Introduction

Within a program sponsored by the government, Serbian journals are routinely evaluated, ranked and “categorized”. Results are published yearly in the Journal Bibliometric Report (http://scindeks-bic.ceon.rs/eng) by the Centre for Evaluation in Education and Science (CEON/CEES: http://ceon.rs/). Journal ranking is based primarily on impact, i.e. citations received in both the Web of Science (WoS) and the Serbian Citation Index (SCIndeks; www.scindeks.ceon.rs). Impact indicators are supplemented with a group of measures reflecting the formal characteristics of journals. These are derived by quantifying ISI (now Thomson Reuters) qualitative admission criteria, such as the share of references in English, which can be generated with low-cost from the SCIndeks data. These indicators are supplemented with a few classical bibliometric measures, such as the journal-to-monograph ratio, selected mostly on the basis of findings about the quality of Yugoslav journals, later reviewed and systemized by Marićić (2002) and operationalized by Šipka (2004). Marićić referred to such indicators as “communicability”, which was not broadly accepted. For lack of consensus, in CEON/CEES products they are dubbed “indicators of bibliometric quality” (IBQs), while the term “indicators of impact” was kept for all measures based on the citation rate. Authors studying the quality of journals published in developing countries (e.g. Faria et al., 2007; Sheibaninia et al., 2010) find such indicators valid and useful. On the contrary, those dealing with reputed indexed journals quite expectedly do not find them useful and sometimes avoid them explicitly (e.g. Lokker et al., 2012).

The purpose of the original introduction of IBQs in Serbia was to stimulate the process of standardization and internationalization of national research publishing. At a practical level, the purpose was to provide editors with feedback on how close their journals are to the critical level of quality, sufficient for admission to WoS/JCR.
Unlike the JBR Impact Factor, IBQs have never been fully accepted by either decision-makers or journal editors. Informally, most of them referred to such indicators as outward, formal journal features, not having much to do with the real value of journals, or simply as “the suit that doesn’t make the man”.

In this study, the results on the IBQs of Serbian WoS-indexed journals gathered during the whole 10-year period of following journals were observed in order to recognize the overall trends of their changes. The trends were compared with those of non-WoS national journals. To complete the picture, they were related to the movement of journals’ WoS Impact Factor in the same period. The general purpose was to re-evaluate, after a decade of their continuous use, the face validity and benefitality of IBQs.

Method

Data for all journals (N=417), including newly established and discontinued ones, were extracted from the JBR 2002-2011 editions. All journals covered by WoS in 2010 were treated as WoS-indexed journals (N=20), while the rest were allocated to the group of non-WoS journals.

The two groups of journals were compared by using the following IBQs:

1. NumRef: average number of references per article;

2. AgeRef: average age of references (citing half-life);

3. IntAuth: share (%) of articles by international authors;

4. IntLang: share (%) of articles published in English and other “world languages”;

5. IntRefs share (%) of international references; and

6. JourRef: share (%) of journal references (“journal-to-monograph ratio”).

Repeated measures two-group ANOVA was used to test the differences in IBQs between WoS- and non-WoS-indexed journals. Only 17 WoS-indexed and 111 non-indexed journals with no missing data were included in this part of the analysis.

The Impact Factor of the Serbian WoS-indexed journals was compared with journals of the same status published in other SEE countries. The comparison covered the period from 2002 to 2011. All the data were retrieved from JCR. In order to include as many journals as possible, the Impact Factor calculated for a two year period (IF2) was used. IF results were normalized by calculating the z-values against the mean and S.D. of the group to which a journal was assigned in JCR. For journals classified in more than one JCR group, the z-value was calculated within each group and each year separately. The annual score for each country was expressed as the mean of all z-values of all national journals. Due to the low coverage of journals from most countries, big variations of coverage within countries, and relatively large number of countries
in the sample, using statistical tests in this case was not feasible.

Results and Discussion

Figure 1, displaying the results of Serbian WoS-indexed journals, indicates a slow but steady growth of IBQs during the observed period. The same tendency was registered for non-WoS journals (Figure 2). Results given in Table 1 suggest that the only exception is the Share of international references (IntRefs), which did not change significantly. This could not have been expected, since this indicator already reached the sub-maximal value in WoS-indexed journals almost at the very beginning of the period followed.

The two groups of journals differ significantly on all IBQs, except for Age of references (AgeRefs), which is also the only variable showing a significant interaction effect. Major differences seem to exist in the Share of journal references (JourRef), as a measure of scientific seriosity, and Share of international references (IntRef), as a measure of internationality. To summarize, WoS-indexed journals are generally superior to non-WoS journals, especially on the measures of internationality. On most IBQs WoS-indexed journals did not reach a plateau, clearly indicating that there is still some room for their improvement.

In Figure 3 all the y-axis values are negative, revealing that regional journals as a group are well below the world average. No sign of them nearing the world IF means can be observed. All that can be seen as a general trend is that the impact level of national journals became more
homogenous. Also, rankings changed from year to year. The most remarkable change is the elevation of IF of Serbian journals. We see that during the period under study the previously discussed stable rise of the bibliometric quality of these journals was paralleled by the rise of their Impact Factor. Admittedly, this trend was abruptly terminated in 2008, but this happened under the influence of an external factor, i.e., the extension of WoS coverage to the region, which is explained in detail in another study (Kosanović & Šipka, in press). It should be pointed out that this trend was only broken, not reversed, as was the case with most other SEE countries.

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<th>WoS *</th>
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The increase of the impact of Serbian journals was so rapid that it can even be described as explosive. As a result, a few years ago they surprisingly reached the

Figure 2. IBQ results for non-WoS Serbian journals

Table 1. ANOVA results for IBQs of Serbian journals

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top of the regional ranking list. This finding is in total discrepancy with all other known bibliometric indicators of (absolute) performance of Serbian science. It can of course, at least partially, be attributed to the relative under-representation of Serbian journals in JCR, which makes it less intriguing. Equally plausible, however, would be an explanation calling on the better support these journals were having during the recorded period.

The amount of financial support, almost exclusively provided from the skinny budget of the responsible government ministry, can hardly be recognized as a factor. All that the ministry can be credited for is that its regulations were systematically encouraging the internationalization of Serbian research publishing in the observed period. More credit should be given to the enthusiasm of editors and editorial boards of the journals in question. While not denying the contribution of such personal and socio-political factors, one can be confident that the program of evaluation and international promotion of Serbian journals, based firmly among else on IBQs’ feedback, is the major immediate cause of the fast development of Serbian journals. This of course can be clearly demonstrated only through a complex and rather expensive study. However, it does not seem to be necessary, since coincidental evidences reported here show that the indicators of bibliometric quality are interrelated with the measures of impact in a way that could be understood as synergistic. What IBQs measure seems to be a structural component of the journals’ communication potential, and even something that can be treated as a necessary condition for small journals’ international excellence, rather than merely “the dress

Figure 3. Normalized IF of SEE journals by country
for success” or “the suit that doesn’t make the man”. This does not mean that some IBQs cannot be further refined and that the whole battery cannot be strengthened by more up-to-date indicators, such as the Usage (downloading) factor or the Manuscript acceptance rate, which are measured more reliably now than a decade earlier when this battery was composed. Thus, the old suit called IBQs is still comfortable and should be maintained. It can be remade, so why throw it away?

References


This paper is partly based on the results reported in CEON/CEES Working Paper ERD No 0107/11 available in Serbian at http://ceon.rs/pdf/IF_SEE_casopisa_prema_JCR.pdf