Colombian Scientific Production in Marketing and Issues Related During the Period from 2000 to 2018

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Abstract

Scientific production is represented to a large extent through the papers published by researchers in scientific journals, but in the Colombian case, an analysis of the research capacities in the marketing area has not been done, therefore, neither a description of topics discussed nor the results scoped with those papers. For this reason, was sought to identify the productivity of research groups and researchers on the subject of marketing by analysing the documents published during the 21st century; as a consequence, this bibliometric research was focused on a quantitative, transverse and hermeneutical method, for that purpose had taken 607 academic paper published between 2000 and 2018, Those articles were generated by 108 research groups who have research lines in marketing and related, in order to exposes a quantitative individual and group productivity index, relates the topics investigated together with the scope of those publications, measured either the number of citations and levels of publications indexed from Publindex, Scopus, and SJR. The results show low productivity and impact of Colombian scientific production in marketing, however, since 2008 the production of articles has increased and the number of publications on the international scene has increased. Finally, the findings let do suggestions to improve those results in short term.

Keywords: Research in marketing, scientific productivity and bibliometric research.

1. Introduction

The country development is related to its scientific production, this production allows approximations to the progress in a country (Valero-Zapata & Patiño-Jacinto, 2012) about knowledge field, in turns let to establish parallelisms with other countries (Vera-Villarroel et al., 2010; Coronado & Awad, 2010), describe its historical develop (López & Calvache, 1998; Marí-Sáez & Ceballos-Castro, 2015), could be a tool uses to counsel researchers concerning research ideas selection (Christensen et al., 2010), the execution of projects or draw numerous approaches that have been taken to elucidate a phenomena that has been studied by scientific. In this context is apposite ask for those advancement in a particular area.

Furthermore, the scientific research in marketing is showed in several papers that have been developed projects that highlight the advance on it from hermeneutical, bibliometric and documental approaches in some countries (Vera-Villarroel et al., 2010; Tamayo, 2007; Rueda-Barrios & Rodenes-Adam, 2016; Backhaus et al., 2011), also concern to distinct topics (Roberts et al 2014; Wiid et al., 2012; Martínez-López et al., 2018) or applied to particular journals (Nel et al., 2011; Fetscherin & Heinrich, 2015; Valenzuela et al., 2017. However, to inquire about similar studies in Colombia are noticeable an entire lack of this analysis, the contributions made on it and even, the impact reach either in the international or national context.

1.1 The Science and Technology System in Colombia and the research groups

Science, technology, and innovation have been defined as axes of the economic and social development of the modern world due to their ability to generate competitive advantages (Coronado and Awad, 2010), the management of these activities generally falls to public bodies, which for Colombian context, the guidelines and policies of the national science, technology, and innovation system - SNCTI is managed by the Administrative department of science, technology and innovation – COLCIENCIAS until 2019.

COLCIENCIAS will be replaced by a new entity created by the Colombian Congress through Law 1951 of 2019, which mandates the creation of the Ministry of Science, Technology, and Innovation, this law proposes that the new entity start operating from 2020 with specific objectives of establishing public policies of science, technology, and innovation - CTeI, appropriation of science, propitiate the relationship between CTeI with the productive sector and strengthen the SNCTI.

The National Science and Technology System - SNCTI is an open and non-exclusive system, of which all science and technology programs, strategies and activities are part, regardless of the public or private institution or the person who develops them (Article 4 Decree 585 of 1991), is directed by the president of the republic (Decree 1124 of 1999 and Law 1286 of 2009) and is composed of the head of the Department of National Planning, the Minister of Education, Economic Development and Agriculture, the rector of the National University , a rector of a private university, a member of the scientific community, a member of the private sector, a representative of the regional science and technology commissions and the director of COLCIENCIAS (CTeI Minister since 2020).

Colciencias currently establishes the mechanisms for the evaluation of information capture of the activities of the actors recognized in the SNCTI, actors such as researchers, research groups, technological development centres and research centres among others. For this recognition, the registry of universities and research centres operates under the name of InstituLAC, that of research groups called GrupLAC and that of researchers called CVLac, both the GrupLAC[1] and the CvLAC[2] are part of the COLCIENCIAS ScienTI-Colombia computer platform and they constitute open consultation directories that contain the identification and production information of the researchers and their contributions to their research groups.

The CvLAC are an individual curriculum vitae of researchers, innovators, academics and experts of the SNCTeI (COLCIENCIAS, 2019) where it is related, in addition to basic data, information on the direction of degree work, social appropriation of knowledge (dissemination in scientific events), activities to promote CTeI and bibliographic production (including published articles) mainly (COLCIENCIAS, 2016), while GrupLAC collects the scientific production of researchers belonging to a research group (COLCIENCIAS, 2018a).

A research group – RG is defined as the group of people who interact to investigate and generate knowledge products in one or more subjects, according to a short, medium or long-term work plan aimed at solving a problem (COLCIENCIAS, 2018b) whose work is articulated around a statement of its lines of research and associated topics; Zulueta and Bordons (1999) CITADO POR (Reyes-Gonzalez, et al., 2016) define a RG as a community of scientists that work sharing an approach, development research, materials and financial resources, but not necessarily organized in a formal structure of an institution or institutions where research activities are conducted.

The groups are classified in Colombia based on the results of biannual calls (table 1) where performance is evaluated in science, technology and innovation production basically from four factors, namely 1) generation of new knowledge, 2) technological development and innovation, 3) social appropriation of knowledge and 4) the training of new researchers, the results allow categorizing groups as A1, A, B, C or D (COLCIENCIAS, 2018b), with A1 being a group recognized for having the most high-level development of activities in the SNCTeI, this categorization descends to Category C[3].

Table 1: Results measurement research groups in Colombia 2014-2017

[1] Grupo Latinoamérica y el Caribe.

[2] Currículum Vitae Latinoamérica y del Caribe.

[3] Category D was deleted since 2017.

Categoría	2013-2014	2014-2015	2016		2017	2019*
A1	367	293	408		523	740
A	296	386	549		762	962
B	722	869	952		1168	1490
C	1262	1543	1939		2113	1809
D	1313	749	610		Categoría eliminada	
Sin clasificar	-	-	-		-	275

*Source: own elaboration based on COLCIENCIAS (2018b). * Preliminary results as of August 30, 2019*[4].

In turn, researchers are classified in the calls indicated above in emeritus, senior, associate, junior (table 2); This classification is the result of evaluating the level of educational training, scientific production, and training products.

Table 2: Results measurement researchers in Colombia 2013-2017

Researcher Category	2013-2014	201-2015	2016	2017	2019*
Emeritus	-	-	76	124	No informado
Senior	693	1057	1218	1707	2360
Associated	1823	2064	2767	3595	4231
Junior	5495	5159	6057	7575	9972
Total of CvLAC registered	274.000	58730	66.028	73.422	84.316

*Source: own elaboration based on COLCIENCIAS (2018b). * Preliminary results as of August 30, 2019.*

From the perspective of making comparative analyzes with other countries in terms of scientific productivity, there are shortcomings concerning measurement indicators, therefore, Valero-Zapata & Patiño-Jacinto (2012) stress that the measurement model does not recognize other indicators of scientific production of utility for the country when affirming that:

> This characterization does not work on methodologies or structures by institutions, citation indexes of articles resulting from research processes, doctoral programs, classification of institutions by level of research, critical thinking, epistemological and theoretical foundation, investment, interdisciplinarity, issues related to any specialty (p. 179).

According to the above, the measurement of groups and researchers is supported in the production of the four factors mentioned, as a consequence, this way of measurement does not describe the productivity and contributions of researchers in a specific field of knowledge such as research. on issues related to marketing.

[4] The final results will be published from November 6, therefore, this investigation describes the preliminary results of 2019.

1.2 The measurement of scientific productivity and scientific production in Colombia

The quantitative indicators for measuring the productivity of Colombian RG officially refer to number of articles, number of books, number of papers, and numbers of book chapters published in a period (Rueda-Barrios & Rodenes-Adam, 2016), while quantifying the amount of computer developments and establishing an average production according to the categorization by groups, to the above is added the calculation of the time spent on research in each group measured in hours.

It has been found that the effectiveness of researchers not only depends on individual factors but is also affected by external or contextual factors (Coronado & Award, 2010), by Gonto & Göktepe-Hultén (2019) and Daraio et al. (2015) establish that scientific performance encompasses a highly complex multidimensional construction (table 3 and 4) due to differences in its meaning of those indicators that depends on who and how it evaluates it, in addition, said scientific performance is positively affected by the existence of collaboration with the industry (García, et al., 2019).

Table 3: Variables to assess academy productivity by García et al.

Variable	Definition
Sci papers	Scientific papers in journals published during the period
Total Collab	Dummy for Research group that collaborate in at least one year during the period
Long-term Collab	Dummy for Research group that collaborate in the whole period
Short-term Collab	Dummy for research groups that collaborate in at least one year during the period but not in the whole period
Team Size	Number of PhD researchers affiliated to the research group in the current year
PhD Res	Share of PhD researchers of the research group in the current year
Team Age	Number of years since the research group started activities
Team Age	Number of years since the research group started activities
Location	Dummies for Brazilian macro regions
Affiliation	Dummies for: Public University, Private University and Public Research Institution

Source: García et al. (2019)

Mainly the measurement of scientific productivity has been based on indicators of scientific publications, patents and awards (Goel & Göktepe-Hultén, 2019; Ribas et al., 2015), but when relating scientific productivity to the performance of RG the relevance to the group's size on performance and productivity is evident (Rey-Martin et al., 2008; Rueda-Barrios & Rodenes-Adam, 2016; García, 2019) where there is not always a positive correlation between these two factors, however, it is wise to establish a unit of measure that explains and compares the level of productivity based on the size of the RG in Colombia as a way of sizing individual activity.

Table 4: Indicators to assess research productivity and research impact proposed by Moed and Halevi

Bibliometric and tow altmetrics indicators	Units of assessment	Research impact indicators.
Number of published articles	Individual article	Scientific-scholarly or academic Knowledge growth
Number of citations	Individual author	Research networks

Citations per article	Research group	Publication outlets
Normalized citation rate	Research Institution	Societal - Social
Indicators based on Citation percentiles	Country	Societal - Technological
Journal impact factor and other journal metrics		Societal -Economic
H-Index		Societal - Cultural
Number of patents		
Full-text article download counts		
Mentions in social media		

Source: Moed and Halevi (2015)

Mod et al. (1984) considers that the production of RG is due to factors related to short-term impact, long-term impact and a quality notion, understood from cognitive, methodological, aesthetic quality; in turn, other determinants of the performance of RG are related to strong leadership, strategic direction, skills and human talent, complexity of collaboration focused on the subject, diversification and entrepreneurship (Harvey, Pettigrew & Ferlie, 2002), as well as co-authorship (Garner et al., 2018), in addition Brew et al. (2016) compiles institutional characteristics variables, academic abilities, workload, time of dedication and communications, as well as demographic, physiological and psychological aspects (Goel & Göktepe-Hultén,

2019) or the reputation of researchers (Ribas, 2015), all of them useful variables to make comparisons about productivity between groups.

When trying to overcome the difficulties in the comparison between equivalent groups in their performance (Reyes-Gonzalez et al., 2016; Gonzalez-Brambila & Veloso, 2016),proposed a methodology that combine the bibliometric analysis mixed co-authorship network (Khor & Yu, 2016; Acedo et al., 2006), adding the social network analysis to institution affiliation and supported in citations stablish the level of similarity among RG, at the end, the groups are assessment from their publications and citation counts, also Calero et al. (2006) used a combination of bibliometric mapping techniques (Nadzar, 2017; Moed, 1985; Hallinger & Kovačević, 2019; Pan, 2018; Van Vught, 2009) and network analysis (Barabási, 2002; Han, et al., 2009; Borgatti et al,. 2013) to identify RG and potential, research partners.

Due to the complexity described for the evaluation of the scientific productivity of researchers and RG procedures for multidimensional meta-analysis have been proposed in order to establish a general evaluation process (Moed and Halevi, 2015; Daraio et al., 2015), although there is still no single method for this purpose (Cronin and Sugimoto, 2014) since approximately 70% of scientific evaluation studies have used only one or two different indicators (Martin, 1996) for each study.

Colombian productivity research in the productivity of research has focused on areas of knowledge, of which those related to health, psychology and social sciences are highlighted, as shown below by way of example.

In the field of psychology, works on scientific production in Latin American psychology have been published (Vera-Villaroel et al., 2011), which covered a period between 1996 and 2008, highlighting indicators on the number of published articles, citations of documents, as

well as the percentage of international appointments; Another example is the one presented by Perdomo et al (2002), who related the scientific production in psychology from 1983 to 2002, which describes the collaboration between authors and educational institutions, research areas, place of publication, type of publication and technology, he said. This document uses indicators such as the concentration of articles published in national and international journals, topics covered in articles, periods of greater productivity and emphasizing the role that journals play in the impact of research; otherwise, there are investigations with specific approaches such as the one described by Bonilla-Cruz et al (2017) oriented to family-related issues from 2010 to 2015, whose sample included 24 GR and 82 published articles focusing on a hermeneutical analysis instead of bibliometric.

In the area of health, bibliometric research has been carried out that describes scientific production from 1993 to 2003 (Alvis-Guzmán and De la Hoz-Restrepo, 2006) indicating an increase in the number of publications below the average of Latin American countries; also research on topics such as burnout syndrome in Latin America (Díaz & Gómez, 2016), occupational health (Andrade & Gómez, 2013) and research related to access to health services from 2000 to 2013 (Tovar- Cuevas & Arrivillaga-Quintero, 2014) with a sample of 71 articles and Morales, et al (2013) perform a description of the research capabilities of the GRs of social sciences, human sciences, health sciences, which took a sample of 123 investigation products related to social determinants of health.

In the accounting area, investigations have been approached for the description of the characteristics of GR in this area, the lines of research developed, the research projects under execution and the production of research generated during the measurement of Colciencias

groups in 2008 and 2010 (Valero & Patiño, 2012); The research production of professional organizations has been studied (Barrios et al., 2010) as well as the evolution of GR in accounting theory (Patiño-Jacinto, 2010) and in specific issues in costs and management accounting during 1990 and 2012 (Duke & Osorio, 2013).

The investigation on research products related to the administration has as reference A Malaver and López (2016) when establishing periods of research development in the area from 1965 to 2015 so that the evolution over time is described without emphasizing the levels of productivity of the researchers, or in Calderón & Gutiérrez (2010) the scientific production between 2000 and 2008 is described, publications or other research products developed by 185 RG and 635 researchers are established, identifying a multidisciplinary investigative action, they also indicate that only 17% of the articles were published abroad, they highlight an increase in the production of articles and the increase in the number of researchers but they do not establish any correlation between these two variables nor do they do bibliometric analysis; The scientific production of business administration invoices in Colombia (Calderón et al., 2017) was also analyzed, describing the research funding, practices and research policies of the faculties.

1.3 Research objectives

In Colombia there is not an analysis of the current level of productivity by Colombian RG in the field of marketing and related topics, in fact, there was been studied in other fields. It is evidenced no one had been working on it. Besides, it is unknown information related to the number of articles published by Colombian researcher's year per year since 2000, also, where were presented those papers, because that, there is not made a productivity index and don´t let to establishment research trends in marketing and the contributions of those investigations.

Because of the previous arguments, the intentions of this research is to determinate the productivity of RG in Colombia in the marketing field since 2000 until 2018, from analyzing the articles written to characterized topics, languages, number of publications, the most representatives journals used, in which countries are publishing, the scope of indexation, effects of lack of indexation, bibliometric analysis and its trends; finally, to establish a relation between indexation, languages and citations counts.

2. Method and materials

A descriptive, correlational and longitudinal study was designed to compile the scientific production characterized in the scientific articles related to marketing topics published by Colombian research groups and researchers between 2000 to 2018; other types of research products have been discarded and articles produced by groups that do not have research lines in marketing were not reviewed, since a sample framework (index 1) has been repeated in the Colciencias Scientific-Colombia platform that houses the GrupLAC, which contains the list of published products for each GR.

The sample is integrated by all available articles contained in various databases in order to obtain the highest degree of precision in the results and its subsequent hermeneutical analysis to demonstrate the value and impact of its subject (Boell & Cecez-Kecmanovic 2014) and get more information about it; were consulted 607 articles written by 108 research groups, a total of 112 articles could not be consulted. Therefore, the final sample has a 99% confidence with

a margin of error of 2,07%; due to that, no criteria were applied for a specific sampling procedure.

This research describes a bibliometric analysis as from statistical and mathematical procedures evaluation that provides information on the results of scientific activity in any of its expressions (Glänzel & Moed, 2002). This study takes data of sources as Scimago Journal Rank (SJR), SCOPUS, PUBLINDEX, and Google academics, du it allows access to information at the national or international level, from a single researcher or by institutions.; also the hermeneutic was used to search for technical information in specialized sources in order to stablish proposals, and, to demonstrate the value and/or impact of its theme and to avoid subjective perceptions or outdated or erroneous information (Fals-Borda, 2009); Finally, it will perform a ANOVA analysis to establish the relation the citation count with other variable.

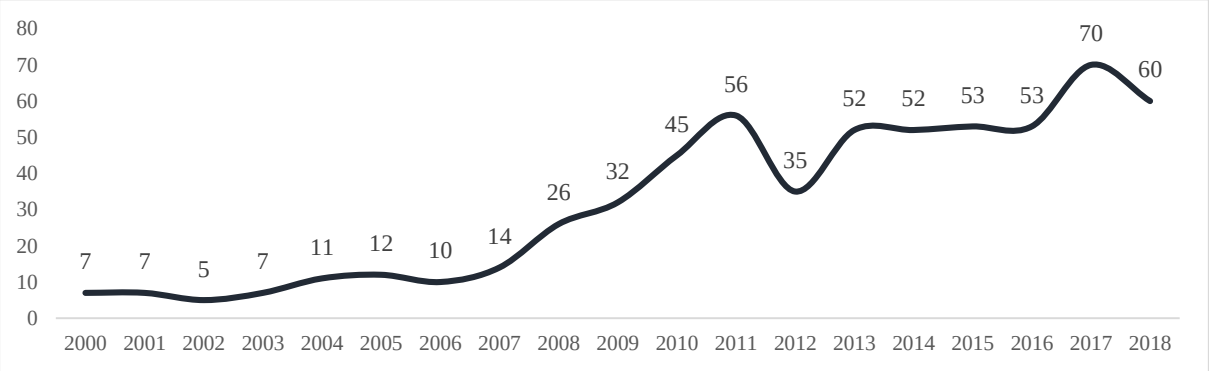
A bibliographic file with descriptors was designed to analyze the articles consulted, with information related to the year of publication, language, country where it is published, name of

the journal, categories in indexed journals (PUBLINDEX Y SJR), indexing in SCOPUS, subject, citation count in google academics, university filiation and research group to which the researcher belongs.

3. Results

The analysis of the quantity of articles generated year by year allows to describe the dynamics of the level of productivity of the RG (figure 1) as an incremental process reaching a maximum of 70 articles published in 2017 in which only 37 RG participated and with a 16.6% decline for 2018 in which 33 research groups managed to publish 60 articles.

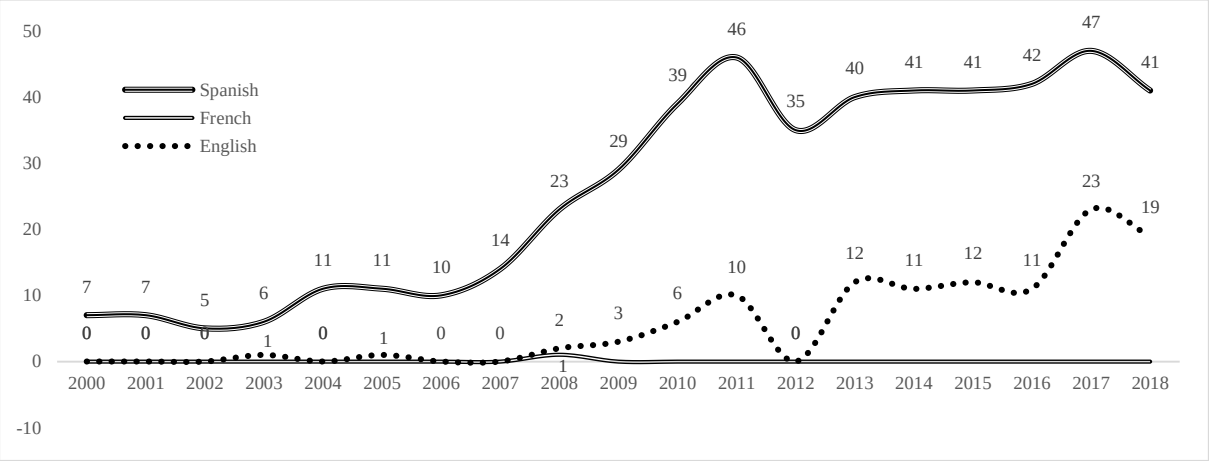
Figure 1: Trend in the production of articles on marketing and advertising between 2000 and 2018



Source: own elaboration.

In relation to the language in which Colombian researchers publish, it is that in 81.05% of the cases they correspond to Spanish, 18.3% in English and only one article has been published in French, no other languages are reported. Figure 2 shows a change in the trend towards sustained growth since 2009 from 3 articles published in English to 19 in 2018.

Figure 2: Publications achieved by language from 2000 to 2018.



Source: own elaboration.

For the period between the year 2000 and the year 2018, there are two growth trends in the publication of articles in national and international interviews, however the number of works presented by the researchers in journals is increasing (figure 3), where they show a concentration in publications of 93% in national character of the year 2,000 to 2,008 VS 0.07% only in international publications, however if we see the period of the year 2,008 to 2,018 although publications in the national level prevail in the first place with 69% International publications grow and represent 31%.

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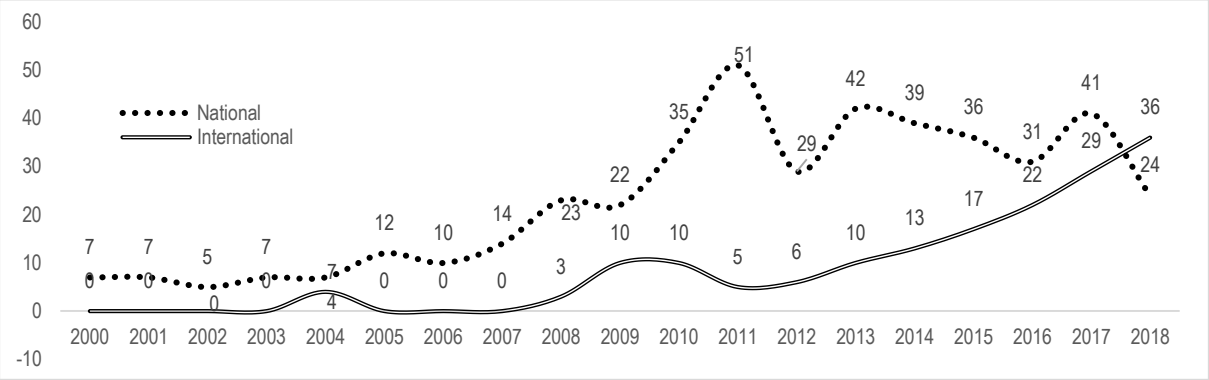
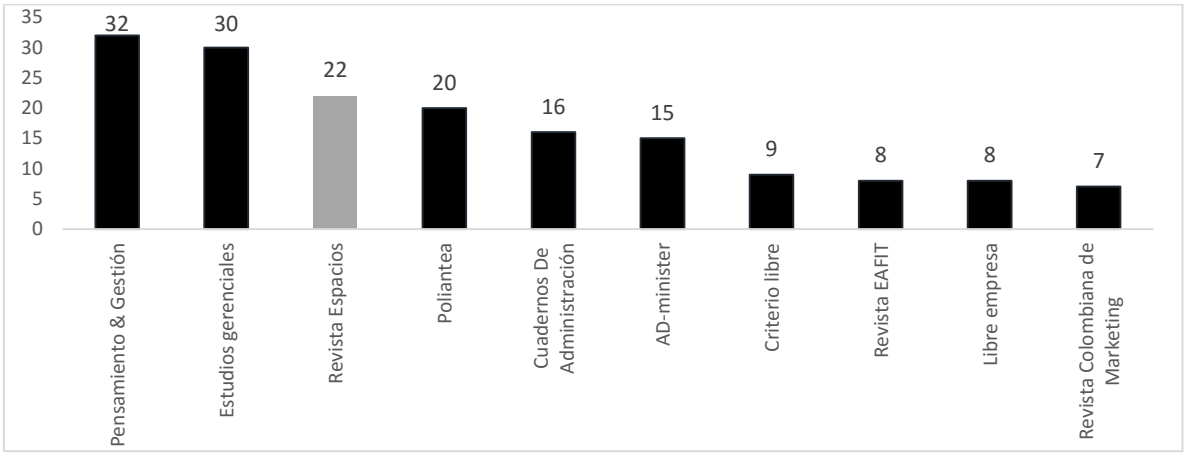
Figure 3: Comparison among the number of publications in national and international journals from 2000 to 2018.



Source: own elaboration.

Traditionally, Colombian researchers in the marketing area have mainly published in magazines in the country, but there is a negative tenure in the previous year, with a 41.4% decrease, while publications sent to other countries show a growing trend since the 2008, for this reason the number of articles published abroad exceeds for the first time the number of publications in magazines in the country.

Figure 4: The 10 scientific journals with the largest number of marketing articles published from year 2000 to 2018.

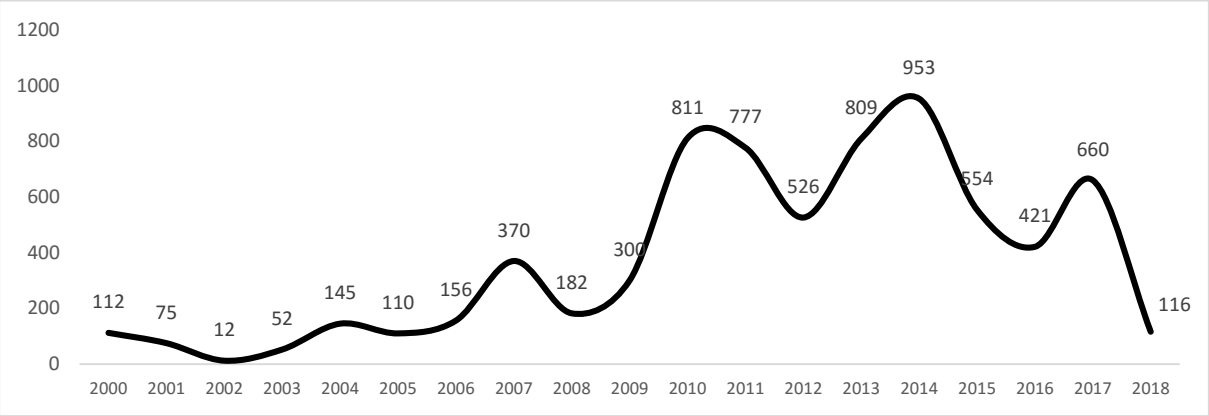


Source: own elaboration.

For the period from 2000 to 2018, it is identified that Colombian researchers published Marketing and Advertising articles in 167 different journals, the 10 journals with the largest Colombian publications concentrate 28% of the articles published in that period (Figure 4) of which Only one of them is international (indicated with a gray silhouette in Figure 4), which indicates a low penetration of scientific production in international marketing issues.

The behavior of the citation count (figure 5) shows a growth trend, presenting peaks in 2010 with 811 citations, in 2014 with 953 citations and 2017 with 660 citations; for the year 2018, 116 citations are reached, this low number is explained by the short exposure time that the documents published in the previous year have had; For this reason and given the growth trend, articles published since 2015 are considered.

Figure 5: Behavior of the number of citations obtained by Colombian articles in the marketing area.



Source: own elaboration based on google academic.

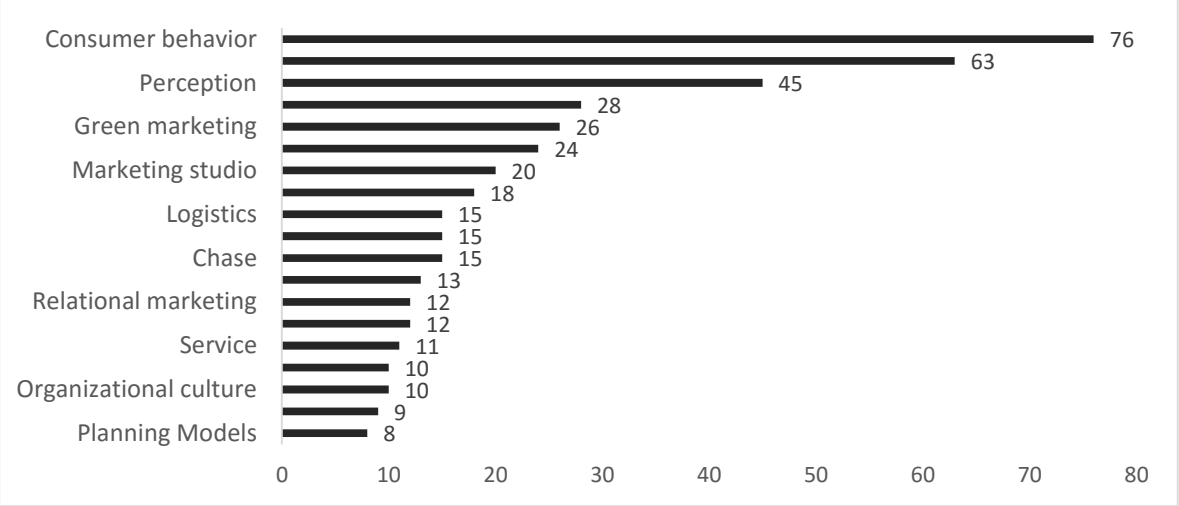
Table 5 shows the first 10 groups with the largest number of articles published on marketing issues and the first 10 research groups with the highest number of citations in the same area, in this case 7 research groups are in both listings, highlighting that the research group "Marketing I + 2" is the one with the greatest number of articles in the period from 2000 to 2018 but has reached 226 citations since its creation since 2008, in contrast the Marketing Research Group (GIM) was created in 2002 and has published 46 articles on issues related to marketing and has reached 441 citations so far.

Table 5:Grupos de investigación Colombianos en el área de mercadeo con mayor numero de publicaciones y de

RG con mayor número de publicaciones	**Cantidad**	**RG con mayor número de citaciones**	**Cantidad**
Mercadeo I + 2*	60	Mercados y decisiones	684
Grupo de Investigación en Marketing (GIM)	46	Grupo de Estudios en Administración	638
Grupo de estudios en Mercadeo	38	Psicología del consumidor	542
Psicología del consumidor	37	Grupo de Investigación en Marketing (GIM)	441
Competitividad y Mercadeo en las Organizaciones	37	Competitividad Empresarial y Gestión Tecnológica	399
Grupo de Estudios en Administración	21	GRIEGO (Grupo Investigación en Gestión y Organizaciones)	329
Mercados y decisiones	20	Grupo de estudios en Mercadeo	322
Publicidad: sociedad, cultura y creatividad	20	Competitividad y Mercadeo en las Organizaciones	312
Epilión	19	Grupo de Investigación en Marketing	300
GRIEGO (Grupo Investigación en Gestión y Organizaciones)	17	Gestión Organizacional	300

** Original names written in Spanish*
Source: own elaboration

*Figure 6: Main topics covered in the Colombian articles on marketing from the year 2000 to the year 2018 **



** Those issues with less than 8 published articles are not related in this figure*
Source: own elaboration

Figure 6 describes the 19 main topics discussed in scientific production in presented by the 108 research groups in Colombia from 2000 to 2018, these 19 topics cover 71% of the articles. The topics on which most of the researchers work in Colombia are related to consumer behavior (12.5%), brand (10.4%) and perception (7.4%).

Table 6 ANOVA analysis for effects of language, Publindex, SRJ and Scopus index over citation count

Languaje	**N**	**Average**	CI 95%3	Standard Deviation4	**Mín**	**Máx**	Kurtosis5	Kurtosis6	p abnormal7
Spanish	495	10.636	8.918 - 12.355	19.511	0.0	161.0	19.230	3.754	< 0.001 (1.384e-87)
English	111	16.901	11.366 - 22.436	29.753	0.0	215.0	21.133	4.096	< 0.001 (1.096e-28)
Publindex	**N**	**Average**	CI 95%3	Standard Deviation4	**Mín**	**Máx**	Kurtosis5	Kurtosis6	p abnormal7
Si	257	11.49	9.095 - 13.885	19.590	0.0	215.0	46.357	5.411	< 0.001 (2.051e-70)
No	350	11.966	9.516 - 14.416	23.385	0.0	163.0	16.141	3.595	< 0.001 (1.066e-64)
SJR	**N**	**Average**	CI 95%3	Standard Deviation4	**Mín**	**Máx**	Kurtosis5	Kurtosis6	p abnormal7
Si	170	16.447	11.894 - 21.000	30.286	0.0	215.0	18.007	3.874	< 0.001 (2.043e-37)
No	437	9.943	8.330 - 11.555	17.197	0.0	128.0	11.849	3.083	< 0.001 (2.448e-68)
SCOPUS	**N**	**Average**	CI 95%3	Standard Deviation4	**Mín**	**Máx**	Kurtosis5	Kurtosis6	p abnormal7
Si	173	14.526	11.043 - 18.009	23.372	0.0	163.0	16.943	3.497	< 0.001 (2.055e-35)
No	434	10.664	8.676 - 12.652	21.131	0.0	215.0	29.762	4.571	< 0.001 (1.384e-87)

The articles presented by Colombian research groups in the marketing area have been published in journals classified by Publindex where 3% of the articles are category A1, 7% category A2, 12% category B, 20% are category C and 58% of the magazines where it was published are not classified as PUBLINDEX; In relation to the SJR classification, it is found that 6% of the articles were published in journals Q1, 5% in category Q2, 11% of the total articles produced in the period observed belong to category Q3, 5% is associated with the category Q4 and 72% of published articles were made in journals that are not classified in SJR; Indexing was also observed in SCOPUS, finding that 29% of the products published by the research groups are found in journals indexed in this bibliographic database, the remaining 71% are not in this type of journals.

In addition to the ANOVA analysis (table 6), it is clear that a greater degree of results in the number of citations due to writing in English is significantly greater than writing in Spanish, while the fact that a magazine is classified in Publindex does not generate a greater result in the number of citations; but if the effect on publications is that the articles are published in SRJ journals is significantly greater, so they are indexed in Scopus.

4. Discussion

The productivity of Colombian research groups that investigate in the market area is not significant in terms of the quantity of products produced if this is compared to the number of researchers that belong to each GR, even those groups that do not have no article published in this area of knowledge despite declaring line of marketing research; It should be considered here that the analyzed RGs also develop other lines of research and that researchers may have different academic training from the area of administrative sciences, however the dynamics presented here indicate the trend in increasing productivity levels from of the year 2010.

It is also observed that Colombian researchers have increased the amount of articles in a foreign language, an aspect that at the same time is related to the increase in the publication of articles in journals indexed in Scopus or that are categorized in the SRJ, this is consistent with the results that also show growth in international publications.

The fact that a research group is the one that has published the most articles in the analyzed period, but that in turn does not generate an impact on the academic environment, may reflect the measurement system that is carried out in Colombia, in which the result in citations reached by an article; Despite the above, which seems to be an isolated case, the research groups that have the most production are 70% of the groups that obtain the highest results in citation rates, although it is necessary to clarify that the analysis was not analyzed. effect generated by international collaboration in these publications.

The change of orientation since 2008 regarding the intention to publish in top journals, more quantity of articles published and the use of the English language has had a positive effect on the results of the number of citations as evidenced by the results of this study.

5. Conclusion

It is evident the relationship between the use of the Spanish language and the citations achieved with lower performance amalziado since the arithmetic average (10.5), in contrast there is a greater relationship between the number of citations obtained with the articles published in English, since it reaches an arithmetic average of 16.9.

Colombian scientific journals are the medium in which researchers mostly publish in Colombia (93%), but to a large extent these journals are published in Spanish, which explains why 81.05% of the publications are made in Spanish ; A change in the management of the journals that are aimed at participating in international scenarios such as indexing in Scopus and are included in SJR could reverse the low impact of these media and in turn improve the visibility of Colombian research and its researchers.

The results represented here refer to the production of scientific articles of research groups dealing with marketing issues, this analysis did not include other research products such as books and book chapters, invention or utility patents, training, transfer of knowledge or the organization of events, The effects of the measurement system of research groups in the country is oriented towards the categorization of groups and researchers, but for this system the production in international media moves to an internal homologation system that equals international journals in the PUBLINDEX categories; This measurement methodology is constantly evolving and is increasingly demanding towards national scientific journals, towards publications, the productivity levels of researchers and research groups

To improve the results of Colombian research in the area of marketing, it is necessary to increase the productivity index per researcher in those groups that have as a line of inevitable marketing; It implies national scientific journals edited in English or that allow to publish in several languages, the presentation of articles in English by researchers, search indexing in international rankings for Colombian journals as well as for Colombian articles.

It is necessary in turn in future research to study the effect that published research topics have, since they focus on consumer behavior, brand and perception, because it is not described as the selection of a particular subject affects visibility and Citations of developed research products.

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