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Research Policy 37 (2008) 649–672
research policy
www.elsevier.com/locate/respol

A neo-Schumpeterian model of health services innovation

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Received 27 April 2007; received in revised form 30 October 2007; accepted 24 December 2007
Available online 10 March 2008

Abstract

The paper presents and empirically applies a neo-Schumpeterian model of innovation capable of studying interactions between service providers, patients and policy makers, and how these complex interactions determine the timing, direction, and success of innovations in the public sector. The model is tested using a case study that traces the introduction and development of ambulatory surgery in a Spanish hospital. The multi-agent model applies the ideas of Schumpeter to services, encompassing Schumpeter's five types of innovation, and re-introducing the policy-maker as a key agent in the innovation process. The model has a number of advantages over previous, reduced form models. First, it can analyse the interactions between the economic, social and political spheres that make up the complex selection environment of innovations. Second, it captures the recursive impact of radical innovations on agents' competences and preferences, and their relative power. This brings politics, power, and rhetorical persuasion to the fore. Third, it provides an improved set of definitions for radical and incremental innovation. These are not only important for understanding the sources and drivers of innovation, but also for the accurate measurement of innovation.

Keywords: Health services; Public sector innovation; Lancaster characteristics

1. Introduction

The paper introduces to a new framework for studying innovation in service industries. This framework builds on, and extends, the Saviotti–Metcalfe characteristics approach and previous work by Gallouj and Weinstein on services. Specifically, the framework introduces new actors (policy actors, public service organisations and consumers, in addition to firms) and their competences.

The advantages are twofold. First, the framework opens up the complex multi-agent environment in which innovations are developed and selected. This complex selection environment comprises interactions between economic, social and political spheres. This contrasts sharply with the highly reduced form in which innovation processes are analysed in the overwhelming part of the economics of innovation literature. The neo-Schumpeterian approach to innovation and innovation competition has overwhelmingly focused on firms. The approach has, without doubt, led to major progress with respect to the mainstream analysis of innovation. However, in order to delve deeper into the innovation process,

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doi:10.1016/j.respol.2007.12.011

and to capture its complexity, one needs to include other aspects and features in addition to those of firms.[1] The acquisition and development of competences by firms, and their competition for survival through the introduction of novel product/process technologies in markets and/or the creation of new markets, captures only one part of the reality of innovation.

The study of innovation in public sector services, such as health, forces one to address a number of issues that have been downplayed, or simply ignored, in past studies of innovation that have tended to focus on the private sector, and, in particular, innovation in manufacturing. Innovation processes are embedded in organisations and institutions that can hamper or encourage innovations. Political organisations and NGOs therefore play an important role. Further, innovation processes require a set of users that are able and willing to experiment with new technology products and services. The multi-agent framework that we put forward, containing political actors, public/private service providers and consumers, captures the key groups that are involved in innovation processes and exert an important influence on the evolution of innovations.

These key agents shape the introduction and development of innovations. In turn, innovations can alter institutions, economic structures, and the competences of these key agents. Radical innovations can also alter the relative power of agents, bringing politics, power, and rhetorical persuasion to the fore. These extremely important co-evolutionary processes significantly shape innovation processes and their potential success. Through its ability to capture these multi-agent interactions, the framework enables one to consider this higher degree of complexity in a more rigorous way compared to other approaches in the literature which, while aware of the co-evolutionary forces that exist, have severe difficulties in disentangling the complexity.

In this paper, the framework is translated into a model of health services innovation by applying the theory of services innovation proposed by Barras. The characteristics approach is not itself a theory, but a framework, and operationalizing this framework requires it to be supplemented with theory. In the original Saviotti–Metcalfe framework, for example, the theory of trajectories and paradigms served as a theory. In our case, we apply Barras' theory of services innovation (Barras, 1986, 1990) to operationalize the framework.[2]

Barras' theory was originally developed in relation to innovation by private sector service firms and by public administration. His work is based on case studies of banking, insurance, accounting, and public administration services in which innovation followed the introduction of new IT systems. Barras' theory highlights the importance of knowledge and competences in service industries, breaking these down into outward facing 'user-facing competences' that are mobilised by service providers when interacting with their clients, and 'back office competences', such as payroll and patient booking systems, that support the user-facing competences and activities. This gives a particular direction and pattern to the types of innovation that occur over time. In applying the operationalized model to a case study of public health innovation, the paper extends the original scope of the theory and tests it within a new institutional and organisational context.

This brings us to the second important contribution of the paper. Recent developments underline a trend that has been observed for a number of decades; namely, the increasing importance of service industries, and the increasing importance of knowledge within services. The example of a health service innovation is chosen because it is here that we see almost all sources of complexity to be relevant.

This application of our model is the first in what is intended to be a series of empirical applications, within health service and other service industries. The model may also be found to be applicable to some manufacturing industries. We are in principle very sympathetic to the 'synthesis approach' to services innovation, as outlined by Metcalfe (1998), and Drejer (2004).[3] This seeks to take recent insights in services innovation and integrate them with insights gained in manufacturing studies, forming a unifying neo-Schumpeterian framework that encompasses the five dimensions of innovation discussed by Schumpeter: organisational, product, market, process and input innovation. According to this view, conventional (i.e. manufacturing-based) innovation studies privileged product and process innovation at the expense of organisational, market and input innovation, while services-based innovation studies have (re)invigorated

[1] Important antecedents are provided by sociologists of innovation (e.g. Latour, 1988; Callon, 1987; Bijker et al., 1987; MacKenzie, 1992), and by economists working on macro National Innovation Systems (e.g. Lundvall, 1988; Pedersen et al., 2006). Our contribution is to develop a multi-agent framework for the economic study of micro innovations.

[2] We would like to thank one of the anonymous referees for highlighting this point.

[3] For a more detailed discussion of the synthesis approach, and how it differs to the assimilation and demarcation approaches, see Windrum (2007).