

Evolutionary Economic Geography

Location of production and the European Union

Miroslav N. Jovanović

F119.9
J86

Evolutionary Economic Geography

Location of production and the
European Union

Miroslav N. Jovanović



 **Routledge**
Taylor & Francis Group
LONDON AND NEW YORK



E2009002722

First published 2009

by Routledge

2 Park Square, Milton Park, Abingdon, Oxon, OX14 4RN

Simultaneously published in the USA and Canada

by Routledge

270 Madison Avenue, New York, NY 10016

Routledge is an imprint of the Taylor & Francis Group, an informa business

© 2009 Miroslav Jovanović

Typeset in Times New Roman by

Taylor & Francis Books

Printed and bound in Great Britain by

MPG Books Ltd, Bodmin, Cornwall

All rights reserved. No part of this book may be reprinted or reproduced or utilised in any form or by any electronic, mechanical, or other means, now known or hereafter invented, including photocopying and recording, or in any information storage or retrieval system, without permission in writing from the publishers.

British Library Cataloguing in Publication Data

A catalogue record for this book is available from the British Library

Library of Congress Cataloging in Publication Data

Jovanovic, Miroslav N., 1957-

Evolutionary economic geography : location of production and the European Union / Miroslav Jovanovic. – 1st ed.

p. cm. – (Routledge studies in global competition)

Includes bibliographical references and index.

1. Economic geography. 2. Production (Economic theory) 3. Industrial location. 4. International economic integration. 5. European Union. I. Title.

HF1025.J658 2008

338.6'042094–dc22

2008003404

ISBN: 978-0-415-42346-5 (hbk)

ISBN: 978-0-203-89318-0 (ebk)

Nearly half a century ago, Walter Isard, the founder of regional science, suggested in his seminal book *Location and Space Economy* two promising approaches to further development of economic geography: *the monopolistic competition approach* and *the evolutionary approach*. As is well known, since the late 1980s, the monopolistic competition approach has been vigorously explored in the New Economic Geography. Then, the exploration of evolutionary approach started in the late 1990s, following the development of evolutionary economics and complexity theory. Although it is still in its infancy, evolutionary approach has been contributing significantly to the enrichment of economic geography, adding new perspectives to the long-term process of structural change in space and in time. In *Evolutionary Economic Geography*, Miroslav N. Jovanović presents in lucid manner the state of arts in economic geography with a special focus on evolutionary approach. The book covers not only theory but also regional policy and location of production in the context of global economy. I enjoyed reading this wonderfully informative book and learned a lot, and so will you.

Masahisa Fujita
President of the Research Institute of Economy, Trade and Industry, Tokyo

Evolutionary Economic Geography

The purpose of this book is to provide a guided tour through the theoretical foundations of spatial locations of firms and industries in an evolutionary economic framework. It addresses the issues of how a location of business in geographical space is selected and where economic activity may (re)locate in the future. The analysis is in the context of technological progress, innovation, disequilibrium and endemic uncertainty. Jovanović raises pertinent questions such as how willing, motivated and able firms (and governments) are to adapt to constantly evolving new opportunities and challenges over time and to experiment and translate these perceptions into profitable actions. How is their 'competitive position' evolving relative to others and changing over time when faced with a stream of constantly arriving new opportunities, innovation, threats and obstacles? Considerations are always supported with a plethora of examples and cases from real life.

Jovanović argues that the economy is a complex and constantly adaptive system which is almost always outside equilibrium. Building on this, he suggests that there is an important lacuna in our understanding of evolutionary spatial economics and that there is much space for further multi-disciplinary research in this academic and practical area. This book offers an evolutionary and disequilibrium analysis of the subject and makes parallels, where appropriate and possible, among economics, geography, physics, biology and art. It considers key areas in theory, market and production structure, spatial location of domestic and foreign firms, as well as regional policy. In addition, there are references to policy intervention; importance of investment in local social stability, education and training; as well as to uncontrollable variables that are beyond the influence of firms, industries, regions or public authorities. The author offers various evolutionary insights and alternatives to the pure neoclassical equilibrium economic model.

This book will be of great interest to students and researchers engaged with disequilibrium economics, evolutionary and complexity economics, economic geography and location of firms and industries in geographical space.

Miroslav N. Jovanović is Economic Affairs Officer at the United Nations Economic Commission for Europe, Geneva and Lecturer at the European Institute of the University of Geneva.

Routledge Studies in Global Competition

Edited by John Cantwell, Rutgers, the State University of New Jersey, USA
and David Mowery, University of California, Berkeley, USA

- 1 Japanese Firms in Europe**
Edited by Frédérique Sachwald
- 2 Technological Innovation, Multinational Corporations and New International Competitiveness**
The case of intermediate countries
Edited by José Molero
- 3 Global Competition and the Labour Market**
Nigel Driffield
- 4 The Source of Capital Goods Innovation**
The role of user firms in Japan and Korea
Kong-Rae Lee
- 5 Climates of Global Competition**
Maria Bengtsson
- 6 Multinational Enterprises and Technological Spillovers**
Tommaso Perez
- 7 Governance of International Strategic Alliances**
Technology and transaction costs
Joanne E. Oxley
- 8 Strategy in Emerging Markets**
Telecommunications establishments in Europe
Anders Pehrsson
- 9 Going Multinational**
The Korean experience of direct investment
Edited by Frédérique Sachwald
- 10 Multinational Firms and Impacts on Employment, Trade and Technology**
New perspectives for a new century
Edited by Robert E. Lipsey and Jean-Louis Mucchielli
- 11 Multinational Firms**
The global-local dilemma
Edited by John H. Dunning and Jean-Louis Mucchielli
- 12 MIT and the Rise of Entrepreneurial Science**
Henry Etzkowitz
- 13 Technological Resources and the Logic of Corporate Diversification**
Brian Silverman

- 14 The Economics of Innovation,
New Technologies and Structural
Change**
Cristiano Antonelli
- 15 European Union Direct
Investment in China**
Characteristics, challenges and
perspectives
*Daniel Van Den Bulcke,
Haiyan Zhang and
Maria do Céu Esteves*
- 16 Biotechnology in Comparative
Perspective**
Edited by Gerhard Fuchs
- 17 Technological Change and
Economic Performance**
*Albert L. Link and
Donald S. Siegel*
- 18 Multinational Corporations
and European Regional Systems
of Innovation**
*John Cantwell and
Simona Iammarino*
- 19 Knowledge and Innovation in
Regional Industry**
An entrepreneurial coalition
Roel Rutten
- 20 Local Industrial Clusters**
Existence, emergence and
evolution
Thomas Brenner
- 21 The Emerging Industrial
Structure of the Wider
Europe**
*Edited by Francis McGowen,
Slavo Radosevic and
Nick Von Tunzelmann*
- 22 Entrepreneurship**
A new perspective
Thomas Grebel
- 23 Evaluating Public Research
Institutions**
The US Advanced Technology
Program's Intramural Research
Initiative
Albert N. Link and John T. Scott
- 24 Location and Competition**
*Edited by Steven Brakman and
Harry Garretsen*
- 25 Entrepreneurship and
Dynamics in the Knowledge
Economy**
*Edited by Charlie Karlsson,
Börje Johansson and
Roger R. Stough*
- 26 Evolution and Design of
Institutions**
*Edited by Christian Schubert
and Georg von Wangenheim*
- 27 The Changing Economic
Geography of Globalization**
Reinventing space
Edited by Giovanna Vertova
- 28 Economics of the Firm**
Analysis, evolution and history
Edited by Michael Dietrich
- 29 Innovation, Technology and
Hypercompetition**
Hans Gottinger
- 30 Mergers and Acquisitions in Asia**
A global perspective
*Roger Y. W. Tang and
Ali M. Metwalli*

- 31 Competitiveness of New Industries**
Institutional Framework and
Learning in Information
Technology in Japan, the US
and Germany
*Edited Cornelia Storz and
Andreas Moerke*
- 32 Entry and Post-Entry
Performance of Newborn Firms**
Marco Vivarelli
- 33 Changes in Regional Firm
Founding Activities**
A Theoretical Explanation and
Empirical Evidence
Dirk Fornahl
- 34 Risk Appraisal and Venture
Capital in High Technology
New Ventures**
Gavin C. Reid and Julia A. Smith
- 35 Competing for Knowledge**
Creating, Connecting and
Growing
Robert Huggins and Hiro Izushi
- 36 Corporate Governance, Finance
and the Technological Advantage
of Nations**
*Andrew Tylecote and
Francesca Visintin*
- 37 Dynamic Capabilities
between Firm Organisation
and Local Systems of
Production**
*Edited by Riccardo Leoncini
and Sandro Montresor*
- 38 Localised Technological
Change**
Towards the economics of
complexity
Cristiano Antonelli
- 39 Knowledge Economies**
Innovation, organization
and location
Wilfred Dolfsma
- 40 Governance and Innovation**
Maria Brouwer
- 41 Public Policy for Regional
Development**
*Edited by Jorge Martinez-Vazquez
and François Vaillancourt*
- 42 Evolutionary Economic
Geography**
Location of production and the
European Union
Miroslav N. Jovanović

Својим синовима Јовану и Николи
посвећујем све на свету *изузев* ове књиге,
која је безвредна у односу на
љубав, срећу и наду коју пружају.

Στους υιούς μου, Γιάννη και Νικόλαο,
αφιερώνω τα πάντα στον κόσμο *εκτός* από αυτό το βιβλίο
που δεν είναι τίποτα μπροστά
στην αγάπη, την ευτυχία και την ελπίδα που προσφέρουν.

Ai miei figli, Jovan e Nikola
dedico ogni cosa, *tranne* questo libro,
che non vale tutto l'amore, la felicità e la speranza
che mi danno.

To my sons, Jovan and Nikola,
I dedicate everything in the world *except* this book
which is worthless compared with
the love, happiness and hope that they provide.

Foreword

To an increasing extent, economists become interested in geography. Since economists are aware that economic activities tend to concentrate in space, they feel an urge to integrate that fact in their theories and empirical work. Miroslav Jovanović has understood that key message more than anybody else, and contributes a lot to its dissemination. Last year, he already edited three volumes entitled *Economic Integration and Spatial Location of Firms and Industries*, each of which contained a multitude of key contributions bringing together the disciplines of economics and geography. This new book can be viewed as a continuation along that path.

What makes this book interesting is that it brings together various approaches that have criticized the mainstream neo-classical framework in the last decades. It is something that cannot be repeated enough, and therefore, should be embraced accordingly. What these approaches dislike is the way traditional neoclassical equilibrium theory has neglected the role of history, path dependence and increasing returns, among other things. I fully agree that these alternative approaches come indeed much closer to reality. This is especially true for the evolutionary perspective on economic geography, which brings back life into regional economics and economic geography, as Geoff Hodgson would put it. In addition, these approaches tend to take an interdisciplinary perspective, not closing itself off and refusing to dialogue with other disciplines, which has damaged mainstream economics so much in the last decades. It is therefore a great joy to see that many researchers (many of which are heterodox economists) currently embark on this exciting new voyage, and Miroslav Jovanović gives full witness of these new developments and ideas.

Implicitly, the book gives a very broad definition of what Evolutionary Economic Geography is. It ranges from New Economic Geography and Endogenous Growth Theory, which are still deeply embedded in the standard neoclassical equilibrium framework, to Complexity Theory and Evolutionary Economics, which are based on a disequilibrium framework, and which employ a range of methodologies going from mathematical modeling to descriptive case studies. The two latter approaches have been extensively discussed in a recent special issue on Evolutionary Economic

Geography published in the *Journal of Economic Geography* in 2007. So, I am not sure I entirely agree that all these approaches can be labeled evolutionary, since not all of them are firmly grounded in evolutionary theory. Having said that, Jovanović makes interesting connections between these different approaches which are thought-provoking, and applies these insights to a range of topics such as the location of multinational enterprises, the formation of agglomerations and clusters, trade patterns between countries and convergence/divergence of regions, among others.

What makes the book especially attractive is that many examples are presented to clarify key concepts. The book is full of empirical illustrations, providing explanations for the rise of big companies like Microsoft, IBM, Honda and Lloyd's, the evolution of cities like New Orleans, Antwerp and Venice, the evolution of the ideological representation of political parties in the US house, how wars affect the location of industries and how chance events triggered the growth of cities like Cannes, Geneva and Basle, among many others. Now and then, Jovanović makes interesting and quite unexpected connections when he refers to Buridan's ass, Morton's fork, the Bar Problem of Arthur, and the Medieval School of Andrea Mantegna. Doing so, his conceptual statements come to life so to speak, and this makes the book very readable.

Of course, as always, many questions and unresolved issues remain, and Jovanović is one among the first to admit that. He is right when he states that one of the main scientific challenges is without doubt to cope with complexity issues caused by unpredictability, non-determinacy, contingency, non-linearity and chance events.

What also deserves more attention is to demarcate better what Evolutionary Economic Geography really encompasses. To start with, there is a need to separate the New Economic Geography of Krugman from Evolutionary Economic Geography, because they rely on very different theoretical frameworks and assumptions, and they have developed and applied very different concepts of time and space. It is true that they share some general properties, such as path dependence, increasing returns and imperfect competition. Nevertheless as, among others, Ron Martin (*Cambridge Journal of Economics*, 1999), Ron Boschma and Koen Frenken (*Journal of Economic Geography*, 2006) have explained at length, the New Economic Geography is still firmly grounded in the maximizing-equilibrium analysis, while the Evolutionary Economic Geography rests on the foundations of bounded rationality-disequilibrium principles. To make matters even more complicated, there is no consensus whatsoever with respect to what evolutionary economics really stands for. In fact, various evolutionary perspectives co-exist, and it is crucial to be very specific about that before applying evolutionary insights to regional economics and economic geography.

While I fully share the view that Evolutionary Economic Geography has a huge potential to provide a more realistic alternative, most of its promises have yet to be fulfilled. Among many other unresolved issues, we still have to

specify what path dependency really means, how it can be measured empirically, and how to test it. Many researchers are also currently embarking on network analysis. An evolutionary perspective provides a promising point of departure to analyze the spatial evolution of networks, but we have yet little understanding of how different types of networks evolve spatially, and why. The same is true with respect to the topic of the evolution of clusters. While there is an extensive literature on clusters, we still know very little of how new clusters come about, and what benefits and costs clusters do provide to local firms along their life cycle. And there is, of course, the issue of policy making. While Evolutionary Economic Geography heavily criticizes neoclassical equilibrium theory's focus on market failures as a key underpinning of public policy, evolutionary approaches are completely silent on how to pursue welfare policy, monetary policy, *et cetera*.

In other words, much work still needs to be done. In that context, Jovanović has delivered a very thought-provoking book that provides a major input for further discussion and rethinking in what Evolutionary Economic Geography really means, and what it might offer to academics in disciplines like economics and economic geography, as well to provide decision makers and policy makers more in general.

Ron Boschma
Professor Regional Economics
Utrecht University
Utrecht, June 2, 2008

Preface

This book provides a new framework for the discussion of an old economic problem: where to locate a firm in space. The new spatial programme is an evolutionary approach to economics and economic geography. Traditional neoclassical equilibrium theory is an elegant and quite convincing academic exercise. Its conclusions are straightforward and offer simple and clear insights regarding the location of firms in space. Its general economic policy recommendation is: always remove all market imperfections. In spite of its complex formulation, the evolutionary approach to spatial economics is much closer to reality.

This book gives a theoretical and analytical framework on evolutionary economic geography and may provoke research curiosity. It attempts to contribute to a multidisciplinary exchange of views among economists, geographers and businesspeople within a new evolutionary approach. It also ambitiously includes various contributions to spatial topics that are widely scattered: microeconomics, planning, development, economic geography, regional science, urban economics, location theory, industrial organisation, international trade and integration, foreign direct investment, transport economics, business economics, innovation studies, public finance, price theory, imperfect competition, economics of scale, labour economics, environment and resource economics. The common research denominator in all these fields is the spatial dimension, which is seen as an opportunity, a medium for interactions, as well as a limitation.

In the 1980s, the inclusion of imperfect competition and economies of scale rejuvenated spatial economics. It also helped to explain why firms agglomerate and form clusters. Even though the ever-increasing demand for sophisticated quantitative analysis makes results harder to explain and comprehend, while policy advice is more difficult to derive, the introduction of new analytical tools assists spatial economics in finding its proper place in mainstream economics and becoming a hot research topic.

The main insight of this book concerns the way one new economic or business system replaces another, and where. Economists need to step out of their 'old analytical box' of clean and lean abstract theoretical, mathematical and aspatial models that bring the analysed system into equilibrium. They

need to go to real life and the actual operation of the economic system. Neoclassical equilibrium models were based on assumptions that rendered analysis totally unrealistic and useless to some professions. For example, a geographer would argue that societies and real geographical space are so complex that they cannot be expressed simply as mathematical formulae. 'Pure' economic models refer to geography only to the extent that it supports the economic analysis of the 'market clearing logic' and equilibrium based on very specific and many (unrealistic) assumptions that ease mathematic modelling. This dangerously damages the practical relevance of their conclusions. Economists need to expand their research agenda out of the usual issues that refer to entry, exit and total factor productivity. Certain economists have already broadened the analysis to include issues such as institutions, history, firm heterogeneity in the use of factors, multiple equilibria, evolution, technological and time-space trajectories, spatial location theory, endemic disequilibrium and various market imperfections. Geographers need to leave their 'old analytical box', in which they were interested in economics only to the extent that it assisted them to understand and explain the spatial organisation of societies. Instead of ignoring or bypassing one another, economists and geographers need to try to talk about topics of mutual interest, potential agreement and obvious difference. They may also explore the relevance of complexity theory for the solution of common problems.

Regarding problems in real life, underdeveloped countries and regions worry that high value-added economic activity will be located and concentrated in the core developed regions. Currently, prosperous countries and regions worry that at least a certain part of economic activity will move to other regions where wages are lower. All countries and regions worry that a large part of manufacturing production will take place in China. The Chinese worry about their lack of primary resources, and so they locate their investment in places where they find the missing economic links. Thus, all regions are anxious because of the 'assault' on what used to be their established geography of production. This attack on the existing local spatial order comes not only from other locations, but also from evolution in technology and innovation, variation in competition, fickle tastes and, in certain areas, an ageing population (changes in demography).

The book is organised as follows. Chapter 1 introduces the subject. Chapter 2, the core part of the book, covers the theory behind evolutionary economic geography. It presents the basic concepts, as well as relations between economics and geography, biology, evolution and physics. It surveys theories of locations of firms without consideration of their ownership. Special attention is devoted to complex systems. Spatial units such as clusters, cities and regions are also presented in turn. The chapter also covers the impact of history, expectations and war on the location of firms. Chapter 3 covers regional policy and includes considerations about its objectives, justification and instruments. It also shows the impact of international economic integration on the location of firms and industries. Chapter 4 is devoted to

the effect of market structure (competition) on the spatial location of production. It tackles issues such as basic concepts, innovation, specialisation, returns to scale, standards, rules of origin and non-tariff barriers. Ownership, i.e. foreign possession and control of firms, is treated in Chapter 5. This chapter examines international firms, i.e. transnational corporations, and explores the theoretical and practical reasons for foreign direct investment and location of trans-border business activities: what motivates firms to locate abroad? Special attention is also devoted to the evaluation of the effects of globalisation as a great economic and political story of our times. Chapter 6 concludes the book. The presentation in this book has a slight European slant as this is the geographical area most familiar to the author.

I believe and hope that *Evolutionary Economic Geography* will prove useful to scholars, students, researchers, civil servants, business executives and others in widening their knowledge and awareness of the process and interrelation between evolutionary theory and the spatial location of firms and industries in the economy of today and tomorrow. However, if it also attracts the curiosity and attention of those studying economic development, international business and policy-makers, then this is to be welcomed. The bibliography at the end of the book may serve as a departure point for a curious student or researcher into the demanding, expanding, surprising and academically rewarding world of evolutionary economic geography.

Acknowledgements

My involvement in spatial economics has its roots in an invitation from Professor Bertram Schefold (Frankfurt) to write and present a paper on international economic integration and spatial location of industries at a graduate summer school, organised by Academia Europea (Bolzano) at the picturesque alpine resort of Bressanone/Brixen, Italy, 31 August to 10 September 1998. While international economic integration was familiar to me, I had only a general knowledge about spatial economics. I accepted the invitation with delight, thinking that it would take me only a short time to draft the paper. I was wrong. It took me very much longer. I was so fascinated by the subject that my intellectual voyage continued through economic geography and through time. Several articles, a book *Geography of Production and Economic Integration* (London: Routledge, 2001) and a set of three edited volumes of readings entitled *Economic Integration and Spatial Location of Firms and Industries* (Cheltenham: Edward Elgar, 2007) followed.

The present book is the result of the limits of neoclassical equilibrium economic theory to explain the location of firms and industries in real space in a way that is satisfactory to me, at least, and to a growing number of others. Some of the inspiration for this book came from recent works by several economists. I shall cite here just two sources of inspiration: R.G. Lipsey, K. Carlaw and C. Bekar, *Economic Transformations: General Purpose Technologies and Long Term Economic Growth* (2005) and E. Beinhocker, *The Origin of Wealth* (2006), to which I refer from time to time.

During my work on this book I have benefited from human capital and discussions, as well as delightful and advantageous contacts with many friends and colleagues over long years. There are, however, several to whom I owe special gratitude for a variety of valuable inspiration, encouragement, comments and assistance in the preparation of this book. Ευχαριστώ ιδιαίτερα την Ινώ Σίμπιτσεκ για την πολύτιμη βοήθεια της. *Un ringraziamento va a Marina Rossi che mi ha aiutato senza saperlo.* They include Lisa Borgatti, Ron Boschma, Richard G. Lipsey, Marinette Payot and Hélène-Divna Tzico Stefanescu, as well as many students at various universities who have listened to my lectures. Jovan and Nikola Jovanović assisted greatly with graphics.

The UN library in Geneva, particularly Anthony Donnarumma, provided me with most of the sources. Finally, Chris Hook efficiently handled the production of this book.

I am grateful to all of them. The usual disclaimer, however, applies here: it is I who am responsible for all shortcomings and mistakes. In addition, the views expressed are my own and are not necessarily those of the organisation in which I work.

Miroslav N. Jovanović
Geneva, June 2008