

Contents

1	Introduction	1
2	Theoretical Framework: A Spatial Perspective On Innovation and the Genesis of Regional Growth	9
2.1	Introduction	9
2.2	Innovation and Regional Growth	11
2.3	A Broader View On the Process of Innovation: The Innovation Systems Approach	13
2.4	The Regional Perspective: Regional Systems of Innovation and the “Social Filter”	15
2.5	R&D, Innovation Systems and Knowledge Spillovers	17
2.6	The Diffusion of Knowledge Spillovers: How Institutional Factors and Global Networks Shape the Spatiality of Knowledge Flows	19
2.7	The Success of the “Core”: Where Proximities, Relational Networks and Institutions Generate Local “Buzz”	20
2.8	Explaining Core and Periphery Patterns: The Foundations of an Integrated Empirical Framework	22
3	Geographical Accessibility and Human Capital Accumulation	31
3.1	Introduction	31
3.2	The Key Relationships: Accessibility and Human Capital Accumulation	32
3.2.1	How Accessibility Influences the Process of Innovation	32
3.2.2	Education: A “Preliminary” Proxy for Innovation “Prone” and Innovation “Averse” Regions	34
3.3	The Empirical Model	35
3.3.1	Model Specification	35
3.3.2	The Variables	36
3.4	Empirical Results	38
3.4.1	Estimation Issues	38
3.4.2	Regional Innovation Activities and Economic Performance in the EU-25	39

3.4.3 The Translation of Innovation into Growth: The Interaction of Innovative Effort with Accessibility and Education	46
3.5 Conclusions	49
4 The Role of Underlying Socio-Economic Conditions	51
4.1 Introduction	51
4.2 The Socio-Economic Conditions of the EU Regions and Their Innovative Performance	52
4.2.1 An Empirical Definition for the Regional System of Innovation: The Social Filter	52
4.2.2 The Geography of the Social Filter Conditions in the EU	59
4.2.3 The Social Filter Index and Its Association with R&D Expenditure: Four Typologies of Regions and Their Differential Growth Performance	62
4.3 An Empirical Model for the EU Regional Growth Performance	64
4.3.1 Model Specification	64
4.3.2 Estimation Issues	67
4.3.3 Innovation, Spillovers and Social Filter: Empirical Results	68
4.4 Conclusions	71
5 Knowledge Flows and Their Spatial Extent	75
5.1 Introduction	75
5.2 Contextualising the Analysis of Knowledge Spillovers into an “Integrated Framework”	76
5.3 Measuring the Spatial Extent of Knowledge Spillovers	78
5.3.1 Model Specification	78
5.3.2 The Spatial Extent of Innovative Spillovers: Empirical Evidence	79
5.4 Conclusions	81
6 Innovation In an Integrated Framework: A Europe-United States Comparative Analysis	83
6.1 Introduction	83
6.2 The Innovation Gap Between Europe and the United States and Its Structural Determinants	84
6.3 Geography and Innovative Performance in the EU and the US	87
6.4 The Model: A Modified Knowledge Production Function in an “Integrated” Territorial Framework	91
6.5 Results of the Analysis	98
6.5.1 Specific Estimation Issues and Units of Analysis for the Comparative Analysis	98
6.5.2 Comparing Territorial Dynamics in Europe and the US	99

6.5.3 Agglomeration, Specialisation and Absolute Size of Clusters	108
6.6 Conclusions	113
7 What Can We Learn From the “Integrated Approach” To Regional Development? The Impact of EU Infrastructure Investment	115
7.1 Introduction	115
7.2 Infrastructure and Regional Economic Development	116
7.2.1 The Rationale for Public Infrastructure Development	116
7.2.2 A Broader Theoretical Framework for the Assessment of the Impact of Transport Infrastructure Development	120
7.3 The Model	121
7.4 Results of the Analysis	127
7.4.1 Estimation Issues, Data Availability, and Units of Analysis	127
7.4.2 Stylised Facts	129
7.4.3 Transport Infrastructure and Regional Growth in the EU	133
7.5 Conclusions	145
8 The EU Regional Policy and the Socio-economic Disadvantage of European Regions	147
8.1 Introduction	147
8.2 Regional Policy and Structural Disadvantage	148
8.2.1 The EU Regional Policy	148
8.2.2 Territorial Concentration and Correlation with Structural Disadvantage	150
8.2.3 Where Are the Funds Most Needed? The Empirical Evidence Produced So Far	151
8.3 Where Do the Funds Actually Go?	152
8.3.1 A Measure for Socio-economic Conditions	153
8.3.2 The Empirical Model for the Allocation of Funds Across Regions	154
8.3.3 The Dataset	155
8.4 Empirical Results	156
8.4.1 Spatial Concentration: Structural Funds Versus Socio-economic Disadvantage	156
8.4.2 The Drivers of the Regional Allocation of Structural Funds	158
8.4.3 Socio-economic Disadvantage and Regional Convergence ...	162
8.5 Conclusions	167
9 Conclusions	169
9.1 What We have Learnt on Regional Innovation and Growth Dynamics: Synopsis of Empirical Results	169

9.2 What Are the Implications for Local and Regional Economic Development Policies?	172
9.2.1 The Territorial “Integrated” Framework as a Common Platform for Top-Down and Bottom-Up Policies	172
9.2.2 Translating the Territorial “Integrated” Approach into a Diagnostic/Policy Tool	174
9.2.3 A Diagnostic Policy Tool for Locally-Suited Economic Development Policies	176
9.3 Concluding Remarks	179
References	183
Appendix A: Data Availability and Description of the Variables	195
Appendix B: The Weight Matrix and the Moran’s I	199
Appendix C: Technicalities of the Principal Component Analysis and Results for the EU and the US	201
Appendix D: List of the Regions Included in the Analysis	203
Appendix E: Unit Root Tests (Chap. 7)	211
Appendix F: Spatial Autocorrelation Test for the Regression Residuals (Chap. 7)	213



<http://www.springer.com/978-3-642-17760-6>

Innovation and Regional Growth in the European Union

Crescenzi, R.; Rodríguez-Pose, A.

2011, X, 218 p., Hardcover

ISBN: 978-3-642-17760-6