

Regional Policies and Comparative Advantage

Edited by

BÖRJE JOHANSSON

CHARLIE KARLSSON

ROGER R. STOUGH

Regional Policies and Comparative Advantage

Contributors

Maurice Baslé	University of Rennes, Rennes, France
Roger Bolton	Williams College, Williamstown, Massachusetts
Frank Bruinsma	Free University, Amsterdam, The Netherlands
Søren Caspersen	Institute of Local Government Studies, Copenhagen, Denmark
Paul Cheshire	London School of Economics, London, England
Mustafa Dinc	The World Bank, Washington, DC
Garry Gillespie	University of Strathclyde, Glasgow, Scotland
Ian Gordon	University of Reading, Reading, England
Cees Gorter	Free University, Amsterdam, The Netherlands
Kingsley E. Haynes	George Mason University, Fairfax, Virginia
Chris Jensen-Butler	University of St. Andrews, St. Andrews, Scotland
Börje Johansson	Jönköping International Business School, Jönköping, Sweden
Mats Johansson	Swedish Institute for Regional Research, Östersund, Sweden
Charlie Karlsson	Jönköping International Business School, Jönköping, Sweden
Kiyoshi Kobayashi	Kyoto University, Kyoto, Japan
Jan S. Kowalski	University of Karlsruhe, Karlsruhe, Germany
Bjarne Madsen	Institute of Local Government Studies, Copenhagen, Denmark
Stefano Magrini	London School of Economics, London, England
Edward J. Malecki	University of Florida, Gainesville, Florida
Peter McGregor	University of Strathclyde, Glasgow, Scotland
Jan Mønnesland	Norwegian Institute for Urban and Regional Research, Oslo
Barry Moore	University of Cambridge, Cambridge, England
Peter Nijkamp	Free University, Amsterdam, The Netherlands
Rolf Nilsson	Jönköping International Business School, Jönköping, Sweden
Makoto Okumura	Hiroshima University, Higashi –Hiroshima, Japan
Michael Olsson	Jönköping International Business School, Jönköping, Sweden
Franck Pelé	University of Rennes, Rennes, France

Jonathan Potter	Organisation for Economic Cooperation and Development, Paris
John Rees	University of North Carolina, Greensboro, North Carolina
Axel J. Schaffer	University of Karlsruhe, Karlsruhe, Germany
Roger R. Stough	George Mason University, Fairfax, Virginia
Luis Suarez-Villa	University of California, Irvine, California
J. Kim Swales	University of Strathclyde, Glasgow, Scotland
Jim Taylor	Lancaster University, Lancaster, England
Mehmet Ali Tuncer	Kyoto University, Kyoto, Japan
Ya Ping Yin	University of Hertfordshire, Hertfordshire, England

Acknowledgements

The authors thank Christina Green, Christine Pommerening, Irene Johansson and Kerstin Ferroukhin for their tireless work in making multiple rounds of edits on material in the book and for putting it all into the appropriate format for the publisher. Without their effort it would have been difficult to produce the book.

Preface

The contributions forming the different chapters in this book were first presented and discussed at an international workshop in June 1999 in Fiskebäckskil, Sweden. The workshop, which had the theme 'Evaluation of Regional Policies', was the second in a row of international workshops related to evaluating the effects of the application of the European Union structural funds.

The workshop was organised jointly by the Department of Economics and Business Administration, University of Trollhättan/Uddevalla, Sweden, Jönköping International Business School, Jönköping University, Sweden and the School of Public Policy, George Mason University, USA.

The workshop was sponsored by the European Union and by the Swedish Saving Bank. We thank them for their generous sponsorship.

Contents

<i>List of Figures</i>	viii
<i>List of Tables</i>	x
<i>Contributors</i>	xiii
<i>Acknowledgements</i>	xv
<i>Preface</i>	xvi

1 Introduction: Regional Policy Evaluation in the New Economic Geography	1
<i>Charlie Karlsson and Roger Stough</i>	

PART ONE REGIONAL POLICY AND LOCATION

2 Agglomeration, Economies of Scale and Dynamic Specialisation in a Central Place System	25
<i>Charlie Karlsson and Rolf Nilsson</i>	
3 Regional Policy in the Internet Age: The Effects of Technological Change On Regional Development	49
<i>Edward J. Malecki</i>	
4 Nomadic Firms in a Network Economy: Comparative Analysis and Policy Perspectives	77
<i>Frank Bruinsma, Cees Gorter and Peter Nijkamp</i>	
5 Network Co-evolution with Cost–Benefit Rules: A Simulation Experiment	103
<i>Kiyoshi Kobayashi, Makoto Okumura and Mehmet Ali Tuncer</i>	
6 Policies or Market Incentives? Major Changes in the Geographical Sources of Technology in the United States, 1945 –95	127
<i>Luis Suarez-Villa</i>	

PART TWO EVALUATING REGIONAL POLICY

7 Regional Policy Evaluation and Labour Market Adjustment	153
<i>Ian Gordon</i>	

8	The Evaluation of UK Regional Policy: How much Progress has been Made? <i>Jim Taylor</i>	173
9	Counteracting the Counterfactual: New Evidence on the Impact of Local Policy from the Residuals <i>Paul Cheshire and Stefano Magrini</i>	209
10	The Counterfactual Path: Defining the Non-Support Activity Level when Estimating Programme Effects <i>Jan Mønnesland</i>	239
11	A Computable General Equilibrium Approach to the Ex Post Evaluation of Regional Development Agency Policies <i>Gary Gillespie, Peter G. McGregor, J. Kim Swales and Ya Ping Yin</i>	253
12	Multi-level Regional Policies and Programmes in France: European Norms, Methods and First Applications <i>Maurice Baslé and Franck Pelé</i>	283
13	Evaluation of the Employment Effects of United Kingdom Enterprise Zones: A Comparison of New Start-ups and Inward Investors <i>Barry Moore and Jonathan Potter</i>	301
14	Rural Areas in Crisis? The Role of the Welfare State in Income Creation: The Case of Denmark <i>Chris Jensen-Butler, Bjarne Madsen and Søren Caspersen</i>	323
PART THREE REGIONAL POLICY: METHODOLOGICAL APPROACHES		
15	Methods for Identifying Functional Regions: Theory and Applications <i>Charlie Karlsson and Michael Olsson</i>	367
16	European Integration and International Trade in Manufacturing: Productivity Considerations and Employment Consequences <i>Kingsley Haynes and Mustafa Dinc</i>	391
17	Regional Development Potentials and Policy Options for Selected EU Regions <i>Jan S. Kowalski and Axel J. Schaffer</i>	425

18	Deindustrialisation and Regional Productivity: Swedish Manufacturing Industry, 1970–90 <i>Mats Johansson</i>	441
PART FOUR NEW CONCEPTS AND PERSPECTIVES		
19	Place Surplus, Exit, Voice and Loyalty <i>Roger E. Bolton</i>	469
20	Capital and the Regions: Other Concepts in Need of Evaluation <i>John Rees</i>	489
21	How can Regional Policies Influence the Location Advantages of a Region? <i>Börje Johansson</i>	503
	<i>Index</i>	515

List of Figures

2.1	The central place system according to strict definition	31
3.1	Principal Internet backbones in the USA	60
3.2	Number of redundant links of 33 backbone providers on the Internet for leading US cities	61
3.3	Bandwidth-weighted hierarchy of US cities, for 33 Internet backbones	62
3.4	Government actions that can enhance clusters	67
5.1	Initial equilibrium	117
5.2a	Final equilibrium after network evolution (case A)	118
5.2b	Final equilibrium after network evolution (case B)	119
5.2c	Final equilibrium after network evolution (case C)	119
5.3	Final utility levels (Benchmark Case)	120
5.4	Final equilibrium after network evolution (case D)	121
5.5	Final equilibrium after network evolution (case C')	122
5.6	Final utility levels (Reference Case)	123
6.1	Regional divisions: Sunbelt, Northeast, Midwest	131
6.2	Regional patenting distribution, 1900–1995	132
6.3	Regional innovative capacity, 1900–1995	133
6.4	State innovative capacity, 1900–1995	135
8.1	The potential impact of foreign direct investment on the performance of UK firms	188
8.2	Modeling the effects of regional financial assistance	198
8.3	Ex post evaluation of business development projects supported by the Structural Funds: a case study of Scotland	202
10.1	The reference path, the path with programme implementation, and the programme effect, ex ante and ex post analyses	242
10.2	Growing and declining indicator development. Actual path and hypothetical alternatives without programme activities	243
10.3	Estimated support scheme effects	250
11.1	The time pattern of exogenous Hicks-neutral efficiency shocks in the manufacturing and non-manufacturing traded sectors, with an assumed 5-year decay	265
11.2	The estimated change in total employment in Scotland and the UK as a result of SE's business competitiveness strategic objective	266
13.1	The Location of enterprise zones within the UK	309

14.1	Disposable income 2010, initial effects of a transfer reduction, change with respect to baseline	330
14.2	Disposable income 2010, scenario 1	331
14.3	Disposable income per inhabitant by residence 1995, current prices	333
14.4	Average annual growth in disposable income 1980–95, by place of residence in current prices	334
14.5	The structure of LINE	340
15.1	The real wage less transportation costs between two centres (i and j)	369
15.2	The geographical interaction cost and the commuting frequency	372
15.3	The commuting frequencies to the two centers (i and j)	373
15.4	The number of local labour markets in 1986 and 1996	376
15.5	The rank–size distribution of the functional regions 1986 and 1996	377
15.6	A map of the core of the region	378
15.7	The Trollhättan and Lysekil functional regions	379
15.8	The Trollhättan, Lysekil and Uddevalla functional regions	380
15.9	The Trollhättan, Lysekil, Uddevalla and Vänersborg functional regions	381
15.10	The Uddevalla and Lysekil local labour markets (1996)	382
15.11	The Fyrstad region as two functional regions in 1996	382
15.12	The Trollhättan, Lysekil and Uddevalla functional regions	383
15.13	The Trollhättan, Lysekil and Uddevalla and Vänersborg functional regions	384
15.14	The Trollhättan, Uddevalla and Lysekil local labour markets in 1986	385
15.15	The Fyrstad region had parts in three counties	386
17.1	Classification of European regions	432
17.2	Classification of European regions into eight clusters	437
18.1	Sweden and the eight analysed regions	455
19.1	Good L	476
19.2a	Shift of demand for other goods (a)	476
19.2b	Shift of demand for other goods (b)	476
19.3	Demand curve shifts right	477
19.4	A case of a fixed quantity but zero-priced good	477
20.1	Major types of US non-profit organisations	495
20.2	Non-profit organisations by type and city, Piedmont Triad	500

List of Tables

2.1	Description of the regional classification	36
2.2	Number of CP industries with respect to their order in 1993 and 1996	37
2.3	Medium- and high-order industries in 1993 and 1996	38
2.4	Regression results for industry elasticity to population in 1996	39
2.5	Regression results for establishment elasticity to population in 1996	39
2.6	Average size in employment of establishments with respect to their order, in 1993 and 1996	40
2.7	Employment in CP industries with respect to rank	41
2.8	Description of industrial movement between orders in 1993 to 1996	42
3.1	Metropolitan area population effects on the number of central office switches	57
3.2	Presence of competitive telecom providers, by MSA size class	57
3.3	Digital telecommunications technologies, by metropolitan area size class	58
4.1	A typology of nomadic firms <i>vis -à-vis</i> other firms	84
4.2	Relocation of firms by country of origin and destination	85
4.3	List of interviewed nomadic firms	87
4.4	Distribution and features of nomadic firms	88
4.5	Multidimensional information table on the attributes of 21 nomadic firms	92
4.6	Data table on the occurrence and composition of minimal sets in rough set analysis	93
4.7	Results of the rough set analysis	93
4.8	Frequency of explanatory variables values included in the decision rules	94
4.9	Frequency of firms affected by variable values included in the decision rules	95
6.1	Regional innovative capacity, 1900–1994	134
6.2	Largest local sources of invention patenting, 1994	137
6.3	The technology-relevant policy context	139
7.1	Regressions of travel to work area non-employment rates, 1991	166
7.2	Regressions of regional non-employment rates, 1991	168

8.1	Estimated effect of regional policy instruments on the number of manufacturing establishments moving into assisted areas in Great Britain, 1960–81	178
8.2	Estimated effects of regional policy instruments on the movement of manufacturing establishments into each GB region, 1960–77	182
8.3	Foreign direct investment in UK regions: 1980–90 and 1991–97	183
8.4	Regional distribution of Japanese-owned plants in GB, 1996	184
8.5	Employment in Japanese-owned plants in the UK by type of assisted area, 1996	184
8.6	Reasons for the choice of a particular locality	185
8.7	Estimated effect of Regional Selective Assistance on jobs created in Scotland	199
9.1	The difference boundaries make: some NUTS regions which are cities	213
9.2	Definition of variables used in growth models 1 and 2	216
9.3	Model 1: 122 major European FURs: GDP growth (1978/80–1992/94)	219
9.4	The role of changing economic potential: estimated coefficients for different models	220
9.5	Residuals from model 1 – without policy units variable	223
9.6	Model 2: European FUR growth (1978/80–1992/4) including policy units	227
9.7	Residuals from model 2 – with policy units variable	229
9.8	Difference between residuals from models 1 and 2	231
11.1	A condensed version of the period-by-period variant of AMOSRUK	256
11.2	Scottish and UK effects in Period 3 of SE's business competitiveness strategic objective	268
11.3	The cumulative discounted Scottish and UK financial effects of SE's business competitiveness strategic objective	269
11.4	Period-by-period employment results for SE's business competitiveness strategic objective	270
13.1	Survey response	308
13.2	Key characteristics of sampled establishments	310
13.3	Types of establishments on EZs and associated employment	311
13.4	General characteristics of EZ establishments	312
13.5	Influences on the decision to locate or start-up on an EZ	313
13.6	Local impacts of EZ establishments: labour composition and local recruitment	315
13.7	Inward investor customer, supplier and competitor linkages	316
13.8	Types of establishments on EZs and associated employment, by zone type	318

13.9	The main influences on location or start-up, by zone type	318
13.10	The main local impacts, by zone type	319
14.1	Disposable income per inhabitant by place of residence for different groups of rural municipalities in 1995, current prices	335
14.2	Overview of sequence of calculations in LINE in the isolated decomposition	352
14.3	Results of the isolated decomposition of growth in disposable income in Danish rural municipalities, 1980–95	354
14.4	Decomposition of changes in disposable income – cumulative approach	358
15.1	The number of functional regions at different self-sufficiency limits (1986 and 1996)	375
15.2	Summary statistics on the functional regions, 1986 and 1996	377
15.3	The estimated parameters, when 75 per cent self-sufficiency limit is used	377
15.4	The self-sufficiency in 1986 and 1996 in the larger Fyrstad region	379
15.5	The local labour markets in the Fyrstad region, 1996	381
15.6	The two-way flow measures in 1986 and 1996	386
16.1	Growth and employment EUR, USA and Japan	394
16.2	Geographical structure of extra- community trade (goods, extra-EC)	395
16.3	The regional structure of extra-EU imports of manufactured products	396
16.4	Export performance, total goods	397
16.5	Aggregated results	408
16.6	Employment change in the EU countries, shift– share results	409
17.1	Elasticities of the quasi –production function	430
17.2	Elasticities of German regions belonging to the industrial core	432
17.3	Region–type specific elasticities	434
17.4	Derivation of regional policy conclusions	436
17.5	Appropriate policy bundles	439
18.1	A schematic comparison between structure effects according to methods A and B	452
18.2	Employment in manufacturing industry (SN13) in Sweden and eight Swedish regions, 1970 and 1990	456
18.3	Deindustrialisation in Sweden and eight Swedish regions, 1960–90	456
18.4	Labour productivity – thousands of SEK – within Swedish industry	461
18.5	Productivity development (%) 1970–1990	462
20.1	Current operating expenditures of US non-profit organisations, by type of organisation, 1989	497

1. Introduction: Regional Policy Evaluation in the New Economic Geography

Charlie Karlsson and Roger Stough

INTRODUCTION

The conceptions of economic development in modern regions have gone through a fundamental change since the beginning of the 1980s. Today, regions are increasingly looked upon as independent market places that are connected via interregional and international trade and not as administrative units embodied in a national unit. Two different but complementary theoretical frameworks explain the economic specialisation of regions. The traditional but insufficient framework assumes that the comparative advantages of regions depend upon differences in the supply of lasting resources.

The new complementary framework known as the new economic geography assumes that the dynamic interaction between geographical market potentials and rational firms in its own way creates the comparative advantage of regions. These comparative advantages take the form of localised increasing returns to scale, for example the formation of highly competitive and rapidly growing industrial clusters. In this framework the role of regions as market places and as carriers of specialisation advantages is stressed. Economic development in a country is no longer a question of national specialisation and competitive power but of regional specialisation often based on clusters and geographical competitive advantages.

The new framework puts regional policy in a new perspective. Of course, regional policy can still stimulate the development of dynamic comparative advantages through investments in lasting resources such as infrastructure capital, human capital and R&D. However, according to the modern theories of endogenous regional economic growth, regional growth comes in major part from internal conditions that can be influenced by policy and other processes. Internal conditions must be developed and implemented

with specific local and regional knowledge. The new theoretical base for regional policy also means new challenges for evaluating the effects of regional policies. Evaluation of regional policies must be given a new focus, a new time perspective and new models. This, in summary, is the message from the papers collected in this book.

The purpose of this introductory chapter is to present the new theoretical framework for regional development and, hence, regional policy. It highlights the problems faced today in regional policy evaluation and it presents the chapters included in this volume.

A STYLISTED MODEL OF THE NEW ECONOMIC GEOGRAPHY

Current research on the links between regional market potentials and scale economies has produced a rich variety of models. However, most of these models have a common theme. Some common aspects for many models related to the new economic geography are illustrated below.

Increasing returns is a common theme in these models. In the simplest case externalities emerge as a consequence of market interactions involving economies of scale at the level of the individual firm. To deal with this situation it is common to use a spatial version of the Dixit–Stiglitz model of monopolistic competition that allows for multiple locations and transport costs between different locations (Dixit and Stiglitz, 1977).

These models, in their most elementary form, contain two sectors: agriculture and manufacturing. The agricultural sector is perfectly competitive and produces a single homogenous good. On the other hand it provides a large variety of differentiated goods, is characterised by increasing returns and is hence imperfectly competitive. The number of potential manufactured goods is very large.

Production and consumption takes place at a specific location in a geographic space with discrete locations. All consumers have the same preferences and a taste for variety. Each variety of the manufactured good is produced in only one location. All varieties produced at a particular location are symmetric, having the same technology and price. Economies of scale arise for different levels of variety and no economies of scope are allowed.

Agricultural and manufactured goods can be shipped between locations and may incur shipment transport costs. Total sales of a specific variety depend on income in each location, the price index in each location, transport costs and the mill price. Because of increasing returns to scale, consumers' preferences for variety and the unlimited number of potential

varieties of manufactured goods, no firm will choose to produce the same variety as another firm.

Hence, each variety is produced in only one location by a single specialised firm. This means that the number of firms is equal to the number of varieties. Here all scale effects work through changes in the variety of goods available. The number of firms in each location is related to the size of the manufacturing labour force in a location.

A location or region with a large manufacturing sector has a lower price index for manufactured goods, because a smaller proportion of this region's manufacturing consumption has to bear transport costs. The region with the larger home market has a more than proportionally larger manufacturing sector and therefore also exports manufactured goods. This phenomenon is known as the home market effect. Locations with large concentrations of manufacturing also tend to have a large demand for manufactured goods.

The basic model framework presented in this section is now expanded.

INCREASING RETURNS AND INTERNAL ECONOMIES OF SCALE

The idea of increasing returns is a basic ingredient in modelling approaches related to the new economic geography. Without increasing returns it is virtually impossible to explain the geographical concentration of firms, regional specialisation and the importance of the home market. Increasing returns is also a basic explanation for trade among regions. If the relationship between the scale of production and the average cost per produced unit is negative, scale advantages exist, which are synonymous with increasing returns to scale.

The major explanation for the existence of increasing returns is that some production factor in a firm is fixed and, hence, gives rise to a cost that is fixed and independent of whether production is small or large in a given interval. The most common explanations to the existence of fixed factors of production are indivisible resources and so called set-up costs, which consist of development, start-up, establishment, preparation and training costs. These latter costs are normally associated with labour and immaterial resources, while indivisible resources are most often associated with capital objects such as buildings, facilities, machines and material networks. Other examples of fixed factors are knowledge assets, brand names and non-material networks. A fixed production factor can be most closely compared to a catalyst, which must be present in production. As such it generates a cost – often a start-up cost – but the use of the resource is not dependent upon the volume of production or if the firm has many or few customers.