Chapter 66
The Economics and Econometrics of Global Innovation Index

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ABSTRACT

Innovation is understood by different people differently and there is no reason to think otherwise until and unless innovation is objectified. Several measures have been developed to represent innovation in one or the other form. At times, due to dearth of data on innovation, proxies are used that may not represent innovation in its true sense. One of such measure, though unpopular but relevant, is global innovation index (GII). Indexes are used to quantify as well as measure the variability over a period of time in comparison to base values. As the approach of GII is new and promising, the present chapter will attempt to understand the economics of global innovation index for the available data. This will add to the understanding of innovation and may act as a strategy. On the other hand, econometrics as an emerging branch will also be used to identify certain simple hypothesis for the data of global innovation index. The chapter thus aims to delve deeper into the understanding of global innovation index.

INTRODUCTION

The world is dynamic and the worldly is innovative. The statement may appear ambiguous to people in general due to the fact that human beings talk about innovation with an obscure understanding. It appears that in the present era of globalisation and competition, innovation is required at each and every level. People, business entities, governments, non-government organisations all raise a common voice of promoting and practicing innovation. It is important to make it crystal clear that innovation is different at the microeconomic level and different at the macroeconomic level. Researchers and policymakers alike have attempted to solve the problem of subjectivity and halo effect while talking and discussing

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about innovation. Several proxies, indicators have been developed for the same objective. However, understanding of these indices is not common.

The mission and vision that came in with positivism, aims to objectify things even if they are too subjective. While this point will remain debated in the post-positivism era though again in subjective sense. One such objective measuring index of recent origin is Global Innovation Index (GII) developed and co-published by Cornell University, INSEAD, and the World Intellectual Property Organization (WIPO, an agency of the United Nations). The knowledge partners includes The Confederation of Indian Industry (CII), PricewaterhouseCoopers (PwC) and Strategy and the National Confederation of Industry (CNI) and Serviço Brasileiro de Apoio às Micro e Pequenas Empresas (SEBRAE). Not only governments but independent organisations have started using the index in one or the other manner. The movement in the country ratings is followed by media and officers and is widely reported. This is true for both developed and developing countries (ET Bureau, 2016).

In the present study, an attempt is made to develop the understanding of Global Innovation Index with respect to its economics and econometrics. An attempt is made to understand innovation when it is objective rather than relying on subjective parameters based on perception, hindsight and emotions regarding innovation. The different positions of the countries would be compared. Econometrics as an emerging branch will also be used to identify certain simple hypothesis which may clarify the concept of innovation. The chapter is divided into 6 sections. Section 2 deals with review of existing body of literature while section 3 discusses the conceptual framework/ theoretical foundations. Section 4 exclusively deals with economics of GII. On the other hand, section 5 elucidates on the econometrics of innovation with respect to GII. The chapter concludes in section 6.

REVIEW OF LITERATURE

There is no dearth of studies conducted on innovation. There is a generally accepted notion that innovation leads to economic growth (Romer, 1990; Bilbao-Osorio and Rodríguez-Pose, 2004; Harris, 2011; Nunes et al., 2012). It includes from a micro perspective, macro perspective, from technological viewpoint et cetera. Studies have attempted to objectively identify implications of innovation on different micro and macro variables as well. However, few innovation indices has been popularized as well as accepted globally. The list of such indices includes International Innovation Index (produced jointly by the Boston Consulting Group, the National Association of Manufacturers and The Manufacturing Institute), Global Innovation Index (GII) and Bloomberg Innovation Index. Not much have been discussed about the indices except quoting the rankings as a passer-by.

The new understanding of innovation is a bit different than the neo-classical understanding. Under neo-classical economics, innovation was seen as an interaction between producers of innovation and users of innovation. However, there is overwhelming evidence that the better understanding of innovation develops when national economic structures, institutions (primary and auxiliary) and policies are considered as well (Lundvall, 2016). In the recent years (particularly in the last decade), it has been identified that there is a need for adequate statistical data. Researchers working on innovation face the problem of data inputs to reach to verified conclusions and are not helped with aggregate data availability. Thus, researchers have pushed for new indicators of innovation output (Bain & Kleinknecht, 2016).

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