

Identification of Launching Measures to Stimulate Publication Activity at a Country Level Through the Scimago Platform

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Abstract: The Compare operator of the SCIMAGO platform is used to identify the launch of large-scale measures to stimulate the publication activity at a country level. The study shows that sharp breakpoints in the graphs of the publication activity dynamics identify the periods when these measures are introduced. This hypothesis was tested for the countries for which we had reliable evidence of when they introduced such measures Iran, Turkey and China. It allowed researchers to extend the hypothesis under consideration to study other countries, making it possible to identify when such stimulating measures were introduced in Saudi Arabia and Malaysia. In general, all the leading Islamic countries have been tested to check the validity of this hypothesis.

Key words: Stimulation of the publication activity, Impact Factor (IF) of a journal, islamic countries, China, Monetary Reward Systems, SCIMAGO, scopus, web of science

INTRODUCTION

Despite widespread international practices of paying rewards to scientists for publishing their articles in Web of Science and Scopus journals, there are still no studies on generalizing such practices. One can only find some rare facts about these practices in some the media (Demchenko, 2005), hard-to-get research reports (Moskovkin, 2004) and some articles (Shao and Shen, 2011). The data obtained in this way were summarized by Osarch and Wilson (2002) where the experience of implementing such practices in Turkey and Iran was briefly described. At the government level, one of the first of such practices was introduced in Iran (grants from the Ministry of Science, Research and Technology) in the late 90s of the last century. To be more exact, the launch of such a challenging practice in Iran was identified by Borchart (2003) on the basis of the detailed data on the dynamics of SCI-publications cited in report (Moskovkin, 2004). A dramatic increase in the number of these publications from 400-1000 articles could be seen in 1998. So that year can be considered as the date of launching a governmental stimulating measure. As of the early 2000s, the remuneration for one publication in Turkey was \$100-300 depending on the impact factor of a journal (Demchenko, 2005).

During the same years, such incentive systems of publication activity started to appear widely in many developing countries at a university level with the scale of monetary rewards based on the variation interval of journal Impact Factors (IF) varying from university to university depending on their financial capacities. China was one of the pioneers of introducing such systems and currently its universities have a very large variation interval in the scale of rewards from \$300-50.000 per one article (Waltman *et al.*, 2011). Such a practice makes scientists strive to have the best research results published in high IF British or American journals. The above reward systems named by Waltman *et al.* (2011) as Monetary Reward Systems (MRS), apart from washing the best research findings out of the country are responsible for their falsification (Qiu, 2010). When a fee for a single article reaches \$30.000-40.000 many researchers may be really tempted to subtly falsify their research. The data by Qiu (2010) show that one in three Chinese scholars does not scruple to use plagiarism, fabrication of data and falsification of research. After this information had appeared in Nature journal in 2010 in 2013 China introduced a law according to which for such immoral actions scientists are to be punished by stripping them of their academic degrees and titles.

At the same time, reasonable scales of remuneration in MRS can have a beneficial effect on the development of a country's research systems in general and a country's publication activity in particular.

To identify launching a MRS at a country level, we suggest using the SCIMAGO platform. In this study, the SCIMAGO platform will be used to identify the launch of MRSs for leading Islamic countries and China.

MATERIALS AND METHODS

A Spanish online platform SCIMAGO allows studying the dynamics of Scopus publication activity of all countries after 1996. For a comparative analysis of this dynamics, one can use the Compare operator which allows you to build combined graphs to show the publication dynamics for up to four countries. Significant changes and sharp bends in these figures suggest that in certain years the country introduced measures to stimulate publication activity. They are naturally associated with launching a MRS at the governmental or institutional level. In the latter case, it is important to cover the majority of universities and research centers in the country with these measures. An active policy to promote national journals to the Web of Science and Scopus databases also results in an increase in the country's publishing activity but it is subordinate in character. The fact is that the MRS is easy to introduce across the whole country, covering all scientists whereas the number of journals to be promoted to the above-mentioned databases is quite limited.

The results of research: As shown in the Introduction, many mostly developing countries have introduced measures to improve the publication activity (Monetary Reward Systems (MRS)), the essence of which is that the monetary reward for the publication of articles in journals included in the Web of Science or Scopus databases depends on the variation interval of impact factors of the journals in which the articles were published: the more the values of the limits of the variation interval, the greater the reward. In other words while developing a specific MRS, the main problem is in elaborating the scale of rewards.

Table 1 shows the data for the top ten countries with the largest average annual growth rates of publications included in the Web of Science database (Moskovkin, 2013).

As you can see, most of these countries are developing and we can conclude a priori that almost all of these countries use some system of rewards for publishing research papers. As we can see by Fig. 1 (Moskovkin, 2007), Iran saw a gradual increase in publication activity after the mid-90s of the last century with some notable increase in the number of articles

Table 1: Top ten countries with the largest average annual growth rates of publications

Countries	No. of web of science publications, 2009	Average annual growth rates of publications, 2000-2009 (%)
Iran	12547	30.4
Malaysia	3344	19.9
China	108202	17.1
Turkey	19340	16.8
Thailand	3450	16.4
Romania	4930	15.1
Brazil	25714	12.5
South Korea	31673	11.4
Portugal	5931	10.9
Taiwan	20560	9.8

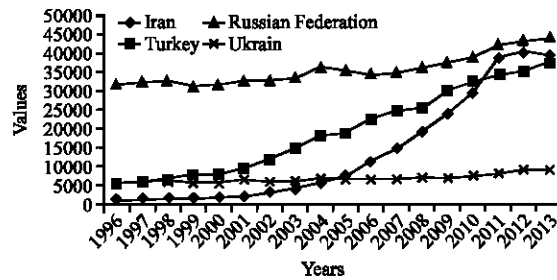


Fig. 1: Dynamics of publication activity in Iran, Turkey, Russia and Ukraine. SCIMAGO platform, indicator-documents

published in 2002 followed later by a considerable almost exponential, growth of publications up to 2011. But in 2012 this growth slowed down significantly followed by a decline in publication activity. One may assume this is the result of the Iranian State cutting the stimulating payments to the national scientists. At the same time, the graph of dynamics of publication activity in Turkey resembles a piecewise linear function with quite steep breakpoints in 1999, 2001, 2006 and 2009. We can also see that in 2005 Iran got ahead of the Ukraine by the annual number of Scopus publications and in 2011-2012 came very close to Russia by this parameter. If the current trend continues throughout 2014, then Turkey will overtake Iran and catch up with Russia by the annual number of Scopus publications.

Let us have a look at the dynamics of the publication activity in the leading Arab countries compared with the publication activity in Israel. Among the Arab countries, we chose two of the most scientifically advanced countries Egypt and Tunisia and their opposite in this respect Saudi Arabia. Surprisingly, we can see in Fig. 2 that after 2009 Saudi Arabia recorded a boom of publications which allowed it to leave Egypt behind in 2013. With the present trends being in place in 1 or 2 years Saudi Arabia will be able to overtake Israel by the annual number of Scopus publications. This allows us to conclude that at the end of the first decade of the 21st century Saudi Arabia managed to effectively launch an MRS and may have had its journals included into the Scopus database.

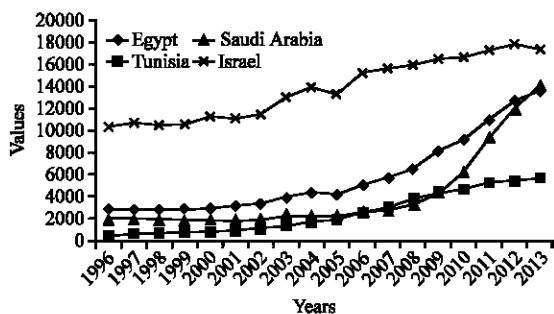


Fig. 2: Dynamics of publication activity in Egypt, Tunisia, Saudi Arabia and Israel. SCIMAGO platform, indicator-documents

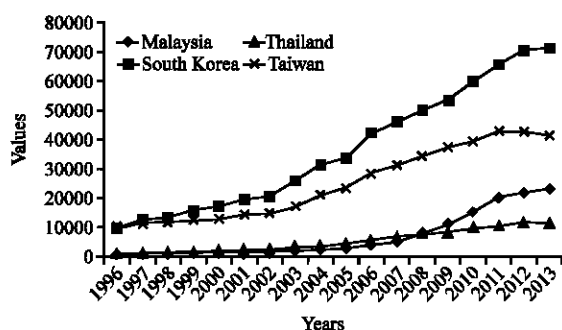


Fig. 3: Dynamics of publication activity in Malaysia, South Korea, Thailand and Taiwan. SCIMAGO platform, indicator-documents

To complete the analysis of the publication activity dynamics of the leading Islamic countries, we still need to test using the SCIMAGO platform, the publication activity dynamics of Malaysia which is globally ranked second in terms of average annual growth rates of publications included in the Web of Science database (Table 1). As comparison countries to Malaysia, we chose the countries in the same region of Southeast Asia included in Table 1. The comparative graphs showing the dynamics of publication activity in these countries, obtained through the Compare operator are presented in Fig. 3. This figure shows 2008 as a turning point for growing publication activity in Malaysia. At the same time, we can notice that over the recent years, the growth rate of publication activity for this country as well as for South Korea has slowed down whereas in Thailand and Taiwan the trend has even reversed.

After examining these graphs, we can state that the incentive systems to stimulate the publication activity began to be introduced widely in Malaysia after 2008 while in South Korea and Taiwan this turning point was in 2003. By using the Compare operator, let us define the share of the articles written with foreign co-authors in

2011 in the four countries selected on the ground of the publication activity growth rate: Saudi Arabia-63.7%, Malaysia-30.3%, Turkey and Iran-16.8% each. We should note that Saudi scientists aiming at international cooperation will promote an increased citation of their publications which will in the end result in a better positioning of the country's universities in global university rankings. In conclusion, we would like to note that a significant strong growth in the publication activity in China began in 2003-2004 which was the period when they launched the Shanghai Ranking of World Universities. At the same time, the share of articles published in collaboration with foreign researchers was very low in 2011 only 14.7%. An interesting fact is that the peak of this parameter was recorded in 2003 (19.8%), the year of launching the above rating.

CONCLUSION

Thus, the current study shows how the SCIMAGO platform can be used to identify the launch of measures to stimulate publication activity at a country level. For this purpose, one should use the Compare operator which allows comparing the dynamics of the publication activity in the Scopus database for a maximum of four countries, starting with 1996. Sharp breakpoints in the graph of the publication activity usually follow the launch of large-scale measures to support this activity at a governmental and/or university level. This hypothesis was tested for the countries for which we had reliable evidence of when they introduced such measures Iran, Turkey and China. Therefore, we assume that this can be easily extended to other countries in which we have seen a considerable increase in the publication activity Saudi Arabia and Malaysia.

In general by using the Compare operator we tested all the leading Islamic countries and China to investigate the dynamics of their publication activity and identification of MRS launching.

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