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Building an enterprising state

TRIPLE HELIX INNOVATION MODEL IN SMALL ECONOMIES

Keywords: National Innovation System, Triple Helix, Small economies, Cyprus

Over the past decades, understanding innovation process was strongly influenced by the linear model of innovation, which recommended that the development of innovations follows a straight route from research to the market. Only from the mid-1980s it became clear that innovations do not occur from atomistic agents acting in isolation but they are rather the result of interactive process where agents and organizations communicate, co-operate and establish long-term relationships. On this point, the literature has emphasized the notion of the National System of Innovation (Freeman, 1987; Lundvall, 1992; Nelson, 1993) to express the importance of interactions between the various networks related to innovation in increasing an economy's capacity to innovate. Interactions among different actors within the innovation systems are essential to produce, accumulate, and diffuse knowledge for promoting competitiveness through technological changes and innovations (Lundvall and Johnson, 1994; Archibugi and Lundvall, 2001).

With the arrival of the knowledge-based economy, the role of university as a source of new knowledge has become more important than in the past. Etzkowitz and Leydesdorff (1995; 1997; and 2000) have proposed the triple helix model, conceptually different from the NIS, to affirm the existence of a spiral pattern of relations and links between the three institutional actors: University, Industry, and Government, in which the university tends to have a vital part to play in the context of a knowledge-base economy. The Triple Helix thesis argues that a university needs to be directly linked to the industry to maximize the industrialization of knowledge. This emphasizes the "third mission" of the university serving

for economic development with knowledge diffusion and technology transfer aside from university teaching and research (Etzkowitz and Leydesdorff, 2000).

However, although the contribution of universities in innovation is significant, the role of consultants and other knowledge intensive business services should not be ignored. Kuusisto and Meyer (2003, p. 1) argue, "knowledge-intensive services play a crucial role in the creation and commercialization of new products, services and processes. They are vital carriers, shapers and creators of innovations, whether they are technological or managerial in nature". In fact, private scientific organizations are more widely used than the public science-base as they are more accessible (Tether and Tajar, 2008), and can take the role of the universities in developing research, often at the same high level as universities (Etzkowitz and Zhou, 2007). Therefore, a focus on scientific organizations (instead of university), government and industry will help in better understanding the role of these institutions in the dynamics of innovation.

This study concentrates on triple helix examining the effects of government support and firms linkages with scientific partners on innovation performance. While the study on triple helix concept as a whole is still at the early stage, the study on triple helix in small countries is at an even more primitive stage. As the features of innovation systems in small economies are sufficiently different to justify research into the relative potency of factors influencing innovation, the present study focuses on a small economy. Does a triple-helix model of scientific organizations– industry–government relations facilitate conditions for R&D activities and innovation in a small economy?

This paper takes the case of Cyprus, a small service based country where industry infrastructure lags behind the leading nations, to investigate the role of the triple helix model in a small country. Specifically the paper will analyze data on R&D and the number of innovative activities measured by patents field and granted in Cyprus. It will also examine the relations between the research organizations and the business sector, and the role of the public sector and government in initiating the whole process of innovation. The study is built upon the Community Innovation Survey (CIS). The CIS data set used comes mainly from the Cyprus sixth Community Innovation Survey (CIS 2008) which was conducted in the fourth quarter of 2009 with reference period 2006-2008. The CIS 2008 was carried out in Cyprus for the fourth time and was fully harmonized with the methodological guidelines set out by the Statistical Office of the European Communities. Comparisons were also made between different Cyprus Innovation Surveys enabling some time series analysis. Such longitudinal

analysis provided an opportunity to see the effects over time of changes in the practices of the firm or in the environment in which it operates.

The study findings imply that the interaction of the main actors of the knowledge-based economy determines the performance of the small innovation system. However, the research reveals that national institutional support systems and policy interventions are a major channel of interaction, and have a central position in the Cyprus National Innovation System. The government in Cyprus is the key to improving the institutional structures and processes of innovation and plays a constructive role in promoting the triple helix paradigm. Government role as catalyst and facilitator of the triple helix is necessary in order to overcome the market or institutional inadequacies to which small countries are particularly prone. The government should operates as an organizer and initiator of innovation and be the first to play a constructive role in promoting the dynamic interactions between academia and industry. Policy measures should be at the roots of a new paradigm, departing from a transition from a small nation to a knowledge-based society. Imitating other countries‟ “triumphant” systems in this respect would be a short sighted solution from a public policy perspective. Small innovation systems have specificities on their own and these should be taken into account when constructing the triple helix innovation platform.

It is intended that the findings arising from the analysis provide the foundation for evidence based policy, and provide initial signposts to focal points of innovation policy into the future. However, the generalizability of study results should be carefully examined when one attempts to apply the findings to other countries with different socio-political, economic, and industry environments from those of Cyprus. It may be too early to determine whether innovation networks that are examined in this paper represent new model of the innovation process in other small countries. Until greater research is undertaken on the triple helix in small economies, the full implications of the triple helix and the role of the government will not be fully understood.

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