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A support for classifying scientific papers in a University Department

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Abstract

Measuring the productivity of the research community is a challenging and relevant issue at the national and institutional levels. To this aim several lists which classify scientific journals have been provided by both public and private companies according to specific motivations.

The existence of a multiplicity of lists from one hand, the always increasing number of journals and the variegate publishing strategies of the single researchers from the other one, pose the problem of the definition and assessment of the set of scientific journals that maximally cover the potential heterogeneous research domains.

This work proposes a procedure for merging the classifications provided by competing lists of journal from different institutions, solving indeterminacies and missing attributions.

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Keywords: journal classification, research evaluation, statistics research.

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1. Introduction

In the recent years, increased emphasis has been placed on the evaluation of scientific research of academic institutions and its members, on the basis of their publications in peer reviewed journals and volumes. As a result of the increasing interest on publishing in refereed journals, we also witness a rapid increment of the number of the scientific journals available for the scientific communities. To give an example, the number of ISI journals in the subject category "statistics & probability" was 69 in 2000, 81 in 2005 and 117 in 2012. As a consequence, the identification of the set of scientific journals of potential interest and their assessment are crucial issues for the research community.

Different lists which classify scientific journals are available for helping research institutions to address and orientate their research lines. Mostly, such lists are provided by both public and private companies according to specific motivations. At the opposite side, the members of university departments or research institutions follow their own publishing strategies; after publication, individual scientific performances are assessed, while departments are evaluated as a whole. The existence of a multiplicity of lists could be seen an odd complication, on the contrary it is a resource for both individual and institution choices.

In this work, we develop a proposal for merging alternative classifications that can support the publication policies of research institutions, taking a Department of Statistics as a working example. It is well known that each department has its own history; in particular, Statistics Departments may be very heterogeneous, since their discipline of interest spreads over a multiplicity of research domains. This poses the problem of the definition of the lists of scientific journals that maximally cover the potential heterogeneous research domains.

The proposal we develop takes into account official classifications of journals and offers a strategy for solving:
a) the classification differences and indeterminacies among lists
b) the cases of indeterminacy due to the non-inclusion of relevant journals in official lists.
The procedure works as follows:

1) we define the lists of scientific journals which are relevant for the department/institution involved;
2) we classify such journals according to available rankings exogenously defined;
3) we develop a tool to solve indeterminacies which occur when a) the joint use of the selected lists is not conclusive or b) the researchers published in journals that do not belong to any of the selected lists.

2. The definition of a list of journals at the local level

It is very common that the members of a research institution (denoted as department from now on) publish in a set of journals that usually do not fit in just one of the available lists. Hence, the department needs to resort to multiple lists as to maximize their coverage, although a number of journals might still be excluded from the resulting set; also, this induces discrepancies that have to be solved so that a suitable classification is needed.

2.1. The example of a Department of Statistics

The example of an Italian department of Statistics is typical (Table 1), since statistical disciplines expand in several cultural domains and some of these are not included in the Italian "CUN Area 13: Economics and Statistics" (which roughly covers Economics, Statistics, Mathematics for Economics and Management) to which academic researchers in Statistics have been associated[1]. In any case, Area 13 is important since, besides Economics, it includes the typical statistical sectors going from SECS-S01 to SECS-S05 (Statistics, Statistics for experimental and technological research, Economic Statistics, Demography, Social Statistics), together with SECS-S06 (Mathematical

[1] In the Italian University System, the disciplines taught in higher education are classified into 14 CUN (Consiglio Universitario Nazionale, Italian National University Council) main fields (CUN, 2013).