Statistical analysis of citation results for researchers in Serbia

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Abstract

The University Library in Belgrade has a long tradition of bibliometric analysis of citations in the Web of Science, spanning over more than 25 years. The University of Belgrade has 31 faculties and 11 institutes where 5000 lecturers and 2000 researchers are employed. In the last three years, we had 1093 requests for citation and found 79,767 citations in total. The structure of academic staff, the number of requests to create a bibliography of cited papers and the number of citations are not directly correlated. Most researchers are employed at technical colleges, and the largest percentage of requests and citations are related to the biomedical disciplines. Social Sciences at the University of Belgrade are represented by 25% of employees, and in the statistical analysis of the results of the University Library by less than 1%. We have done a statistical analysis of the number of citations for certain fields such as medicine, chemistry, physics, technical sciences, social sciences, etc. Those results will be presented more precisely in our paper. The most requests we had was in the year 2008 – 619 requests, because of the increased need for bibliometric analysis for the accreditation of higher education institutions. During the following years, we expect reduction in the number of requests due to transparency in results, the intensive academic staff education by information specialists from the University Library and dynamic ICT development.

Key words: citation analysis, statistical data, University Library, Serbia

Introduction

Statistical measurement in scientific evaluation is a very frequently used method as it is the most precise and the most objective one. There are many variants and very strictly defined parameters and tools. But in assessment of scientific citation, we always emphasize that in evaluation of scientific work of a particular researcher, there is one of many criteria for complete bibliometric analysis. During exploring data of the citations number, usually from the Web of Science - WoS (Thomson Reuters) we consider many other aspects of scientific evaluation

and give suggestions to academic staff (explanation about IF, JCR, journal ranking, self citation, citation, OA etc).

University of Belgrade

The University of Belgrade is a state university. It consists of thirty one faculties (natural sciences and mathematics, social sciences and humanities, medical sciences, and technological sciences), eleven research institutes, University Library " Svetozar Markovic" and seven professional centers.
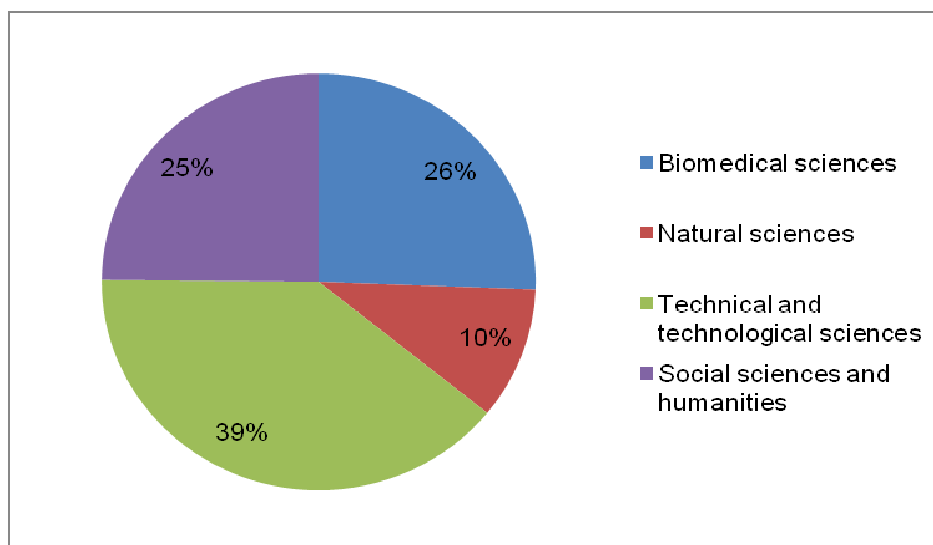
**Graph 1.** Professors at the University of Belgrade

Statistical results of the total number of citations by subject
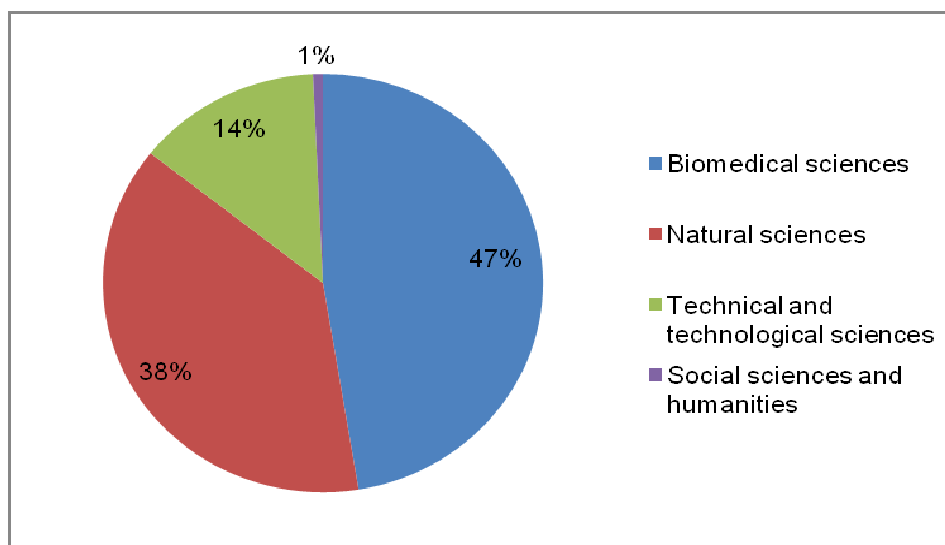
Graph 2. Citations 2003-2010

At University Library we preserve bibliographies of citations of professors and explorers for the period 2003-2010. Citation analysis has been one of University Library's services for 25 years. During that period, all together 121.239 citations have been found. Graph 2 shows distribution of citations in percents and by areas. About 1% of citations goes on social sciences and the humanities (lecturers in those disciplines make about 25% of academic staff at the University of Belgrade), 14% of citations are from technical and technological sciences (39% of total university staff). The citations haven't been done for the entire university (institutional request), but for individuals or groups of researchers.

Statistical analysis of citation results
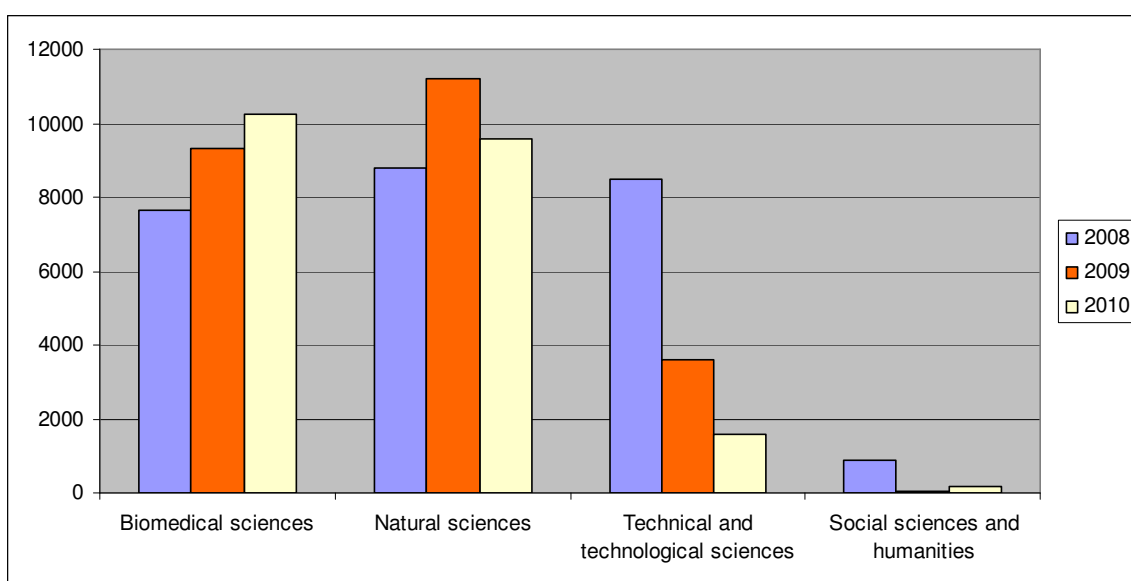
Graph 3. Number of citation in 2008, 2009 and 2010

Graph 3 shows the number of citations for the last three years in 4 areas. Biomedical sciences have a tendency to increase the number of citations. Natural science had the most citations in 2009, technical and technological sciences have a tendency to decrease the number of citations. Social sciences and humanities have the lowest number of citations.
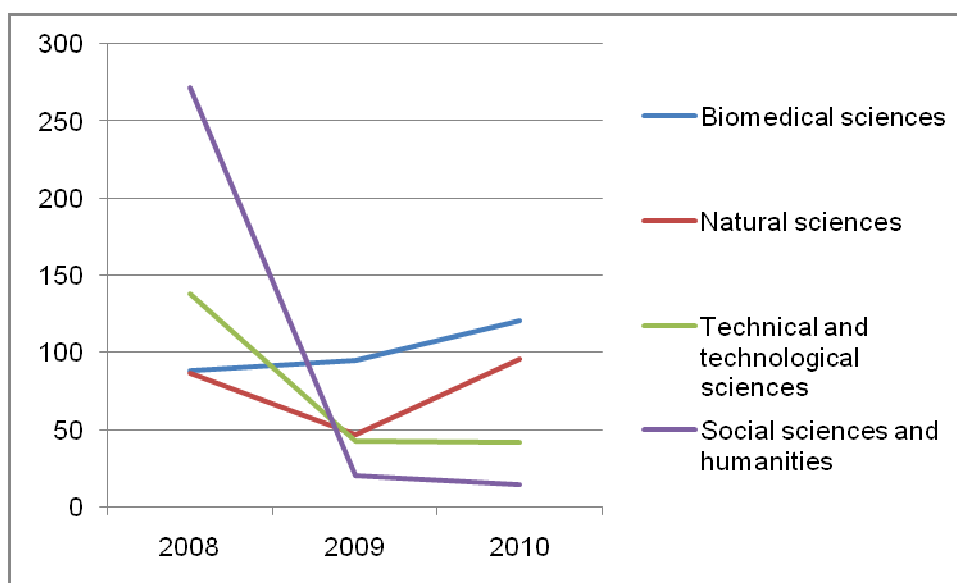
Graph 4. Number of requests

The number of requests to create a bibliography of cited papers was the largest in 2008, especially for the social sciences and the humanities, as well as for the technical and technological sciences.

Serbian science in Sciencewatch

Country	Field
SERBIA	Agricultural Sciences
SERBIA	Biology & Biochemistry
SERBIA	Chemistry
SERBIA	Clinical Medicine
SERBIA	Computer Science
LITHUANIA	Economics & Business
SERBIA	Engineering
GHANA	Environment/Ecology
SAUDI ARABIA	Geosciences
BULGARIA	Immunology
SERBIA	Materials Science
SERBIA	Mathematics
PAKISTAN	Microbiology
YUGOSLAVIA	Molecular Biology & Genetics
WALES	Multidisciplinary
SERBIA	Neuroscience & Behavior
SERBIA	Pharmacology & Toxicology
SERBIA	Physics
PAKISTAN	Plant & Animal Science

Country	Field
TRINID & TOBAGO	Psychiatry/Psychology
ETHIOPIA	Social Sciences, general
SERBIA	Space Science

Table 1. List of scientific disciplines following data of Sciencewatch

Through data of Essential Science Indicators SM from Thomson Reuters, ScienceWatch produces a bimonthly report of the citation increase in different countries and in particular areas. Serbia has a status of a "Rising Star" in scientific disciplines quoted in table 1.

Discussion

The number of requests during 2008 increased significantly because of the actual process of accreditation of the faculties. The increased number can be particularly noted in the domain of social sciences. Citations in biomedical sciences have a tendency to increase during the same period, which is in accordance with data from Sciencewatch. The tendency of high citation of scientific papers of Serbian scientists referred in the Web of Science can also be noted.

Conclusion

According to our statistical analysis of citation results the Serbian science is more visible in the Web of Science: enlarged number of scientific articles, enlarged number of referred journals (10 journals with IF and 10 journals in evaluation process for JCR list in 2009). As a result of that visibility the number of citations is considerably increased.

Literature

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