

Preface

The spatial dynamics of the web of interactions between organisations conducting joint Research and Development (R&D) activities – referred to as R&D networks – has recently evolved to one of the ‘hot topics’ in modern research of the *Geography of Innovation* literature. After the era of mainly focusing on direct, dyadic relations between actors performing joint R&D, emphasis is nowadays increasingly shifted to a network perspective. The latter extends the focus on dyads to the structure of indirect relations in a network of actors and its systemic implications. Recognising the importance of indirect ties and their potential role as channels for knowledge and information flows, the structure of these indirect ties is of major interest to understand and describe knowledge diffusion processes. Special interest is devoted to the interplay between spatial effects and structural effects at the network level in explaining the development of collaborative R&D and knowledge production activities.

In this context, network analytic methods and tools have increasingly come into play for the investigation of the spatial dimension of R&D interactions. By this, the field has become much more interdisciplinary, particularly in methodological terms. The more traditional spatial analysis techniques, spatial econometric approaches and spatial interaction models – which are without doubt still essential to investigate the spatial character of R&D networks – are increasingly augmented, sometimes merged with network analytic approaches, mainly comprising a set of tools stemming from graph theory. The realms of Complex Network Analysis (CNA) and Social Network Analysis (SNA) are essential to meet the aspiration of taking into account network structural effects that influence the spatial structure of R&D collaborations. In recent spatial studies of R&D networks, such network analytic methods are often combined with most recent advances in spatial analysis and spatial econometric modelling, for instance, by relating network structural effects – as captured by network analytic indicators – to spatial effects within a spatial econometric modelling framework.

In essence, the present volume explicitly reflects this recent development in spatial studies of R&D collaborations and networks. It constitutes a joint product of scholars analysing the geography of R&D networks from different angles, from distinct disciplinary backgrounds, using a diverse set of methodologies and producing a range of policy conclusions in diverse spatial and sectoral environments. By this, it

represents – on the one hand – a quite unique collection of articles presenting methodological advancements for the analysis of R&D networks from different disciplines and – on the other hand – a distinguished anthology of novel empirical contributions on the relationship between geography and network structures as well as the impact of such networks on knowledge creation and innovative performance of firms, regions or countries.

The initial stimulus for the preparation of this volume was given at the congress of the European Regional Science Association (ERSA) in Bratislava in 2012. The emphasis on the geography of networks and R&D collaborations has been highlighted in various presentations and sessions of the congress. This volume is mainly the outgrowth of works that have been presented there, extended by an exclusive selection of invited works. The contributors come from all over the world and from a range of different disciplines, including economists, physicists, geographers and sociologists. They provide fresh ideas on the analysis of the geography of networks and R&D collaborations, both from a theoretical and a methodological perspective.

At this point, I would like to thank Folke Snickars and Manfred M Fischer for suggesting to propose such a volume to the *Advances in Spatial Science* series of Springer. Further, my warmest gratitude goes to all contributors of the volume, not only for their fine contributions in their chapters, but also for their motivating encouragement, stimulating discussions and smooth collaboration. My thanks also go to Barbara Fess, senior editor for economics and political science at Springer, for her ongoing support during the production process, and to Ramya Prakash, project manager at SPi Content Solutions – SPi Global, for her fine editing and production work.

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