

# Scholarly journals at the periphery : the case of Croatia

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## Introduction

It is commonly accepted that journals and information flow are important parts of scientific development.<sup>1,2</sup> One aim of the open access movement<sup>3</sup> is to improve access at a global level, although there is continuing debate about its success and publisher responses to it.<sup>4</sup> This paper focuses on Croatian electronic scholarly journals and their editorial policies in order to find out how they fit in the global process of scholarly communication.

## Principal characteristics of peripheral scientific communities

Scientific communication, and specifically open access, differs somewhat between the so-called scientifically 'peripheral' countries and the 'developed' world. Peripheral scientific communities are defined by either (or both) of two factors, namely language and economy. English is the *lingua franca* of the global scientific community. All the countries with official languages other than English (even if these languages have a long tradition), countries that do not have a powerful publishing industry, and/or countries that do not spend as much as developed countries on research and scientific data acquisition can be considered as peripheral countries.<sup>5</sup> Croatia, a new EU member state (since 1 July 2013) is surely one such country: it has population of 4.5 million, its official language is Croatian, and it is classified as a country with an emerging market and developing economy.<sup>6</sup>

Croatian journals and their publishers (as is the case with many journals and publishers from other 'peripheral' countries) have several specific defining characteristics. Language is one of them. In an attempt to make their journals more visible to the global community,<sup>7</sup> some editors have decided to publish all or some articles in English. However, there

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**ABSTRACT.** *This paper analyses 231 Croatian journals available on the national online platform, the Hrčak portal. To qualify for analysis journals had to be peer reviewed and to have published at least one issue in 2012. Some differences from the results of previous studies were noted. More journals are internationally oriented and the number of times they are accessed apparently depends on their scientific field. Publishers are still mostly not-for-profit but are more likely now to apply article processing/publication charges. This is new for Croatia and raises questions about the potential influence of this trend on the availability and visibility of scientific results. The results are relevant not only to Croatia but may also be representative of other countries at the 'periphery'.*



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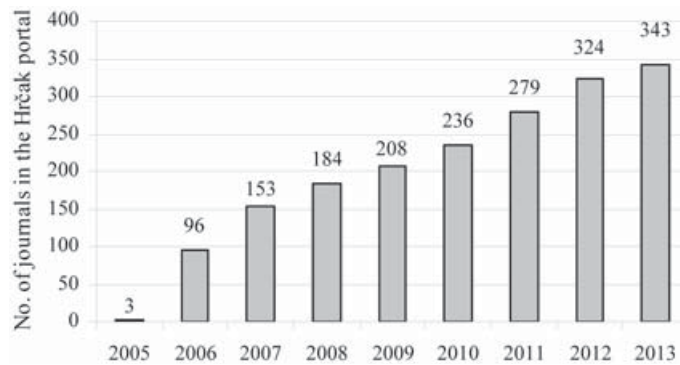


Figure 1. Growth of the Hrčak portal, 2005–13.

are scientific fields closely oriented to the language, culture, or history of Croatia; scientists from those fields need to write in Croatian. In all these scientific fields language deteriorates if not used. Therefore, efforts being made to increase the impact of journals by publishing in English sometimes can conflict with the interests of national science and language, which can develop only by being used, e.g. by the adoption of new terminology. The same problem exists in any scientific community using a 'rare' language, a problem that is recognized by some English-speaking authors.<sup>8</sup>

Croatian scholarly journal publishers are non-commercial (mostly not-for-profit organizations and institutions, funded by the state), and hence are motivated by the need to disseminate research results rather than by profit. This approach is possible because they are co-funded by the Croatian Ministry of Science, Education and Sports (MSES) which is the main policy-making body and also controls the science budget. Open access through the 'gold' route is not a problem for Croatian publishers – most of them are willing to make their journal issues OA almost immediately after publication.

Local journals can have importance for the global scientific community, even if they are usually focused on local topics. In addition, local journals remain a vital component of local scientific infrastructure and policy.<sup>9</sup>

### Literature overview

The earliest study of Croatian scholarly journals on the Internet showed that in 2002 there were 21 journals in Croatia that had full-text

online versions of their printed issues.<sup>10</sup> The number had increased to 44 by 2005.<sup>11</sup> The launch of Hrčak, a portal of Croatian scientific journals, was very important for the further development of Croatian scholarly communication through online peer-reviewed journals. The idea originated in 2003 and was supported by the Croatian Library Association, the Croatian Information Technology Society and the Zagreb Archive Association. The project proposal was written in co-operation with Zagreb University Computer Centre (SRCE) and was financially supported by MSES.<sup>12</sup> The portal was launched at the end of 2005, providing a simple and free interface for creating electronic journals. It also provides technical support, maintenance, and data protection; it is OAI-PMH compliant and ensures long-term archiving.<sup>13</sup> Figure 1 shows the growth of the portal up to the end of 2013.<sup>14</sup>

The existence of the portal has raised awareness of OA publishing in Croatia and the country is well on its way to making all of its journals OA. However, Croatia still has problems with 'green' OA – for example the number of OA repositories is insufficient. Similar problems exist in other 'peripheral' countries, as can be seen in statistics from OA databases (e.g. the Directory of Open Access Repositories, the Directory of Open Access Journals, or the Registry of Open Access Repositories), as well as from several reports (e.g. a report on OA in southern European countries<sup>5</sup> and an analysis of OA in the Czech Republic<sup>15</sup>).

According to the results of research conducted in 2008, there were 125 Croatian journals with full-text articles available on

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the Internet. Not all of them were available through the Hrčak portal, and some of 184 journals in the portal did not have full texts of recent issues (not older than one year when the research was performed). Out of 125 journals, 58 were from the social sciences and humanities and 67 from science, technology and medicine.<sup>16</sup> Two publishers were profit organizations, all the others were not-for-profit, and 70% of journals published at least some articles in English.

In a 2009 study of Croatian scholarly journals, 133 peer-reviewed journals with full texts were identified on the Internet. Some of them were accessed via the Hrčak portal and some of them via their publisher's websites. The study showed that all except three publishers were not-for-profit, the majority of journals (70%) published at least some articles in English, and 18 journals from the sample were covered by Journal Citation Reports.<sup>17</sup>

Another study of Croatian journals focused on the field of social sciences in 2010. Based on 46 respondents, the results of an online survey confirmed that changes in journal publishing in Croatia are similar to the changes at an international level.<sup>18</sup>

### Methodology, sample and hypotheses

The sample for the research was based on the Hrčak portal, which covered 337 journals in June 2013. From the list, three groups of journals were excluded: journals that do not have full texts for at least one issue published in 2012; journals that promote popular science; and journals that publish only 'professional' papers.

The final sample consisted of 231 journals that fulfilled the following two criteria:

1. They are scientific journals (i.e. publish categorized scientific articles based on a peer-review process).
2. They have published at least one issue in 2012 with full-text articles by the end of June 2013.

The main method employed is content analysis. The content of all the journal websites on the Hrčak portal was analysed, and in some cases publishers' websites also had to be consulted (data about editorial boards are sometimes insufficient on Hrčak). For each

journal we wanted to identify its main characteristics as follows:

1. *Publisher type.* If for-profit, are the subscriptions high? If not-for-profit, which kind of organization – university, scientific institute, professional association, or other? Publisher type will help us understand the differences or similarities between Croatian publishing practices and those in the global scientific community.
2. *Main scientific field of the journal.* Although some journals are interdisciplinary, we decided to analyse them according to their main field, i.e. the field they choose to put in first place in their journal description. According to Croatian regulations, there are six main scientific fields – natural sciences, technical sciences, biomedicine, biotechnology, social sciences, and humanities. For this research, we group the journals in two main groups: science, technology and medicine (STM), and social sciences and humanities (SSH). We explored whether some aspects of editorial policies depend on the specifics of different scientific fields.
3. *Language of the articles published in the journal.* Some journals accept articles in either English or Croatian and some publish all the articles in both languages. Has that changed compared to earlier studies and is the language connected to the scientific field?
4. *The total number of issues and volumes available on Hrčak.* Hrčak has existed since 2005 but some publishers have decided to make older issues and volumes available through the portal. That can increase the visibility and impact of the journal but also helps preserve Croatian scientific and cultural heritage.
5. *Editorial board (international or not).* How is the (inter)national editorial board connected with the language of the journal, its field and visibility?
6. *Usage of software for managing and publishing journals* (e.g. Open Journal Systems, OJS). How many journals use this kind of software? Is this connected with the field, the language or something else?
7. *Is the journal cited in Journal Citation Reports (and if yes, what is its impact factor)?* These data will also be compared to the scientific

*the final sample consisted of 231 journals*

field and language, and the role of the database will be discussed.

8. *How do the journals cover their publishing costs (besides being publicly funded)?* How high are subscriptions (if they exist)? How many journals charge article-processing charges (APCs) and how high are they? Does the scale of charge relate to whether the publishers are for-profit or non-profit?
9. *Is there a difference in usage according to scientific field or language?* The number of visits to journals is compared.

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The research also aimed to compare present (2013) editorial practices to those in the past (2009 and 2010 studies). This enables us to explore trends and the possible influence of the changes for such a 'peripheral' country. Although the purpose of the two earlier studies was a little different, some parameters can be compared. The main conclusions of the earlier studies were:

- publishers of Croatian scientific journals are not-for-profit organizations;
- authors do not have to pay for publishing in Croatian scientific journals;
- subscriptions to printed versions are not high, even if the publisher is a for-profit organization (the highest subscription price was about €100 per year);
- only a few journals publish articles in both English and Croatian;
- most journals publish at least abstract in a language other than Croatian (usually in English);
- journals from the fields of social sciences and humanities are more likely to publish articles in Croatian.

## Results and discussion

Of the 231 journals, 98 are STM (42.4%) and 133 are SSH (57.6%).

Publishers of 225 journals are not-for-profit organizations – universities (102, 44.2%), professional associations (64, 27.7%) or scientific institutes (50, 25.5%). All the organizations are funded by the state. Six journals (2.6%) are published by for-profit publishers. The number is not high, but it is higher than in 2009 survey which found two for-profit publishers. It is important to know that although the MSES co-funds scientific journals, one of the criteria

for the funding is that the publisher is a not-for-profit organization. Croatian not-for-profit publishers and journal editors have to be careful. The global financial crisis might curtail state funding and therefore it may be safer to give the journal to a professional, for-profit publisher. But that might result in the loss of public funding. Is it possible for Croatian for-profit publishers to make money from publishing Croatian scientific journals? At the moment, subscriptions to the six journals published by professional publishers are not high. Three journals charge authors for publishing (or even submitting) their articles. That is not always clearly stated on the journals' web pages, and there is a possibility that some other journals do the same. One of the three journals has not started the practice yet, but it clearly says: 'Submissions are free of charge during 2013', which might suggest that this situation is going to change. Another journal asks authors to pay €200 after their article is accepted. The most expensive journal charges €180 upon submission and another €420 upon acceptance. All the three journals publish in English so their potential authors come from the worldwide scientific community. It could be they are choosing to lose their local and national character, but then again they will probably have to face the loss of state funding, albeit that this is reduced in the current economic climate.

Subscription price details for 37 journals were found. The average price for individuals is €25, and for institutions €34 (these prices are for printed copies). All the journals from the sample publish their full texts on the Hrčak portal, but some of them use an embargo period to sell printed copies.

The language of publication is usually Croatian and/or English. Some journals publish some articles in other languages and the majority of journals publish abstracts in more than one language. The current analysis used four categories of journals according to language. In the first category there are 93 journals (40.3%) that publish all their articles in Croatian; in the second category are 69 journals (29.9%) that publish all their articles in English; in the third category are 15 journals (6.5%) that publish all their articles in both English and Croatian; and in the fourth category are 54 journals (23.4%)

**Table 1. Language and scientific field of Croatian scholarly journals**

Language	STM	SSH	Total
Croatian only	11 (11.22%)	82 (61.65%)	93 (40.26%)
English only	51 (52.04%)	18 (13.53%)	69 (29.87%)
Both English and Croatian	6 (6.12%)	9 (6.77%)	15 (6.49%)
Either English or Croatian	30 (30.61%)	24 (18.05%)	54 (23.38%)
Total	98	133	231

that publish their articles in either English or Croatian (or sometimes a third language). Table 1 shows how these categories are correlated with scientific fields. The nature of social sciences and humanities is more 'local' and national, so, not surprisingly, 61.6% of all SSH journals are published only in Croatian (82 journals). 41 journals with English articles (17.7% of all journals) choose not to publish Croatian abstracts, i.e. they publish articles and abstracts in English. It is interesting again to see that 12 of them are SSH journals (9% of all SSH journals) and 29 of them are STM journals (29.6% of all STM journals). This shows again that the SSH journals, due to the nature of the field, are more nationally oriented.

Table 2 compares results with an earlier study (2009). It seems like more and more editors try to define their journals' orientation as national or international – there are more journals that publish articles only in one language (English or Croatian) and fewer journals that accept articles in either of the two languages.

Another element is the number of visits to journals. The average number of visits is 4,270.5. For the SSH journals the average is higher (4,808.1) than for STM journals (3,874.4). Journals that publish articles in Croatian have on average 4,812.7 visits; those that publish articles in English 3,603.1 visits. We cannot tell where the visitors are from

**Table 2. Percentage of journals publishing in Croatian and/or English in 2009 and 2013**

Language	%	
	2009	2013
Croatian	30.40	40.30
English	20.80	29.90
Both English and Croatian	5.60	6.50
Either English or Croatian	43.20	23.40

although it would seem likely that SSH journals are of more parochial interest. Although the Hrčak portal has existed since 2005, some journals use it for publishing earlier issues. The average number of published volumes per journal is 11.6 and average number of issues per journal is 29.

Some editors, editorial boards, and publishers have implemented new technologies in the publishing process. 24 journals (or 10.4%) use some kind of management and publishing system to automate the process (9 SSH journals and 15 SMT journals).

175 journals from the sample (75.8%) have international editorial boards and 56 (24.2%) national (Croatian) editorial boards. Out of 56 journals with national editorial boards, 36 publish articles only in Croatian. 35 journals with national editorial boards are in the SSH. That is another demonstration of the national orientation of SSH journals.

38 journals (16.5%) feature in Journal Citation Reports (only 6 of those with national editorial boards and only 2 of those that publish only in Croatian). Croatian journals do not have high impact factors; the average IF for 2012 is 0.430. It is higher for STM journals (0.536) and lower for SSH journals (0.268). That raises the question of adequacy of IFs, for peripheral scientific communities (the relatively new JCR practice of including more journals from peripheral countries is, of course, welcomed by them). Journals with international editorial boards and journals that publish at least some articles in English are more likely to be in the JCR database.

## Conclusion

Croatia has a number of high-quality scholarly journals that are globally recognized. Some scientific fields are more nationally oriented but, at the same time, important to the global scientific community. A diversity of language

*175 journals from the sample (75.8%) have international editorial boards*

and fields improves not only national science but also enhances global knowledge. Therefore, we believe that Croatian publishers should continue with their efforts in making their journals OA and in trying to avoid all the pitfalls that could lead to difficulties with national access.

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