Revista Angolana de Ciências

Vol. 8, Nº 1. e080107. Janeiro – Junho, 2026
(Publicação em Fluxo Contínuo)

Competitiveness in the agricultural sector in South America during the period 2018-2023: the case of Ecuador

Competitividade no setor agrícola da América do Sul no período de 2018 a 2023: O caso do Equador

Competitividad en el sector agrícola en Sudamerica durante el periodo 2018-2023: caso Ecuador

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ABSTRACT

This This study examines the competitiveness of Ecuador's agricultural sector during the period 2018–2023 in relation to Peru, Colombia, Chile, and Argentina, through a comparative analysis of economic and production indicators that identify the structural factors influencing its performance. Using a quantitative and descriptive approach, based on information from the FAO, the World Bank, and regional organisations, key indicators of the agricultural sector related to arable land, production, value added, and employment are analysed. The results reveal a marked heterogeneity among the countries analysed: Argentina and Colombia register higher levels of productivity and arable land, while Ecuador maintains an intermediate position conditioned by limitations in infrastructure, innovation, and access to technology. Agricultural value added showed variations with a slight recovery towards 2023, while rural employment remained high, reflecting the sector's social relevance but also its low productive efficiency. The findings underscore the need for public policies focused on technological modernisation, productive diversification, and institutional strengthening, in order to consolidate a competitive, sustainable, and inclusive agricultural model that contributes to Ecuador's economic development within the South American context.

Keywords: Agricultural competitiveness, agricultural productivity, added value, agricultural employment, Ecuador, South America.

RECEIVED: 07/10/2025
ACCEPTED: 15/03/2026
PUBLISHED: 15/05/2026

How to cite: Guamán, A.M., Llivicura, F.E. y Bejarano, H.F. (2026). Competitiveness in the agricultural sector in South America during the period 2018-2023: the case of Ecuador. *RAC: Revista Angolana de Ciências*, 8(1), e080107. https://doi.org/10.54580/R0801.07

E-ISSN. 2664-259X

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Resumo

Este estudo examina a competitividade do sector agrícola equatoriano no período de 2018 a 2023 em relação ao Peru, Colômbia, Chile e Argentina, através de uma análise comparativa de indicadores económicos e de produção que identificam os factores estruturais que influenciam o seu desempenho. Utilizando uma abordagem quantitativa e descritiva, baseada em informação da FAO, do Banco Mundial e de organizações regionais, são analisados indicadores-chave do setor agrícola relacionados com a área arável, a produção, o valor acrescentado e o emprego. Os resultados mostram uma acentuada heterogeneidade entre os países analisados: a Argentina e a Colômbia registam níveis mais elevados de produtividade e de área arável, enquanto o Equador mantém uma posição intermédia condicionada pelas limitações nas infraestruturas, na inovação e no acesso à tecnologia. O valor acrescentado agrícola apresentou variações com uma ligeira recuperação face a 2023, enquanto o emprego rural se manteve elevado, refletindo a relevância social do setor, mas também a sua baixa eficiência produtiva. Os resultados realçam a necessidade de políticas públicas focadas na modernização tecnológica, na diversificação produtiva e no fortalecimento institucional, de forma a consolidar um modelo agrícola competitivo, sustentável e inclusivo que contribua para o desenvolvimento económico do Equador no contexto sul-americano.

Palavras-chave: competitividade agrícola, produtividade agrícola, valor acrescentado, emprego agrícola, Equador, América do Suldor.

Resumen

Este estudio examina la competitividad del sector agrícola ecuatoriano durante el periodo 2018–2023 en relación con Perú, Colombia, Chile y Argentina, mediante un análisis comparativo de indicadores económicos y productivos que permiten identificar los factores estructurales que inciden en su desempeño. A partir de un enfoque cuantitativo y descriptivo, sustentado en información de la FAO, el Banco Mundial y organismos regionales, se analizan indicadores clave del sector agrícola vinculados a la superficie cultivable, la producción, el valor agregado y el empleo. Los resultados evidencian una heterogeneidad marcada entre los países analizados: Argentina y Colombia registran mayores niveles de productividad y superficie cultivable, mientras que Ecuador mantiene una posición intermedia condicionada por limitaciones en infraestructura, innovación y acceso a tecnología. El valor agregado agrícola presentó variaciones con una leve recuperación hacia 2023, en tanto que el empleo rural se mantuvo alto, reflejando la relevancia social del sector, pero también su baja eficiencia productiva. Los hallazgos subrayan la necesidad de políticas públicas orientadas a la modernización tecnológica, la diversificación productiva y el fortalecimiento institucional, con el fin de consolidar un modelo agrícola competitivo, sostenible e inclusivo que contribuya al desarrollo económico de Ecuador en el contexto sudamericano.

Palabras clave: competitividad agrícola, productividad agrícola, valor agregado, empleo agrícola, Ecuador, Sudaméricas.

Introduction

The agricultural sector constitutes an essential pillar in South American economies, representing a source of employment, income, and exports. In a globalised environment marked by constantly changing markets and increasingly determining climatic challenges, evaluating the competitiveness of agricultural activities in the region is crucial (Conroy et al., 2024). The differences in agricultural performance between countries express contrasts in their economic structures, in the way they integrate agriculture into their productive models, and in their degree of insertion into international trade, such that agriculture not only fulfils an economic function but also forms part of a local dynamic that represents the livelihood of millions of families in the region.

In recent years, structural changes have been evidenced that have affected the behaviour of the South American agricultural sector, driven by both internal factors and external conditions. In the case of Ecuador, this activity contributes greatly to the Gross Domestic Product (GDP), although a marked dependence on this activity as the main driver of exports still persists; despite the fact that the country has a wide production of strategic crops such as bananas and cocoa, the agricultural sector faces significant limitations in terms of innovation and difficulties in competing in international markets, which prevents greater development (Banerjee et al., 2021).

The study of competitiveness in the agricultural sector becomes relevant in an environment in which productivity, efficiency, and access to international markets directly affect economic development; however, the lack of comparative studies on agricultural performance in Ecuador and South American countries hinders the creation of effective policies and optimisation plans adapted to the particularities of each region (Masaquiza, 2017).

The objective of this study is to analyse the competitiveness of the agricultural sector in Ecuador during the period 2018–2023, in comparison with Peru, Colombia, Chile, and Argentina, through a comparative analysis of economic indicators, with the purpose of identifying determining factors that influence the performance of the agricultural sector. By identifying the aspects that favour or limit agricultural competitiveness, it will be possible to establish guidelines aimed at improving the efficiency of the productive process, strengthening the productivity of the sector, and generating sustainable advances in the level of competitiveness

Theoretical Framework

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The Competitiveness of the Agricultural Sector

Within the global economic scenario, agricultural competitiveness constitutes a determining factor for the positioning of countries in global markets, regarding the potential of a nation to generate and distribute agricultural goods efficiently, sustainably, and profitably, thus satisfying a dynamic demand with growing requirements in quality and traceability (Rodríguez et al., 2024).

Its scope is not limited to export performance but encompasses the internal sustainability of the sector, understood as the capacity to maintain profitability in the long term and strengthen national productive linkages; consequently, competitiveness is based on the total productivity of factors, as well as on differentiation based on quality and the incorporation of institutional mechanisms that foster innovation and territorial development (Worku et al., 2024).

Starting from classical theory, the economist David Ricardo at the beginning of the 19th century introduced the theory of comparative advantage, which states that nations tend to specialise in the production and export of those products in which they have a lower opportunity cost compared to other nations, granting them superior productive efficiency in relative terms. This approach, based on efficiency derived from opportunity cost, justifies the participation of economies in world trade through sectoral specialisation; in contemporary contexts, the notion of competitiveness has evolved towards a more dynamic perspective (Sanjinés et al., 2002).

From a modern perspective, economists such as Michael Porter point out that a country's true competitiveness is not based solely on its specialisation but on its capacity to innovate and continuously improve. In this framework, the theoretical approach developed by Porter (1998), indicates that the competitiveness of a nation in a specific sector depends on four interrelated factors: the endowment and quality of productive factors; the level of demand sophistication in the domestic market; the presence of efficient related and supporting industries; and the strategy, structure, and rivalry of firms. These components jointly allow the progressive accumulation of technological and organisational capacities necessary to successfully face external competition.

This approach has been applied in studies in the agricultural field. A study conducted in Mexico on malanga cultivation employed Porter's model to evaluate the sector's competitiveness at the regional level; the results of the analysis evidenced a low level of competitiveness, related to weaknesses in the quality associated with productive factors, scarce articulation among actors, limited technological innovation, and weak institutional linkage, thus evidencing the structural restrictions faced by agricultural systems. This case confirms that Porter's approach makes it possible to clearly identify such limitations and, at the same time, highlights the need to implement policies aimed at strengthening cooperation, training, and technological development in the rural sphere (López et al., 2018).

Competitiveness has moved from a vision centred on specialisation based on comparative advantages towards more comprehensive and dynamic approaches. In this way, competitiveness manifests itself in the capacity of the actors in the system to outperform their competitors, both internal and external, through the delivery of products that meet rigorous criteria of price, quality, and quantity, which is obtained through a combination of efficient productive practices, access to quality inputs, timely financing, and technical support throughout the productive process (Nugroho et al., 2023).

Relevance of the Agricultural Sector in South America

Interest in competitiveness is not a recent phenomenon; it began some time ago when attempts were made to understand the reasons why certain countries achieved prominent positions compared to others, which is reflected in the capacity to offer a high and rising standard of living, which depends on the efficient use of resources, measured by the return on labour and capital. Therefore, maintaining this well-being can only be achieved through constant increases in productivity, either by optimising existing economic activities or by successfully venturing into more productive sectors (Labarca, 2007).

According to a study by Conroy et al., (2024), griculture plays a key role in Latin America and the Caribbean; in 2022 it represented approximately 7% of the regional GDP, and it likewise maintains a contribution to employment encompassing an average of 15% over the last decade. South America stands out for having a particularly dynamic agriculture, which accounts for a considerable share of its production and exports.

Based on Llerena et al., (2025) the performance of this sector is characterised by structural differences between countries, reflecting disparities in terms of productive specialisation, export diversification, infrastructure, among other factors, so that these variations condition the position each country holds within global agricultural trade; therefore, countries such as Ecuador, Colombia, Peru, Chile, and Argentina present differentiated trajectories in their agricultural competitiveness, determined by their institutional capacities.

In the case of Chile, the agricultural sector recorded sustained growth in recent years, reaching a contribution of 3.52% to the Gross Domestic Product (GDP) in 2023, driven by greater production intensity and a progressive transformation of land use oriented towards crops of higher commercial value (Avendaño & Gutiérrez, 2024). It has managed to consolidate itself as one of the most competitive countries in the agricultural sector in South America, due to its productive diversification, trade openness, and institutional backing, focusing on promoting high-value products, accompanied by public policies that strengthen infrastructure, encourage innovation, and greatly support family farming (Valdes et al., 2022).

Colombia, for its part, has extensive agricultural areas with potential for domestic supply and export, but it faces structural conditions that limit its competitiveness in international markets, among them state abandonment, weak rural infrastructure, and a lack of public policies aimed at agro-productive development. By 2023, its contribution to GDP was barely 0.61%, a figure that reflects the persistence of structural problems and low soil quality, which requires the use of fertilisers that cause a negative impact on the soil and on the producers themselves, who bear these costs, resulting in Colombian agriculture facing serious difficulties in consolidating itself in value chains and competing with lower-priced imported products, creating an uncertain outlook for its sustainability (Montoya, 2019).

In the case of Peru, it has developed a highly competitive agriculture based on high-value crops such as asparagus, grapes, and blueberries; in 2023, Peruvian agricultural exports reached approximately USD 10,500 million, and the country has quadrupled the area of high-productivity agricultural land, reaching almost 200,000 ha and generating direct employment for one million people. The sector has been able to develop thanks to favourable climatic conditions and the development of irrigation infrastructure. However, this agro-export model has intensified pressure on water sources, with high dependence on groundwater and growing unsustainability, making it necessary to have a more decisive state intervention that guarantees equity in access to resources, the strengthening of infrastructure, and the effective integration of family farming into national and international value chains (Opitz, 2023).

The Argentine agricultural sector constitutes one of the fundamental pillars of the national economy, contributing nearly 15.7% of GDP and generating more than 65% of the country's total exports, sustaining itself on an agro-export model specialising in products such as soybeans and wheat, but its performance faces structural challenges that limit its competitive potential and long-term sustainability, including the instability of public policies, gaps in rural infrastructure, limited territorial inclusion, and the need to strengthen climate and environmental resilience (World Bank Group, 2024).

Throughout its history, Ecuador has sustained an economy closely linked to the exploitation of natural resources, where the primary sector, particularly agriculture, plays a central role in economic growth. In 2023, its contribution to GDP was approximately 8%, consolidating itself as one of the important sectors in terms of non-oil exports, but challenges persist related to access to technology, financing, infrastructure, and markets, which evidences the need to evaluate the effectiveness of the applied public policies and their capacity to promote inclusive and competitive agricultural development (Chagerben et al., 2020).

Despite their evident structural differences, South American countries share key challenges in their agricultural sector, such as limited access to financing, deficient infrastructure, and low technological adoption, conditions that especially affect small and medium-sized producers, limiting their competitiveness. The FAO (2022) stresses that only through comprehensive public policies aimed at innovation and institutional strengthening will it be possible to transform the agricultural productive model and sustain performance in international markets.

Measuring the Competitiveness of the Agricultural Sector

Measuring agricultural competitiveness represents a fundamental indicator for analysing the structural situation of a nation within the international agri-food system; its measurement requires taking into account variables that go beyond traditional economic growth, including aspects such as technical efficiency, market insertion, sustainability, and the capacity for management in the face of climate change impacts. Considering this perspective, competitiveness must be analysed from a broad and multi-level perspective, with the aim of capturing diverse factors that affect productivity and rural development; this approach makes it possible to connect the macroeconomic conditions of the environment, the effectiveness of intermediary institutions, and the behaviour of local actors (Kovshov et al., 2023).

At the global level, agricultural competitiveness has been implemented through indicators that record the performance of different countries in terms of efficiency, sustainability, and capacity for trade integration, accompanied by one of the most widely used instruments: the Global Agricultural Competitiveness Index, which is used to classify countries according to their agricultural trade balance, productivity per cultivated area, and participation in international production networks. In recent years, this tool has revealed that the economies with the greatest investment in agricultural innovation and those with more solid institutional frameworks tend to rank among the top positions in international rankings, demonstrating that competitiveness lies in the capacity to strategically leverage available resources (Billi et al., 2025).

At the South American level, the measurement of agricultural competitiveness has focused on the construction of indicators adjusted to the particularities of the regional environment, linking methodologies such as technical efficiency analyses, estimation of production costs, and value added per crop. A representative case is Chile, which has applied DEA models to analyse the efficiency of producers in fruit-growing areas, revealing significant disparities between regions with access to innovation and those with less infrastructure development. On the other hand, in the case of Peru, multivariate analyses have been used to measure the competitiveness of priority crops such as blueberries and asparagus, relating the results to public policy instruments that promote tax incentives and agricultural modernisation (Montes et al., 2024).

At the local level, Ecuador has incorporated institutional efforts aimed at measuring agricultural competitiveness through the development of integration systems and methodological instruments adapted to the territorial context. Among the relevant initiatives is the Public Agricultural Information System (SIPA), managed by the Ministry of Agriculture, which allows for the continuous evaluation of key variables such as crop yields, production costs, and technology use, which constitutes a technical basis for evaluating the efficiency and sustainability of the sector. These efforts have been supported by certification programmes, technical assistance, and optimisation of logistics infrastructure, which not only reinforce the performance of Ecuadorian agriculture but also enable the differentiated evaluation of competitiveness between regions and strategic crops, such as bananas, coffee, and cocoa (Chamba et al., 2024).

Formula for Measuring Competitiveness

One of the most widely used formulas for evaluating competitiveness in international agricultural trade is the Revealed Comparative Advantage (RCA) index, which makes it possible to identify whether a country possesses export advantages in a given product, expressed as follows:

$$\mathbf{RCA_{ij}} = \frac{x_{ij}}{x_{it}} / \frac{x_{nj}}{x_{nt}}$$

Where:

- x_ij represents the exports of country i of agricultural product j
- x_(it) represents the total exports of the country
- x_(n_j) represents the global exports of product j
- X_nt represents total global exports

When the index value is greater than 1, it is understood that the nation has a revealed comparative advantage in that product, reflecting high specialisation and outstanding competitive performance; this type of measurement makes it possible to identify strategic sectors with growth potential and facilitates the implementation of public policies focused on strengthening those activities that generate sustainable advantages(Borges & József, 2022).

Table 1 presents the interpretation of the Revealed Comparative Advantage (RCA) index, which allows for identifying the level of competitiveness of a country in the analysed product.

Table 1.
Interpretation of the Revealed Comparative Advantage (RCA) index

RCA VALUE	INTERPRETATION
RCA > 1	The nation shows a revealed comparative advantage in the analysed agricultural product.
RCA = 1	The nation presents a neutral position, with neither advantage nor disadvantage in the analysed product.
RCA < 1	The nation does not have a revealed comparative advantage in that product.

Note: Adapted from Índice de ventaja comparativa revelada: Un indicador del desempeño y de la competitividad productivo-comercial de un país, by Arias and Segura (2004), Instituto Interamericano de Cooperación para la Agricultura (IICA).

Factors of Competitiveness

The factors that condition regional competitiveness correspond to the key dimensions that determine a territory's capacity to develop and improve its economic performance, but there is no single consensus on what these factors are, since they are defined according to the economic, social, and productive context. From this perspective, it allows understanding competitiveness as a complex and multidimensional phenomenon conditioned by the particularities of each region (Benzaquen et al., 2010).

Competitiveness within the agricultural sector is influenced by both structural factors and productive performance, which highlights the importance of considering key economic indicators, among them the availability and efficient use of agricultural land, infrastructure, and human capital, while productive performance factors comprise production efficiency, innovation, and the capacity to generate added value. Understanding these elements makes it possible to analyse how producers in each region can improve their economic performance to strengthen competitiveness in a sustainable manner (Vergara, 2021).

Among the elements that facilitate or limit productive efficiency are multiple structural, productive, and social factors that determine the performance of one country compared to another, with indicators such as the availability of agricultural land representing the physical base on which production develops, but competitiveness will not only depend on the available resources at hand, but also on their efficient and sustainable use (Bejarano, 1995). Furthermore, the value of production and agricultural employment are other essential indicators that will allow for understanding the success of the sector, as they reflect both the productive base and the capacity to generate income and labour; therefore, a comprehensive analysis of competitiveness becomes necessary to evaluate how these factors simultaneously explain the differences in performance between countries (García et al., 2015).

The contribution of agriculture to value added constitutes another of the determining factors. According to Rodríguez et al., (2019), the generation of this added value originates from innovation and differentiation processes that convert primary inputs into products that are more competitive in the market. Together, these factors reflect how agricultural competitiveness will not only depend on the available resources but also on how they are managed, innovated, and leveraged to generate added value, employment, and economic development. desarrollo económico.

Agricultural Trade Balance

According to Flores (2024) the agricultural trade balance is understood as the difference between exports and imports of the agricultural sector and gains importance when examining how exchange rate variations affect competitiveness in international markets. Its study facilitates the identification of structural patterns in the marketing of agricultural products and the comprehensive international evaluation of the productive system; the evolution of the agricultural balance is governed by factors such as productivity, relative costs, terms of trade, and insertion into value chains.

At the global level, the agricultural trade balance has been influenced by market openness, exchange rate fluctuations, and the response reaction of exporting countries to variations in external demand, without these dynamics being evidenced uniformly across regions. In recent decades, a greater exposure of agricultural economies to exchange rate variations and the trade policies of their main strategic partners has been evidenced, leading to disagreements in trade balances when internal stabilisation mechanisms are lacking. The performance of agricultural exports relative to exchange rate parity is closely linked to the productive conditions of each economy and to its degree of international insertion, which allows for understanding that the balance is not based solely on the quantity of exported products but also on the institutional strategies implemented to strengthen systemic competitiveness (Mandujano et al., 2025).

In the South American economic scenario, agricultural policies and their effect on the trade balance have shown disparate results, where various countries have strengthened their exports through sectoral incentives, access to preferential markets, and institutional support. The region faces the challenge of depending on a supply concentrated in a few basic products, which increases exposure to external price and exchange rate shocks and hinders the capacity to leverage the so-called global value chains (Banco Interamericano de Desarrollo [BID], 2024).

Table 2.
Main agricultural products exported by country in South America (2023, in millions of USD)

COUNTRY	PRODUCTS	"EXPORTS (THOUSANDS OF USD)"
Argentina	Soybean oil	$4390 MM
	Soybean meal	$8340 MM
	Sunflower meal	$1415 MM
	Maize	$6620 MM
	Sorghum	$219 M
Colombia	Coffee	$3190 MM
	Bananas	$1300 MM
	Flowers	$2061 MM
	Avocado	$200.5 M
	Palm oil	$592 M
Chile	Grapes	$1.36 M
	Apples	$505 M
	Cherries	$2422 MM
	Nuts	$554 M
	Avocado	$246 M
Ecuador	Bananas	7713 MM
	Cocoa	$387.9 M
	Mango	$28 M
	Dragon fruit	$172 M
	Flowers	$987 M
Peru	Fresh grapes	$1532 MM
	Blueberries	$1680 MM
	Avocado	$963 M
	Mango	$408 M
	Coffee	$827 M
Total	**25**	**$46,753,760,000**

Note: Own elaboration based on data from the Food and Agriculture Organization of the United Nations (2025), Observatory of Economic Complexity (2025), Central Bank of Ecuador (2023).

Regarding Ecuador, the behaviour of the agricultural trade balance has reflected significant variations, influenced by an export structure focused on products such as bananas, cocoa, coffee, flowers, and by the challenges in offsetting a global non-oil deficit. Data from the foreign trade report of the Central Bank of Ecuador show that between January and October 2023, non-oil exports experienced a growth of 5.5%, while imports contracted by 1.2%, which made it possible to partially reverse the negative balance of the agricultural trade balance thanks to the leadership of traditional products in the face of the reduction in the purchase of agro-industrial inputs, such as medicine, soybean concentrate, and hard maize (Ministerio de Producción, Comercio Exterior, Inversiones y Pesca, 2023).

Table 2 details a summary of the main agricultural products exported by five South American countries in the year 2023. The selection of these products is based on their economic performance, taking into account competitiveness in international markets. The classified information makes it possible to compare the productive specialisations of each country, such as Argentina, Colombia, Chile, Ecuador, and Peru, establishing competitive advantages according to their commercial insertion in the international sphere.

Table 2 shows a clear productive specialisation in the agricultural area by South American countries. Argentina leads agricultural exports with a high volume in products such as soybean meal, maize, soybean oil, sunflower meal, and sorghum, which together amount to USD 20,984,220,000 and represent 77.5% of its agricultural exports. Colombia stands out for a structure based on permanent tropical crops such as coffee, bananas, and palm oil, with high external demand. Chile, for its part, represents a diversified basket of fresh fruits, oriented towards high-value markets. Ecuador maintains a strong dependence on bananas, although it complements its supply with mango. Finally, Peru is consolidated in non-traditional products such as blueberries, avocado, and mango, reflecting an intensive agriculture focused on export.

Methodology

A quantitative approach is employed, given that the study is based on the analysis of statistical data and quantifiable indicators linked to the agricultural sector, such as production, value added, employment, and land use, which makes it possible to identify patterns, relationships, and trends among the analysed countries, ensuring the objectivity, validity, and reliability of the results (Ochoa et al., 2020).

The research is descriptive in nature, with the main purpose of detailing the characteristics of a phenomenon or situation as it presents itself in reality, aiming to observe, record, and analyse facts in a systematic and objective manner in order to offer an accurate representation of its particularities and to provide a clear and organised diagnosis of observable reality (Rodríguez, 2005). In this case, focused on the competitiveness of the agricultural sector, the use of indicators will make it possible to identify and analyse the specific traits of each region and the way in which they have evolved during the analysed period.

The analytical method is used, given that the study seeks to identify which factors influence the level of agricultural competitiveness. This method is fundamental because it enables the establishment of relationships that may exist between variables and the understanding of the structure of the sector in its regional context, which contributes to a comprehensive explanation and the formulation of valid inferences (Lopera et al., 2010).

The technique employed is documentary research, through which information from technical reports, statistical databases, and records published by national and international bodies, including the FAO, the World Bank, ECLAC, and the statistical institutes of the selected countries is systematised. This strategy integrates theoretical and empirical perspectives, links previous research, and builds a solid conceptual base that underpins the analysis and demonstrates the relevance of the topic (Gómez et al., 2014).

The type of design adopted is non-experimental, since the data are analysed as they are presented in their natural context without manipulating variables. This type of design is appropriate when one intends to observe and analyse phenomena under existing conditions, allowing for an objective interpretation of the same; therefore, it is suitable for evaluating agricultural competitiveness, without intervening in the collected information (Hernández et al., 2014).

Finally, the scope of the study is longitudinal, as the indicators are examined over the analysed periods, which facilitates the identification of trends and changes in competitiveness. This is suitable for evaluating the evolution of phenomena over time and establishing patterns and variations that allow for understanding the object of study (Hurtado, 2000).

Table 3 below details the main documents reviewed that support the methodological development of the study.

Table 3.
Documents reviewed

INSTITUTION	YEAR	TYPE OF DOCUMENT	RELEVANCE
FAO	2022	Technical report	Provides information on the agricultural sector.
World Bank Group	2025	Institutional database	Allows for the analysis of economic and agricultural indicators.
Benzaquen et al.	2010	Scientific article	Methodological reference for the analysis of competitiveness.

Note: Own elaboration.

In this section, the results obtained on the competitiveness of the agricultural sector in Ecuador are presented, in comparison with Argentina, Chile, Colombia, and Peru. For the analysis between countries, several key indicators are used, such as the proportion of agricultural land, value of production, value added, and the share of agricultural employment. The data have been processed from official sources such as the World Bank and the FAO, which has made it possible to establish a comparative view of the trends around the years 2018–2023 and to contrast them with the analysed countries.

Agricultural Land as a Percentage of Land Area

Agricultural land is identified as the extent of land used for agricultural purposes, such as arable land area, permanent crop area, and permanent meadows and pastures. Arable land encompasses the land defined by the FAO as under temporary crops (double-cropped areas are counted once), temporary pastures for grazing, land under market or kitchen gardens, and land temporarily fallow.

In Table 4, based on World Bank data, the proportion relative to the total area of each country reflects notable differences. Argentina stands as the country with the highest predominance of land destined for agriculture, exceeding 40% over the periods considered. It is followed by Colombia with a range close to 40%, although by 2022 it presents a slight decrease. Ecuador remains at an intermediate level with relatively stable proportions, fluctuating between 21.94% and 22.02%, although with a slight reduction towards the end of the period to 21.53%, while Chile and Peru maintain levels below 20% without significant variations over the years, evidencing structural heterogeneity in the region, where some countries concentrate a large part of their territory in agricultural activities, while others maintain a smaller proportion; for its part, Ecuador is situated at an intermediate point.

Tabla 4.
Tierras agrícolas del área de tierra representado en porcentaje

COUNTRY	2018	2019	2020	2021	2022
Argentina	42,36%	42,61%	43,00%	43,11%	43,43%
Chile	15,99%	15,42%	14,89%	14,55%	14,31%
Colombia	39,70%	39,70%	39,85%	38,77%	37,64%
Ecuador	21,94%	21,46%	21,82%	22,02%	21,53%
Peru	18,82%	18,64%	19,13%	19,61%	19,05%
Average	**27,36%**	**27,17%**	**27,34%**	**27,21%**	**27,19%**

Note: . Own elaboration based on data from the World Bank (2025)..

Value of Agricultural Production Measured in Thousands of Millions of Dollars

The value of production is an indicator that reflects the sector's capacity to produce goods that respond to domestic and external demand, both in terms of volume and prices, constituting a key element for analysing aspects such as sustainability, productivity, and the level of competitiveness in the international sphere. Under this perspective, considering this variable will not only make it possible to size the economic magnitude of the sector but also to establish comparisons between countries, with the aim of evaluating and contrasting their agricultural performance (FAO, 2025).

Table 5.
Value of agricultural production measured in thousands of millions of dollars

YEAR	ARGENTINA	CHILE	COLOMBIA	ECUADOR	PERU
2018	$1,147,903.00	$10,964,644.165	$113,160,138.95	$8,402.0	$50,220.0
2019	$1,781,304.1	$11,284,238.03	$125,871,896.94	$9,220.50	$55,009.58
2020	$2,008,310.2	$13,101,638.23	$130,910,694.53	$9,169.86	$59,504.37
2021	$2,325,669.7	$13,949,249.98	$148,841,135.82	$9,644.49	$63,015.96
2022	$2,864,135.3	$11,077,267.54	$189,191,177.46	$9,792.30	$67,461.82
2023	$2,960,001.8	$16,228,871.64	$200,784,430.41	$10,662.0	$73,749.44
Total	**$13,087,324.1**	**$76,605,909.5**	**$908,759,474.1**	**$56,891.1**	**$368,961.1**
Average	**$2,181,220.6**	**$12,767,651.6**	**$151,459,912.3**	**$9,481.8**	**$61,493.53**

NotE: Own elaboration based on data from the Food and Agriculture Organization of the United Nations (2025).

Table 5 shows the value of agricultural production in South America during the 2018–2023 period, evidencing notable differences, both in absolute value and in growth evolution. On average, Colombia stands as a benchmark, with an annual production exceeding 151 thousand million dollars, which reflects sustained growth in the sector and makes it the country with the greatest dynamism, preceded by Chile with a value exceeding 12 thousand million, consolidating itself as a relevant actor.

Argentina, for its part, presents a value of approximately 2.1 thousand million with an upward trend. In contrast, Ecuador and Peru report substantially lower figures, with an annual average of 9.4 and 61.4 thousand million dollars, respectively.

Agricultural Value Added (% Annual Growth)

Value added in agriculture constitutes a fundamental element within the productive process, as it allows agricultural products not to be limited to their condition as raw materials but to undergo a series of transformations that increase their market value. It is directly linked to competitiveness, since it enables farmers to offer differentiated products compared to the competition, which has an impact on better insertion into local, national, and global markets. Greater value added will have a positive impact on economic development and social welfare of communities by improving incomes, fostering the use of new technologies, and stimulating the sustainability of the agricultural sector (Figueroa et al., 2025).

Table 6.
Agricultural value added (% annual growth) by country, 2018–2023

COUNTRY	2018	2019	2020	2021	2022	2023
Argentina	-14,58%	21,44%	-7,51%	1,86%	-2,81%	-22,94%
Chile	-5,22%	0,40%	-19,81%	20,76%	-7,25%	-3,46%
Colombia	1,59%	2,72%	1,96%	4,36%	-0,83%	1,37%
Ecuador	-4,43%	-2,44%	-4,00%	4,77%	-1,65%	5,05%
Peru	9,63%	1,50%	0,97%	5,31%	3,05%	-3,92%
Average	**-2,60%**	**4,72%**	**-5,68%**	**7,41%**	**-1,90%**	**-4,78%**

Note: Own elaboration based on data from the World Bank (2025).

Table 6 evidences the variation presented by the agricultural value added variable in the countries considered throughout the 2018–2023 period, showing considerable variability of both internal and external factors that affected agricultural production. Argentina presents significant irregularity, with a notable increase in 2019 representing 21.44%, followed by sharp falls, highlighting in 2023 a contraction of -22.94%. Chile also presented considerable setbacks in 2020 (-19.81%) and a recovery in 2021 with (20.76%). On the other hand, Colombia presents a more stable performance, with moderate rates and slight contractions.

Ecuador sustains a pattern of mixed results, alternating declines and recoveries, although in 2023 it reached an increase of 5.05%, demonstrating a certain capacity for recovery in the medium term. Peru, for its part, experienced positive rates in most years, although it also had a slight contraction in 2023 (-3.92), which generates challenges for productive sustainability.

Employment in the Agricultural Sector (% of Employment)

This indicator shows the proportion of the working population that carries out agriculture-related activities within an economy and, in turn, evaluates the sector's capacity to generate employment opportunities, especially in rural areas where a large part of the population depends on these activities for their livelihood. This indicator not only evidences the sector's capacity to sustain jobs but also allows for analysing its social and economic impact (Losch, 2022).

Table 7
Employment in the agricultural sector represented as a percentage by country, 2018–2023

COUNTRY	2018	2019	2020	2021	2022	2023
Argentina	0,62%	0,61%	0,61%	0,57%	0,65%	0,61%
Chile	2,46%	2,40%	2,38%	2,35%	2,32%	2,28%
Colombia	17,00%	16,11%	16,66%	15,93%	14,67%	14,44%
Ecuador	28,82%	29,74%	31,82%	32,27%	31,53%	30,00%
Peru	26,13%	25,57%	33,66%	27,86%	25,67%	23,97%
Average	**15,01%**	**14,89%**	**17,02%**	**15,80%**	**14,97%**	**14,26%**

Note Own elaboration based on data from the World Bank (2025).

Table 7 shows the evolution of employment in the agricultural sector, presenting significant variations among the five countries analysed. Peru and Ecuador record the highest percentages; in 2020, Peru reached a figure of 33.66%, followed by a reduction to 23.97% by 2023, while Ecuador obtained an increase from 28.82% in 2018 to 32.27% in 2021, but for the subsequent years a slight decrease is observed, standing at 30.0% in 2023, which confirms the relevance of the sector in its labour market.

Colombia, for its part, is located at an intermediate level, oscillating with figures of 17.00% in 2018 and 14.44% in 2023; although fluctuations are shown, the general trend is a gradual decrease throughout the period. In contrast, Chile reflects 2.3%, followed by Argentina, which presents an even lower level of 0.6%, showing a low participation of employment in the agricultural sector.

Discussion

The findings of this study facilitate the understanding of Ecuador's position in the panorama of agricultural competitiveness in South America during the period 2018–2023. In terms of agricultural land, Ecuador sustains a relevant proportion of land area destined for agriculture, although slightly lower than that of Argentina and Colombia, which suggests limitations in agricultural territorial expansion.

Regarding the value of agricultural production, Ecuador ranks in the last position compared to the countries analysed, revealing a considerable disparity with regional leaders such as Colombia and Chile, suggesting the need to apply strategies aimed at strengthening agricultural productivity and yield.

Regarding agricultural value added, Ecuador demonstrated mixed behaviour, with declines but with a positive trend towards the end of the period, indicating recent efforts to optimise productive efficiency. Finally, in the proportion of employment in relation to agriculture, Ecuador is the best-positioned country, with the highest values in the region (32.27% in 2021) and an average of 17.02%, reflecting that the sector is an important source of employment, although possible challenges in terms of productivity and technological advancement compared to the analysed countries are also evidenced.

These results can be contrasted with previous research that mentions the existing territorial limitations on agricultural land used for agriculture due to geographical factors such as topography, water availability, and the division of agricultural land, as well as structural and regulatory situations in the region (Avendaño & Gutiérrez, 2024).

As regards the value of agricultural production, Ecuador's classification is aligned with antecedents that clearly highlight that the competitiveness of agricultural production depends to a large extent on technological investment, the modernisation of infrastructures, and efficiency in crop management. Countries with high levels of agricultural productivity tend to have competent irrigation systems, availability of quality inputs, and constant technical assistance; these factors represent the limitations that condition Ecuador's productive capacity and underline the need to implement policies and strategies aimed at improving infrastructure, innovation, and job training to bridge the existing gaps with the leading countries of the sector (Billi et al., 2025).

Similarly, the mixed behaviour of agricultural value added has antecedents that highlight the relevance of innovation, crop diversification, and value addition as a key element for strengthening the competitiveness of the agricultural sector in South America, reflecting that, although improvements have occurred in transformation and marketing processes, there are still aspects to improve productive efficiency and expand the diversification of products (Organisation for Economic Co-operation and Development [OECD] & Food and Agriculture Organization of the United Nations [FAO], 2024).

Finally, the high proportion of employment in the agricultural sector in Ecuador coincides with studies indicating that developing countries are heavily conditioned by the agricultural labour force, although they face challenges related to mechanisation and technological innovation; this trend indicates that, although the agricultural sector remains a fundamental pillar in employment generation, it also faces the need to adopt technologies and practices that facilitate productivity without compromising labour stability (Mizik et al., 2025).

These findings suggest that Ecuador needs a design of policies and strategies that promote innovation, infrastructure modernisation, and job training in the agricultural sector. Moreover, it is important to foster public-private partnerships with international cooperation programmes, which will allow for knowledge transfer, improvements in irrigation systems, and optimisation of crop management; these actions would not only raise Ecuador's competitiveness but would also strengthen its position in the South American agricultural context(Food and Agriculture Organization of the United Nations, 2016).

Taken together, this research provides evidence on Ecuador's position in South American agricultural competitiveness, highlighting the sector as a generator of employment and pointing out the need for strategies aimed at improving productivity, innovation, and efficiency; however, outstanding challenges persist in terms of yield, value added, and technological advancement, which limit its competitiveness in the region. Confronting and overcoming these gaps requires a comprehensive strategic approach, and only through the implementation of these actions will Ecuador be able to consolidate a more productive, sustainable, and more competitive agriculture in the future within the agricultural context (Nin et al., 2018).

Conclusion

- Based on the research carried out, it is concluded that the findings evidence unequal competitiveness in the South American region during the 2018–2023 period, determined by economic, social, and productive factors, which highlights notable differences between the analysed countries, so that it becomes necessary to implement strategies that promote agrarian productive growth.
- Likewise, the study evidences that Ecuador, with respect to agricultural land destined for agriculture, value of production, and employment, maintains a uniform stability, which contributes to the country maintaining its participation in agricultural markets and strengthening its presence throughout the evaluated period. However, the reduced growth of agricultural value added represents a structural challenge, since despite the stability of the other indicators, the sector did not achieve an increase in its economic contribution, much less a diversification in income opportunities, making it necessary to consider the existing limitations to improve Ecuador's competitive capacity in the agricultural sector.
- Nevertheless, the study presents certain limitations that should be considered. Firstly, the availability and updating of statistical data may restrict the precision of the analysis. Secondly, the focus on the 2018–2023 period limits the evaluation of long-term trends; from this perspective, future research could extend the time horizon, incorporating new analysis variables and delving into quantitative and qualitative approaches, in order to strengthen the understanding of agricultural competitiveness.

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