

# International *versus* National Publications: the Case of Brazilian Scientists

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without any publications corresponds to 15,000 and 11,759, respectively.

## Introduction

Brazilian scientific output has increased fast during the last decades (Glanzel, Leta, & Thijs, 2006). Such growth has been pointed out as a result of the establishment of a complex and huge national program for training human resources to science activities in the country (Guimarães, 1995). At the same time, a national evaluation system was organized in order to assess the performance of Brazilian researchers and graduate programs, imposing some quantitative criteria, such as the number of publications in international journals. In fact, the number of papers has been associated with different parameters or analyses to estimate scientific productivity of a country, a region, a community or even a single scientist worldwide (Fox, 1983; Alliston, 1974). But what is the actual weight of international publication to the productivity of a scientific community? Thus, the aim of this study is to analyse performance of Brazilian scientists in international and national journals. We believe our findings may be a useful parameter for the national evaluation of graduate programs.

## Method

Data on Brazilian scientists (all having a PhD degree) were retrieved from a subset of CNPq1 database, including a series of personal and academic information as well as the number of national and international publications within the period of 1997-2004. The subset database encompasses information about 51,079 Brazilian scientists. From the whole sample, 7,076 scientists did not publish either in national or international journal in the 8-year period. As for the 1997-2000 and 2001-2004 periods, the number of scientists

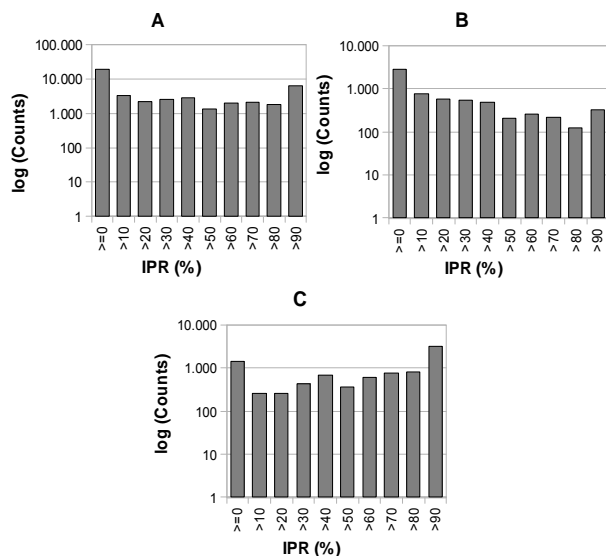
## Results and discussion

According to the proportion of international publication, an International Publication Ratio was defined ( $IPR = \text{number of international publication} / \text{total number of publications}$ ), providing the classification of Brazilian scientists into five groups: (1) International performance (scientists with 80.1-100% of international publications), (2) mostly international performance (with 60.1-80%), (3) national – international performance (with 40.1-60%), (4) mostly national performance (20.1-40%) and (5) national performance (0-20%). The profile of Brazilian scientific community in terms of international performance is presented in Figure 1. The peaks suggest a non-homogeneous group when the whole community is analysed (Figure 1A). Nevertheless, a more consistent profile is observed within the science fields. Figures 1B and 1C show Health Sciences and Earth Sciences as examples of national and international profiles, respectively. As can be seen, characteristics of the field influence the proportion of scientists publishing in international journals.

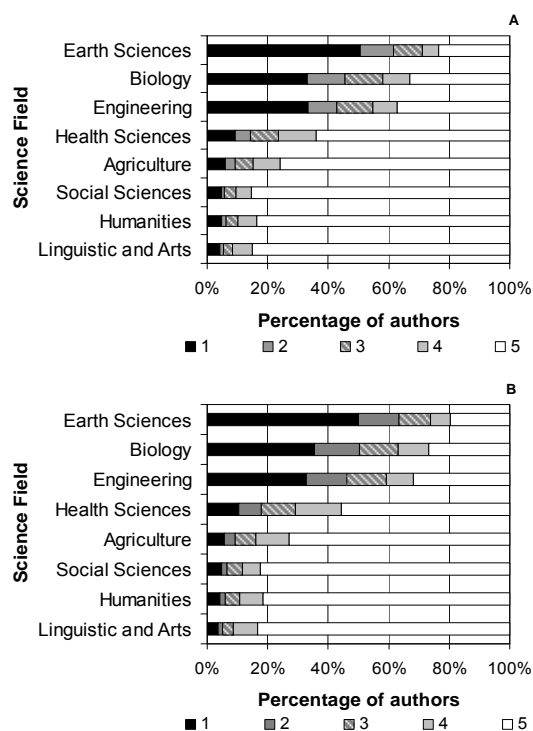
The tendency of publishing in international journals is increasing among Brazilian scientists as can be seen from the comparison of Figure 2A and 2B.

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<sup>1</sup> CNPq is the short name for National Council for Scientific and Technological Development.



**Figure 1: International Publication Ratio among the whole Brazilian scientific community (A), scientists from Health Sciences (B) and from Earth Sciences (C), 1997-2004.**



**Figure 2: Distribution of Brazilian scientists according to the share of international publications and fields in 1997-2000 (A) and 2001-2004 (B). (1) International, (2) mostly international, (3) national – international, (4) mostly national and (5) national.**

## Conclusion

We have found evidences that the international performance is a field dependent variable. Fields devoted to issues with international interests, such as biology, engineering and earth sciences, present a large fraction of scientists with a higher IPR. But this is not true to fields primary devoted to issues with local and national interests. The use of IPR gave us a good example of the importance of each field's idiosyncrasies as critical factors to be considered while comparing scientists in different areas, within a scenario where general evaluation determines resources destination.

## References

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