

ARGENTINE AND BRAZILIAN AGRICULTURAL COMPETITIVENESS IN INTERNATIONAL TRADE: AN ANALYSIS BETWEEN 2008-2010 AND 2018-2020*

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ABSTRACT

This paper aims to analyze the agribusiness insertion of these two countries in international trade to verify their overall positioning and their exported products in the period covering the trienniums 2008-2010 and 2018-2020. The performance is evaluated based on the participation of each country and its products in world imports, considering the methodology proposed by Fajnzylber (1991), which classifies the products according to their positioning (either favorable or unfavorable) and efficiency throughout the period (either high or low). The results show that Brazilian agribusiness is more competitive than Argentinian and a significant portion (52.71%) of the products in Brazil's export portfolio are classified as in an excellent situation. In the case of Argentina 63.38% of its exports were classified in the non-competitive group, that is, items in a situation of retreat and a situation of missed opportunities. We observe that discussions on this topic do not cease as the study suggests new fronts and directions for future research based on the results of this investigation.

Keywords: Agribusiness; Competitiveness; Export; Supply Chain Management; International Trade

RESUMO

Este trabalho tem como objetivo analisar a inserção do agronegócio de dois países no comércio internacional para verificar seu posicionamento global e seus produtos exportados no período que abrange os triênios 2008-2010 e 2018-2020. O desempenho é avaliado com base na participação de cada país e seus produtos nas importações mundiais, considerando a metodologia proposta por Fajnzylber (1991), que classifica os produtos de acordo com seu posicionamento (favorável ou desfavorável) e eficiência ao longo do período (alto ou baixo). Os resultados mostram que o agronegócio brasileiro é mais competitivo que o argentino e uma parcela significativa (52,71%) dos produtos da pauta de exportação do Brasil está classificada em excelente situação. No caso da Argentina 63,38% de suas exportações foram classificadas no grupo não competitivo, ou seja, itens em situação de retrocesso e situação de oportunidades perdidas. Observamos que as discussões sobre o tema não cessam à medida que o estudo sugere novas frentes e direções para pesquisas futuras com base nos resultados desta investigação.

Palavras-chave: Agronegócio; Competitividade; Exportação; Gestão da Cadeia de Suprimentos; Comércio Internacional

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INTRODUCTION

International trade is presented as an alternative for the development of economies, since, among other factors, it represents an important portion of the Gross Domestic Product (GDP) account, especially when it concerns trade balance (exports - imports) (Braun; Ferrera de Lima; Cardoso, 2007; Oliveira et al., 2021). It should be said that the exchange rate, regional specializations, sanitary barriers, competitiveness, competition, and geopolitics, amongst others, influence this account.

It is important to emphasize that the debate on international trade was deepened in *The Wealth of Nations* by Adam Smith, first published in 1776. According to the British philosopher and economist (Smith, 1996), nations should focus on the production of goods in which there is a need for relatively fewer inputs to generate production. The budget surplus should then be exported and with the total funds generated, other products might be purchased in countries that enjoy adequate production advantages, which would promote greater well-being in society (Castro et al., 2016; Gala; Roncaglia, 2020).

Furthermore, we also verify that major advances - in the areas of management, technological innovations, transportation, communication, consumption patterns, and even the creation of multilateral institutions - resulted in changes in agricultural trade routes in the face of the globalization process (Braun; Ferrera de Lima; Cardoso, 2007). Concerning the agricultural sector, there has been further market integration, and trade liberalization has quantitatively and qualitatively changed the demand for agrifood products in developing countries (Flexor, 2006).

The institutionalization of the World Trade Organization (WTO) generated motivation to build global markets (Flexor, 2006). Understanding how the products exported by the countries behaved considering these changes is relevant to policymakers, companies within these global chains, and other stakeholders.

Regarding global markets, we understand that, historically, Latin American economies have been characterized by heterogeneous productive structures, little productive diversification, foreign capital dependence (mainly in Asian countries), and export bases focused on primary and fundamental products (Fernández; Curado, 2019a; Miranda; Jank; Soendergaard, 2020).

Furthermore, not only civilizational crises have impeded the development of global markets, but also the Covid-19 pandemic, since this latter showed how vulnerable global value chains are (Kerr-Oliveira et al., 2021). We, then, noticed the importance of resilience, namely the ability to adapt to changes whether these are endogenous or exogenous. Thus, to be prepared for the post-pandemic economic scenario and eventual crises, firms and governments (the latter to a greater extent) have changed their focus and readapted their strategies by emphasizing empathy and sustainability (Apexbrasil, 2021). This need to reassess performance in a current and concise manner is considered a theoretical gap to fill in.

Thus, the aim of the present paper is twofold: to analyze the insertion of Argentine and Brazilian agribusiness into the international trade of agricultural products according to their aggregate positioning, and to investigate their exports agenda during the trienniums 2008-2010 and 2018-2020. The proposed method of analysis combines the conceptual elements of the competitiveness matrix introduced by the economists Fernando Fajnzylber and Ousmène Mandeng. The first published "International insertion and institutional renewal", in 1991, whereas Mandeng was responsible for improving Fajnzylber's ideas in the same year with the publication of "Competitividad internacional y especialización" both in *Cepal Review*. The "Food and Agriculture Organization of the United Nations" (FAO) is a database that gathers

information about 432 items (agricultural products) from the 193 member states of the United Nations.

The theme is relevant to the extent that it is possible to understand the export agenda of the countries from the classification of the product performance in the analyzed period, being 2020 the last year of data update available by the base (FAOSTAT). Thus, we aim to understand how the Argentine and Brazilian products performed in the international market within the years 2008-2010 and 2018-2020.

The present study demonstrates that both countries have excessively concentrated on a few products in their export agendas, a fact that doubles the risk over global economic uncertainty. In other words, it concerns decision makers, planners, and policymakers to think of strategies to increase the position of dynamic and competitive products, that is, items with more market share in the country's export market share, in addition to the demand in world imports. This condition establishes the valuable managerial contribution for the national agribusiness companies since part of this diversification on performance concerns them exclusively.

AGRIBUSINESS AND THE INTERNATIONAL MARKET

Although there are several paths towards development (Furtado, 1974; Theis et al., 2021), it is notable that there are several benefits from economic growth driven by export efforts, not only for the country but also for the institutions, companies, and the people involved in these activities (APEXBRASIL, 2021). Considering that exports have a direct impact on the balance of payments – especially periphery countries and those located in Latin America – that are essential to industry promotion and country development (Fajnzyłber, 1988; Gala; Roncaglia, 2020; Silva, 2014), in this section we outline the insertion of agribusiness in international markets focusing on Argentina and Brazil.

In general, virtuous insertion in the international market is related to endogenous (therefore, internal) conditions to an environment, which can encourage systemic competitiveness of the national economy (Silva, 2014).

There is broad Competition in the international marketplace, since companies, productive systems, institutional schemes, and social bodies compete. In this context, the enterprise is an essential element that is integrated by infrastructure dependent technologies, management labor relations, public and private institutional environment, financial systems, etc. (Fajnzyłber, 1988). In terms of international insertion, Argentina and Brazil will be considered food supplier countries for the world, based on their agricultural aptitudes and importance in the regional context where they are inserted, that is, South America (Fernández; Curado, 2019b).

In Argentina's case, within the 1985-1990 period, the exports of agricultural products were almost exclusive, along with energy exports (oil products, refined products) (Fernández; Curado, 2019a). In 2019, Argentina, which ranks 46th in the world, exported \$64 billion, with soybean meal (\$8.81 billion), corn (\$6.19 billion), delivery trucks (\$3.83 billion), soybeans (\$3.47 billion), and soybean oil (\$3.38 billion) figuring as the most representative products on its export list (OEC, 2022).

In Brazil's case, the country has never been apart from the rest of the world, and its history is strongly influenced by agricultural activities, notably, the production and exportation of sugar during the colonial period (starting in 1590), the steel industry (by the end of the 16th century), and coffee, as it developed in the Brazilian Second Empire (1850) (Lima, 1970). The country's

concentration on exporting sugar and coffee occurred by the 1980s, but from then on Brazil gradually became one of the world's largest suppliers of soybeans and soy derivatives, animal protein, wood pulp, sugar, ethanol, and orange juice (Christ et al., 2022; Miranda et al., 2020). In 2019, the country exported a total of U\$230 billion and became the number 25 exporter in the world. The most representative exports on Brazil's export agenda in 2019 were: soybeans (\$26.1 billion), crude oil (\$24.3 billion), iron ore (\$23 billion), corn (\$7.39 billion), and sulfate chemical pulp (\$7.35 billion) (OEC, 2022).

In this sense, Brazilian agribusiness has been the main element for the country's economic growth, as it represented 27.4% of the country's total GDP in 2021, the best result since 2004 (when it was 27.53%) (CEPEA, 2023).

The need for greater efficiency in production gains has led the organization to a higher level of specialization and thus, allowed the surpluses to generate supply to meet the growing consumer market in urban areas. This new form of economic structure required specific resources such as roads, logistical services, storage capacity, control technologies, and techniques for increasing productivity (Davis; Goldverg, 1957).

Therefore, this transformation gave rise to the concept of "Agribusiness", which, according to Zylbersztajn et al. (2015), comprises a set of institutions that produces, governs, negotiates, and organizes the trade of products and inputs which are necessary for the production. This entire flow of goods, services, and information that constitutes Agribusiness is arranged into parts of a whole known as Productive Chains (Silva; Spers, 2021).

Due to its efficiency, Brazilian agribusiness has been the object of study from different perspectives in the theoretical and empirical environment (Costa; Costa, 2012; Gomes; Kliemann Neto, 2015; Paiva; Francisco; Raquel, 2008; Zylbersztajn; Fava Neves; Caleman, 2015). In the present investigation, we focused mostly on a comparison regarding the competitiveness of the results of Argentina vs Brazil. In theory, the competitive profile matrix (here we use Fajnzylber's model) allows us to identify scenarios with situations of retreat, vulnerability, missed opportunities, and optimum situations. Empirically, this analysis extends our understanding of complementary aspects that influence final performance. Analyses of volumetric productivity are relevant because agricultural commodities promote value through economies of scale (Maertens; Swinnen, 2014).

In the face of flaws, risks, and uncertainties, information becomes imperfect, and the absence of rationality leads agents to make errors concerning resource allocation (Carvalho, 2001). In the agricultural scenario, Sonka and Patrick (1984) identified five main sources of risk: (i) technical production risk (associated with diseases, pests, and weather); (ii) price risk; (iii) technological risk inherent in specific investments; (iv) legal risk (changes in rules established by governments); (v) human sources of risk (worker strikes). This set of challenge management decisions focused on competitiveness in the national and international agricultural scenario.

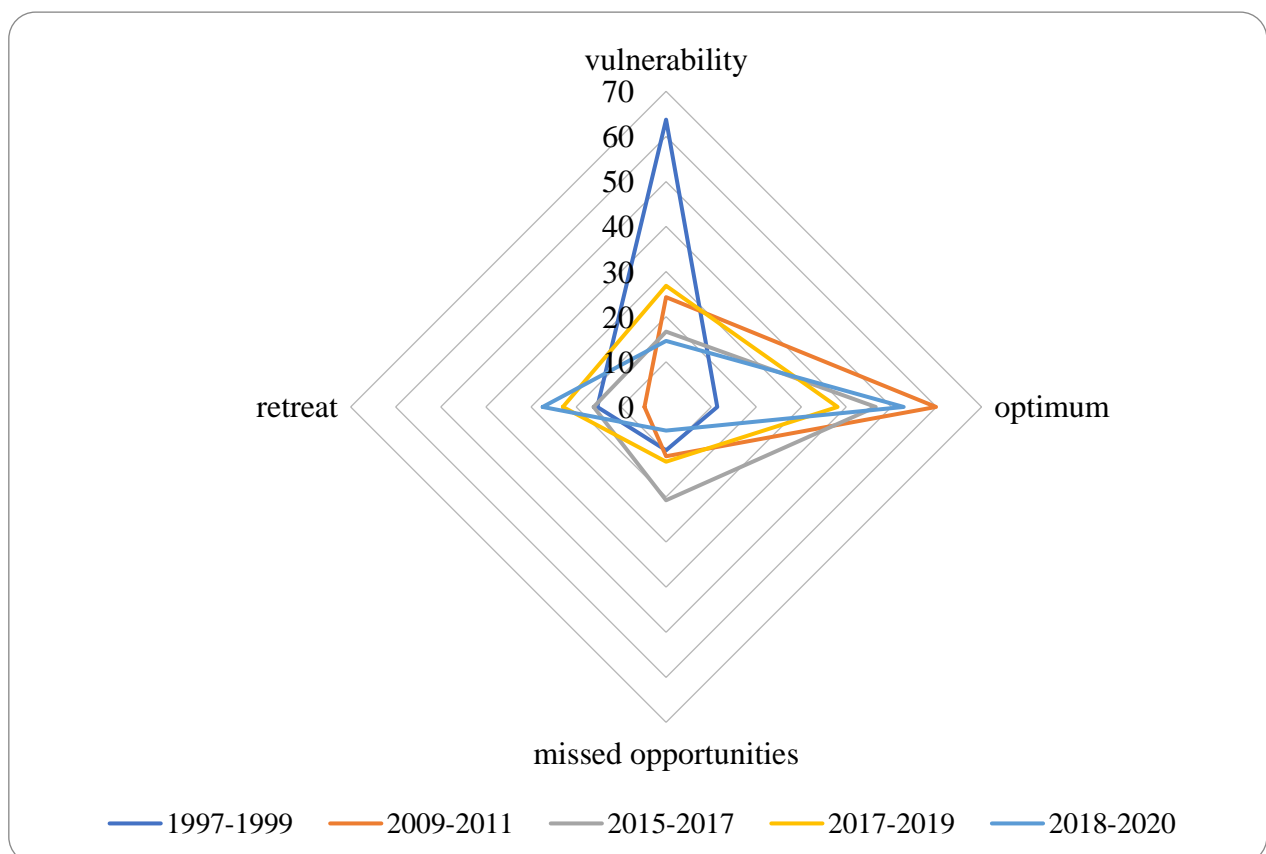
However, besides the risk, the exchange rate is an additional element that directly affects the exportation performance. According to a study that sought to evaluate the exportation performance of orange juice exports between the years 1997 and 2015, the exchange rate decisively affected the result, especially in 2002, when the real exchange rate was R\$ 6.70 per US dollar (Brocanelli; Ferraz; Figueiredo, 2017). The rise in commodity prices in the international market in the 2000s, compared to the 1980s and 1990s, confirmed Brazil's increasing competitiveness in the agricultural export scenario (Carvalho; Mendonça, 2021).

In the current competitive scenario, having agile information that results from data management has been a decisive factor to achieve competitive advantages in Supply Chain

Management (SCM). Thus, it demands the integration of all activities that relate to the transformation of products, including information flow (Alfalla-Luque; Medina-López, 2009). Trienekens *et al.* (2012) acknowledge that in addition to continuously improving food quality and safety standards, another competitive challenge lies in defining strategies to reduce the cost of production. García, Moreno, and Barrera (2017) consider organizations that allocate efforts to the export market need strong internal resources associated with experience and structure. Thus, knowing the performance of agricultural products in the international market allows the formulation of competitive strategies applied to Brazilian agribusiness.

Internationalization strategies allow companies to learn from foreign markets, which even benefit the new product launch process (Torrecillas; Fernández, 2022). Given the various learning possibilities, benchmarking allows the adaptation of techniques used by other companies/countries to promote efficiency gains in the current performance. By using the methodology proposed by the Chilean economist Fernando Fajnzylber, available at Fajnzylber (1991), several authors have compared the positioning of agricultural products in international trade (Carvalho, 2002; Christ *et al.*, 2021, 2022; Fernández; Curado, 2019b; Santos *et al.*, 2016; Silva, 2014). Such researchers have contrasted the positioning of these products, and the South Korean economic performance achievement, as it considers both endogenous and exogenous factors introduced by Fajnzylber's model (Silva, 2014). As we interpret Graphic 1, it indicates a better performance of the Brazilian export mix accomplished during the period analyzed, in which the products in a situation of vulnerability that previously represented 63% of the total amount (1997-1999), increased to the level of just 26% (2017-2019).

Graphic 1: Brazilian competitiveness matrix: 1997-2019 (USD %) (Fajnzylber)



Source: adapted from Carvalho (2002), Santos *et al.* (2016), Christ *et al.* (2021), and Christ *et al.* (2022).

Therefore, it is necessary to analyze the specific results according to the products (items) to better understand such performance. Next, the methodological outline presents the procedures we adopted to conduct this research.

METHODOLOGICAL DESIGNS

This theoretical-empirical analysis, which is classified by its quantitative and descriptive approach, comparatively analyzes the Argentine and Brazilian agribusiness insertion in the international trade of agricultural products between the trienniums 2008-2010 and 2018-2020. As for the procedures it is based on bibliographic and documentary study (Creswell, 2009). The average value of exports of Argentina and Brazil, and the average of world imports (US\$) over the investigated periods were considered a measure for analysis. The most appropriate analysis method employed in this study is a model-based approach.

The research was conducted in four main stages: theory contextualization (1), data collection (2), application model (3), and analysis of the results (4). The first one, based on a theoretical nature, sought to contextualize the theory, identify gaps, and, finally, provide the basis for further analysis of the results. The second stage covered secondary data collection. Secondary sources are the basis for an empirical study and were derived from the Food and Agriculture Organization base (FAOStat, 2022), considering 432 items related to agricultural products and taking as variable analysis the exported value (US\$).

Lastly, the third stage of the research aimed at organizing the database and applying the model proposed by Fajnzylber (1991), later formalized by Mandeng (1991) to measure the competitiveness of a country. This model uses the exports of the country exclusively (US\$) when compared to world imports (US\$) of the same product and it starts from a single equation (1), expressed as follows:

$$S_j = \sum_{i=1}^n \frac{M_{ij} M_i}{M_i M} = \sum_{i=1}^n S_{ij} S_i' \quad (1)$$

Where:

S_j is the total share of a country;

S_i is the market share of imports;

S_{ij} is the share of imports of a given sectoral group;

i is a product (or a sectoral group)

j is a country; and

M is total imports.

In this study, we used the SJ time change, considering the average of Brazilian and Argentine exports and the average of world imports over the years 2008, 2009, and 2010 as the starting

period, and 2018, 2019, and 2020 as the final one. After identifying the positioning and efficiency, we have the classification in the Competitiveness Matrix, as shown in Figure 1.

Figure 1: Competitiveness Matrix

		Relative position of products	
		Unfavourable	Favourable
Relative efficiency of countries	Low	Situation of Retreat	Situation of Missed Opportunities
	High	Situation of Vulnerability	Optimum Situation

Source: Fajnzylber (1991) and Mandeng (1991).

Each quadrant in the matrix (Figure 1) represents the combination of the product's relative position (either favorable or unfavorable) and the country's relative efficiency, that is, the declining or rising in market attractiveness, (MANDENG, 1991), for easier interpretations. We therefore consider, in this study, X exports and M imports, that is:

- Situation of vulnerability: ($\Delta s_i < 0$ and $\Delta s_{ij} > 0$) (X) there is a loss of market positioning (market-share), but world consumption is declining (M).
- Situation of retreat: ($\Delta s_i < 0$ and $\Delta s_{ij} < 0$) the product (X) faces a loss in market share, and world consumption (M) also declines.
- Situation of missed opportunities: ($\Delta s_i > 0$ and $\Delta s_{ij} < 0$) country/product share (X) rises (market-share), whereas world consumption (M) declines.
- Optimum situation: ($\Delta s_i > 0$ and $\Delta s_{ij} > 0$) the country's world share rises, (X) (market-share), though the world consumption (M) of the product rises the same way.

Products classified in situations of vulnerability and retreat are from undynamic groups; on the other hand, those in an optimum situation and a situation of missed opportunities are in dynamic groups. The competitive group presents those in optimum situation of vulnerability, that is, the dynamic and competitive groups in which there are gains of market share and increase in demand (Fernández; Curado, 2019a).

After contextualizing the theory (step 1), the data collection (step 2), and the application of the model (step 3), the fourth and last step of the study was intended to analyze the results, which will be presented as follows.

ANALYSES OF RESULTS

In this section, we will present the results from a global context and then, we introduce the Argentinean and Brazilian agricultural competitiveness matrix according to the proposed model. That is, before the specific analysis concerning the performance of the Argentine and Brazilian agribusinesses in international trade, some current trends in international agricultural trade will be presented, following Fajnzylber's framework (1991).

Total world imports have increased over the last decades and are reflected in the growth of world imports of specific agricultural products. Even with the challenges inherent in the period (health crisis, financial crisis, etc.) related to the 2008-2010 and 2018-2020 trienniums, the annual growth rate of imports of agricultural items was 3.48%. In the same period, the share of world agricultural imports concerning total world imports increased from 7.23% to 7.95% (Table 1).

Table 1: Value of world imports and Brazil's exports, 1988-2020

	Currency	1988-1990	1998-2000	2008-2010	2018-2020	Rate (%) ¹	
World	Total imports	USD Thousand	9.693.377	17.814.634	44.493.555	56.926.209	2,49
	Agricultural imports	USD Thousand	990.571	1.333.632	3.215.136	4.526.869	3,48
	Agricultural/Total imports	%	10,22%	7,49%	7,23%	7,95%	
Argentina	Total exports	USD Thousand	31.067	76.107	193.824	181.620	-0,65
	Agricultural exports	USD Thousand	17.699	34.092	94.981	100.303	0,55
	Agricultural/Total exports	%	56,97%	44,79%	49,00%	55,23%	
	Agriculture market share	%	1,79%	2,56%	2,95%	2,22%	
Brazil	Total exports	USD Thousand	99.586	154.216	552.852	675.151	2,02
	Agricultural exports	USD Thousand	27.146	41.811	174.723	247.523	3,54
	Agricultural/Total exports	%	27,26%	27,11%	31,60%	36,66%	
	Agriculture market share	%	2,74%	3,14%	5,43%	5,47%	

¹ Annual growth rates for the 2008-2010 and 2018-2020 periods.

Source: FAOSTAT database (2022).

As for the exports of agricultural products, Argentina and Brazil have presented distinct moves during the analyzed period. Whereas Brazil's performance was higher than the world average growth, in other words, the country's agricultural exports grew 3.54% in the period. It is also possible to notice the importance of agricultural exports for the countries' export agendas in 2018, 2019, and 2020, a period in which Argentina's agricultural products accounted for 55.23% of its total exports. Brazil, in the same period (2018-2020), concentrated 36.66% of the country's

agricultural exports from its total exports. Originating from 5.47% of all imported agricultural products in the world, this Market grew throughout the analyzed periods, in 1988, 1989, and 1990. Thus, the exports of Brazilian agricultural products represented 2.74% of the total imports in the world (Table 1).

From the annual average growth rate of total imports, 2.49% between the triennials 2008-2010 and 2018-2020, it is possible to determine which items are expanding (growth rate greater than or equal to 2.49%), similarly to products classified as declining in demand (growth rate lower than 2.49%). Amongst the 432 items available from the FAOSTAT base, 110 are classified as expanded; these products accounted for 9.60% of the value of agricultural imports in 2018-2020 (i.e. US \$145 million, considering the total of US \$1.5 billion). Furthermore, 323 of the basic items were classified as declining and represented 90.40% of the total agricultural items (i.e. US \$137 million, considering the total of US \$1.5 billion). Tables 2 and 3 display the results for the top ten ranking items considering the 2018-20 market share.

Among the expansion group of agricultural products (Table 2), roasted coffee stands out. The growth of this commodity in world trade is the consequence of a process of development and market structure, which holds the transactions of its industrial complex products. Brazil stands out as the main player in the coffee chain, considered the world's largest producer and exporter. Coffee production almost doubled between 2015 and 2018, when it exceeded 5.2 million bags to 9.4 million (EMBRAPA, 2020). Moreover, it has changed quantitatively and qualitatively in developing countries due to global markets (Flexor, 2006) with the improvement of welfare standards as set by society (Castro et al., 2016; Gala; Roncaglia, 2020).

Table 2: Share of World Agricultural Imports, Expanding Products, 2018-20

Item	Market share (%)		Rate ¹ (% a.a.)
	2008-10	2018-20	
1 Infant food	0,42	0,81	6,89
2 Coffee, roasted	0,48	0,75	4,57
3 Tobacco products nes	0,30	0,63	7,75
4 Avocados	0,15	0,46	11,56
5 Oil, essential nes	0,26	0,38	3,87
6 Wafers	0,06	0,36	19,34
7 Almonds shelled	0,21	0,35	5,36
8 Nuts, prepared (exc. groundnuts)	0,19	0,31	4,91
9 Oil, boiled, etc.	0,14	0,31	7,96
10 Cashew nuts, shelled	0,18	0,30	4,96
100 Others	2,64	4,96	6,50
Σ 110 Expanding products	5,03	9,60	6,68

¹Expanding product shows a higher growth rate than total world trade (2.49% p.a.) over the period 2008-10 and 2018-20.

Source: FAOSTAT database (2022).

In the declining agricultural products group (Table 3), the item with the highest representativeness concerning the market share (4.87%), that is, "Food Preparation", has shown a positive annual growth rate (2.22%). The share of this product in world imports has grown but at a slower pace if compared to the growth in world trade of total products (2.49%).

Table 3: Share of World Agricultural Imports, Declining Products, 2018-20

	Item	Market share (%)		Rate ¹ (% a.a.)
		2008-10	2018-20	
1	Food prep nes	3,91	4,87	2,22
2	Soybeans	3,82	4,23	1,01
3	Wheat	3,82	3,02	-2,32
4	Crude materials	3,43	2,84	-1,88
5	Meat, cattle, boneless (beef & veal)	2,09	2,65	2,40
6	Maize	2,51	2,60	0,37
7	Wine	2,60	2,41	-0,75
8	Oil, palm	2,60	2,24	-1,50
9	Beverages, distilled alcoholic	2,13	2,13	-0,01
10	Pastry	1,79	2,03	1,28
	313 Others	66,27	61,38	-0,76
	\sum 323 Expanding products	94,97	90,40	-0,49

¹Expanding product shows a higher growth rate than total world trade (2.49% p.a.) over the period 2008-10 and 2018-20.

Source: FAOSTAT database (2022).

The Argentine agricultural exports agenda described by Fernández and Curado (2019a, 2019b), remains concentrated in a small number of products. Besides, we have even observed increased dependence on a few products. As can be seen in Table 4, the items soybean cake, corn, and soybean oil accounted for 50.46% of the total value of agricultural products exported between 2018-2020. Comparatively, Brazil's performance shows remarkable gains in efficiency.

Table 4: World Agricultural Imports and Argentina's Market-share, \sum Total 2018-2020

Item	World			Argentina			Market - share (%)	
	USD	Part. (%)		USD	Part. (%)			
	Thousand	Simple	Sum	Thousand	Simple	Sum		
1	Cake, soybeans	27.206	1,79	1,79	8.323	24,70	24,70	30,59
2	Maize	39.488	2,60	4,39	5.410	16,05	40,75	13,70
3	Oil, soybean	9.725	0,64	5,03	3.272	9,71	50,46	33,65
4	Meat, cattle, boneless (beef & veal)	40.303	2,65	7,68	2.504	7,43	57,90	6,21
5	Soybeans	64.254	4,23	11,91	2.326	6,90	64,80	3,62
	\sum 427 Others	1.338.615	88,09	100,00	11.862	35,20	100,00	0,89
	Total (medium) Agriculture	1.519.592	100,00		33.697	100,00		2,22
	Total (medium) General	18.975.403			60.540			0,32

Source: FAOSTAT database (2022).

This concentration on a few items was also noted in the Brazilian case, as mentioned by Carvalho (2002) between 1988-1990 and 1997-1999, Santos et al. (2016) between 1999-2001 and 2009-2011, Christ et al. (2021) between 2005-2007 and 2015-2017, and Christ et al. (2022) between 2007-2009 and 2017-2019. We verified that the country has exports concentrated on a few products. The 2018-2020 triennium average has shown that over 50% of the exported value

of agricultural exports is derived from three essential products: soybeans; meat, cattle, boneless (beef & veal); and soybean cake (Table 5).

Table 5: World Agricultural Imports and Brazil's Market-share, Σ Total 2018-2020

Item	World			Brazil			Market-share (%)
	USD	Part. (%)		USD	Part. (%)		
	Thousand	Simple	Sum	Thousand	Simple	Sum	
1 Soybeans	64.254	4,23	4,23	29.277	35,19	35,19	45,56
2 Meat, cattle, boneless (beef & veal)	40.303	2,65	6,88	6.457	7,76	42,95	16,02
3 Cake, soybeans	27.206	1,79	8,67	6.154	7,40	50,35	22,62
4 Meat, chicken	21.558	1,42	10,09	5.924	7,12	57,47	27,48
5 Sugar Raw Centrifugal	13.353	0,88	10,97	5.752	6,91	64,38	43,07
Σ 427 Others	1.352.917	89,03	100,00	29.629	35,62	100,00	2,19
Total (medium) Agriculture	1.519.592	100,00		83.193	100,00		5,47
Total (medium) General	18.975.403			225.050			1,19

Note: M is Imports and X is Exports.

Source: FAOSTAT database (2022).

An item that highlights both countries' exports is the soy cake. Although this product was classified with declining demand (it showed a decrease of 2.04% in world imports between the periods of 2008-2010 and 2018-2020), it was the most exported Argentine product during the period 2018-2020 and it has been considered the second main item in the Brazilian export agenda. Furthermore, Argentina and Brazil are the source of 53.21% of this item when regarding its consumption in the world (world imports).

Once we have highlighted the agricultural exports, we shall now analyze the performance of the Argentine and Brazilian agribusiness concerning the classification of agricultural products according to the Fajnzylber framework (1991).

Classification of items according to Fajnzylber framework

In this sub-item, we display Tables 6, 7, 8, and 9. These tables describe the classification according to the model proposed by Fajnzylber, the items in situation of vulnerability, situation of retreat, optimum situation, and situation of missed opportunities.

Table 6 presents the products that were classified in situation of vulnerability, when the country's export market share increased whereas imports did not grow during the period. This group includes 105 Brazilian products (14.63% of total Brazilian exports are in this situation) and 67 Argentinean items (10.95% of the country's total exports are in this situation). The main product, in the case of Brazil, is the Brazilian fruit pulp. Despite presenting only 0.11% of the Brazilian export market share, just 59.77% of the total world imports of this product originated from Brazil. Regarding Argentina, wheat represented 6.67% of the market share, and its representativeness, the largest in the export list, reached 4.90% of total imports worldwide.

Table 6: Agricultural Exports: Products in a Situation of Vulnerability¹

Item	ARGENTINA			Item	BRAZIL		
	<i>Market Share (X)</i> from the country in (Y) the world (%)		Part. of the item in (X) the country (%)		<i>Market Share (X)</i> from the country in (Y) the world (%)		Part. of the item in (X) the country (%)
	2008-10	2018-20	2018-20		2008-10	2018-20	2018-20
1 Wheat	3,59	4,90	6,67	Feed, pulp of fruit	35,84	59,77	0,11
2 Barley	2,83	7,20	1,56	Waxes vegetable	50,43	51,31	0,12
3 Beans, dry	8,25	9,77	1,02	Cake, soybeans	18,41	22,62	7,40
4 Malt	5,04	5,70	0,66	Cotton lint	6,15	16,36	2,99
5 Cotton lint	0,26	0,88	0,40	Cotton linter	5,15	14,20	0,01
62 Others	0,08	0,15	0,63	100 Others	0,97	1,30	4,02
∑ 67 Total	1,15	1,68	10,95	∑ 105 Total	2,96	4,07	14,63

¹High efficiency (↑) of the country with position (↓) unfavorable of the product in the period 2008-10 and 2018-20.

Source: FAOSTAT database (2022).

As for the products classified in the situation of retreat (Table 7), items with low efficiency (exports decreased over the period) and unfavorable positioning (imports decreased), result, in the case of Brazil, 74 products which represent 27.39% of the country's agricultural exports. It is worth mentioning that the most important product in the group, sugar raw centrifugal, represents 6.91% of Brazilian agribusiness exports and shows a decrease in participation of world imports (from 49.18% to 43.07%). In Argentina's case, 112 items were classified in this situation, 44.38% of the country's export profile. Soybean cake, which concentrated 24.70% of Argentina's exports during the period 2018 to 2020 and is considered the country's most important item, has a 30.59% share of imports all over the world based in the Argentine soil.

 Table 7: Agricultural Exports: Products in Situation of Retreat¹

Item	ARGENTINA			Item	BRAZIL		
	<i>Market Share (X)</i> from the country in (Y) the world (%)		Part. of the item in (X) the country (%)		<i>Market Share (X)</i> from the country in (Y) the world (%)		Part. of the item in (X) the country (%)
	2008-10	2018-20	2018-20		2008-10	2018-20	2018-20
1 Cake, soybeans	31,47	30,59	24,70	Sugar Raw Centrifugal	49,18	43,07	6,91
2 Oil, soybean	38,71	33,65	9,71	Meat, dried nes	62,07	31,87	0,32
3 Wine	2,39	2,18	2,36	Meat, chicken	31,48	27,48	7,12
4 Meat, chicken	1,76	1,31	0,84	Meat, beef, preparations	34,64	26,05	0,69
5 Pears	13,42	9,66	0,78	Coffee, green	25,96	23,39	5,57
107 Others	0,98	0,47	5,99	69 Others	3,17	1,45	6,77
∑ 112 Total	3,82	2,84	44,38	∑ 74 Total	7,36	5,10	27,39

¹Low efficiency (↓) of the country with position (↓) unfavorable of the product in the period 2008-10 and 2018-20.

Source: FAOSTAT database (2022).

The product was classified in an optimum situation and has equally grown in its share of world imports and in the Country's Market-share. This is the case that Table 8 shows for these products. We note that 178 products, out of 416 analyzed in this study, were classified as products in an optimum situation in Brazil (52.71% of Brazilian exports) and 140 in the case of Argentina (25.68% of Argentina's exports). In other words, these products have increased their participation in world imports whereas the world imports of such products have also increased.

Table 9 presents the situation of missed opportunities, that is, products with low efficiency and declining exports. It was observed that import consumption grew to a favorable position. In this sense, 75 Brazilian agricultural products, which correspond to 5.27% of agricultural exports, received such an indication. In the case of Argentina, there are 113 items representing 19% of the export agenda. Although these products have shown some growth in world trade (imports), their market share exports have decreased within their countries. In the Brazilian case, concentrated orange juice stands out, ranked as an expanding item (4.56% growth rate) in world imports.

In addition, Brazil lost market share in exports, as the product represented 1.61% of the total (US\$) exported by the country between 2018-2020, and 52.17% of the total imported product in the world originated in Brazil. The ranking proposed in this paper assists in the analysis of the distance and the proximity between the countries' export structure and the world's import structure, thus, it also allows to detect which elements may either undermine or favor each country's export pattern (Fernández; Curado, 2019a). As we observe in Graph 2, Brazil is classified as a winner (its share in the World market has grown) and has a very high percentage of exports in an optimum situation (52.71%), in a situation of retreat (27.39%), and in a situation of missed opportunities (5.27%). Concerning Argentina, it is classified as a market loser, since its products are in a situation of retreat representing the largest part of the country's export list (44.38%). In addition, there are the products in an optimum situation (25.68%), in a situation of missed opportunities (19%) and in a situation of vulnerability (10.95%).

The non-dynamic group (items in a situation of vulnerability and in a situation of retreat) represented 55.33% of Argentina's export profile, whereas this same group in Brazil represented 42.02% of the country's exports. Products like these are those with a relatively unfavorable positioning, once it decreases the item in the world imports Market share. On the other hand, the dynamic group relates to the items with a relatively favorable positioning about the products of their export's agenda (items in a situation of missed opportunities and in an optimum situation), with an increase in the participation of the product's market share in world imports. In Argentina, this group represented 44.67%, whereas in Brazil it corresponded to 57.98% of the items.

Table 8: Agricultural Exports: Products in Optimum Situation¹

ARGENTINA				BRAZIL			
Item	Market Share (X) from the country in (Y) the world (%)		Part. of the item in (X) the country (%)	Item	Market Share (X) from the country in (Y) the world (%)		Part. of the item in (X) the country (%)
	2008-10	2018-20	2018-20		2008-10	2018-20	2018-20
1 Maize	15,29	13,70	16,05	Flour, cassava	15,29	63,24	0,02
2 Meat, cattle, boneless (beef & veal)	30,43	6,21	7,43	Soybeans	30,43	45,56	35,19
3 GroundnutS, shelled	16,02	15,19	1,42	Meat, cattle, boneless (beef & veal)	16,02	16,02	7,76
4 Chickpeas	9,80	5,32	0,23	Oil, groundnuts	9,80	16,00	0,10
5 Food wastes	6,06	0,45	0,16	Maize			
135 Others	0,05	0,14	0,38	173 Others	9,85	11,66	0,22
∑ 140 Total	4,20	4,52	25,68	∑ 178 Total	8,74	11,92	52,71

¹High efficiency (↑) of the country with position (↑) favorable of the product in the period 2008-10 and 2018-20.

Source: FAOSTAT database (2022).

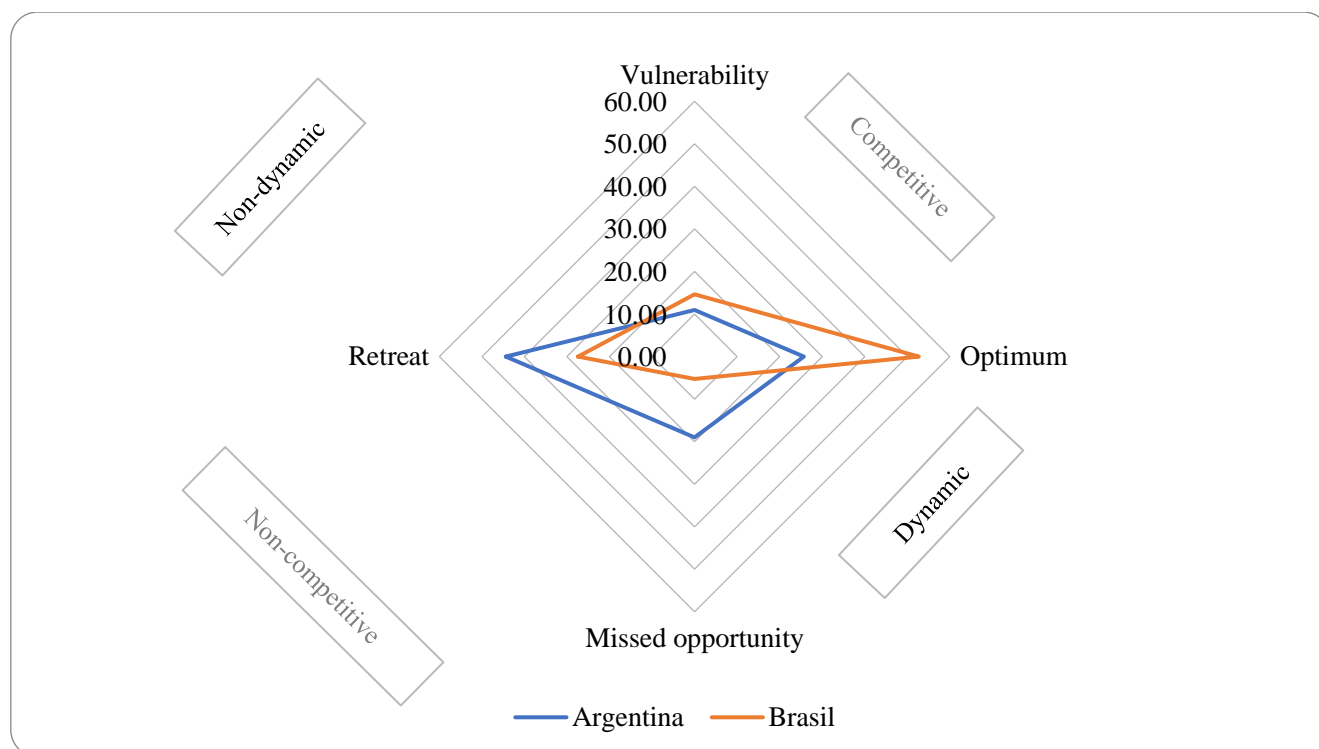
Table 9: Agricultural Exports: Products in Situation of Missed Opportunity¹

Item	ARGENTINA			Item	BRAZIL		
	Market Share (X) from the country in (Y) the world (%)		Part. of the item in (X) the country (%)		Market Share (X) from the country in (Y) the world (%)		Part. of the item in (X) the country (%)
	2008-10	2018-20	2018-20		2008-10	2018-20	2018-20
1 Soybeans	9,07	3,62	6,90	Juice, orange, concentrated	78,99	52,17	1,61
2 Oil, sunflower	13,94	3,45	1,20	Mate	53,70	39,25	0,10
3 Milk, whole dried	5,01	3,15	1,07	Papayas	14,53	13,26	0,06
4 Feed, vegetable products nes	38,57	33,16	0,83	Mangoes, Mangosteen, guavas	10,17	8,15	0,26
5 Groundnut prepared	35,97	20,13	0,79	Fibre crops nes	12,21	7,79	0,05
108 Others	1,08	0,56	8,20	70 Others	1,42	0,66	3,19
\sum 113 Total	2,51	1,10	19,00	\sum 75 Total	1,86	1,08	5,27

¹Low efficiency (↓) of the country with position (↓) unfavorable of the product in the period 2008-10 and 2018-20.

Source: FAOSTAT database (2022).

Graphic 2: Competitiveness Matrix 2008/2020 (Market-share % of exports)



Source: own elaboration based on Fajnzylber (1991).

About the group with relatively high efficiency, in the case of increase in the country's item exports share concerning world imports, we observe the competitive group. These relate to the products classified in an optimum situation and in a situation of vulnerability, in which Brazil has concentrated 67.34% of its exports whereas Argentina has placed 36.62% of its items in such condition. On the other hand (or alternatively), the items classified in a situation of missed opportunities and a situation of retreat are the non-competitive ones, when there is a decrease in the share of the country's exporting item in the world imports Market share. Argentina has concentrated 63.38% of its products in this group, whereas Brazil has presented 32.66% of its items classified in a non-competitive group.

The challenges that arise for the countries we have analyzed in this study in terms of improving their competitiveness, are great and need to be addressed quickly so that they might expand their exports (Porto; Canuto; Mota, 2017). Regardless of the strategy adopted, it is essential to think about diversification since it is the aim and objective of growth (Christ et al., 2021; Paiva, 2006). Nevertheless, theoretical background indicates that factors such as roads, logistics services, storage capacity, technology and techniques for productivity gains, agile information systems, security exchange, strong internal resources, and reduction in production costs (Davis; Goldberg, 1957; Carvalho, 2001; Alfalla-Luque; Medina Lopes, 2009; Brocanelli; Ferraz; Figueiredo, 2017; García; Moreno; Barrera, 2017; Christ et al. 2022) are essential production factors for efficiency results in agribusiness performance.

FINAL REMARKS

Despite the geographical proximity, the social, economic, institutional, and historical processes in Argentina and Brazil are very different. The aim of this study was not to analyze both countries from a comparative perspective within these processes; rather, we have attempted

to observe the insertion of the Argentinean and Brazilian agribusiness agricultural products in international trade, by considering their aggregate positioning and investigating their export agenda especially from 2008 to 2010 and from 2018 to 2020.

Given the last analysis period (2018-2020), 44.67% of Argentina's export mix was classified in the dynamic group (items in an optimum situation and in a situation of missed opportunities). In addition, 55.33% were classified as undynamic (items in a situation of vulnerability and in a situation of retreat). In the Brazilian's case, 57.98% of these products were classified in the dynamic group and, consequently, 42.02% were placed in the undynamic group.

Concerning the elements of the competitive group (products classified in an optimum situation and in a situation of vulnerability), we observe that 36.62% of the Argentine items belong to this group, whereas 63.38% were classified in the non-competitive set (items in a situation of retreat and in a situation of missed opportunities). On the other hand, the opposite happened to Brazil, since 67.34% of the items were classified in the competitive group and 32.66% in the non-competitive group.

Thus, we highlight as the final results the excessive concentration of a few products in the export agendas of these two countries for the reason that both Argentina (50.46%) and Brazil (50.35%) have focused on three products only, slightly over half of the country's total exports (US\$) from 2018 to 2020. Moreover, considering the last period of analysis, among the 432 available items by FAOSTAT, Brazil registered the export of 318 items; the case of Argentina is even more critical, since the country registered only 201 products of its export base.

As an important managerial contribution, this study demonstrates that the need to act in favor of greater diversification of the agro-export agenda is essential for both countries. The issues involving productive specialization and economic dynamism must be addressed, just as greater involvement in international trade. However, simply diversify does not seem appropriate to us; we shall rather define sector priorities based on the selected items.

It is precisely from the definition of which sector should be a priority in the agendas of States that the practical contribution of this study is addressed.

In other words, the analysis of the aforementioned countries' export agenda needs to consider the framework proposed by Fajnzylber to verify the competitive situation of a given item. In fact, it is up to the decision makers, planners, and policymakers to think of strategies to increase the position of dynamic and competitive products, that is, items with more market share within the country's export market share along with the demand for these items in world imports.

As limitations of the present study, we list the time frame and the fact that it does not include any other agricultural products that represent the balance of trade of the countries we mentioned. Furthermore, different performance indicators might be adopted for future research. However, we suggest a deeper qualitative analysis of the essential items classified as situation of missed opportunities to investigate the reasons for this situation. Further studies may answer the following questions: are the factors for such performance of the items in this situation related to internal/endogenous or external/exogenous issues in the country? How are the productive chains of these items generated? Are they related to sustainability factors or does that present a barrier to accessing specific consumer markets? We have noted throughout this study that discussions will not thereby end; hence, this paper suggests new fronts and new directions for future research based on the results of our investigation.

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