



BOOK REVIEW

Manfred M. Fischer, *Innovation, Networks, and Knowledge Spillovers*, Springer, 2006

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The new interactive models of innovation emphasise the central role of feedback effects between the different phases of innovation process and the many interactions of innovative activities within and between firms, which call for appropriate organisational structures and mechanisms such as networks. The expansion of networks and knowledge spillovers in the recent years dramatically changed the concept of innovation and generated a growing literature on this topic as a result. A perfect example in this respect is *Innovation, Networks, and Knowledge Spillovers*, a collection of selected essays published by Springer in 2006. The book is coordinated by Manfred M. Fischer, Professor in Economic Geography and GIScience at the Vienna University of Economics and Business Administration, one of the most distinguished representatives of the world's regional scientists.

The present book it is a collection of articles and book chapters on key themes in regional innovation area organized in three sections that have distinct but interrelated themes.

PART I - Innovation and Technological Change concentrates on the spatial variation of the processes of innovation and technological change, both regionally within countries and internationally between countries.

Chapter 2 – *Innovation and Technological Change: An Austrian-British Comparison* (with N. Alderman) is addressing the issue of international comparisons in innovative performance processing data from surveys of comparable industries in Great Britain and Austria by means of simple cross-tabulations and multivariate logit models. The empirical results point to significant differences between these two countries in the adoption of a number of new process technologies based upon microelectronics.

Chapter 3 - *Technology, Organisation and Export-driven Research and Development in Austria's Electronics Industry* (with L. Suarez-Villa) analyses the relationship between R&D intensity, territorial location and organisational characteristics. The statistical analysis of the association between these three factors is combined with subcontracting and just-in-time production methods revealing the prevalence of two-way subcontracting which helps firms to specialise and avoid implementing costly production techniques.

Chapter 4 - *Information Processing, Technological Progress, and Retail Market Dynamics* (with J. Cukrowski) carries on an analysis of the potential impact that technological progress in information processing has on the size of retail markets and shows how the ability of firms to process information and predict demand affects the retail markets. The study also shows that risk-averse firms always devote resources to demand forecasting and that the volume of output supplied through retail markets is greater than it would be if producers traded directly with consumers.

PART II - Innovation and Networks approaches the topic of network formation in the context of the new economy, focusing mainly on the interactive nature of the innovation process and the need for co-operation in order to cope with increasing market pressures.

Chapter 5 - *The New Economy and Networking* addresses the main problems of the formation of networks in the knowledge based economy and reviews the literature devoted to this topic. It also points to the new role of government that is emerging as the knowledge-driven and globalising economy alters the way firms organise their operation within and across nation states.

Chapter 6 - *The Innovation Process and Network Activities of Manufacturing Firms* brings evidence from a comprehensive questionnaire of manufacturing firms in the metropolitan region of Vienna indicating the importance of customer and user producer linkages and co-operation in the pre-competitive stage of the innovation process.

Chapter 7 - *Knowledge Interactions between Universities and Industry in Austria: Sectoral Patterns and Determinants* (with D. Schartinger, C. Rammer and J. Fröhlich) explores the knowledge flows from universities to firms in the Austrian national innovation system revealing a variety of patterns of interaction between 46 fields of science and 49 economic sectors.

PART III - Knowledge Creation, Diffusion and Spillovers presents both conceptual and empirical works on spatial knowledge spillovers from various points of view: the systems of innovation approach, the regional production function approach and the case-control matching approach.

Chapter 8 - *Innovation, Knowledge Creation and Systems of Innovation* specifies elements and relations that are essential to the conceptual core of the systems of innovation framework and argues that there is no a priori reason to emphasise the national over the regional scale as an appropriate mode for the analysis, irrespective of time and place.

Chapter 9 - *The Role of Space in the Creation of Knowledge in Austria: An Exploratory Spatial Data Analysis* (with J. Fröhlich, H. Gassler and A. Varga) uses descriptive and exploratory techniques such as Moran's I test for spatial autocorrelation and the Moran scatterplot to compare the clusters of the knowledge output (measured in terms of patent counts) with the concentration of the knowledge input (measured by R&D expenditure in manufacturing, university research activities and manufacturing employment). Empirical evidence shows that knowledge production in Austria tends to focus largely in mechanical areas of manufacturing rather than in high-tech fields such as the electronic sectors and this pattern seems to be stable for the past two decades.

Chapter 10 - *Spatial Knowledge Spillovers and University Research: Evidence from Austria* (with A. Varga) estimates knowledge spillovers from universities within a regional knowledge production function framework. The empirical results confirm the presence of geographically mediated university spillovers that transcend the spatial scale of political districts and indicate that such spillovers follow a specific distance decay pattern.

Chapter 11 - *Patents, Patent Citations and the Geography of Knowledge Spillovers* (with T. Scherngell and E. Jansenberger) uses patent citation data to measure the extent of knowledge spillovers between high-technology firms in Europe finding strong evidence for the localisation of knowledge spillovers at two different levels (country, region). The degree of localisation is found to be significantly different across regions as well.

As a result of an original and inspired combination between solid theoretical considerations and empirical research results, raising important questions on major changes in the area of innovation, and pointing out new ideas and further developments in a regional context, this book is extremely valuable for the worldwide regional scientists and should act as an inspiration for further research and exchange of ideas on innovation, networks, and knowledge spillovers.