

The Sustainable (Eco) Innovation Output in the OECD Area: Analysis Based on Patent Data at Country Level

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This paper studies and measures the output of sustainable (eco) innovation in the OECD area. Results are based on patent records and their use as indicators of innovation output. The term eco- innovation is fairly recent. Eco- innovation is the development of products and processes that contribute to sustainable development, applying the commercial application of knowledge to elicit direct or indirect ecological improvements. This includes a range of related ideas, from environmentally friendly technological advances to socially acceptable innovative paths towards sustainability. In this context, the concept of eco- innovation has been created and introduced to describe the development that satisfies the needs of today without risking the capacity of the future generations to satisfy their own needs. Based on the above concept, this paper examines patents extracted by the OECD patent database for the total of OECD countries for a period of 12 years to study the innovation output in the sustainable (eco) area, aiming at providing a deep understanding of the existing situation and an objective statistical reference for future research in this field.

The paper is structured as follows: Section one is the introductory part of the paper, where the theoretical and empirical framework of innovation in relation to competitiveness, development and growth is discussed. Section two comprises of three parts: The first part defines the term sustainable (eco) innovation; the second provides arguments for and against the use of patent data for the measurement of sustainable (eco) innovation output, ending up to the conclusion that patents may be considered and accepted to be good and reliable indicators of innovation output. The third part of section two is devoted to a bibliography review concerning the measurement of sustainable (eco) innovation through patent data. Section three describes the data that has been used and the methodology that has been followed for this study. The data is based on patent data extracted by the OECD patent database at country level, while the main part of the methodology relies on defining the sustainable (eco) patent and searching for it, focusing on the relevant patent codes. Section four describes the research results, which are presented at two levels: The overall OECD pattern of the production of sustainable (eco) innovation output is presented at the first level, both totally (whole period of analysis) and comparatively (comparison of performance between two equal sub-periods). The best and worst country performers are identified at the second level, as well as indicators of 'relative innovation advantage' at country level. Section five synthesizes and further discusses the results also tracing for changes in trends and innovation behaviour in both the introduction or withdraw of sustainable (eco) kinds of innovation and their relative importance. The paper also provides evidence of the high or low concentration of the developed innovation output inside relative technological and industrial sectors. Finally, section six presents the main conclusions of the paper.