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Entrepreneurship and innovation networks

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Abstract In this paper, we give a general introduction to the notion of entrepreneurship and how it has many complex meanings. Entrepreneurs in new firms but also in incumbent firms have a key role in local, regional and national economic development by taking risks to get things done by developing new combinations of ideas and/or doing things differently. In view of this, two of the main questions that are dealt with are: (1) which features make structural differences in institutions and innovation networks remain invariant between decades, and (2) how knowledge about such features can be employed in policy at the national and the regional level. The research questions highlighted in this special issue relate to many

pertinent national and regional policy issues. The most apparent concerns conditions conducive for entrepreneurship in the form of new firms and firm growth. In this paper, we also introduce the different contributors to this special issue.

Keywords Entrepreneurship · Innovation · Networks

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The notion of entrepreneurship is loaded with complex meanings, ranging from finding a source of income when no jobs are available to the drive of individuals to create novelties (cf. Carlsson et al. 2013 for a historical review of entrepreneurship research). However, the strive for temporary entrepreneurial rents remains the centre of entrepreneurial gravitation. Entrepreneurs in new firms but also in incumbent firms have a key role in local, regional and national economic development by taking risks to get things done by developing new combinations of ideas and/or doing things differently (Karlsson 2012). It is, for example, widely accepted today that acquiring external scientific, technological and entrepreneurial knowledge is crucial for developing new combinations as well as for the success of entrepreneurial ventures (Pittaway et al. 2004), even if there is no general agreement about the relative importance of knowledge channels at different spatial scales (Huber 2012).

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Many researchers emphasise institutional arrangements (formal and informal), and the structure and efficiency of innovation networks as major explanations of why the frequency as well as the quality of entrepreneurship varies between different places, regions, and countries. An innovation network may be conceived as a set of economic agents involved in innovative production with established contacts between agents, such as producers, customers, suppliers, universities and research institutes, allowing the circulation and creation of new knowledge within both delivery and knowledge networks (Karlsson et al. 2009a; Autant-Bernard et al. 2012). The literature in the field indicates that these innovation networks are becoming increasingly complex and are characterised by (1) an increasing number of economic agents, (2) an increasing density in terms of inter-sectoral and inter-organisational collaborations, and (3) a wider geographical distribution. These transformations offer new challenges for entrepreneurship, and in particular knowledge-based entrepreneurship, and may contribute to change the geography of entrepreneurship. The fact that knowledge creation is increasingly carried out within the framework of innovation networks, and thus have become more network-dependent (Karlsson et al. 2012), may well change the spatial diffusion patterns of new knowledge as well as the diffusion speed. Thus, it might well be that increasing agglomeration economies and the diffusion of the benefits of the associated external economies (Johansson and Quigley 2004) will become key factors for entrepreneurship in the twenty-first century.

Actually, in the literature on regional learning and innovation, it is often argued that (potential) entrepreneurs located in particular in regions with innovative clusters can benefit from knowledge spillovers from knowledge-intensive firms in the cluster (Audretsch and Feldman 2003). The role of informal regional knowledge networks (Saxenian 1996; Keeble 2000) and local 'buzz' (Bathelt et al. 2004; Storper and Venables 2004) has been particularly stressed. The underlying idea is that (potential) entrepreneurs located, in particular, in a knowledge-intensive cluster can benefit from local knowledge spillovers, i.e. knowledge generated by economic agents in the cluster can be accessed and used by a (potential) entrepreneur located in the cluster, without market interaction and without financial compensation for the economic agent which has produced this knowledge.

This dependence of entrepreneurs on local and regional knowledge spillovers does not end with the innovation and the start-up but also prevails in the early phases of the new firm, which might be an important explanatory factor of why entrepreneurs normally start their new firms in surroundings close to their place of residence (Koster and Karlsson 2010). Much of the literature on this topic concerns scientific and technological knowledge generated through R&D (Wolfe and Gertler 2004; Wolff 2012), but it is important not to underestimate the importance for (potential) entrepreneurs of spillovers of entrepreneurial knowledge (Karlsson and Johansson 2006).

In view of this, two of the main questions that are dealt with in this special issue are: which features make structural differences in institutions and innovation networks remain invariant between decades, and how can knowledge about such features be employed in policy at the national and the regional level? Which are the channels and mechanisms in innovation networks through which knowledge spills over from different types of economic agents to (potential) entrepreneurs? How do (potential) entrepreneurs combine their own knowledge resources and capabilities with external knowledge sources in innovation networks to generate innovations? Analyses of such questions can now be carried out with the help of considerably longer time series than before, with clear opportunities to investigate dynamic interdependencies. Andersson and Koster (2011) find that spatially sticky and durable determinants of start-ups play an important role, which implies that there are sources of persistence to be examined in detail to increase the understanding of how certain regions can maintain a start-up rate, which in some cases is close to double that of the average.

The start-up of new firms and the introduction of new products (goods and services) to the market is a process which, at the micro-level, reveals a high frequency of entry and exit. This opens up questions concerning how entrepreneurs discover, evaluate, and implement new business opportunities, and how they develop, use, and exploit innovation networks for mobilising joint innovation efforts with suppliers, customers, universities, and research institutes, etc. What is the pre-history of new entrepreneurs, and which networks do they carry with them when they leave an employment to start a new company (cf. Almeida and Kogut 1999)? During the lifetime of their

entrepreneurial venture, they will continuously develop and exploit their networks. In which networks, for example, do entrepreneurs find employees when the firm grows? Relevant networks also comprise links to knowledge, technology, capital sources and customer opportunities. Fortunately, new databases today help to illuminate these questions and can help to provide guidelines to regional policies to govern and support innovation networks and entrepreneurship (cf. Koschatzky 2009).

A recent example of research in this vein is Andersson et al. (2012). Examining entrepreneurial ventures of ex-employees of firms with different R&D-strategies, three findings not well documented in the previous literature were presented. First, firms with persistent R&D-investments with a general superiority in sales, exports, productivity, profitability and wages are less likely to generate entrepreneurs than firms with temporary or no R&D-investments. Second, start-ups of knowledge-intensive business service (KIBS) firms with persistent R&D-investments have a significantly increased probability of survival. No corresponding association between the R&D-strategies of incumbents and the survival of entrepreneurial spawns is found for incumbents in manufacturing sectors. Third, spinouts from KIBS-firms are more likely to survive if they start in the same firm, indicating the importance of inherited related knowledge. The findings suggest that R&D-intensive firms spur fewer entrepreneurs but that their entrepreneurial spawns tend to be of higher quality in terms of survival and profitability. The results corroborate and extend previous findings in the literature (Klepper 2001; Klepper and Sleeper 2005).

The papers in this special issue are a selection of those presented at the 15th Uddevalla Symposium that was held in Faro, Portugal, June 14–16, 2013, hosted by the University of Algarve. The main theme of the symposium was “Entrepreneurship and Innovation Networks”.¹

¹ The 15th Uddevalla symposium was organised and sponsored by University West, Trollhättan, Sweden in co-operation with The University of Algarve, (CIEO), Faro, Portugal, The School of Public Policy, George Mason University, USA, The Centre of Excellence for Science and Innovation Studies (CESIS), The Royal Institute of Technology, Stockholm, and Jönköping International Business School, Jönköping, Sweden, The Centre for Innovation, Research and Competence in the Learning Economy (CIRCLE), Lund University, Sweden, and The Centre

The research questions highlighted in this special issue relate to many pertinent national and regional policy issues. The most apparent concerns conditions conducive for entrepreneurship in the form of new firms and firm growth. They are also related to knowledge-intensive services and their policy relevance. The frequency of product introduction and the formation of new firms increase in knowledge-intensive service industries and other knowledge-intensive industries, but the bulk of new firms is indeed knowledge-intensive service firms. Moreover, entrepreneurial knowledge is spatially sticky, embodied in individuals and innovation networks connecting relevant people and thereby tacit in nature. This suggests that spatial relocation and establishment of new interaction links are important in the development of sectoral networks. However, what is the role of public policies in this connection? To what extent is it possible with policy measures that create and improve knowledge infrastructures that facilitate the flow and exchange of knowledge and ideas (Karlsson et al. 2009b)?

Nyström and Zhetibaeva Elvung (2014) explore the role of new firms as an entry point to the labour market. Because the vast majority of new firms are short-lived, it is a risky decision to accept employment in a new venture. It can be argued that individuals with little (or no) labour market experience are more willing to accept the high risks associated with employment in new firms. Hence, new firms may work as an entry point to the labour market. Nevertheless, some earlier research concludes that one disadvantage of employment in a new firm is that new firms pay less. However, this empirical conclusion is primarily based on literature on the wage penalty of small firms. In this paper, the authors study whether the wage penalty of employment in a new firm persists if we focus solely on labour market entrants. In the empirical analysis, they employ an employer–employee matched dataset that covers the Swedish population during the period from 1998 to 2008. They use the Propensity Score Matching (PSM) method to study the wage differences between labour market

Footnote 1 continued

for Entrepreneurship and Spatial Economics (CEenSE), Jönköping International Business School, Sweden. The best paper awards were financed by the municipality of Uddevalla, Sweden.

entrants employed in new and incumbent firms and they find an average wage penalty of 2.9 % for labour market entrants employed in new firms over the studied period.

Ejermo and Xiao (2014) investigate the relationship between the survival performances of new technology-based firms (NTBFs) over the business cycle and compare them with other entrepreneurial firms. Their data comprise the entire population of entrepreneurial firms entering the Swedish economy from 1991 to 2002, which they follow until 2007. Discrete time duration models are employed to investigate whether the business cycle affects differently on the survival likelihood of NTBFs versus other entrepreneurial firms. Their main findings are three. First, NTBFs generally experience a lower hazard rate compared to other entrepreneurial firms. Second, all entrepreneurial firms are sensitive to, and follow, a pro-cyclical pattern of survival likelihood over the business cycle. Three, when comparing NTBFs with firms without self-employees, they find that NTBFs are more sensitive to business cycle fluctuations.

Fritsch et al. (2014) investigate the re-emergence of entrepreneurship in East Germany during its transformation from a socialist system to a western-type market economy. East Germany is a particularly well-suited case for studying the effect of institutional change on entrepreneurship because of the rapid change of the institutional framework and the possibility of using West Germany as a benchmark. It took about 15 years until self-employment levels in East Germany reached those of West Germany. Despite this catch up, they find a number of peculiarities in East German self-employment that appear to be a continuing legacy of the socialist period. Despite this socialist imprint, they also find considerable correspondence of the regional levels of self-employment before, during and after the socialist period suggesting the existence of a long-lasting regional entrepreneurship culture.

The relationship between external knowledge, absorptive capacity and innovative performance for firms without their own R&D is investigated empirically. Using data from a survey on firms located in North Norway, Moilanen et al. (2013) ask whether absorptive capacity plays a mediating role between different external knowledge inflows and innovative performance. The results are consistent with absorptive capacity as an important mediator for transforming

external knowledge inflows into higher innovative performance, if they include all firms in the sample. However, this result is not robust when considering the sub-sample of just non-R&D firms. External knowledge inflows have a much stronger direct effect on innovation performance for non-R&D firms and leave a weak mediating effect of absorptive capacity. Their findings suggest that measures of absorptive capacity should be developed further in order to make absorptive capacity a more relevant concept for empirical studies of firms without in-house R&D.

The proposition that entrepreneurs' innovation is embedded in networking is refined in the paper by Schott and Sedaghat (2014) They distinguish between networking in the public sphere and networking in the private sphere, and hypothesise that innovation benefits from public sphere networking but suffers from private sphere networking. These hypotheses are tested with a representative sample of 56,611 entrepreneurs in 61 countries surveyed in the Global Entrepreneurship Monitor. Hierarchical linear modelling shows that, while overall networking benefits innovation, innovation is decreased by private sphere networking and increased by networking in the public sphere, especially in the professions and internationally. A further refinement is to consider entrepreneurs' endeavours as embedded in society with its system of education for entrepreneurship. They hypothesise that the quality of a national system moderates the impacts of networks on innovation by adding value to networks. Analyses show that the quality of national educational system adds innovation benefits to both public sphere and private sphere networking.

Löf and Nabavi (2014) assess the impact of the location of genuinely new ventures and spinoffs on these firms' survival, productivity and growth. The study distinguishes between four different categories of locations: metro cities, metro regions, urban areas, and rural areas. Using a unique database covering more than 23,000 new entrants between 2000 and 2004 in Sweden, and observing them for 5 years, several conclusions may be drawn from their study. First, there is a substantial difference in ex-post entry performance between the manufacturing and service sectors. Second, the proposed superiority of start-ups by ex-employees depends on the performance measures and the sector. Third, knowledge and technology intensity of the industry matters for the viability of the new firms.

Tavassoli and Carbonara (2014) analyse the effect of variety and intensity of knowledge of the innovative capability of regions. Employing data for Swedish functional regions, they test the role related and unrelated variety and intensity of (1) internal knowledge generated within the region, and (2) external knowledge flows into the region in explaining regional innovative capability as measured by patent applications. Their empirical analysis provides robust evidence that both the variety and the intensity of internal and external knowledge matter for the innovative capability of regions. When it comes to variety, related knowledge variety plays a superior role.

The papers in this special issue do not give full coverage of all aspects related to “Entrepreneurship and Innovation Networks”, which was the theme of the 15th Uddevalla Symposium. However, each of the papers adds substantial evidence to the growing theoretical and empirical literature dealing with entrepreneurship and innovation networks. Fortunately, each of the papers also highlights important issues to be dealt with in future research in the field.

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