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## Contributions to the knowledge on the impact of the administrative changes on the research performance

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**ABSTRACT.** The paper present a case study of assessing the impact of administrative reorganization on scientific performance. In order to predict the future evolution of the research activity at the institutional level, assessing of trends was based on bibliometric analyses of two priority evaluation criteria established by the Romanian Ministry for National Education, respectively by examination of the dynamics in publications (written by employees of NIRDEP – subunit Danube Delta National Institute for Research and Development - DDNIRD) in national and international journals, of the performance of authorship in the context of their scientific contributions articles, of the national and international recognition of the quality of scientific works (e.g. number of citations in ISI journals) and of the dynamics of funds for research activities. By analysing the scientific outputs and the incomes from research activities in 2007 – 2009 period, respectively in 2011 – 2013 period, there was established that the decreasing trend in number of works published in 2011 – 2013 period could have a negative impact on the results of assessment of the scientific performance of DDNIRD with the occasion of the next national evaluation of the research institutions, meanwhile the increasing trend (in 2011 – 2013) in the number of works cited in articles published in ISI journals will have a positive impact on the results of the respective assessments. Furthermore, the decresing trend in the incomes for the research activities could jeopardize the proper functioning of the research activities.

**Key words:** research activity, performance, bibliometric analyses, adaptation

### INTRODUCTION

The evaluation of the scientific work is among the key driving forces behind modern scientific advancements [11]. In the international and national literature there are advanced bibliometric analyses that usually include:

- activity measurements ([1]; [2]; [6]; [8]);
- impact measurements (considered the most important ones) ([9]; [11]; [13]; [14]);
- conceptual and methodological measurement ([5]; [6]; [10]; [11]; [24]);
- linkage measurements [4].

It is relevant to know for the future evolution and development of the institution whether an institutional reorganization could influence the research performance and how fast a group of people will adapt to this new situation in order to avoid the collapse of the institution.

### MATERIALS AND METHODS

Criteria used in the present paper is according to the National Strategy for Research and Development, promoted by the National Ministry for Education [9] through governmental decision ([21]) and order of ministry [26], and the methodology developed during the national research assessment exercise [24]. Two selected criteria have been chosen from the above mentioned methodology, namely: first criteria (related to evaluation of the research activities) and fourth criteria (related to incomes for research activities).

Time series data have been provided by employees' annual reports and Curriculum Vitae's, previously published information ([15]; [16]; [17]) and annual financial reports. The income of each of the analysed years have been converted into euro (using the average value of the converted year, according to National Bank of Romania provided by its dataset platform [29]).

Data bases provided by the CiteFactor server [27] for ranking the international journals and proceedings and SCImago Journal Rank (SJR) indicator platform [28] have been used for checking the visibility of the author's publications.

In order to evaluate the impact of institutional administrative reorganization on the research performance of the institute, a comparative analysis have been performed using the following indicators:

- the ratio between average of Impact Factors / year and total publications,
- the average of the number of citations of all papers published by the employees of the institute,
- the average of number of authors per scientific article,
- the average of incomes,

in the three years before (2007 -2009) and three years after (2011 – 2013) institutional reorganization.

### RESULTS AND DISCUSSIONS

In the recent years there have been important changes in the organizational structures of the Romanian research institutions. These changes have been done by merging of institutions [23], within the general framework of Government Strategy. In this process the Danube Delta National Institute for Research and Development (DDNIRD) (currently, subunit of NIRDEP) was also

included ([22]; [25]). In this respect, the most relevant issue is the debate on „if” or „how” the employees’s research activity and productivity „can” or „should” be improved during the adaptation process of the employees.

The serial data includes a total number of 204 publications written by authors that were DDNIRD employees in 2007 – 2013 period. The accuracy of information have been checked in the archive of the journals (if the information was available on-line). The respective analyses did not include those works that could not be found in the data bases of the journals and the works that did not have all the identification elements, as follow:

- in case of the scientific articles: author(s) name(s), year of publication, title of article, distinctive title of journal (in full), number of volume and issue (if the case), pages (first page and last page of the article), serial version identifier (ISSN) or digital objective identifier (doi) (if the case);
- in case of proceedings: author(s) name(s), year of publication, distinctive title of conference (in full), pages (first page and last page), serial version identifier (ISBN) or / and digital objective identifier (doi);
- in case of books: author(s) name(s), year of publication, distinctive title of book (in full), number of last page, serial version identifier (ISBN) or / and digital objective identifier (doi);
- in case of chapters of a book: author(s) name(s), year of publication(s), distinctive title of chapter, first page and last page of the chapter, name of editor(s) or author(s) of the book, distinctive title of book (in full) (in which the chapter has been included), number of last page of the book, serial version identifier (ISBN) or / and digital objective identifier (doi);
- in case of abstracts: author(s) name(s), year of publication, distinctive title of abstract (in full), page of the abstract, name of the editor(s), distinctive title (in full) of abstract book in which the abstract has been included, serial version identifier (ISBN) or / and digital objective identifier (doi).

For analyses of short communications and of works published in popular science magazines, the same criteria have been used as in case of scientific articles.

Due to the lack of the above mentioned identification elements, mostly the proceedings, abstracts and popular science were excluded from the analyses of the bibliographic scientific products of the DDNIRD.

According to the first criterion, results of the analyses of articles published in journals show the practice regarding the number of authors and authorship. Factors as: project leader, loyalty or obligation instead of effort and contributions were identified as affecting the decisions of choose the order of authors in the research article ([7]; [12]).

At institution level assessment, the interest to communicate the results of the research activities (measured by the number of publications and the number of researchers, authors or coauthors of the publication out of the total number of researchers) recorded a decreasing trend in the last few years. This aspect could suggest:

- inability to obtain sufficient relevant data to describe a phenomena or to make a characterization of a particular study area (e.g. due to a lack of funds needs to conduct detailed studies) or
- the lost of interest to communicate the results of their activities (e.g. inability to adapt and respond to the new organizational requirements of the institution, as in case of “Mendel syndrome” in science [3] - the existence of a kind of lack of appreciation to their works and the lack of being rewarded by the sistem).

Question of how ethical are the practices to choose to not communicate the results of the research activities or to accept nomination in authorship’s without having a significant contribution to the scientific work and how it can influence the future evolution (especially to a young researcher) should be major issue to the strategic management plan of the institution, in order to maintain and develop the desire for recognition of and promotion to a high research level.

By other hand, the effect of high number of co-authors could influence the research productivity. The present study stresses that there is a direct and negative correlation between the number of coauthors and the respective persons’ capacity to evolve on professional level. Due to such situation, it is very difficult to get the national evaluation credit [26] and professional evolution of the researcher could be jeopardised. Pressure due to national evaluation criteria of the scientific activity (mainly through credits from disseminating the results of the scientific activities by choosing to publish in journals high ranking abroad) is also one of the main reasons why the published results decreased and the researchers avoid to publish in the national scientific journals. Undoubtedly, in these conditions there will be a negative impact on how to increase the visibility of research activities, and moreover emerge the question: How could the national scientific journals to get high ranking if researcher from Romania only choose to publish in foreign/international journals?

Assessment of changes in the scientific performance (due the administrative reorganization) carried out by comparing the indicator factors of the two selected periods (three years before, respectively three years after administrative organization) shows that the total number of publications was 1.39 times higher in the three years before the administrative changes (in comparison with the total number of works published in the three years after the administrative changes) (Fig. 1).

The same decreasing trend was in case of the number of articles published in *Scientific Annals of the Danube Delta Institute* (the scientific journal edited by DDNIRD), even if in the same period the number of researcher from abroad (which published their work in *Scientific Annals of the Danube Delta Institute*) increased ([18]; [19]). The effect of increased interest is of interest because this could influence the international quotation of the journal.

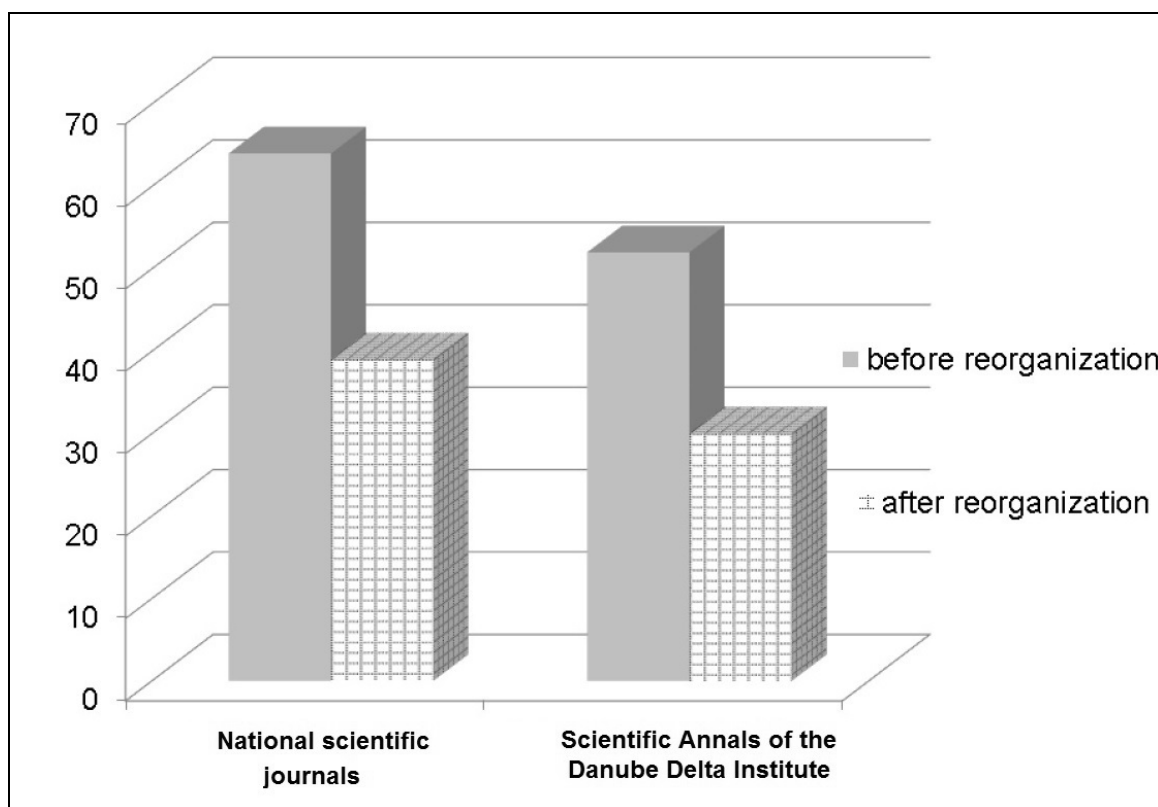


Fig. 1. Comparative analysis of published scientific papers during the period of administrative reorganization of the DDNIRD.

The analysis of the variation in number of publication and of the variation in the budget for research activities in the two periods shows that the dissemination of the scientific activities (through publication) was less influenced by the administrative reorganisation in comparison with the average income in the same period (this later one decreased in 2011 – 2013 in comparison with 2007 – 2009 period) (Table 1).

Publication-related indexes vs income before and after the administrative reorganization

Table 1

	ratio AIF/publication	Average number of articles cited in ISI journals	Average number of authors/article	Average of income (euro)
2007-2009	0.03	26.33	3.50	11568131.00
2010				
2011-2013	0.17	50.67	3.54	9535189.00

Note. AIF – Average Impact Factor.

The analyses are important sources for objective information on the quality of scientific activities. An institutional policy to develop a periodical evaluation programme may not be satisfactory at individual level, but is a valide strategy to the improvement of the scientific productivity of the institution.

## CONCLUSIONS

In the two analysed period (three years before, respectively three years after the administrative reorganization) there were no relevant changes in authorship practices.

The decreasing trend in number of works published in 2011 – 2013 period could have a negative impact on the results of assessment of the scientific performance of DDNIRD with the occasion of the next national evaluation of the research institutions, meanwhile the increasing trend (in 2011 – 2013 period) in the number of works cited in articles published in ISI journals will have a positive impact on the results of the respective assessments. Furthermore, the decreasing trend in the incomes for the research activities could jeopardize (on mid-term and long-term) the proper functioning of the research activities.

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