The Comparative Research of National Innovative Capacity

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ABSTRACT

In twenty-one century, Porter (2001) argued the prosperity resulted from the competition, namely, innovative capacity. However, the relative literature was focused on the organizational innovation, industrial, and governmental innovative policy. Whereas, the study integrated two theories, the National Innovative System and National Innovative Capacity, as the theoretical base to suggest the National Innovative Input model, and contribute the national level relative research, which lacked in Taiwan. Further, the international patents are used as measurable variables of innovative outputs; these data usually came from United States Patent and Trademark Office (USPTO), however, it may ignore the situation, where inventors may patent their inventions only in individual home country or other countries except America. Thus, besides the data of international patents, the study used the data of Science citation index and Engineering index as alternative variables of innovative output. The study includes 24 countries, which listed in The World Competitiveness Yearbook (2003), and the data resource includes The World Competitiveness Yearbook (1999-2003); the publication of IMD, United States Patent and Trademark Office (2001), and Main Science and Technology Indicators (2003); the publication of OECD. The study used Data Envelopment Analysis (DEA) as statistic method, which cannot only suggest the improving proportion items to sample countries, but also offer the alternation to regression method. The result suggested below, first, toward the global efficiency America, Russia, and mainland China are more efficient than others. Second, about the pure technological efficiency South Korea and Poland are more efficient than others, whereas, the study suggest South Korea and Poland as the paradigm of innovation and management. Final, some countries evaluated as un-efficiency result from the over-input in IP protection, R&D resources, university education, university-industry cooperation, technological cooperation between companies, country risk, national culture, and national size. Thus the study these countries can transform the resources to other useful activities.

Keywords : National Innovation System ; National Innovative Capacities ; National Innovative Input ; Data Envelopment Analysis(DEA) ; Science citation index (SCI) ; Engineering index (EI) ; R& ; D resources

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