

Digital Communication of Agricultural Exporting Companies in Ecuador and its Relationship with Food Security in the Context of the United Nations Sustainable Development Goals

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Abstract

A documentary review was carried out on the production and publication of research papers related to the study of the variable digital communication of agricultural exporting companies in Ecuador and its relationship with food security in the context of the Sustainable Development Goals of the United Nations. The purpose of the bibliometric analysis proposed in this document, is to know the main characteristics of the volume of publications registered in Scopus database during the period 2015-2020 in Latin American countries, achieving the identification of 82 publications in total. The information provided by said platform, was organized by means of graphs and figures categorizing the information by Year of Publication, Country of Origin, Area of Knowledge and Type of Publication. Once these characteristics were described, the position of different authors regarding the proposed topic was referenced by means of a qualitative analysis. Among the main findings of this research, it is found that Ecuador and Brazil, with 18 publications each, are the Latin American countries with the highest production. The area of knowledge that made the greatest contribution to the construction of bibliographic material referring to the study of digital communication of agricultural product exporting companies and its

relationship with food security in the context of the United Nations Sustainable Development Goals was computer science with 39 published documents, and the type of publication that was most used during the period mentioned above was the conference proceedings, which represented 55% of the total scientific production.

Keywords: digital business-to-business communication, food safety, sustainable development

1. Introduction

Due to the digital transformation that has developed in recent years, business communication has undergone several changes from mass communication in television and radio media, among others, to selective communication, which has led companies to increase their digital budgets (Galarza & Quichimbo, 2015) which leads to the use of new digital marketing strategies, using them no longer as a complement but as an ideal advertising strategy. A clear example of digital communication in agricultural companies are the companies that market pitahaya in Ecuador, which implement various digital communication strategies such as the creation of websites, advertising on social networks that have helped companies to be more competitive and enter the international market (Gaibor Pluas & Aguilar Uguña, 2019).

On the other hand, the Sustainable Development Goals of the United Nations (UN) are divided into three dimensions: economic, social and environmental. These objectives include sustainable economic growth that respects the environment (Gil, 2018) These objectives include decent work and economic growth, responsible production and consumption, zero hunger and the end of poverty. These objectives have been integrated into the organizational plan of Latin American companies, specifically in Ecuador, where agricultural business policies address issues such as sustainable consumption and the conservation of natural resources. The agricultural sector is one of the most important in Ecuador, generating jobs directly and indirectly, so through digital tools seeks to open trade to these SMEs (Chávez et al., 2018).

The objective of digital communication in this sector is to make companies more competitive in order to achieve the commercial activation of communities in which agriculture is the main source of income, helping to alleviate poverty and generating more jobs and a much wider market. A clear example of sustainable development are the agricultural coffee companies in Manabí, Ecuador, which propose a self-sustainable management that allows them to produce in a rational way, with a lower environmental impact and with greater financial returns for the families that have made a productive bet. This model will allow the optimization of the management of family farms in the zone, thus allowing the improvement of the productivity of the coffee plantations and therefore the socioeconomic conditions of the small producers through commercial associativity (Vélez De La Cruz, 2020).

Therefore, it is important to know about the advances in Digital Communication in agricultural companies and how they integrate the Sustainable Development it is considered

important to know about the advances in Digital Communication in agricultural companies and 'how they integrate the Sustainable Development Goals in their business policies aimed at economic growth and social development through bibliometric analysis of the scientific production registered in Scopus during the period 2015-2020 that allows to answer the question "How has been the production and publication of research papers related to the study of the variable Digital Communication of agricultural exporting companies and their relationship with Food Security in the context of the Sustainable Development Goals of the United Nations during the period 2015-2020?"

2. General objective

To analyze from a bibliometric and bibliographic perspective, the production of high impact research papers on the variable Digital Communication of agricultural exporting companies in Ecuador and its relationship with food security in the context of the Sustainable Development Goals of the United Nations during the period 2015-2020.

3. Methodology

A quantitative analysis of the information provided by Scopus is carried out under a bibliometric approach on the scientific production concerning the digital communication of agricultural exporting companies and its relationship with food security in the context of the Sustainable Development Goals of the United Nations. Also, it is analyzed from a qualitative perspective, examples of some research papers published in the area of study mentioned above, from a bibliographic approach to describe the position of different authors on the proposed topic.

The search is carried out through the tool provided by Scopus and the parameters referenced in Table 1 are established.

3.1 Methodological design

Table 1. Methodological design.

PHASE	DESCRIPTION	CLASSIFICATION
DATA COLLECTION	Data was collected using the Scopus web page search tool, through which a total of 82 publications were identified	Published documents whose study variables are related to digital communication of agricultural exporting companies and their relationship with food security in the context of the Sustainable Development Goals of the United Nations Research papers published during the period 2015-2020. Limited to Latin American countries. Without distinction of area of knowledge. Without distinction of type of publication.

CONSTRUCTION OF ANALYSIS MATERIAL	The information identified in the previous phase is organized. The classification will be made by means of graphs, figures and tables based on data provided by Scopus	Word Co-occurrence. Year of publication Country of origin of the publication. Area of knowledge. Type of publication
DRAFTING OF CONCLUSIONS AND FINAL DOCUMENT	After the analysis carried out in the previous phase, the conclusions are drawn up and the final document is prepared	

Source: Own elaboration (2021)

4. Results

4.1 Co-occurrence of words

Figure 1 shows the co-occurrence of keywords within the publications identified in the Scopus database.

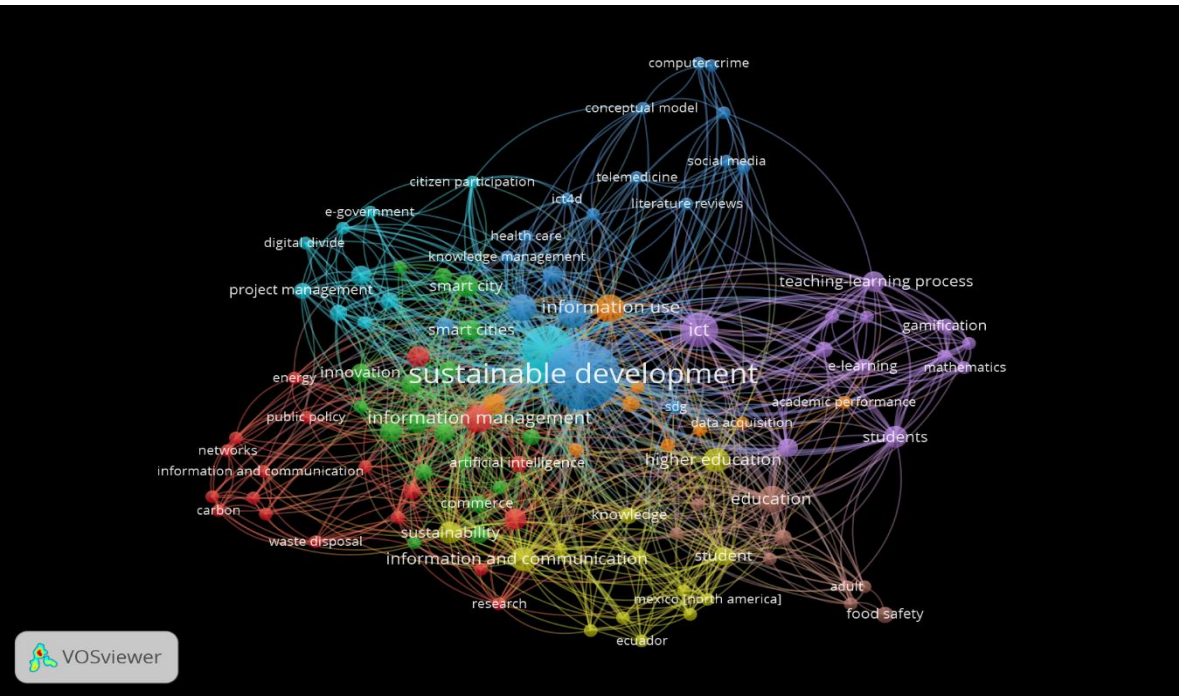
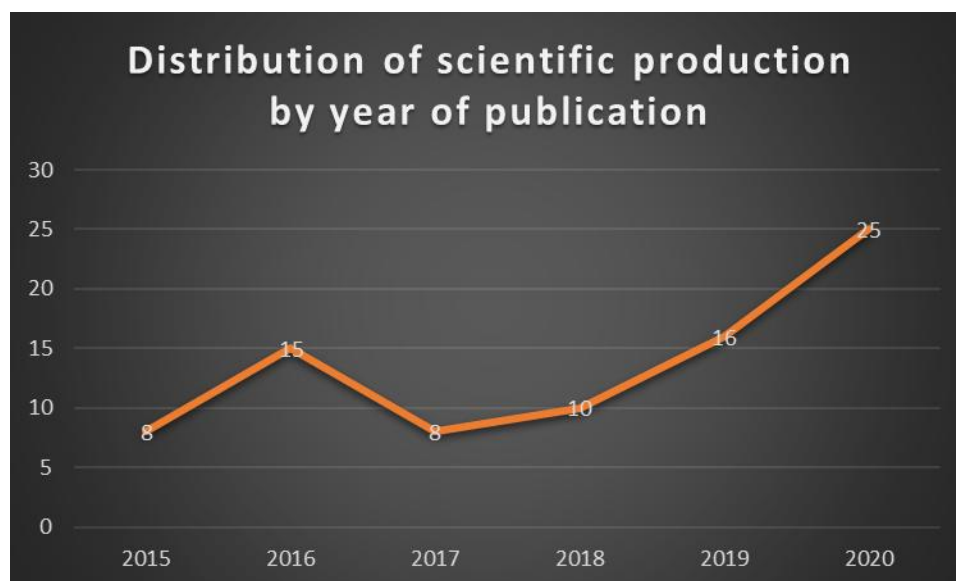


Figure 1. Co-occurrence of words.

The key word most used in research on the topic under study is sustainable development, and it is directly related to the operations carried out in companies in order to maintain a balance between their economic growth and the conservation of resources for future generations, thus being sustainable development the basis for business policies of organizations in favor of innovation and conservation of goods ensuring proper treatment of these and supporting their renewal. This graph shows how sustainable development has a relationship with ICT, artificial intelligence and information management, which evidences the role of information and communication technologies in the measures implemented by companies in search of sustainability and digital transformation within the administrative processes of organizations, optimizing their productivity and making the objectives of the companies more in line with the environment and their conservation policies. On the other hand, there are key words such as waste deposits, coal and energy, which are important topics when discussing how these resources are treated by companies and what methods they use for their proper management, and how these go in search of sustainability and conservation of natural resources. Hence, the importance of talking about digital communication in companies and how it helps to modify their processes in favor of sustainable development.

4.2 Distribution of scientific production by year of publication.

Figure 2 shows how the scientific production is distributed according to the year of



publication, considering the period from 2015 to 2020.

Figure 2. Distribution of scientific production by year of publication.

Source: Own elaboration (2021); based on data provided by Scopus.

From the period analyzed in Figure 2, 2020 is the year with the most publications registered in Scopus about digital communication in companies and its relationship with sustainable development, among which is "*Mexico and food safety: The use of ICT for digital food labeling*" (Lagunes Navarro, 2020) in which the applicability of ICT in food labeling is

studied, thus helping consumers to have a better understanding of what they are buying. ICT would be implemented through QR codes and augmented reality in the packaging, which would allow the information to be more complete, accurate and understandable for the consumer, thus helping food safety and nutritional education.

The second year with the second highest number of published papers was 2019 with a total of 16 within which we identified "*Sensing, smart and sustainable technologies for agri-food 4.0*." (Miranda, Molina, A., & Wright, 2019) where they analyze how machinery in agri-food companies are harnessed by means of ICT which has given way to a new era of food production called "*agrifood 4.0*" where automation, connectivity, digitalization, the use of renewable energies and the efficient use of resources are predominant in this sector. In this study, they try to describe how technological innovations can be developed in the agricultural sector to help optimize their processes. So, in this study their main objective is to fill the gap against the current lack of design roadmaps that enable the development of this new generation of products in the context of agri-food 4.0.

4.3 Distribution of scientific production by country of origin.

Figure 3 shows the distribution of scientific production according to the nationality of the authors.

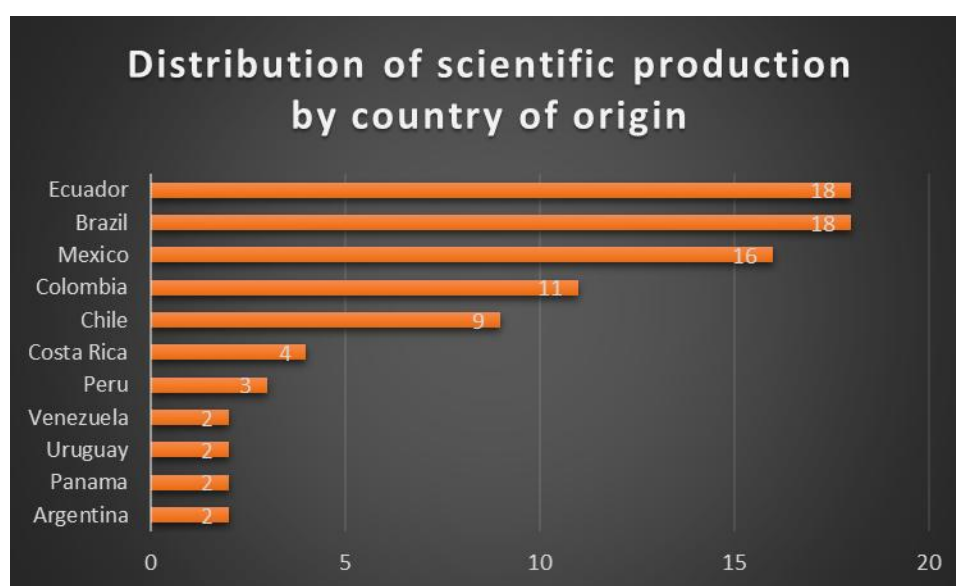


Figure 3. Distribution of scientific production by country of origin.

Source: Own elaboration (2021); based on data provided by Scopus.

Figure 3 shows that Ecuador and Brazil are the two Latin American countries with the most publications registered in Scopus related to the topic under study. In the case of Ecuador, titles such as "*ICTs and their Impact on Development and the Environment: Case Study for South America*" (Viviana & Wilman-Santiago, 2020) are found, where they establish a relationship between ICTs and the quality of life and economic growth of organizations by

reducing processes and improving the use of natural resources. The objective of this project is to analyze the relationship between ICTs, human development and the environment in South America, using a panel methodology that facilitates cross-sectional and time series analysis, which leads to the conclusion that there is a direct relationship between sustainable human development and information and communication technologies. In this figure Mexico is also the country with the third highest number of documents published, with 16 in total, followed by Colombia with 11, Chile with 9 and Costa Rica with 4.

At this point, it should be noted that the production of scientific publications, when classified by country of origin, presents a special characteristic and that is the collaboration between authors with different affiliations to both public and private institutions, and these institutions can be from the same country or from different nationalities, so that the production of an article co-authored by different authors from different countries of origin allows each of the countries to add up as a unit in the overall publications. This is best explained in Figure 4, which shows the flow of collaborative work from different countries.

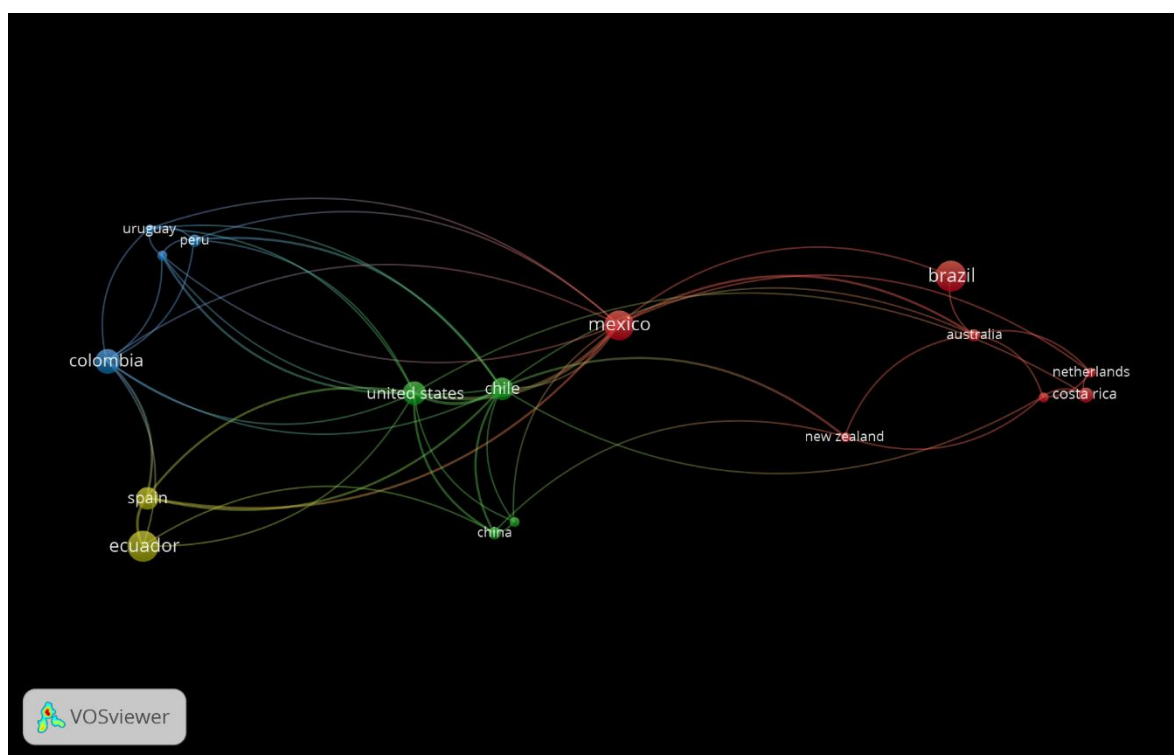


Figure 4. Co-citations between countries.

Source: Own elaboration (2021); based on data provided by Scopus.

Figure 4 shows Brazil as one of the Latin American countries with more publications with affiliated authors from Australia and the Netherlands, as well as Ecuador, which has affiliated authors from the United States, Spain and China, among which is the publication co-authored with Spain called "Regional cooperation to address environmental protection: E-government and sustainable development in the Andean countries" (Aniscenko, Robalino-López, Rodríguez, & Pérez, 2017) that is a comparative study of Andean

countries adopting a rational neoinstitutionalist perspective to observe longitudinal changes in these developing countries and their implementation in companies. The objective of this research is to explain the relationship between improvements in governance, the influences on economic, social and environmental development and how such regional cooperation in the development of national strategies and programs of information technology and communication, so it can be concluded that the strategies adopted by Ecuador have contributed significantly to its location within the references in progress of Electronic Government and Sustainable Development in the region. This type of publication shows the importance of collaboration between countries that do not belong to Latin America to offer a broader vision of digital communication between companies and its relationship with sustainable development, allowing comparative studies between countries to determine the policies that are taken globally about the modification of business processes so that they point towards a culture of sustainability and use of natural resources that help the economic development of nations without permanently affecting the environment.

4.4 Distribution of scientific production by area of knowledge

Figure 5 shows how the production of scientific publications is distributed according to the area of knowledge through which the different research methodologies are executed.

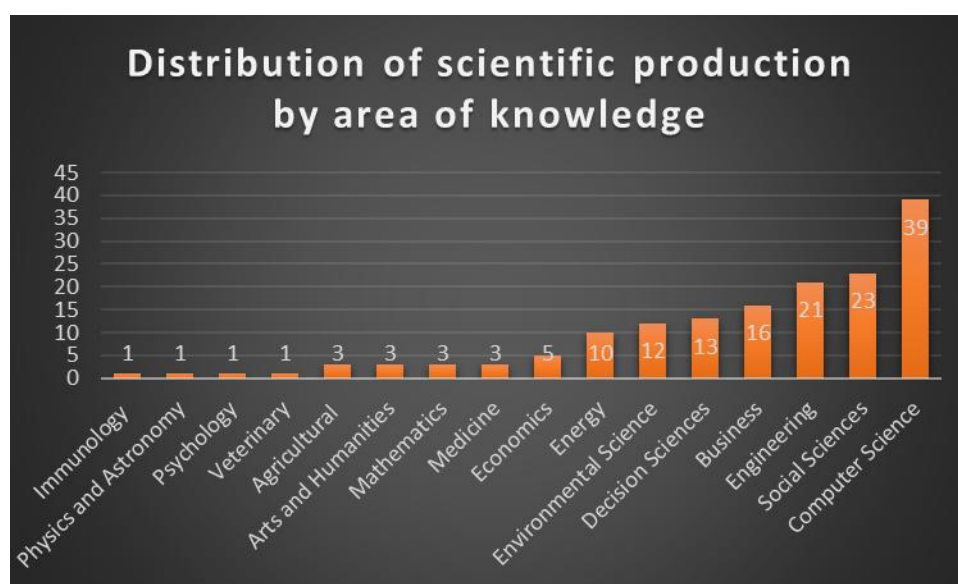


Figure 5. Distribution of scientific production by area of knowledge.

Source: Own elaboration (2021); based on data provided by Scopus.

Computer sciences is the area of knowledge with the highest number of publications with a total of 39 due to the nature of the topic raised in this study about information technologies, digital communication between companies and their relationship with sustainable development. In second place is social sciences with 23 publications, engineering with 21 and business with 16 publications registered in the period 2015-2020 within which is the title "Analysis of competitiveness factors for the sustainable productivity of SMEs in

Trujillo (Peru)" (Luis Alberto, y otros, 2020) The main objective of this study was to analyze the competitive situation of Small and Medium Enterprises (SMEs) in the city of Trujillo, evaluating the key factors for productivity that will have an association with sustainable competitiveness, taking into account that the levels of competitiveness of Latin American countries are in a process of slow development to reach those companies located in more modern economies, because they have difficulties in some fundamental pillars of competitiveness such as levels of technological innovation and implementation of ICT. Research such as this is useful to improve knowledge in the strategic decisions of SME managers to respond to globalization and the intensive process of digitization consistent with sustainable development.

4.5 Type of publication

Figure 6 shows how the bibliographic production is distributed according to the type of publication chosen by the authors.

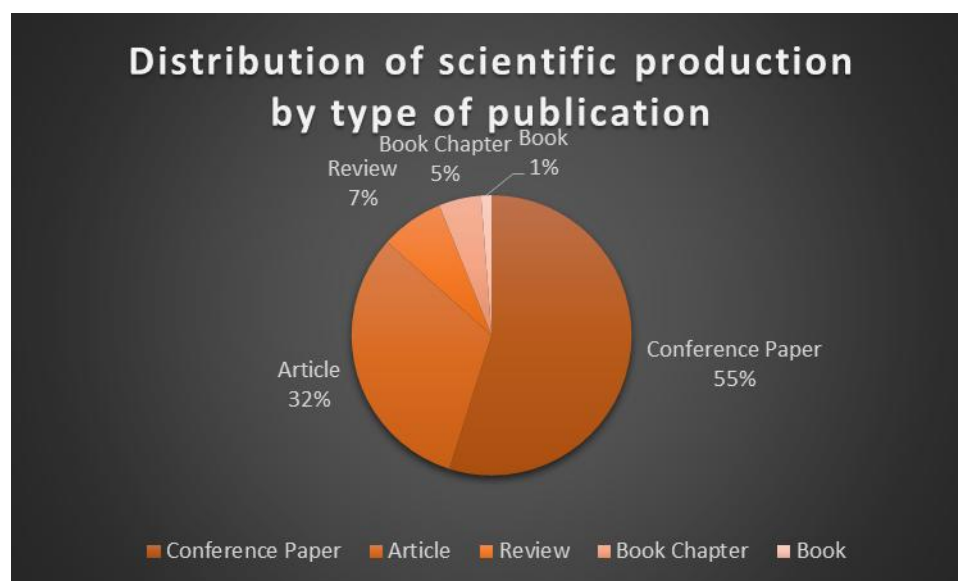


Figure 6. Type of publication

Source: Own elaboration (2021); based on data provided by Scopus.

Within the different types of publications shown in Figure 6, conference proceedings represent most of the registered publications, 55% of which are identified as "Socioeconomic development through the use of ICTs in Brazilian companies: An analysis of the contribution of the workforce" (Mesquita & Alves, 2015). This article explores the relationship between Information and Communication Technologies (ICT) and socioeconomic development from a business management perspective. This article seeks to analyze the experience of Brazilian companies in the use of ICT to discuss their level of adoption and impact on the development of Brazil so it is considered important to discuss the key aspects and obstacles to the adoption of ICT that include issues related to specialized labor and business initiatives.

Within this type of publication is also the one entitled "Understanding intention to trust product information and certifications to promote sustainable consumption: applying the theory of planned behavior" (Sayogo et al., 2018) which explores consumer trust in sustainable product and certification information included on the product package and label, where 327 observations collected from an international survey distributed to students in the U.S., Mexico, and Indonesia were used as a representation of consumer opinion. Thus, this research concludes the importance of the instrumental roles of ICT in facilitating sustainable development by enabling positive changes in consumer behavior, specifically in supporting sustainable consumption. This graph also includes journal articles with 33% of the total publications, reviews with 7%, book chapters with 5% and books with 1% of the publications indexed in Scopus.

5. Conclusions

Thanks to the bibliometric analysis proposed in this research, it can be determined that Brazil and Ecuador are the Latin American countries with the highest number of bibliographic records in the Scopus database during the period between 2015 and 2020 with a total of 82 documents. The scientific production related to the study of digital communication of agricultural exporting companies and its relationship with food security from the context of the Sustainable Development Goals of the United Nations, has presented a significant growth during the period previously mentioned, going from 8 publications in 2015 to 25 documents in 2020, i.e., it was possible to triple the creation of bibliographic records in a period of 5 years, which indicates the importance of ICT in business communication and its innovations in the procedures in order to be in line with the objectives of sustainable development and economic growth of companies.

One of the main changes in business communication is the use of digital tools as a marketing strategy no longer as a complementary action but as a main strategy in order to make the agricultural sector more competitive as it is one of the most important sectors in Latin America, generating a large number of jobs both directly and indirectly, so digital communication plays an important role in business growth projects by helping to give more visibility to agricultural organizations. This use of ICTs in business communication promotes the creation of policies on food security and responsible consumption, thus incorporating the UN Sustainable Development Goals as a way to make agricultural processes sustainable and more in line with the conservation of natural resources and care for the environment, in addition to generating a social change by generating decent jobs, which helps to alleviate poverty and reduce inequality gaps in the most vulnerable communities in Latin America. Therefore, the need for studies such as the one presented in this document is highlighted due to the need to present the reader different points of view about innovations in corporate digital communication and how companies in the agricultural sector implement the UN Sustainable Development Goals in their policies and action plans.

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