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# How robust are journal rankings based on the impact factor? Evidence from the economic sciences

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ABSTRACT

It is well-known that the distribution of citations to articles in a journal is skewed. We ask whether journal rankings based on the impact factor are robust with respect to this fact. We exclude the most cited paper, the top 5 and 10 cited papers for 100 economics journals and recalculate the impact factor. Afterwards we compare the resulting rankings with the original ones from 2012. Our results show that the rankings are relatively robust. This holds both for the 2-year and the 5-year impact factor.

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## 1. Introduction

Journals rankings have gained more interest, visibility and importance recently. Scientists with publications in high-ranked journals have a higher probability of getting tenure, research funding or reputation. The number of journal rankings has increased in recent years, which might be both due to better data availability, the increased competition amongst the science community and the need for a permanent research evaluation. Finally, people seem to be fascinated by rankings. Still the most visible ranking is the one based on the 2-year impact factor from the *Journal Citation Reports*. For many journals publishers state the impact factor (IF) on the corresponding website. Furthermore, they note that it is ranked on position *X* in category *Y*. Although often criticized in bibliometric literature the impact factor is still one of the cornerstones for the evaluation of journals.[2]

In this short article we investigate the robustness of journal rankings based on the impact factor. We do this by acknowledging the well-known fact that the distribution of citations to articles in a journal is skewed (Folly, Hajtman, Nagy, & Ruff, 1981; Seglen, 1992 or Wall, 2009). Does the relative ranking change if we exclude the top paper or the best *x* papers in terms of citations? Suppose a specific article generates 90% of all citations relevant for the impact factor of the journal. Is then the quality of the journal overstated or misplaced in the journal ranking? We investigate this issue for 100 economics journals using the IF and the corresponding citations from 2012. We show that the rankings based on the impact factor only change

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[2] See Archambault and Larivière (2009) or Vanclay (2012) for details and further references.

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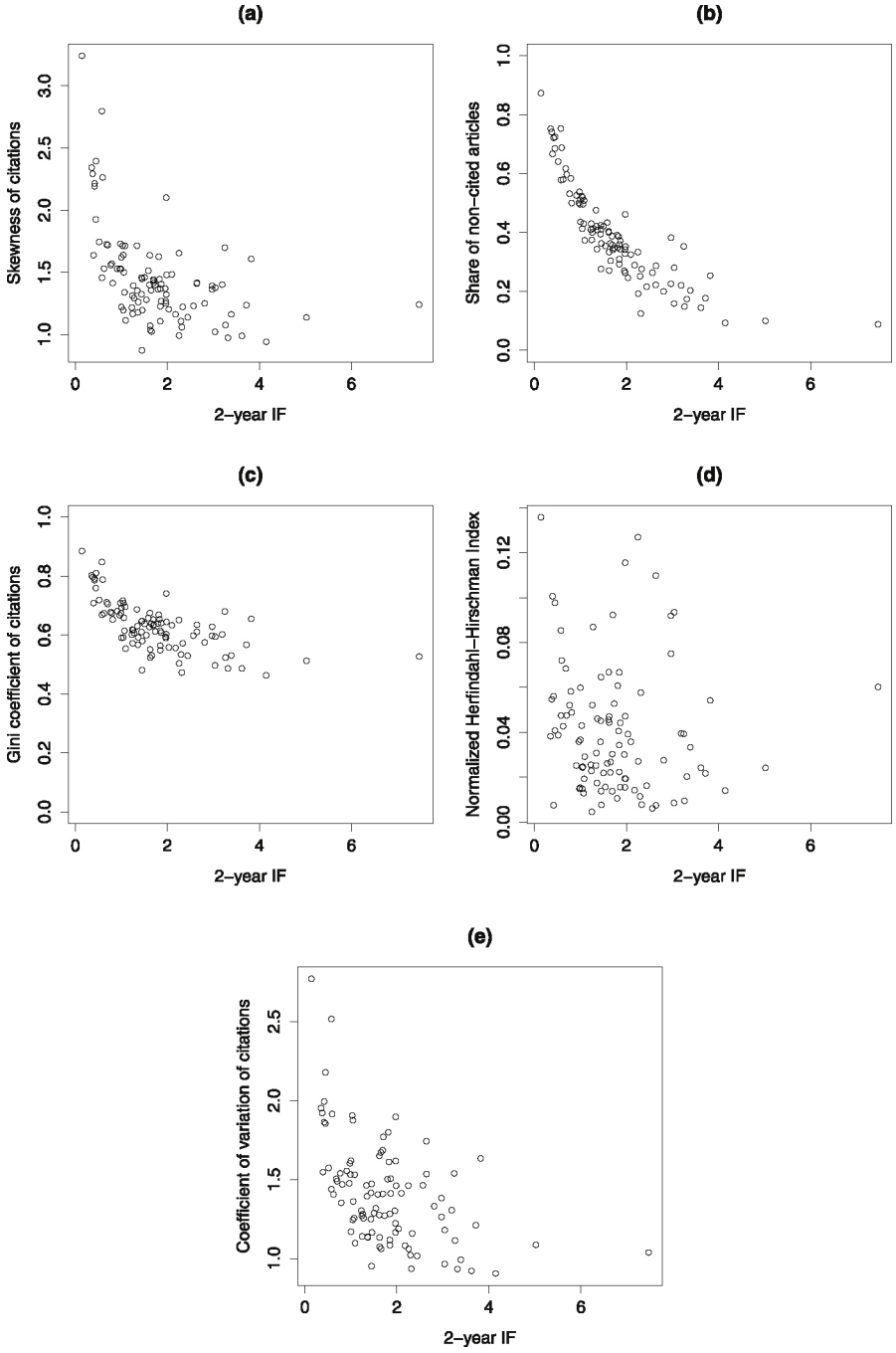


**Fig. 1.** Citation distribution indicators against the 2-year impact factor.

marginally if we exclude the top, the top 5 or the top 10 cited papers for each journal, i.e. the ranking is robust with respect to the skewness of the citation distribution. There are some larger (downward) movements for certain journals which gather most of its citations on only few articles. As a consequence many journals show small ranking improvements.

Our paper is closely related to the literature concerning the uncertainty of impact factors. Vanclay (2012), Leydesdorff and Opthof (2010), and Moed et al. (2012) called for confidence intervals to be provided for the impact factors. Such uncertainty measures can be found in Schubert and Glänzel (1983), Nieuwenhuysen and Rousseau (1988), Opthof (1997), Chen, Jen, and Wu (2014), Greenwood (2007), and Stern (2013). The latter two articles show that, besides the very top journals, a distinct discrimination in terms of the level of the impact factor between closely spaced journals is not possible. It also adds to the

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