



SCImago Institutions Rankings

Introduction

Every year, *SCImago Research Group* publishes two reports on institutions, the Ibero-American SIR (*SCImago Research Group*, 2012a) and the Global SIR (*SCImago Research Group*, 2012b). The former usually appears in March and it includes all higher education institutions of Ibero-American countries with at least one document published in the last year of the five-year period. The Global SIR is published in July and it takes into account those organizations from any country, with at least 100 documents published in the last year of the five-year period.

In 2013 a new version of the SCImago Institutions Rankings (SIR) report is released. The report shows a set of bibliometric indicators that unveil some of the main dimensions of research-devoted institutions' performance. SIR Reports aim at becoming an evaluation framework of research performance for Research Organizations.

The reports show indicators that will help users evaluate the scientific impact, thematic specialization, output size and international collaboration networks of institutions.

The period analyzed covers 2003-2011 in five-year periods. The tables include institutions having published during the last year of the period at least 100 scientific documents of any type, that is, articles, reviews, short reviews, letters, conference papers, etc. as collected by worldwide leader scientific database Scopus by Elsevier.

Currently, the SIR World Reports is the most comprehensive ranking of institutions dedicated to the analysis of research results of institutions worldwide. The intended target audience of SIR World Reports is formed by policymakers, research managers, researchers, media and general public interested in finding out about research performance of worldwide institutions.

SIR IBER

The Ibero-American ranking aims to be a research evaluation tool. It has a dual purpose: on the one hand, it aims to provide an overview helping policy makers to compare institutional research results to the targets set in the national programs for science. On the other hand, from a more specific point of view, it provides a benchmarking tool for the own higher education institutions. The ranking last version includes more than 1,600 Higher Education institutions.

Data Source

Such an ambitious tool requires a very extensive data source. Scopus is the world's most comprehensive international and multi-disciplinary database for scientific literature, containing mainly scholarly journals and conference proceedings. The journals included in Scopus meet the academic quality standards, particularly the peer-review system. Scopus covers scientific publications from all regions and a vast collection of journal titles in non-English language (Moya-Anegón, et al., 2007; Scopus, 2013).

Scopus data coverage (updated November 2012):

- 19,500 peer-reviewed journals (including 1,900 Open Access journals)
- 400 trade publications
- 360 book series
- "Articles in Press" from over 3,850 journals

Coverage Periods

SCImago Research Group has access to the Scopus database from 2003 to the present. Institutions are certainly units sensitive to conditioning factors external to the organization. Therefore, for the development of each SIR new version, five-year periods are set for the analysis. In this manner we stabilize the calculation of scientometric indicators and prevent to operate with data from one particular year related with a specific situation. The available versions of SIR are the following:

- SIR 2013. Scientific production on the period 2007-2011
- SIR 2012. Scientific production on the period 2006-2010
- SIR 2011. Scientific production on the period 2005-2009
- SIR 2010. Scientific production on the period 2004-2008
- SIR 2009. Scientific production on the period 2003-2007

Standardization

The development of an assessment tool for bibliometric analysis aimed to characterize research institutions involves an enormous data processing task related to the identification and disambiguation of institutions through the institutional affiliation of documents included in Scopus. The objective of *SCImago*, in this respect, is twofold:

- Definition and unique identification of institutions: The drawing up of a list of research institutions where every institution is correctly identified and defined. Typical issues on this task include institution's merge or segregation and denomination changes.
- Attribution of publications and citations to each institution. We have taken into account the institutional affiliation of each author in the field 'affiliation' of the

database. We have developed a mixed system (manual and automatic) for the assignment of affiliations to one or more institutions, as applicable. Exhaustivity in the identification of institutional affiliations is one of the key values of the guaranteed standardization process, in any case, the highest possible levels of disambiguation.

Indicators

IBE	LAC	CO	Organization	Country	O	% IC	NI	% Q1	Spec	% Exc	% Lead	% EwL
1 →	1 →	1 →	Universidade de Sao Paulo	BRA	36876 ↑	25.22 ↓	0.85 ↓	41.31 ↓	0.51 →	8.27 ↓	62.93 ↓	4.22 ↓
2 →	2 →	1 →	Universidad Nacional Autonoma de Mexico	MEX	16998 ↑	41.08 ↑	0.8 ↑	49.55 ↓	0.58 ↓	7.67 ↓	60.31 ↓	3.5 ↓

IBE → Position of the organization in the Ibero-American context, taking into account the value of the indicator by which the list has been sorted. Same value, same position.

LAC → Position of the organization in the Latin-American context, taking into account the value of the indicator by which the list has been sorted. Same value, same position.

CO → Position of the organization in the national context, taking into account the value of the indicator by which the list has been sorted. Same value, same position.

Organization → Official name of the organization.

Country → ISO Code 3166-1 alfa-3 of the country in which the organization is located.

O. Output → Total number of documents published in scholarly journals indexed in Scopus (Romo-Fernández, et al., 2011).

% IC. International Collaboration → Institution's output ratio produced in collaboration with foreign institutions. The values are computed by analyzing an institution's output whose affiliations include more than one country address (Guerrero-Bote, Olmeda-Gómez and Moya-Anegón, 2013; Lancho-Barrantes, Guerrero-Bote and Moya-Anegón, 2013; Lancho-Barrantes, et al., 2013; Chinchilla-Rodríguez, et al., 2012)

NI. Normalized Impact → Normalized Impact is computed using the methodology established by the Karolinska Intitutet in Sweden where it is named "Item oriented field normalized citation score average". The normalization of the citation values is done on an individual article level. The values (in %) show the relationship between an institution's average scientific impact and the world average set to a score of 1, --i.e. a NI score of 0.8 means the institution is cited 20% below world average and 1.3 means the institution is cited 30% above average (Rehn and Kronman, 2008; González-Pereira, Guerrero-Bote and Moya-Anegón, 2011).

% Q1. High Quality Publications → Ratio of publications that an institution publishes in the most influential scholarly journals of the world, those ranked in the first quartile (25%) in their categories as ordered by SCImago Journal Rank (SJRII) indicator (Miguel, Chinchilla-Rodríguez and Moya-Anegón, 2011).

Spec. Specialization Index → The Specialization Index indicates the extent of thematic concentration /dispersion of an institution's scientific output. Values range between 0 and 1, indicating generalist vs. specialized institutions respectively. This indicator is computed

according to the Gini Index used in Economy (Moed, et. al., 2011; López-Illescas, Moya-Anegón and Moed, 2011; Arencibia-Jorge et al., 2012).

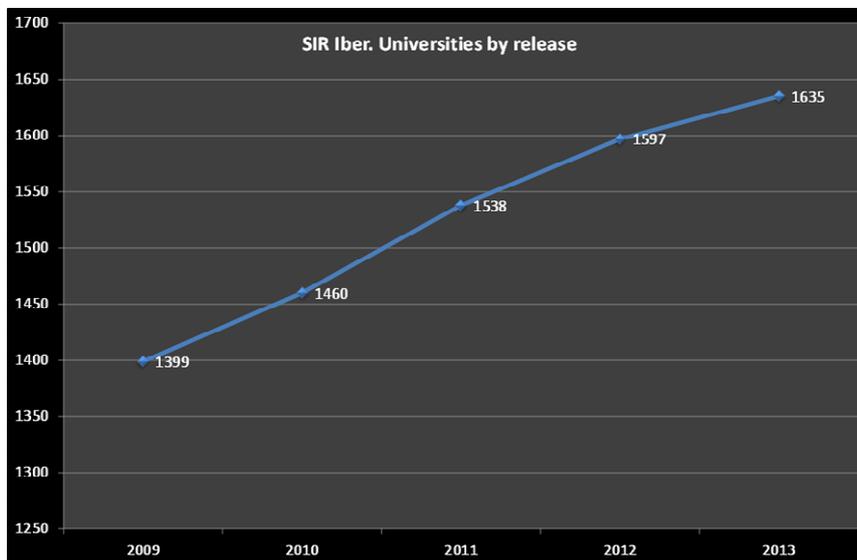
% Exc. Excellence Rate → Excellence rate indicates the amount (in %) of an institution's scientific output that is included into the set of the 10% of the most cited papers in their respective scientific fields. It is a measure of high quality output of research institutions (SCImago Lab, 2011; Bornmann, Moya-Anegón and Leydesdorff, 2012; Guerrero-Bote and Moya-Anegón, 2012).

% Lead. Scientific Leadership → Leadership indicates an institution's "output as main contributor", that is the number of papers in which the corresponding author belongs to the institution (Moya-Anegón, 2012; Moya-Anegón et. al, 2013; Moya-Anegón, et al., *forthcoming*)

% EwL. Excellence with Leadership → Excellence with Leadership indicates the amount of documents in the Excellence rate in which the institution is the main contributor (Moya-Anegón, et al., 2013).

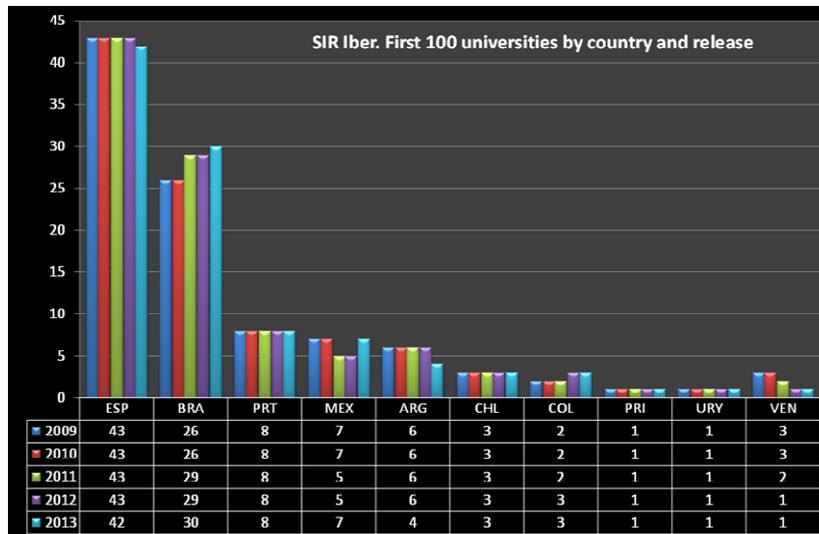
Results

The number of Ibero-American institutions of higher education with scientific activity present in the Scopus database has steadily increased over the years. Since the first version published in 2009 to the last version, near 300 (16%) universities have started their publication activity in the international scientific circuits, which shows the strong efforts made by the region to join the mainstream of world science.

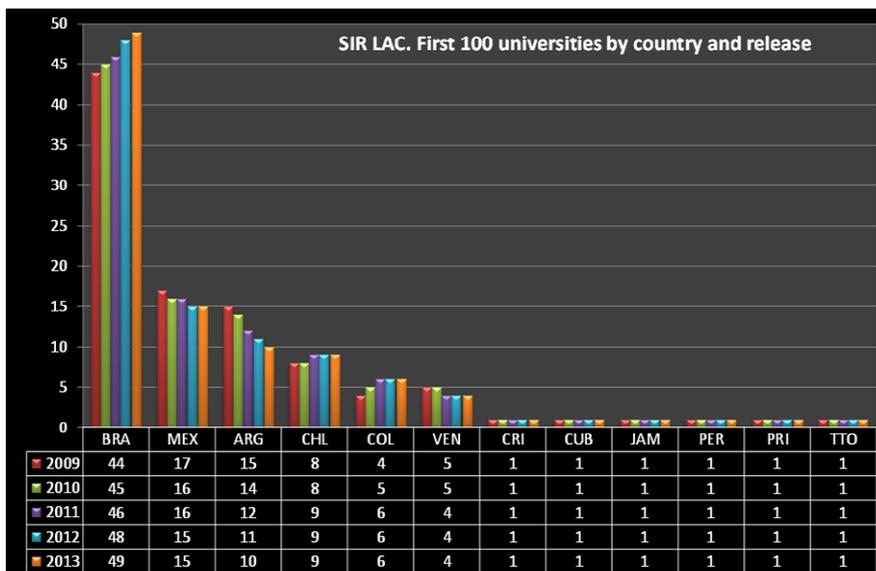


There are three well differentiated groups of countries according to the number of higher education institutions with a presence in the Ibero-American SIR. The following analysis includes the 100 most productive universities. Brazil, Mexico and Colombia considerably increase the number of universities with a presence in the Scopus database in the SIR version from 2009 and the last version. By contrast, in Argentina and, especially, in Venezuela it can be

observed a significant decrease in the number of institutions with production in international journals. Last group of countries comprises those with consolidated universities, that is to say, with production in every year: Spain, Portugal, Chile, Puerto Rico and Uruguay.



If we apply the same threshold but exclusively for the countries which make up Latin America, we observe different trends especially in the countries with a moderate production. Brazil, Chile and Colombia increase the number of institutions more productive by the SIR Iber version, Mexico, Argentina and Venezuela gradually decrease the number of institutions and a new set of countries appears, with six countries which remain with only one institution within the specified threshold in each year, showing that their growth is unlikely, but that institutions surpassing the fixed threshold are stable.



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