Bibliometric Analysis of the Asia-Pacific Research Area: Issues and Results

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Introduction

This poster focuses on a bibliometric study which analyzed the output of scientific articles of eleven different countries in the Asia-Pacific region (i.e. Australia, China, Indonesia, Japan, Malaysia, New Zealand, Singapore, South Korea, Taiwan, Thailand and Vietnam) in journals covered by the Web of Science from 1998 to 2007. The analysis was conducted for the German Federal Ministry of Education and Research in 2008 / 2009 and has not been published yet. The Federal Ministry selected the eleven countries and defined Germany as a benchmark.

The main questions the study dealt with, were as followed: In which research area is a country present? In which is it excellent? What other countries co-publish most often with the country under investigation in selected research areas? Has the scientific collaboration between the analyzed countries increased from 1998 to 2007? Has the Asia-Pacific research area (APRA) changed and evolved over time? How do the countries' publication and citation rates compare to those of a benchmark like Germany?

To observe specific citation and publication rates the data has been divided into thirteen disciplines according to ISI Subject Categories (see figure 1). While the citation rates of countries analyzed in two earlier studies (focusing on India and Latin America) did not measure up to the rates of the benchmark of Germany in any discipline, some of the countries of the APRA exceeded several of Germany's discipline-specific perception rates. South Korea outdoes Germany in eight of thirteen scientific disciplines. In figure 2, can be seen how high the percentage deviation of South Korea's citation rates is in comparison to the benchmark. With a citation rate that is 38 % higher, it exceeds Germany's rates in agricultural science by far. It also achieves a higher perception of its scientific output in energy, medicine, information and computer science, nanotechnology, engineering, chemistry, and physics. South Korea therefore counts as one of the countries with the highest citation rates in this study.

Figure 1 illustrates the articles per discipline for the period 1998 to 2007. As a result of multiple classifications, there are overlaps between the disciplines that disallow a summation. For example, publications in the journal "Chemical Physics – Physical Chemistry" are assigned to both chemistry and physics, and would therefore be counted twice in a summation. From the chart, we can see the key disciplines in which each country publishes, taking into account the fact that the Science Citation Index has a different focus in terms of disciplines covered. Approximately one third of all articles in the Science Citation Index come from medicine. This is the reason why medicine is the field with the highest number of publications in many but not all of the countries analyzed. In China, for example, physics and chemistry represent a significantly higher proportion of the total number of publications compared to medicine. The same is true of engineering in Singapore, which is much more strongly pronounced than medicine.

Outlook

Further results will be presented to address the following issues: How pronounced are the relationships between the countries investigated in the APRA? Which countries of the APRA cooperate heavily with each other? With which countries do APRA-countries cooperate worldwide?

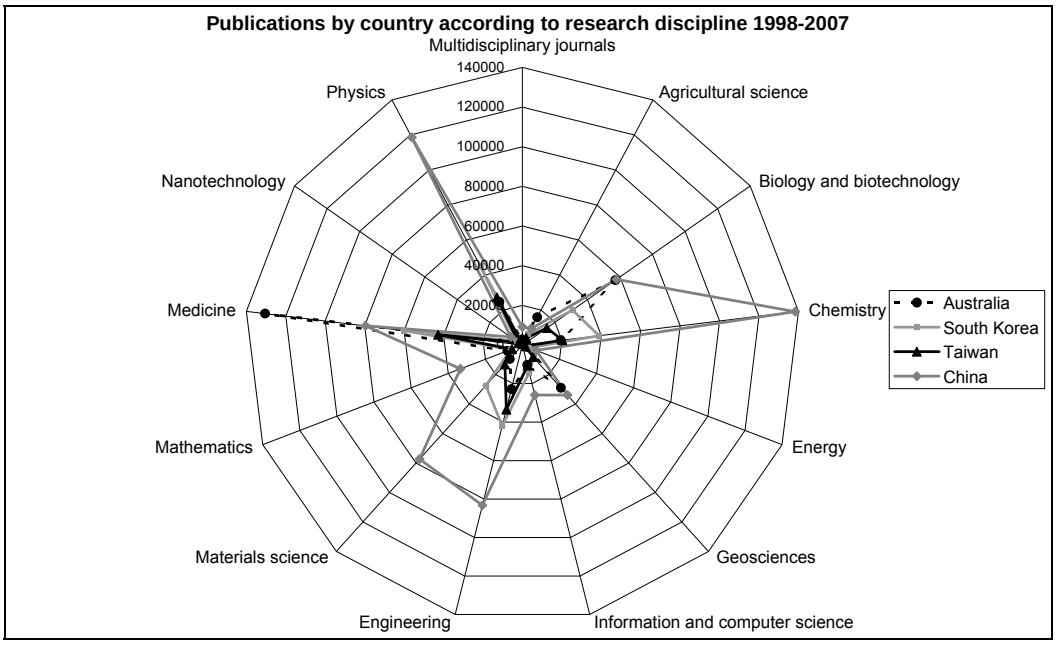

Figure 1. Publications by the countries studied 1998 – 2007 according to research discipline.

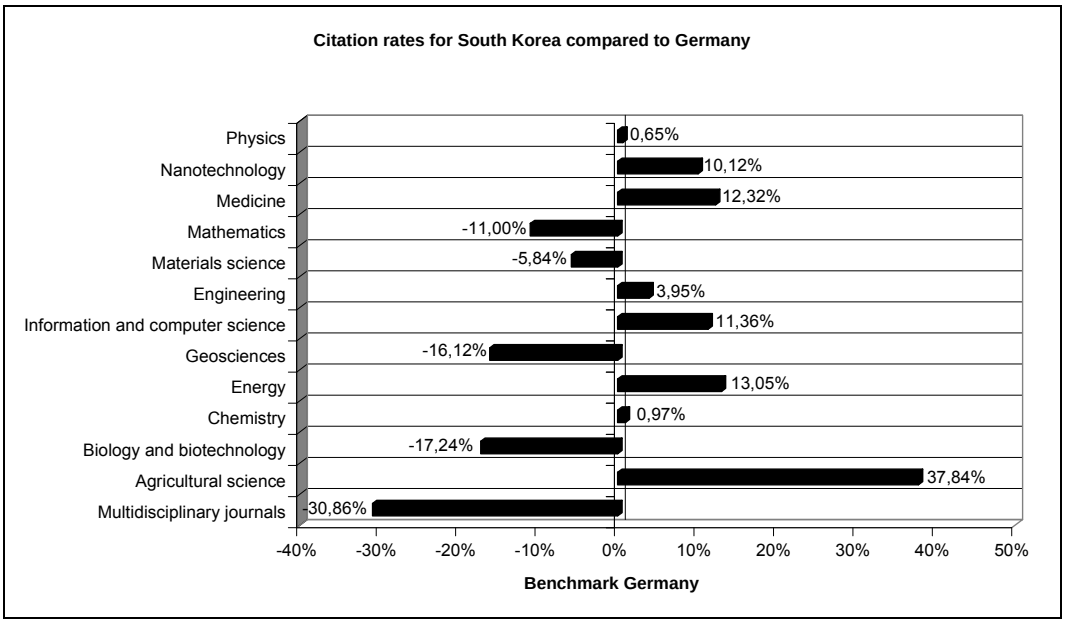

Figure 2. Citation rates (observation period 1998-2007) for South Korea compared to the selected benchmark Germany

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