



Societies in Motion

Innovation, Migration and Regional
Transformation

Edited by

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New Horizons in Regional Science

Societies in Motion

Innovation, Migration and Regional Transformation

Essays in Honor of Dani Shefer

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NEW HORIZONS IN REGIONAL SCIENCE

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Societies in Motion

NEW HORIZONS IN REGIONAL SCIENCE

Series Editor: Philip McCann, *Professor of Economic Geography, University of Groningen, The Netherlands and Professor of Economics, University of Waikato, New Zealand*

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Societies in Motion

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Preface

Compared to 2000 years ago, our world has displayed a surprisingly dynamic panorama. Spatial mobility has increased dramatically from an average of some 15,000 km over someone's lifetime to an almost limitless spatial action radius. This megatrend was mainly instigated by modern technological innovations and logistics revolutions, by the rise in advanced information and communication technologies, and by far-reaching global demographic transitions (including migration and ageing). Consequently, our modern society is in a permanent state of spatial flux, with dynamic changes in land use patterns, urban and regional settlement developments (including urban sprawl and mega-city development) global (spatial-)economic and financial transitions, and rising geographic connectivity patterns.

These developments already have a long history and date sometimes back to the pre-industrial revolution age. But in the past decades we have observed an unprecedented acceleration in these dynamic space-time processes. Hence, the title of this volume *Societies in Motion*. It aims to map out and analyse the complexity involved with regional development, industrial innovation and spatial mobility patterns in the first decades of our 21st century.

This volume was composed by several colleagues from all over the world. Clearly, their goal was to offer new scientific insights into the driving forces and spatial-economic consequences of our modern dynamic societies. But an additional intention was to pay a scientific tribute to one of the leading scholars in regional science, Daniel Shefer. He has really been a global ambassador of advanced regional science analysis, with a broad interest in many regional, urban, environmental and transportation issues. His pioneering work in many fields of regional science deserves the highest appreciation from scholars all over the world. The present book honours a man of a great scientific and social calibre. Dani: chapeau!

Amnon Frenkel
Peter Nijkamp
Philip McCann

Introduction

Amnon Frenkel, Peter Nijkamp and Philip McCann

In our global world, modern society is characterized by rapid transitions in space that are contributed by the technological development of the previous decades. This book, *Societies in Motion*, contains 15 chapters dealing with several aspects that are affected by these changes that are expressed as regional development, technological innovation and its distribution in space, and spatial mobility.

The book is organized into four parts. The first part describes factors that affect regional development. The opening chapter, contributed by Paavo Monkkonen and John M. Quigley, presents an empirical examination of the spatial distribution of specific categories of land-use regulations based on original data collected for the San Francisco Bay Area. The authors document the strong positive autocorrelation, which characterizes regulations enacted independently by local governments in nearby cities and look to find and analyse the significance of a spatial relationship among land-use rules and strategic interaction in the enactment of land-use regulations.

Chapter 2, written by Daniel Felsenstein and Shlomie Hazam, tests whether increasing metropolitanization impacts on metropolitan core area density functions in the Tel Aviv metropolitan area over the last decade. It uses census and model-simulated data as well as GIS-based and statistical tools. The authors observed a minimal shift in the centre of gravity of the metropolitan core over time, identified the emergence of sub-centres and found that their results upheld the expected negative impact of distance on density for both population and economic activity.

Chapter 3, written by Masagus M. Ridhwan, Peter Nijkamp, Piet Rietveld and Henri L.F. de Groot, provides a critical review of theoretical arguments and empirical evidence on the assumption made by standard economic theory that money is neutral and is driven by interregional arbitrage and perfect capital mobility. It devotes special attention to asymmetric information problems caused by geographical factors and concludes that monetary policy

and financial markets can have a potentially important role to play in promoting regional development, especially in less-developed countries.

The second part looks at the spatial distribution of industrial and technological innovation. The starting chapter, Chapter 4, written by Piet H. Pellenbarg and Joris Knobens, presents the spatial dimension of firm adjustment processes and analyses the basic form of firm relocation. The chapter provides an overview of the firm relocation literature and identifies the remaining gaps regarding this topic. It brings together almost six decades of theoretical and empirical work and identifies the most promising paths for future research on this topic.

Chapter 5, written by Dafna Schwartz, Gil Avnimelech and Raphael Bar-El, analyses the location considerations of various categories of knowledge-intensive and high-tech sectors in the Israeli experience. This analysis is based on a brief examination of the geographical patterns of employment in six different sectorial categories in Israel during the years 1995–2006. The chapter argues that as the activity of a company becomes more advanced (or technology-based) and more knowledge-intensive, the geographical location pattern tends to become more concentrated in metropolitan locations and extends this by arguing that the more innovative the company is, the greater the concentration tendency.

Chapter 6, by Amnon Frenkel and Daniel Shefer, deals with factors and programmes that act to foster or to hinder the rate of technology transfer between academia and industry and presents the basic concepts of a technology-transfer production-function model in which human capital, investment capital and a technology transfer office (TTO) staff interact to produce innovations or patent registration. It analyses a field study involving twelve universities in the USA and Israel whose technology-transfer policies were thoroughly analysed and looks at government programmes designed to encourage research cooperation between academia and industry.

The third part covers human capital, migration and labour force. The seventh chapter, written by Patricio Aroca, Geoffrey J.D. Hewings and Michael Sonis begins this part by addressing migration decision-making in developing economies from the perspective of labour force status. The chapter clarifies the role of assets and credit constraints in the decision to migrate from an efficiency point of view. A dynamic model is formulated to analyse this intrinsically dynamic problem of migration. The model considers an imperfect capital market, that is introduced as the unemployed workers lack of access to borrowing from financial institutions.

In Chapter 8, Alessandra Faggian, Jonathan Corcoran and Philip McCann examine the spatial shape and skewness of labour migration patterns using an empirical analysis based on a unique dataset detailing employment mobility behaviour of university graduates in Great Britain, introduce the concept of

circular variance into migration modelling and demonstrate how this allows for the simplification of complex two-dimensional phenomena into one-dimensional scalar indices suitable for econometric modelling.

The ninth chapter, written by Raphael Bar-El and Miki Malul, attempts to analyse labour demand and supply, as well as commuting and migration patterns of two regions in Israel, the centre and the suburbs. For this purpose they use an empirical analysis to see if the “spatial mismatch hypothesis” can be supported or rejected. This “spatial mismatch hypothesis” basically states that the process of job dispersal from the centre to the suburbs induces a “people follow jobs” effect, leading to migration of the labour force to the suburbs.

Daniela Constantin, Zizi Goschin and Philip McCann, in Chapter 10, discuss the issues raised by flows of foreign direct investment (FDI) into the Central and Eastern European Countries (CEECs), review the major themes of globalization as they impact on all parts of the world, discuss the recent experience of the CEECs and shifts of FDI eastward within the EU, as well as analyse the periodic fundamental reforms on the EU Cohesion Policy. Although the analysis in this chapter refers to the period before the 2008 global financial crisis in the EU and the CEECs in particular, the countries which are perceived to be more risky investments have suffered significantly in the crisis and the urgency of the need for appropriate institutional reform has increased within the EU.

Chapter 11, written by Roberto Patuelli, Daniel A. Griffith, Michael Tiefelsdorf and Peter Nijkamp, aims to map out German regional unemployment patterns by means of spatial filtering techniques. The authors provide an assessment of how important spatial effects are in explaining unemployment levels in Germany and, particularly, to show that these patterns are consistent over time. The authors present statistical analyses carried out by means of a semi-parametric “spatial filtering” technique based on the decomposition of spatial weights matrices and employ data at a refined level of disaggregation enabling for a highly detailed analysis of the underlying spatial patterns. The empirical study examines data from 439 German districts on both topological and distance-based criteria – such as shared boundaries or centroid distance – and economic flows.

Part four deals with spatial mobility and commences with David Boyce and Hillel Bar-Gera’s retrospective in Chapter 12 on the role of computing in urban travel forecasting. The chapter traces the evolution of computer use, and especially computer programmes and software, from the early urban transportation studies, government in-house computer programming activities and innovations by consultants to the present software systems supplied by commercial developers. It examines the roles of these actors in

advancing as well as deterring the application of methods evolving from research and practice.

Authoring the thirteenth chapter, Yoram Shiftan and Daniel Shefer highlight the important role of understanding travel behaviour and the complex relations between the various travel externalities to the development of sustainable transport policies. They introduce the complex relations between congestion, speed variance, vehicle mix and road safety, present their view of the required actions for the transition toward sustainable transportation-planning practice and the role of better understanding of travel behaviour in this process. The chapter provides examples and an overview of activity-based models and their contribution to travel behaviour in support of sustainable transportation planning.

Chapter 14, written by Moshe Givoni and David Banister, reviews trends over the last 35 years of passenger rail travel in the European Union, and questions the sustainability of rail travel, arguing for better integration between rail and other services so that the total journey is considered, and not just the main part of it. The chapter contrasts the benefits of rail travel with the income levels of the users of rail services and provides some guidelines for a sustainable development of the rail network.

The final and fifteenth chapter, composed by Haim Aviram and Daniel Shefer, asks the question, "Are transportation benefits fully absorbed by land values?" and then goes on to analyse the possible impact of urban transport improvement projects particularly with regard to two forces: the classic indirect impact of transport projects on land values and land area and the less frequently employed direct impact of a reduction in transport costs on the transport sector itself.

The collection of chapters in this book expresses the dynamic forces that work in the field and affect the design of society, the economy and the environment for a better and sustainable future. The various methods and approaches presented are designed to expand our understanding of the connections between the various issues raised within it. All of these issues have a strong relationship to the possibilities of regional development. The chapters provide answers to various questions that were raised for analysis, but at the same time raise more questions of their own that require continued research as are specified in the various chapters.

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