

BOOK REVIEW SECTION

Glückler, J., Lazega, E. and Hammer, I. (eds.): *Knowledge and Networks*. Cham, Springer, 2017. 386 p.

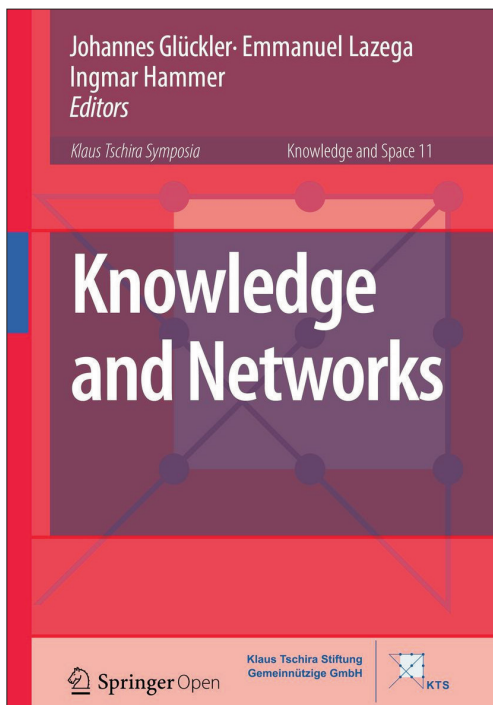
Why geo-located social networks matter in how knowledge is created and diffuses in space? According to a central tenet in social sciences, network position of individuals explains much of information access (IBARRA, H. 1993), control of flows (NEWMAN, M.E.J. 2005), and thus the outcomes of new knowledge creation (BURT, R.S. 2004). It is also widely recognised that social ties and personal acquaintance reduce transaction costs and enhance the efficiency of mutual learning (BORGATTI, S. P. *et al.* 2009). However, we still need to better understand how social ties form and evolve in space (JUHÁSZ, S. and LENGYEL, B. 2017) and how they contribute to socio-economic and technological development (LENGYEL, B. and ERIKSSON, R. 2017). With the large ICT-related datasets now available, we can investigate the structure and dynamics of social interactions at an unprecedented scale (LAZER, D. *et al.* 2009). Yet, most empirical works on large-scale social networks neglect the very geography inscribed in all

socio-economic relations (FERNANDEZ, R.M. *et al.* 2004), thus falling short of grasping the economic, social, political, and institutional diversity of regions.

The recent book edited by Johannes GLÜCKLER, Emmanuel LAZEGA and Ingmar HAMMER targets this very important research niche by bringing together a wide variety of scholars from economics, geography, management and sociology. It is the 11th volume of the Knowledge and Space book series, financed by the Klaus Tschira Foundation, and has been edited from the papers presented at the “Topographies and Topologies of Knowledge” symposium in Villa Bosch, Heidelberg (12–15 June, 2013). This series has grown to be an essential collection of the efforts in understanding the complex nature of knowledge and its relation to places and spaces.

In their introductory chapter, the editors stress the necessity to strengthen the conversation between the parallel literatures of social network theory and the geography of knowledge. I completely agree with this central aim of the book and the implicit call for a new interdisciplinary social science research agenda. Place and space provide fundamental contexts and also barriers of social relations, and in turn, social networks analysis provides very good tools to investigate the creation and diffusion of complex knowledge in space. GLÜCKLER and his colleagues provide an overview of the core geography literature focusing on social networks and then summarise the geographical aspects of the sociology literature. After this, the authors set out their theoretical framework of the inter-disciplinary conversation about the interrelatedness of space and connections. They distinguish the roles of space in conditioning network formation from the spatial effects that moderate the network outcomes. In a similar fashion, the authors argue that connectivity influences spatial effects such as neighbourhood diffusion and mediate knowledge sharing if peers are not in physical proximity. Finally, they call for a multilevel geographical approach focusing on the interactions between agents. Indeed, the complex interdependencies of individuals and organisations need to be considered and therefore we have to analyse horizontal interactions between individuals and between organisations, and we also need to understand how the relations between the individual and organisational layers of networks influence the geographies of knowledge.

The book structure is organised into three sections: “Knowledge about Networks”, “Network Evolution



and Social Outcomes” and “Network Geographies of Learning”. Each block consists of five chapters.

In the first section, the chapters stress the importance of the multilevel approach of spatial social networks analysis from a theoretical point of view. In the opening chapter, Nancy ETTLINGER questions the classic direction of causality between the structure of social networks and economic outcomes, and argues that economic processes shape the evolution of social relations. This chapter is a critical synthesis of economic geography, sociology and business literatures; and the way ETTLINGER conceptualises economic and social relations makes it an important read for those interested in polarisation and inequalities. The following chapter looks at intercultural competence and learning in the context of globalising labour division and focuses on employees who are sent by the employer firms on foreign assignments. Erika SPIESS develops an interesting framework in which the personal connections of the previous life of these employees foster inter-cultural learning when combined with the new ties created abroad. In the fourth chapter, Pengfei LI examines the role of family networks in developing regions and claims that the role of family connections in learning weakens when the economies take off. LI argues in a very interesting manner that other types of social connections – such as friendship and professional connections – gain importance during fast development, but the transition is not automatic and the collapse of strong family networks might lead to fragmented societies. In the next chapter, Laurent BEAUGUITTE analyses speeches and votes in the United Nations General Assembly and observes that nations collaborate more and more on international and global issues and also finds an emerging importance of regional groups of countries. In the final chapter, Sarah HALL discusses how social networks of graduate and postgraduate students influence the education strategies students make.

The second section includes exciting empirical papers that examine the relations between the dynamics of social network formation and network outcomes of individuals and regions. In the seventh chapter, Emmanuel LAZEGA analyses an advice network among lay judges and investigates how the mobility of judges and the social networks created thereof shape collective learning. The author gives us a short introduction into how the structure of networks and agency endogenously form each other, then provides a very interesting spinning-top model to describe the cyclical centralisation and decentralisation process in multilevel networks. Drawing on a cool case, Charles KIRSCHBAUM investigates how collaboration over the 40-year evolution in jazz can describe individual musicians’ career and how the style of collaboration in music changed and became more and more competitive over generations. In the ninth chapter, Laura PROTA, Maria Prosperina VITALE and Maria Rosaria

D’Esposito analyse collaboration networks in a high-tech industrial district in Italy. By looking at how the core-periphery structure of the collaboration network changed over time, they contribute to the literature on cluster evolution. In the following chapter, Jörg SYDOW and Friedemann KOLL ask the policy-related question whether regional technological capabilities can be designed by fostering the relations between local agents. The final chapter of the section is authored by Martin KILDUFF, Ajay MEHRA, Dennis GIOIA and Stephen BORGATTI. The authors analyse in an excellent way the emergence of informal leadership in terms of individual behaviour in a high-tech firm and the effect of consequently gained structurally advantageous network positions. The findings suggest that those employees who adopt quickly to temporary social groups and change attitudes accordingly are more likely to be recognised by colleagues as informal leader, and the network position gained is more advantageous for them as for others whose attitudes are more consistent.

The content of the third section specifically focuses on the role of networks in new knowledge creation and knowledge sharing. Satyam MUKHERJEE, Brian UZZI, Ben JONES, and Michael STRINGER investigate the origins of the impact of scientific publications measured by the number of citations. This chapter is a well reflected paper, in which the authors find that the highest impact papers combine previous work in a conventional way but also introduce some unusual combinations. The authors compare the dynamics of scientific impact in the fields of economics, geography and physics in this chapter and also demonstrate that publications authored by teams have higher impact than solo-authored papers. In the following chapter, Johannes GLÜCKLER and Ingmar HAMMER provide interesting insights into the outcomes of knowledge diffusion by confronting two forms of local inter-firm learning: friendly imitation fostered by social connections between firms and unfriendly forms of rival learning incentivised by co-location of firms. Their case study on a German IT organised network demonstrates that the tension caused by unfriendly rivalry is lowered by social connectedness and sanctions, which points toward better knowledge sharing opportunities in local economies. Stefano BRESCHI and Camilla LENZI analyse large geo-located co-inventor networks in order to understand how network bridges between local innovation systems induce the dynamics of innovation in cities. Their findings suggest that direct external relations bring fresh new knowledge into the local community of inventors and help the renewal of the knowledge base in the region. Collecting survey data from questionnaire with civil servants, Christopher ANSELL, Martin LUNDIN, and Per Ola ÖBERG analyse the network of learning across Swedish municipalities. The authors illustrate that most of the learning processes occurs between neigh-

bouring municipalities and that the social networks of civil servants are shaped by administrative borders of counties. In the final chapter, Uwe CANTNER, Susanne HINZMANN, and Tina WOLF look at social relations, knowledge transfer and cognitive proximities as the drivers of innovative collaboration dynamics. The authors report that collaboration ties are not likely to be repeated, which stresses the importance of finding new partners. Their findings suggest that firms prefer to repeat cooperation with those firms that has similar knowledge base to their own.

Being active in the field this volume focuses on, I have very positive feelings about this book. All the chapters are open access and I highly recommend the read for everyone interested in spatial social networks. In general, I think that social networks provide very effective tools to better understand a variety of topics from spatial economic and social processes. This volume brings together a very nice selection of research questions and prompt answers in a way that the reader is motivated to develop new questions and answers. I think this is a great asset of the book.

Networks are everywhere and the beauty of the theory and methods of social networks is in its interdisciplinary character. The book “Knowledge and Networks” is an important building block in strengthening cross-disciplinary conversation between social scientists and geographers. I definitely think we have to follow this path and even think we have to extend the conversation to other communities. The emerging field of computational social science already integrates natural scientists interested in social networks and spatial phenomena with social scientists (LAZER, D. *et al.* 2009). Although the translation of research questions is challenging, because scholars in the natural science tradition of network science are looking for universal patterns instead of looking closely at the contexts of economic and social phenomena (HIDALGO, C.A. 2016), I believe that widening the dialogue is beneficial for both streams of network research. For example, I am very much looking forward to the computational social science translation of key social science cornerstones, such as the multi-level approach including agency and organisation, which is one of my major lessons from the recent book.

Professor Peter MEUSBURGER, the father of the Knowledge and Space symposia series at Heidelberg University, passed away with tragic suddenness on 18th December 2017. Although he did not directly participate in editing the book or authoring its chapters, and I did not know him personally, I would like to express my gratitude for this remarkable book series he started. Professor MEUSBURGER devoted a significant share of his research on the spatial transformation during post-socialism and helped the integration of Central and Eastern European scholars in the international community. Interested in

spatial social networks, I believe that the path the recent “Knowledge and Networks” volume follows will further integrate researchers from Central and Eastern Europe in the international discussion, which Professor MEUSBURGER must have wished for us. May he rest in peace.

BALÁZS LENGYEL¹

REFERENCES

- BORGATTI, S.P., MEHRA, A., BRASS, D.J. and LABIANCE, G. 2009. Network analysis in the social sciences. *Science* 323. (5916): 892–895.
- BURT, R.S. 2004. Structural holes and good ideas. *American Journal of Sociology* 110. (2): 348–399.
- FERNANDEZ, R.M. and SU, C. 2004. Space in the study of labor markets. *Annual Review of Sociology* 30. (1): 545–569.
- HIDALGO, C.A. 2016. Disconnected, fragmented, or united? A trans-disciplinary review of network science. *Applied Network Science* 1. (6): DOI 10.1007/s41109-016-0010-3
- IBARRA, H. 1993. Network centrality, power, and innovation involvement: Determinants of technical and administrative roles. *Academy of Management Journal* 36. (3): 471–501.
- JUHÁSZ, S. and LENGYEL, B. 2017. Creation and persistence of ties in cluster knowledge networks. *Journal of Economic Geography* <https://doi.org/10.1093/jeg/lbx039>
- LAZER, D., PENTLAND, A., ADAMIC, L., ARAL, S., BARABASI, A.L., BREWER, D., CHRISTAKIS, N., CONTRACTOR, N., FOWLER, J., GUTMANN, M., JEBARA, T., KING, G., MACY, M., ROY, D. and VAN ALSTYNE, M. 2009. Life in the network. *Science* 323. (5915): 721–723.
- LENGYEL, B. and ERIKSSON, R. 2017. Co-worker networks, labour mobility and productivity growth in regions. *Journal of Economic Geography* 17. (3): 635–660.
- NEWMAN, M.E.J. 2005. A measure of betweenness centrality based on random walks. *Social Networks* 27. (1): 39–54.

¹ Agglomeration and Social Networks Lendület Research Group, Centre for Economic and Regional Studies, Hungarian Academy of Sciences, Budapest, Hungary. E-mail: lengyel.balazs@rtk.mta.hu

