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Map of scientific publications on administration in Latin America

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Abstract

This research focuses on characterizing the orientation of the research that shows the contributions in the field of administrative sciences in Latin America. To do this, publications on Administrative Sciences by researchers in the region reported in Scopus were analyzed. After an initial review of all these publications, the sample was reduced to 87%, identifying the functions or areas of knowledge towards which they were oriented, their evolution over time, the sectors and countries where they were published, the collaboration networks between countries based on the development of the research and the main journals where they have been published. The results show that the administrative sciences are present in the epistemological development of Latin America, its conception and evolution correspond to the theoretical and methodological principles that established it as a science; They also reflect the existence of a vast network of collaboration in research in this field between countries in the region and beyond. At the same time, they show the need to strengthen the ties of collaboration between the most prolific researchers to strengthen the existence of an autochthonous school that responds to the particularities of the socioeconomic environment where they develop.

Keywords: Administrative sciences; latin america; scientific publications.

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Mapa de las publicaciones científicas sobre administración en América Latina

Resumen

Esta investigación se enfoca en caracterizar la orientación de las investigaciones que muestran los aportes en el campo de las ciencias administrativas en América Latina. Para ello, se analizaron las publicaciones sobre Ciencias Administrativas de investigadores de la región reportadas en Scopus. Tras una revisión inicial de todas estas publicaciones, se redujo la muestra a un 87%, identificando las funciones o áreas de conocimiento hacia las que estaban orientadas, su evolución en el tiempo, los sectores y países donde se realizaron, los vínculos de colaboración entre países a partir del desarrollo de las investigaciones y las principales revistas donde se han publicado. Los resultados muestran que las ciencias administrativas están presentes en el desarrollo epistemológico de América Latina, su concepción y evolución corresponden a los principios teóricos y metodológicos que la establecieron como ciencia; reflejan, además, la existencia de una vasta red de colaboración en investigación en este campo entre países de la región y fuera de ella. Al mismo tiempo, muestran la necesidad de fortalecer los lazos de colaboración entre los investigadores más prolíficos para fortalecer la existencia de una escuela autóctona que responda a las particularidades del entorno socioeconómico donde se desarrollan.

Palabras clave: Ciencias administrativas; américa latina; publicaciones científicas.

1. Introduction

Administration as a science has not followed a linear path, despite the fact that its contributions from the scientific point of view have already exceeded a century and that the contributions to its body of knowledge are extensive and varied, receiving contributions from sciences as diverse as mathematics, psychology, among others, even for some authors (de Mattos, 2009) the answer to the question is not clear: Administration: art or science? (Pozo et al, 2020).

The analysis of the epistemology of

science in the context of Latin American authors is diverse, authors such as (Batista-dos-Santos et al, 2010) carry out a whole philosophical dissertation, in tune with the most recognized epistemological proposals that they try to explain the development of science in general. Others develop a more pragmatic perspective identifying the influence of the historical context in the evolution of administrative sciences (da Costa et al, 2010) or the manifestation of the trait incidences of a new colonialism in this transformation (Ibarra-Colado, 2008).

At present, there is no complete consensus on the ways of growth of the sciences. In this regard, multiple theories have been formulated, that present points of convergence and divergence between them. According to Popper (1980), scientific knowledge does not advance by confirming new laws, but by discarding laws that contradict experience. According to this author, the work of the scientist consists mainly of criticizing. On the other hand, Kuhn (1962) stated that the development of science was influenced by previous knowledge established in theories and laws created by a group of scientists or specialists, that is, by a scientific community. According to Lakatos (1983), science is a succession of theories related to each other, so that some are generated starting from the previous ones. Instead, Feyerabend (cited by Horgan, 1983) promotes the idea that the advancement of science is achieved by introducing hypotheses inconsistent with theories, or with well-established facts.

Although the previous theories do not coincide if they have points in common: the advancement of science depends on the domain of available past knowledge and the communication and presentation of new theories or results achieved in research. In this context, knowing where the research results of a certain science are published and on what they are published provides important advantages for the development of science: it is known where to look for up-to-date and quality information on certain science and at the same time, what topics are more or less studied, which author marks the tendencies of the investigations, which mechanisms may be promoting or limiting the development of the investigations, among others

(Ferrer, 2021; Gamero & Ostos, 2020).

The objective of this research is to characterize the behavior of the publications on the administration science of Latin American authors that are indexed in the Scopus database.

2. Evolution and Research in Administration Sciences

Administrative science, while adopting some contributions prior to the twentieth century from military practices or organizational forms of the Catholic Church, begins to form its theoretical body with the beginning of the century. According to the brief summary of some of the administrative schools presented by Jurado (2018), the contributions of Frederick Taylor related to the studies of methods and time, design of salary systems and the search to reduce costs give rise to the origin of management as science. These efforts were complemented by the contributions of Fayol, which can be summarized in the statement of the functions of the administration: planning, organization, direction and control and the statement of six of the basic functions of the companies: administrative, security, technical, accounting, financial and marketing in addition to the statement of 14 basic principles of administration.

According to Jurado (2018), the beginnings of the administrative postulates were quickly complemented by proposals that highlighted the social character of science with the development of the school of human relations that began with the experiments developed by the Psychologist Elton Mayo and recognized the leading influence of human relations within organizations and the administrative process. Very close to

this school, by placing the man at the center of the analysis, was the proposal of the behaviorist school and the proposals of the method for controlling based on this behavior (Mandujano-Salazar, 2021).

The beginning of the Second World War conditioned the bases for the introduction or development of the postulates of the mathematical school fundamentally oriented to the application of mathematical methods related to decision-making and the optimization of production processes. The emergence of the systems school (Felix, 2003) in the second half of the 20th century, based on the theoretical proposals of von Bertalanffy (cited by Felix, 2003), constituted another important qualitative leap since it recognizes the organization as an open system, in interaction with its environment that exerts a direct influence on organizational performance as well as the interaction of each of the parts or internal components of the system.

To reinforce these contributions and to a certain extent reinforcing the idea of subsystems under an ecosystem concession, the theory of contingencies emerges (Oña-Sinchiguano, 2020) which generally states that organizations must develop their administrative systems in correspondence with the conditions concrete that exist inside and outside of them. Under the conception of the systems school, some of the most recent postulates of complexity theory are incorporated (Pauca-Caceres & Jerardino-Wiesenborn, 2020), recognizing business organizations as systems organizations subject to change.

In line with this evolution of the schools of administrative sciences, theoretical methodological proposals were developed in parallel from the different functions of business

administration as responses to internal and external changes that occurred in organizations. In this way, it went from product marketing to relationship or people marketing (Thaichon et al, 2019), from 100% quality control to quality management (Hamid et al, 2019), from personnel administration to human resources strategy management (Obedgiu, 2017), from process planning to extended supply chain management (Shen et al, 2020).

Not all business management functions evolved in the same way or at the same time. Not all arose within the company or as independent functions. Not all have been tacitly recognized as functions of business administration. An example of this can be the management of innovation (Guerra et al, 2013) and industrial property that many of the organizations do not assume or systematize, the management of information or technology or the environmental management. Information management (Baldwin et al, 2009) can be assumed as an independent function or as part of general administration, or responsibility for a specific area of organizations.

The role of administrative sciences in technology management (Wu et al, 2020) is diffuse; On the one hand, it is true that many of the technologies and their development respond to specific fields of other sciences, such as technical sciences, but administrators must assume their leadership for the specific conditions of each company and organize particular processes of these such as: evaluation, selection, maintenance, transfer, protection, among others related to this.

Environmental management (Ormazabal et al, 2017) arises as a response to the recognition of the need

to preserve resources and conserve the environment, not always society in general and businessmen in particular became aware of this need and acted accordingly. Although some organizations create specific areas for this function, most organizations assume it as a transversal function that must be considered by the rest of the organizational functions. A similar behavior occurs with the quality management function, whose conception and business practice are changing. Quality management can be assumed by an independent area, or as part of the management of the rest of the functions, mainly logistics management or marketing. Similarly, under a more comprehensive vision with the philosophy of total quality management (Benzaquen & Charles, 2022) it is presented as the result that emerges from the operation of the entire organization.

With a behavior similar to that of environmental management, but with its own peculiarities that distinguish it, the approach of corporate social responsibility emerges (Pereira et al, 2016), as an effort by organizations to respond not only to their economic interests and to the environmental demands imposed by society but, in addition, to other types of demand generated by the different social actors with whom the organization interacts as a way of guaranteeing its sustainability.

Within the administrative functions of organizations, and as an expression of particular conditions that respond to strategic decisions related to the social purpose of organizations, two research disciplines appear in social and investigative practice within the field of administrative sciences, these are: project management (Rezende & Cordeiro, 2019) and the management of actions aimed at establishing

business relationships (Felzensztein et al, 2020) outside the borders where the organization operates (internationalization).

To fully understand the scope of administrative sciences, it is not enough to assume the functions enunciated by Fayol inherent to the administrative process and apply it to one or more of the business functions from an administrative perspective. It is necessary to understand that its use must be aimed at contributing to the achievement of the organization's objectives and therefore it must be clear what these should be.

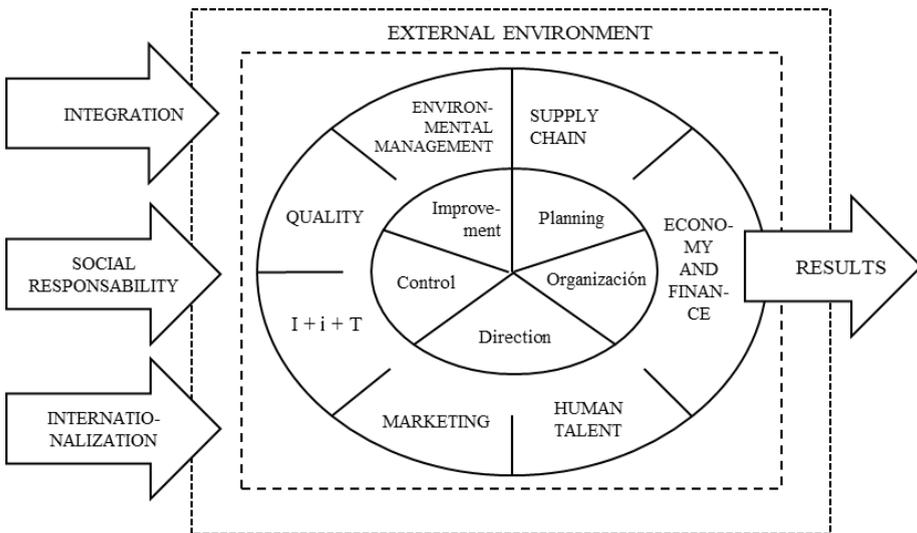
According to Paucar-Caceres (2020) the objectives of the administration in organizations can be summarized in the achievement of 4 "E" incorporating the traditional: efficiency, efficacy and effectiveness the achievement of an Ethics which says that companies do not They are only organizations with economic purposes, but being a specific system that is part of a much larger social system, it must act in correspondence with this within the framework of the demand imposed by society in general.

The constitutive objectives of the organization and the environment where it operates mark the distinction between two particular fields of administrative sciences, these are: business administration and public administration. Both have multiple points of contact and can share a large part of the cognitive arsenal accumulated in recent years; However, they also have particularities that distinguish it, such as: in public administration the impact of political science in general is much greater, in the same way the latter must learn to interact to a greater extent with other sciences such as sociology, or the influence of other key factors such as international geopolitical relations.

The functions proposed by Fayol as the general functions of the administration, although with some variations by one or the other author, are generally recognized to date. According to some authors such as Juran (Juran, 2002), these functions can pursue two types of objectives or the control of the levels achieved or the improvement of the performance of the organization in one area or another (Queiroz et al, 2020; Zanon et al, 2021). Under this vision, organizational improvement could be assumed as other functions of the administration (Samán Chingay et al, 2022).

According to Felix (2003), some taxonomic proposals are available in the literature that attempt to distinguish the different parts of the administration in most cases perceived from a functional perspective. In this case, the author proposes a classification of administrative systems from the cybernetic perspective, fundamentally based on the characteristics of the control function. For the purposes of this research, the analysis of the administration is proposed based on what is represented in Diagram 1.

Diagram 1
General scheme for the analysis of research in administration



Source: own elaboration.

Which starts from locating the administration functions in the center of the administration and around it the business functions. In the same way, he recognizes the environment as an

influential element in response to the theories of systems and contingencies and to the results as a summary of the various organizational objectives. In the same way, three possible actions

that promote the development of organizations and that are a source of multiple investigations related to: integration strategies, corporate social responsibility and internationalization are recognized.

Based on this scheme, which aims to summarize what has been analyzed in the reference framework, the analysis of the publications under study will be carried out.

3. Methodology

The development of this research went through four fundamental stages: creation of the database, review and classification, and information processing.

- **Conformation of the database**

The search in Scopus was made using the following search equation:

TITLE-ABS-KEY (administration)
AND PUBYEAR > 1856 AND
PUBYEAR < 2020 AND (LIMIT-
TO (SUBJAREA, "BUSI")) AND (LIMIT-
TO (DOCTYPE, "ar")) AND (LIMIT-TO

(AFFILCOUNTRY, "Brazil") OR LIMIT-
TO (AFFILCOUNTRY,
"Colombia") OR LIMIT-TO
(AFFILCOUNTRY, "Mexico") OR LIMIT-
TO (AFFILCOUNTRY, "Chile") OR LIMIT-
TO (AFFILCOUNTRY, "Ecuador") OR
LIMIT-TO (AFFILCOUNTRY,
"Argentina") OR LIMIT-
TO (AFFILCOUNTRY, "Venezuela") OR
LIMIT-TO (AFFILCOUNTRY, "Peru")
OR LIMIT-TO (AFFILCOUNTRY,
"Cuba") OR LIMIT-TO (AFFILCOUNTRY,
"Costa Rica") OR LIMIT-TO
(AFFILCOUNTRY, "Uruguay") OR
LIMIT-TO (AFFILCOUNTRY,
"Puerto Rico") OR LIMIT-TO
(AFFILCOUNTRY, "Nicaragua") OR
LIMIT-TO (AFFILCOUNTRY,
"Dominican Republic") OR LIMIT-TO
(AFFILCOUNTRY, "Panama") OR LIMIT-
TOAFFILCOUNTRY, "Bolivia") OR LIMIT-
TO (AFFILCOUNTRY, "Guatemala")
OR LIMIT-TO (AFFILCOUNTRY,
"Honduras") OR LIMIT-TO
(AFFILCOUNTRY, "El Salvador"))

The application of these filters made it possible to reduce the amount to be limited from a total of more than 4 million publications to only 6 876 publications, as summarized in Table 1.

Table 1
Filtering of publications

	Number of articles
Total Administration	4 285 235
Area: Business, Administration and Accounting	344 783
Type of documents: Articles	229 137
Latin American countries	7 876

Source: own elaboration.

- **Classification of publications**

The resulting articles were reviewed to be classified according

to which areas of science they paid, recognizing that it was possible to pay taxes to more than one area of this, in the same way they were classified by sectors in which it is developed the

investigation and the countries involved in it were identified. The classification was made based on what was declared in the titles and keywords. To ensure the validity of the classifications, the articles were divided into five groups, subgroups, and classified by an inverse pyramidal classification system: 1, 2, 3; In other words, each subgroup was reviewed by an expert classifier, then the review was reviewed by two other classifiers and if they found classifications that they did not consider correct, these discrepancies were subject to analysis by three other classifiers.

Processing: Once the results were classified, the analysis of the database was started through different techniques and software for the analysis. The processing was aimed at finding the answers to the following questions:

- How is research distributed by areas or functions of administrative sciences?
- What has been the behavior over time of investigations by areas of science?
- In what sectors is administrative science research carried out in the region under study?
- How does research in administrative sciences behave in the different countries of the region?
- How is the collaboration in administrative science research among the countries of the region and with other countries?
- Which actors stand out the most in the investigations and what links are established between them?
- In which journals is the region's research on science under analysis reported?

Simple descriptive statistics

were used to identify the frequency of publications by: variables of the administration, countries, sectors and years. Similarly, the relationships between variables were analyzed through the creation of analysis networks and the use of UCINET 6 software. This software was chosen over other more current ones for two reasons: the need to carry out a detailed edition of the database, fundamentally conditioned by the need to eliminate articles that in the authors' criteria should not be considered because they do not pay directly to the body of knowledge of the science under analysis; and for allowing an edition of the graphs that facilitate their visualization and understanding, conditioned by the high number of variables to represent in some networks.

The following networks were formed:

- Relationship between variables or functions of the administration
- Relationship between the variables or functions of the administration and the countries
- Relationship between the variables or functions of the administration and the sectors
- Collaboration between Latin American countries
- Collaboration of Latin American countries with other countries.

4. Behavior of Publications on Administration Science in Latin America

From the analysis carried out, the first result obtained was the elimination of 1070 articles from the study because it was considered that they were not articles

related to administrative sciences, which represented 13.5 % of the total to be reviewed. The reasons for its elimination responded to various causes: the contribution is oriented to another science such as pedagogy, where the object or context of study is a training process in the area of administration or the development of technologies, which although they contribute to the achievement of business objectives the proposals respond to the body of knowledge of another science; and others that it is not possible to establish for what reason are classified within the area of administrative sciences. Similarly,

the development of 87 articles aimed at the development of bibliometric analyzes was identified. The rest of the articles were distributed by the areas summarized in Table 2.

As can be seen, there is a distribution by the different functions of the administration, which does not show a proportional distribution. Although the general aspects of the administration: functions of the administration and qualities of the system or the philosophy of the administration (complexity, system, strategy, prospective) as expected are the most investigated, representing 17.5 %.

Table 2
Distribution of articles by administration functions

General administration (1337)		Economy and finance (424)		Supply chain (1205)	
Interrelated	392	Interrelated	96	Interrelated	331
General	297	Finance	98	General	523
Strategies	182	Accounting	95	Process	167
Leadership	130	Investments	39	Inventories	49
Control	81	Budgets	18	Distribution	34
Improvement	69	Economy	17	Reverse logistics	24
Managers	32	Stock market (Bonds)	10	Providers	22
Planning	25	Assets	9	Forecast	19
Teamwork	23	Cash flow	9	Outsourcing	13
Organization	20	Processes	7	Others	7
Others	20	Others	6	Storage	6
Participation	19	Credits	5	Location	6
Complexity	13	Taxes	5	Hiring	4
System	13	Appraisal	4	Results (218)	
Decision making	11	Franchise	4	Interrelated	7
Prospective	6	Dividends	2	Sustainability	102
Competitiveness	4	Commercialization (580)		Costs	50
Human resources (1320)		Interrelated	88	Satisfacción laboral	16
Interrelated	264	Product	107	Incomes	9
Knowledge	215	Customer behavior	79	Staff turnover	9
General	181	General	79	Presenteeism	9

Cont... Table 2

Culture	127	Trademark	70	Productivity	6
Human capital	91	Relationship management	34	Stock turnover	3
Change	68	Sales	28	Profitability	3
Health and Safety	59	Advertising	27	Others	2
Training	57	Prices	26	Performance	1
Competencies	47	Image	9	Absenteeism	1
Diversity	44	Techniques	9		
Behaviour	32	Segmentation / positioning	8	Innovation, information and technology (850)	
Motivation and reward	22	Distribution	6	Interrelated	196
Weather	21	Promotion	4	Innovation	290
Conflict	20	Others	3	Information	128
Commitment	18	Electronic commerce	2	Technology	127
Recruitment and selection	15	Negotiation	1	Transfer	48
Work organization	13	Public relations	1	Intellectual property	18
Communication	12	Environmental management (653)		Other processes	18
Performance evaluation	10	Interrelated	214	Maintenance	15
Job description	4	General	251	Surveillance	7
Integration (216)		Waste	80	Incubators and parks	3
Interrelated	63	Impact	31	External environment (105)	
General	98	Clean productions	23	Interrelated	28
Networking	21	Water	20	Stakeholders	40
Associativity	19	Energy	13	Others	28
Cooperation	11	Accreditation	9	Competence	4
Alliances	3	Emissions	8	Market	4
Fusion	1	Others	4	Society	1
Social responsibility (112)		Quality (276)		Risks (122)	
Interrelated	31	Interrelated	100	Interrelated	34
General	81	General	118	General	88
Projects (218)		Customer satisfaction	35	Internacionalization (28)	
Interrelated	49	Certifications	18	Interrelated	3
General	169	Others	4	General	25

Source: own elaboration.

Similarly, the general functions of companies occupy a significant percentage of the investigations: human resources management, closely linked to the leadership function of the administration due to aspects related to organizational behavior, reaches a percentage of 17.2 % ; while the supply chain directly related to the value generation chain occupies 15.7 %; The function of innovation, information and technology, which is diverse due to the variables it groups together and very dynamic in order to respond to the same characteristic imposed by the current environment, represent 11 % of the investigations.

Commercial management (7.5 %) and economic-financial management (5.5 %) are observed with an intermediate representation, although the latter is closely linked to the results category (2.9 %) where several aspects are located related to financial economic management. It is also necessary to point out that several aspects related to research in this function are sometimes linked to aspects of macroeconomics that exceed the scope of administrative sciences and that may not have been considered in the initial search carried out in Scopus.

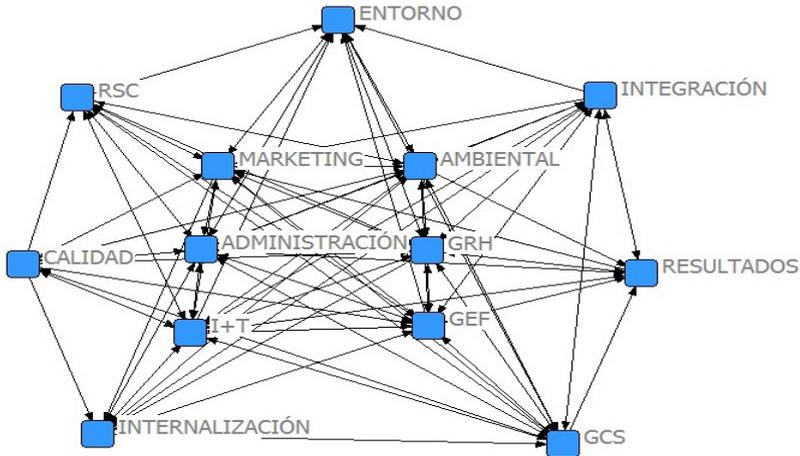
Research related to environmental management (8.5 %) represents a

significant percentage, especially if the number of categories in the analysis is taken into account. On the other hand, quality management (3.3 %) occupies a much less notable percentage. The rest of the categories analyzed are much less representative: social responsibility (1.4 %), environment (1.3 %) and internationalization (0.3 %).

A separate analysis deserves the project management, which represents 2.8 %, which is significant if one considers that this type of research generally responds to very specific sectors and products such as construction. Meanwhile, risk management (1.6 %) in the authors' opinion, although it is generally granted a particular and independent treatment, is actually a function that must be assumed by each of the business functions because risk is associated with each of them. For the reasons explained from this moment on, the analysis will focus only on the other valued functions.

As can be seen in Table 2, each of the dimensions or functions valued counts as an initial variable of analysis, the interrelation, which constitutes unquestionable evidence of the systemic nature of the administration, where each of its components can interact with the others. Illustration 1 shows the relationship between the assessed dimensions.

Illustration 1 Relationship observed in publications on the dimensions under analysis



Source: own elaboration.

According to the observed results, all the administrative sciences research fields are interrelated. Table 3 shows the behavior by years of the publications. In

the year 2000 all the publications made prior to this year are located, as well as in the year 2005 the publications of the period 2001-2005 are grouped.

**Table 3
 Behavior by year by year and dimensions of the publications**

	00	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20
External environment	1	6	0	0	1	3	4	0	4	4	3	4	4	7	9	13	11
Social responsibility	0	1	4	2	2	2	4	6	7	9	2	8	12	12	18	16	13
Internationalization	3	3	1	0	3	5	8	3	18	11	5	13	10	9	9	10	10
Results	1	0	0	1	2	3	8	7	9	18	22	16	20	25	20	21	26
Integration	8	10	0	5	10	10	10	11	24	26	17	21	27	26	11	12	9
Quality	17	9	3	6	7	5	3	11	9	13	18	15	24	35	25	26	26
Economy and finance	11	26	11	10	8	17	9	15	26	21	12	31	39	49	52	26	59

Cont... Table 3

Commercialization	5	22	12	8	16	19	5	9	17	10	15	19	24	58	66	76	65
Environmental management	9	20	14	6	11	9	27	13	26	43	31	49	57	73	67	83	67
I + I + T	23	24	11	14	17	30	12	17	23	31	28	39	66	93	104	92	120
Supply chain management	16	39	18	21	26	32	46	37	43	75	74	69	103	115	133	142	142
Human Resources	24	51	15	37	29	41	43	35	59	64	56	61	102	114	123	159	140
General administration	40	70	19	32	36	42	39	66	44	57	68	102	112	134	169	162	160

Source: own elaboration.

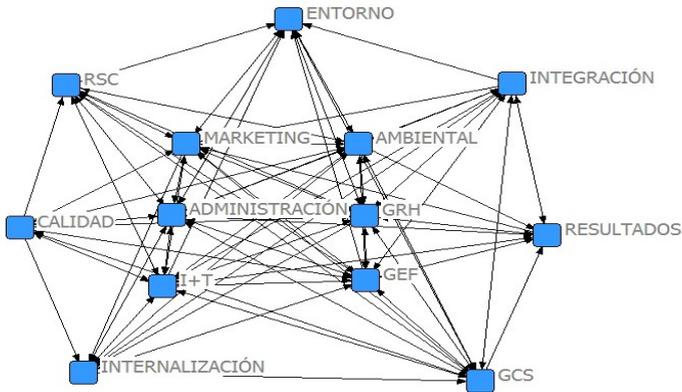
In the table above, it can be seen that to a greater or lesser extent all the dimensions under analysis have shown a growing trend in terms of being the object of research, although the moment of initiation of this growth and its magnitude has been varied. Being early and high in the fundamental dimensions such as administration, human resource management and supply chain and late and insufficient in integration and internationalization strategies.

In the analysis by sectors, research aimed at 29 different sectors was identified, although in some cases sectors are not considered per se, but rather other classification modalities according to the nature of the research that the researchers considered pertinent to analyze within this section, although it still agrees of the dissonance that could be caused by including these categories. Among these are generalizing or

comparative studies carried out at the regional or country level and studies carried out to analyze the particularities of family businesses or SMEs. Public Administration, Higher Education, Public Health, Industry and SMEs, research has been carried out in the different functions defined for the administration. Other sectors are included in the investigations but these do not cover all the areas of administrative sciences.

The analysis of the investigations considering the countries that participate in this allowed to establish a group of aspects that are commented below. The development of research by country is not uniform, with countries that concentrate a volume of publications (Illustration 2). As can be seen, the distribution of research by country is concentrated in a group of countries, although somehow most countries show at least one publication.

Illustration 2 Number of publications analyzed by country

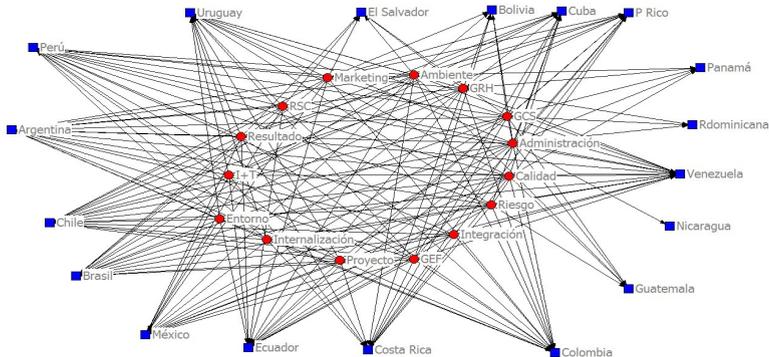


Source: own elaboration.

The degree of analysis of the different functions in each of the countries is shown in Illustration 3 in which it can be seen that in general most of the functions, in countries such as: Brazil, Mexico, Colombia, Argentina, Peru; Uruguay and Venezuela at least one publication is reported in each of the functions. Meanwhile, in Ecuador

they are reported in all functions with the exception of investigations related to internationalization. On the other hand, in Bolivia, the Dominican Republic, Panama and El Salvador, investigations are reported in specific areas such as: Administration, Human Resources Management or Supply Chain Management.

Illustration 3 Relationship between the analysis of the functions by country

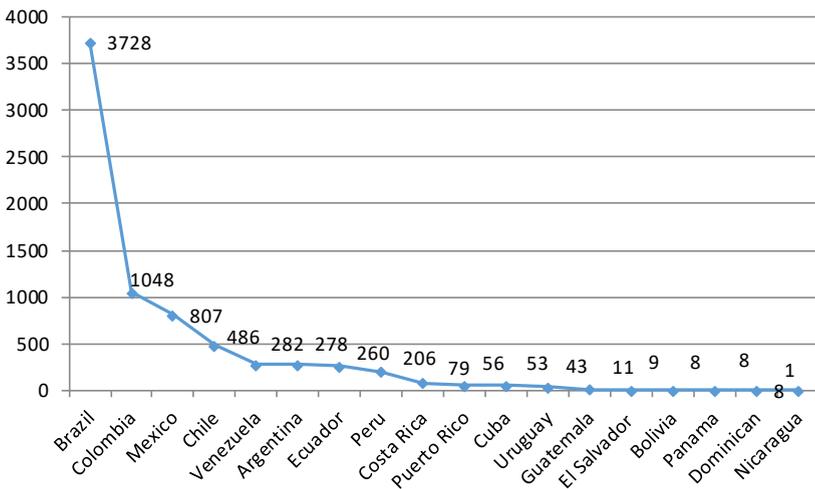


Source: own elaboration.

Behavior similar to the previous one shows the distribution by sectors to be investigated in the countries under study. There is a wide distribution between the countries under analysis and the sectors under study. According to the results of

Graphic 1, in Colombia, Brazil, Ecuador, Chile, Venezuela, Mexico, Peru and Argentina research is carried out in most sectors, while the rest of the countries show a decreasing trend in relation to the variety of sectors where the studies are carried out.

Graphic 1
Percentages of sectors that are considered in the investigations by countries

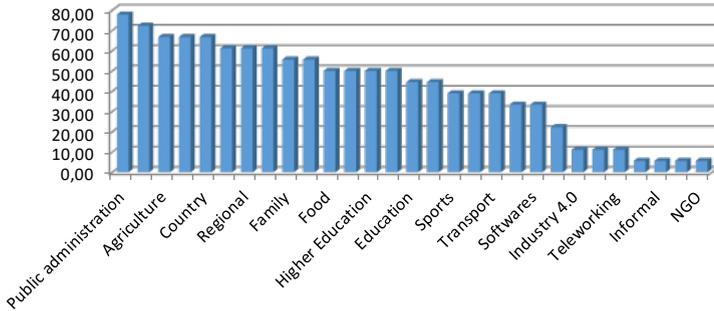


Source: own elaboration.

Similarly, based on the results represented in Illustration 4, among the most investigated sectors in the different countries are: public administration organizations, tourism, agriculture, commerce and health. Similarly, there is a trend in most countries to carry out

comparative or descriptive studies at the country and regional level. In contrast, it is observed that research in NGOs, in the informal sector, the army, the application of teleworking, and companies that operate with 4.0 technology are not very representative.

Graphic 3 Percentage of countries that investigate each sector.

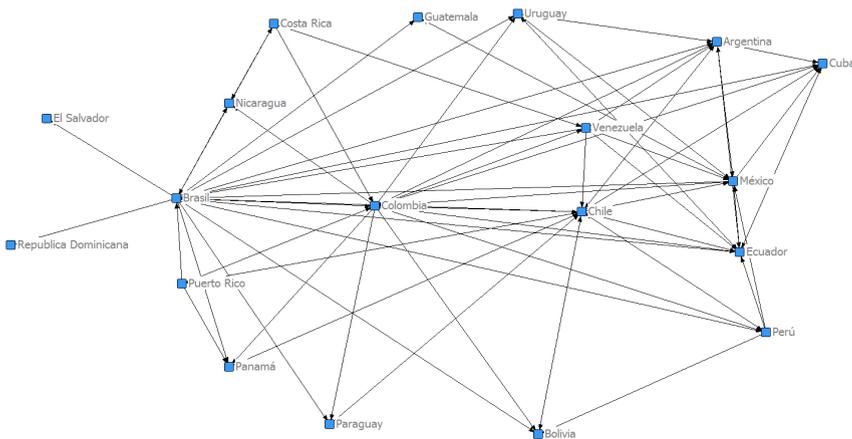


Source: own elaboration.

Regarding the comparative study between countries, it was also considered pertinent to analyze the level of integration of research within the countries of the region and with other countries outside the region. The links that were observed between the countries of the region are shown in Illustration 5.

As can be seen, links are manifested between all the countries of the region, although in the case of El Salvador and the Dominican Republic, links were only observed with Brazil. In this network the highest levels of centrality are found in: Brazil, Chile, Colombia, Costa Rica and Mexico.

Illustration 4 Collaboration network between the countries of the region

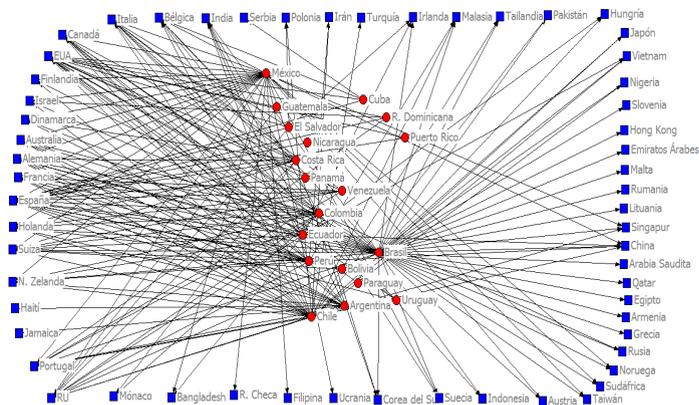


Source: own elaboration.

Similarly, a high level of collaboration with countries outside the region was observed as can be seen in Illustration 6. As can be seen, the collaboration networks are varied, they are reported in total link with other 58 countries, although in 16 of them there is only the link between two countries. Among the countries in the region that showed the highest level of contact are: Chile, which establish links with more than 70% of the countries, and Peru, Argentina, Ecuador and Costa Rica,

which establish links with nearly 30% of countries outside the region. The other hand, the external networks that they establish: Mexico, Bolivia, Panama, Puerto Rico, Brazil, Nicaragua and Paraguay do not exceed a 10% link with all the countries that have relationships. This should not be considered as an absence of ties, but rather that these relationships are concentrated in a few countries like the United States and Brazil.

Illustration 6
Collaboration network of the countries of the region

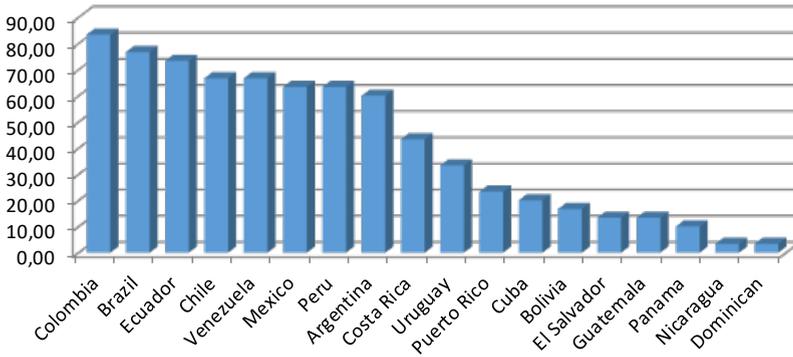


Source: own elaboration.

Graphic 2 shows in descending order the countries that generate the highest levels of collaboration network with countries in the region, among

which stand out among others: the United States of America, Spain, the United Kingdom and Canada.

Graphic 2
Percentage of countries that investigate each sector



Source: own elaboration.

Finally, some aspects related to the authors with the highest productivity in the region and the spaces where they are published were analyzed. The analysis of the authors revealed that a total of 18,722 authors participate in the analyzed publications, although the productivity varies among them. 91.75% of the authors do not report more than 4 publications. The author with the largest number of documents: Alarcón L.F., reports a total of 126 documents, the oldest publication is from 1998, affiliated with the Universidad Católica de Chile, with varied investigations, generally quantitative cuts. Similarly, this author has the highest index in the region with a value of 20, and only 6 other authors have

an H index equal to or greater than 10.

Despite this great diversity of authors, when carrying out an analysis of the level of collaboration among authors in the region, the result is surprising. Collaboration between authors in the region is almost nil. There are authors who work in small groups but do not articulate the efforts between these groups already formed.

Regarding the analysis of the journals where the publications are made, a total of 720 journals were identified. Distributed by quartiles as shown in Table 4. As can be seen, there is a relatively balanced distribution with a relative predominance in the upper quartiles.

Table 4
Distribution of the journals where it has been published by quartiles

	Quartiles				
	Q1	Q2	Q3	Q4	Not classified
Number of journals	235	199	146	101	39

Source: own elaboration.

There is a significant representation of the region and other external countries. With a predominance of the United Kingdom, the Netherlands and the United States, where 52.6 % are grouped. Similar behavior is seen in journals.

5. Map of scientific publications on administration in Latin America. Discussion

The analysis carried out showed different aspects that deserve to be commented on. The percentage of articles found that are not directly related to administrative sciences are interpreted as a sign of the lack of clarity or precision of the scope and frontier of the science under analysis. Although it is not possible to distinguish whether this is due to the search engine's classification algorithm, the choice of the journals where the publications are reported or the researchers who carry out the research.

The distribution of research and the high degree of interconnection between them once again evidenced the systemic nature of administrative sciences (Felix, 2003), as well as the recognition of features of complexity (Oña-Sinchiguano, 2020) as an expression of the diversity of variables that they consider and their high dynamics of changes and manifestations depending on different operating environments. In the same way, the composition found in the investigations reinforces the validity of the classical schools of administration, observing both manifestations of the socio-technical school and of mathematics and that of contingencies, among others. In this same sense, in addition, investigations related to the various functions of

the administration in general and the operation of companies in particular were identified. As well as the main objectives of their constitution (Paucar-Caceres & Jerardino-Wiesenborn, 2020).

The tendency to grow shown by the different research topics over the years corresponds to the trend observed in general in the rest of the sciences and which is considered a consequence of the stimulus to research that Universities have received, as centers of cutting-edge research in these nations, as part of the movements for the improvement of higher education (Aguilar Gordon & Heredia Guzmán, 2019).

The apparent contradiction that is evident in the fact of observing a good level of integration between countries of the region or external to extra and the lack of integration among researchers in the region, which in general concentrates their studies based on external references unrelated to their national or regional reality. Similarly, although it is positive that 29% of the publications are published by magazines in the region, it may generate concerns that Espacio magazine, where the largest number of analyzed publications are concentrated (720), and in fact where they are also reported the largest number of publications that were discarded, in 2020 they lost their indexing in Scopus.

6. Conclusions

The results of this research generally show that administrative sciences are present in the epistemological development of Latin America, its conception and evolution correspond to the theoretical and methodological principles that established it as a science. Likewise, they reflect the existence of a vast network of research collaboration

in this field between countries in the region and outside of it. At the same time, they show the need to strengthen the collaboration links between the most prolific researchers in the region in order to strengthen the existence of an indigenous school that responds to the particularities of the socio-economic environment where they are developed.

The main limitation recognized in the study is its descriptive nature without the existence of a comparison pattern that allows verifying the state of administrative sciences in the region. In the authors' discretion, it would be advisable to carry out similar studies in other regions and on that basis, subsequently, carry out comparative studies that allow the identification of regularities and differences. Although, it is recognized that the behavior in each region may be diverse, because different socioeconomic contexts would be compared.

For the development of comparative studies, it is recommended to introduce reference indicators such as: GDP per country, number of inhabitants per country, number of research centers, availability of funds for research. However, the introduction of these research indicators must also be carried out with caution because the existence of some of them is not an indispensable condition for the development of a certain science in question, which is rather conditioned by other variables related to scientific potential. of science and research problems that are expressed in different contexts.

Similarly, it is considered necessary to delve into the conditions in which the investigations were carried out, since it was observed that many of the investigations do not respond to problems specific to the region but

to studies carried out in countries with developed economies or as comparative studies between Multiple countries that, although in all cases can contribute to the development of science, do not always respond to the national problems of the region.

The managerial implications of the research carried out are associated with the reinforcement of the systemic and complex nature of administrative sciences, as well as the diversity of variables and interconnections that are manifested as an expression of this nature. The results obtained can be used as a general guide for the analysis of specific management models applied to particular environments by different entrepreneurs.

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