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Evolution of the entrepreneurship and innovation research in Ibero-America between 1986 and 2015

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ABSTRACT

Ibero-American researchers show an increasing number of studies on entrepreneurship and innovation research. This article analyzes the journals and universities that published research on the discipline developed by Ibero-American authors between 1986 and 2015. The work uses the Web of Science database and provides several bibliometric indicators. The results show that the most outstanding researchers of the region come mainly from Spain and Portugal. In particular, Spanish researchers are the most productive and influential authors in the region. A small group of researchers from Chile, Argentina, and Mexico are also very influential. Latin American researchers must deepen their international academic networks.

KEYWORDS

Entrepreneurship;
innovation; Ibero-America;
bibliometrics

Introduction

Similarly to what has occurred in other regions of the world (North America, Europe, and Asia), in Ibero-America the academic articles in entrepreneurship and innovation research have increased considerably (Acs & Amorós, 2008). The explanation for this is related to how entrepreneurship has contributed to different countries' economic development, where innovation is introduced and competition is strengthened, in addition to the development of new technologies that promote the well-being of the population in general (Cancino et al., 2015a, 2017a; Merigó et al., 2016).

Nevertheless, in some economies, entrepreneurial activity has a different dynamism. The economic results of the entrepreneurial action differ between regions with the same level of development, and also among countries with different levels of growth and among regions in a particular country (Acs & Armington, 2004; Wennekers et al., 2005). These are distinctive characteristics of each region, which exert influence on researchers from different

universities to analyze and study the characteristics of local economies in terms of promoting innovation and entrepreneurship.

For the case of Ibero-America, the interest in knowing what occurs in the study of the disciplines of entrepreneurship and innovation in the region is gradually increasing. Some examples are the academic journals special issues that strive to be noticeable to the latest publications in the field. For instance, in 2016 the journal *Academia Revista Latinoamericana de Administración* (ARLA) and the Global Entrepreneurship Development Center (GEDC) at Kingston University London developed a special issue called “New Frontiers in Latin American Entrepreneurship and SME Internationalization: Research and Practice.” Subsequently, in 2017, the *International Journal of Transitions and Innovation Systems* called for papers for a special issue about innovation in Latin America. The purpose of this special issue was to attract research that addresses and deliberates the emergence, status, and outlook for innovation in Latin America embodied in its many aspects and dimensions. Furthermore, the journal *Estudios de Economía*, in collaboration with the Competitiveness, Technology and Innovation Division of the Inter-American Development Bank (IDB), during 2017 organized a special issue titled “Innovation and Entrepreneurship in Latin America.”

Along with the academic journals that have generated special issues in the matter, it is also possible to see the development of a good number of networks, societies, and conferences that seek to deepen the study of entrepreneurship and innovation, as a field of scientific research, in Ibero-America. For instance, in 2014, Barcelona, the first assembly of the members of the Latin American Network of Innovation and Entrepreneurship (RLIE) was created. Also, the Society for Entrepreneurship in Latin America (SELA) was developed at Stanford University. This society consists of a student organization that focuses on creating and educating a network of entrepreneurs in Latin America. Afterward, the Division of Competitiveness, Technology and Innovation at the IDB organized the first Conference of the Latin American Network on Economics of Innovation and Entrepreneurship. The papers that were presented covered a variety of research topics, that impact evaluation of innovation and entrepreneurship programs, regulation, and innovation, among others. All academic journals and conferences mentioned above are organized by Ibero-American academics or researchers who seek to promote knowledge of entrepreneurship and innovation in the region. The question is whether the international scientific community, particularly the one that brought together the highest scientific journals, is also publishing articles on entrepreneurship and innovation in Ibero-America. From an academic perspective, it is necessary to know in which journals of the Web of Science (WoS) the main Ibero-American authors are publishing their articles.

The aim of this article is to present the most influential journals and universities in entrepreneurship and innovation research in Ibero-America

in the past 30 years under a bibliometric analysis view of the period 1986–2015. To do so, we present not only an analysis of the main journals in the discipline, but also a quinquennial analysis to understand the trend with which it has been attractive for international journals to publish Ibero-American articles on entrepreneurship and innovation research.

This article is structured as follows. First, we present the theoretical framework. Then, we outline the methods of the research. After that, we discuss the results and rankings of the research. We close with limitations and suggestions for future research.

Theoretical framework

During the past decades, increasing numbers of scientific articles related to entrepreneurship and innovation have been published. Although entrepreneurship and innovation are two sides of the same coin, concepts can be divided for analysis. In one hand, entrepreneurship is a new field of research that has gained interest in management studies during the past decades (Cornelius et al., 2006). According to Baumol (1968), the function of the *entrepreneur* is to locate new ideas and to put them into effect. On the other hand, *innovation* is an older concept that may be defined as the scholarly study of how innovation takes place and what its social consequences are (Fagerberg et al., 2012),

For instance, Andrade-Valbuena et al. (2019) studied some of the most influential authors in entrepreneurship research. They found that G. T. Lumpkin, G. T. Payne, J. C. Short, and J. Covin are the most relevant researchers in the entrepreneurship orientation area. In innovation research, Fagerberg and Verspagen (2009) showed the most influential authors in four periods of time: in 1979–2006, the most influential studies were Freeman (1974), Schumpeter (1934, 1942), and Arrow (1962); 1979–1988, the most influential studies were Schmookler (1966), Freeman (1974), Rosenberg (1976), Nelson and Winter (1977), and Freeman et al. (1982); 1989–1998, the most influential works were Pavitt (1984), Nelson and Winter (1977), Rosenberg (1982), Freeman (1974), and Teece (1986); and 1999–2006, the most influential were Nelson and Winter (1982), Nelson (1993), Cohen and Levinthal (1989, 1990), and Lundvall (1992).

According to the research published in the past 100 years, Fagerberg et al. (2012) showed that the most influential authors in innovation research are R. Nelson, C. Freeman, N. Rosenberg, and J. A. Schumpeter. According to this study, they are a key source of inspiration for other authors. Then, according to the authors published in the past 25 years, Cancino et al. (2017a) explained that the most influential authors in innovation research are D. Audretsch, M. Hitt, S. Zahra, R. Agarwal, E. Von Hippel, D. Teece, W. Mitchell, and R. Cooper.

All this broad growth in scientific articles has been related not only to developed countries, but also to developing economies. Particularly, the scientific production by Ibero-American scholars has grown enormously in recent years, highlighting some articles that have been published in the best international journals and have received a high number of citations, which indicates their influence on the scientific community.

In the case of the articles by Ibero-American scholars in entrepreneurship topics, the most influential studies are Baker and Nelson (2005), Etzkowitz et al. (2000), Mair and Marti (2006), and Rialp et al. (2005). Also, in the case of innovation studies in Ibero-America, the most influential studies are Cooke et al. (1997), Cassiman and Veugelers (2002, 2006), and Veugelers and Cassiman (1999).

In the entrepreneurship studies in Ibero-America, it is common to see studies on international entrepreneurship (Fosfuri et al., 2001; Rialp et al., 2005), social entrepreneurship (Mair & Marti, 2006), the triple helix model (Etzkowitz et al., 2000), and on business models and microbusiness (Burnside et al., 1993; Vassolo et al., 2004; Woodruff & Zenteno, 2007; Zott et al., 2011). For instance, in their study of the new discipline of international entrepreneurship, Rialp et al. (2005) studied highly cited articles about *born global* firms, international new ventures, and instant startups. In social business, Mair and Marti (2006) studied a view of social entrepreneurship as a process that initiates social change and discusses important social needs in a way that is not dominated by direct financial benefits for the entrepreneurs. In the relationship among universities-private firms-public sector, Etzkowitz et al. (2000) developed an emergent entrepreneurial paradigm in which the university plays an improved position in technological innovation.

In the innovation studies in Ibero-America, it is common to see studies on innovation strategies (Veugelers & Cassiman, 1999, 2005), research and development (R&D) and knowledge acquisition (Cassiman & Veugelers, 2002, 2006), national or regional innovation systems (Cooke et al., 1997), and innovation development (Hulsheger et al., 2009; Landeta, 2006; Nieto & Santamaría, 2007). For instance, Cassiman and Veugelers (2002) examined the influence of knowledge flows on R&D collaboration, emphasizing the distinction that exists between two measures of knowledge flows, specifically incoming spillovers and appropriability. Then, Cassiman and Veugelers (2006) identified dependence on basic R&D together with the importance of universities as information sources for the process of innovation, which may be an important contextual variable affecting complementarity between internal and external innovation activities. Also, Cooke et al. (1997) stated the concepts of “innovation,” “region,” and “system” as the introduction to a comprehensive discussion of the importance of financial capacity, productive culture, and institutionalized learning to systemic innovation.

Other articles (Cabral & Mata, 2003; Baker & Nelson, 2005, among others) are not so easy to classify in one category or another. For instance, Baker and Nelson (2005) studied the process by which some entrepreneurs in resource-poor regions were able to provide unique or innovative services by recombining some elements process (innovation process) for new purposes that challenged institutional limits and definitions. Table 1 shows the articles by Ibero-American scholars that have received the largest number of citations in different academic works published in journals of the Web of Science database related to topics of entrepreneurship and innovation in the past 30 years (period 1986–2015). All of them can be categorized in innovation or entrepreneurship studies, or both.

It can be observed in Table 1 that these articles are published in specialized journals in entrepreneurship and innovation research such as *Research Policy*, *Technovation*, *Technological Forecasting and Social Change*, *Entrepreneurship and Regional Development*, and *Journal of Business Venturing* as well as in other less specialized journals, although highly recognized in general management, such as *Administrative Science Quarterly*, *Management Science*, *Journal of World Business*, and *American Economic Review*. That is, a good number of studies by Ibero-American researchers have been published in the best international journals. All of them show high influence and productivity.

In the following section, we analyze the evolution of high-level international journals, indexed in the Web of Science, accepting Ibero-American authors in terms of entrepreneurship and innovation research.

Research method

Bibliometrics is a specialized field of research that quantitatively studies the bibliographic material. It essentially focuses on the calculation and the analysis of the values of what is measurable in the production and consumption of scientific information (Broadus, 1987; Cancino et al., 2017b, 2017c; Ding et al., 2014). Bibliometric studies have been widely accepted in the scientific world (Cancino et al., 2018; Coronado & Cancino, 2016; Rialp et al., 2019; Rojas-Sola & Aguilera-Garcia, 2015) since they allow us to understand the advances in productivity and influence in each discipline (Rojas-Sola et al., 2009).

Our method provides an analysis of a field of research according to a broad range of indicators. There are several ways to classify the material in a bibliometric analysis. A common approach uses the total number of articles or the total number of citations. Another valuable indicator is the *h-index* (Hirsch, 2005), matching the number of articles with the number of citations, representing the number of *N* studies that have received at least *N* citations. The general postulation is that the number of articles shows

Table 1. Articles by Ibero-American authors with the highest number of citations.

R	Article	TC	Year	Author	Journal
1	Regional innovation systems: Institutional and organizational dimensions	472	1997	Cooke, P., Uranga, M. G., Etxebarria, G.	<i>Research Policy</i>
2	In search of complementarity in innovation strategy: Internal R&D and external knowledge acquisition	462	2006	Cassiman, B., Veugelers, R.	<i>Management Science</i>
3	Creating something from nothing: Resource construction through entrepreneurial bricolage	435	2005	Baker, T., Nelson, R. E.	<i>Administrative Science Quarterly</i>
4	The future of the university and the university of the future: Evolution of ivory tower to entrepreneurial paradigm	392	2000	Etzkowitz, H., Webster, A., Gebhardt, C., Cantisano, B.	<i>Research Policy</i>
5	R&D cooperation and spillovers: Some empirical evidence from Belgium	323	2002	Cassiman, B. Veugelers, R.	<i>American Economic Review</i>
6	Social entrepreneurship research: A source of explanation, prediction, and delight	306	2006	Mair, J., Marti, I.	<i>Journal of World Business</i>
7	Make and buy in innovation strategies: Evidence from Belgian manufacturing firms	266	1999	Veugelers, R., Cassiman, B.	<i>Research Policy</i>
8	The phenomenon of early internationalizing firms: What do we know after a decade (1993–2003) of scientific inquiry?	236	2005	Rialp, A., Rialp, J., Knight, G. A.	<i>International Business Review</i>
9	Volatility and links between national stock markets	231	1994	King, M., Sentana, E., Wadhvani, S.	<i>Econometrica</i>
10	On the evolution of the firm size distribution: Facts and theory	215	2003	Cabral, L. M. B., Mata, J.	<i>American Economic Review</i>
11	The business model: Recent developments and future research	204	2011	Zott, C., Amit, R., Massa, L.	<i>Journal of Management Technovation</i>
12	The importance of diverse collaborative networks for the novelty of product innovation	193	2007	Nieto, Maria Jesus; Santamaria, Lluís	
13	Foreign direct investment and spillovers through workers' mobility	193	2001	Fosfuri, A; Motta, M; Ronde, T	<i>Journal of International Economics</i>
14	Current validity of the Delphi method in social sciences	182	2006	Landeta, J.	<i>Technological Forecasting and Social Change</i>
15	Team-level predictors of innovation at work: A comprehensive meta-analysis spanning three decades of research	166	2009	Hulsheger, U. R., Anderson, N., Salgado, J. F.	<i>Journal of Applied Psychology</i>
16	Labor hoarding and the business-cycle	143	1993	Burnside, C., Eichenbaum, M., Rebelo, S.	<i>Journal of Political Economy</i>
17	From strategy to business models and onto tactics	131	2010	Casadesus-Masanell, R., Enric Ricart, J.	<i>Long Range Planning</i>
18	Migration networks and microenterprises in Mexico	130	2007	Woodruff, C., Zenteno, R.	<i>Journal of Development Economics</i>
19	R&D cooperation between firms and universities: Some empirical evidence from Belgian manufacturing	130	2005	Veugelers, R., Cassiman, B.	<i>International Journal of Industrial Organization</i>
20	Non-additivity in portfolios of exploration activities: A real options-based analysis of equity alliances in biotechnology	130	2004	Vassolo, R. S., Anand, J., Folta, T. B.	<i>Strategic Management Journal</i>

Source: Authors' own elaboration.

Note: R = rank. TC = total number of citations in general.

productivity, while the total number of citations shows the influence of a set of articles (Merigó et al., 2015; Podsakoff et al., 2008).

One of the most prevalent databases available for the classification of academic research around the world is the Web of Science. The notion is that only those journals that are of the highest quality are included. The WoS contains more than 50 million articles and 15,000 journals covering all known science. The material is classified by categories of research and areas of research. There are currently approximately 250 categories grouped into 150 areas.

To find articles focused on the research of entrepreneurship and innovation in Latin America, this study uses as keyword search terms “Innovation” or “Entrepreneur *”. Furthermore, this study covered studies of the past 30 years; that is to say, the time interval from 1986 to 2015. In addition, after the first filtering of articles those pertaining to the area of research “Business & Economics” in Ibero-American countries were selected, particularly those from Latin America, Spain, and Portugal.

By filtering for notes, articles, letters, and reviews, the above search provided a total of 3,933 articles of which only 3,742 publications were considered from April 2016 to December 2016.

To provide a deeper perspective of the results, the study also develops a graphical mapping by using the visualization of similarities (VOS) viewer. The VOS viewer is computer software that collects the bibliographic material providing a graphical visualization of the results by using different bibliometric techniques including co-citation (Small, 1973), bibliographic coupling (Kessler, 1963; Martyn, 1964), citation, coauthorship, and co-occurrence of author keywords (Cancino et al., 2017c; Merigó et al., 2016).

Results

The results are presented in this section. First, the study develops a ranking of journals and universities that have been highly influential in entrepreneurship and innovation research in Ibero-America over the past 30 years. Second, the work develops rankings of the leading journals in entrepreneurship and innovation research by six quinquennial periods. As a final point, the study presents bibliographic coupling and coauthorship analysis between the most productive and influential journals in entrepreneurship and innovation research in Ibero-America.

Leading journals in entrepreneurship and innovation research in Ibero-America

Abundant material regarding entrepreneurship and innovation currently exists in a number of journals. Table 2 shows a list of 50 journals with the highest *h*-index in entrepreneurship and innovation research by Ibero-

Table 2. Leading journals in entrepreneurship and innovation research by Ibero-American authors.

R	Journal	COU	TP-IE	TC-IE	H-IE	TC/TP	%P-IE	TP	TC	H
1	<i>Research Policy</i>	GBR	201	4,999	37	24.87	7.55%	2,661	96,324	145
2	<i>Technovation</i>	NDL	148	2,498	27	16.88	8.07%	1,835	25,670	61
3	<i>Tech. Forecasting & Social Ch.</i>	USA	176	1,533	20	8.71	6.20%	2,838	23,867	55
4	<i>Small Business Economics</i>	NDL	126	1,211	20	9.61	8.81%	1,430	22,545	65
5	<i>Journal of Business Research</i>	USA	104	591	14	5.68	2.65%	3,925	59,117	90
6	<i>Journal of Business Venturing</i>	NDL	29	814	13	28.07	2.88%	1,007	45,200	103
7	<i>Service Industries Journal</i>	GBR	93	463	13	4.98	5.24%	1,776	9,999	33
8	<i>R&D Management</i>	USA	36	449	12	12.47	2.41%	1,491	17,023	58
9	<i>Entrep. and Regional Develop.</i>	GBR	41	441	12	10.76	9.51%	431	5,801	35
10	<i>Int. Journal of Industrial Organ.</i>	NDL	27	603	11	22.33	1.67%	1,621	21,414	59
11	<i>Int. Journal of Technology Mgt.</i>	CHE	114	532	11	4.67	5.82%	1,958	9,738	34
12	<i>Int. Entrep. and Mgt. Journal</i>	USA	83	426	11	5.13	39.71%	209	1,047	18
13	<i>Journal of Small Business Mgt.</i>	USA	50	396	11	7.92	6.90%	725	10,989	48
14	<i>Strategic Management Journal</i>	USA	17	716	10	42.12	0.80%	2,118	206,116	215
15	<i>Management Decision</i>	GBR	61	384	10	6.30	6.61%	923	5,712	33
16	<i>Int. J. of Human Resource Mgt.</i>	GBR	22	296	9	13.45	1.03%	2,130	21,329	52
17	<i>British Journal of Management</i>	USA	18	290	9	16.11	2.58%	697	10,714	47
18	<i>Regional Studies</i>	GBR	34	288	9	8.47	0.91%	3,728	35,707	73
19	<i>Int. Small Business Journal</i>	GBR	33	236	9	7.15	5.16%	640	4,529	31
20	<i>Int. J. of Operations Prod. Mgt.</i>	GBR	17	230	9	13.53	1.07%	1,591	31,256	73
21	<i>Journal of Business Ethics</i>	NDL	24	207	9	8.63	0.39%	6,095	78,376	86
22	<i>Long Range Planning</i>	GBR	16	346	8	21.63	0.66%	2,423	19,245	57
23	<i>Industrial Marketing Mgt.</i>	USA	19	313	8	16.47	0.84%	2,260	33,482	72
24	<i>Tech. Analysis Strategic Mgt.</i>	GBR	65	285	8	4.38	6.23%	1,043	9,699	40
25	<i>Tourism Management</i>	GBR	15	225	8	15.00	0.53%	2,850	42,826	80
26	<i>Ecological Economics</i>	NDL	16	168	8	10.50	0.35%	4,579	90,076	112
27	<i>World Development</i>	GBR	14	161	8	11.50	0.29%	4,814	84,146	108
28	<i>Journal of Knowledge Mgt.</i>	GBR	29	160	8	5.52	7.02%	413	2,746	21
29	<i>Total Quality Mgt. Buss. Exc.</i>	GBR	21	139	8	6.62	1.88%	1,116	6,601	26
30	<i>International Business Review</i>	NDL	21	386	7	18.38	2.96%	710	6,183	36
31	<i>Industrial and Corporate Ch.</i>	GBR	29	267	7	9.21	4.22%	687	12,626	54
32	<i>J. of Technology Transfer</i>	USA	27	236	7	8.74	6.89%	392	2,498	23
33	<i>International J. of Manpower</i>	GBR	30	199	7	6.63	2.86%	1,048	5,425	29
34	<i>Science and Public Policy</i>	GBR	35	172	7	4.91	7.11%	492	1,183	13
35	<i>J. of Evolutionary Economics</i>	USA	22	234	6	10.64	2.84%	774	7,069	43
36	<i>J. of Product Innovation Mgt.</i>	USA	22	195	6	8.86	1.22%	1,804	35,072	91
37	<i>Applied Economics</i>	GBR	27	119	6	4.41	0.41%	6,565	35,975	47
38	<i>Service Business</i>	DEU	27	107	5	3.96	11.02%	245	763	12
39	<i>Industry and Innovation</i>	GBR	22	104	5	4.73	8.46%	260	1,369	17
40	<i>Economics Letters</i>	CHE	22	94	5	4.27	0.26%	8,421	47,601	61
41	<i>Innovation Mgt. Policy Pract.</i>	GBR	37	72	5	1.95	13.70%	270	749	12
42	<i>J. of Organizat. Change Mgt.</i>	GBR	21	79	4	3.76	1.92%	1,094	8,073	36
43	<i>Cuadernos de Eco. y Dir. Emp.</i>	SPA	28	52	4	1.86	19.05%	147	121	4
44	<i>RAE Revista de Adm. de Emp.</i>	BRA	40	50	3	1.25	11.17%	358	209	4
45	<i>Innovar Revista Cs Adm. y Soc.</i>	COL	43	38	3	0.88	16.17%	266	96	4
46	<i>African J. of Business Mgt.</i>	NER	24	37	3	1.54	1.22%	1,968	3,403	17
47	<i>Academia Revista Latin. Adm.</i>	GBR	36	29	3	0.81	19.15%	188	77	3
48	<i>Revista de Economía Mundial</i>	SPA	45	24	2	0.53	8.75%	514	79	4
49	<i>RBGN Rev. Brasileira Gestao N.</i>	BRA	30	13	2	0.43	11.76%	255	71	3
50	<i>Universia Business Review</i>	SPA	26	13	2	0.50	16.05%	162	71	3

Note: Country abbreviations (according to Codes – ISO 3166). R = rank; COU = country; TP-IE and TC-IE = total number of publications and citations (only in entrepreneurship and innovation research); H-IE = *h*-index (only in entrepreneurship and innovation research); TC/TP = total number of citations over total number publications; TP = total number of publications in general; TC = total number of citations in general; H = *h*-index in general; %P-IE = TP-IE/TP.

American authors. Along with the *h*-index in innovation and entrepreneurship (H-IE) of each journal, Table 2 presents more information, including the total number of publications in innovation and entrepreneurship (TP-IE) and the total number of citations in innovation and entrepreneurship (TC-IE). In addition, indicators of overall numbers of publications (TP), the total number of citations (TC), and *h*-index (H) in all disciplines are also presented. It is also possible to identify information regarding the country with which each journal is affiliated.

In Table 2, it is possible to see different pieces of information regarding the journals that published the most articles on entrepreneurship and innovation by Ibero-American authors.

First, there are six journals that have published over 100 scientific articles. They are considered the most productive for the object of our study: *Research Policy*, *Technovation*, *Technological Forecasting and Social Change*, *Small Business Economics*, *Journal of Business Research*, and *International Journal of Technology Management*. Only the first four, of the above mentioned, have surpassed 1,000 citations; therefore, together with being the most productive, they are also the most influential for academic researchers. It is interesting to note that a series of journals presents a large number of citations regarding the number of published articles, even though they are not necessarily the most productive. In this regard, and in accordance with the TC/TP indicator, it is interesting to see that *Research Policy*, *Journal of Business Venturing*, *International Journal of Industrial Organization*, *Strategic Management Journal*, and *Long Range Planning* present an average of at least 20 citations per published article. This shows that articles published in these journals have become influential for the scientific community.

Second, it is possible to see there are journals that show a clear specialization in entrepreneurship and innovation within their publications, with a high relative percentage of articles belonging to the category of entrepreneurship and innovation regarding their total number of publications, such as *International Entrepreneurship and Management Journal* with 39.01 percent, *Academia Revista Latinoamericana de Administración* with 19.15 percent, and *Cuadernos de Economía y Dirección de la Empresa* with 19.05 percent.

Third, when we examine the country of origin of the journals, 70 percent of the journals where Ibero-American academics publish are European, 22 percent are from the United States, only 6 percent are from Latin America, and finally 2 percent are from Africa. The influence of European journals is clear with respect to scientific articles on entrepreneurship and innovation by Ibero-American authors. Specifically with regard to these European journals, 22 are UK journals, 7 are from the Netherlands, 3 are from Spain, 2 are from Switzerland, and 1 is from Germany. The influence of journals accepting articles from Ibero-America is clearly higher in the UK and the Netherlands, where journals such as *Research Policy*, *Technovation*,

Small Business Economics, *Journal of Business Venturing*, *Service Industries Journal*, *Entrepreneurship and Regional Development*, *International Journal of Industrial Organization*, *Management Decision*, and *International Journal of Human Resource Management* are notable.

When comparing the results of [Table 2](#) with the study of Cancino et al. (2015b) that analyzes the most influential journals in innovation research worldwide (see [Table 3](#)), we see that the scientific journals where Ibero-American researchers are publishing are in the first places in the global ranking. That is, the publications of academics from the Ibero-American region seek to disseminate knowledge in the most important journals of the discipline, for instance: *Research Policy* (Impact Factor, or IF: 4.661; Q1), *Technovation* (IF: 4.802; Q1), *Technological Forecasting and Social Change* (IF: 3.131; Q1; Q2), *Small Business Economics* (IF: 2.857; Q1; Q2), *Journal of Business Research* (IF: 2.509; Q2), *Journal of Business Venturing* (IF: 6.0; Q1), and *Entrepreneurship and Regional Development* (IF: 2.791; Q1; Q2). It is important to note that in the brief previous sample of seven journals where most Ibero-American researchers publish, and that fit with the most influential journals shown by the discipline of innovation research (Cancino et al., 2015b), all become highly influential, which can be seen by the high value of their impact factors, or by being classified in journals of Quartile 1 (Q1), Quartile 2 (Q2), or both, according to the discipline to which they subscribe.

The number of researchers who stand out for publishing the most influential scientific articles on entrepreneurship and innovation in Ibero-America, especially in the journals mentioned in [Table 2](#), varies according to the country of origin. The case of Spain is important because it is the country of Ibero-America that presents the largest number of researchers publishing in the most important scientific journals. In the particular case of entrepreneurship and innovation research, the most influential Spanish researchers according to an analysis of the *h*-index are: David Urbano (45 papers in the discipline), Victor J. Garcia-Morales (35), Bruno Cassiman (21), Andrea Fosfuri (20), Joaquin Alegre (19), José C. Casillas (18), Cesar Camison (16), Angel Martínez Sánchez (14), Pablo D'Este (12) and Maria Jesus Nieto (12). Also interesting are the cases of researchers with a high number of scientific publications, but with fewer citations, such as Xavier Molina-Morales (35 papers in the discipline), Jose Emilio Navas-Lopez (24), and Francisco Mas-Verdu (29). Productivity does not always imply greater influence. Even in the case of the above authors, as the years go by the number of citations and also their *h*-index could increase.

In the case of Portugal, the most outstanding researchers, following our categorization according to the *h*-index, are Paulo Macas Nunes (16 papers in the discipline), Mario Raposo (14), Joao J. Ferreira (13), Rui Baptista (12), Pedro Conceicao (12), Margarida Fontes (11), and Miguel Pina e Cunha (9).

Table 3. Most influential journals in innovation research.

R	Journal	HI	TCl	TPI	%PI
1	<i>Strategic Management J.</i>	116	55,721	351	21.23%
2	<i>Research Policy</i>	110	51,505	1,318	67.62%
3	<i>Academy of Management J.</i>	93	28,853	194	13.31%
4	<i>Organization Science</i>	85	35,886	294	24.34%
5	<i>Management Science</i>	80	20,948	298	9.35%
6	<i>J. Product Innovation Management</i>	71	17,943	595	65.89%
7	<i>Academy of Management Review</i>	57	15,382	87	10.10%
8	<i>J. Marketing</i>	51	11,057	106	11.34%
9	<i>J. Business Venturing</i>	51	7,856	155	18.88%
10	<i>Technovation</i>	50	13,274	799	53.05%
11	<i>Regional Studies</i>	48	8,826	309	17.84%
12	<i>Administrative Science Quarterly</i>	47	27,095	63	12.26%
13	<i>J. Management Studies</i>	47	6,852	183	14.76%
14	<i>Harvard Business Review</i>	45	8,532	271	5.57%
15	<i>R&D Management</i>	45	8,032	423	54.44%
16	<i>MIS Quarterly</i>	44	12,503	92	12.04%
17	<i>MIT Sloan Management Review</i>	42	5,200	160	34.78%
18	<i>California Management Review</i>	41	6,945	142	19.69%
19	<i>J. Management</i>	41	4,756	90	8.40%
20	<i>J. Int. Business Studies</i>	40	5,314	95	8.35%
21	<i>Small Business Economics</i>	40	5,196	259	22.60%
22	<i>RAND J. Economics</i>	39	6,347	86	8.56%
23	<i>IEEE, Trans. Engineering Management</i>	39	5,346	275	26.12%
24	<i>Information Systems Research</i>	38	6,410	84	13.79%
25	<i>Organization Studies</i>	38	4,686	140	11.80%
26	<i>American Economic Review</i>	37	6,796	77	1.69%
27	<i>Industrial and Corporate Change</i>	37	5,383	264	48.35%
28	<i>Technolog. Forecasting and Social Change</i>	36	7,253	612	35.27%
29	<i>J. Operations Management</i>	35	4,552	80	13.77%
30	<i>J. Business Research</i>	34	4,421	268	9.25%
31	<i>Int. J. Industrial Organization</i>	34	4,177	194	14.39%
32	<i>Industrial Marketing Management</i>	34	4,135	268	15.33%
33	<i>Technology Analysis & Strategic Manag.</i>	32	5,049	476	62.80%
34	<i>J. Economic Geography</i>	32	4,328	106	27.46%
35	<i>Information & Management</i>	32	3,775	100	7.33%
36	<i>J. Engineering and Technology Manag.</i>	32	3,423	197	61.18%
37	<i>Leadership Quarterly</i>	31	2,913	51	6.61%
38	<i>Environment and Planning A</i>	30	3,348	160	5.24%
39	<i>Decision Sciences</i>	30	3,221	63	6.28%
40	<i>Urban Studies</i>	30	2,941	109	3.93%
41	<i>J. Applied Psychology</i>	29	4,982	39	1.65%
42	<i>World Development</i>	29	3,380	143	4.12%
43	<i>Marketing Science</i>	29	2,887	60	6.42%
44	<i>J. Academy of Marketing Science</i>	29	2,828	68	10.79%
45	<i>Economic Journal</i>	27	4,413	68	3.34%
46	<i>Cambridge J. Economics</i>	27	3,703	101	8.85%
47	<i>Review of Economics and Statistics</i>	27	3,184	78	3.96%
48	<i>Long Range Planning</i>	27	2,426	123	10.07%
49	<i>J. Evolutionary Economics</i>	27	2,296	200	40.73%
50	<i>Economic Geography</i>	27	2,239	65	14.35%

Source: Adapted from Cancino et al. (2015b).

Note: The requirement to be considered in the ranking is to have at least 80 papers on innovation research and an *h*-index of 20. R = rank; HI, TCl, TSI = *h*-index and number of cites and studies in innovation; %SI = percentage of innovation articles in the journal.

In the case of Chile, Argentina, Brazil, and Mexico, the number of outstanding researchers is much lower. In Chile, two professors stand out as the most influential, José Ernesto Amorós (23 papers in the discipline) and Christian Felzensztein (15). In the case of Argentina, the researcher that stands out is Andres Lopez (16). In the case of Brazil, the researcher that stands out is Paulo N. Figueiredo (17). Finally, in the case of México, the researcher that stands out is Gabriela Dutrenit (12).

Until the date of preparation of the database of this study, no other researchers from the rest of the Ibero-American economies were found with more than eight publications in WoS journals, highlighted in Table 2. In Table 4 it is possible to see the performance, in terms of productivity and influence, of the Ibero-American researchers grouped by country where they develop their research.

In terms of percentage, the total publications of Spanish researchers represent 64 percent of the Ibero-American production, followed by Portugal with 11 percent, Brazil 10 percent, Mexico and Chile with 4 percent each, Argentina and Colombia with a 2 percent each, and, finally, Peru and Costa Rica with 1 percent each. The rest of the countries in the region show even less productivity. In terms of influence, Spanish researchers are the most cited Ibero-American academics in the scientific literature on entrepreneurship and innovation. In fact, 5 papers exceed 250 citations in other studies published in WoS journals, 27 of them exceed 100 citations, and 104 exceed 50 citations. Regarding the region, Spanish researchers not only are the most

Table 4. Performance in entrepreneurship and innovation research by country.

R	COU	TP-IE	TC-IE	H-IE	TC/TP	>250	>100	>50
1	Spain	2,404	24,502	65	10.19	5	27	104
2	Portugal	399	3,931	33	9.85	0	4	16
3	Brazil	361	2,543	22	7.04	2	2	5
4	Mexico	145	1,093	18	7.54	0	1	5
5	Chile	144	994	14	6.90	0	1	4
6	Argentina	90	590	12	6.56	0	1	1
7	Colombia	85	342	10	4.02	0	0	1
8	Peru	25	166	7	6.64	0	0	0
9	Costa Rica	23	142	5	6.17	0	0	1
10	Uruguay	18	79	4	4.39	0	0	0
11	Venezuela	18	33	3	1.83	0	0	0
12	Jamaica	6	19	3	3.17	0	0	0
13	Bolivia	7	106	2	15.14	0	1	1
14	Guatemala	3	50	2	16.67	0	0	0
15	Nicaragua	7	20	2	2.86	0	0	0
16	Ecuador	8	50	1	6.25	0	0	0
17	Panama	1	1	1	1.00	0	0	0
18	Cuba	1	0	0	0.00	0	0	0
19	El Salvador	1	0	0	0.00	0	0	0

Note: R = rank; COU = country; TP-IE and TC-IE = total number of publications and citations (only in entrepreneurship and innovation research); H-IE = *h*-index (only in entrepreneurship and innovation research); TC/TP = total number of citations over total number publications.

>250, >100, >50 = number of papers with equal or more than 250, 100, and 50 citations.

productive, but also the most influential. Particular cases are two Brazilian publications that also exceed the 250 citations in studies published in the WoS.

Leading universities in entrepreneurship and innovation research in Ibero-America

Moreover, numerous universities in the scientific community publish material related to entrepreneurship and innovation research. Table 5 depicts a list of 50 universities with the highest h -index in entrepreneurship and innovation research by Ibero-American authors.

Table 5 shows a ranking with the main universities that publish research on entrepreneurship and innovation in Ibero-America. Naturally, these universities are all Ibero-American; the Spanish universities are repeated most in the ranking. In fact, out of the 50 most influential universities, 34 are Spanish, 8 are Portuguese, 4 are Brazilian, 3 are Chilean, and 1 is Mexican. That is to say, scientific publication on entrepreneurship and innovation in Ibero-America is dominated by Spain and Portugal, and Brazil; Chile and Mexico compile the universities that publish the most on the subject.

The cases of the Spanish universities, Instituto de Empresas (IE) and Business School, Ramon Llull University (ESADE), are particularly important; they present a large proportion of entrepreneurship and innovation scientific research considering the total number of publications released by each university (%P-IE). In each case, IE published 14.64 percent and ESADE 18.41 percent of its scientific publications on the subject. For the rest of the universities in our ranking, the percentage of publications in entrepreneurship and innovation is mostly lower than 1 percent of the total number of scientific publications. This is highly interesting because, although entrepreneurship and innovation is being mentioned in different scientific disciplines, there are few scientific publications in this area in comparison to the rest of the disciplines.

It is interesting to complement the previous analysis on the effort being made by Ibero-American universities to publish in entrepreneurship and innovation research with an analysis of cooperation and networking that these universities can carry out with the most important universities in the world. Table 6 shows a ranking of the origin of the Ibero-American researcher coauthors, which makes it possible to understand the existing connections in the discipline and the possibilities of expanding a network of contacts and research that will allow them not only to develop a greater number of publications, but to maximize their influence by working with researchers from leading universities.

Ibero-American researcher coauthors come mainly from the United States and the UK. In this sense, the universities that are part of the

Table 5. Leading universities in entrepreneurship and innovation research by Ibero-American authors.

R	University	COU	TP-		H-IE	TC/TP	%P-IE	TP	H
			IE	TC-IE					
1	Universidad Carlos III de Madrid	Spain	135	2,762	27	20,46	1.51%	8,969	88
2	Universitat Autònoma de Barcelona	Spain	187	2,067	25	11,05	0.36%	51,901	260
3	University of Navarra	Spain	54	2,948	25	54,59	0.33%	16,295	144
4	University of Valencia	Spain	209	1,393	20	6,67	0.50%	41,931	230
5	Universitat Politècnica de Valencia	Spain	163	1,140	19	6,99	0.85%	19,154	162
6	Universidad Pablo de Olavide	Spain	73	682	18	9.34	2.19%	3,333	66
7	IE University	Spain	70	1,087	18	15.53	14.64%	478	39
8	University of Granada	Spain	89	786	17	8.83	0.27%	32,668	172
9	Pompeu Fabra University	Spain	49	1,386	17	28.29	0.42%	11,620	165
10	Complutense University of Madrid	Spain	152	1,209	16	7.95	0.29%	53,252	202
11	University of Sevilla	Spain	107	927	16	8.66	0.41%	25,856	148
12	Universidade de Lisboa	Portugal	84	997	16	11.87	0.17%	50,775	213
13	Universitat Jaume I	Spain	76	819	16	10.78	1.12%	6,789	106
14	Universitat Ramon Llull (without ESADE Business School)	Spain	85	905	14	10.65	3.40%	2,502	61
15	ESADE Business School	Spain	81	899	14	11.10	18.41%	440	32
16	Universidade Nova de Lisboa	Portugal	60	814	14	13.57	0.40%	15,103	135
17	University of Murcia	Spain	52	602	13	11.58	0.31%	16,806	127
18	University of Oviedo	Spain	65	513	12	7.89	0.33%	19,734	158
19	University of Zaragoza	Spain	73	320	11	4.38	0.29%	24,840	159
20	Universidade Católica Portuguesa	Portugal	28	453	11	16.18	1.38%	2,031	66
21	Universidade de Sao Paulo	Brazil	63	704	10	11.17	0.05%	139,011	260
22	Universidade Do Porto	Portugal	55	438	10	7.96	0.15%	36,017	176
23	Universidad Pública de Navarra	Spain	41	388	10	9.46	0.86%	4,762	87
24	Universidad de Valladolid	Spain	37	341	10	9.22	0.29%	12,931	112
25	University of Salamanca	Spain	36	368	10	10.22	0.21%	17,087	145
26	Univ. de Las Palmas de Gran Canaria	Spain	28	287	10	10.25	0.49%	5,706	89
27	University of Beira Interior	Portugal	56	328	9	5.86	1.91%	2,930	52
28	Getulio Vargas Foundation	Brazil	33	242	9	7.33	4.47%	739	23
29	Universidad de Alcalá	Spain	33	166	9	5.03	0.28%	11,937	109
30	Universidad de Castilla La Mancha	Spain	81	283	8	3.49	0.80%	10,110	107
31	Universitat D Alacant	Spain	39	231	8	5.92	0.33%	11,947	135
32	Universidad Rey Juan Carlos	Spain	38	217	8	5.71	0.71%	5,370	75
33	Universidade Do Minho	Portugal	31	302	8	9.74	0.24%	12,740	119
34	Universidade Estadual de Campinas	Brazil	30	238	8	7.93	0.06%	46,286	165
35	Instituto Universitario de Lisboa	Portugal	28	187	8	6.68	1.43%	1,964	51
36	Universidade de Coimbra	Portugal	21	233	8	11.10	0.09%	23,333	145
37	University of Basque Country	Spain	50	652	7	13.04	0.18%	27,481	165
38	Universidad Politécnica de Cartagena	Spain	36	163	7	4.53	1.18%	3,055	58
39	Universidad de Huelva	Spain	29	131	7	4.52	0.83%	3,479	76
40	Tecnológico de Monterrey	Mexico	26	333	7	12.81	0.94%	2,776	59
41	Universidad de Cádiz	Spain	25	157	7	6.28	0.31%	8,110	91
42	Universitat Rovira I Virgili	Spain	24	185	7	7.71	0.23%	10,562	132
43	Universidad Autónoma de Madrid	Spain	44	123	6	2.80	0.11%	41,087	247
44	Universidade Federal Do Rio de Janeiro	Brazil	40	478	6	11.95	0.10%	41,109	162
45	Universidad de Chile	Chile	33	182	6	5.52	0.10%	32,101	181
46	Pontificia Universidad Católica de Chile	Chile	30	176	6	5.87	0.13%	23,054	173
47	University of Vigo	Spain	28	177	6	6.32	0.23%	12,286	124
48	Universidad de León	Spain	27	209	6	7.74	0.48%	5,652	79
49	Polytechnic University of Madrid	Spain	26	222	6	8.54	0.15%	17,108	119
50	Universidad Adolfo Ibáñez	Chile	25	376	6	15.04	4.08%	613	25

Note: R = rank; COU = country; TP-IE and TC-IE = total number of publications and citations (only in entrepreneurship and innovation research); H-IE = *h*-index (only in entrepreneurship and innovation research); TC/TP = total number of citations over total number publications; TP = total number of publications in general; TC = total number of citations in general; H = *h*-index in general; %P-IE = TP-IE/TP.

Table 6. Collaboration with the most important research centers on entrepreneurship and innovation research.

R	University	COU	TP-IE	TC-IE	H-IE	TC/TP
1	KU Leuven	Belgium	29	1,619	13	55,83
2	University of London	UK	40	549	13	13,73
3	University of Manchester	UK	36	397	13	11,03
4	Carnegie Mellon University	US	20	456	11	22,80
5	University of Sussex	UK	27	372	11	13,78
6	Harvard University	US	21	513	10	24,43
7	Erasmus University Rotterdam	Netherlands	33	411	10	12,45
8	MIT	US	15	612	9	40,80
9	Bocconi University	Italy	28	391	9	13,96
10	York University Canada	Canada	17	213	8	12,53
11	University of Toronto	Canada	19	196	8	10,32
12	Vu University Amsterdam	Netherlands	20	187	8	9,35
13	University of Texas Austin	US	13	114	8	8,77
14	Imperial College London	UK	16	280	7	17,50
15	Arizona State University	US	12	231	7	19,25
16	Copenhagen Business School	Denmark	18	160	7	8,89
17	University of Pennsylvania	US	13	371	6	28,54
18	University of Amsterdam	Netherlands	11	240	6	21,82
19	University of Warwick	UK	11	113	6	10,27
20	Hasselt University	Belgium	13	107	6	8,23
21	Stanford University	US	11	196	5	17,82
22	University of Cambridge	UK	11	136	5	12,36
23	University of California Berkeley	US	12	117	5	9,75
24	University of Nottingham	UK	18	63	5	3,50
25	Maastricht University	Netherlands	10	185	4	18,50
26	Polytechnic University of Milan	Italy	12	109	4	9,08
27	Indiana University Bloomington	US	11	103	4	9,36
28	Aston University	UK	10	56	4	5,60
29	University of Groningen	Netherlands	11	47	4	4,27
30	Durham University	UK	10	112	3	11,20

Note: R = rank; COU = country; TP-IE and TC-IE = total number of publications and citations (only in entrepreneurship and innovation research); H-IE = *h*-index (only in entrepreneurship and innovation research); TC/TP = total number of citations over total number publications.

network of Ibero-American researchers, for example, in the US case are: Carnegie Mellon University, Harvard University, MIT, and the University of Texas Austin. In the UK, these universities are: the University of London, University of Manchester, and University of Sussex. These universities are highly regarded not only for their scientific productivity, but also for their influence on the rest of the world's researchers. If we separate the analysis by continent, there are 19 universities from Europe in the Top 30 and 11 universities from North America.

Top journals in entrepreneurship and innovation research by Ibero-American researchers categorized by time

This section focuses on the evolution of top journals regarding innovation and entrepreneurship for a large time frame. To perform this task, we investigated five-year periods between 1986 and 2015. The greatest number

of articles published by Ibero-American researchers in innovation and entrepreneurship for each five-year period are listed. Similar indicators, as compared to Table 2, were used. Tables 7–12 present the results.

Table 7 presents the journals that published at least two articles on entrepreneurship and innovation between 1986 and 1990. As shown, in this period, only 9 journals published 12 Ibero-American studies related to the topic. Hence, the most influential journals during this period are: *Research Policy* with three publications and *Journal of Business Venturing* with two publications. It is interesting to note that the two articles published in *Journal of Business Venturing* present a high number of citations.

Table 8 presents the journals that published at least two articles on entrepreneurship and innovation between 1991 and 1995. As shown, in comparison to the previous five-year period, there is a clear increase in the number of journals with publications on the subject, from 9 to 23 journals (156 percent increase), with 56 articles published in this period. Thus, it is clear that out of the 23 journals presented, the most influential ones during this period are: *International Journal of Technology Management*, *Research Policy*, *Technovation*, and *Small Business Economics*. Interestingly, some journals that have few publications, such as *Econometrica* and *Strategic Management Journal*, have a large number of citations.

Table 7. Most influential journals in entrepreneurship and innovation research between 1986 and 1990.

R	Journal	TP-IE	TC-IE	H-IE	TC/TP	%P-IE	TP	TC	H
1	<i>Research Policy</i>	3	30	3	10.00	1.55%	194	7,186	35
2	<i>Journal of Business Venturing</i>	2	226	2	113.00	1.80%	111	5,362	43

Note: R = rank; TP-IE and TC-IE = total number of publications and citations (only in entrepreneurship and innovation research); H-IE = h-index (only in entrepreneurship and innovation research); TC/TP = total number of citations over total number publications; TP = total number of publications in general; TC = total number of citations in general; H = h-index in general; %P-IE = TP-IE/TP.

Table 8. Most influential journals in entrepreneurship and innovation research between 1991 and 1995.

R	Journal	TP-IE	TC-IE	H-IE	TC/TP	%P-IE	TP	TC	H
1	<i>Inter. J. of Technology Mgt.</i>	11	67	5	6.09	7.33%	150	814	13
2	<i>Research Policy</i>	4	36	4	9.00	1.64%	244	10,969	52
3	<i>Technovation</i>	9	22	3	2.44	4.71%	191	1,794	24
4	<i>Small Business Economics</i>	2	71	2	35.50	1.25%	160	2,218	25
5	<i>J. of Product Innovation Mgt.</i>	2	20	2	10.00	0.90%	223	6,921	46
6	<i>J. of Agricultural Economics</i>	2	12	2	6.00	0.63%	316	1,453	20
7	<i>World Development</i>	2	11	2	5.50	0.24%	839	14,819	53
8	<i>Desarrollo Eco. Rev. Cs Soc.</i>	4	2	1	0.50	2.07%	193	115	5
9	<i>Tech. Forecast. & Social Ch.</i>	3	12	1	4.00	0.84%	357	2,208	20
10	<i>Trimestre Económico</i>	2	1	1	0.50	1.30%	154	65	4

Note: R = rank; TP-IE and TC-IE = total number of publications and citations (only in entrepreneurship and innovation research); H-IE = h-index (only in entrepreneurship and innovation research); TC/TP = total number of citations over total number publications; TP = total number of publications in general; TC = total number of citations in general; H = h-index in general; %P-IE = TP-IE/TP.

Table 9 presents 40 journals that published the most articles on innovation and entrepreneurship between 1996 and 2000. In total, these journals published 125 articles by Ibero-American reseachers in this period. As shown, in compar-ison to the previous five-year periods, there is a clear increase in the number of journals with publications on the subject. Therefore, out of the 40 journals presented during this period, *Research Policy* and *Technovation* together with *Technological Forecasting and Social Change*, *International Journal of Technology Management*, and *International Journal of Industrial Organization* continue to lead in terms of the number of publications and citations.

Table 10 presents the 40 journals that published the most articles on entre-preneurship and innovation between 2001 and 2005. As shown, out of the 40 journals presented during this period, which published 226 articles, similar to the previous five years, *Research Policy* and *Technovation* together with *Technological Forecasting and Social Change*, *International Journal of Technology Management*, and *International Journal of Industrial Organization* continue to lead in terms of the numbers of publications and citations.

Table 11 shows the 40 journals that published the most articles on entrepreneurship and innovation between 2006 and 2010. As shown, out of the 40 journals presented during this period, where 606 articles by Ibero-American researchers were published, *Research Policy* and *Technovation* together with *Small Business Economics* and *Technological Forecasting and Social Change* continue to lead regarding the number of citations and

Table 9. Most influential journals in entrepreneurship and innovation research between 1996 and 2000.

R	Journal	TP-IE	TC-IE	H-IE	TC/TP IE	%P-IE	TP	TC	H
1	<i>Research Policy</i>	19	1,529	13	80.47	5.05%	376	21,584	78
2	<i>Technovation</i>	13	216	8	16.62	4.50%	289	4,256	32
3	<i>Tech. Forecast. & Social Ch.</i>	9	129	7	14.33	2.52%	357	2,208	20
4	<i>Inter. J. of Tech. Mgt.</i>	19	83	6	4.37	3.37%	564	3,654	25
5	<i>Inter. J. of Industrial Organ.</i>	4	172	4	43.00	1.63%	246	5,025	38
6	<i>Small Business Economics</i>	8	81	4	10.13	3.24%	247	6,103	40
7	<i>R&D Management</i>	3	89	3	29.67	1.20%	251	2,859	30
8	<i>Tech. Analysis Strategic Mgt.</i>	4	33	3	8.25	1.83%	218	2,946	26
9	<i>Management Science</i>	2	160	2	80.00	0.31%	638	46,802	108
10	<i>J. of Evolutionary Economics</i>	2	67	2	33.50	1.19%	168	2,196	25
11	<i>J. of Econ. Dynamics Control</i>	2	60	2	30.00	0.53%	380	7,182	43
12	<i>J. of Monetary Economics</i>	2	38	2	19.00	0.75%	265	11,285	50
13	<i>Economics Letters</i>	4	36	2	9.00	0.36%	1116	12,111	44
14	<i>Des. Eco. Rev. de Cs Sociales</i>	5	11	2	2.20	2.79%	179	198	6
15	<i>Journal of Business Research</i>	3	0	0	0.00	0.74%	405	10,751	57
16	<i>Trimestre Economico</i>	2	0	0	0.00	1.36%	147	107	4

Note: R = rank; TP-IE and TC-IE = total number of publications and citations (only in entrepreneurship and innovation research); H-IE = h-index (only in entrepreneurship and innovation research); TC/TP = total number of citations over total number publications; TC/TP IE = citations per paper in innovation and entrepreneurship; TP = total number of publications in general; TC = total number of citations in general; H = h-index in general; %P-IE = TP-IE/TP.

Table 10. Most influential journals in entrepreneurship and innovation research between 2001 and 2005.

R	Journal	TP-IE	TC-IE	H-IE	TC/TP IE	%P-IE	TP	TC	H
1	<i>Research Policy</i>	34	1,317	21	38.74	6.22%	547	35,284	102
2	<i>Technovation</i>	29	697	15	24.03	6.71%	432	8,901	50
3	<i>Tech. Forecasting & Social Ch.</i>	27	430	13	15.93	8.18%	330	5,400	39
4	<i>Small Business Economics</i>	13	298	10	22.92	4.59%	283	8,074	47
5	<i>Inter. J. of Ind. Organization</i>	8	301	6	37.63	2.45%	327	6,498	41
6	<i>R&D Management</i>	7	145	6	20.71	2.44%	287	4,806	42
7	<i>Entrepren. & Regional Devel.</i>	7	104	6	14.86	6.42%	109	3,008	32
8	<i>Inter. J. of Technology Mgt.</i>	15	83	6	5.53	2.97%	505	3,075	23
9	<i>Applied Economics</i>	8	40	4	5.00	0.76%	1,048	10,743	37
10	<i>Organization Studies</i>	3	264	3	88.00	0.77%	392	13,329	63
11	<i>Tourism Management</i>	3	131	3	43.67	0.65%	459	14,098	65
12	<i>Regional Studies</i>	3	110	3	36.67	0.53%	565	12,225	52
13	<i>Int. J. of Operations Prod. Mgt.</i>	3	20	3	6.67	0.77%	389	11,653	52
14	<i>Tech. Analysis Strategic Mgt.</i>	4	17	3	4.25	2.31%	173	2,175	24
15	<i>American Economic Review</i>	2	567	2	283.50	0.22%	930	64,507	131
16	<i>Inter. Business Review</i>	2	288	2	144.00	4.65%	43	1,467	20
17	<i>J. of Business Venturing</i>	2	145	2	72.50	1.12%	179	14,097	68
18	<i>Int. J. of Human Resource Mgt.</i>	2	120	2	60.00	0.44%	450	9,335	48
19	<i>J. of Eco. Behavior Organization</i>	2	105	2	52.50	0.40%	503	9,367	49
20	<i>J. of Small Business Mgt.</i>	3	87	2	29.00	2.00%	150	3,919	36
21	<i>European Economic Review</i>	3	80	2	26.67	0.75%	402	12,886	58
22	<i>International J. of Manpower</i>	2	72	2	36.00	0.77%	259	2,062	24
23	<i>Industrial Marketing Mgt.</i>	2	55	2	27.50	0.54%	368	11,272	52
24	<i>Service Industries Journal</i>	3	42	2	14.00	1.01%	297	2,346	24
25	<i>Int. J. of Service Industry Mgt</i>	2	35	2	17.50	1.28%	156	4,723	37
26	<i>J. of Business Research</i>	2	31	2	15.50	0.30%	656	21,149	71
27	<i>Macroeconomic Dynamics</i>	3	25	2	8.33	1.82%	165	1,605	20
28	<i>Journal of Business Ethics</i>	2	24	2	12.00	0.20%	1,015	22,023	65
29	<i>Cambridge J. of Economics</i>	2	15	2	7.50	0.77%	261	3,443	28
30	<i>International Small Business J.</i>	2	15	2	7.50	1.56%	128	1,514	24
31	<i>Economic Theory</i>	3	14	2	4.67	0.62%	485	4,319	26
32	<i>Des. Eco. Rev. de Cs Sociales</i>	6	9	2	1.50	3.43%	175	163	6
33	<i>Journal of Economic Theory</i>	2	9	2	4.50	0.41%	487	11,160	51
34	<i>J. of Eco. Zeitschrift Fur Nat.</i>	2	7	2	3.50	0.65%	310	687	13
35	<i>Journal of Econometrics</i>	2	5	2	2.50	0.43%	460	21,016	64
36	<i>Business History Review</i>	2	13	1	6.50	0.25%	789	496	12
37	<i>Business History</i>	2	12	1	6.00	0.29%	691	783	14
38	<i>Adv. in Strat. Mgt. a Res, Annual</i>	2	10	1	5.00	2.90%	69	622	14
39	<i>Revista de Economía Mundial</i>	3	1	1	0.33	3.41%	88	5	1
40	<i>Investigaciones Económicas</i>	2	1	1	0.50	9.52%	21	59	4

Note: R = rank; TP-IE and TC-IE = total number of publications and citations (only in entrepreneurship and innovation research); H-IE = h-index (only in entrepreneurship and innovation research); TC/TP = total number of citations over total number publications; TC/TP IE = citations per paper in innovation and entrepreneurship; TP = total number of publications in general; TC = total number of citations in general; H = h-index in general; %P-IE = TP-IE/TP.

publications, now integrating *Service Industries Journal* as a new journal that belongs to the top 5.

Table 12 depicts 40 journals that published the most articles on entrepreneurship and innovation between 2011 and 2015. Among the 1,249 articles published by Ibero American researchers in this period, *Research Policy* is still leading in the number of publications and citations, including the

Table 11. Most influential journals in entrepreneurship and innovation research between 2006 and 2010.

R	Journal	TP-IE	TC-IE	H-IE	TC/TP IE	%P-IE	TP	TC	H
1	<i>Research Policy</i>	58	1,940	26	33.45	9.34%	621	24,467	79
2	<i>Technovation</i>	54	1,563	23	28.94	12.62%	428	10,383	50
3	<i>Tech. Forec. & Social Ch.</i>	43	829	15	19.28	8.01%	537	9,830	44
4	<i>Small Business Economics</i>	30	576	15	19.20	10.71%	280	6,471	45
5	<i>Service Industries Journal</i>	25	331	12	13.24	5.38%	465	4,195	25
6	<i>J. of Small Business Mgt.</i>	15	321	11	21.40	9.80%	153	3,230	34
7	<i>Entrep. & Regional Devel.</i>	16	294	11	18.38	11.59%	138	2,710	30
8	<i>J. of Business Research</i>	15	305	9	20.33	1.80%	834	17,813	59
9	<i>Int. J. of Technology Mgt.</i>	46	301	9	6.54	9.47%	486	2,424	19
10	<i>British J. of Management</i>	9	275	9	30.56	3.95%	228	4,855	35
11	<i>Int. J. of Industrial Organiz.</i>	8	176	8	22.00	2.14%	373	4,270	30
12	<i>Regional Studies</i>	12	158	8	13.17	2.04%	587	7,095	37
13	<i>Inter. Small Business J.</i>	10	135	8	13.50	4.15%	241	2,719	29
14	<i>J. of Business Venturing</i>	8	294	7	36.75	4.02%	199	8,699	53
15	<i>Journal of Business Ethics</i>	11	166	7	15.09	0.63%	1,737	26,627	61
16	<i>World Development</i>	8	162	7	20.25	1.13%	709	15,307	56
17	<i>Total Quality Mgt. Bus. Exc.</i>	8	100	7	12.50	1.89%	423	2,907	21
18	<i>Long Range Planning</i>	7	379	6	54.14	2.39%	293	4,543	33
19	<i>R&D Management</i>	9	170	6	18.89	3.72%	242	4,921	38
20	<i>Int. Entrep. & Mgt. Journal</i>	7	143	6	20.43	22.58%	31	406	15
21	<i>Int. J. of Human Res. Mgt.</i>	12	139	6	11.58	1.86%	644	9,365	38
22	<i>Tech. Analysis Strat. Mgt.</i>	15	136	6	9.07	6.36%	236	3,100	26
23	<i>Inter. J. of Manpower</i>	12	135	6	11.25	5.33%	225	1,715	19
24	<i>Science & Public Policy</i>	10	95	6	9.50	11.63%	86	476	11
25	<i>J. of Knowledge Mgt.</i>	6	91	6	15.17	4.55%	132	1,831	21
26	<i>Industrial Marketing Mgt.</i>	6	236	5	39.33	1.10%	545	10,725	46
27	<i>Industrial & Corporate Ch.</i>	9	206	5	22.89	3.60%	250	4,964	36
28	<i>Int. J. of Operations Prod. Mgt.</i>	7	156	5	22.29	2.26%	310	6,088	39
29	<i>Ecological Economics</i>	6	105	5	17.50	0.39%	1,538	42,226	90
30	<i>Service Business</i>	9	72	4	8.00	10.00%	90	602	13
31	<i>Management Decision</i>	7	34	3	4.86	1.72%	407	3,671	27
32	<i>RAE Rev. Adm. de Empresas</i>	8	33	3	4.13	10.26%	78	80	3
33	<i>Innovar. Rev. de Cs Adm. y Soc.</i>	21	29	3	1.38	7.89%	266	96	4
34	<i>Cuadernos Eco. y Dir. Empresa</i>	14	24	3	1.71	17.95%	78	38	3
35	<i>African J. of Business Mgt.</i>	8	24	3	3.00	1.29%	618	2,300	16
36	<i>Universia Business Review</i>	16	10	2	0.63	17.02%	94	43	3
37	<i>Revista De Economia Mundial</i>	12	12	1	1.00	6.28%	191	42	3
38	<i>Academia Rev. Latin. Adminis.</i>	7	4	1	0.57	9.86%	71	28	3
39	<i>Trimestre Económico</i>	7	3	1	0.43	3.85%	182	100	4
40	<i>Rev. Venezolana de Gerencia</i>	15	2	1	0.13	11.81%	127	9	2

Note: R = rank; TP-IE and TC-IE = total number of publications and citations (only in entrepreneurship and innovation research); H-IE = h-index (only in entrepreneurship and innovation research); TC/TP = total number of citations over total number publications; TC/TP IE = citations per paper in innovation and entrepreneurship; TP = total number of publications in general; TC = total number of citations in general; H = h-index in general; %P-IE = TP-IE/TP.

Journal of Business Research as among the top 5 such as *Small Business Economics* and *Technical Forecasting and Social Change*. *Technovation* no longer reaches the first few places as in previous quinquennials; nevertheless, it remains within the five most influential journals.

Table 12. Most influential journals in entrepreneurship and innovation research between 2011 and 2015.

R	Journal	TP-IE	TC-IE	H-IE	TC/TP IE	%P-IE	TP	TC	H
1	<i>Research Policy</i>	83	958	16	11.54	12.22%	679	6,972	34
2	<i>Tech. Forec. & Social Ch.</i>	93	414	12	4.45	9.47%	982	5,065	26
3	<i>J. of Business Research</i>	84	556	11	6.62	5.61%	1,496	7,546	27
4	<i>Small Business Economics</i>	73	455	11	6.23	15.87%	460	2,484	19
5	<i>Technovation</i>	42	368	11	0.00	13.42%	313	2,482	21
6	<i>Management Decision</i>	58	424	10	7.31	10.39%	558	3,101	28
7	<i>Int. Entrepren. & Mgt. Journal</i>	77	401	10	5.21	40.10%	192	889	14
8	<i>J. of Business Venturing</i>	17	271	7	15.94	7.52%	226	3,103	28
9	<i>Int. Small Business Journal</i>	21	159	7	7.57	7.75%	271	1,228	14
10	<i>J. of Knowledge Management</i>	23	134	7	5.83	5.26%	437	3,619	24
11	<i>J. of Technology Transfer</i>	21	180	6	8.57	8.97%	234	1,036	13
12	<i>Service Industries Journal</i>	65	147	6	2.26	11.86%	548	1,462	13
13	<i>J. of Small Business Mgt.</i>	32	114	6	3.56	14.48%	221	1,191	15
14	<i>Tech. Analysis Strategic Mgt.</i>	42	99	6	2.36	11.67%	360	940	12
15	<i>Science & Public Policy</i>	25	141	5	5.64	5.97%	419	1,079	13
16	<i>Entrepren. & Regional Devel.</i>	19	128	5	6.74	9.95%	191	924	13
17	<i>International Business Review</i>	17	76	5	4.47	4.03%	422	2,001	17
18	<i>Regional Studies</i>	18	64	5	3.56	2.82%	639	2,831	20
19	<i>Industrial & Corporate Change</i>	20	58	5	2.90	7.46%	268	1,160	15
20	<i>Industry & Innovation</i>	19	64	4	3.37	10.61%	179	569	12
21	<i>Innovation Mgt. Policy Practice</i>	34	54	4	1.59	20.00%	170	225	6
22	<i>Service Business</i>	18	52	4	2.89	11.61%	155	356	8
23	<i>International J. of Manpower</i>	18	45	4	2.50	6.38%	282	528	9
24	<i>Inter. J. of Technology Mgt.</i>	23	37	3	1.61	8.68%	265	457	7
25	<i>Knowledge Mgt. Research Prac.</i>	18	32	3	1.78	9.47%	190	460	11
26	<i>Applied Economics</i>	13	30	3	2.31	0.67%	1,931	3,072	14
27	<i>Cuadernos Eco. y Dir. Empresa</i>	14	28	3	2.00	20.29%	69	84	4
28	<i>J. of Evolutionary Economics</i>	14	27	3	1.93	5.93%	236	455	9
29	<i>Academia Rev. Latin. Admin.</i>	29	25	3	0.86	24.79%	117	49	3
30	<i>European J. of Inter. Mgt.</i>	15	23	3	1.53	8.02%	187	371	8
31	<i>R&D Management</i>	15	17	3	1.13	8.06%	186	647	12
32	<i>J. of Organizational Change Mgt</i>	15	18	2	1.20	4.92%	305	486	9
33	<i>RAE Rev. Admin. de Empresas</i>	32	17	2	0.53	11.43%	280	129	3
34	<i>African J. of Business Mgt.</i>	16	13	2	0.81	1.19%	1,350	1,107	8
35	<i>RBGN Rev. Brasileira Ges. Neg.</i>	26	12	2	0.46	15.76%	165	37	2
36	<i>Revista De Economia Mundial</i>	29	11	2	0.38	15.51%	187	28	2
37	<i>Innovar Rev. Cs Adm. y Sociales</i>	22	9	2	0.41	17.05%	129	32	2
38	<i>Revista De Historia Industrial</i>	17	4	1	0.24	7.49%	227	15	2
39	<i>Revista Brasileira De Inovacao</i>	18	2	1	0.11	56.25%	32	2	1
40	<i>Rev. GEINTEC Gestao In. e Tec.</i>	14	0	0	0.00	29.17%	48	0	0

Note: R = rank; TP-IE and TC-IE = total number of publications and citations (only in entrepreneurship and innovation research); H-IE = h-index (only in entrepreneurship and innovation research); TC/TP = total number of citations over total number publications; TC/TP IE = citations per paper in innovation and entrepreneurship; TP = total number of publications in general; TC = total number of citations in general; H = h-index in general; %P-IE = TP-IE/TP.

Bibliographic coupling analysis in entrepreneurship and innovation research in Ibero-America

To demonstrate the associations between each journal according to their publications of Ibero-American entrepreneurship and innovation research, we developed a bibliographic coupling analysis of the journals mentioned in our ranking (Table 2). When a third study is referenced by two different

studies, in their bibliographies, this is referred to as a bibliographic coupling (Kessler, 1963; Martyn, 1964). Note that this study uses the visualization of similarities (VOS) viewer software (Van Eck & Waltman, 2010).

Figure 1 presents this coupling among journals considered in Table 2. It is worth noting that *Research Policy*, *Technovation*, *International Journal of Technology Management*, and *Small Business Economics* have a more dominant position. These journals show an important impact on the analysis because they publish more articles on Ibero-American entrepreneurship and innovation research.

Several groups of bibliographically coupled journals exist, creating an enormous bibliographic database. As such, *Technovation*, *International Journal of Technology Management*, *Technology Analysis and Strategic Management*, and *R&D Management* can be called a network of Technology focused on the study of entrepreneurship and innovation in Ibero-America. A second group can be defined by *Research Policy*, *Science and Public Policy*, *Small Business Economics*, *Applied Economics*, and *Regional Studies*, among others that can be classified as a network of Economics and Policy with a focus in entrepreneurship and innovation in Ibero-America. A third group of papers can be defined by *Management Decision*, *International Business Review*, and *Journal of Small Business Management*, among others that can be classified as a network of General studies in entrepreneurship and innovation in Ibero-America.

Figures 2 and 3 show bibliographic coupling among the journals considered in Table 2 separating the analysis into entrepreneurship studies and innovation studies (Thongpapanl, 2012). Comparing both figures, we see that although different groups are generated under networks of bibliographic coupling, the journal nodes in both analyses are usually the same, repeating

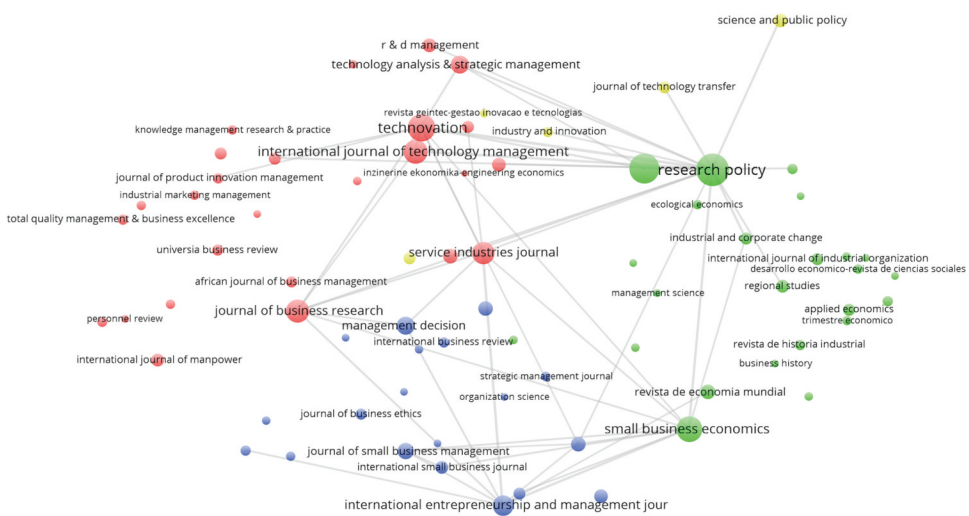


Figure 1. Bibliographic coupling analysis in entrepreneurship and innovation research.

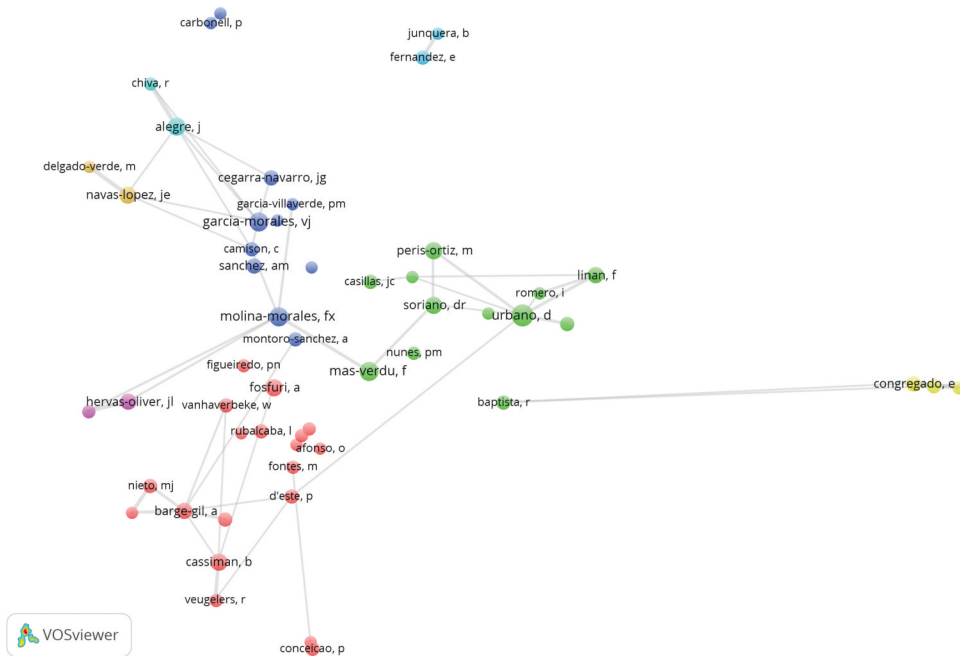


Figure 4. Bibliographic coupling of authors in entrepreneurship and innovation research.

F. Xavier Molina-Morales (University Jaume I), Victor Jesús García-Morales (University of Granada), and Francisco Mas-Verdú (University of Valencia). Also note that some authors work or have worked in Spain, but have a different nationality such as Andrea Fosfuri and Bruno Cassiman.

Co-citation analysis in entrepreneurship and innovation research in Ibero-America

Finally, to understand the connection between journals according to the influence of their Ibero-American entrepreneurship and innovation publications, we develop a co-citation analysis of journals mentioned in our ranking. The frequency with which two documents are cited together by other documents is called *co-citation* (Small, 1973).

According to [Figure 5](#), the most influential journals in the co-citation analysis are *Strategic Management Journal* and *Research Policy*. In the first case, important journals – such as *Academy of Management Review*, *Academy of Management Journal*, and *Strategic Management Journal* – form a distinct US-based group of journals that receive a higher number of citations among them in comparison to other journals in the world. [Figure 5](#) demonstrates a second group of the highest impacting entrepreneurship-focus journals through the co-citation analysis (*Small Business Economics*, *Journal of Business Venturing*, and *Entrepreneurship Theory and Practice*). This group

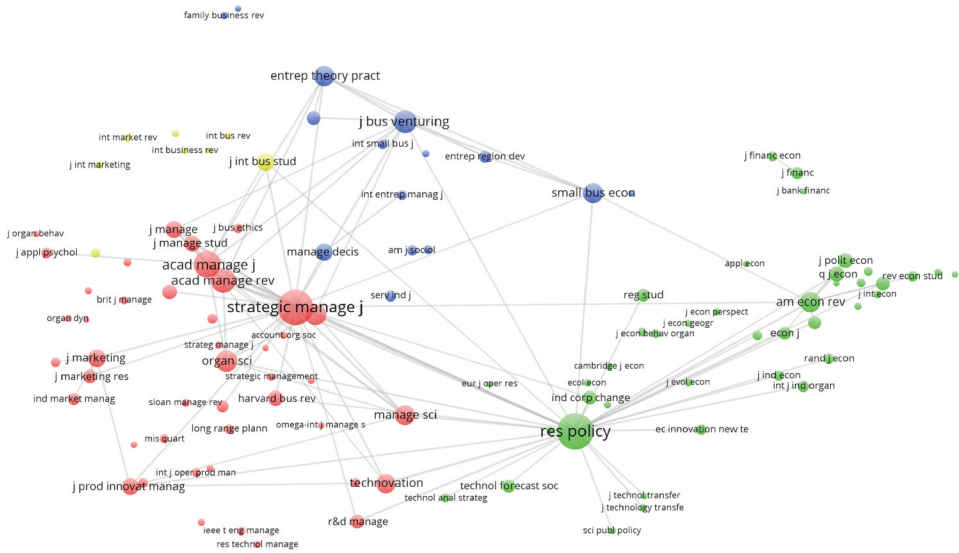


Figure 5. Co-citation analysis in entrepreneurship and innovation research.

has fewer citations among them than citations with management/strategy journals. **Figure 5** shows another group that is defined by the journals that cite *Research Policy*. This case is special because articles from different countries of the world cite *Research Policy*, not only European journals but also US ones.

Figures 6 and **7** present the co-citation method between journals separating the analysis into entrepreneurship and innovation studies. Comparing both figures, we see that although different groups are generated under networks of co-citation, the journal nodes in both analyses are usually the same, repeating journals similar to *Technovation*, *International Journal of Technology Management*, *Research Policy*, and *Small Business Economics*.

Another interesting issue to consider is to visualize the most cited authors in this field by publications from Ibero-American institutions. To do so, **Figure 8** presents co-citation of authors with a minimum threshold of 100 citations and the 100 most representative co-citation connections. Recall that co-citation of authors occurs when a document cites two authors.

Wesley M. Cohen (Duke University), David J. Teece (University of California Berkeley), Shaker A. Zahra (University of Minnesota), and David B. Audretsch (Indiana University Bloomington) are the most influential authors in this field for Ibero-American authors. Some other well-known authors from other related areas of management and economics also appear in the figure. Generally speaking, it is clear that authors from English-speaking countries are the most influential ones.

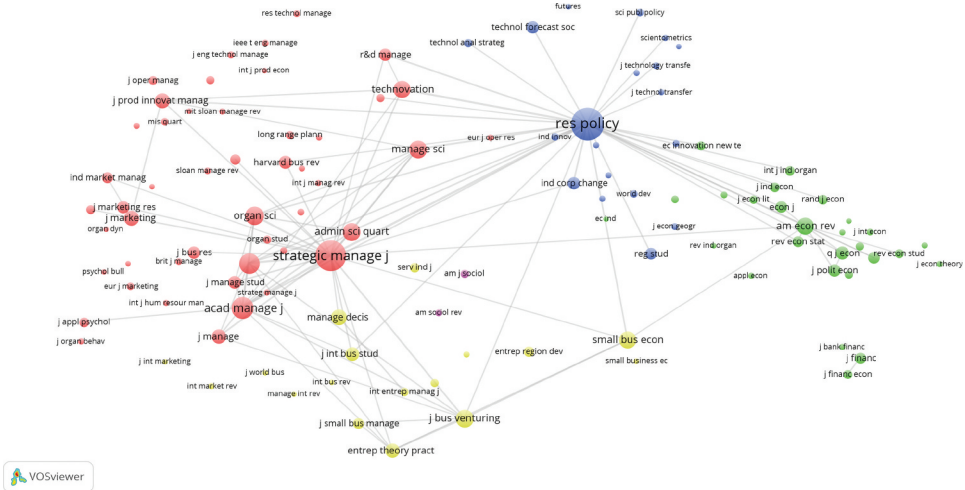


Figure 6. Co-citation analysis in innovation research.

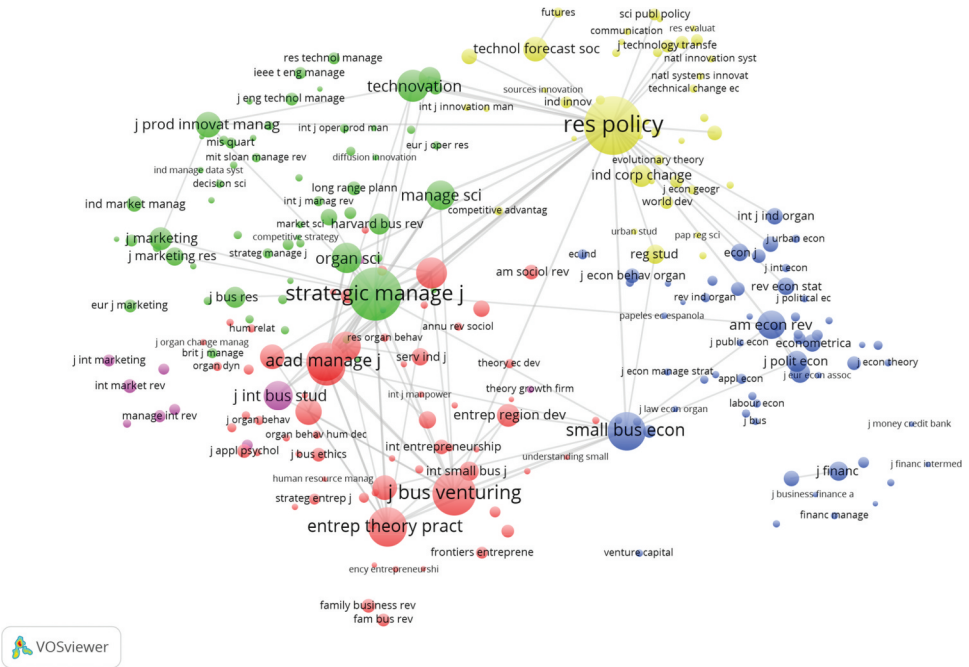


Figure 7. Co-citation analysis in entrepreneurship research.

Conclusions

This article provides a bibliometric overview regarding Ibero-American innovation and entrepreneurship research from 1986 to 2015. The publication and citation structure is considered over 30 years. The results show a strong increase of entrepreneurship and innovation research by Ibero-

Chile, Argentina, Brazil, and Mexico, who manage to overcome the barriers of psychological and geographical distances, and can develop an international network of contacts that allows them to publish their studies in the most important journals of entrepreneurship and innovation research. Currently, the challenge for Latin American researchers is to develop their network of international contacts, with the most influential researchers in both Europe and North America. This could enhance the quality of their scientific research and increase the likelihood of publishing in the best journals of the discipline.

Second, if we analyze the journals where the most influential Ibero-American researchers publish, it is possible to see that these journals are also the most important in the discipline at a global level. The above could be a sign of the good quality of the publications of Ibero-American researchers. The journals that stand out the most are *Research Policy*, *Technovation*, *Technological Forecasting and Social Change*, *Small Business Economics*, *Journal of Business Research*, *Journal of Business Venturing*, *Service Industries Journal*, *R&D Management*, *Entrepreneurship and Regional Development*, and *International Journal of Industrial Organizations*.

Third, this study also gives an updated list of the most influential universities in Ibero-American entrepreneurship and innovation research considering a wide range of indicators. The most influential universities are Universidad Carlos III de Madrid, Universitat Autònoma de Barcelona, University of Navarra, and University of Valencia. Particularly, in the context of Latin America universities, the most influential are Universidade de Sao Paulo, Getulio Vargas Foundation, Universidade Estadual de Campinas, Tecnológico de Monterrey, Universidad de Chile, Pontificia Universidad Católica de Chile, and Universidad Adolfo Ibanez.

Fourth, the academic connections that Ibero-American scholars have are observed not only with the journals where they are publishing, but also through the analysis of their coauthors. In this sense, it is interesting to note that the most important coauthors for Ibero-American academics come from important US and UK universities, such as Carnegie Mellon University, Harvard University, MIT, University of Texas Austin, University of London, University of Manchester, and University of Sussex. Once again, the challenge for Ibero-American researchers lies in the efforts they must make to strengthen their academic networks, develop opportunities for international collaboration, and participate in global projects with influential researchers in the discipline.

More studies in this direction are needed to obtain an overall view of the state of the art in this field. Future research could analyze which are the main research topics by Ibero-American countries, in order to link the level of development of each country with the focus of the scientific research of its academics. It would also be interesting to know what are the requirements

and incentives that Ibero-American academics have to develop high-quality scientific research in the discipline. The latter would be linked to the analysis of institutional policies, at the level of universities' and countries' policies, with respect to the obligation of researchers to access high-quality academic networks at the international level. This article has considered entrepreneurship and innovation from the journal perspective and has generally examined the publications and citations. However, future work should consider other issues, including the influence of authors and institutions in the discipline.

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