

Contents

<i>Acknowledgments</i>	<i>page</i> x
<i>List of Abbreviations</i>	xii
<i>List of Tables and Appendixes</i>	xv
Introduction	1
1 Setting the Framework: Patenting and Economic Growth Policy	3
Introduction	3
1.1 Economic Growth, Patent Prone and Patent Averse Countries	7
1.1.1 Patenting and Linear Innovation-Based Economic Growth	7
1.1.2 The UN-level Patenting Norm-Setting Challenge	21
1.1.2.1 UN-level Innovation Policy Fragmentation	24
1.1.2.2 National Income-Based IP Bargaining Situation	27
1.1.2.3 Trade-Innovation and Patent Regulatory Trade-Off	32
1.1.2.4 The Value of Technical Assistance and Capacity-Building	36
1.2 Toward Nonlinear Innovation Patenting Policy	38
Conclusion	43
2 Convergence Clubs, Coalitions and Innovation Gaps	45
Introduction	45
2.1 Patent Club Convergence: The Positive Framework	49
2.1.1 Convergence Over Innovation-Led Growth	49
2.1.2 Coalitions and Convergence Clubs	54
2.1.3 Growth Theory and Convergence over Innovation-Led Growth	61
2.2 The Empirical Analysis	64
2.2.1 Methodology	64
2.2.1.1 Data Selection	64
2.2.1.2 Clustering Analysis	65
2.2.2 Findings	65
2.2.2.1 Patent Propensity by GERD Intensity Clusters	65
2.2.2.2 Relationship between Patent Activity Intensity Indicators and Clusters	68
2.2.2.2.1 Economy Category	72
2.2.2.2.2 Income Group	75
2.2.2.2.3 Geographic Regions	76
	vii

2.2.2.4	Patent Grant Rate	79
2.2.2.5	Patents Applied only to PCT	81
2.2.2.6	Family Size	82
2.2.2.3	Inter-Cluster and Intra-Cluster Convergence	84
2.3	Theoretical Ramifications	88
	Conclusion	89
	Appendix A: Patent and Gross Domestic Expenditure on R&D (GERD) Data	92
	Appendix B: Clustering Procedure: Technical Description	106
	Appendix C: Relationship between Patent Activity Intensity Indicators and Clusters	111
3	Institutions, GERD Intensity and Patent Clusters	119
	Introduction	119
3.1	Innovation-Based Growth and Institutional Analysis	122
3.1.1	Multinational Corporations	122
3.1.2	The Business Sector	127
3.1.3	The Government Sector	132
3.2	The Empirical Analysis	135
3.2.1	Methodology	135
3.2.2	Findings	137
3.2.2.1	Patent Clusters by Performance of GERD by Sector	137
3.2.2.2	Patent Clusters by GERD Financing by Sector	139
3.2.2.3	Test Results Explanation	140
3.3	Theoretical Ramifications	146
	Conclusion	148
	Appendix D: GERD by Sector of Performance and Financing and Patent Clusters	150
4	GERD by Type, Patenting and Innovation	174
	Introduction	174
4.1	Scientific Research Economic Growth and Patent Policy	175
4.1.1	The Role of Patents in Safeguarding Scientific Research	175
4.1.2	The Challenge of Basic Research Funding	180
4.2	Patent Intensity by Type of R&D: Policy Considerations	183
4.2.1	Commerciality of R&D and Patent Intensity	185
4.2.2	Patents and the Hierarchy of R&D	187
4.3	The Empirical Analysis	190
4.3.1	Methodology	190
4.3.2	Findings	190
4.3.2.1	Type of GERD by Patent Activity Intensity	190
4.3.2.2	Experimental Development Advantage by Patent Clusters	194
4.3.2.3	Test Results Explanation	197
4.4	Theoretical Ramifications	202
	Conclusion	205
	Appendix E: GERD by Type of R&D and Patent Clusters	206
5	Patent Intensity by Employment and Human Resources	210
	Introduction	210
5.1	Human Capital and Patent Intensity	214
5.1.1	The Value of Human Capital for Patent Policy	214

Contents	ix
5.1.2 R&D Personnel, Linear Growth and Patenting	217
5.1.3 Non-Linear Human Capital and Endogenous Growth	225
5.2 The Empirical Analysis	226
5.2.1 Methodology	226
5.2.2 Findings	229
5.2.2.1 Patent-Researcher Gap Between Patent Clusters	229
5.2.2.2 Human Capital Input Deficit in Developing Countries	238
5.3 Theoretical Ramifications	239
Conclusion	248
Appendix F: Employment and Human Resources by Patent Cluster	249
6 Spatial Agglomeration of Innovation and Patents	260
Introduction	260
6.1 The Positive Framework: Patenting Between Economic Geography and Innovation Theory	261
6.2 Indigenous Patenting and the Degree of Innovativeness	271
6.2.1 Overview	271
6.2.2 Indigenous Patenting and the Technology Trade Ratio	272
6.2.3 The Degree of Innovativeness and Patent Activity	279
6.2.3.1 Of Patent Novelty: Between New-to-the-Firm and New-to-the-World	280
6.2.3.2 Patent Quality and the Measurement of Newness	284
6.3 The Empirical Analysis	290
6.3.1 Methodology	290
6.3.2 Findings	290
6.3.2.1 Higher Indigenous Patenting Rates in Lower Patent Clusters	290
6.3.2.2 Technology Export and Growth-related Discrepancies	297
6.4 Theoretical Ramifications	302
Conclusion	305
Appendix G: Indigenous Innovativeness Rates by Patent Cluster	306
General Conclusion	320
<i>References</i>	328
<i>Index of Subjects</i>	384
<i>Index of Persons</i>	397