

## The Role of Periodical Impact Factors in Literature Evaluation and Its Research Based on Information Technology

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**Abstract:** The impact factor of journals is an important evaluation index of their academic influence. However, the academic evaluation of journals based on this index is biased. Based on the definition of influence factors, the paper analyzes the subjective and objective factors that affect the journals. The results show that among the objective factors, the influence of interdisciplinary differences and statistical periods cannot be followed regularly. The influential factors of periodicals with large proportion of review periodicals and review articles are generally higher than those of other periodicals. The more journal articles and authors, the bigger the impact factor is; the more the statistical samples, the bigger the impact factor of the journal is. By analyzing the definition of influencing factors and the difference of journal citations in different years of different periodicals and citations of theses papers after the completion of the statistics of influencing factors, and with the development of information technology, the papers of scientific papers are proposed according to their published journals. Based on the proper distinction of influencing factors, subsidies should be awarded according to the actual quotation of scientific and technical papers.

### 1. Introduction

Periodical impact factor is defined as the ratio of the total number of papers published in the first two years of the journal in the statistical year to the total number of papers published in the first two years of the journal. It can be seen from its definition that the journal impact factor is an important indicator to evaluate the quality of a journal, but it is not aimed at the quality of a paper published on it. As the quality of journals is determined by the quality level of all papers published on them, the impact factors that reflect the overall level of the journal can, to some extent, indirectly reflect the quality of the papers published on them. Therefore, at present, all research institutes, institutions of higher learning and some evaluation agencies generally regard the impact factors of journals as an evaluation index for the level of their papers published by researchers. However, the influence factors of journals are restricted and influenced by many factors, of which there are objective factors and subjective factors. Without distinction of any kind, journals of different industries and different types are appraised by the same indicator, which is obviously unfair. Therefore, starting from the definition of journal impact factor, we analyze the influencing factors of impact factors to guide the relevant departments to make an objective and fair evaluation of the academic achievements of researchers.

### 2. Variation of influencing factors in different years of the same journal

The survey of influencing factors in different years of different periodicals shows that the difference in influencing factors between years is also large, and more than 50% of them are often found. In addition, some foreign scholars analyzed the total average influence factors of 200 chemical journals, the 2-year impact factor fluctuates more than 20% in different years, but the 5-year impact factor shows a smoother curve [1].

Taking the 40 articles published by China Rice Science in 2003 and the 1st and the 2nd in China as of December 20, 2008, the quoted figures in the online Chinese periodicals cited as examples, the

highest number of cited citations in the two years was 22, The lowest is 0 times and the average is 3.05 times. In the following two years, the highest number of periodical citations is 24 times, the lowest one is 0 times, with an average of 4.1 times. By December 20, 2008, the highest number of journal citations is 52 Times, the lowest was 0 times, with an average of 8.8 times. The highest citation frequency (including citations in journals and doctoral master's conference papers) was 104 times, the lowest was 0 times and the average was 16 times. In the next two years, the average number of journal citations was higher than the number of citations in two years, indicating that the impact of these two articles will be even greater in two years' time. There are also the next two years, the number of citation and the number of citation in two years is the same as 7, higher than 25, less than 6 articles, articles such as Wang Yanrong two articles have not been cited for two years, and then two years later Cited 5 times, there are still a wide range of articles, but also a lot of two years of reference and then reduce the reference two years later, such as Wang Shaohua and other articles cited 18 times two years, then cited 12 times two years later, this is the performance in the case of an increase in the average number of citations. The 78 articles published in China Agricultural Science from January to February 2003 are similar to the figures quoted on the China Journal online as of December 24, 2008 (see Table 2), and the highest number of citations in these two years for the 10 times, the lowest for 0 times, an average of 2.88 times, and then the next two years, the highest number of journal citations for the 15, the lowest for 0, an average of 3.99 times, to December 24, 2008 Journal Citation The highest was 30 and the lowest was 0, with an average of 8.49. The highest citation frequency (including citations in journals and Ph.D. conference papers) was 73 and the lowest was 1, with an average of 17.56. "China Agricultural Sciences" is also the second two years after the citation number higher than two years, and "China Rice Science" paper consistent phenomenon shows that agricultural science papers after the publication of 3 to 4 years of performance than published 1 to 2 years the impact of large. The number of citations 3 to 4 years after the publication of the paper was 11, the same as that of 1 to 2 years after the publication, with 42 articles higher than 22 articles [2].

### **3. Journal impact factor manipulation definition**

As the journal impact factor plays an important role in academic evaluation and scientific research management at home and abroad, the organizer of journals naturally hope that the higher the impact factor of journals, the better. Some influencing factors such as publishing high quality papers, expediting manuscript reviewing speed and shortening the publication period can be taken by some proper ways and methods to improve the impact factors of journals. In cooperation with international famous academic publishing groups, Post. These practices are beyond reproach, but should be encouraged because they are conducive to academic communication. But regrettably, due to the relatively high input costs and the often ineffective effectiveness of adopting the above justifiable measures, some short-term journals have taken the lead and adopted some improper speculation strategies unrelated to the quality of published papers Journals impact factors, such phenomena and practices known as the "journals impact factor manipulation" (Journal impact factor manipulation). Up to now, there are only a few articles in the domestic that explicitly discuss the topic of "Journal Impact Factor Manipulation". March 30, 2012 the author uses "Journal Impact Factor + Manipulation" as the title of the dissertation, and the key words are searched in the CNKI database without any result. "Journal Impact Factor Manipulation" as the key word for full-text search to get one result --- Harbin Institute of Technology 2011 master's thesis "research topic dynamic evolution and knowledge flow characteristics analysis." There are two reasons why there are so few domestic search results: one is that there is not much research; the other is there is no use of the international mainstream terminology "periodical impact factor manipulation" and undetected [3].

### **4. Correction measures of papers assessment**

We think it is not advisable to judge periodicals' papers, regardless of their influencing factors,

but rather to put the influencing factors and weights of journals at a more appropriate position. It is advisable to appropriately reward high-impact periodicals and scientific papers. However, article cited scientific and technological papers after the actual number of subsidies (of course, scientific and technological personnel transferred from the unit, the unit does not give the reward that is the freedom of the unit), if the scientific papers are cited in the works and even university, middle school, primary school textbooks should press Geometry gradually increase the amount of rewards, because the more the latter, the difficulty of geometrical series increased, the greater the actual contribution to the economy and society. After the subsidy awards a bit similar to some local governments or agricultural research institutes to breed breeders incentives, breed approved by rewards is one thing, more is based on the promotion of the year species area incentives. Due to the development of network technology, it is easy to retrieve the actual citations of scientific papers. In particular, the articles published in domestic journals are cited by domestic journals. Even if an organization wants to reward articles cited by foreign countries, there are ways to retrieve. The references cited in the domestic literature can be retrieved from the China Citation Database of Tsinghua University CNKI. This library contains references to all source database products published by the China Academic Journal (CD) Electronic Magazine, covering journal type citations, dissertations type dissertations, conference paper type citations, book type citations, patent type citations, standard type citations, newspaper type citations and more. By revealing the cross-references between various types of documents, the library not only provides a new mode of communication for scientific research but also serves as an effective scientific management and evaluation tool [4]. As of December 2008, the cumulative links have been cited by 6,848,642 articles. The Chinese Journal Full-text Database is the largest continuously updated full-text database of Chinese academic periodicals in the world. It contains more than 7,000 academic journals covering various fields of natural sciences, engineering, agriculture, philosophy, medicine, humanities and social sciences, the full-text literature has a total volume of more than 22 million articles, of which there are nearly 2,600 journals in core journals and important evaluation databases.

The Citation Database of China provides citations to cited authors and indexed articles in more than 7,000 periodicals. You can check citation in a year and citation in the calendar year. On December 25, 2008, we used this library to find out how many scientific and technical personnel of a scientific research institute have been quoted over the years. 953 in 2006 and 1051 in 2007 (due to the fact that they were not examined carefully, precise). Assuming that every time a prize of 200 yuan is cited, the reward for all articles cited is about 200,000 yuan. This also includes the scientific papers that science and technology personnel who have already transferred out and retired have in the past wrote. In fact, in general, will not reward these scientific papers, including self-cited papers, self-cited papers may be reduced incentives, such as by half reward. Census abroad can be retrieved through the SCI Citation Database. Although it also contains citations from some SCIs in China, the total number of domestic SCI journals is only 90, making it easy to get rid of duplicates. ISI Web of Science makes it easy to retrieve citation of articles included on the SCI, including citation data over the years. For example, on December 31, 2008, a number of research institutes were searched by SCI for a total of 182 articles, with a total of 1792 cited citations, of which 42 were not cited and 31 were cited once the highest cited 113 times. Perform Cited Reference Search to see citations not included in Web of Science [5].

## 5. Conclusions

Although the impact factor can reflect the academic level of the journal to some extent, its impact on the subjective and objective factors is great. Rely on the index alone can not make a fair and reasonable evaluation of the journal. The impact of objective factors is difficult to overcome, but in the evaluation of a variety of journals classification, based on a reasonable classification of the same indicators to evaluate can also explain the problem. The influence of subjective factors can be eliminated if they are shared with other indicators at the time of evaluation. We can classify the author's self-citation and periodical self-citation as self-citation. When referring to his influential

factor, he refers to his cited rate index. When he has the same influence factor, it seems to be more reasonable to use this as an evaluation of the academic influence of journals. In addition, the problem of "poly-cited" refers to the diffusion factor so as to truly distinguish the influence of the journal. In short, the impact factor can be used as an objective function to evaluate the academic influence of journals, and his index rate, diffusion factor and other indicators as a constraint, according to the national statistical average of all journals, a reasonable lower limit, to develop the evaluation of optimization conditions, truly assess the fairness and justice.

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