

Competitiveness and promotion of agricultural exports within the framework of the Pacific Alliance

Competitividad y promoción de las exportaciones agrícolas en el marco de la Alianza del Pacífico

Competitividade e promoção das exportações agrícolas no âmbito da Aliança do Pacífico

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Abstract

The purpose is analysis of the Pacific Alliance PA as a platform for the promotion of agricultural exports in Colombia, as well as the competitiveness conditions of this sector by means of a systematic review and the application of the Comparative Advantage Index. The methodology is documentary and descriptive based on articles published in the database, applying the systematic review method, and a quantitative approach is applied to measure the index of revealed comparative advantage (IVCR). The Pacific Alliance is configured as a high-impact trade platform for the promotion of exports and competitiveness in the Colombian agricultural sector, and the IVCR indicates that the sector has maintained an average comparative advantage over the other PA.

Keywords: Agricultural competitiveness, Agricultural export promotion, Pacific Alliance.

JEL Classification: International agreements and their compliance; international organizations (F53), Agriculture, natural resources, natural environment and extractive industries (N5), Agriculture; natural resources; energy; environment; other primary products (O13), Agriculture and international trade (Q17)

Resumen

El objetivo es analizar la Alianza del Pacífico (AP) como plataforma para la promoción de las exportaciones agrícolas en Colombia, así como las condiciones de competitividad de este sector mediante una revisión

sistemática y la aplicación del Índice de Ventaja Comparativa (IVCR). La metodología es documental y descriptiva, basada en artículos científicos publicados en la base de datos, aplicando el método de revisión sistemática. Se utiliza un enfoque cuantitativo para medir el índice de ventaja comparativa revelada (IVCR). La Alianza del Pacífico se configura como una plataforma comercial de alto impacto para la promoción de las exportaciones y la competitividad del sector agrícola colombiano, y el IVCR indica que el sector mantiene una ventaja comparativa promedio sobre las demás AP.

Palabras clave: Competitividad agrícola, Promoción de las exportaciones agrícolas, Alianza del Pacífico.

Clasificación JEL: Acuerdos internacionales y su cumplimiento; organizaciones internacionales (F53), Agricultura, recursos naturales, medio natural e industrias extractivas (N5), Agricultura; recursos naturales; energía; medio ambiente; otros productos primarios (O13), Agricultura y comercio internacional (Q17)

Resumo

O objetivo desta pesquisa é analisar a Aliança do Pacífico como plataforma para a promoção das exportações agrícolas na Colômbia, bem como as condições de competitividade desse setor, por meio de uma revisão sistemática e da aplicação do Índice de Vantagem Comparativa. A metodologia é documental e descritiva, baseada em artigos científicos publicados em bases de dados, aplicando-se o método de revisão sistemática. Uma abordagem quantitativa é aplicada para mensurar o índice de vantagem comparativa revelada (IVCR). A Aliança do Pacífico configura-se como uma plataforma comercial de alto impacto para a promoção das exportações e da competitividade no setor agrícola colombiano, e o IVCR indica que o setor mantém uma vantagem comparativa média em relação às demais Alianças do Pacífico.

Palavras-chave: Competitividade agrícola, promoção das exportações agrícolas, Aliança do Pacífico

Classificação JEL: Acordos internacionais e sua implementação; organizações internacionais (F53), Agricultura, recursos naturais, meio ambiente e indústrias extrativas (N5), Agricultura; recursos naturais; energia; meio ambiente; outros produtos primários (O13), Agricultura e comércio internacional (Q17)

1. Introduction

One of the main factors that determines the competitiveness of a sector corresponds to productivity, in the agricultural sector this is an indicator that is poorly controlled due to difficulties in implementing adequate procedures for its measurement, either due to lack of knowledge or deficiencies in techniques, processes and information systems; at the micro level, it is even more difficult to measure productivity due to the informality of the agricultural production and marketing systems of small producers, despite this, they have great importance in the market and the economy, according to ECLAC (2020, p. 32) in Latin America and the Caribbean, small farms represent 90% of

agricultural holdings, in addition to accounting for only 23% of the agricultural area.

With respect to the marketing of agricultural production, there is a persistent difficulty related to the vulnerability of small producers to market prices, especially because they are subject to an intermediary who sells their products in urban markets and it is the latter who sets the prices, and on many occasions price speculation reduces the producers' profit margin in favor of the intermediary; Producers who have been able to add value to their products have been able to increase regional and international marketing volumes.

One of the main advantages of the Pacific Alliance trade agreement, hereinafter PA, is described by Oyarzún (2019) as a tool to promote the development of the countries that are part of it, especially competitiveness, by means of a trade tool, through a system of economic cooperation. As evidenced by various authors, including Ahcar and Rodríguez (2017), the index of revealed comparative advantage allows for showing the comparative advantages of a region compared to others in terms of exports, and also identifies a positive result of this indicator for Colombia compared to the European Union in terms of greater competitive advantage in the live plants, floriculture, coffee, tea, yerba mate and spices sectors.

2. Materials and methods

The scientific method is applied, with a type of documentary research, documentary technique based on the search of scientific articles in the databases: science direct, scopus and dimensions in which the key words: agricultural competitiveness, support for agricultural exports and Pacific Alliance are searched, it is decided to search separately for each concept in the previously defined databases, the search results are consolidated in Excel for debugging and to identify the documents to be reviewed as a whole.

After consolidating all the databases, 273 articles on "agricultural competitiveness" were identified, followed by a review of the title and abstract in order to filter the documents that represent the state of the art of research, considering only those that could make a direct contribution to the research.

A more detailed review produced a consolidated list of 191 articles, from which 18 were selected for analysis of the concept of agricultural competitiveness. Similarly, a bibliographic search was carried out on the concept of agricultural export promotion, which identified 9 articles on "agricultural export promotion", followed by a

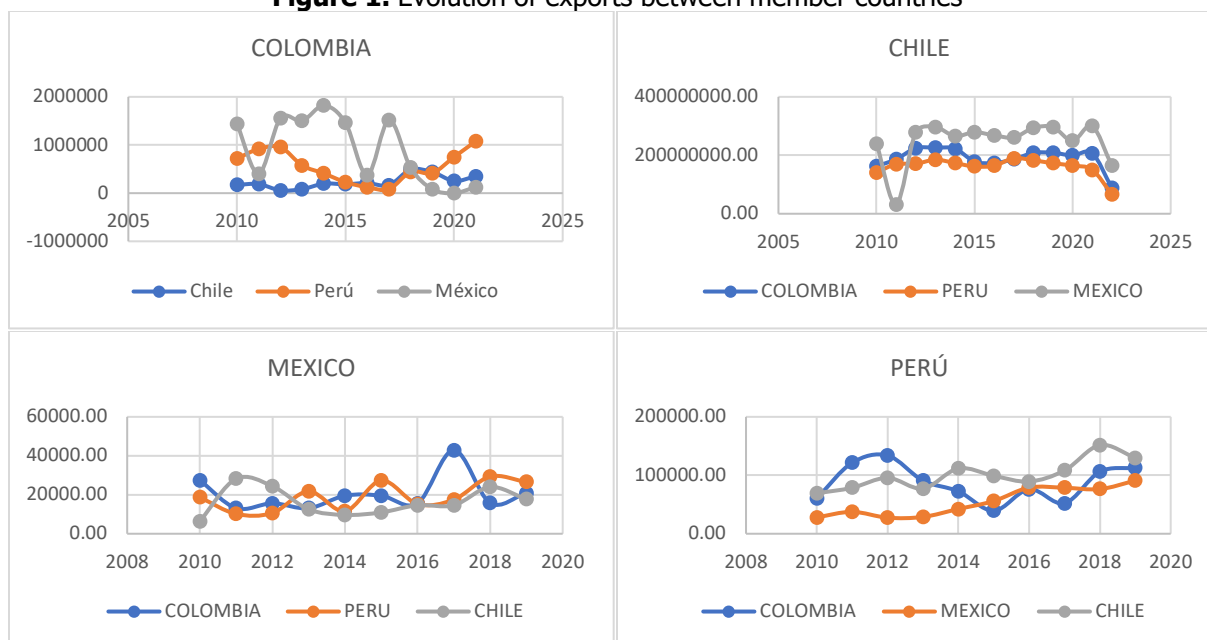
review of the title and abstract in order to filter the documents representing the state of the art of research, considering only those that could make a direct contribution to the research; after applying the filter, 8 articles remained.

Due to the low number of articles, the search criterion was changed to "agricultural export promotion". Once all the databases were consolidated, 81 articles on "agricultural export promotion" were identified. The next step was to review the title and abstract to filter the documents that represent the state of the art in research, considering only those that could make a direct contribution to the research according to the following review matrix.

Finally, articles are reviewed in the same databases described above with the keyword: ", from which 8 articles are taken for detailed review in the state of the art. Finally, articles are reviewed in the same databases described above with the keyword: ", from which 8 articles are taken for detailed review in the state of the art. Finally, articles are searched in the same databases described above with the keyword: "Pacific Alliance" 23 articles are identified, after filtering out the repeated articles, 8 articles remain for review, specifically following the criteria of participation and global value formation.

To identify the results obtained by the PA member countries about the dynamics of agricultural exports between member countries and from them to Asian countries. In the consolidated graphs in Figure 1, it is worth mentioning that no visible statistical results on exports disaggregated by agricultural sector or primary product and country of destination could be found on the official website of the Pacific Alliance. Similarly, a search for such information was carried out on the official data pages of Colombia, Mexico, Chile, and Peru, where it was not possible to find uniform data in terms of type of product, country of destination, and period; for this reason, the data from the World Integrated Trade Solution website were used.

Figure 1. Evolution of exports between member countries

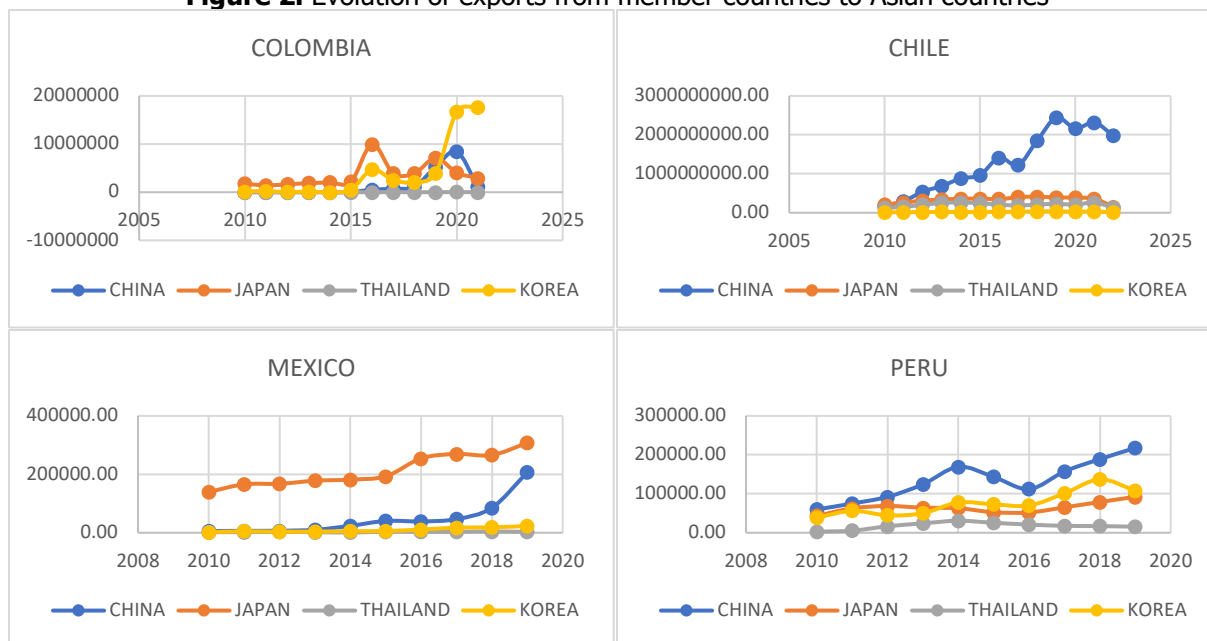


Dates. Author's calculations based on World Bank data.

On the other hand, the levels of agricultural exports to Asian countries are analyzed in Figure 2, by each of the member countries of the AP, and when examined in detail, it is evident that Peru shows a higher level of dynamism in exports to all the Asian countries mentioned; on the other

hand, Mexico shows a strong position in its agricultural exports to Japan and an increase in its exports to China in recent years; for the other countries, Colombia and Chile, the pending task is to strengthen their commercial relations with Asian countries to increase the level of agricultural exports.

Figure 2. Evolution of exports from member countries to Asian countries



Dates. Author's calculations based on World Bank data.

To measure comparative advantage, the index of revealed comparative advantage IVCR presented by Balassa (cited in Sanchez Ruiz, 2006) is used and the formula defined below is applied.

$$(1) IVCR_{ijt} = \frac{\frac{X_{ij}}{X_i}}{\frac{X_{wj}}{X_w}}$$

Where

X_{ij} : is the value of Colombia's agricultural exports to AP.

X_i : total value of Colombia's exports to the PA

X_{wj} : value of agricultural exports from the PA

X_w : value of total exports from the PA

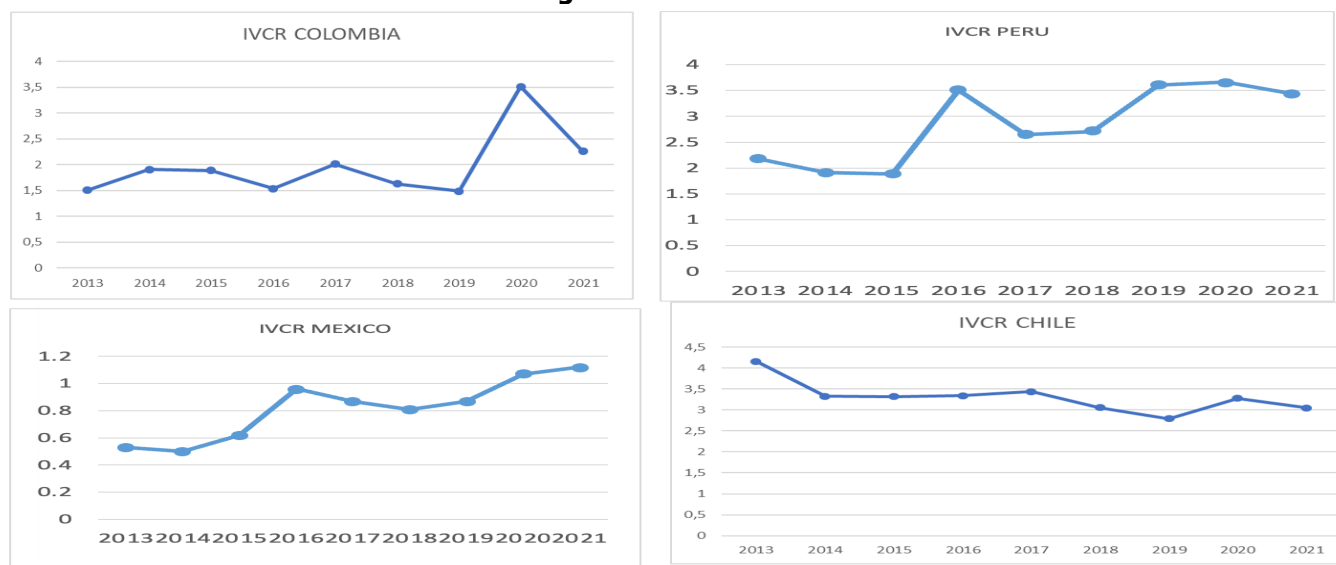
According to Ahcar, Delgado and Peláez (2011), a result of the indicator greater than 1 indicates that there is a comparative advantage of the region, while a value less than 1 is considered a comparative disadvantage. In order to calculate the indicator, an analysis is first carried out of exports within the member countries of the Pacific Alliance (Colombia, Chile, Mexico, and Peru), separating the information from each country through data tables and focusing only on the agricultural sector, which is the subject of the study. This covers three sections within the divisions of the world market, namely plant products, food products (which include goods

from the agricultural sector that have undergone some form of processing) and, finally, bio-products (vegetables).

Next, the total exports of all traded products are analyzed using the same indicators, i.e. the four-member countries of the Alliance and the period of the study, from 2013 to 2021, in order to have a clear example of the evolution or regression of bilateral exports over time. With the results obtained in the two previous steps, the first result can be seen within the formula presented in the theoretical framework: that is, dividing the total agricultural exports from Colombia to the Alliance countries by the total exports from Colombia to the Alliance countries.

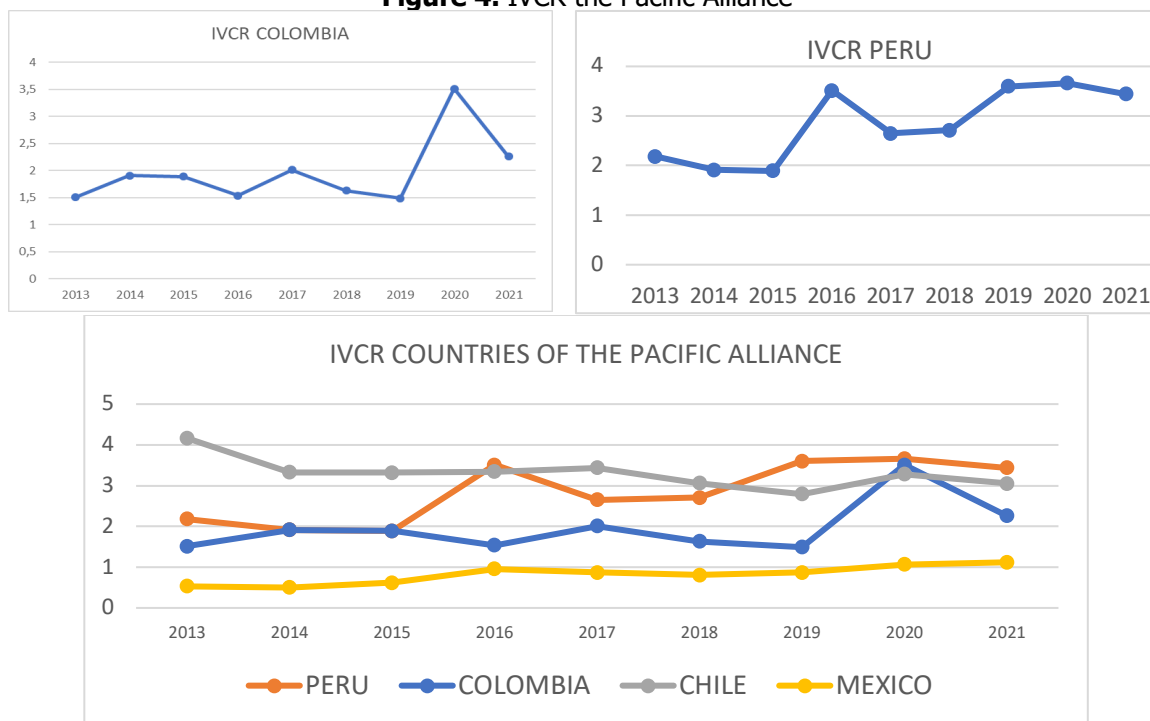
The rest of the formula takes into account the agricultural exports of the entire alliance in the agricultural sector destined for the Asian continent, specifically the countries of China, Korea, Japan, and Thailand, and the result of the above data is divided by the total exports of the alliance to the Asian countries. Once the result of the formula is obtained, the index of revealed comparative advantage of the countries Colombia, Chile, Mexico, and Peru is created, to subsequently carry out a comparative analysis over the selected period to consult the export capacity of each country and identify the participation of Colombia in relation to the rest of the allied economies.

Figure 3. IVCR Results



Source: Own elaboration based on data taken from the official website of the World Integrated Trade Solution

Figure 4. IVCR the Pacific Alliance



Source: Own elaboration based on data taken from the official website of the World Integrated Trade Solution.

3. Results and Discussion

With the results obtained from the indicator, it can be seen that in the case of Colombia, between 2013 and 2021, its results have gradually increased, with 2020 being the year in which it had the highest number of exports in the agricultural sector. With regard to the analysis of the index of comparative advantage in the agricultural sector from 2013 to 2021, it can be seen that, on average, the 4 countries that are part of the Pacific Alliance have results greater than 1 with regard to the index, which indicates that their exports have a good level of comparative advantage in the agricultural sector, with which it could be suggested that the collaborative work of these four nations at the commercial level has managed to make the exchange of goods and services more efficient, thus promoting competitiveness at the regional level.

Based on the comparative results described in the table, it can be seen that, with the exception of Mexico, the countries that make up the PA have comparative advantages in international trade in the agricultural sector; in first place, with a higher average RCAI, is Chile, followed by Peru and in

third place Colombia, whose indicator, without being as low as that of Mexico, maintains an average of 1.97, without achieving a growth trend, which indicates the need to further strengthen the competitiveness of the Colombian agricultural sector, taking into account the potential that the PA offers in terms of trade.

The above is also supported by the contributions of Professor Michael Spence, Nobel Prize in Economics (2001), who states that "probably the most important characteristic of sustained high growth is to take advantage of the demand and resources of the world economy" (Spence, 2007).

Table 1. Comparing the evolution of IVCR in the agricultural sector

Contries	2013	2014	2015	2016	2017	2018	2019	2020	2021
Col.	1.51	1.91	1.89	1.54	2.01	1.63	1.49	3.51	2.26
Ch.	4.16	3.33	3.32	3.34	3.44	3.06	2.79	3.28	3.44
Mx.	0.53	0.50	0.62	0.96	0.87	0.81	0.87	1.07	1.12
Perú	2.18	1.90	1.95	3.51	5.62	2.71	3.60	3.66	3.44

Source: Author's calculations based on data from the Economic Complexity Observatory.

About agricultural competitiveness and productivity

Contributions are highlighted Rumankova, Kuzmenko, Benesova, Smutka (2022) on competitiveness, which he considers driven in the economic agents by the management of a series of criteria such as the availability of resources, technology, the availability of production factors, the existence and use of subsidies, agricultural development policies for the promotion of production and environmental, to increase the sustainability capacity of farmers, in the sense of achieving the optimal combination of their productive factors, the productivity components according to the authors are technical change, scale effects and technical efficiency.

For their part, Seema Narayan, Poulomi Bhattacharya (2018) are supported by the Hecker - Olhin theory, according to which at least one abundant productive factor can determine the competitiveness of the system; With respect to production, the provision of aggregate and specific factors must be managed that determine, on the one hand, the production capacity and the profitability margin that it allows compared to the internal price, these factors refer to the size of the farm, investment capacity in capital and labor, as well as access to technology.

For its part, Zia, Bakhtmina, Muhammad, Shahab, and Muhammad (2022), proposes the analysis of competitiveness in terms of the behavior of organizations in terms of managing greater efficiency, to achieve an effective reduction of production costs, as well as the development of new products based on satisfying the demand of existing and potential consumers. For their part, Coronado and Charles (2017) propose measuring regional agricultural competitiveness using six productivity indices, such as the Water Production Index (WPI); the Economic Index of Water (EIW); the Water and Land Use Index (WSUI); the Soil Production Index (SPI); Rural Dweller; Financial Benefit (RIFP); the Labor Production Index (IPL), finally, the authors constructed their regional Agricultural Competitiveness Index (ACI) as an average of the previous normalized indices.

In addition to this, Coronado and Charles (2017, p. 55) refer to other indicators, such as the Global Competitiveness Index, measured by the World Economic Fund, the Doing Business index of the World Bank and the Balassa Index. In accordance with Romo, competitiveness is related to productivity, so it is necessary to emphasize that a company can be productive and not competitive; but for a company to be competitive it must be productive, since this is necessarily reflected in relative costs.

as they comment Sanchez and Aviles (2012), competitiveness depends especially on product quality and price level; These two factors in principle will be related to productivity, innovation and inflation; Therefore, it is necessary to concentrate efforts on increasing productivity, incorporating and developing technology, which is not always achieved by reducing costs or devaluations. In the article Nowak, Anna, and Monika Różańska-Boczula (2022) Human resources, crop conditions and capital outlays are considered as sources of competitiveness, based on which the following agricultural competitiveness indicators for the United States are described: human resources (% of workers per 100 ha of agricultural land, % of the land with completely agricultural use, cultivation conditions: % of the crop in the total production of the country, % production under the agroecological system, capital productivity (production/total costs), participation in the country's food exports; in addition to this Using a dynamic model, the authors show that the most relevant variables are labor productivity and the average area of the farm.

For your part López, Méndez and Montoya (2009), present productivity as the main competitive factor at the agricultural level, which in turn guarantees the profitability of the activity for small producers. López, Méndez and Montoya (2009), expose key shortcomings in the delay of regional competitiveness such as the concentration of land, intensity in the use of labor to the detriment of technology and capital, low levels of associativity, low levels of technical incorporation in the crops, low bargaining power in the purchase of inputs, as well as low marketing capacity.

At the regional level, specifically for Antioquia, the authors Madrid, Aguilar, Vélez, and Muriel (2017) study the risks of loss due to the tourist threat, they estimate the risk in their article through the equation: Risk = threat * vulnerability (Brooks 2003; Cardona, 2001, cited by the authors p., 312); to estimate the degree of vulnerability of agricultural production systems, they identified the socioeconomic and productive characteristics of the agents involved based on the vulnerability criteria of the agents involved with measurement indices and vulnerability ratio.

In more recent studies, Bastidas (2020, p. 4) highlights the production data in Antioquia according to the CNA (2014), the highest percentage corresponds to agro-industrial production with 42.8%, while the lowest shares corresponded to vegetables, fruits, legumes and vegetables, with 0.4%. Mora and Muñoz (2008) relate agricultural productivity with the concentration of rural property, for this they describe the productive structure of the subregions, from the review of secondary information the department of Antioquia is characterized as a suitable territory for exploitation of forests and water in 57.8% of which only 32.8% are used, a similar situation occurs in the agricultural sector whose potential according to the conditions of the land is 11.3% and 9.4% is used, data that supports inappropriate use of the land, specifically areas that should be used on farms are used for grazing activities; the subregion of eastern Antioquia is described by the authors as the area where there is the greatest inappropriate use of the land, Mora and Muñoz (2008, p. 75).

Regarding the policies implemented to encourage and boost productivity, Marín-Usuga, Martín René, Casamitjana Causa, María, & Loaiza-Usuga, Juan Carlos. (2016), carry out a review of the policies that were implemented in Colombia during the period 1996-2008 to achieve greater technification and competitiveness of the agricultural sector, to better respond to the demands of an economy that had just opened its doors. to international trade.

The author Tekin (2006) presents the political strategies that were established in Turkey to promote exports, from the economic reform of

1970, he highlights the weaknesses of import substitution policies, as the main strategy, in terms of Exports were established as the most important subsidies, the refund of taxes paid, in addition to the exemption from customs taxes. For their part, the authors Francis, Osaretin and Lorde (2007) analyze the relation shipe it her causal relationship between the diversification of agricultural exports and the economic growth of the Caribbean countries, through cointegration models and error correction, thereby demonstrating the importance of agricultural diversification as a strategy for promoting exports, understanding said concept as the ability to manage greater stability in the income of producers with negatively correlated activities in such a way that a variation in prices affects them differently, for example the transformation of primary raw materials.

Braha, Qineti, Cupák and Lazorčáková (2017) expose the determinants of Albanian agricultural exports by applying a gravity model, with the results obtained adding to the thesis of market diversification as a strategy to promote exports in those countries where local farmers can exploit their comparative advantage. For his part, Assem Abu Hattab (2016) studies the Egyptian context, specifically in the impact that the volatility of the exchange rate has on the performance of agricultural exports, based on this he suggests as a policy strategy at the macroeconomic level fiscal policies that ensure the stability of the exchange rate to reduce the market risk of exports.

For their part, the authors Zinchuk, Kutsmus, Kovalchuk, Dankevych, and Usiuk, (2017) propose a model of rural development based on the human being, this through institutional transformation, which requires agrarian reforms aimed at strengthening relationships territorial, strengthen agricultural production systems, seek the social development of rural areas and support for exports, it is highlighted in the study that institutional support is key to guarantee the success of the reforms, in such a way that the development of knowledge industries, investment in innovative technologies, encourage and support exports.

For the case of Africa, the authors Deijl, Djurfeldt, Jirstreitherm (2017)expose the difficulties that

have arisen in the implementation of strategies to promote exports, such as rivalries and regional ethnic, high costs in fertilizer subsidy programs; Policies have focused on including the participation of youth and women in programs, policies that favor innovation and entrepreneurship processes, fiscal rules for greater transparency of public finances, as well as investment banks to facilitate financing.

The authors Concha and Gómez (2016) carry out an analysis of the Latin American market with cluster investment possibilities in countries of the Pacific Alliance, highlighting the condition of Colombia as a member of the agreement that has the possibility of exporting to Peru 100% free of tariffs, to Chile 99% and to Mexico 97% which is an incentive to invest in export platforms; For this, the Valle del Cauca area stands out for the number of clusters, these industrial districts provide great benefits such as the existence of specialized suppliers and labor, as well as an overflow of knowledge, in addition to the proximity to the multipurpose port in Buenaventura as a platform. exporter to the Pacific countries;

Lámbarry (2016) applies as a tool the centrality metrics established by the network theory for the analysis of the structure of the Pacific Alliance as an economic network, in its results it shows a lower level of cohesion and commercial exchange in the Pacific Alliance, Compared to Mercosur, the central countries that dominate both blocs would be Brazil and Mexico, therefore Mexico is classified as the nucleus and leader of the PA; The author presents to the AP how a mechanism of convergence towards the commercial development of the region, also recognizes greater homogeneity and equity among its members, these characteristics favor integration for commercial exchange in favor of growing economic development for the region.

García, Gálvez and Maldonado (2016) analyze the effects of innovation on the growth and performance of MSMEs in the countries that make up the AP, the authors selected a sample of 386 companies from the four countries, among the results it is highlighted that Innovative processes have favored the generation of employment in SMEs, in the same way it favors sales levels.

Regarding the innovation factors that favor the competitiveness of the companies that make up the PA, the authors Arredondo, Vázquez and de la Garza (2016) carry out a review of the indicators of capacity to innovate, quality of scientific research institutions, investment, university collaboration-industry, technology products Yoto advanced, availability of scientists and engineers, patents; there they identify that the most stable and predictable economic environments favor competitiveness, in turn the macroeconomic aspects that harm innovation correspond to inflation, high tariff rates; Mora, J. (2016), on the other hand, studies the economic convergence of the countries that make up the AP, this is the correlation between growth rates and GDP gaps, in the results it is concluded that the levels of convergence can be improve from the implementation of a series of policies that favor intra-bloc trade and financial integration.

On the other hand, Coutin and Terán (2016) carry out a comparative study on the free trade agreements between the countries of the AP with the Asian countries, China, South Korea and Japan, for the Colombian case a greater opening is required at the international level. legal that promotes a greater dynamism of the economy, strategically, for example, it proposes alliances with Peru in such a way that its treaties with Japan are taken advantage of, for example; Similarly, Chile has a privileged position where it is also involved in thematic treaties related to investment and tax, customs and phytosanitary cooperation. Regarding the possible negative effects of the COVID 19 pandemic, Reyes, Mendoza, and Robayo. (2021) analyze the growth capacity and economic reactivation of the countries that make up the PA, Peru showed notable growth in its GDP, which is associated with a stronger health infrastructure; Among the measures implemented in the countries for economic reactivation, the reduction of the interest rate is identified among the main strategies, however its effect was not as expected due to the high levels of informality, which is associated with the low capacity of indebtedness.

Family farming is characterized in the document as a productive unit with family labor, limited

resources of land and capital, as well as a mixed use of it according to its productive capacity; The agricultural support programs that have been implemented in Latin America are highlighted, such as the direct rural support program (PROCAMPO), the rural development project in Mexico (PDR), the national program to strengthen family farming in Brazil (PRONAF) and in Colombia, the financing fund for the agricultural sector (FINAGRO), the weaknesses of small production units in Colombia, described in the document are: high dependence on few markets, low prices of exported goods, added to conflicts and violence rural (Marín-Usuga, Martín René, Casamitjana Causa, María, & Loaiza-Usuga, Juan Carlos. 2016, p. 106), due to the high dependence on coffee crops, specifically 30% of agricultural land and 17% of GDP (Marín-Usuga, Martín René, Casamitjana Causa, María, & Loaiza-Usuga, Juan Carlos. 2016, page 107) alludes to the increase in diversification programs in agricultural production during the 20th century, in general the authors make a recount of the main crops in the country, their contribution to GDP and how the armed conflict affects development rural.

In the description of the programs that have been implemented for rural development in Colombia, the authors classify them according to their destination, on the one hand those that seek to increase competitiveness and those aimed at promoting greater well-being and rural development, although in the study reference is made to each of the programs, with the respective figures of credits granted, it does not delve into their effectiveness and the impact on small producers, the characteristics of each of the beneficiaries and their ability to sustain and use the credits efficiently and productively, however, it reflects on the inequality in the conditions of use and access to resources between large and small producers.

As an example of the rural development strategies that can be implemented to guarantee food security and prevent the concentration of land, as an unproductive practice of underuse of the territory that also does not contribute to the generation of employment and redistribution of wealth; Among these strategies, the authors highlight the projects of European family farms, as

well as more sustainable structures at the agricultural level to reduce environmental damage, in relation to this the concept of total factor productivity (TFP) is brought up in their article (Marín -Usuga, Casamitjana Causa and Loaiza-Usuga 2016, page 102), given its wide use in search of increasing food production at a lower cost.

The improvement of productivity is directly related to the sustainability of the territory, in this regard Verhulst, François and Govaerts, (2015) proposes Conservation Agriculture as a technique, which allows increasing productivity without harming the sustainability of the territories, the principles that must be fulfilled in this technique are the reduction of tillage, which allows to reduce tillage to a minimum or maintain a controlled tillage system; secondly, the retention of residues in the soil, for the protection of soils against erosion processes, reduce sediments, improve the conditions for water production and maintain soil properties; Finally, this technique seeks to increase crop rotation, since it facilitates the reduction of weeds and the control of pests or diseases in crops.

For his part, Torres Salcido (2007) proposes the study and promotion of the AIR Rural Agroindustry, as a strategy for the Valuation of Local Resources, what is sought then is to strengthen the development of differentiated products with greater added value, this work it is of special importance in post-harvest activities, that is, selection, washing, classification, storage, transformation, packaging, transportation and marketing; The author proposes to prepare the AIR to identify the products whose local production characteristics are differentiated between that territory and others, the strengthening of inter-institutional support, implement effective practices of innovation and dissemination, as well as training activities and technical support to producers and that One of the objectives is always the quality of the product.

For their part, Loera, Sepúlveda, Ramírez and Espinoza (2014) propose strategies to increase the productivity and competitiveness of the agricultural sector in Mexico, the authors argue that to achieve the optimal level of production in the company, the decision should be based on the availability of

resources, the ideal is to seek to maximize profit or profitability, to do so tend towards technical efficiency to optimize the use of resources; In general, a diagnosis is required that allows knowing the degree of use of factors, their cost and the lack of use of technology, negotiation of inputs, quantity of production, to implement improvements effectively.

In relation to productivity in Colombia Retrepo (2018) studies the productive dynamics that can explain the low added value of agricultural products, as explanatory factors it considers low access to markets, low level of association between small and large producers, inadequate agricultural practices that lead to underuse or overuse of land; Along these same lines, Jiménez and Domínguez (2014) explain the determining variables of rural productivity, based on models of endogenous growth and social capital, to demonstrate how the increase in educational processes, combined with greater investment in infrastructure, potentiates growth. rural economy, the latter in turn makes it possible to guarantee agri-food security; but in addition to this, the authors refer to the term social capital as the ability to work in a group, such collective action favors the formation of networks and alliances to reduce costs or find new markets. Based on the literature review, Table 1 consolidates the approaches and objectives that should be appropriate in the exercise of agricultural production in favor of competitiveness in said sector.

Table 1. Approaches and objectives in agricultural production

Approach/ Goal	Actions	Expected effects
Productivist approach	Technological packages must be applied that intensively use improved inputs given their greater efficiency	Access to improved technology
Ecological Approach	Increase productivity under the objective of conservation of available natural resources, for this they propose the use of indicators to control the use of resources such as the magnitude of erosion and loss of soil fertility, levels of desertification and deforestation, better land use, exploitation, forest use,	sustainable agriculture

Approach/ Goal	Actions	Expected effects
	watershed degradation, deterioration of marine and coastal resources, water and air pollution, loss of genetic resources and ecosystems.	
Market Approach	It seeks the maximization of income, that is, lower unit cost, higher profitability that generates greater competitiveness for the company and the ability to stay in the market.	Profitability control
Scale economics	Reduce the unit cost of production by increasing the volume of production; the factors that allow this to be achieved are specialization and the division of labor, as well as technological factors.	Finding the best combination using available factors
production efficiency	Make sure to apply an optimal use of inputs, avoid wasting resources	Identify quantities input by product vs quantities used
Technological change	Reconditioning of the installed capacity so that it operates fully	Diagnosis of current production levels vs optimal production levels by product

Source: Own elaboration based on Lopera, Sepúlveda, Ramírez and Espinoza (2014)

About export promotion strategies

In the same way, the proposed strategies for promoting agricultural exports, the state of competitive advantages as well as the levels of regional commercialization at the agricultural level are consolidated by identified author; in this regard, the authors Mungaray, Ramírez and Taxis (2009) study the economies of scale for the Mexican case, in addition to an analysis of other works where the possibility of achieving increasing returns has been supported, reaching efficiency, in other words, by achieving an optimal allocation of resources in terms of costs, to achieve the highest possible production volume; Thus, it seeks to demonstrate how microenterprises have the capacity to generate economies of scale, as long as they manage to innovate and establish learning processes.

One of the main weaknesses in the agricultural products market has to do with the low level of added value of its products, one of the strategies to try to increase its competitive advantages based on the differentiation of its physicochemical characteristics and health benefits. of people, has to do with achieving ecological products, that is, free of chemical substances harmful to human health, very common in ordinary production techniques. In this regard, Sánchez (2017) exposes the evolution of organic agriculture processes in Colombia based on a review of secondary sources; In his work, he defines organic farming as any production technique in which the use of inputs is limited to those that are natural, in the sense of being obtained naturally.

The author emphasizes the differentiation that must be made between ecological agriculture and the so-called "sustainable" since the second includes the use of chemical elements that are justified in the expected yield of crops. Regarding the export levels of organic or agroecological products, the lack of discrimination in the tariff classification of this type of product is highlighted to differentiate them from the others, in order to measure export volumes in a comparative manner; At the institutional level, the CIAT, CIDEIMA and CEDICAÑA research centers in the Cauca Valley, cataloged as the first bio-region of Colombia, are highlighted; Among the intuitions that stand out at the international level for the commercialization of this type of product, the following stand out: Swedish Trade Federation Svensk Handel.

For its part, Espinosa (2004) makes a characterization of organic production in Colombia, in which he highlights in great detail the benefits of agro-ecological products to human health and the environment, in addition to other associated benefits that allow to boost the local economy, such as as intensive use of labor and greater profitability, due to price stability, thanks to the high added value of the products; In the scale of organic production, Colombia reports for the study period, still very low levels in organic hectares, despite having advantages in abundance of resources for agricultural production, so while Austria has 10,500,000 hectares, Colombia reports 30,000

hectares (Espinosa 2004, p. 3); with respect to the costs in a comparative way between the organic and conventional production processes.

Likewise, Espinosa (2004) makes a characterization of ecological production in Colombia, in which he describes it as an activity developed by small producers with the use of family labor, most of them organized in associative processes that allow them to facilitate commercialization, Among the main weaknesses of the sector, the difficulties in accessing resources to finance productive activities are highlighted, the lack of liquidity prevents savings and investment actions that in the medium and long term allow them to carry out strategies of innovation and technification of the installed capacity as well as expansion of working capital.

Considering the results obtained by Espinosa (2004), training is recommended for producers on the standards established for the proper management of the processes that occur in their land of erosion, dumping of wastewater, as well as the pertinent actions in afforestation. On the consumption of agroecological products, Chaparro and Franco (2020) carry out a characterization of consumers, as a way of understanding the shortcomings in the demand for this type of product, with which more effective strategies can be designed for marketing with greater emphasis. in the communication and education of effective and potential clients; The following table summarizes the main characteristics of the demand identified from the study carried out.

On the marketing of agricultural products, Mendoza (1991) presents a systematic approach, with emphasis on integration and coordination, as well as efficiency in said process; The author reflects on the importance of the analysis of the marketing of agricultural products, since on many occasions public policies for agricultural development focus on improving indicators of productivity and agricultural production, only which causes precarious results in terms of profits and losses for a system made up of three major stages that are production, marketing and consumption.

When describing the importance of the commercialization phase, Mendoza (1991) explains

the added value or utilities that are created from said process, such as the transfer of place, the way in which the product is commercialized, the conservation time. of these and the change of possession for marketing purposes. In general terms, he explains in detail the characteristics in detail that must be maintained and strengthened in an agricultural marketing system; At a financial level, he highlights the importance of calculating the marketing margin and the producer's margin; Specifically, in the commercialization phase, the activities of the exchange system and those of physical distribution must be considered separately.

According to Mata (2020) justice in agricultural trade occurs from the existence of several factors, first of all, communication with producers is essential where respect for producers prevails, in such a way that trade agreements are mutually beneficial; In this sense, the most important benefit for the small producer will be the fair price, in accordance with the qualities of the product, the production conditions under the care of the environment, fair working conditions, among others. According to the author, the fair price even has a greater significance, which has to do with the opportunity given to the producer to obtain profitability in his economic activity with which he can strengthen his productive projects in a sustainable way. This increase in income also means a better quality of life, the possibility that other members of the family exploit new business units from the main activity, which means female empowerment, greater attachment to the territory by young people; That is why the fair-trade label is a differentiating factor that adds value to the product.

In other words, the fact of improving the conditions of the producer also favors the conditions of commercialization, in this way the low rural economic development, derived from situations of agricultural poverty, is combated; On the effects that small agricultural producers have to assume, Pérez, Melgarejo, Melgarejo, Sánchez and Acosta (2017) present contract farming as one of the new marketing strategies that tends to improve the conditions of the producer, where it is distributed the risk between both parties, according to the

functions of producing and marketing, also reduces the uncertainty for the producers since they know in advance the necessary quantities of product as well as the characteristics demanded, stability in prices and the market.

Arredondo and Hernández (2012) propose productive integration as an agricultural competitiveness strategy, understanding this as the alliances established by two or more organizations to work together, for mutual benefit, for it to be successful requires the trust of the parties, as well as a good synergy that allows them to establish common objectives and goals; at the agricultural level, the association between the actors that represent the different agro-productive chains is recommended, this means a productive emphasis on integration; in their article the authors Arredondo and Hernández (2012) explain the types of networks that can be formed in integration strategies, the benefits will be the possibility of forming economies of scale, sharing costs, implementation of good agricultural practices (GAP).

Regarding export strategies, Espinach (2018) proposes, focused on the case of Costa Rica, to consider the durability variable as one of the most important, this means a detailed analysis by product, applying tools such as the SWOT analysis; externally, she suggests applying different strategic planning tools that allow the company to identify the main market niches and establish strategic alliances abroad; The author highlights as one of the most important factors the knowledge of the client and the study of the market factors associated with it, in such a way that it can offer not only a differentiating product but also satisfy the demand constantly over time.

For their part, Barrios and Jiménez (2014) highlight the importance of the primary and tertiary sector to combat rural poverty, since the opportunity that small producers have to take advantage of agriculture, increasing productive capacity, efficiency, to increase income, ensure self-consumption, contribute to guaranteeing food safety; Among the strategies proposed by the authors, it is highlighted to enhance the role of women in agricultural work through the

transformation of products, these processes of Agroindustrial transformation can also be strengthened with young people who apply the studies developed or acquired in their territories. in their training processes.

Regional valuation matrix

As a result of reflection based on the review of secondary information, a regional assessment matrix is proposed to show the progress made in promoting agricultural exports in the department of Antioquia, incorporating all the criteria reviewed in this article; The thesis that supports the analysis refers to the fact that the use of the PA as a commercial tool to articulate internal and external markets that effectively allows growth and competitiveness to be promoted, requires concrete actions to promote agricultural exports and manage agricultural competitiveness. regional level.

Table 2. A regional assessment matrix

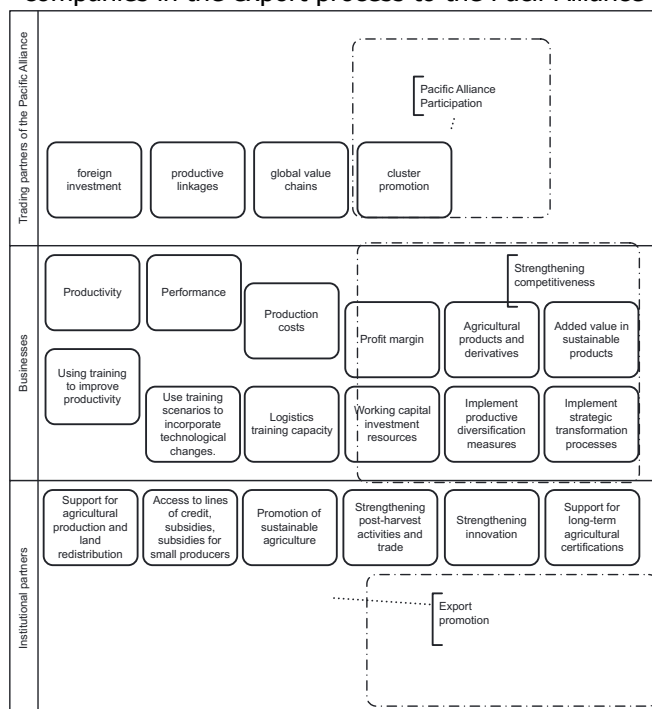
Agricultural competitive ness factors	Management actions	Agricultural export promotion actions
agricultural productivity	reduce tillage	Export Promotion Credit
	retain residues in the soil	Eliminate restrictions on production
	reduce sediment	Support for logistics management for agricultural exports
	improve conditions for water production	Strengthening of post-harvest activities, that is, selection, washing, classification, storage, transformation, packaging, transport and marketing
	increase crop rotation	Innovation processes for quality improvements
	Take advantage of arable land in planting and harvesting	implement effective innovation and dissemination practices, training and technical support for producers to improve product quality

Agricultural competitive ness factors	Management actions	Agricultural export promotion actions
Use of technology for transformation of agricultural product	Apply strategies for the intensive use of inputs that increase efficiency	Promotion of sustainable agriculture
	Technical assistance	Value added product
	Investment in land, capital and labor to increase production capacity	Tax incentives, tax refunds, subsidies
Relative costs	Logistics capacity in packaging, transportation, storage, distribution and sales	
Public policies for agricultural competitiveness	Ensure the availability of technology and production factors to small rural producers: redistribution of land, subsidies, incentives, training and lines of credit	Macroeconomic policy: long-term exchange rate stability
	Investment in infrastructure	
Productive diversification	Implement more than one crop or transformation of agricultural product	Accompaniment for agricultural certifications for export
Value added	Implement differentiating production and/or transformation processes	

Source: Own elaboration

The first valuation variable corresponding to agricultural competitiveness is defined as the ability to generate agricultural production with given conditions in price and quality that allow it to be placed comparatively better than other agricultural products. To achieve this condition, the joint management of the factors described in the valuation matrix as factors of competitiveness; Regarding the concept of export promotion, this is defined as government and private actions aimed at strengthening agricultural export capacity in terms of capital formation, productivity, logistics capacity, quality, innovation and added value. In the matrix, only internal factors are considered, such as the management actions of individual companies and external institutional factors.

Figure 1. A competitiveness model for agricultural companies in the export process to the Pacific Alliance



Source: Procolombia and the Colombian Ministry of Foreign Affairs

Participation in the Pacific Alliance mechanism is shown as the next step or the goal that agricultural companies that join the export process should seek, there three important actions are proposed internally and externally, internally it must be managed and apply the necessary actions to make the company more competitive, this includes each of the factors already mentioned but in turn it is necessary to seek the use of state programs that through different actions mentioned in the flow seek to promote agricultural exports and are will have greater impact to the extent that they are demanded and used by businessmen.

Finally, the training and training mechanisms offered through the official website of the Pacific Alliance should be used to achieve external connections for the reception or application of foreign investment, productive chains that lead to a global value chain and jointly increase the agricultural export volume to Asian countries.

4. Conclusions

It is important to show the figures of evolution in exports by the member countries of the AP and towards the Asian countries to measure the degree of use in said commercial agreement, as well as to identify the capacities and deficiencies of each country in terms of export capacity to strengthen the promotion, strengthening, and financing processes.

The participation of companies in the AP foreign economic development initiative requires the application of strategies to strengthen competitiveness, which involve increased productivity, use of technology to increase efficiency in the combination of production factors, control of relative costs, productive diversification, and formation of added value.

It is also necessary that companies participate in the programs that are continuously offered by government entities aimed at promoting exports from business strengthening on different fronts, such as production, logistics management, innovation, quality, value-added training, and agricultural certifications. among others.

From the official website of the Pacific Alliance, the conditions and scope of the trade agreement, training spaces, promotion and participation for users in general, companies or people in general are explained in detail; Training documents on market access, rules of origin, and procedures related to origin, sanitary and phytosanitary measures, and integration mechanisms, among others, stand out.

After the negotiations of the Pacific Alliance, which sought to unite and support nations in order to create a favorable market for all, it can be seen that the expected objectives have been achieved and that exports within the alliance have been beneficial for the four countries. This alliance has allowed them to exploit their comparative advantages in the agricultural sector.

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