Complete Impact Factor (CIF): A full index to evaluate journal impact

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Complete Impact Factor (CIF): A full index to evaluate journal impact

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Abstract
In this article, a full index to evaluate journal impact, Complete Impact Factor (CIF), was proposed. In general, CIF= total citations for published articles in the journal since it has been sponsored / total number of published articles of the journal since it has been sponsored. CIF changes dynamically over time.

Keywords Complete Impact Factor (CIF); citations; articles; journal; evaluation.

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1 Introduction

So far, numerous indices have been proposed to evaluate journal impact. Among which IF is the most used index around the world (Thomson Reuters, 2015). Others include UIF (Universal Impact Factor, 2015), ICV (Index Copernicus International, 2015), EigenFactor (EigenFactor, 2012), etc. The basic values used in those indices include citations of published articles, and the total number of published articles during a period, mostly during two years, one year, or five years. In this article, I proposed the Complete Impact Factor (CIF) to fully evaluate journal impact. CIF changes dynamically over time.

2 Complete Impact Factor

Complete Impact Factor (CIF) is defined as

$$CIF = TC / TNA$$

where TC: total citations for published articles in the journal since it has been sponsored, and TNA: total number of published articles of the journal since it has been sponsored. CIF changes dynamically over time. Here, TC refers to total number of citations without consideration of authors and journals, or total number of citations after removing self-citations (the journal itself, the authors themselves), etc. Different definitions will lead to various forms of CIF.

3 An Example

Six journals are chosen for evaluation using CIF. The basic information of the journals is illustrated in the Fig. 1. Following the definition of CIF, CIFs of the six journals are calculated as 1.1667 (Arthropods), 2.3864 (Computational Ecology and Software), 2.1842 (Environmental Skeptics and Critics), 4.9206 (Network Biology), 3.9596 (Proceedings of the International Academy of Ecology and Environmental Sciences), and 0.3125 (Selforganizology) respectively, before Feb. 12, 2015.

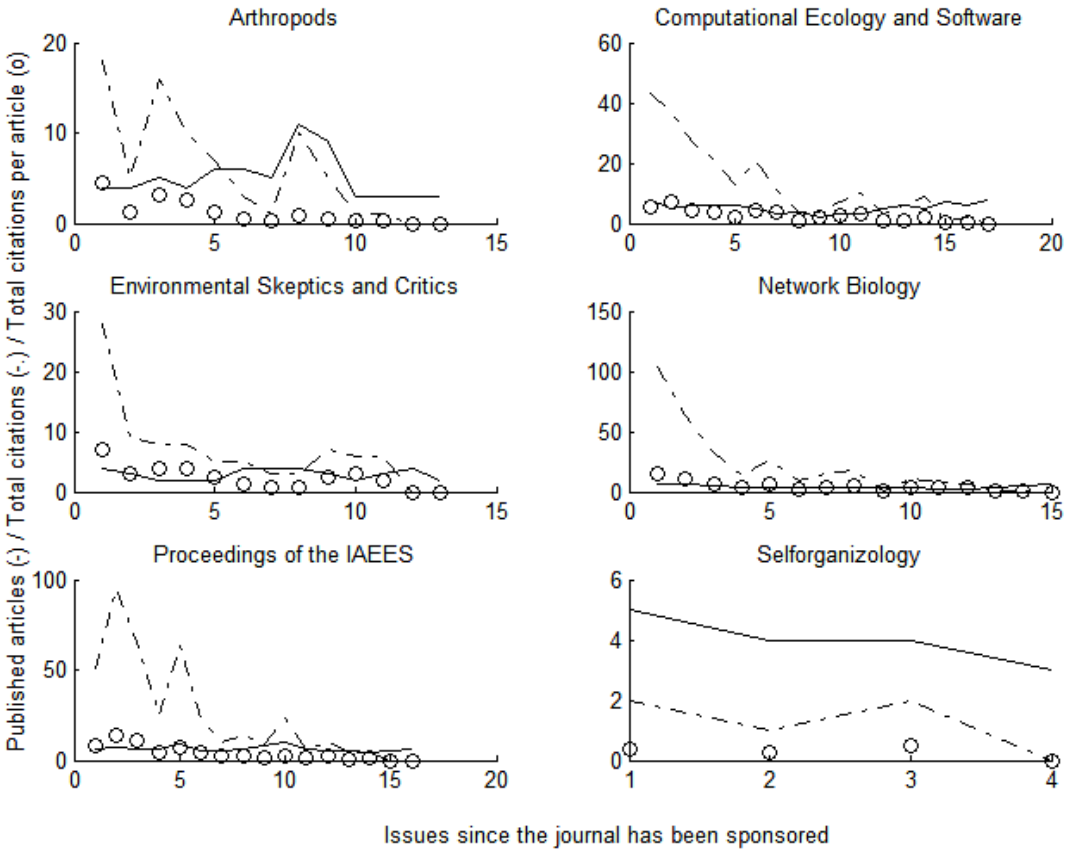

Fig. 1 Basic information of six journals.

Assume y = total citations for a published article, and x = issues since the journal has been published. Linear relationships are found as follows

Arthropods:	$y = 3.1895 - 0.2859\,x$	r^2=0.648, p=0.0009**
CES:	$y = 5.6804 - 0.3478\,x$	r^2=0.729, p=0**
EnvironSC:	$y = 5.0 - 0.3782\,x$	r^2=0.573, p=0.0027**
NB:	$y = 10.1748 - 0.7389\,x$	r^2=0.652, p=0.0003**
PIAEES:	$y = 10.0232 - 0.729\,x$	r^2=0.724, p=0**
Selforganizology:	$y = 0.525 - 0.095\,x$	r^2=0.318, p=0.426

It is obvious that total citations for a published article increases over time. Total citations for a published article of Network Biology and Proceedings of the IAEES increase 0.74 and 0.73 annually; for Computational

Ecology and Software, and Environmental Skeptics and Critics, Total citations for a published article of Network Biology and Proceedings of the IAEES increase 0.35 and 0.38 annually. The journal, Selforganizology, has a short publishing history and thus the linear relationship is not significant.

References

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Index Copernicus International. 2015. http://www.indexcopernicus.com/

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Universal Impact Factor. 2015. http://www.uifactor.org/Default.aspx#