO AND FABIO PAMMOLLI	
1	Introduction	73
2	Innovation and the evolution of the sectoral system of innovation in the pharmaceutical industry: an overview	76
3	The advent of molecular biology and the age of cost containment	89
4	Conclusions: linking the empirical evidence to theory	110
4	The chemical sectoral system: firms, markets, institutions and the processes of knowledge creation and diffusion	121
	FABRIZIO CESARONI, ALFONSO GAMBARDELLA, WALTER GARCIA-FONTES AND MYRIAM MARIANI	
1	Introduction	121
2	The boundaries of the sector	122
3	The geography of the chemical sectoral system and international performance	129
4	Evolutionary and coevolutionary processes	131
5	The knowledge base and learning processes: knowledge generation	135
6	The knowledge base and learning processes: patterns of technology diffusion	142
7	Conclusions	150
	Appendix – The networks of inventors: data description	151
5	The fixed Internet and mobile telecommunications sectoral system of innovation: equipment production, access provision and content provision	155
	CHARLES EDQUIST	
1	Introduction	155
2	The fixed Internet and mobile telecommunications sectoral system of innovation	157
3	Policies and strategies	184
6	The European software sectoral system of innovation	193
	W. EDWARD STEINMUELLER	
1	Introduction	193
2	Creating software: for profit, out of necessity and for fun	207
3	Innovative capabilities and organizations: configuring the software industry	219
4	Making it pay: models for software commercialization	230
5	Conclusions: public and private strategies for the future of the European software industry	238

Cambridge University Press

0521833213 - Sectoral Systems of Innovation: Concepts, Issues and Analyses of Six Major Sectors in Europe

Edited by Franco Malerba

Table of Contents

[More information](#)

Contents	vii
7 Machine tools: the remaking of a traditional sectoral innovation system	243
JÜRGEN WENGEL AND PHILIP SHAPIRA	
1 Introduction	243
2 Economic and structural trends in the sector	245
3 Germany: digesting reunification and regaining strength	253
4 Italy: a dynamic sector in flux	267
5 Japan: the sectoral innovation system from a firm's perspective	271
6 The United States: continuing sectoral change	275
7 Conclusions	279
8 Services and systems of innovation	287
BRUCE S. TETHER AND J. STAN METCALFE	
1 Introduction	287
2 Services: what are they?	289
3 Services and sectoral systems of innovation	297
4 Elements of systems of innovation	311
5 Innovation systems as problem- or opportunity-centered and contingent	316
 Part III Sectoral systems and national systems; international performance and public policy	
9 National institutional frameworks, institutional complementarities and sectoral systems of innovation	325
BENJAMIN CORIAT AND OLIVIER WEINSTEIN	
1 Introduction	325
2 How can we define institutions? How do they operate?	326
3 For innovation, what are the relevant "national" institutions?	331
4 Sectoral relevance and specificities	339
5 Conclusions	344
10 Sectoral systems of innovation and varieties of capitalism: explaining the development of high-technology entrepreneurship in Europe	348
STEVEN CASPER AND DAVID SOSKICE	
1 Introduction	348
2 Varieties of capitalism and patterns of innovation	349
3 Case studies: patterns of subsector specialization in European high technology	358
4 Conclusions and implications for policy	381
11 The international performance of European sectoral systems	388
BENJAMIN CORIAT, FRANCO MALERBA AND FABIO MONTOBBIO	
1 Introduction	388

Cambridge University Press

0521833213 - Sectoral Systems of Innovation: Concepts, Issues and Analyses of Six Major Sectors in Europe

Edited by Franco Malerba

Table of Contents

[More information](#)

viii	Contents	
	2 Sectoral systems and industrial leadership	389
	3 The international performance of six European sectors	391
	4 The diverse determinants of industrial leadership	416
	5 Enlarging the discussion on European sectoral performance: the roles of product differentiation, industry life cycles and science	418
	6 Conclusions, with a controversial point	421
12	Sectoral systems: implications for European innovation policy	427
	CHARLES EDQUIST, FRANCO MALERBA, J. STAN METCALFE, FABIO MONTOBBIO AND W. EDWARD STEINMUELLER	
	1 Introduction	427
	2 Reasons for public policy intervention in an innovation system perspective	429
	3 From systems of innovation to sectoral systems: general public policy considerations	439
	4 Some specific policy conclusions	445
	5 Conclusions	458
Part IV Conclusions		
13	Summing-up and conclusions	465
	FRANCO MALERBA	
	1 Introduction	465
	2 A characterization of the various sectoral systems	466
	3 Sectoral systems in Europe: a summing-up	467
	4 The coexistence of the local, national and global dimensions	479
	5 Coevolutionary processes in sectoral systems	481
	6 A note on sectoral systems in services	485
	7 International performance seen through the lens of sectoral systems	488
	8 Policy implications	500
	9 The challenges ahead	503
	<i>Index</i>	508