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Competitiveness of the duty-free shops cluster on the border of "Paz"

Competitividade do *cluster* de *free-shops* na fronteira da "Paz"

Competitividad del *cluster* de *free-shops* en la frontera de "Paz"

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Abstract
The research aims to analyze the competitiveness of the cluster of free-shops in the Fronteira da Paz region (Santana do Livramento-BR and Rivera-UY). The eleven elements of cluster competitiveness proposed by Zaccarelli, et al. (2008) are analyzed. For this, a descriptive analysis is used, with a quali-quantitative approach, through the case study method. Data were collected from secondary data, interviews, questionnaires and observation. The results obtained show that five fundamentals are precisely competitive, these are: geographic concentration, balance without privileged positions, cooperation between companies, selective replacement of businesses and the culture of the community adapted to the cluster. The rest of the six fundamentals are present, but their competitiveness is insufficient, not very dynamic, these are: variety or scope of businesses and institutions, specialization, complementarity through the use of by-products, uniformity of the technological level, evolution through the introduction of new technologies and cluster-oriented outcome strategy. In this way, it is possible to draw up strategies to strengthen the present fundamentals and develop those of insufficient performance.
Keywords: Competitiveness; Cluster; Duty-free shops; Border.

Resumo
A pesquisa tem como objetivo analisar a competitividade do *cluster* de *free-shops* na região da Fronteira da Paz (Santana do Livramento-BR e Rivera-UY). São analisados os onze elementos de competitividade do *cluster* propostos por Zaccarelli, et al. (2008). Para tal, emprega-se uma análise descritiva, com abordagem quali-quantitativa, por meio do método de estudo de caso. Os dados foram coletados a partir de dados secundários, entrevistas, questionários e observação. Os resultados obtidos evidenciam que cinco fundamentos são precisamente competitivos, são esses: a concentração geográfica, o equilíbrio sem posições privilegiadas, a cooperação entre empresas, a substituição seletiva de negócios e a cultura da comunidade adaptada ao *cluster*. Os demais seis fundamentos são presentes, mas sua competitividade é insuficiente, pouco dinâmica, são esses: variedade ou abrangência de negócios e instituições, especialização, complementaridade por utilização de subprodutos, uniformidade do nível tecnológico, evolução pela introdução de novas tecnologias e estratégia de resultado orientada para o *cluster*. Desta forma, é possível traçar estratégias para fortalecer os fundamentos presentes e desenvolver aqueles de desempenho insuficiente.
Palavras-chave: Competitividade; *Cluster*; *Free-shops*; Fronteira.

Resumen
La investigación tiene como objetivo analizar la competitividad del clúster de free shops en la región de Fronteira da Paz (Santana do Livramento-BR y Rivera-UY). Son analizados los once elementos de la competitividad de los clústeres propuestos por Zaccarelli, et al. (2008). Para ello se utiliza un análisis descriptivo, con enfoque cuali-cuantitativo, a

través del método de estudio de caso. Los datos fueron recolectados a partir de datos secundarios, entrevistas, cuestionarios y observación. Los resultados obtenidos muestran que cinco fundamentos son precisamente competitivos, son ellos: la concentración geográfica, el equilibrio sin posiciones privilegiadas, la cooperación entre empresas, la sustitución selectiva de empresas y la cultura de la comunidad adaptada al clúster. El resto de los seis fundamentos están presentes, pero su competitividad es insuficiente, poco dinámica, son ellos: variedad o alcance de empresas e instituciones, especialización, complementariedad a través del aprovechamiento de subproductos, uniformidad del nivel tecnológico, evolución a través de la introducción de nuevas tecnologías y estrategia de resultado orientada a clústeres. De esta forma, es posible diseñar estrategias para fortalecer los fundamentos actuales y desarrollar aquellos de desempeño insuficiente.
Palabras clave: Competitividad; *Cluster*; *Free-shops*; Frontera.

1. Introduction

The cluster concept has drawn attention due to its link to the competitiveness of productive factors and income generation. Porter (1998) defines clusters as "critical masses" of unusual competitive success concentrated in a single location, while Bispo, et al. (2005), define them as a deliberate or endogenous arrangement of geographically concentrated businesses with horizontal or vertical interdependence.

Among the various business sectors that can form a cluster, duty-free shops stand out, as they are stores that sell imported products with tax exemption or reduction to people in transit.

The region called "Fronteira da Paz", is formed by the Brazilian city, Santana do Livramento, and the Uruguayan city, Rivera. Since 1862, both cities have shared a common, physically uninterrupted space (Cassanego, et al., 2021). This fact means that in both cities, cultures, people and businesses develop together and peacefully. In this way, the duty-free shops, which are objects of this investigation, are located in the city of Rivera, but they also have economic and social importance for the city of Santana do Livramento.

Duty-free shops play an extremely important role on the border region in study due to the economic advantages they provide for both cities (Santana do Livramento and Rivera). Xavier & Noda (2018), point out as impacts of duty-free shops in border areas, a) the increase in the competitiveness of Brazilian commerce; b) the exchange rate variation, the promotion of shopping tourism; c) the generation of employment and income; and, d) increasing the visibility of the border, among others.

The identification and analysis of the fundamentals of competitiveness in clusters can help in the construction of competitive advantages for the companies that compose it. Competitiveness can be understood as the ability of a system to perform its business successfully in a given business context (Caldas & Wood, 2007).

For Zaccarelli, et al. (2008), the competitive performance of clusters is formed by 11 fundamentals, which are: geographic concentration, variety or scope of businesses and institutions, company specialization, balance with the absence of privileged positions, complementarity through the use of by-products, cooperation between companies , selective business replacement, technological level uniformity, community culture adapted to the cluster, evolution through the introduction of new technologies and cluster-oriented results strategy. The formation of a competitive cluster can provide economic and social advantages, such as increased efficiency, productivity, innovation, attraction of customers, cost reduction, the formation of the image of the company and the cluster, access to technology, among others (Zaccarelli, et al., 2008).

Considering these fundamentals and the existence of a cluster of free-shops in the "Fronteira da Paz" region, the research seeks to answer the following question: How does the dynamics of competitiveness of the cluster of free-shops in the "Fronteira da Paz" behave? The general objective of this work is to analyze the competitiveness of the cluster of free-shops in "Fronteira da Paz". Specifically, it seeks to analyze the eleven elements of competitiveness of the cluster, verify the important factors in the formation of its competitiveness and identify the fundamentals that the cluster can work on.

In that regard, researching the competitiveness of the cluster of free-shops in the "Fronteira da Paz" region may encourage its development, as it seeks to provide information for decision-making by public and private agents. From the understanding of the fundamentals of competitiveness, it becomes possible to outline strategies to promote improvements in the performance and interaction between its social actors, aiming at sustainable business and supra-business competitiveness. In addition, the actors that form part of a cluster may not be aware of the system in which they participate and, consequently, are unaware of the benefits that it can provide (Zaccarelli, et al., 2008). In addition, it is worth mentioning that duty-free shops also indirectly collaborate with other business sectors such as hotels and currency exchange business that revolve around tourism.

Previous studies address the cluster theme and its competitive advantages, such as Bispo, et al. (2005), Mattioda, et al. (2009) and Weiss, et al. (2016). Bispo, et al. (2005) associate the concepts and variables that constitute a cluster. Mattioda, et al. (2009) investigated the benefits in the cluster of companies in the furniture sector in the "Serra Gaúcha" region. Weiss, et al. (2016) conducted a survey of research published between 1998 and 2015. In addition to these, the research by Sarturi, et al. (2016) and Aguiar, et al. (2017) propose metrics to analyze the eleven fundamentals of Zaccarelli, et al. (2008). However, there are no studies for the free-shop retail trade in the border region, which is a gap to be filled by this study. The article is structured in four sections including this introduction. In the second part, we present the methodology, in the third we analyze and discuss the results and finally in the fourth, we make some final considerations.

2. Methodology

This section describes the type of research, the method chosen and the techniques of data collection and analysis. The research is descriptive with qualitative and quantitative approaches. Descriptive research aims to study the characteristics of a group. In addition, the essential focus of these studies is on getting to know the community and its characteristic features, among others (Triviños, 1987). Qualitative and quantitative research allows the analysis to be more in-depth in the sense that the qualitative data collected can be more "firmly" confirmed by the quantitative data.

The method used is of the case study, being an investigation that allows the preservation of the holistic and meaningful characteristics of real-life events. The case study investigates a contemporary phenomenon within its reality, especially when the boundaries between the phenomenon and the context are not clear (Yin, 2001). In addition, it has the advantage of deepening the knowledge of a delimited reality, since the investigation focuses on a unit deeply analyzed, whose results can result in the formulation of new research (Triviños, 1987).

In the case study, the planning steps and their order can be flexible, these are: the formulation of the research problem (where the researcher must ask "what" or "how" questions), definition of the case units (where it is necessary to decide whether the study will be a single or multiple case, selection of the units that will be investigated), preparation of the protocol (document that details the research procedures), data collection (interviews, observation and document analysis), analysis and interpretation of data (process simultaneously to the collection) and the writing of the report (organization of the presentation of the results) (Gil, 2017).

Complementarily, data collection was carried out through interviews, observation, secondary data and a questionnaire. The interview is a basic technique to obtain various information, both quantitative and qualitative (Gil, 2019). We applied semi-structured interviews, formed by questions previously established, but which do not have answer alternatives, making the interviewees able to answer them openly. Its main advantage is the fact that it adapts to the responses of the interviewee (Gil, 2019).

Observation is a technique that does not only consist of seeing and hearing, but also of examining the facts and phenomena studied. This technique helps the researcher to identify and obtain evidence about what individuals are not aware of, but that guide their behavior (Lakatos & Marconi, 2003).

Observation, in case studies, tends to be exhaustive to guarantee the unity of the study and to compare the results obtained through other procedures, such as the interview, for example (Gil, 2019). In this research, non-participant observation was carried out, that is, the researcher witnesses the fact without participating in it (Lakatos & Marconi, 2003).

The observation was made in the participating cities and companies and recorded from a field diary or observation record. The observation record is an instrument that assumes different levels of structuring and can be opened, giving the researcher freedom (Gil, 2019).

We conducted the interviews with managers of duty-free shops in the "Fronteira da Paz" region, which are located in Rivera. Sampling took place by typicality, not probabilistic, and was developed from the selection of elements that, based on the available information, can be considered representative of the entire population (Gil, 2019). In addition to these, employees of the "Asociación de Comercios de Free Shop de Rivera", an association located in Rivera that brings together duty-free shops in the city, were interviewed. The interviews were hold in person or through Google Meet, which were recorded and later transcribed. Therefore, as seven interviews were done out in total, numbers from one to seven will name the interviewees from both the duty-free shops and the association.

As for the questionnaire, Gil (2019) defines it as the technique of investigating a set of questions with the purpose of obtaining information from the interested parties. The questionnaire, prepared in Google Forms, was sent to all associated duty-free shops. In this way, we sought to reach the largest number of duty-free shops in the region, in addition to verifying the information obtained through the interviews. Twenty-one questionnaires were collected from a total of forty-three duty-free shops found by observation. The questionnaire consisted of closed questions in which the respondents had to make a choice between the alternatives. It was based on the foundations of Zaccarelli, et al. (2008) so that it could meet the research objectives.

We analyzed quantitative data by univariate analysis, more specifically, by frequency distribution, which for Gil (2019) helps to describe the way in which people are distributed in terms of different variables. As for qualitative data, these were analyzed using content analysis. The categories were based on the foundations of Zaccarelli, et al. (2008). For Bardin (1977), content analysis is not an instrument; it is a set of message analysis techniques. Case studies can be affected by a multiplicity of analytical approaches, which create difficulties in defining and sequencing methodological processes for the analysis and interpretation of data. According to Gil (2017), these steps can be defined as follows:

a) **Data coding:** where meaning is given to the relevant concepts collected from the interviews and observation;

b) **Establishment of analytical categories:** it is the grouping of patterns that are defined from the comparison of the collected data;

c) **Data display:** organization of data to better analyze them through matrices or diagrams;

d) **Search for meanings:** it is a skill that the researcher must have for better quality of results, where one searches for what the collected data mean;

e) **Search for credibility:** care must be taken with the representativeness of the participants to know that the information obtained is really relevant in terms of:

i. quality of data;

ii. control the effects of the researcher that can make the interviewees suspicious or even intimidated

iii. feedback from participants, being essential to ensure that the research and results obtained represent what happens;

iv. the external evaluation which, similarly to the feedback from the interviewees, will confirm the results.

In this sense, the study seeks to follow these steps for the analysis and interpretation of qualitative data. Table 1 lists the fundamentals of competitiveness, the sources of data collection, and the metrics used, according to Sarturi, et al. (2016) and Aguiar, et al. (2017).

Table 1 – Fundamentals of Competitiveness, metrics and sources of data collection.

Fundamentals	Metrics	Sources of data Colletcion
Geographic concentration	$LQ\ (Location\ Quotient) = \frac{\frac{Number\ of\ duty-free\ shops\ in\ Rivera}{km^2\ of\ Rivera}}{\frac{Number\ of\ duty-free\ shops\ in\ Ururguai}{km^2\ of\ Uruguay}}$	Secondary Data: "*Observatório Território Uruguay* and *Free Shops de Frontera- Actualización de Informe para la Cámara de Free Shops del Uruguay"*, interview and observation
Variety or scope of businesses and institutions	How relevant are duty-free shops for the region? Do companies supply products to other companies in the region?	Questionnaire and interview
Specialization	Do the duty-free shops operate in specific segments, being specialized in some line of business?	Interview and observation
Balance without privileged positions	The size of the establishment should not be significantly different between establishments	Questionnaire, interview and observation
Complementarity through the use of by-products	The cluster should recycle the by-products of its processes	Questionnaire and interview
Cooperation between companies	Cooperation between companies must be spontaneous, voluntary and evident. The perception of collaboration and information sharing are the metrics used.	Questionnaire
Selective replacement of companies	Percentage of new participating companies, the higher, there is more competitiveness. The number of openings and closings of establishments, in the last 5 years, and the perception of change are the metrics used	Questionnaire and interview
Uniformity of technological levels	Speed of sharing innovations and whether innovations are shared by companies	Questionnaire
Community culture adapted to the cluster	$CC = \frac{Employees\ working\ at\ duty-free\ shops}{Population\ Total\ (of\ both\ cities)}$	Secondary Data: *Free Shops de Frontera- Actualización de Informe para la Cámara de Free Shops del Uruguay* e entrevista
Evolutionary nature through new technologies	Dissemination and promotion of technological innovations	Interview
Cluster-oriented outcome strategy	Perception of the presence of institutions and actions oriented towards the cluster strategy	Questionnaire and interview

Source: Authors' elaboration.

The use of the metrics exposed in Table 1 is of corroborating the results found from the content analysis, to provide greater robustness to the research. Next, the results obtained for each competitive foundation are discussed and analyzed.

3. Results and Discussion

The analysis of the results is structured in analytical topics, divided into 12 subheadings, according to the fundamentals of competitiveness analyzed and a subsection for the synthesis of the results.

It is important to mention that the duty-free shops in study can be part of the "*Asociación de Comercios de Free Shop de Rivera"*, of the "*Cámara de Empresarios de Free Shops del Uruguay"* or neither. Only duty-free shops located in Rivera can be part of the association. The establishments that make up the chamber ("*Cámara de Empresarios de Free Shops del Uruguay"*) can be located in several departments, that is, they have several stores within the country.

As for the objectives of duty-free shops, it appears that: "it is to attract more customers and sell imported quality products at a lower price" (Interviewee 3); "let people come to sell, to overcome, to give more work" (Interviewee 4); "today, mainly, is to survive, right, because after all that, well, it was deeply how much it affected. Stabilize and start winning again" (Interviewee 5).

The difficulty of the establishments refers to the economic crisis caused by the COVID-19 pandemic, the logistical bottlenecks and the difficulty of replacing the merchandise, due to the maladjustment of the global supply chains. Thus, we have that "among other things, today we have a lot of difficulty in bringing goods" (Interviewee 5); "today, the main difficulty is to get goods because of the global problem existent, of logistics today all over the world" (Interviewee 3). In the following subsections, detailed analyzes are presented on the fundamentals of cluster competitiveness listed by Zaccarelli, et al. (2008).

3.1 Geographic concentration

Geographic concentration is essential for the existence of a cluster and consists of the arrangement of companies that are geographically close, enabling the construction and maintenance of competitive advantages. Therefore, the greater the geographic concentration, the better for the cluster's competitiveness.

The chamber does not provide the exact number; however, the concentrated percentage of each location with the presence of duty-free shops is available. Therefore, a number of 43 duty-free shops is considered (number found through observation) to enable the calculation

LQ= (45% $of\ total$ / 9.370 km^2) / (100%/ 176.215 km^2)

LQ= (43/ 9.370 km^2) / (96/ 176.215 km^2)

LQ= 0,004589/ 0,00054

LQ= *8,49*

Geographic concentration is considered present when LQ≥1. In this case, it can be said that there is a geographic concentration in Rivera's free-shop cluster (8.49). It is important to note that only six cities in Uruguay have duty-free shops (excluding even the capital, Montevideo, from this list), which shows that the LQ found could be even higher if only the geographic region of these six cities were considered (Chuy, Rio Branco, Rivera, Artigas, Acegua e Bella Unión).

Through observation, it is possible to confirm that the same establishments are located in the center of Rivera. In this sense, Interviewee 2 comments that the existing geographic concentration provides a competitive advantage for the organizations belonging to the cluster, more specifically because "...call tourists, because then you have several options in one place".

3.2 Variety or scope of businesses and institutions

To analyze whether the cluster is competitive, one must also perceive the relevance and viability of the businesses belonging to it. We tried to answer this foundation through the questionnaire, verifying if the company supplies products to other companies in the region, and the interview. The important thing here is to analyze the cluster's relationship with companies within it.

From the questionnaire, it appears that 28.57% of businesses in the region supply products to other companies in the group and that 71.43% of businesses do not. Thus, most establishments do not supply products to others within the cluster, suggesting that this factor is not present.

As for the information from the interviews, when asked if there are companies in the city that are relevant for the survival of the enterprises, the interviewees answered that the duty-free shops among themselves are able to sell and buy products and that no other company would be relevant. According to Interviewee 2:

> "Yes, as I told you, as we do retail prices, we also work with other duty-free shops so we have some brand representations and we sell some brands to some duty-free shops and, on the contrary, we also buy some brands directly from other free-shops" (IInterviewee 2).

Meanwhile, Interviewee 4 also states: "only we can buy between duty-free shops. For example, I lack something and I go and buy it in one of the other duty-free shops". In this way, the respondents claim that they have sales and purchase relationships with other companies in the cluster. When comparing with the quantitative data, it can be seen that the interaction between the cluster's businesses is still small. Therefore, it can be suggested that this foundation, although present, is insufficient in the cluster.

3.3 Specialization

Through the interviews, it was possible to observe that the respondents consider all the products offered in the establishments as a single sector. However, some businesses work with specific brands. For example, Interviewee 2 mentions that some brands are sold among duty-free shops. This fact happens because only a few establishments are able to sell certain brands in the region. The brand's representative duty-free shop obtains discounts on bulk purchases, reselling the products to other duty-free shops in the grouping.

During the observations, it was discovered that there are two types of duty-free shops in the region. Some sell imported luxury products in dollars, while others sell more common everyday products in Brazilian real. In this way, there are two specializations according to the type of product sold and, therefore, to the companies in the cluster.

The competitiveness of this foundation is insufficient, since the cluster does not specialize in any product sector, such as perfumery, and the fact that it is focused on luxury products or not, does not make it completely specialized.

3.4 Balance without privileged positions

This foundation deals with the balance in the profit of each company, which must exist to enable "live" competitiveness, assuming companies of equal size and financial harmony. Based on the size of the company, it appears that there are no micro or large establishments. Table 2 allows a better visualization of these data.

Table 2 - Companies' sizes.

Company Size	Nº of answers	Percentage (%)
Microenterprise (annual revenue of up to BRL 360 thousand)	0	0
Small business (annual revenue greater than BRL 360,000 and less than or equal to BRL 4.8 million)	10	47,62
Medium business (annual revenue greater than BRL 4.8 million and less than or equal to BRL 300 million)	11	52,38
Large business (annual revenue greater than BRL 300 million)	0	0
Total	21	100

Source: Authors' elaboration.

According to Table 2, it is observed that most companies have small and medium size, 47.62% and 52.38% of establishments, respectively. It is worth mentioning that the classification of companies was made following Brazilian standards and that duty-free shops can sell in Brazilian real and in dollars. The respondents during the questionnaire made the conversion from dollars (when necessary) to Brazilian real so that they could fit their company into the presented standards. The sizes of companies in the neighboring country depend not only on revenue, but also on the number of employees. Micro-enterprises can have up to 20 employees and earn up to US$ 400,000, while small companies can employ up to 100 people and earn up to US$ 2,000,000. As for the medium-size company, it can have up to 300 employees and have annual sales of up to US$ 10,000,000.

Meanwhile, in the interviews, when asked about the size being similar between companies, everyone agreed that there is variation between the "sizes" of establishments. Interviewee 3 says that: "there are some that are very small and others that are much bigger, with a lot of infrastructure, a lot of investment". In the same line of thought, Interviewee 4 characterizes that "there are very large companies and very small companies". From the observation carried out, the physical size of the establishments is significantly different.

In this way, there is a balance without privileged positions in terms of financial size, despite the fact that the physical structures of the companies show the existence of privileged establishments. In short, there is balance with the absence of privileged positions, being a competitive foundation in the cluster studied.

3.5 Complementarity through the use of by-products

Complementarity deals is about reusing by-products, such as the recycling process, for example. From the questionnaire, it was found that 85.71% of the companies do not operate with the reuse of by-products. During the interviews, there was a report that, in order to open the establishments, they need to notify the city of Rivera, which is responsible for the final destination of the waste. According to interviewee 7, the collection of by-products can be done through an outsourced company or it can be in charge of the municipality of Rivera. Therefore, it can be said that despite the establishments not recycling, as the quantitative data show, it occurs indirectly. Thus, this foundation is present, however, insufficient for the competitiveness of the cluster.

3.6 Cooperation between companies

Cooperation between companies can result in a higher level of competitiveness of establishments and the cluster as a whole, due to the benefits brought by sharing information. Table 3 shows the results obtained from the questionnaires.

Table 3 - Results on perception of collaboration.

Perception of collaboration	Nº of answers	Percentage (%)
Collaboration is little	4	19,05
Collaboration is reasonable	7	33,33
Collaboration is a lot	4	19,05
No collaboration	6	28,57

Source: Authors' elaboration.

From Table 3, it can be suggested that the duty-free shops collaborate with each other, accumulating a percentage of 71.43% (they collaborate a little, reasonably or a lot). About 28.57% of respondents consider that there is no collaboration between establishments. In short, it is evident that there is cooperation and collaboration in the cluster, and most believe that this level is reasonable. Table 4 highlights the main types of information shared.

Table 4 - Perception on information sharing.

Sharing	Percentage (%)
Knowledge	38,09
IT	19,05
Others	14,29

Source: Authors' elaboration.

According to Table 4, it appears that information sharing refers to the group's knowledge and information technology. The "other" option deals with day-to-day information sharing, such as security. In general, we observe that most of the cluster considers that companies share information at a reasonable level, which makes the foundation competitive, with a perspective of improvement.

3.7 Selective replacement of companies

The replacement of companies is important for the competitiveness of the cluster since new ones can replace the less competitive ones. To represent this foundation, the perception of change in the grouping is observed, either through the perception of changes in competitors and suppliers, as well as the opening of new duty-free shops. To this end, we used interviews and questionnaires. For this factor, the higher the percentage of new companies, the greater substitution and competitiveness. Table 5 addresses the perception of change.

Table 5 - Perception of Change (suppliers and competitors) in percentage (%).

Change Perception	A lot	Little	Didn't change/affect
There was a change of competitor	42,85	47,62	9,52
The change of competitor affected the business	19	38,1	42,85
There was a change of suppliers	9,52	33,33	57,14
The change of suppliers affected the business	0	23,8	76,19

Source: Authors' elaboration.

In Table 5, it is observed that 90.47% (perception of change of competitor "a lot" and "a little") and two respondents say there are changes in competitors. However, the change did not affect, or at least did not affect the business a lot.

As for suppliers, most say that there were no changes, 57.14% of respondents, and that this change did not affect the business (76.19%). The cluster's internal competitiveness exists since the change of competitors affects more than the change of suppliers.

The year of foundation of the companies (Table 6) is used to show the change of companies in the cluster. The results show that in recent years, 2020 and 2021, 4 companies were founded, while in the previous decade, from 2010 to 2019, 7 companies opened. This shows that there have actually been several changes in competitors, with these 11 companies representing 52.4% of the respondents, which reached a total number of 21 companies.

Table 6- Opening of new duty-free shops.

Year of Opening	**Before 2010**	**From 2010 to 2019**	**2020 and 2021**
Nº of companies	10	7	4
%	47,6%	33,33%	19,04%

Source: Authors' elaboration.

These facts (opening and closing of companies) must be considered in the midst of the national and global economic scenario in which they occurred. In 2020 the world was faced with the COVID-19 pandemic, which affected all sectors and people on a global level. Avelar, et al. (2020) reported that the pandemic affected companies around the world directly. Therefore, the opening of four establishments within this global context shows the continuous investment and persistence of duty-free shops in the "Fronteira da Paz" region. This context, however, can also justify the closure of businesses in the region. This cannot be confirmed by this research since the establishments with closed activities were not studied.

Through the interviews, it was possible to verify that, by the law of duty-free shops, the new competitors that opened, bought the "title" of duty-free shop (permissions to open or change a store to a free-shop) from another company whose activities were closed. To have this permission, the company must be open for a certain time and follow certain rules. In practice, when a duty-free shop closes its activities, another company buys its title to open a new establishment. Therefore, companies are new in terms of administration and activities, but they have an old corporate name.

Summing it up, we suggest that there is a selective replacement of businesses, especially duty-free shops, and the grouping is competitive on this basis.

3.8 Uniformity of technological levels

This factor analyzes how homogeneous the cluster is at the technological level. According to Aguiar, et al. (2017), the metrics used are speed and innovation sharing area, respectively, which we can observe in tables 7 and 8.

Table 7 - Speed of innovation sharing

Speed	**Very fast**	**Fast**	**Slow**	**Very slow**	**There isn't**
Answer percentage (%)	0	33,33	38	14,28	14,28

Source: Authors' elaboration.

Table 8 - Shared Innovation Area.

Area	**Marketing**	**Products**	**Organizational**		**Processes**	**Others**	**No answer**
Answer percentage (%)	23,8	38	28,57		4,76	4,76	19

Source: Authors' elaboration.

From Tables 7 and 8, we can affirm that there is no uniformity of technological levels, as most companies share innovations among themselves slowly (38% of respondents). The area of innovations with the greatest sharing is that of products (38%), since companies can make purchases between them and share the same network of suppliers. The second and third areas of information most shared by companies are organizational and marketing, 28.57% and 23.8%, respectively.

In short, this foundation has insufficient competitiveness, since sharing, when actually carried out, is, for the most part, slow.

3.9 Community culture adapted to the cluster

This factor reflects how included the cluster is in the society in which it operates. This aspect is measured by the percentage of employees working in the cluster companies of the total population of both cities.

The data on the number of duty-free shop employees in both cities does not exist, but according to data from the "Free Shops de Frontera- Actualización de Informe para la Cámara de Free Shops del Uruguay" (2017), the number of direct employees in duty-free shops, in 2016, in Rivera, there were 300 direct employees working in the free-shops. In 2013 and 2014, there were 400 employees. In this way, the department of Rivera has the largest share of direct service in duty-free shops, around 4.58%, in 2016. Indirect jobs, whether in hotels, restaurants, among others, represent almost 20% of total jobs in Rivera.

It is worth mentioning that, during the interview, the interviewees believe that the community recognizes the importance of duty-free shops, according to Interviewee 3:

> "I believe so, so far in the pandemic when the duty-free shops were closed, it was possible to notice across the border that the main tourist spot on the border are the duty-free shops. The city felt it a lot, not only Rivera, but also Livramento. Supermarkets, gas stations, hotels, hotels directly, restaurants" (Interviewee 3).

In the same line of thought, Interviewee 5 mentions that:

> "This here revolves around the border, of course the biggest money stays here because the products leave from here but there are services, hotels, restaurants, gas stations, there are Brazilians who come to work here so I would say that going to the border is a very very important thing" (Interviewee 5).

Therefore, from the history and data of the city, as well as from the perception of the interviewees, it is noted that there is a community culture adapted to the cluster. By observation, it becomes more evident when there is a diversity and continuous investment in hotels and restaurants in cities to serve the consumer tourists of the group.

3.10 Evolutionary nature through new technologies

The competitiveness of the cluster, in this regard, depends on the agents that promote the dissemination of technological innovations. Interviewee 1 reports that:

> "In Uruguay, of course, you have the Agencia Nacional de Investigación e Innovación, the ESIC, the Univerisdad de la República, the Universidad Tecnológica del Uruguay, but you do, but I believe there is something we should learn from Brazil and the United States, is that I believe that you, like the United States, have much more of an alliance between the public and private sector so that academia is at the service of development, in Uruguay there are areas that have it, for

example everything that is traceability of cattle, in which we are quite pioneers, but in what has to do with academia applied to economic development if that happens (...) but not so much in commerce yet, that is, there is still a way to go. In Rivera concretely, you saw that area B of UTEC, we have SME agreements, there are interesting local agreements, but I think this is more for a local synergy and you know that I think this synergy is due to the influence of Brazil"

This information makes it possible to understand the competitiveness of the cluster in terms of its evolutionary nature through the presence of Uruguayan public agents, despite not acting actively. The cluster, in this sense, has the potential to be competitive, requiring the development of cooperation partnerships. In addition, there is a need for greater collaboration and actions, where the cities of Rivera and Santana do Livramento could cooperate even more through educational institutions, for example, enabling more actions that provoke innovation.

Other interviewees mention the lack of participation of authorities (such as city halls) and also of the association and chamber, with the latter having a "more fiscal" role only.

On the other hand, interviewee 6 mentions that without the association nothing would actually be done. In addition, as will be detailed in the next section, there are two collective events, "Rivera Brilla", which is promoted by the city hall, and "Noche Magica", which is organized by participating stores, including duty-free shops.

In short, this foundation is of insufficient competitiveness, as the agents promoting technological innovations do not act actively for the cluster.

3.11 Cluster-oriented outcome strategy

We can analyze this foundation by the presence of institutions and actions oriented towards the cluster strategy. Regarding the presence of institutions or actions aimed at drawing up strategies for the cluster, 57.14% of respondents do not perceive the presence of institutions or actions, 42.85% perceive the presence of an association, 4.76% perceive the presence of an educational institution and 4.76% of actions. As for collective events, 9.52% perceive their presence. Among these, "Noche Magica" and "Rivera Brilla" stand out.

"Noche Magica" is held annually in December during "Rivera Brilla" which is a project by the city Hall of Rivera where they decorate the city, and especially "Avenida Sarandi" (its main street), for Christmas. During "Noche Magica", the avenue is closed to car traffic and remains open only to pedestrians, facilitating access to commercial establishments, which stay open longer and close around midnight.

As mentioned before, there is a chamber and an association of duty-free shops in the city, but not all establishments are members. There are approximately 43 duty-free shops and only 30 are members of the association. It is noteworthy that by observation, we only found 43 companies in this sector. By the questionnaires applied, only 9 respondents found the presence of the association. Thus, the absence of communication and collaboration between the association and the partner companies is evident. In addition, none of the respondents mentioned the chamber.

Regarding the presence of support institutions and their contribution, interviewee 5 commented that "the chamber is more fiscal, it controls whether the documentation is up to date" and interviewee 3 mentions that "the association does not interfere". During the application of the questionnaires, interviewee 6 confirmed that "without the association, nothing is achieved individually, thus proposing its importance".

Therefore, there is the "Asociación de Comercios de Free Shop de Rivera", which covers most of the duty-free shops on the border where two collective events a year are held. Therefore, the lack of collaboration of the authorities of both cities and of these with the other organizations of the cluster is evident, causing a lack of strategies oriented to the cluster, making the foundation insufficient in the cluster studied.

3.12 Results Summary

Due to the lack of studies on the cluster of duty-free shops in the "Fronteira da Paz" region, the verification of the results was obtained using the metrics of Sarturi, et al. (2016) and Aguiar, et al. (2017) and theory.

Of the eleven fundamentals analyzed, five (geographic concentration, balance without privileged positions, cooperation between companies, selective replacement of businesses and community culture adapted to the cluster) are evident and competitive. The other six fundamentals, variety or scope of businesses and institutions, specialization, complementarity through the use of by-products, uniformity of the technological level, evolution through the introduction of new technologies and a cluster-oriented result strategy are present, but not fully developed, making them insufficient.

Theory argues that geographic concentration should be as large as possible since this is the main foundation for the existence of the cluster. In the cluster studied, it was evident considering that the duty-free shops, for the most part, are located in the center of the city. As for the balance with the absence of privileged positions, the companies are of similar sizes, being small and medium-sized, which makes the cluster competitive. Cooperation between companies can provide benefits and competitive advantages. Most managers and/or owners questioned stated that there is collaboration, especially regarding knowledge sharing (Zaccarelli, et al., 2008; Sarturi, et al., 2016; Aguiar, et al., 2017).

Other fundamentals that verify the competitiveness metrics and are in fact competitive are the selective replacement of businesses and the community culture adapted to the cluster, whose results are similar to those of Aguiar, et al. (2017). The selective substitution shows that the change of competitors affects the establishments more than the change of suppliers, demonstrating a strong internal competitiveness of the cluster. The culture of the community adapted to the cluster is present, secondary data and interviews show the development of the cluster. In the present study, there are several branches of business that depend on duty-free shops, such as hotels and restaurants, in addition to employing a considerable number of employees residing in the region.

4. Final Considerations

The research aimed to analyze the competitiveness of the cluster of duty-free shops in "Fronteira da Paz", from the eleven foundations of competitiveness listed by Zaccarelli, et al. (2008).

The results obtained show that the objectives and difficulties of the establishments are the same and that of the eleven fundamentals of competitiveness, at least five are present in the cluster of duty-free shops at "Fronteira da Paz". Geographic concentration is demonstrated by calculation and observation. The interviewees point to the commercialization of products among the duty-free shops of the cluster, but it is poorly developed, making the foundation of variety or scope of businesses and institutions insufficient. When it comes to specialization, it is possible to identify that there are two types of duty-free shops: those for luxury products and those for simpler products. However, these establishments do not have specialization by products, which makes the competitiveness of the foundation in the cluster insufficient. As for the absence of privileged positions, the sizes of companies are similar with medium or small companies, which makes the cluster more competitive. Complementarity through the use of by-products is done indirectly and, therefore, insufficient for the competitiveness of the cluster. The cooperation between the companies exists having knowledge sharing as its main form of cooperation.

Regarding the selective replacement of the company, the cluster appears to be competitive since the majority of respondents perceive the change of internal companies to it. With regard to the uniformity of technological levels, companies share innovations, but slowly and, for the most part, about products. The community culture of the cluster is evident both directly and indirectly, as most families in both cities depend on this cluster and the tourism it provides. The last two fundamentals (evolutionary nature through new technologies and cluster-oriented result strategy) confer despite demonstrating a need for improvement, and they are insufficient.

Summing up, the cluster is competitive, but in order to obtain more advantages it must improve collaboration between public and private agents. In this way, it becomes possible to develop strategies to increase the competitive dynamism of the cluster, intensifying the interaction between the interested parties. The expansion of the group's competitiveness affects the socioeconomic development of the region, in addition to providing a broad mix of products in order to satisfy customer demand.

This research can help companies in the cluster studied to outline strategies that will make it more competitive through cooperation, mainly, and by studying the fundamentals of competitiveness that can offer greater competitive advantages. As for the theoretical contributions, the main one is that this research provides a first look inside the cluster of duty-free shops in the "Fronteira da Paz" region.

As limitations of the research, we stand out the lack of participation of some duty-free shops, as well as the city halls and related government agencies. As suggestions for future studies, we highlight the role of public institutions in fostering the cluster. It is possible to suggest the analysis of the perception of the population and tourists regarding the competitiveness of the cluster. In addition, seek to understand the indirect importance that duty-free shops have in businesses outside of it, such as hotels, restaurants, gas stations and the rest of commerce.

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