

# ESTIMATING A PRODUCTION FUNCTION AND PRODUCTIVITY ANALYSIS: THE GLOBAL AND ECONOMIC INNOVATION SECTOR IN LOCAL MARKETS

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## Summary

*A documentary review was carried out on the production and publication of research papers related to the study of the variables Productivity, Innovation and Local Markets. The purpose of the bibliometric analysis proposed in this document was to know the main characteristics of the volume of publications registered in the Scopus database during the period 2017-2021, achieving the identification of 85 publications in total. The information provided by this platform was organized through graphs and figures categorizing the information by the Year of Publication, Country of Origin, Area of Knowledge and Type of Publication. Once these characteristics have been described, the position of different authors on the proposed theme is referenced through a qualitative analysis. Among the main findings made through this research, it is found that China with 18 publications, was the country with the highest scientific production registered on behalf of authors affiliated with institutions in that country. The Area of Knowledge that made the greatest contribution to the construction of bibliographic material referring to the study of productivity, innovation and its levels within local markets was Business, Administration and Accounting with 25 documents published, and the Type of Publication that was most used during the period indicated above was the Journal Article that represents 78% of the total scientific production.*

**Keywords:** *Productivity, Innovation, Local Markets.*

## 1. INTRODUCTION

The various studies on manufacturing worldwide is a topic that interests with greater intensity due to the various economic crises that have been generated in recent decades, since the crisis of the 30s which affected the main economic powers triggering market problems from production, productivity and the ability to improve the various factors of production of the industrial sectors that make up the country. . In addition, the vision of improving in an alternative way the industrial sectors which generates a useful tool to the responsibility of public policies, government entities, economy and business sectors.

The segmentation of industrial and commercial sectors has been analyzed since the last decades in order to group the industrial and manufacturing sectors and classify them by production, catalogs

them into high-tech sectors, medium technology sectors and low technology sectors. The grouping of these productive sectors responds to the continuous industrial modifications included from the specialization and due competitiveness of production. It is the advanced economies and economic models that lead mass production and developing economies are responsible for leading the mass production of labor.

This article highlights the classification of the productive sectors, in this classification five major sectors are grouped among which we find the global innovation sector in local markets, manufacturing sector, intensive sector of energy and natural resources and intensive sectors of work. As we know, innovation and production are a key element for the recovery of economies. Provide the talent of resources to be more efficient and this generates as a consequence the obtaining of greater and better results in less time, improving productivity and productivity analysis of global markets we achieve a more sustainable production model, estimate the productivity function at the level of companies, in order to study the productivity of these sectors. For this reason, this article seeks to describe the main characteristics of the compendium of publications indexed in Scopus database related to the variables Productivity, Innovation and Local Markets, as well. As the description of the position of certain authors affiliated with institutions, during the period between 2017 and 2021.

## 2. GENERAL OBJECTIVE

Analyze from a bibliometric and bibliographic perspective, the production of research papers on the variables Productivity, Innovation and Local Markets registered in Scopus during the period 2017-2021.

## 3. METHODOLOGY

Quantitative analysis of the information provided by Scopus is carried out under a bibliometric approach on scientific production referring to the study of Productivity, Innovation and Local Markets. Likewise, it is analyzed from a qualitative perspective, examples of some research works published in the area of study indicated above, from a bibliographic approach to describe the position of different authors regarding the proposed topic.

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

### 3.1 Methodological design

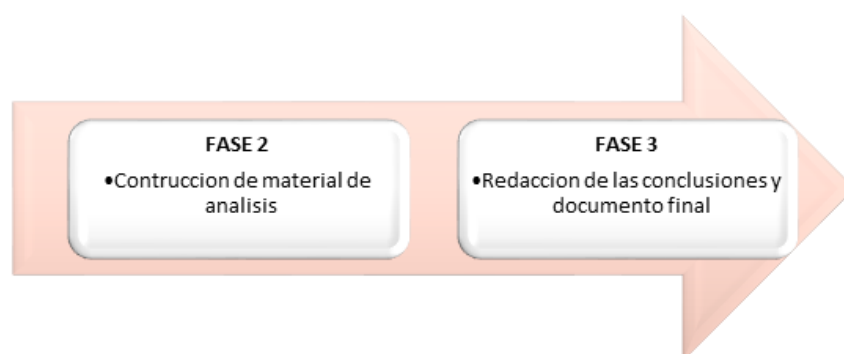


Figure 1. Methodological design  
Source: Authors.

#### 3.1.1 Phase 1: Data collection

Data collection is carried out through the Search tool on the Scopus website, through which a total of 85 publications are identified. For this purpose, search filters were established consisting of:

TITLE-ABS-KEY ( productivity, AND innovation, AND local AND markets ) AND ( LIMIT-TO ( PUBYEAR , 2022 ) OR LIMIT-TO ( PUBYEAR , 2021 ) OR LIMIT-TO ( PUBYEAR , 2020 ) OR LIMIT-TO ( PUBYEAR , 2019 ) OR LIMIT-TO ( PUBYEAR , 2018 ) OR LIMIT-TO ( PUBYEAR , 2017 ) )

- ✓ Published documents whose study variables are related to the study of Productivity, Innovation and Local Markets.
- ✓ Without distinction of country of origin.
- ✓ Without distinction of area of knowledge.
- ✓ Without distinction of type of publication.

### 3.1.2 Phase 2: Construction of analytical material

The information identified in the previous phase is organized. The classification will be made by means of graphs, figures and tables from data provided by Scopus.

- ✓ Co-occurrence of Words.
- ✓ Year of publication
- ✓ Country of origin of the publication.
- ✓ Area of knowledge.
- ✓ Type of Publication

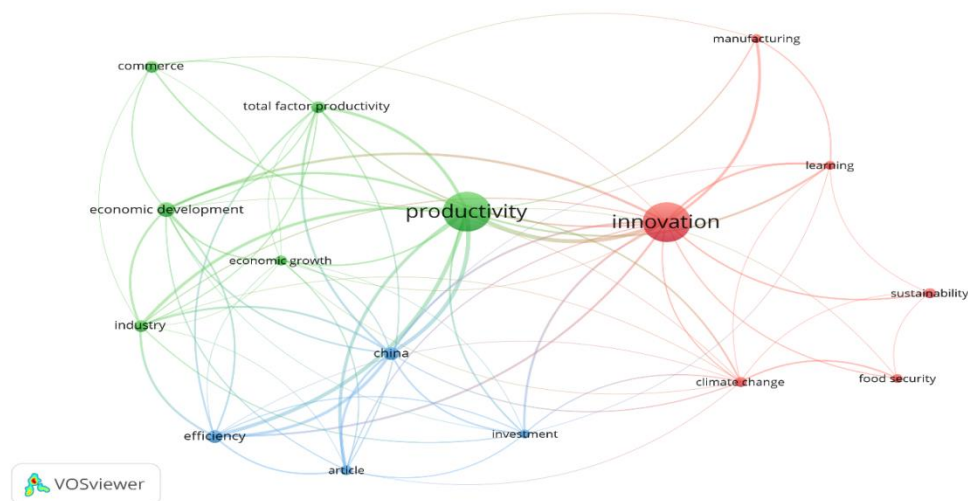
### 3.1.3 Phase 3: Drafting of conclusions and outcome document

After the analysis carried out in the previous phase, we proceed to the drafting of the conclusions and preparation of the final document.

## 4. RESULTS

### 4.1 Co-occurrence of words

Figure 2 shows the Co-occurrence of keywords within the publications identified in the Scopus database.



**Figure 2.** Co-occurrence of words

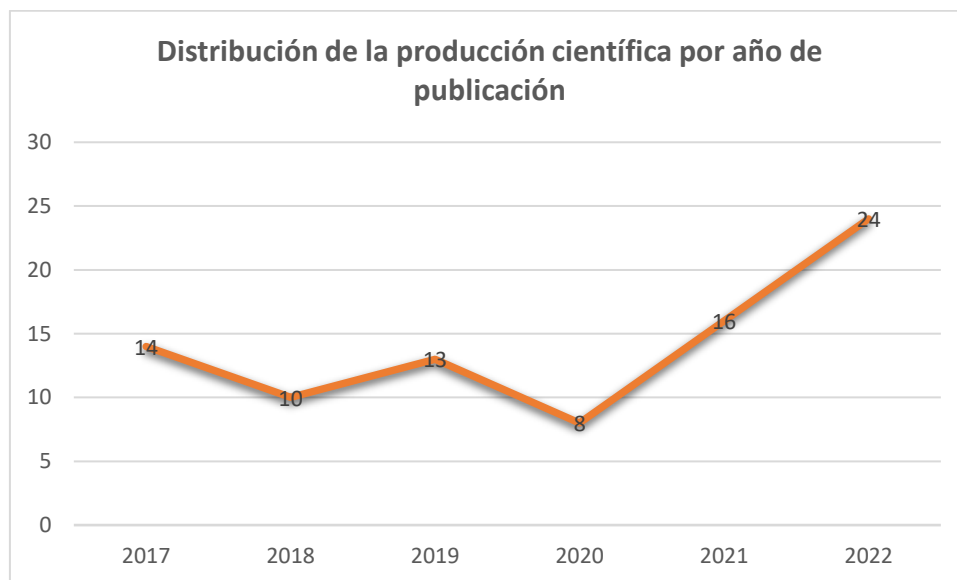
Source: Own elaboration (2022); based on data provided by Scopus.

Within the study of the research yielded by the Scopus platform, referring to the variables Productivity, Innovation and Local Markets, object of this scientific debt, it is said that to carry out the processes and satisfy the demand of the global market, there are many factors, the most important being human resources, capital, technology and raw materials; It is important to know the activity of these factors and how they affect the achievement of business objectives, if the ratio of resources used is analyzed and compared with the results obtained, we are talking about

productivity; a term also related to efficiency and effectiveness. It is for this reason that through the interpretation of Figure 2, it is possible to determine as keywords of the publications reported in Scopus, Productivity, Innovation, Manufacturing. In general, the study of TFP and its determinants is very important to explain the differences in the productivity of firms, economic sectors, and thus make economic policy decisions.

#### 4.2 Distribution of scientific production by year of publication.

Figure 3 shows how the scientific production is distributed according to the year of publication, taking into account that the period between 2017 and 2021 is taken

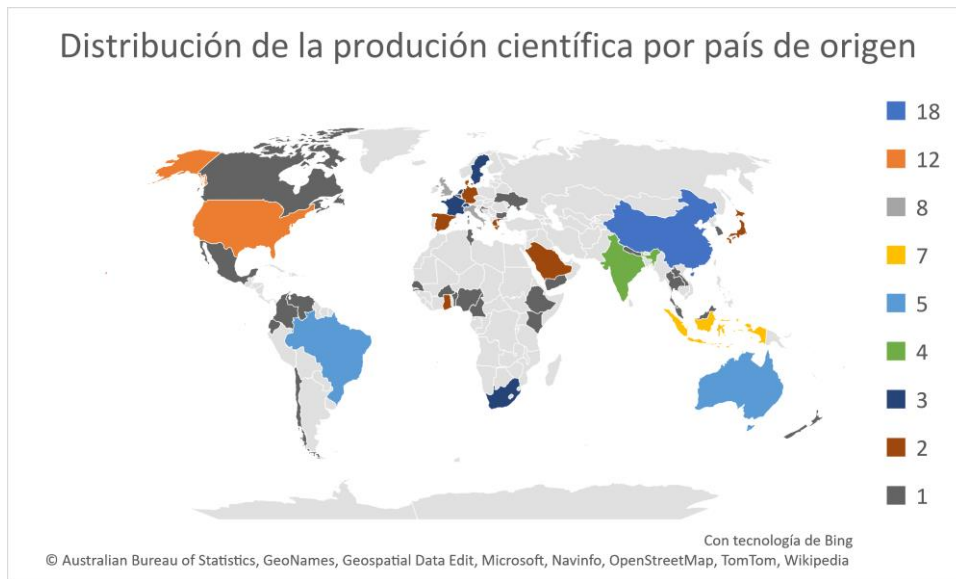


**Figure 3.** Distribution of scientific production by year of publication.  
**Source:** Own elaboration (2022); based on data provided by Scopus.

Among the main characteristics evidenced through the distribution of scientific production by year of publication, it is noted that the year in which the highest number of publications were registered in Scopus was 2022, reaching a total of 24 documents published in journals indexed on said platform. Among which stands out the article called "Characteristics of innovation and opportunity of adoption of Bujangseta technology for the cultivation of tangerines" This study aims to identify the characteristics of Bujangseta(Zamzami, 2021) technological innovation that could influence the adoption of the technology by farmers. The study was conducted at Banyuwangi Regency in November 2019 using a census method for the 16 cooperative farmers of the Bujangseta technology. The present study applied a descriptive analysis method based on the rating and category of the characteristics of technological innovation. The results showed that the innovation features of Bujangseta technology were: 1) it was very profitable since the cultivation of mandarin with the application of Bujangseta technology generated higher income than without the application, 2) it was very appropriate with local conditions as all production supplies were available locally, 3) it was easy to apply because farmers did not suffer any complications to employ the Bujangseta practice, 4) it was easy to observe as the results of the Bujangseta implementation were easy to observe visually by farmers and 5) it was easy to test as Bujangseta's method was easy to test and apply. Therefore, this new technology had a very high adoption opportunity rate, which shows that the technology had a great chance of being adopted by farmers.

#### 4.3 Distribution of scientific production by country of origin.

Figure 4 shows how scientific production is distributed according to the nationality of the authors.

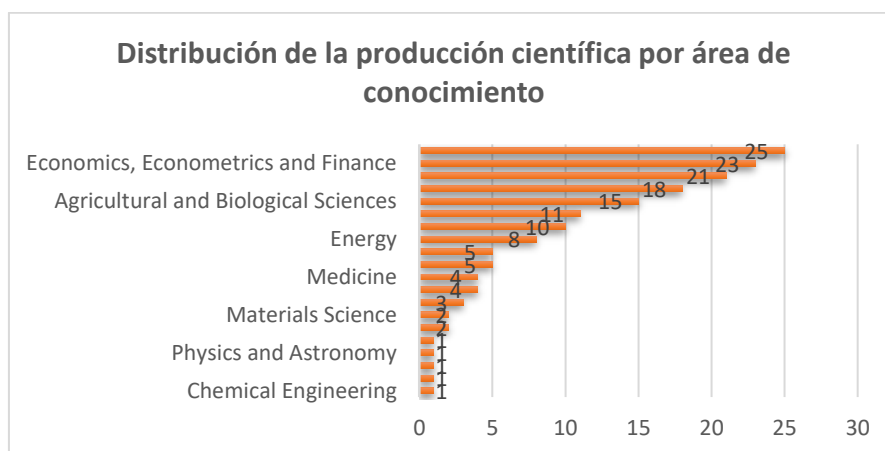


**Figure 4.** Distribution of scientific production by country of origin.  
**Source:** Own elaboration (2022); based on data provided by Scopus.

Within the distribution of scientific production by country of origin, records from different institutions were taken into account, establishing China, as the country of that community, with the highest number of publications indexed in Scopus during the period 2017-2021, with a total of 18 publications in total. In second place, the United States with 12 scientific papers, and Indonesia with 8. Italy ranked fourth presenting to the scientific community, a total of 7 documents among which is the article entitled "Benefits of intensive mango production systems "(Bally I.S.E., 2020) the objective of this research is to radically redesign garden systems, increasing their productive efficiency and profitability. Experimental intensification using higher planting densities and crown training with a single leader has led to early gains in productivity (~47 t ha<sup>-1</sup> in year 4). This paper describes some of the key relationships underpinning these early productivity gains in areas such as tree architecture and canopy volume, canopy training, canopy light interception, and light distribution.

**4.4 Distribution of scientific production by area of knowledge**

Next, it is shown in Figure 5, 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 (2022); based on data provided by Scopus.

Business, Management and Accounting was the area of knowledge with the highest number of publications registered in Scopus with a total of 25 documents that have based their methodologies on the impact of Productivity, Innovation and Local Markets. Secondly, Economics, Econometrics and Finance with 23 documents. The above can be explained thanks to the contribution and study of different branches, the article with the greatest impact was registered by the area of Business, Management and Accounting entitled "The limits of loans? Banks and technology adoption in Russia" (Bircan, 2020) which aims to identify the impact of bank lending on innovation in Russian companies. We find that deeper credit markets increase firms' use of bank credit, their adoption of new products and technologies, and their productivity growth. This ratio is most pronounced in industries farther from the technological frontier, more exposed to import competition and exporting more. These impacts are also stronger for companies near historic R+D centers or railways and in regions with support institutions. According to these results, credit markets contribute to economic growth in these regions. The authors have provided a dataset, which is available on the Oxford University Press website alongside the link to the final article published online.

#### 4.5 Type of publication

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



**Figure 6.** Type of publication

Source: Own elaboration (2022); based on data provided by Scopus.

The type of publication most frequently used by the researchers referenced in the body of this paper was the Journal Article with 78% of the total production identified for analysis, followed by Conference Articles with 9%. The Book Chapters are part of this classification, representing 7% of the research works published during the period 2017-2021 in journals indexed in Scopus, and finally the Revisions, 4%. In the latter category, the one entitled "The purpose of this study is to promote and test the idea that product exports and technology imports are complementary cross-border learning approaches to the innovative performance of emerging market firms. In addition, this work also seeks to look for contextual variables that affect this complementarity. Design/methodology/approach: This study adopts a systems approach to examining complementarity, combining a "productivity" and an "adoption" approach. In addition, the interaction approach is also used as a robustness check. Findings: The authors show that the positive effect of export activity on firms' growth rate is greater for firms that also import technology, and vice versa. In addition, they show that, *Ceteris paribus*, the adoption by firms of one cross-border learning mechanism (e.g. entering export markets) positively influences the

adoption of the other (e.g. import of technology). In addition, this complementarity is only significant for companies in the province with a low level of commodification. (Wang, 2019)

## 5. CONCLUSIONS


Through the bibliometric analysis carried out in this research work, it was established that China was the country with the highest number of records published for the variables Productivity, Innovation and Local Markets with a total of 18 publications in Scopus database during the period 2017-2022. In the same way, it was established that the application of theories framed in the area of Business, Management and Accounting, were the most frequently used in the measurement of the impact generated by the implementation of productivity in the local market and innovation sectors with estimation of production and productivity where the manufacturing sector is the one in charge of boosting the economy through its mechanisms in charge of employment management, contributions to gross value, among others. In this sense, it is important to analyze production and productivity is of great relevance for the economy of all countries. This article focuses on the role of production and analyzes the relationship of TFP of export activities and imports of new technologies in the global sector in local markets. It is also worth noting the contribution of technology to increasing the productivity of companies and the global market, as it improves processes and shortens working times, making it faster. It is also important to consider that there is a close relationship between costs, quality and productivity, where quality positively determines the other two, because with an adequate quality management system high productivity and cost reduction can be achieved. This cause is not always correct when terms are translated or modified. The effect of quality on productivity means that quality management systems also work to achieve high quality in innovative companies and sectors. The efqm model has proven its effectiveness in international, global and national markets, making it an important tool in the management of all organizations of all types of processes.

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