A Bibliometric Analysis of the Most Cited Documents in Business, Management and Accounting in Ibero-America

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Abstract

There has been considerable research on business, management, and accounting (BMA) over the past century. Amid this intellectual ocean, more recently disturbed by the digital tide, bibliometric methods are crucial to identifying leading authors and emerging research topics and calculating the impact of research. Although they are important, regions such as Ibero-America have often been overlooked in global studies. Consequently, we conducted a bibliometric analysis of the ten most cited BMA documents in each country in Ibero-America from 1996 to 2017, using the citation database Scopus. We considered 19 variables when conducting the bibliometric analysis. The main findings were: *1)* a rapid increase in document production; *2)* both Spain and Portugal domain the overall documents' production and citations; *3)* English is the *lingua franca*; *4)* the most discussed documents lie behind paywalls; *5)* the *most desired* journal in the region is also the *most suspicious*; *6)* there is a Pareto distribution in terms of both document-citations and author-citations; *7)* there was negligible participation by female authors; *8)* private organizations played a lead role in terms of author affiliation; and *9)* there was a lack of leadership of regional authors when conducting research with several co-authors.

Keywords

Business, management, accounting, bibliometrics, scientometrics, Ibero-America, Latin America.

JEL Classification: M10, M40, O30, Z1

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Resumen

La investigación en negocios, administración y contabilidad (NAC) en el último siglo ha sido considerable. En medio de este océano intelectual, radicalmente perturbado por la tormenta digital, los métodos bibliométricos son cruciales para identificar autores líderes y temas de investigación emergentes, y calcular el impacto de la investigación. A pesar de su relevancia, regiones como Iberoamérica han sido pasadas por alto en estudios globales. En consecuencia, desarrollamos un análisis bibliométrico de los diez documentos más citados en NAC en cada país de Iberoamérica desde 1996 hasta 2017, haciendo uso de la base de datos de citaciones Scopus. Consideramos 19 variables para desarrollar el análisis bibliométrico. Los principales hallazgos fueron: *1)* un rápido incremento en la producción de documentos, *2)* España y Portugal dominan ambos campos tanto de citaciones como de producción de documentos, *3)* el inglés es la *lingua franca*, *4)* la mayoría de documentos más citados tienen acceso restringido tras muros de pago (*paywalls*), *5)* la revista más *deseada* de la región es a su vez la más *sospechosa*, *6)* existe una distribución de Pareto en términos de documentos-citaciones y autores-citaciones, *7)* la participación de investigadoras es muy reducida, *8)* las organizaciones privadas cumplen un papel relevante en las afiliaciones de los autores más citados y *9)* hay una ausencia de liderazgo por parte de los autores de la región en los estudios en que participan múltiples autores.

Palabras clave

Negocios, administración, contabilidad, bibliometría, cienciometría, Iberoamérica, América Latina.

Introduction

Since the publication of the *Principles of Scientific Management* in 1911 by Frederick W. Taylor and the *Management Science* journal in 1954 by The Institute of Management Science at Columbia University, research on business, management, and accounting (BMA) and related subjects has been exceptionally fertile. This critical mass of intellectual productivity over the past century requires bibliometric analysis to comprehend the dynamics related to document production and impact by authors, institutions, and countries, and the mutual influence between disciplines and the social capital of scholars from a quantitative angle. Bibliometric methods such as citations, co-citations, bibliographic coupling, co-authoring, and co-wording have been widely used in management research (Zupic & Čater, 2015). For instance, by performing a Boolean search on bibliometric studies on BMA (Bib-BMA) using Scopus we found 200 documents (i.e., 159 papers, 35 conference papers, and six book chapters) from 1996 to 2016 with a production peak in 2016 with 49 documents, equivalent to the total number of documents published from 1996 to 2010 (Scopus, 2018). Regardless of these developments, we found several Bib-BMA focused on specific countries, and yet no study was focused on Ibero-America (i.e., Latin America, Spain and Portugal). Neither institutions nor authors from outside the United States of America (USA) have been overly considered when conducting high impact and exhaustive B-BMA (Podsakoff et al*.,* 2008) or mapping *scientific excellence* (Mapping Scientific Excellence, 2018). Therefore, in this study, we conducted a bibliometric analysis of the ten most cited documents in BMA in each country in Ibero-America, from 1996 to 2017, using the citation database Scopus. We developed a comprehensive analytical framework of 19 variables to conduct the bibliometric analysis including type of document, whether it was published under open access (OA), number of citations, number of authors, year of publication, author gender, whether they figured as the lead author, documents published by authors, author and journal h-indices, Field-Weighted Citation Impact (FWCI), institutional affiliation and whether the institution was private or public, and institutional accreditation.

The rest of this paper is organized as follows: In the next section, we present a literature review, then, we present the bibliometric analysis using five subsections: country overview, publication overview, title and keyword analysis, author overview, and status and accreditation overview. Then, we discuss the results. Finally, we present the conclusions.

Literature Review

English-language research on Bib-BMA has orbited around three centers of gravity: BMA-related subjects, economic sectors, and specific journals. First, the main BMA-related subjects have been accounting (Chung et al., 1992; Merigó & Yang, 2017b), business and economics (Merigó et al., 2016), business ethics (Uysal, 2010; Ma et al., 2012; Talukdar, 2011), business and management education (Arbaugh & Hwang 2015), corporate social responsibility (De Bakker et al., 2006), dynamic capabilities in strategic management (Vogel & Güttel 2013), mergers and acquisitions (Ferreira et al., 2014), global strategy (Peng & Zhou 2006), supply chain management (Feng et al., 2017), and university–industry-state collaboration (Abramo et al., 2009; Butcher & Jeffrey 2005; Marsilio et al., 2011). The most studied subjects (≥ 4 documents) have been entrepreneurship (Albort-Morant et al., 2018; Merigó, 2017a; Lopez-Fernandez et al., 2016; Rey-Marti et al., 2016; Wallin, 2012), marketing (Chabowski et al., 2013; Baumgartner, 2010; Fetscherin & Heinrich, 2015; Kim & McMillan 2008; Samiee & Chabowski 2012), innovation (Lazzarotti et al. 2011; Randhawa et al. 2016; Yeo et al., 2015), and tourism (Koseoglu et al., 2016; Hall, 2011; Palmer et al., 2005; Ruhanen et al., 2015). Second, the most studied economic sector (≥ 4 documents) has been the pharmaceutical industry (Koenig, 1983; McMillan & Hamilton, 2000; Narin & Rozek, 1988; Rafols et al., 2014). This is predictable, as studies on patent citations are commonly conducted to measure the industry's knowledge production and technological impact (McMillan & Hamilton, 2000; Narin & Rozek, 1988; Rafols et al., 2014). Third, Bib-BMA have examined specific journals such as *Strategic Management Journal* (Ramos-Rodríguez & Ruiz-Navarro, 2004), *Family Business Review* (Casillas & Acedo, 2007), *Journal of Product Innovation Management* (Durisin et al., 2010), *Knowledge-Based Systems* (Cobo et al., 2015), *Journal of Business Research* (Merigó et al., 2015), *Harvard Business Review* (Schulz & Nicolai, 2015), *Journal of Business & Industrial Marketing* (Valenzuela et al., 2017), *International Small Business Journal* (Volery & Mazzarol, 2015), *Journal of Emerging Technologies* (O'Leary, 2009), and *Human Systems Management* (O'Leary, 2007). These studies all aimed to measure the productivity and impact of researchers, journals, business schools, and institutions (mostly universities) in a comparative context

(rankings), as well as to map the social capital of authors and institutions (through co-authorship) and the intellectual structure of the field —through co-citations or bibliographic coupling (Guevara et al., 2016)—, to identify consolidated or trending themes, and continue to validate bibliometric *laws* —e.g., Bradford's law or Lotka's law (Bookstein, 1979).

Among the English-language studies reviewed, one of the most remarkable was conducted by Podsakoff et al. (2008). This study aimed to identify the universities and scholars that had the greatest impact in the field of management from 1981 to 2004, and the factors influencing that impact. The authors found that only a few universities and scholars accounted for the majority of the citations; university size, the number of PhDs awarded, research expenditure, and endowment assets had the biggest impact on university publications, while total number of publications, years in the field, graduate school reputation, and editorial board membership had the biggest effect on scholars' citations. It is important to note that only 15 universities from outside the USA and none from Ibero-America were ranked in the 100 most cited universities (Table 1).

Table 1 Universities from outside the USA ranked in the 100 most cited universities in the field of management (1981–2004)

Ranking	University	Country	Citations
28	University of London	UK	6,508
33	McGill University	Canada	5,544
35	INSEAD	France	5,021
38	University of Western Ontario	Canada	4,744
48	Tel Aviv University	Israel	3,927
52	University of Toronto	Canada	3,529
61	Concordia University	Canada	2,936
67	Hebrew University Jerusalem	Israel	2,776
69	University of British Columbia	Canada	2,717
76	Queen's University	Canada	2,485
77	University of Sheffield	UK	2,435
85	University of Manchester	UK	2,231
86	University of Alberta	Canada	2,172
90	Haute École Commerciale (HEC) Montreal	Canada	2,005
100	University of New South Wales	Australia	1,866

Source: Podsakoff et al. (2008).

The Spanish/Portuguese-language Bib-BMA literature has focused on two main areas: BMA-related topics and specific journals. First, the main BMA-related subjects that were identified were accounting (Moya & Prior, 2008), business process management theory (Iritani et al., 2015), corporate governance (Florez-Parra et al., 2014), entrepreneurship (Arias et al., 2016; Servantie et al., 2016), and innovation (Lopes & De Carvalho 2012). An emergent subject that was not found in the English-language literature was women's access to management positions (Selva et al., 2011). Second, specific journals were studied such as *Administração de Empresas* (Favaretto & Francisco 2017) and *Revista Europea de Dirección y Economía de la Empresa* (Lamazaresa & Chiconb 2012). These studies' aims were similar to those mentioned in the English-language review, hence, to determine *who published and where*, common methodologies (e.g. the theory of planned behavior in the field of entrepreneurship), and mapping of emerging themes (e.g., women in management). A notable study was that of De Mascena et al. (2013), which analyzed scientific publications about clusters and local production arrangements in Brazil. Instead of focusing on authors, journals, or universities, their scope was a specific subject within a defined country.

Despite the abundant literature on Bib-BMA, we identified seven areas to which our study contributes: *1)* a regional-focused scope (i.e., Ibero-America); *2)* diminish the disengagement from authors, journals, and universities/business schools from the Global-South (plus Spain and Portugal); *3)* the involvement of female scholars in BMA; *4)* analyzing the incidence of business schools with international accreditation (e.g., the Association to Advance Collegiate Schools of Business [AACSB]); *5)* defining the status of the most influential institutions in the field, be they private, public or multilateral (e.g. The World Bank or the UN); *6)* mapping the current state of the use of OA journals; and *7)* making available an OA database to perform replications or conduct further studies in response to recent requests from the scientific community (Aarts et al., 2015).

Methodology

Sample Countries

The countries comprising the sample and their abbreviated codes are presented in Table 2.

Table 2 Sample countries

#	Country	Code
1	Argentina	AR
2	Bolivia	BO
3	Brazil	BR
4	Chile	CL
5	Colombia	CO
6	Costa Rica	CR
7	Cuba	CU
9	Dominican Republic	DO
8	Ecuador	EC
10	El Salvador	SV
12	Guatemala	GT
13	Honduras	HN
14	Mexico	MX
15	Nicaragua	NI
16	Panama	PA
17	Paraguay	PY
18	Peru	PE
19	Portugal	PT
20	Puerto Rico	PR
11	Spain	ES
21	Uruguay	UY
22	Venezuela	VE

Source: International Organization for Standardization – ISO 3166 (n.d.).

Data Sources

Two of the most popular data sources for bibliometric and scientometric studies are Clarivate Analytics' Web of Science (WoS) and Elsevier's Scopus. Each system has its own particularities, but we opted to use Scopus for the following reasons: *1)* institutional access and expertise; *2)* greater journal coverage (Scopus: 20 346 journals vs. WoS: 13 605 [149 % more journals]) (Mongeon & Paul-Hus, 2016); *3)* greater social sciences coverage (Scopus: ≈25 % vs. WoS: ≈15 % as a proportion of Ulrich's periodicals directory) (Mongeon & Paul-Hus, 2016); *4)* greater coverage of both articles and journals published by countries in Ibero-America (e.g., Spain and Brazil) (Mongeon & Paul-Hus 2016); *5)* overlapping coverage (≈84 % of active titles in WoS were also indexed in Scopus) (Gavel & Iselid, 2008) and *6)* the recent implementation of the FWCI measure. We fixed the starting point for the analysis as 1996 because Scopus has only been adding cited references since then (Scopus, 2015). We also searched for information about authors' gender and institutional status (private, public, private-public or multilateral) on institutional websites, Wikipedia, and Google Scholar profiles. We also searched for evidence of whether the affiliated university/business school was currently accredited by the AACSB by checking in its website. The data used in this study can be accessed at https://goo.gl/pAUEwm or by using the QR code displayed below.

Subject Area Categories

The subject area of BMA is subdivided into ten categories in Scopus (Table 3).

Table 3 Categories within the subject area of BMA

Subject area	Subject Categories
Business, Management and Accounting	Accounting
	Business and International Management
	Business, Management and Accounting
	Industrial Relations
	Management Information Systems
	Management of Technology and Innovation
	Marketing
	Organizational Behavior and Human Resource Management
	Strategy and Management
	Tourism, Leisure and Hospitality Management

Source: SCImago (n.d.).

Variables

We identified 19 variables that we used to conduct our bibliometric analysis (Table 4).

Table 4 Variables used in the present study

1	Country Affiliation	Country in which the organization was located, where the authors were affiliated at the time the document was published. Source: Scopus.
2	Type of Document	Whether the document was an article, a book, a book chapter, or a conference paper. Source: Scopus
3	Open Access	Whether the document is available via open access. Scopus.
4	Citations	Number of citations in a given document. Source: Scopus.
5	Field-Weighted Citation Impact (FWCI)	Indicates how the number of citations received by a document compares with the average number of citations received by all other similar publications. Source: Scopus.
6	Authors	Number of authors of a given document. Source: Scopus.
7	Year	Year in which a document was published. Source: Scopus.
8	Name	Name of the first author (in order of appearance) with at least one affiliation to any organization from Ibero-America. Source: documents.

9	Gender	Gender (male or female) of the author with at least one affiliation to any organization from Ibero-America: Source: Scopus and authors' websites (institutional or Google Scholar).
10	Lead Author	Whether the author with at least one affiliation to any organization from Ibero-America figured as the lead author. Source: Scopus.
11	Documents	Number of documents published in Scopus by the author with at least one affiliation to any organization from Ibero-America. Source: Scopus.
12	Author H-Index	H-index of the author with at least one affiliation to any organization from Ibero-America. Source: Scopus.
13	Journal H-Index	H-index of the journal in which the article was published. Source: SCImago
14	Affiliation	Name of the organization with which a given author was affiliated at the time a given document was published. Source: Scopus.
15	Status	Status of the organization where a given author published a given document in Scopus (whether private or public). Source: institutional websites.
16	Title	Title of the document analyzed. Source: Scopus
17	Keywords	Keywords of the document analyzed. Source: Scopus.
18	Source Name	Name of the source (e.g., journal, proceedings, or book) in which the document was published. Source: Scopus.
19	AACSB Accreditation	Whether the business school with which the author was affiliated is currently accredited by the AACSB. Source: AACSB website.

Source: The author.

Several variables in Table 4 need further explanation, particularly *1)* citations, *2)* author and journal h-indices, *3)* the FWCI, and *4)* accreditation (i.e., with the AACSB). Impact factor indices have been continuously discussed by the scientific community since their invention. Eugene Garfield, creator of the journal impact factor, states: "I expected it to be used constructively while recognizing that in the wrong hands it might be abused" (Nature editorial staff, 2016, p. 466; Smith, 2012). This study has no intention of resolving that discussion, but provides a summary of the main aspects and formal calculations.

First, when bibliometrics commenced as a discipline, Gross and Gross (1927) aimed to identify the most relevant scientific publications that college libraries should acquire as essential material for the intellectual development of faculty and students. They counted the number of references (i.e., citations) to other journals contained in the *Journal of the American Chemical Society*, the most representative journal of American chemistry at that time. The "Gross and Gross" method based on citation counting was widely diffused, and its influence remains today. Second, in 2005 Jorge

Hirsch proposed the h-index as an alternative method of quantifying an individual's scientific research output. He listed several disadvantages of metrics based exclusively on the total number of citations or citations per paper, as both were hard to find, the latter might be inflated by few "one-hit wonders", and the former rewarded low productivity and penalized high productivity (Hirsch, 2005). An entity, whether an author or a journal, has an index of *h* if *h* of the author's or journal's papers have at least *h* citations each and the remaining papers have ≤*h* citations each (Hirsch, 2005). For instance, Hirsch has an h-index of 55 (Scopus, 2018), which means that his 55 most cited papers have each received at least 55 citations. Third, it is crucial to consider that each field and subject area has its own research and knowledge production dynamics. How practical would it be to compare the h-index of a publication of physics with that of a publication of business? For example, both *Physical Review Letters* and the *Journal of Finance* are top-tier journals in the subject areas of physics and astronomy, and BMA, respectively. However, the former has an h-index of 504, while the latter has an h-index of 233. In response to this line of discussion, Scopus developed the FWCI, which indicates how the number of citations received by a publication compares with the average number of citations received by all other similar publications in the data universe. Similar publications are those that have the same publication year, type, and discipline. The FWCI for a set of *N* publications is defined as:

$$FWCI = \frac{1}{N} \sum_{i=1}^{N} \frac{c_1}{e_{i,}} \qquad (1)$$

where c_1 represents citations received by publication *i* and e_i represents the number of citations that is expected to be received by all similar publications in the publication year and the following three years. Thus, a FWCI of 1.00 indicates that the publication has been cited exactly as would be expected based on the global average for similar publications, a FWCI>1.00 indicates that the publication has been cited more than would be expected (e.g., 2.20 means that it has been cited 120 % more than the global average), and a FWCI of <1.00 indicates that the publication has been cited less than would be expected (e.g., 0.75 means that it has been cited 25 % less than the global average). Fourth, AACSB accreditation is seen as one of the "Triple Crown" of accreditations along with the Association of MBAs (AMBA) and the

European Quality Improvement System (EQUIS). Since its foundation, the AACSB has been virtually unchallenged in its accreditation activities, and its standards are acknowledged as some of the most rigorous and selective in business education (Durand & McGuire, 2005). Established in 1916, the AACSB's mission statement is "to foster engagement, accelerate innovation, and amplify impact in business education" (AACSB, n.d.) through more than 1,600 member organizations and nearly 800 accredited business schools. Accreditation is focused on business and accounting programs at the bachelor's, master's, and doctoral levels. Table 5 presents the accreditation standards for business. Among the AACSB's principles and standards, that of "strategic management and innovation" contains the standard "intellectual contribution, impact, and alignment with mission". Intellectual contributions are defined as "original works intended to advance the theory, practice, and/or teaching of business and management. They are scholarly in the sense that they are based on generally accepted research principles, are validated by peers and disseminated to appropriate audiences" (AACSB, 2017a, p. 18). Therefore, both research output and impact are included in the AACSB's standards. The relationship between renowned accreditation standards, research output and impact will be explored in the following section.

Table 5 AACSB's accreditation standards for business programs

|	
Strategic Management and innovation	Standard 1: Mission, impact, innovation
	Standard 2: Intellectual contribution, impact, and alignment with mission
	Standard 3: Financial strategies and allocation of resources
Participants- Students, Faculty, and Professional Staff	Standard 4: Student admissions, progression, and career development
	Standard 5: Faculty sufficiency and deployment
	Standard 6: Faculty management and support
	Standard 7: Professional staff sufficiency and deployment
Learning and Teaching	Standard 8: Curricula management and assurance of learning
	Standard 9: Curriculum content
	Standard 10: Student-faculty interactions
	Standard 11: Degree program educational level, structure and equivalence
	Standard 12: Teaching effectiveness
Academic and Professional Engagement	Standard 13: Student academic and professional engagement
	Standard 14: Executive education
	Standard 15: Faculty qualifications and engagement

Source: AACSB (2017a).

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Results

The results are presented in five subsections: country overview, publication overview, title and keyword content analysis, author overview, and status and accreditation overview.

Country Overview

The increase in intellectual productivity in BMA in Ibero-America during the past 22 years has been impressive, with a total of 51,082 documents published in the region during that period. The average number of publications per year/country has also increased significantly, rising from 235 documents published by 13 countries in 1996 to 6,564 documents published by the entire region in 2017, an increase of approximately 28-fold (Figure 1a). Nevertheless, there were two outliers: Spain and Brazil (Figure 1b). Both countries published 33,471 documents during the period, representing 65 % of the overall production. Indeed, a Pareto distribution emerged whereby four countries, Spain, Brazil, Portugal, and Mexico (18 % of the sample), published 43,233 documents (84 % of the sample).

Fig. 1. a) Total number of BMA publications by countries in Ibero-America and b) the top eight countries using a log-5 scale for the period 1996-2017.
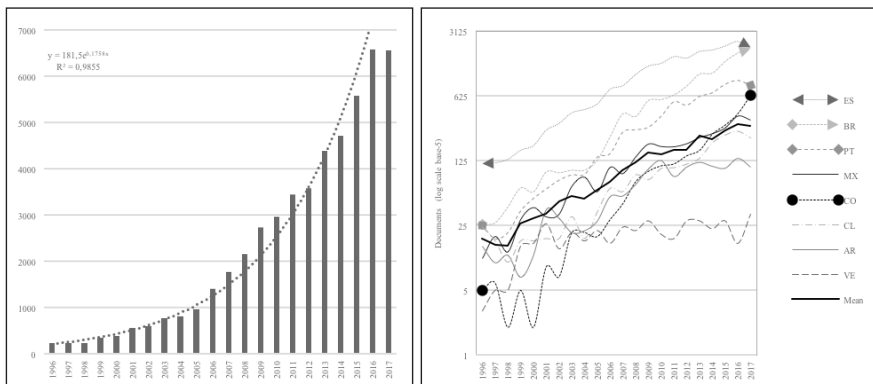
Source: Scopus (2017)

It might appear that the growth rate is decreasing, but it is more important to note that volatility is declining (Figure 2). Before 2011, the average annual growth rate was relatively volatile, with highs of 46% in both 2001 and 2006 and lows of just 5% to 6% in 2002 and 2004. From 2011 onwards, the annual growth rate was between 4% and 18%, with an average of 12%. Nevertheless, significant growth rates can be deceiving in terms of net output. For instance, Colombia excels with an average annual growth rate of 47%. Its highest growth rate was 350% from 2000 to 2001, but that involved an increase of two to nine documents.

Fig. 2. Average annual growth rate in the number of publications for the period 1996-2017 based on countries with at least one document published every year, namely, CO, BR, MX, VE, PT, AR, CL, and ES.
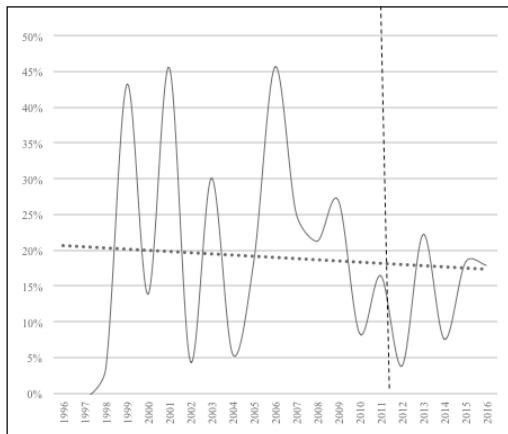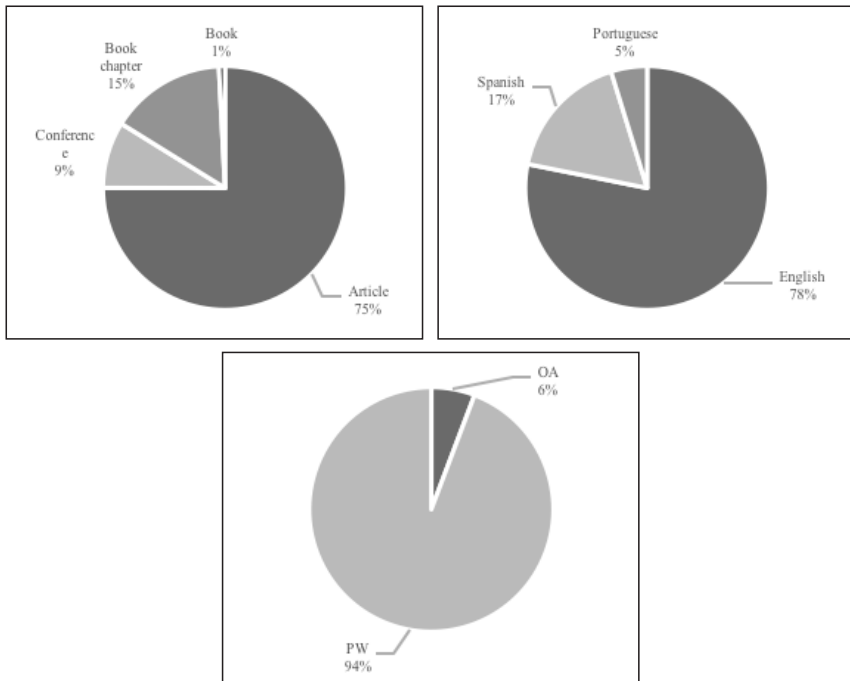

Source: Scopus (2017).

Publication Overview

We conducted the following analyses based on the ten most cited documents in each country in Ibero-America. Hence, we intended to analyze 220 documents. The final sample was reduced to 208 documents because some documents in Honduras, Paraguay, and El Salvador did not have at least one citation.

First, the most cited documents in BMA in Ibero-America were paywalled (94%) English-language (78%) articles (75%) (Figure 3). Other types of publications were book chapters (15%), conference proceedings (9%), and books (1%) (Figure 3c). The second and third most common languages were

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Spanish (17%) and Portuguese (5%), which was something of a paradox in a Spanish-Portuguese dominated region (Figure 3b). Only 6% of the documents were OA (Figure 3c).

Fig. 3. a) Type of document, b) language and c) type of access.

Then, we searched for *highly desired* journals as measured by both the number of countries in Ibero-America that had at least one document indexed and the total number of documents published by researchers from the region. More than nine countries housed researchers who had published in *Espacios* (13 countries), *Información Tecnológica* (10 countries), and *Journal of Cleaner Production* (10 countries). Similarly, the dominant journal in terms of documents published by researchers from the region was *Espacios*, with an average of 280 articles, followed by *Journal of Cleaner Production* with 148 and *Lecture Notes in Business Information Processing* with 144. This was a strange result: the *most desired* journal by researchers from the region, namely *Espacios*, has an h-index of only 3 with more than 4,500 documents published since 2007, whereas the *Academy of Management*

Journal, a top-tier journal, has an h-index of 252 with just 1,636 documents published since 1975 (see the Appendix for a complete list of journals and the average number of articles published).

Table 6 Highly desired journals

Publication Name	Journal H-Index	Countries	Mean number of articles published by countries in Ibero-America	OA
Espacios	3	BR, CO, VE, EC, MX, CU, AR, PE, PY, PR, BO, PA, DO	280	Y
Información Tecnológica	8	CO, MX, AR, CL, VE, EC, CU, PE, UY, PA	75	Y
Journal of Cleaner Production	116	ES, BR, PT, CO, MX, CL, AR, EC, CU, PE	148	N
Journal of Business Research	133	ES, PT, CL, NI, PE, VE, UY, CR, EC	61	N
Lecture Notes in Business Information Processing	27	ES, PT, CL, AR	144	N
Academia Revista Latinoamericana de Administración	5	CR, NI, PR	5	Y
Innovar	6	CL, CO, MX	63	Y

Source: Scopus (2017).

Mean citations (μ=137.2), FWCI (μ=5.3), year (μ=2007.6), and journal h-index (μ=88.44) are presented in Table 8. The top five countries in terms of document citations were Spain (μ=745), Portugal (μ=437), Brazil (μ=315.7), Mexico (μ=286.4), and Chile (μ=242.4). The top five in terms of FWCI were Spain (μ=20.8), Colombia (μ=20.4), Mexico (μ=16.1), Portugal (μ=11.7), and Brazil (μ=7.6). Regarding the top five countries in terms of their journal h-index, Chile (μ= 133.6), Uruguay (μ=131.6), Bolivia (μ=125.5), El Salvador (μ=124.2), and Portugal (μ=123.1) had the most documents published in journals with a high h-index. We looked at the methodological strategies of the 50 most cited documents, and found that 44 % implemented a quantitative approach, 35 % were theoretical, 13 % employed a qualitative approach, and 8 % used mixed methods. Figure 4 shows a skewed citations distribution, as only 1 % of the documents (n=2) had between 951 and +1000 citations, whereas 48 % (n=94) had between 1 and 50 citations. When we checked the dataset two weeks after we had started to compile it, we found that the

citations distribution was being skewed daily. During this 2-week period, 17 of the 20 most cited documents received 2.2 citations in average. The outlier article among this group was *A new criterion for assessing discriminant validity in variance-based structural equation modeling*, written in 2014 by Christian Ringle (ISEGI [*Instituto Superior de Estadística e Gestão de Informação*], Portugal) and colleagues, and published in the *Journal of the Academy of Marketing Science* (h-index: 131), which received five citations (+1.3%) during those two weeks (Figure 5).

Fig. 4. Numbers of citations and documents.
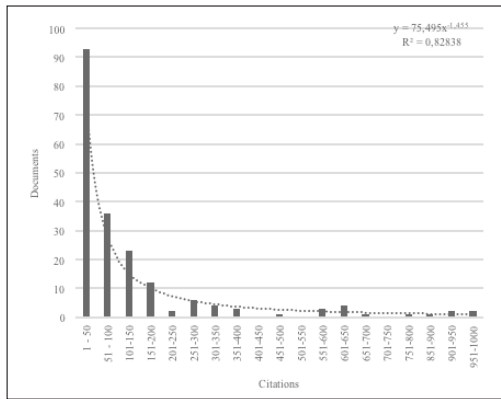
Source: Scopus (2017)

Fig. 5. Top 17 papers by citations growth rate from the first week in January-2018 until the third week in January-2018.
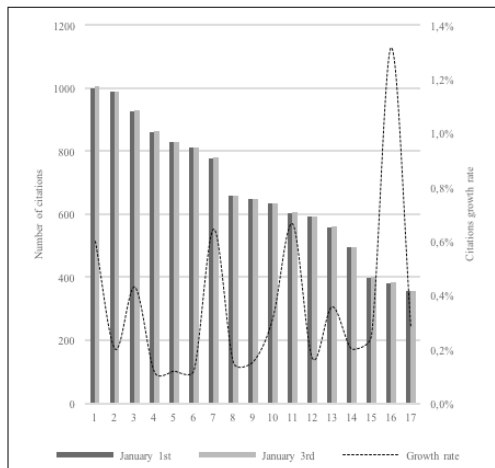
Source: Scopus (2018)

Title and Keyword Analysis

We conducted an analysis of the documents' titles to pinpoint common themes that have been under the research lens in the region. This approach has been widely used in Bib-BMA (Kostoff et al., 2001; Gallardo-Gallardo et al., 2015; Woon et al., 2011). We used Voyant Tools, an open-source Web-based text reading and analysis environment that allowed us to research patterns of words/concepts and to explore and visualize large bodies of text systematically, tasks that would be difficult to perform manually (Sinclair & Geoffrey 2016). Two analyses were conducted: frequency of terms (i.e., the number of times a word is mentioned in a body of work) and collocation graphs. A collocation graph is a network of terms with higher frequency and proximity. The keywords are shown in dark gray and the proximity words are shown in light gray. Table 7 shows the results for the frequency of terms and Figure 6 shows the collocation graph.

Table 7 Frequency of terms

Number of Words		2,299
Words	Frequency	Lead document (most cited) in which the word is mentioned
based	14	*An empirical comparison of the efficacy of covariance-based and variance-based SEM*
analysis	13	*Non-additivity in portfolios of exploration activities: A real options-based analysis of equity alliances in biotechnology*
management	13	*Quality management re-visited: A reflective review and agenda for future research*
social	12	*Corporate social responsibility theories: Mapping the territory*
model	10	*Common method bias in regression models with linear, quadratic, and interaction effects*
production	10	*Comparative Life Cycle Assessment of four alternatives for using by-products of cane sugar production*
case	9	*How habit limits the predictive power of intention: The case of information systems continuance*
impact	9	*The impact of national culture on software piracy*
innovation	9	*In search of complementarity in innovation strategy: Internal R & D and external knowledge acquisition*
development	8	*The development of cross-cultural (mis)understanding through volunteer tourism*

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evaluation	8	*The development of cross-cultural (mis)understanding through volunteer tourism*
performance	8	*Taking Friedman seriously: Maximizing profits and social performance*
quality	8	*A Fuzzy Quality Function Deployment (FQFD) model for deriving optimum targets*
role	8	*The role played by perceived usability, satisfaction and consumer trust on website loyalty*
systems	7	*Regional innovation systems: Institutional and organisational dimensions*
tourism	7	*Tourism image, evaluation variables and after purchase behaviour: Inter-relationship*
business	6	*Finance in family business*
corporate	6	*Corporate social responsibility theories: Mapping the territory*
cross	6	*Culture specific and crossculturally generalizable implicit leadership theories: Are attributes of charismatic/transformational leadership universally endorsed?*
family	6	*Cross-national differences in relationships of work demands, job satisfaction, and turnover intentions with work-family conflict*

Source: Scopus (2017) using Voyant Tools (2016).

Fig. 6. Collocation graph.
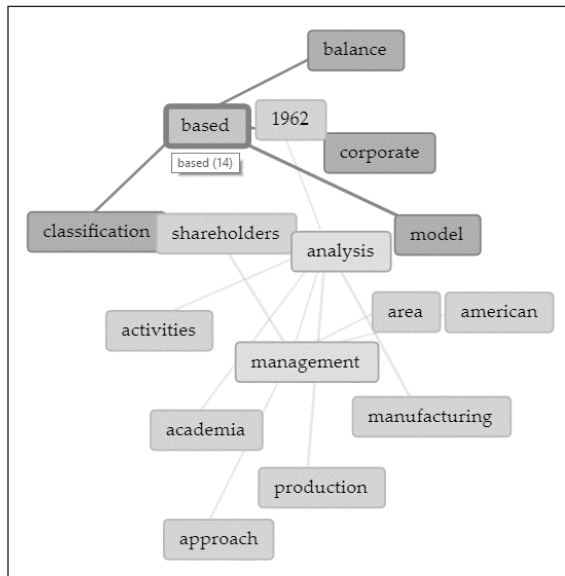
Source: Scopus (2017) using Voyant Tools (2016).

Author Overview

The average number of authors per paper is 4.34. In 48% of the papers, authors with an affiliation in the region figured as the lead author. The average of documents and h-index were 23.6 and 7.36 respectively (Table 8). A document worth mentioning in terms of the number of authors is *Culture-specific and cross-culturally generalizable implicit leadership theories: Are attributes of charismatic/transformational leadership universally endorsed?* This document has more than twenty authors from countries around the world. In terms of gender, only 26% of authors were female (Figure 7b). This same percentage applied when lead-authoring was observed (Figure 7c). On average, females (μ=176) were cited more often than men (μ=137); however, males had a higher FWCI (females: 4.0, males: 6.1) and h-index (females: 4.8, males: 8.0) (Figure 7a).

Fig. 7. a) Average number of citations, FWCI, and h-index; b) by author gender; and c) lead authors by gender.
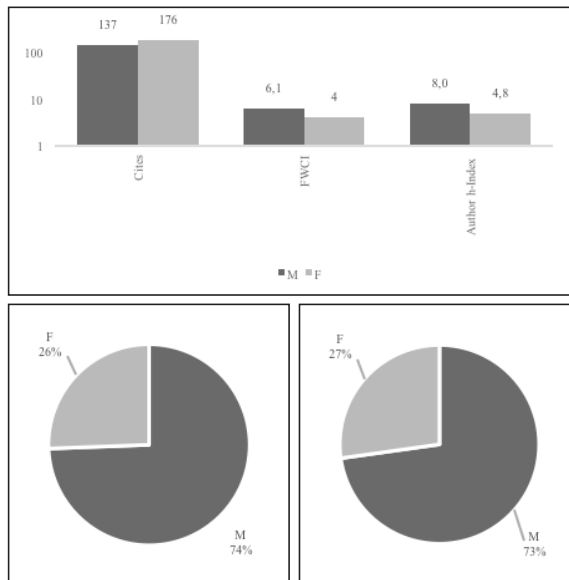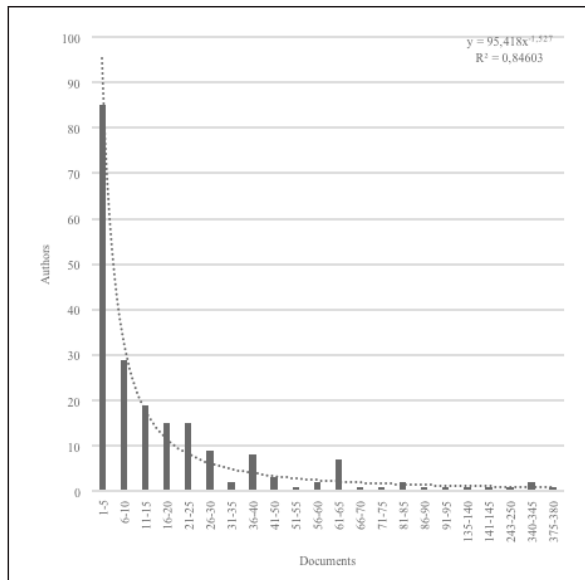

Source: Scopus (2017)

The top five countries by average number of authors were Chile (μ=8), Bolivia (μ=7.2), Brazil (μ=6.9), Guatemala (μ=6.2), and Paraguay (μ=6.2). Spain, Paraguay, Colombia, and Cuba were ranked equal first in terms of

lead authors (70%) followed by Nicaragua (60%). The most productive authors in terms of the average number of documents published in Scopus were from Panama (μ=81.3), Spain (μ=54.9), Chile (μ=51.7), Mexico (μ=49.8), and Portugal (μ=36.6). This landscape changed abruptly in relation to the average h-index of authors, where the top five countries were Nicaragua (μ=19.9), Paraguay (μ=17.8), Panama (μ=15.8), Chile (μ=14.6) and Uruguay (μ=11.3). Regarding gender participation, females affiliated to Venezuelan and Panamanian organizations accounted for 50% of their country's documents, while those in Paraguay, Dominic Republic, and Spain accounted for 40%. Figure 8 shows a skewed distribution in relation to documents and authors, as 1% (n=2) of the authors had published between 340 and 380 documents, while 55% (n=114) had published between one and ten documents.

Fig. 8. Number of documents published and authors.

$$y = 95,418x^{-1,527}$$
$$R^2 = 0,84603$$

Source: Scopus (2017).

Status and Accreditation Overview

Fifty-three percent of the organizations were private, while 47 % were public (Figure 9 – a). In the case of business schools, only 32 % are currently accredited by the AACSB (Figure 9b). Private organizations dominated BMA publishing in Peru (100 %), Paraguay (90 %), Mexico (90 %), Costa Rica (80 %), and Bolivia (80 %). Conversely, the public sector was dominant in Venezuela (100 %), Panama (100 %), Dominican Republic (78 %), Portugal (82 %), and Uruguay (70 %). The top-ranked countries in terms of having at least one of the authors affiliated with an AACSB-accredited business school were Mexico (80 %), Chile (70 %), Portugal (70 %), Guatemala (60 %), and Spain (50 %). Table 8 presents the correlation matrix and descriptive statistics for the variables analyzed. We only considered highly significant correlations (p<0.01) and interdependent variables were omitted (e.g. correlations between citations and the h-index). We found positive correlations between documents published by authors and citations, and between AACSB-accredited business schools and FWCI, private status, journal h-index and citations. We found negative correlations between the year of publication and citations, and between authors' h-index and number of authors and lead authors from the region.

Fig. 9. a) Status of organizations; and b) AACSB accreditation.
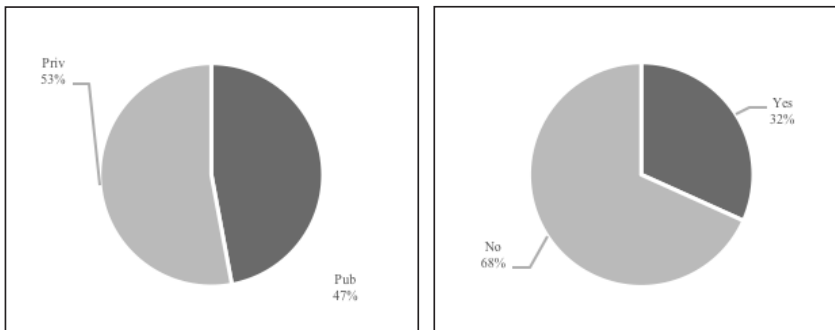
Source: institutional websites and AACSB (2017b)

Table 8 Correlation matrix

	Mean	SD	Citations	FWCI	Year	Authors	Gender	Lead A.	Docs.	Author h-Index	Status	OA	Journal h-Index	AACSB
Citations	137.26	207.31	1											
FWCI	5.33	13.254	.323**	1										
Year	2007.68	4.97	-.373**	0.08	1									
Authors	4.34	4.366	0.039	-0.04	0.118	1								
Gender	0.74 (M)	0.44	-0.09	0.07	0	-.165*	1							
Lead A.	0.48	0.511	-0.03	0.01	-0.03	-.327**	-0.03	1						
Documents	23.58	49.826	.210**	.157*	-.156*	-0.039	.141*	-0.06	1					
Author h-Index	7.36	10.291	.327**	.223**	-.186**	-0.077	.143*	-0.01	.886**	1				
Status	0.52 (% Priv)	0.501	-0.12	-0.01	0.017	-0.043	0.03	-0.03	-0.05	-0.004	1			
oa	0.06 (% OA)	0.238	-0.06	-0.03	0.054	0.092	-0.04	-0.07	-0.02	-0.019	-0.12	1		
Journal h-Index	88.44	53.543	.333**	0.07	-.138*	-0.042	0.09	0.09	-0.01	0.088	-0.04	-.175*	1	
AACSB accred.	0.32 (%Accredited)	0.467	.224**	.186**	-.152*	-0.045	0.14	0.09	0.07	.157*	.210**	-0.08	.331**	1

Note: ** p<0.01, * p<0.05.

Discussion

Intellectual output in BMA in Ibero-America has been growing, but it is clear that Spain has been a powerhouse in terms of both productivity and influence. Over the past 22 years, Spain has produced more documents than the other 21 countries combined in the 20-year period from 1996 to 2015. Spain is also the top country in terms of the average number of citations (μ=745) and FWCI (μ=20.8). In fact, the most cited paper (>1000 citations), titled *Corporate Social Responsibility Theories: Mapping the Territory*, was published in 2004 by Elisabet Garriga while she was affiliated with IESE (*Instituto de Estudios Superiores de la Empresa*). In addition, business schools in Spain have made a name for themselves, with five being AACSB-accredited, namely, ESADE (*Escuela Superior de Administración y Dirección de Empresas*), IE (*Instituto de Empresa*), IESE, IQS School of Management, and Universidad Carlos III de Madrid (AACSB, 2017b). Along similar lines, ESADE, IE, and Universidad de Navarra were listed in the top 50 universities in Europe in the field of business and management (Quacquarelli Symonds [QS], 2018). There were also countries in Latin America such as Uruguay (μ=131.6), Bolivia (μ=125.5) and El Salvador (μ=124.2) that had articles published in journals with the highest h-index and with no AACSB -accredited business school. However, despite the fact that authors from Spain are by far the most cited in the region, they are hardly known in BMA globally. For example, Garriga's total number of citations was just 5 % of the number of citations of Kathleen Eisenhardt (Stanford University). The total number of citations of the 50 most cited papers in the region needed to be combined to reach Eisenhardt's tally of $\approx$20,000 citations.

The predominant type of publication is the article, although the majority of the most discussed BMA studies are secured behind a paywall. Researchers, institutions, students, practitioners, and policy-makers without the significant resources required to gain access to the "oligopoly of academic publishers in the digital era" (Larivière et al., 2015) are being excluded from the intellectual discussion and lack the potential to provide valuable input for decision-making in relation to both practice and policy-making. At first glance, the solution appears to be to foster OA journals; however, there is no lack of these at present. Forty-eight percent of the journals in

which researchers from the region have had articles published are OA (see the Appendix). As a benchmarking exercise, we looked at the *most desired* journal in the region, *Espacios*. This journal is OA, and offers other advantages, for example, it has one of the most cost-efficient peer-review systems we have ever seen. We examined ten of the 32 articles in Volume 39, nr. 2, published in 2018. The average number of words per article was 4500 and the average time elapsed from manuscript submission to publication was one month, although we found two cases in which the entire process only took six days. Authors must pay a US$100 fee, of which US$80 is refunded if the article is rejected. However, the discussion should not be restricted to the prevalence of OA journals, but should also address both their quality and diffusion. Certainly, the OA movement has achieved some remarkable milestones such as the Berlin Declaration and the San Francisco Declaration on Research Assessment. As a result of this declarations, research organizations worldwide are supporting researchers' attempts to publish in OA journals. Meanwhile, alternatives proposed by experts such as Isidro Aguillo (Webometrics Ranking Web editor) include the creation of an OA super-journal (e.g. *Science* or *Nature*) for the region, crowdfunded by national science and technology institutions such as CSIC (Spain), Colciencias (Colombia) or Conacyt (Mexico). PLOS ONE is a noteworthy example of a similar approach. This is feasible because if each country in the region contributes at least US$1 million per year, it would represent 13 times the amount the European Research Council is investing in research on serendipity (i.e., the role of luck in scientific discovery and how it can be exploited to improve funding outcomes) (MIT Technology Review, 2018).

Regarding language, "global business speaks English" (Neeley, 2012). However, both Spanish and Portuguese are not far behind as hub languages. Ronen et al. (2014) argued that the global language network (GLN) has English as a global hub, which means that English acts as the bridge between the world's other languages (e.g., if two people who speak Vietnamese and Mapudungun, respectively, are to communicate, their work must be translated into English to enable the sharing of information). The good news is that both Spanish and Portuguese are also intermediate languages in the GLN. Nevertheless, the more the work of authors from the region is published in English, the more visibility it will have.

In terms of methodology, a question that arises is whether the most discussed documents are being used as learning material. Considering that the most popular pedagogical strategy in business schools is the case study (i.e., a qualitative approach) we queried whether quantitative or theoretical studies, which were the most popular methods among the sample (79%), are being discussed beyond the BMA research environment.

As Podsakoff et al. (2008) argued, we also found a highly skewed distribution of documents and citations, whereby a small percentage of documents (1%) were responsible for the majority of citations (951-1000). Moreover, this distribution is becoming increasingly skewed each week. The 17 most cited papers received on average 2.2 additional citations over a 2-week period, whereas 2607 (67%) of the 3835 articles published a year ago in Ibero-America still have not had a single citation. This is an example of the "Matthew effect" in science proposed by Merton (1968, p. 58), who noted "[T]he accruing of greater increments of recognition for particular scientific contributions to scientists of considerable repute and the withholding of such recognition from scientists who have not yet made their mark."

The content analysis identified the most discussed topics and the most cited papers within each topic, but there were some notable absences. For instance, entrepreneurship is a topic on the international agenda (e.g., The Oslo Agenda since 2006 in Europe), but it is still neither included in the BMA subcategories nor considered a relevant topic among the most cited documents in the region.

The advance in knowledge now relies more on *packs* than on *lone wolves.* The average number of authors per document has gradually increased from 2.7 in 2000 to 4.2 in 2015, an average annual growth rate of 10%. This reflects a trend toward global scientific collaboration. Over the past 45 years, the average number of authors per paper has increased from 1.9 to 3.5 (Wuchty et al*., 2007). Now, should BMA subjects be more problem-solving-oriented through big science? (de Solla Price, 1963; Watts, 2017). The European Organization for Nuclear Research (CERN) is the frontier example of big science: 22 countries are united in a mission-oriented research project to discover the fundamental structure of the universe. In fact, they set a world record by publishing a paper with more than 5,000 authors (Castelvecchi, 2015). In our sample, only five articles had more than 20 authors. Given

the exponential increase in computing power and digitalization of human interactions, numerous organizations are now using artificial intelligence, machine learning, and big data (World Economic Forum, 2018). If hundreds of companies worldwide achieve a collective agreement in collecting and using all this knowledge, would it be the kind of big-science projects that is missing for BMA subjects? Would it be the first BMA paper with more than 5,000 authors towards a *general theory of firms* (Daepp et al.*, 2015)?

As for gender, female authors are underrepresented. Less than 30% of authors in the sample were women, a similar figure to that found by Podsakoff et al. (2008). This figure is also similar to the global situation, given that 28.8% of researchers worldwide are female (UNESCO, 2017). The percentages of female researchers in the top three countries in Latin America were very similar, namely, Venezuela (56.3%), Panama (48.2%), and Paraguay (51.7%) (UNESCO, 2017). In addition, we found a positive correlation (p<0.05) between male authors and both the number of documents and the authors' h-index. This is consistent with the findings of Sax et al. (2002) and Podsakoff et al. (2008). Such disparities in output also negatively affect female researchers' careers in terms of tenure and promotion (Weisshaar, 2017). This is reinforced by the significant positive correlation (p<0.01) we found between the number of documents and the number of citations. However, it seems that these adverse scenarios are not discouraging females from aspiring to a career in research. After analyzing data on almost half a million adolescents from 67 countries who participated in the Program for International Student Assessment (PISA), Stoet and Geary (2018) found that life-quality pressures in less gender-equal countries such as Algeria and the United Arab Emirates encouraged females to consider the fields of science, technology, engineering, and mathematics (STEM). However, it is unclear whether the same thing is happening in relation to BMA. A diverse range of policies and incentives has been proposed in an attempt to increase female participation in STEM and research and development in general, such as the creation of national committees on women and science, publishing sex-disaggregated statistics, and providing economic incentives for gender-balanced research departments (Inter-American Bank, 2014). These strategies, though, should be contrasted with the findings of Stoet and Geary.

In relation to document and author distribution, we found support for Lotka's law (i.e., the number of authors publishing *n* papers is about $1/n^c$

that of those publishing one paper), as just 1% of authors had published between 340 and 380 documents. As mentioned earlier, a similar distribution is evident in relation to document citations. These findings are supported by those of Talukdar (2011) in relation to business ethics and Lopez et al., (2016) in relation to family firms.

Despite the fact that Podsakoff et al., (2008) claimed that a business school's reputation was not related to author citations, we found significant correlations (p<0.01) between AACSB-accredited business schools and FWCI, number of citations, and journal h-indices. Podsakoff et al.'s (2008) results were mainly focused on management in the USA, and thus the results may differ when studying different regions. It is not surprising that there was a negative correlation (p<0.01) between the year of publication and the number of citations and author's h-index, as the oldest documents have been circulating for longer, enabling the authors to reach more readers and receive more citations. Regarding lead authors, when researchers from the region figured as lead authors there is a significant negative correlation (p<0.01) in the number of co-authors. Hence, it seems that when working in *large packs*, researchers from the region are not displaying *alpha* behavior.

As previously highlighted, the impact factor is not free of controversy neither from its author nor the publishing elite (Callaway, 2016). However, the paradigm persists among management scholars. A report titled *Measuring and Achieving Scholarly Impact* published by the Academy of Management (2017) found that the two most important indicators of scholarly impact are *1)* scholarly articles in top-tier journals, and *2)* scholarly citations in others' research. The report also states that the most important audiences for academic research are *1)* other academics in management, *2)* top managers, *3)* government and policy-makers, *4)* academics in other social-science-related fields, and *5)* students. As previously mentioned, this confirms that the most discussed BMA studies are not being used as learning material. It seems that the latter results are mediated by incentives and support, given that the top five beneficiaries of institutional support were *1)* publication in top-tier journals, *2)* scholarly citations by others, *3)* obtaining research grants, *4)* published books, and *5)* publication in practitioners' journals. Finally, respondents considered that *1)* management theorizing, *2)* teaching, *3)* future research practice, *4)* management policy in large enterprises, and *5)* students' career decisions were the most influenced factors in management.

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These encounters support in this study as, from the methodological perspective, theorizing-based approach were the most used among the most cited. Beyond the impact factor, non-traditional metrics (i.e., altmetrics) such as citations on Wikipedia, mentions in blogs or on Twitter, and appearances in traditional media (Altmetrics, 2018) are being seriously considered and robustly examined by bibliometric and scientometric scholars (Bornmann, 2012; Costas et al., 2015; Hammarfelt, 2014; Sud & Thelwall, 2014; Thelwall, 2012; Zahedi et al., 2014).

Conclusions

BMA research in Ibero-America is passing through a throbbing period. It has achieved its highest overall level of output in more than 20 years, but closer examination reveals a small number of powerhouses in terms of production and influence (i.e., Spain, Brazil, Portugal, and Mexico). A detailed examination of those countries' research policies, incentives, research centers, allies and business research support programs should help to identify best practices for other countries in a region that exhibits numerous social and historical similarities. The AACSB accreditation standards provide a good benchmark.

These practices should encourage researchers from the region to strengthen their competencies and intrinsic motivation to enter into global discussions without discarding their local relevance, in other words, *glocalizing* regional research. Hence, it is essential to move away from publishing in the *most desired* journals toward publishing in the *most relevant* journals in BMA. A noteworthy discussion be given in regional scenarios in this line (e.g. CLADEA [*Consejo Latinoamericano de Escuelas de Administración*]) is the creation of an OA super-journal funded by national science and technology institutions to compete with the top-tier journals from Anglo-Saxon countries. Additionally, in the realm of phenomenology in management and considering the current rule of international research groups, it is worth discussing whether the future of BMA lies in the realm of big science. In this regard, the content analysis showed that several topics on the global agenda (e.g., entrepreneurship and sustainability [UN Global Compact]) have not been discussed in depth in BMA research in the region. It is also crucial that those studies be used as learning material and discussed beyond traditional academic spaces (i.e., in classrooms).

In terms of female participation in BMA, national and institutional policies should be revised to increase women's involvement as professors and researchers in BMA and in science in general, now that robust evidence seems counterintuitive (i.e., unequal and restrictive environments foster female participation in STEM). Besides the traditional measures for monitoring impact, studies on altmetrics seem to consider a broader set of contexts in which BMA researchers also could debate and disseminate their original research and insights.

The results obtained in this study provide a comparative analysis between countries which allows a more inclusive criteria for those with low production or impact in BMA. The OA database also allows researchers and practitioners to replicate or triangulate the data in further bibliometric studies, to locate influential researchers or organizations within countries, to identify future research allies, to study whether research activities have been focused on the private sector, and to identify the most influential BMA journals in the region. National science and technology institutions should also measure how close their countries are to other countries in terms of output and impact. Moreover, critical topics that have barely been discussed thus far in relation to the region could be identified as promising new research fields.

Future studies could compare the regional differences in terms of BMA subjects between Scopus and WoS, specifically by studying a greater timer span (i.e., looking at data prior to 1996). In addition, methodological appraisals such as co-authorship or co-citation analysis could amplify the understanding of the researchers' social capital. Furthermore, comparative analyses considering additional groups of countries such as North America, Eastern Europe, or Asia would help to identify the framework in which the intellectual production from Ibero-America has been finding its place in the global dialogue in relation to BMA.

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Appendix

#	Publication name	Average number of published articles from Ibero-America	H-Index	Open Access
1	Gestao E Produção	638	11	Y
2	Revista Española de Financiación y Contabilidad	540	12	Y
3	RAE Revista De Administração de Empresas	347	7	Y
4	Journal of Business Ethics	282	120	N
5	Espacios	280	3	Y
6	Revista Brasileira De Gestao de Negocios	276	5	Y
7	Mundo Agrario	163	2	Y
8	Contaduría y Administración	150	2	Y
9	Journal of Cleaner Production	148	116	N
10	Lecture Notes in Business Information Processing	144	27	N
11	Proceedings of the 6th Iberian Conference on Information Systems and Technologies, Cisti, 2011	131	4	N
12	Cuadernos de Administración	118	5	Y
13	Informacion Tecnológica	117	8	Y
14	International Conference on the European Energy Market	108	8	N
15	Revista de la Facultad de Ingeniería	80	5	Y
16	Innovar	63	6	Y
17	Journal of Business Research	61	133	N
18	Systemic Practice and Action Research	14	27	N
19	Ciencias de la Información	11	1	Y
20	Knowledge-Based Systems	11	74	N
21	Annals of Tourism Research	9	123	N
22	Annual Conference on Innovation and Technology in Computer Science Education	9	16	N
23	International Transactions in Operational Research	8	16	N
24	Journal of Technology Management and Innovation	6	16	Y

#	Publication name	Average number of published articles from Ibero-America	H-Index	Open Access
25	Academia Revista Latinoamericana de Administración	5	5	Y
26	International Entrepreneurship and Management Journal	4	31	N
27	International Food and Agribusiness Management Review	4	26	Y
28	International Trade Journal	4	11	N
29	Latin American Business Review	4	10	N
30	IFAI's Marine Fabricator	3	0	N
31	International Journal of Production Economics	3	131	N
32	International Journal of Production Research	3	101	N
33	Proceedings of the 12th International Symposium on Operational Research in Slovenia, Sor, 2013	3	1	Y
34	E A M Ekonomie a Management	2	15	Y
35	Evaluation and Program Planning	2	47	N
36	Futures	2	61	N
37	International Conference on Information and Knowledge Management Proceedings	2	86	N
38	Journal of International Business Studies	2	148	N
39	Journal of Sustainable Tourism	2	68	N
40	Applied Geography	2	61	N
41	ACM Transactions on Information Systems	1	70	N
42	Advances in International Management	1	14	N
43	Betonwerk und Fertigteil Technik (Concrete Precasting Plant And Technology)	1	8	N
44	Bridging Tourism Theory and Practice	1	4	N
45	Cuadernos de Gestion	1	5	Y
46	Cuadernos de Turismo	1	3	Y
47	Educational Assessment Evaluation and Accountability	1	21	N
48	Gender In Management	1	30	N