# INTRODUCTION: Importance of methodological diversity for innovation system studies

Mika Raunio (Guest Editor), Dr. Rhiannon Pugh, Dr. Fayaz Ahmad Sheikh & Dr. Abiodun Egbetokun

Published online: 09 Jul 2019.

Submit your article to this journal

Article views: 569

View related articles

View Crossmark data

# INTRODUCTION

## Importance of methodological diversity for innovation system studies

This special issue on 'methodologies in innovation studies' is the outcome of the first *Globelics Academy* alumni meeting held in Tampere, Finland, in May 2015. Globelics Academy (an international PhD school on innovation and development) aims to support the training of PhD students who, in their dissertations, utilise an innovation systems approach in the context of emerging or developing economies.

There is no single definition of an innovation system. To date, two of the key authors in the field have introduced fairly different approaches in some important respects. Richard Nelson focuses on the innovation system in a narrow sense, basing the main theoretical tools on law and economics. In his work, the role of institutions in solving the private/public dilemma of information and technical innovation is crucial. In the work of Christopher Freeman, the focus is on the interaction between the production system and the process of innovation, and his theoretical grounding is based on a combination of organisation and innovation theory. In this work, relations between organisational forms and innovation are central (Lundvall 2016, 102).

However, despite this endogenous diversity, the innovation system approach can be considered to be a social science theory. According to Lundvall (2016), 'in social science, a theory should be regarded as a focusing device – no more and no less.' The innovation system as a focusing device helps us to interpret key institutions and processes in the economy (e.g. market, firm, law) differently from the perspective of mainstream economic theory (Lundvall 2016, 4). An innovation system has also been applied as a focusing device at various spatial levels (e.g. cluster, sector, regional, national), and each level provides a somewhat different view of the phenomenon and relevant units of analysis.

Among the Globelics community, the national innovation system is the most frequently used concept, but it is by no means overwhelmingly dominant. According to early definitions of the national innovation systems approach, 'understanding the linkages among the actors involved in innovation is key to improving technology performance. Innovation and technical progress are the result of a complex set of relationships among actors producing, distributing and applying various kinds of knowledge' (OECD 1997, 9). As the reader may have already anticipated, we are exploring a multi-disciplinary field that is also open to various methodologies.

Therefore, particularly in innovation studies, it is important to understand how the specific methodology emerges from the theory. How does this method fit with exploring the research problem in question? Also, although it is common that a variety of methodologies are valid for providing the answer to the same research question, it is important for the reader to understand what method was used and how the research process produced the results provided. Different methods provide different results. Further, there should be a valid reason for using a specific method and this should be openly explained: what will this specific method reveal about the phenomenon that would otherwise remain hidden? Importantly, unreliable or fuzzy methodologies are likely to produce unreliable and fuzzy results. Obviously, this seriously depreciates the value of the research work and its scientific weight.

Globelics is a multi-disciplinary community, and, in addition, among its members the focus of an innovation system approach is strongly on transition economies and developing countries. This calls for more considerations in terms of methodologies applied. For example, Lundvall (2005) – already more than decade ago – suggests that, in the case of less developed countries, surveys might be very challenging tools for gathering data to understand what happens inside firms; registered data may also be scarce and unreliable for this purpose. Further, the standard STI indicators may not be the most accurate way to study and understand innovation systems. Alternative indicators and new data gathering methods may be needed (e.g. students as scouts, mini-questionnaires). In terms of data gathering, the public sector and its technological infrastructure are likely to be much easier targets. However, the interaction between the knowledge infrastructure and firms is one of the key elements to understand and analyse in this context (Lundvall 2005, 31).

Obviously, there are always challenges in gathering valid data and choosing the right methods. However, scientific methods are tools for researchers. If the researcher has the capability to master various tools, it is likely that they are able to provide more comprehensive and profound answers to increasingly complex research questions. While the individual researcher has limited resources to acquire sufficient competences to master an infinite number of tools, the research community should welcome this challenge and add a sufficient selection of tools to the toolkit of its members.

Nonetheless, according to Jungmann, Baur, and Ametowobla (2015), in innovation studies there prevails a dualism 'as deductive macro- and inductive micro-analysis spans a narrow empirical corridor … in which studies of innovation have to be situated to get recognised as such by the research community'. They suggest that 'a methodological self-restriction of the researchers' emerges from these institutionalised theory and method schools. Consequently, this narrows down theoretical and methodological resources used to understand the complex questions in innovation studies. They also list some short-comings of current research practice in innovation studies. Firstly, they point out the narrow range of data. Data are

frequently gathered through participant observations and qualitative interviews due to strong ethnographic backgrounds, or by using classical surveys. These dominant methodologies then diminish the use of many other data sources that are common in social sciences; for example, process-produced data, video data, focus groups, narrative interviews or life histories, or panel survey data. Consequently, complex, mixed-methods research designs, longitudinal studies and methods of historical sociology or comparative studies are rare compared with simple research designs using the dominant methods mentioned above. They admit that comparisons are made, but mostly 'between regions or nations as black boxed, spatial containers only' and thus, 'the potential of a comparative, empirical field of research on innovations remains untapped'. Finally, they mention the lack of multi-level dynamics and the divide between micro- and macro-studies, and they refer to theoretical qualifications of innovation studies, according to which these dynamics are important elements of analysis (Jungmann, Baur, and Ametowobla 2015, 12.).

These are relevant observations, although various methods have already applied in innovation studies, and some very specific methods have developed. For example, a carefully designed, history-friendly approach has already been applied for decades in sectoral innovation studies to make a long-term analysis (e.g. Malerba et al. 1999). However, it is important to pay careful attention to the methodological skills of young scholars in this complex and diverse field of study. By acquiring various relevant methodological toolkits, the research community is able to provide a more diverse set of interpretations and insights about the units of analysis, and thus draw a more accurate and comprehensive picture of a phenomenon as a whole. This is valuable and important not only for the scientific community, but also for many users of the knowledge provided, including policymakers and other stakeholders who aim to advance the transformation of our societies.

This special issue introduces and applies a few of the methodologies used in innovation studies. We hope to remind readers about the importance of different approaches. The issue does not aim to be a 'handbook' of methodologies; rather, it aims to foster a discussion about the importance of different methodologies in innovation studies. In addition to traditional patent data, case study methods, or the most recent data science tools in social network analysis, there is a variety of methodologies that may provide useful and valuable knowledge. Both qualitative and quantitative methods are needed to fill gaps in the analysis. We need numbers, but we also need stories. Some interesting and very relevant methodologies and motivations to apply them are introduced and applied in this journal by Globelics Academy alumni.

Sheikh discusses the very important topic of informal innovations and the need for revised methodologies in this context, as informal innovation is often a prevailing mode Global South. Nordling and Pugh discuss qualitative methods including ethnography and action research that are important especially for innovation policy research. Suarez introduces digital ethnography that is helpful when studying the multi-sited and mobile character of social phenomena. Youcob discusses the case of Tunis and suggests that qualitative analyses are needed for an industry's future prospects as they cannot be assessed (only) by econometric analyses. Omobhude and Chen add the very important view of mixed method study in the context of networks (published in AJSTID 9/2017) while Morero explores a multi-variate approach in his paper. Okorhi explores the relation between the policy and practice.

As mentioned previously, this special issue is the outcome of the first Globelics Academy alumni meeting. I have been honoured to work as the academic coordinator of the Globelics Academy (international PhD school for innovation and development) every second year in Tampere (Finland) since 2008. The year 2015 marked a special occasion: Globelics Academy had its 10th edition. Globelics Academy's roots are in Lisbon, where the first GA was organised by professors Manuel Mira Godinho and Manuel V. Heitor (Technical University of Lisbon) in 2004, with support from the Globelics network (www.globelics.org). To celebrate this occasion of the 10th edition, we organised the first official GA alumni meeting in Tampere. At this meeting, some ideas for the alumni network were discussed and one of the activities that participants decided to foster was academic publishing. At that event, it was agreed that a special issue on methodologies would be topical and the *African Journal of Science, Technology, Innovation, and Development* was selected as the platform, as suggested by Professor Mammo Muchie. Finally, the process has been completed and the selected papers have been published.

I would like to thank all the co-editors – Dr. Rhiannon Pugh, Dr. Fayaz Ahmad Sheikh and Dr. Abiodun Egbetokun – for their invaluable contribution to the compilation of this special issue. Specifically, I would like to express my gratitude to co-editor in chief, Dr. Angathevar Baskaran, who kept the process and all the pieces together in a very professional and determined way.

## Disclosure Statement

## References

Jungmann, Robert, Nina Baur, and Dzifa Ametowobla. 2015. "Grasping Processes of Innovation Empirically. A Call for Expanding the Methodological Toolkit. An Introduction." *Journal Historical Social Research* 40 (3): 7–29.
Lundvall, Bengt-Åke. 2005. "*National Innovation Systems – Analytical Concept and Development Tool*." Paper presented at the DRUID 10th anniversary summer conference, Copenhagen, Denmark, June 27–29.
Lundvall, Bengt-Åke. 2016. *The Learning Economy and the Economics of Hope*. London: Anthem Press.

Malerba, Franco, Richard Nelson, Luigi Orsenigo, and Sidney Winter. 1999. "'History-friendly' Models of Industry Evolution: The Computer Industry." *Industrial and Corporate Change* 8 (1): 3–40.

OECD (Organization for Economic Co-operation and Development). 1997. *National Innovation Systems*. Paris: OECD.

**Guest Editor**
**Mika Raunio**

*Senior Researcher, Migration Institute of Finland, Turku/Seinäjoki, Finland Academic Coordinator of Globelics Academy Tampere, at Research Center for Knowledge, Science, Technology and Innovation Studies (TaSTI), School of Social Science, Tampere University, Finland, 2008–2018*
Email: mika.raunio@utu.fi

On behalf of the guest editorial team:

**Dr. Rhiannon Pugh**

*Centre for Urban and Regional Studies, Orebro University, Sweden and Department of Social and Economic Geography, Uppsala University, Sweden*

**Dr. Fayaz Ahmad Sheikh**

*The Center for Studies in Science Policy, Jawaharlal Nehru University, New Delhi, India*

**Dr. Abiodun Egbetokun**

*National Center for Technology Management, Ile-Ife, Nigeria*