

Regional Innovation and Public Policy

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Recently there has been a shift in policy debates on regional innovation from the innovation systems approach towards ecologies and ecosystems. These concepts are transferred from the world of biology to the social world in order to capture better the nature of technological innovation and inspire policies that facilitate evolutionary interactions between different individuals and organisations, their innovative activities and their regional environment. This policy brief is based on an ESRC Innogen Centre research project that evaluated innovation ecology and ecosystem on both theoretical and empirical grounds. Evidence from this investigation indicates that the concepts of innovation ecology and ecosystem face particular problems of reductionism and functionalism and therefore they cannot be advocated as effective innovation policy-making tools at the regional level. What can be advocated is a series of policy recommendations able to deal with current regional innovation policy dilemmas.

THE PROBLEM OF SHIFT FROM INNOVATION SYSTEMS TO ECOLOGIES AND ECOSYSTEMS

Since the development of the innovation systems approach in the early 1990s, there have been a number of attempts to use it as a policy-making tool at the regional level of economy and society. The rationale has been to create an effective regional innovation environment, promoting sustainable economic and social development. More recently, however, there has been a crucial shift in policy debates on regional innovation from the systems approach towards ecologies and ecosystems¹. The reason for this is that the systems approach tends not to capture well the distinction between innovation events and innovation structure. Therefore, concepts of ecology and ecosystem are transferred from the world of biology to the social world in order to capture better the nature of regional technological innovation and inspire policies that facilitate evolutionary interactions between different individuals and organisations, their innovative activities and their regional institutional environment.

This policy brief is based on an ESRC Innogen Centre research project² that evaluated innovation ecology and ecosystem not only on the grounds of their theoretical plausibility and conceptual consistency but also on the grounds of an empirical case of public-private interrelations of biotech innovation in Cambridge (UK). Evidence below indicates that the concepts of innovation ecology and ecosystem face problems of reductionism and functionalism and therefore they cannot be advocated as effective innovation policy-making tools at regional level.

THEORETICAL AND EMPIRICAL EVIDENCE

Our theoretical investigation shows that the biological concepts of ecology and ecosystem fail to capture the complexity of the socially dynamic regional environment of knowledge and innovation. Therefore, metaphors like 'innovation ecology' and 'innovation ecosystem' provide abstract and rather simplistic explanations of regional economic and social evolution as a harmonious process of natural selection³. They take less seriously historical perspectives on the development of the division of labour that results in conflicts that drive the evolution of regional knowledge and innovation.

On the other hand, empirical data suggest that the 'Cambridge phenomenon', and especially the Cambridge bio-cluster, has never been a harmonious ecology and ecosystem. Rather, it has been a knowledge and innovation intense regional environment founded upon the historical development of the socio-spatial division of labour and socio-political actions aimed at bridging the gap between academia and direct production. Within this regional environment one can identify both processes of co-operation and conflict. Although co-operation exists within public and private networks and communities, conflict takes place between them. Co-operation in the Cambridge bio-cluster is influenced by non-market values such as mutual trust and regional and cultural identity. Conflict also exists, however, and is influenced by the lack of integration of public and private interests at the level of university-industry-government linkages and in relation to intellectual property. The latter is a complex issue that is mainly resolved through informal negotiations.

POLICY DILEMMAS

The fact that the concepts of innovation ecology and ecosystem cannot be used as effective innovation policy-making tools at a regional level implies that regional policy-makers have to find other means by which to deal with a number of current innovation policy dilemmas. These dilemmas include:

- Should policy-makers encourage the formation of new biotech firms in their region with public money through initiatives such as enterprise hubs, given that these firms might sell off before they become big businesses or should they invest the money in other sectors?
- Should regional policy-makers develop policies to attract multinational companies and how should they treat them in order to become part of regional networks and build local synergies between big and small biotech firms?
- Should they encourage concentration of innovative companies in a particular regional area to achieve global excellence or should they encourage the development of such facilities in less developed areas within the region?
- Should they address problems of regional innovation infrastructure, transport and housing or should they exclusively focus on social capital improving people's entrepreneurial and managerial skills?

POLICY RECOMMENDATIONS

On the basis of theoretical and empirical findings from this research, the following policy actions might be recommended:

- As regards the first dilemma, no clear and specific policy can be suggested. Instead it might be recommended that regional policy should continue to support the formation of new biotech firms, creating, at the same time, better conditions for firm-growth and sustainability in the region.
- As regards the second dilemma, the following might be said: the more multinationals located in the region and integrated in regional networks the less likely it is for them to take intellectual property away from the region. Therefore, it might be recommended that regional policy should indeed develop policies to attract multinational companies to locate in and treat them in such a way that they can become part of regional networks and build local synergies with small biotech firms.
- As regards the third dilemma, our recommendation is that regional policy should be directed towards encouraging the development of innovation facilities to less favoured areas within the region and extending successful regional innovation systems.
- Finally, on the fourth dilemma, it might be recommended that regional policy should prioritise people's entrepreneurial and managerial skills over innovation infrastructure. As a number of policy makers stressed, 'infrastructure matters but there isn't a colossal amount regional policy makers can do about it'. This, on the one hand, reveals the knowledge-based idea of economic progress that should guide regional policy and, on the other, the limits of that policy in resolving collective problems of innovation infrastructure.

NOTES

¹ The term 'ecology' comes from the Greek 'οικος' (ecos), which means household, and from 'λογος' (logos), which means discourse. Therefore, ecology means the discourse or discussion of the household of nature. Ecology is today a branch of biology that studies living organisms and their interactions with the environment. Such interactions constitute an ecological system or ecosystem. Ecosystems evolve through adaptation of the living organisms to their environment. This implies that there is no need for external intervention. Ecosystems appear to have an internal dynamic that reproduces interrelations between individuals of different species and their environment.

² The research was mainly based on two methods of data gathering. Firstly, documentary analysis including academic journal articles, policy papers and reports, DBF websites, company brochures and press articles, including historically relevant materials from a previous study. Secondly, in depth interviews with a range of public and private actors, including high level managers of biotech companies and industry stakeholders, policy makers and scheme managers, scientists and life science consultants. Since August 2005, recent relevant documents have been collected and 14 face-to-face interviews have been conducted in the Cambridge region.

³ The idea of natural selection refers to an evolutionary process of competition through which only the fittest and strongest entities (whether biological or social) are naturally selected to survive.

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