

Analysis of the Relationships Between the Field of Reverse Engineering with Patents and Gross Domestic Product of Developing Countries

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ABSTRACT

Objective: Reverse engineering is an effective tool for using the technologies of advanced countries to overcome technological limitations by developing countries to increase innovation and gross domestic product (GDP). The purpose of this research is to analyze the situation of Iran, South Korea, Japan, and China in the field of reverse engineering and to examine its relationship with the number of patents and their GDP.

Methods: This applied research was conducted with document analysis and bibliometric analysis. The statistical population of this research is the reverse engineering articles published by the countries of Iran, South Korea, Japan, and China in the Scopus citation databases and their patents in the WIPO database, and their GDP in the World Bank from 2010-2019. Data was collected through note-taking and Pearson's correlation coefficient was used to analyze the data.

Results: The results show that there is no significant relationship between reverse engineering articles and GDP between Iran and selected countries. Although the rising share of the production of articles shows that countries at some point in time and before starting innovation, pay a lot of attention to reverse engineering, after some time they achieve scientific prosperity and seek to create innovation and new patents. Also, there is no clear relationship between the field of reverse engineering and the number of patents granted. This shows that reverse engineering and the granted patent are not always in the same direction or the opposite. In countries like South Korea and Japan, reverse engineering and patents go in the same direction, but in China, they go in the opposite direction.

Conclusion: This indicates that after passing through the reverse engineering stage, countries use the knowledge created to innovate products and patent new patents, and reverse engineering will cause the growth of innovation and, as a result, the increase of patents in them, but by reducing the use of reverse engineering, countries are moving towards innovation. The increase in innovation will also increase the patenting of countries and will lead to an increase in their gross domestic product. Therefore, it can be concluded that reverse engineering is effective for creating innovation and increasing GDP in developing countries, and increasing the GDP of countries can also help improve their economic situation in various fields.

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