Korean journals in the Science Citation Index: What do they reveal about the intellectual structure of S&T in Korea?

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During the last decade, we have witnessed a sustained growth of South Korea’s research output in terms of the world share of publications in the Science Citation Index database. However, Korea’s citation performance is not yet as competitive as publication performance. In this study, the authors examine the intellectual structure of Korean S&T field based on social network analysis of journal-journal citation data using the ten Korean SCI journals as seed journals. The results reveal that Korean SCI journals function more like publication places, neither research channels nor information sources among national scientists. Thus, these journals may provide Korean scholars with access to international scientific communities by facilitating the respective entry barriers. However, there are no citation relations based on their Korean background. Furthermore, we intend to draw some policy implications which may be helpful to increase Korea’s research potential.

Introduction

During the last decade, we have witnessed a sustained growth of South Korea’s research output in terms of the world share of publications in the Thomson ISI database. According to the Korean Institute of Science & Technology Evaluation and Planning (KISTEP), there were 23,048 publications with at least one Korean address among the authors in the National Science Indicators 2006 of the Thomson ISI [KISTEP, 2006].
Using the web-version of the *Science Citation Index*, we find higher numbers, but the linearly upward trend is very clear (Figure 1); Korea increases its percentage world share of publications with approximately 0.20 percent point each year ($r^2 > 0.99$). In terms of the number of papers in the *Science Citation Index* journals, Korea occupied the 14th position in the year 2005. This means a jump from 21st place in the year 1996. In other words, the *Science Citation Index* contained about four times as many publications with a Korean address in 2006 (28,059) as in 1996 (7,158). Figure 1 shows that South Korea has gone up in percentage world share of publications from 0.99% in 1996 to 2.86% in 2006.

![Figure 1. Long-term trend of the percentage publications with a Korean address in the Science Citation Index (expanded version)](image)

According to KOSTOFF (2004), Korea obtained even the 6th position during the first eight months of the year 2004 in the field of nanotechnology [LEYDESDORFF & ZHOU, 2007]. The KISTEP [2006] reports that molecular biology and genetics are by far the most influential areas of Korean science when measured by the citation index from the year 1996 to 2005. The next highly cited subjects are immunology, space science, neurology & behavioral science, biology & biochemistry. New fields including molecular biology and space engineering are significantly emerging in Korea.