

Competitive Dynamics of Peruvian Grapes in the United States and the Netherlands Markets

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Abstract

The growth of Peruvian fresh grapes exports encouraged the study of its competitive dynamics in the period 2010-2017. The two main world importers of the product, i.e. the United States and Netherlands were analyzed. The Relative Trade Balance, Tradability indices with the sub-indicators: Export Openness Degree and Import Penetration Degree, Symmetric Comparative Advantage and the Market Insertion Matrix, interlacing Positioning and Efficiency, were estimated. The research found that Peru and South Africa were fresh grapes competitive producers in both markets among 12 evaluated countries.

Keywords: competitiveness index, competitive dynamic, international markets

1. Introduction

Peru has amazing agricultural conditions. The Peruvian north and south coasts are fertile areas that contribute to the development of grape production, especially from November to March. Moreover, in such period of the year the global grape supply falls. In consequence, Peruvian grapes become the main figure in agro-exports (Moreyra, 2019). From 2000 to 2018, Peruvian grape production grew from 107,000 to 639,000 tons (MINAGRI-SIEA, n.d. in Moreyra, 2019); also, in average the Peruvian grape production was 477,183 tons (Food and Agriculture Organization of the United Nations-Statistics Division [FAOSTAT], 2019a)

The described growth can be attributed to the opening to new markets due to the signing of trade agreements with the United States, the European Union and China (Moreyra, 2019). Also, the Foreign Trade Center [CCEX] and the Lima Chamber of Commerce [CCL] identified nine markets to which Peru previously did not sell, thus promoting a greater production of 658,000 tons until August 2019, then allowing the country to expand its sells to new international markets (Lima Chamber of Commerce, 2019). In consequence, the grape became the second most exported Peruvian agricultural product [8.7 % of participation] achieving US\$ 166 million in sales in 2019 (Sociedad de Comercio Exterior del Perú - [COMEX], 2019).

In 2018, grape exports grew 25.8% allowing Peru to be one of the most important grape suppliers just behind Chile and the United States (Ministerio de Comercio Exterior y Turismo - [MINCETUR], 2019). Therefore, the Peruvian annual sales, in the period 2010-2019, were US\$ 329'570,226.25 (Superintendencia Nacional de Administración Tributaria - [SUNAT], 2019).

Among grape importer countries, the United States leads the ranking with 594,877 imported tons valued at US \$ 1,720,208; while the Netherlands stands in second place with 385,552 imported tons valued in US\$ 900,591. Peruvian grape participation in such countries was of 42.5% and 11.6% respectively (Food and Agriculture Organization of the United Nations-Statistics Division [FAOSTAT], 2019c; ITC - TRADE MAP, 2019). Although there is a continuous increasing participation of Peruvian grapes in the international markets (as shown in figure 1), it cannot be overlooked other countries competitiveness have been both favorable and unfavorable. Therefore, it forces to analyze the level of competitiveness of Peruvian grape compared with the other suppliers in the American and Dutch markets. Hence, competitiveness will be studied by analyzing the production volume, supplying capacity for both domestic and international markets, exported value growth rate, as well as the variation of participation in world exports.

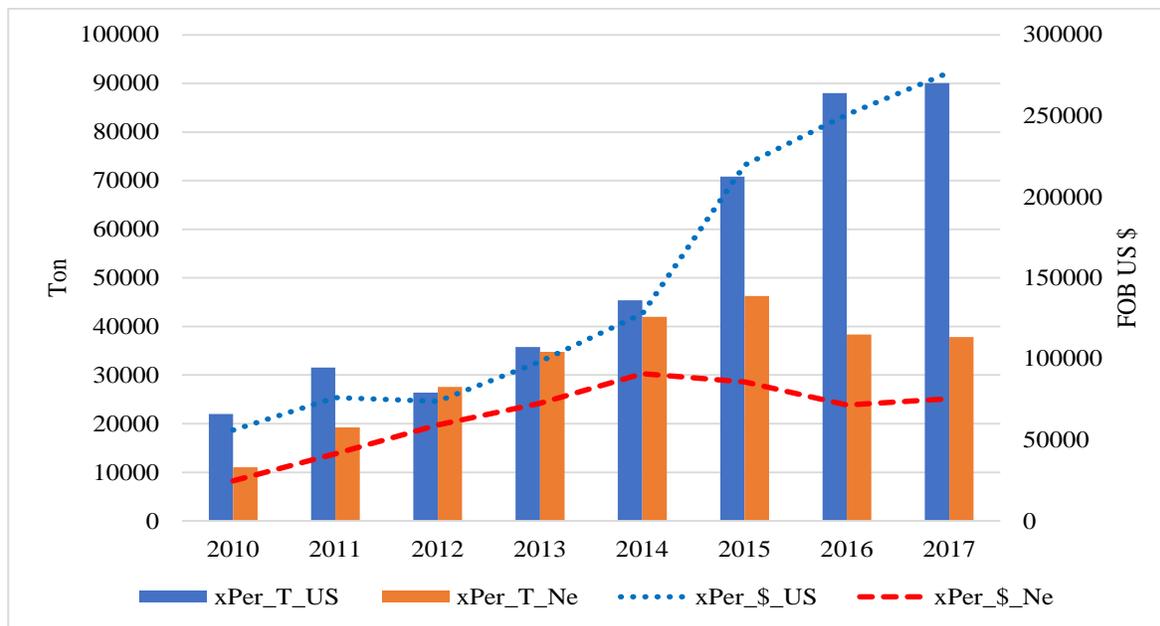


Figure 1. Peruvian exports [expressed in volume and value] to the United States and Netherlands in the period 2010 – 2017

1.1 Research Background

International trade competitiveness analysis has been previously studied. Valencia and Duana (2019) employed export quotas to analyze competitiveness through the Index of Revealed Comparative Advantage [RCA], Exports Comparative Advantage [ECA], and Constant Market Share [CMS]. For one hand, it concluded that Mexico was not competitive in the grape trade despite being one of the main food suppliers to the United States. On the other hand, it was found that Peru had a better position as an important supplier of grapes by increasing its exports and improving national competitiveness. Pat et al. (2016), carried out a study with the purpose of analyzing the competitiveness of the international strawberry trade in Mexico by using competitiveness indicators such as (a) Relative Trade Balance [RTB], (b) Tradability [T], and (c) the Commercial Dependency Coefficient [CDC]. Period analyzed was 1994-2010. The study concluded that that the product was competitive both in the domestic and foreign market.

Gómez (2017) analyzed the relationship between a change in technological intensity and exports in the Association of Southeast Asian Nations. It analyzed (a) quality, (b) competitiveness, through RTB and RCA, and (c) economic growth. The study found that in order to achieve an incremental economic growth rate, exports should aim to pass from exporting products with little value to medium and high technology products.

Stellian and Danna-Buitrago (2017) analyzed the impact of free trade in Colombia. RCA was calculated by employing the United States market as the target. Sixty groups of agricultural products were analyzed. The study concluded that most of them do not give any comparative advantage; then it is recommended to strengthen competitiveness. Fabrini Diniz (2017) studied the Symmetric Comparative Advantage [SCA] index of the main Brazilian agricultural products. Data was collected from the Food and Agriculture Organization of the United States [FAO]; as well as the Ministry of Industry, Development and Foreign Trade of Brazil for the period 2003- 2014. The study showed the existence of a positive Comparative Advantage for (a) soybeans, (b) sugar, (c) orange juice, and (d) chicken meat; while a negative one was identified in products such as (a) staple foods and (b) prepared foods. Kim (2019), analyzed the competitiveness of the Indian textile sector in the United States market in the period 1991-2017. Indicators such as (a) Revealed Comparative Advantage [RCA], (b) Comparative Market Advantage [CMA], and (c) Comparative Advantage by Country [CAC] were employed. The research found that India had a comparative advantage in the period studied.

Jambor, Timea, and Koroshegyi (2017) collected data of the world cocoa trade in the period 1992-2015 for testing the stability of the RCA index. The study identified determinants such as the production volume, the variety, and logistical factor. Moreover, the research found that the world cocoa trade was concentrated mainly in the Ivory Coast,

Ghana and Indonesia. Camino, Andrade, and Pésantez (2016), aimed to analyze the insertion of Equatorian bananas, cocoa, and flowers by studying the market positioning and efficiency indices. The period studies lasted from 2010 to 2014. The research concluded that (a) banana had lost efficiency in the international market due to the decrease of its participation since 2012, (b) flowers grew in volume means; thus they were placed on the border between the quadrant of optimal insertion and the one of lost opportunities, (c) cocoa was found to be the best product among them for its position and efficiency. The research stated that Cocoa performing may be related to its exported valued continuous constant growth and participation in the world market.

Sellamán and Camacho (2012), analyzed the international competitiveness of the Colombian blackberry-raspberry in the 2003-2007 period along with its potential international markets. The research employed the theories provided by Balassa (1964 and 1970) and Schwartz, Ibarra, & Adam, (2007). The research found that that the Colombian blackberry-raspberry had both productive and competitive worldwide potential. In consequence, the Colombian state encourages exports to the markets of Canada, the United States, the United Kingdom and France. Laura and Luis (2019) explored the evolution of the Argentinean exports from 1985 to 2010. The researchers found that natural resources are the main Argentinean export. By employing the Fajnzylber competitiveness matrix, they encountered that the developed countries have determined the Argentinean export structure, however, nowadays, emerging Asian countries have replaced them. Pippinato, Di Vita, and Brun (2019), aimed to study the Relative Commercial Advantage (RCA), Exports Relative Advantage (ERA) and Imports Relative Advantage (IRA) indices in the European Union honey market. They found that the European Union is strongly import-oriented regarding this product. Finally, Schwartz, Maldonado, Luchsinger, Lizana, and Kern (2018), estimated the Chilean and Peruvian Hass avocado competitive business export during the 2009-2014 period by using the market insertion matrix [MIM]. They concluded that both countries were the most competitive in the avocado export business; also, it was found that Peru reached a highly competitive position and had great opportunities for export growth.

2. Methodology

This section presents a brief analysis of the competitiveness indicators applied to the study. Descriptive statistics is shown in Appendix A and B.

2.1 Relative Trade Balance – RTB

This index explains the relationship that arises from the difference between the flow of total exports and imports, as a numerator, and the trade balance achieved by the evaluated product, as a denominator (Ministerio de Agricultura y Desarrollo Rural: Observatorio Agrociudades Colombia, 2005a). This index allows to identify better competitive conditions for exported products (Ministerio de Agricultura y Desarrollo Rural: Observatorio Agrociudades Colombia, 2005b). Moreover, this index provides values interpreted as follows: (a) between zero and one [$0 < 1$], it means that the evaluated country is a net exporter of the analyzed product, as well as it must be discarded as a possible market destination; and (b) between minus one and zero, [$0 < - 1$], will indicate that the evaluated country is a net importer of the product, at the same time such country should be considered as a potential destination market (Ministerio de Agricultura y Ganadería de Costa Rica, 2019).

$$RTB = (X_{ij} - M_{ij}) / (X_{ij} + M_{ij}) \quad (1)$$

Where:

X_{ij} = Volume of product “i” exported in a “j” country, expressed in tons.

M_{ij} = Volume of product “i” imported in a “j” country, expressed in tons.

2.2 Tradability - T

It adds good’s origin country data to the trade balance index (Ministerio de Agricultura y Desarrollo Rural: Observatorio Agrociudades Colombia, 2005a). Then, it allows a clear picture of the place where the product is more competitive by considering both external and domestic consumption (Ministerio de Agricultura y Desarrollo Rural: Observatorio Agrociudades Colombia, 2005b). According to the Ministry of Agriculture and Livestock of Costa Rica (2019), the values of this index can be interpreted as follows: (a) greater than zero [> 0], the country is a competitive exporter due to excess offer [$(X - M > 0)$]; and (b) when it is less than zero [< 0], the country is non-competitive import substituting country, due to its demand excess [$(X - M < 0)$].

$$T_{ij} = (X_{ij} - M_{ij}) / (Q_{ij} + M_{ij} - X_{ij}) \quad (2)$$

Where:

Q_{ij} = “i” volume production in a “j” country, expressed in tons.

Also, the tradability indicator is build on two sub-indicators: (a) Export Openness Degree [EOD], and (b) Import Penetration Degree [IPD].

2.2.1 Export Openness Degree - EOD

It shows the capacity of a particular productive sector to serve the evaluated country domestic as well as the external ones (Ministerio de Agricultura y Desarrollo Rural: Observatorio Agrociencias Colombia, 2005a). Then, if the obtained ratio approaches to zero value, the country is able to serve only the domestic market, if the result is close to one, the country's export capacity can meet its international duties without unattending its domestic demand (Ministerio de Agricultura y Desarrollo Rural: Observatorio Agrociencias Colombia, 2005b). In consequence, competitiveness is improved. This index is expressed as:

$$EOD = X_{ij} / (Q_{ij} + M_{ij} - X_{ij}) \quad (3)$$

2.2.2 Import Penetration Degree - IPD

It shows the capacity of a country's productive sector to serve its domestic market. Hence, if the domestic demand is not satisfied, imports will be necessary. Then, the domestic productive sector competitiveness will fall (Ministerio de Agricultura y Desarrollo Rural: Observatorio Agrociencias Colombia, 2005a). It also can be understood as the competitiveness reduction by a greater demand of imported products when being compared with self-sufficient countries (Ministerio de Agricultura y Desarrollo Rural: Observatorio Agrociencias Colombia, 2005b). IPD is estimated as follows:

$$IPD = M_{ij} / (Q_{ij} + M_{ij} - X_{ij}) \quad (4)$$

2.3 Net Revealed Comparative Advantage - NRCA

Developed by Balassa in 1965, it attempts to get the comparative advantage. Balassa states that the comparative advantage can be estimated by the trade exchange flow (Mac ís, 2011). This index [NRCA] is the difference of the Revealed Exports Comparative Advantage [RECA] index and the Revealed Imports Comparative Advantage [RICA] index. Furthermore, each of these components come from other previous calculations as seen in equation 6 and 7. For one hand, if NRCA is greater than one, the exportable supply of a country exceeds its import demand, then a the country has a comparative advantage. On the other hand, if NRCA value is negative, the evaluated country has a revealed comparative disadvantage because of its more imports exceeding demand than its exportable supply (Mac ís, 2011).

$$NRCA_{ij} = RECA_{ij} - RICA_{ij} \quad (5)$$

$$RECA_{ij} = [(X_{ij} / (\sum X_{ij} - X_{ij})) / [(X_{im} / (\sum X_{im} - X_{im}))]] \quad (6)$$

$$RICA_{ij} = [(M_{ij} / (\sum M_{ij} - M_{ij})) / [(M_{im} / (\sum M_{im} - M_{im}))]] \quad (7)$$

Where:

X = Exports value

M = Imports value

j = Country analyzed

i = Product studied

m = World

Macias (2011) states: "(a) positive NRCA means that the country is a net exporter of the product; (b) when the value fluctuates between zero and one, it means that it has no comparative advantage, and (c) if the value is between one and infinity, there is a comparative advantage" (p. 520-521). Hence, it is possible that a country could be a net exporter even when it does not have a revealed comparative advantage. In consequence, Laursen in Mac ís (2011) incorporates the concept of Symmetric Revealed Comparative Advantage as portrayed in equation 8, which asks for a number greater than one for the evaluated country to be considered as a net exporter and owner of comparative advantage.

$$SRCA_{ij} = (NRCA_{ij} - 1) / (NRCA_{ij} + 1) \quad (8)$$

2.4 Market Insertion Matrix - MIM

The Observatorio de Agrociencias (2005) states that this index is made of positioning and efficiency. Also, the aforementioned index provides a product competitiveness and its adaptability (Ministerio de Agricultura y Desarrollo Rural: Observatorio Agrociencias Colombia, 2005).

According to Fajnzylber (1988) competitiveness can be evaluated with eight factors; however, he synthesizes it in two basic elements (Fajnzylber 1991) by "combining the concepts of positioning and efficiency, then it is possible to distinguish four strategically different situations" (p. 151).

1. Positive insertion: positioning and efficiency are positive.
2. Insertion with missed opportunities: positive positioning and negative efficiency.
3. Insertion with vulnerability: negative positioning and positive efficiency.
4. Insertion in withdrawal: positioning and efficiency are negative.

These two components are calculated as follows:

2.4.1 Positioning

"It is measured through the Annual Growth Rate of a country's exports to the international market" (Schwartz et al. 2007, p. 182).

$$P = TCA_{ij} = [(X_b / X_a)^{(1 / (b-a))} - 1] \quad (9)$$

Where "i" belongs to the product studied, "a" and "b" the initial and final years studied, correspondingly.

2.4.2 Efficiency

"It is the Annual Growth Rate of a product exports share in the total worldwide exports" (Schwartz et al. 2007, p. 182).

$$E = TCA_{part.Xij} = [(part.X_{jb} / (part.X_{ja})^{(1 / (b-a))}] - 1 \quad (10)$$

Where:

$$part.X_{ij} = X_{ij} / \sum X_i \quad (11)$$

3. Results

Table A1 shows that from 2010 to 2017, the principal American grape import partner by volume and value was Chile. The table also shows that Mexico was the American grapes main destiny in volume, while the American grapes principal buyer in value was Canada.

Table A2 shows that in the period 2010-2017, the Dutch grape principal supplier was South Africa both in volume and value terms. Also, the table shows that Dutch grapes principal buyers are Germany both in volume and value.

Both Table A1 and A2 exhibits that Italy produced the highest grapes volume worldwide in the period 2010-2017.

Table 1. Grape suppliers' competitiveness in United States market (2010-2017 average)

Countries	RTB	T	EOD	IPD	Pos%	Ef%	SRCA	Part-X %	Part-M %
Chile	0.999	0.1678	0.1679	0.0001	-4.0	-3.7	-0.362	38	0.10
Mexico	0.590	0.5312	0.7104	0.1791	6.5	4.1	0.329	4	13.62
Peru	1.000	0.1140	0.1140	0.0000	25.6	16.7	0.029	13	0.31
Brazil	0.865	0.0037	0.0037	0.0000	-21.8	-7.2	-0.552	3	5.59
South Africa	0.981	0.0001	0.0001	0.0000	13.8	1.2	-0.994	12	1.06
Canada	0.901	0.0186	0.0196	0.0009	-11.5	-0.1	-0.760	0	47.72
Italy	0.998	0.0001	0.0001	0.0000	-6.1	-0.4	-0.984	21	6.00
Spain	-0.220	-0.0000	0.0000	0.0000	78.2	0.6	-1.005	8	8.71
South Korea	0.927	0.0006	0.0007	0.0000	-3.6	21.1	-0.284	0	16.67
Argentina	0.835	0.0000	0.0000	0.0000	-55.2	-31.9	-0.997	1	0.21

According to Table 1, the Relative Trade Balance Index [RTB] had a variation between 1.00 and -0.220. The three countries with the highest score are considered competitive. Those countries were (a) Peru, which obtained the highest result, (b) Chile and (c) South Africa. All of them were considered as grape net exporters. In consequence, both Chile and South Africa cannot be considered as potential destinies of the Peruvian grape. Spain was the only country that got a negative index. Hence, Spain is not a competitive country, but it is a potential Peruvian grape destiny (Ministry of Agriculture and Livestock of Costa Rica, 2019).

The Tradability Index [T] ranged between -0.000 and 0.531. Hence it can be stated that (a) Mexico; (b) Chile; and (c) Peru, are the three most competitive grape exporters. According to the EOD component, the competitiveness of Spain and Argentina are decreasing since their capacity cannot satisfy their domestic. Moreover, according to the IPD component, Italy was considered competitive since almost all its grape production was destined to exports (Ministry of Agriculture and Livestock of Costa Rica, 2019).

The SRCA index exhibits that Chile, Mexico, Peru, South Africa, Canada, Italy, and Argentina, were net exporting countries of fresh grapes. Among them, Mexico and Peru were the only countries that reached a comparative advantage of the product since they got a result greater than 0.

Finally, Table 1 shows that Chile was the country with the highest volume of exports since its 37.6% of participation.

Table 2. Grape competitiveness indicators for main exporters to the Netherlands (average 2010-2017)

Countries	RTB	T	EOD	IPD	Pos%	Ef%	SRCA	Part-X %	Part-M %
South Africa	0.999	0.0709	0.0710	0.0001	1.7	1.1	0.494	12.9	4.9
Peru	0.927	0.0000	0.0001	0.0002	17.2	16.6	-8.436	13.6	1.5
India	0.621	0.0000	0.0000	0.0001	12.8	12.1	0.999	0.0	0.0
Chile	0.968	0.0000	0.0000	0.0000	-8.0	-3.8	2.119	39.9	0.4
Brazil	0.907	0.0000	0.0000	0.0001	-2.2	-7.3	0.510	2.9	25.7
Egypt	0.831	0.0000	0.0000	0.0005	2.5	-0.5	0.998	0.0	0.0
Namibia	0.819	0.0004	0.0005	0.0004	-7.3	-1.1	1.001	0.0	0.0
Spain	0.463	0.0000	0.0000	0.0000	8.8	0.5	-1.050	8.7	39.7
Germany	-0.037	-0.0000	0.0000	0.0009	-8.2	-3.0	0.978	0.0	0.4
Italy	0.504	0.00000	0.0000	0.0000	0.5	-0.5	24.216	22.0	27.4

According to Table 2, the Relative Trade Balance [RTB] index, had a variation between 1,000 and -0,038. The three countries with the highest score were South Africa, Chile, and Peru. Hence, these countries were considered competitive and grape net exporters. As in Table 1, both South Africa and Chile cannot be taken as possible destination markets for the fresh Peruvian grapes. Germany was not considered competitive since its negative outcome. However, it can be a potential destination market for fresh Peruvian grapes (Ministry of Agriculture and Livestock of Costa Rica, 2019).

The Tradability Index [T] ranged between 0.000 and 0.531. Hence, Mexico, Chile, and Peru were considered the three most competitive fresh grapes exports countries. According to the EOD component, Spain's competitiveness decreased since its incapability of satisfying its domestic demand. The IPD sub-index states that Chile was considered competitive since it allocates a large part of its grape national production for export; then its IPD outcome is closer to zero than any other analyzed country (Ministry of Agriculture and Livestock of Costa Rica, 2019).

The SRCA index indicates that Namibia, India, Egypt, Germany, Brazil, and South Africa, were fresh grapes net exporting countries. Among them Chile and Italy were the countries that reached a comparative advantage of the product since their highest results in such index.

Finally, Chile was the country with the highest volume of exports since its 39.9 % of participation, followed by Italy, with 22%, and Peru with 13.6%.

4. Discussion

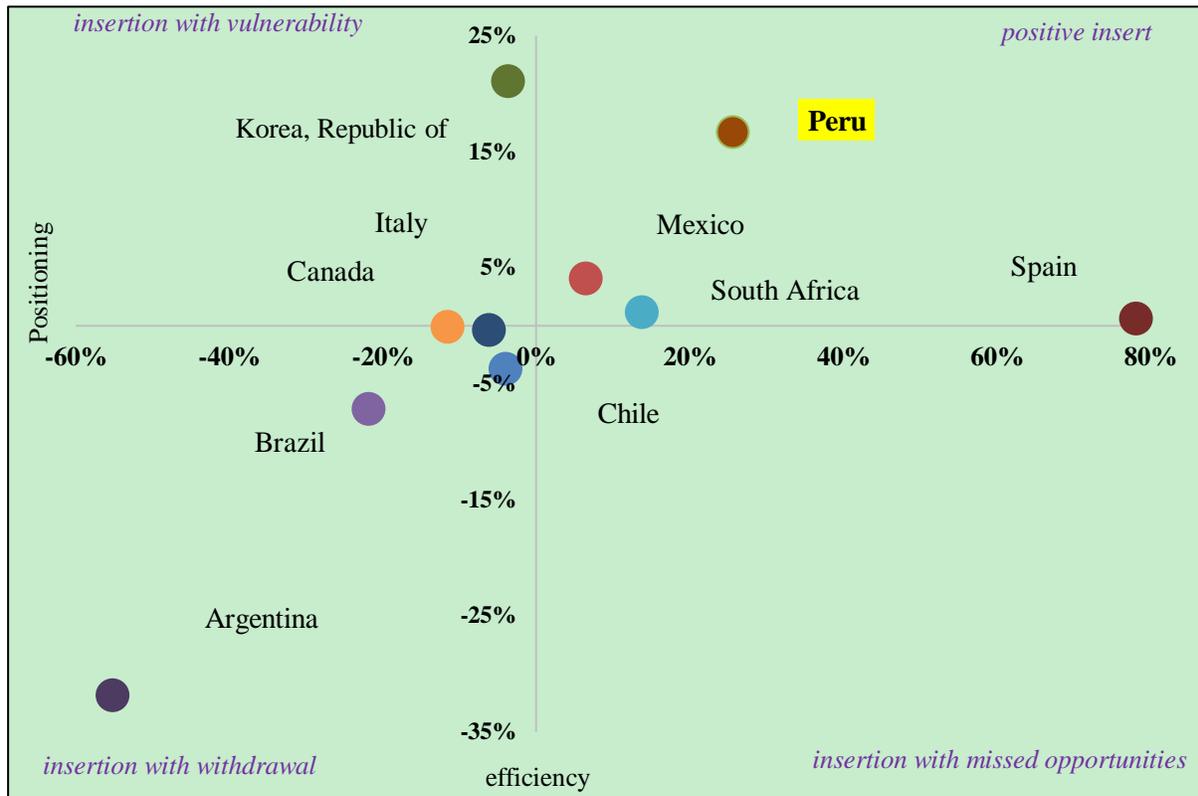


Figure 1. Insertion matrix of the US grape market (2010-2017)

Figure 2 shows ten countries which belong to the four insertion types in the US market in the 2010-2017 period. The first quadrant, which is called Positive Insertion, is composed of Peru, Mexico, South Africa, and Spain. Peru is the most competitive country since it obtained the best results in both positioning [25.64%] and efficiency [16.70%]. Although Spain had the best positioning index, its efficiency level was little [0.61%]. Mexico had both positive positioning and efficiency indices, but they were low. South Africa presented a positioning index of 13.76% but it is less efficient than Mexico. The participation American markets for the four countries were higher in 2017 than 2010.

The current study found that although Chile was the main American market supplier, this country was not found to be competitive. Valencia and Duana (2019) as well as Kim (2019), also a similar phenomenon.

Spain is a rookie supplier in the American market; then, this country had lower grapes volume than Peru, Mexico, and South Africa. In consequence, Spain had efficiency favorable levels as well as positioning challenges. Peru, is the third highest volume supplier to the American market. This country increased both exports levels and T, EOD, and SRCA indexes as Pippinato et al. (2019), also encountered. In consequence, Peru was able to increase its efficiency and positioning. A study carried by Schwartz (2018) found similar results for another agricultural product, too.

The second quadrant, which was called Insertion with Missed Opportunities, did not have any country in since none of the studied countries had a positive positioning index and a negative efficiency index. In the third quadrant, which was called Insertion with Vulnerability, South Korea was the only country in. This country had a negative positioning index [-3.63%], which meant that their exported value in 2017 to the United States market was much lower compared to 2010. Nonetheless, it was the most efficient country [21.05%] which meant that its world exports of fresh grapes in 2017 was more representative than in 2010.

For South Korea it is important to start increasing its exports volume to the American market in the following years as suggested by Sellamán y Camacho (2012). Furthermore, South Korea can also find another markets with more

favorable conditions as empirically suggested by Fabrini Diniz (2017) in their study about the Brazilian oranges.

The fourth quadrant, which was called Insertion with Withdrawal, represent the countries that are not considered competitive (Schwartz et al., 2007). These countries were Argentina, which was the least efficient [-55.17%] and the worst positioned [-31.88%] followed by Brazil, Chile, Italy, and Canada. Countries in this quadrant had a lower participation both in the world exports and in the American market in the period analyzed.

A possible explanation for the Argentinean unfavorable position is the change in its exports structure. Before, Argentina along with other Latin American countries were the American primary resources main suppliers; however, Asia replaced them in the recent years as suggested by Laura y Luis (2019).

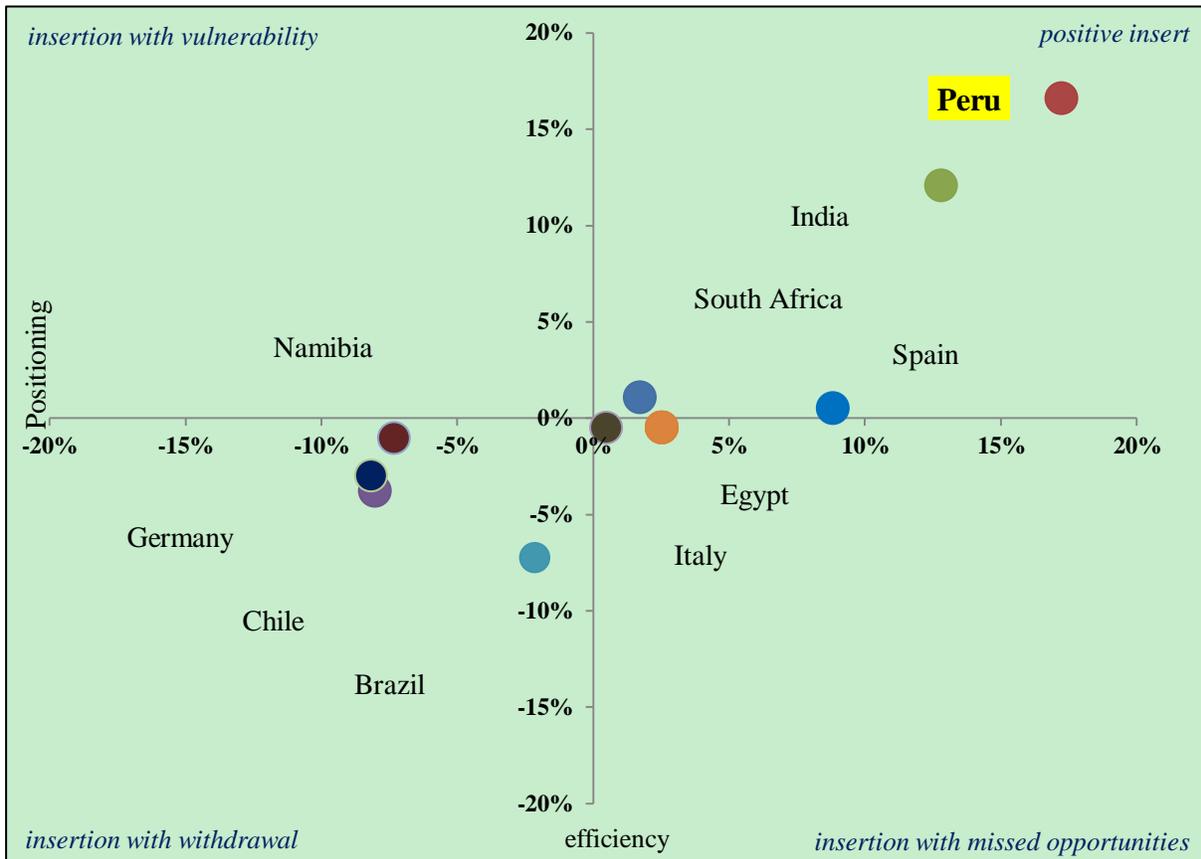


Figure 2. Insertion matrix of the Dutch grape market (2010-2017)

Figure 3 portrays the market insertion classification of the analyzed countries in the Dutch grape market. In the first quadrant, which was composed of competitive countries, Peru was the most competitive country due to its highest positioning index [17.23%]; moreover, Peru was considered the most efficient supplier [16.60%]. In this quadrant Peru was followed by India, Spain and South Africa. All countries located in this quadrant increased their fresh grapes exported both in volume value to the Dutch market.

Jambor et al., (2017) recommend to evaluate the market through the SRCA index. Hence, it according to this index the peruvian grape should increase its performance regarding the Dutch market because both South Africa and Indica became the two main suppliers of the Dutch market.

For Gómez (2017) quality is a determinant that influences the product demand but it can be overwhelmed due to the imitability reached by a competitor. Such fact and SRCA number [-8.436], may predict the comparative advantage losing of the peruvian grape in the Dutch market in the following years.

In the second quadrant, Egypt had a positioning index of 2.51% and a negative efficiency index of -0.49%; in the case of Italy, it registered the lowest positioning index [0.47%] and a negative efficiency outcome [-0.47%]. Both countries grapes exported values were decreasing.

The quadrant called Insertion with withdrawal was empty since no country had a negative positioning outcome and positive efficiency value.

In the last quadrant, Insertion with missed opportunities, are located countries that had negatives values in both positioning and efficiency indices; therefore, these countries are labelled as non-competitive. Figure 2 exhibits that in this quadrant Germany, presented the lowest negative positioning index [-8.17%] as well as a negative efficiency index [-2.98%]. Moreover, in this quadrant is located Chile [-8.04%; -3.80%]; Brazil [-2.15%; -7.26%], and Namibia [-7.3%; 1.1%]. Countries decreased their fresh grapes exported both value and quantity to Netherlands. Then, their participation reduced in the period analyzed. The results seem to match with the findings of Camino et al., (2016) who encountered that the Equatorial bananas have lost its efficiency due to the reduction of its exports volume and the new competitors showing up in the international market.

In summary, Peru, South Africa, and Mexico were found to be competitive in the American market; while Peru, South Africa, India, and Spain were labelled as competitive ones in the Dutch market. Therefore, only Peru and South Africa were competitive in both markets. Hence, both countries are net exporters that could attend their domestic demand as well as the international market. It is not surprising, then, that for these countries their exported value and participation grew in the analyzed period. Consequently, in a Peruvian perspective South Africa is a strong competitor in the American and Dutch markets. Also, it can be stated that both Germany and Spain markets can be considered as potential destination markets for fresh Peruvian grapes.

For this study, real data on the production, import, and export of fresh Peruvian grapes was considered, as well as data that took into account other major grape exporters worldwide. Still, future research could assess other variables, such as production productivity and investment in the agro-exporting sector of grapes, in order to best estimate the relationship and contribution of these to the product's competitiveness in a global marketplace.

5. Conclusions

The Peruvian fresh grape competitive dynamics has experienced a positive growth in its exports to the world. American and Dutch markets were not the exception in the 2010-2017 period. Focusing in these highly important markets, South Africa is the main Peruvian competitor. Moreover, Chile is a competitor with big participation volume, but the Chilean grape has lost positioning levels; thus, its competitiveness has fallen.

Unless conditions are changed, Dutch market will cease to be one of the main markets for the Peruvian grape. Factors such as the exported quantities decreasing, rise of countries with a better SRCA, and the showing up of net export countries with the capability to position in the Dutch market are reasons to forecast the Peruvian grape fall in the Dutch market, even though analyzed indexes' results were found to be positive in the period studied.

Since it is necessary to increase the efficiency and positioning, the following actions should may be taken by the Peruvian grape exporters: (a) consolidate the Peruvian grape competitiveness in both the American and Dutch markets, (b) prioritize the competitive advantage earned in the American market; then, give less importance to the Dutch market, (c) give more importance to the German and Spanish markets. Whatever the chosen alternative would be, every grape producer should continue to increase its production per hectare and its product quality

Product developing actions carried by the grape agro-export sector displaced some countries from their competitive hegemony. Then, it is important to maintain and consolidate the Peruvian grape competitiveness in the analyzed two destination markets. For such purposes it is necessary to manage properly contributing components that boost both efficiency and positioning. Also, it is important to increase the production per hectare planted volume as well as the quality of the grape taking into consideration the markets' needs.

According to Relative Trade Balance index, Germany and Spain are countries with conditions of new potential markets for the analyzed product. Then, the Peruvian grape producers could also attend these markets based on their previous experience in markets where they became competitive.

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Appendix A

United States Grapes Trade Balance in the Period 2010-2017

Table A1. Descriptive statistics

	Imports origin (tons)									
	Chile	Mexico	Peru	Brazil	South Africa	Canada	Italy	Spain	South Korea	Argentina
Mean	361468.25	159753.87	51251.12	5460	212.5	1685.5	1077.625	2.5	191.125	82.25
Median	351737	157728	40583.5	2244	140.5	1521.5	974	1	205	70.5
Coefficient of variation	0.10294	0.10816	0.54094	1.17214	1.12219	0.29707	0.30665	1.69706	0.28192	0.93190
Minimum	318799	135662	21963	61	37	1085	696	1	117	1
Maximum	411604	192899	90087	16251	775	2496	1514	13	262	213
Sum	2891746	1278031	410009	43680	1700	13484	8621	20	1529	658
	Imports origin (FOB thousands of US\$)									
	Chile	Mexico	Peru	Brazil	South Africa	Canada	Italy	Spain	South Korea	Argentina
Mean	671344.88	161737.75	147410.63	12440.75	513.25	785.83	2125.88	8	684.13	116.63
Median	675609	154977	113137.5	5427	300	752.5	1839	1	718.5	86
Coefficient	0.09831	0.19943	0.59751	1.14934	1.07247	0.35076	0.36919	2.47487	0.23243	0.94747

of variation										
Minimum	555640	136513	56017	176	70	460	1347	1	454	1
Maximum	745493	239681	276864	37440	1733	1128	3277	57	863	279
Sum	5370759	1293902	1179285	99526	4106	6287	17007	64	5473	933
Grapes production by country (tons)										
	Chile	Mexico	Peru	Brazil	South Africa	Canada	Italy	Spain	South Korea	Argentina
Mean	2528357.13	348362.5	477187.13	1456711.63	1900082.75	89862.5	7547318.75	6011113.5	265863.63	2425028.75
Median	2633230	350865.5	472674.5	1474759.5	1957777.5	90005	7616340.5	5880017	264418	2517616
Coefficient of variation	0.11178	0.11955	0.33128	0.17344	0.06846	0.12380	0.06653	0.11161	0.07660	0.16978
Minimum	2000000	281145	280468	985074	1680436	75598	6918044	5332163	237588	1758418
Maximum	2779966	415889	689957	1912034	2032582	105802	8201914	7480000	305543	2890296
Sum	20226857	2786900	3817497	11653693	15200662	718900	60378550	48088908	2126909	19400230
Exports destiny (tons)										
	Chile	Mexico	Peru	Brazil	South Africa	Canada	Italy	Spain	South Korea	Argentina
Mean	266.63	43510.75	3.25	34.88	1	84.60	1	30.63	6.73	1
Median	255.5	48398	1	24.5	1	96.143	1	1	6.5305	1
Coefficient of variation	0.25580	0.42252	1.95814	1.01057	0.00000	0.40068	0.00000	1.81418	0.26442	0.00000
Minimum	173	50	1	2	1	1	1	1	4.07	1
Maximum	365	57172	19	89	1	100.398	1	136	10.145	1
Sum	2133	348086	26	279	8	676.739	8	245	54.029	8
Exports destiny (FOB thousands of US\$)										
	Chile	Mexico	Peru	Brazil	South Africa	Canada	Italy	Spain	South Korea	Argentina
Mean	829.5	79912.38	1	102.125	1	202132.13	1	92.375	19065.25	1
Median	799.5	86636	1	75	1	207729.5	1	1	19012.5	1
Coefficient of variation	0.32880	0.26632	0.00000	0.88356	0.00000	0.07879	0.00000	1.86809	0.34166	0.00000
Minimum	475	33239	1	16	1	169334	1	1	9490	1
Maximum	1252	97181	1	241	1	215754	1	430	31451	1
Sum	6636	639299	8	817	8	1617057	8	739	152522	8

Appendix B**Dutch Trade Balance in the Period 2010-2017**

Table B1. Descriptive statistics

	Imports origin (tons)									
	South Africa	Peru	India	Chile	Brazil	Egypt	Namibia	Spain	Germany	Italy
Mean	125839.4	32128	32612	65648.75	19515.25	27487.5	9785.25	6169.25	2307.88	13933.63
Median	124532	36307	33257	66751.5	22575	23073.5	10083.5	6659	2267	13979.5
Coefficient of variation	0.07748	0.37355	0.59480	0.22978	0.43319	1.14284	0.44852	0.37628	0.29923	0.08228
Minimum	115115	11024	2505	43865	1786	226	745	865	1168	12041
Maximum	137403	46255	57166	85155	26639	100548	14722	8072	3279	15399
Sum	1006715	257024	260896	525190	156122	219900	78282	49354	18463	111469
	Imports origin (FOB thousands of US\$)									
	South Africa	Peru	India	Chile	Brazil	Egypt	Namibia	Spain	Germany	Italy
Mean	191014	65193.13	59876.88	100845	46932.63	46180	14652.63	14895.13	5014.37	24535.13
Median	189738.5	71995.5	54221.5	105813.5	49618	45724.5	15032.5	15304	5150	25010
Coefficient of variation	0.08194	0.34393	0.46280	0.27933	0.25766	0.18574	0.34632	0.21771	0.36628	0.07393
Minimum	163225	24788	22173	58303	32375	33724	7894	9803	2332	22207
Maximum	214411	90947	94998	142436	61695	58271	21668	18921	7889	26481
Sum	1528112	521545	479015	806760	375461	369440	117221	119161	40115	196281
	Grapes production by country (tons)									
	South Africa	Peru	India	Chile	Brazil	Egypt	Namibia	Spain	Germany	Italy
Mean	1900082.75	477187.13	2189880	2528357.13	1456711.63	1521499.5	23949.25	6011113.5	1156666.88	7547318.75
Median	1957777.5	472674.5	2534170	2633230	1474759.5	1515417.5	23441.5	5880017	1212300	7616340.5
Coefficient of variation	0.06846	0.33128	0.33356	0.11178	0.17344	0.10798	0.08112	0.11161	0.09817	0.06653
Minimum	1680436	280468	880700	2000000	985074	1320801	21703	5332163	952500	6918044
Maximum	2032582	689957	2922000	2779966	1912034	1703394	27203	7480000	1250000	8201914
Sum	15200662	3817497	17519040	20226857	11653693	12171996	191594	48088908	9253335	60378550
	Exports destiny (tons)									
	South Africa	Peru	India	Chile	Brazil	Egypt	Namibia	Spain	Germany	Italy
Mean	1	1	10.63	1	1	8.38	1	2658.88	4474.25	4080.38
Median	1	1	1	1	1	1	1	2462	3506	4145

Coefficient of variation	0.00000	0.00000	1.75858	0.00000	0.00000	2.49070	0.00000	0.29884	1.06879	0.46827
Minimum	1	1	1	1	1	1	1	1524	0	496
Maximum	1	1	50	1	1	60	1	3911	11285	6152
Sum	8	8	85	8	8	67	8	21271	35794	32643
Exports destiny (FOB thousands of US\$)										
	South Africa	Peru	India	Chile	Brazil	Egypt	Namibia	Spain	Germany	Italy
Mean	1	1	24.25	1	1	6.25	1	5994.25	12892	11405.875
Median	1	1	1	1	1	1	1	5673.5	11063	12438.5
Coefficient of variation	0.00000	0.00000	1.83477	0.00000	0.00000	2.37588	0.00000	0.33680	1.04614	0.27159
Minimum	1	1	1	1	1	1	1	3589	0	6026
Maximum	1	1	118	1	1	43	1	9231	31987	15106
Sum	8	8	194	8	8	50	8	47954	103136	91247

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