

The formation of the footwear cluster in the Cariri Region (Ceará, Brazil) and the competitive advantages

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Abstract. The competitiveness generated in recent years due to globalized markets and breaking of trade barriers, has led several industries to adopt strategies to seek the consolidation of their businesses. One of the ways found by some companies, was to act together to obtain competitive advantages and achieve objectives in the same line of business through the formation of Industrial Clusters. Thus, the present work aimed to show the economic importance of the footwear cluster in the Cariri-CE Region, based on the description of the process of the emergence of this industrial cluster, the increased competitiveness of companies belonging to the Cluster and regional development. This research fills a gap detected in the description of the process of the emergence of several clusters in their difficulties, advantages and disadvantages, serving to promote benchmarking of future implementations of clusters. As far as the methodology is concerned, this study is configured as a qualitative descriptive study, where a questionnaire with 3 managers of cluster companies was used to assess the characteristics and relationships that it has, as well as its advantages and disadvantages in the competitiveness relationships. market share. As a result, it was possible to verify the importance of the emergence of the footwear cluster for the Cariri region, promoting its local economic development, generating income and contributing to the national economy.

Keywords: Clusters, Competitiveness, Footwear.

1 Introduction

The current global economy presents a certain interconnection in which the market has clearly generated a specific framework of operations between companies. Economic growth in all sectors is greatly influenced by technological innovations. The world economy always exhibits new characteristics by setting standards different from those already in existence. In this context, companies seek improvement to stand out and

attract a large number of customers. A company may or may not have one or more explicit strategies, but it certainly has a strategic profile. Which is based on the various actions it adopts and, on the way, it defines its purposes and its strategic posture before the business environment [1].

Innovation is an important competitive factor present in the Cluster [19] highlight the value of this strategic element in the consolidation of industrial clusters, especially the one located in Bengaluru (India), the study shows the formation of the cluster the need for companies to cooperate and positive factors generated from innovation. The authors present the importance of disseminating information regarding the creation of Clusters, which disseminates the effectiveness of the strategy model.

The Cariri (Ceará, Brazil), region has a prominent cluster in the footwear sector with national importance [2], which generated interest in a variety of studies on the topic, with emphasis on the organization of SMEs and their industrial dynamics, forming the Cluster. Inserted in a competitive environment, the Cariri Region stands out among the other regions with polo of footwear. With this value, the Cariri currently the largest producer hub in the North and Northeast and the 3rd largest in Brazil [3].

According to this reality, this research shows the importance of this cluster, guided by the following problem: How was the formation of the Cluster of shoes in the Cariri region (Ceará, Brazil)? What is its importance for competitiveness?

The work allows filling a gap described in research in the area that point to the need for a Cluster description. In addition to its advantages, disadvantages and its creation and maturation process, allowing for benchmarking.

The study proposes advances in studies on Clusters, taking into account the competitive advantages, on the perspective of strategic planning. In addition, there was a contribution to academic exploration from the description of the emergence of the Cluster. Finally, data and impressions about the case of the Cariri region shoe cluster - CE were obtained, through a qualitative research of a restricted sample [20].

2 Method

The research is classified as descriptive because it presents phenomena inherent to the studied phenomenon and to better define the elements intrinsic to it. A phenomenon described through qualitative and descriptive research presenting it as a case study.

As for the procedure, a case study is proposed to assess the situation of the Cluster in the Cariri (Ceará, Brazil) region, and these reveal important aspects in relation to competitive strategies [4]. Initially, in phase 1 of the literature review, which sought studies that showed the evolution of studies on the industrial cluster theme. From its conceptualization, competitiveness and obtained competitive advantages and difficulties faced.

In order to better support the discussion, a bibliographic research was conducted with the support of material already organized and developed in books and scientific articles. The technique is based on content analysis, searching from bibliographic sources [5].

Phase 2 comprised a qualitative survey conducted with members of the Cluster. According to [21], the case study is a form of research that comprises a method that will encompass everything that addresses questions about data collection and data analysis. In this Phase 2, they were used to collect data in the field. Despite the number of respondents, it has been reduced to find a methodological method in [20]. In Phase 3, the data collected were analyzed and discussed.

The study explored the footwear cluster in the Cariri-CE region, to prove and reveal relevant aspects of the same type, such as its competitive prospects, its challenges, ways to follow.

Figure 1 shows the phases that make up the method and the instruments used to achieve the objective proposed in this study.

Phases	Description of the phases
1 Case study definition	Definition of the research question Definition of the research object
2 Plan: Data collection	Definition of instruments for data collection Definition of methods for data collection
3 Data analysis	The reading the data critical data analysis

Fig.1 Research phases and description

Finally, the data were structured, analyzed, and discussed, which served to build the general narrative of the case, comparing the results with the on-site observations. In addition to confirming the characteristics of the cluster, with the characteristics present in the literature on the subject.

3 Literature Review

3.1 Industrial Clusters

The cluster is defined as the geographical concentration of companies and interrelated institutions in a given sector. They are formed by a wide variety of companies of great importance. Whereby, they compete with each other and which include suppliers of inputs, machinery, services, specialized infrastructure, government funding agencies and educational institutions, class associations and others [6].

Geographic approach and ease of inter-company cooperation, these are some of the characteristics of an industrial Cluster. However, this phenomenon, according to [24], as an object of economic agglomeration of interrelated companies in a given territory has been known since craft production. For [8] Industrial clusters are geographically concentrated groups of interconnected companies, specialized suppliers. In addition to

service providers, companies in related sectors, as well as related to their work organizations in specific fields that compete, but also cooperate.

Academics and public authorities consider Clusters as a tool that stimulates the competitiveness of SME. The cluster uses several ways such as innovation that can be a laborious task in the competitive environment [7].

3.2 Competitiveness and obtaining competitive advantages

The competitive advantage has the function of elements for the formulation of strategies for managing companies' competitiveness. To achieve the advantages, three strategic approaches must be followed. Following strategic approaches, the company has the possibility to differentiate itself from its competitors, which are: through differentiation; low costs; and scope [8].

Regardless of the competitive strategy adopted by an organization, it is of great importance to carry out a thorough market analysis focused on competition. Since, competitive strategy involves the positioning of a business in order to maximize the value of the characteristics that distinguish it from its competitors [8].

For [9] authentic competitiveness is the ability to increase the participation of a given country in international markets, thus enabling a better standard of living for the population. In the case of the industrial clusters [24], they show that in addition to strengthening companies, they contribute significantly to local regional development with significant increases in economic indices.

When there is a concentration of companies, there is an advantage in reducing the costs that involve the companies in the cluster. It is proven that physical approximation allows the interrelationship between agents. The permanence of individual companies in the market does not depend only on the result of the competence of the leaders' management, but depends on the involvement and the relationship of the companies involved in the cluster [10].

3.3 The origin of the Cariri footwear clusters

The origin of the clusters is associated with the great movement of the Juazeiro do Norte trade. During the 1960s, Juazeiro do Norte (Ceará, Brazil) stands out as the second largest commercial center in Ceará. Motivated by the companies that produce micro porous sandals and rubber plates, basic raw material for the manufacture of surf sandals and flip-flops [11].

The Cariri region is located in the south of Ceará and comprises 33 municipalities. It is located along the border with the states of Pernambuco, Piauí and Paraíba, and has one of the highest concentrations of footwear in the Northeast. The productive arrangement of shoes is subdivided into three municipalities: Crato, Juazeiro do Norte and Barbalha. The appearance of this arrangement is related to two facts: historical and territorial [11].

With approximately 1500 industries, in 25 municipalities, the Cariri region is responsible for the second largest participation in the Gross Domestic Product (GDP) of Ceará, totaling a slice of 8%. Of this number, 3% is reached only by the municipality of Juazeiro do Norte. The main sectors are: footwear, sewing machines, textiles, metallurgy and drinks, according to the *Núcleo de Economia da Federação das Indústrias do Ceará* (FIEC) [1].

3.4 Panorama of the Cariri (Ceará, Brazil) footwear industry

Regarding the production of shoes in Brazil, after the economic crisis of 2008, the sector has recovered. According to [25]. Where footwear production in Brazil was stable in relation to the years 2017 and 2018, despite a small expansion in 2018 of 0.1%, reaching 944 million pairs, after having registered a growth of 1.1% in 2017. In fact, the downturn was due to a drop in exports, with a gradual recovery.

The data show the relevance of production in the State of Ceará having, according to [26] the Cariri region is as the third volume production centre in Brazil. This Region has overcome economic challenges due to the numbers and indices obtained by the sector. For Tavares et al., [29] the Cluster is made up of 70% of micro and small companies, which represent 25% of medium-sized companies and 5% of large companies. These data vary due to the existence of great informality and the constant accounting of new companies created and others that close their activities.

According to data from the International Business Center of FIEC, the municipality of Juazeiro do Norte, for example, had a 7.4% increase in footwear exports this year compared to the same period last year, moving US \$ 98.9 thousand. Although the number seems advantageous, imports amounted to a total of US \$ 631.7 thousand that is, a deficit of US \$ 532.8 thousand [12].

Consumer Market: Local production is exported to several countries such as the United States, Spain, Ecuador, France, Paraguay, Uruguay, Portugal, Italy, Bolivia, Argentina, the United Kingdom and Greece. In addition to export abroad, the domestic market is the main consumer of shoes in Cariri, which are in the North and Northeast regions.

The Brazil exported 128.3 million pairs in 2017. The footwear hub in Juazeiro do Norte was responsible for selling 5.85% of this total. These exports should have generated an amount of R \$ 1.06 billion for the country. According to the association, 27% of this amount (R \$ 287.22 million) comes from industries in Ceará [13].

Competitive advantages of the Cariri footwear cluster: The search for the highest profit is what keeps survival in the market, having a competitive economy in the rivalry system. Whereby two or more companies fight in order to remain surviving in the market [14].

The advantages found within the clusters come from collective efficiency and not from the individual action of a particular firm. Collective efficiency is defined as the competitive advantages derived from the joint action of the actors in the cluster [15].

4 Application Case

The research was prepared based on a survey of existing documentary data and collected from various studies on the Cariri shoe cluster [2], [16].

The work initially identified the existence of an industrial cluster. The deepening of the research showed how the Cluster was formed and its positive points in relation to the competitiveness obtained [17].

The literature review allowed the description of the footwear Cluster, which identified the same, showed determining characteristics of its formation, as well as its consolidation.

The next phase of this work was to carry out a qualitative research. This research aimed to collect, with the respondents, characteristics and management strategies conducted by the executives of the companies belonging to the cluster.

The definitions of the criteria for data collection are described as follows. Initially, three companies belonging to the cluster were selected to participate in the research and an executive from each company as a respondent. The sample selection criteria followed the determination of a company to represent each size, this due to the existence of small, medium and large companies, as pointed by [2].

The choice of companies and the three responding executives was made by the criterion of accessibility as a way to consolidate the information contained in the literature review. In addition to possible new findings and elements raised. This method of conducting the research follows the protocol defended by [20], in the definition of the sample in the qualitative research.

The interview script aimed to characterize and determine the management elements and strategies adopted in the cluster, with regard to expose in the literature on the subject.

The research script initially outlines the respondent's profile, such as level of education, position held and length of experience. Elements are requested that point positive points in belonging to the footwear cluster of the Cariri Region. In addition to technological innovation in the search for competitive advantages, the ability that each company has to respond to changes in the market. The highlight on the competitive differential that each company presents to its customers. There was also a discussion about the importance of cooperation between members of the cluster for its consolidation through partnerships. Adding environmental responsibility and its competitive advantages and what are the competitive advantages for companies in the Cariri footwear cluster.

After collecting the responses, which were recorded and transcribed, a summary of the findings was prepared.

4.1 Selection of the companies

Three companies were chosen, two located in the city of Barbalha, one small and the other medium. The latter is located in the city of Juazeiro do Norte and is large.

Table1. Classification of the companies

Company	Size	Lifetime	City
A	Medium	20 years	Barbalha
B	Large	25 years	Juazeiro do norte
C	Small	8 years	Barbalha

4.2 Profile of respondents

The questionnaire was applied to three company managers. All respondents have a higher education level. One of the respondents is the owner.

Table2. Respondents' profile

Company	Position	Level of education	Period of experience
A	Administrative manager	Complete higher education	8 years
B	Production engineer	Complete higher education	12 years
C	Owner	Complete higher education	8 years

5 Analysis of the questionnaire responses

In order to assess points pertinent to the research question, the questionnaire constructed was applied in three industries in the Cariri Region, whose answers and their analyzes are presented below.

5.1 Positive points highlighted by the companies for belonging to the footwear pole of Cariri

Company A - The region is well located geographically, the workforce is already specialized and we have incentives from the state government.

Company B - As a footwear pole, there is a whole chain of logistics and service and raw material suppliers, all of which are already available in the region.

Company C - Being located in a well-regarded region, which has a promising future for growth.

Thus, the advantages of being part of that cluster are evident, highlighting the importance it has for the local productive development.

5.2 Technological innovation implemented to acquire competitive advantages

This perception can be verified when analyzing the responses of the managers, when they state:

Company B - Companies in the footwear industry usually have few processes that can be carried out with the help of high-tech machines or equipment. Almost the entire process is relatively "artisanal". So, we have invested in technology, yes, but not very often. However, innovation can extend to production processes, and by investing in process improvement, with the results obtained, these companies will be gaining a competitive advantage over their competitors. This fact, already practiced by company A and goal for company C.

Company A - We always invest in machines for better production efficiency.

Company C - I intend to invest in clean energy.

5.3 Workforce and its specialized technical knowledge and the supply of raw material

According to the survey, the employee of shoe companies already has years of experience in the area. As the practice is already very old, workers have acquired knowledge even passed down from generation to generation. Regarding raw material, company A and company C report the difficulties of obtaining raw material:

Company A - There is a good supply of labor, but there are no suppliers, 90% of the raw material comes from outside.

Company C - We have difficulty in specialized labor. In relation to the supply of raw materials, costs are high to reach the factory.

In addition to the experience gained, employees report that they are looking to take machine operator courses to work with the injection molding machines.

Company B highlights that the existence of good labor and good reception of raw materials.

5.4 The company's ability to respond to changes in the market

Company A - We are attentive to market trends, which allows us to give quick answers.

Company B - We are able to respond to changes in the market. Considering that in last year, we had a product change to serve another type of market, which required a major internal restructuring.

Company C- Our Company is very new in the industry, but it has already gone through crises and has overcome it.

5.5 The differential that each company

Company A - We offer high quality products, geared to meet the needs of our customers, with excellent service and speed.

Company B - our differential is high quality products, and flexibility for customization (depending on the customer's purchase volume).

Company C- Good service, product varieties and affordable price in relation to the market, punctual deliveries.

When it comes to quality, companies are concerned, having products that meet the specific needs of the consumer market.

5.6 Partnerships between companies to consolidate the Cluster.

The maturation of companies happens when there is a partnership within the cluster. This cooperation has as main objective the survival and permanence of the industrial cluster.

Companies "A" and "C" highlight the aspects of complementary, cooperation, exchange of knowledge and how the competition practices read:

Company A - More loyal competition practices and better dialogue between companies.

Company C - Fairer competition and better dynamism between companies.

Any company that is individually located in a given region, it will be powerless. Thus, it can be highlighted that company "B" is aware of the importance of partnerships between companies:

Company B - There is a great exchange of information about processes, services and suppliers. Often, there is even the supply of raw materials between companies in the shoe industry.

5.7 Environmental responsibility and its competitive advantages

When companies are motivated to develop sustainability practices. They think about improving the economic value of their industry, and not just because of the advantages they will bring to the environment. The Company A has no environmental responsibility strategy, but it has an understanding that can bring benefits:

Company A - Environmental and social responsibility, both generate values for the company. The products sold and its shareholders, in addition to providing a better quality of life for the society in which it operates.

The Companies “B” and “C” use sustainability techniques:

Company B - We have invested in manufacturing techniques that do not harm the environment. For example, the application of adhesive film in some processes. This eliminates the use of solvent-based adhesives.

Company C - We use environmental responsibility techniques.

5.8 Competitive advantages for companies in the Cariri footwear cluster

The survey shows that companies understand that cooperation is the main reason for generating competitive advantages in the Cluster. However, it does not reveal the type of cooperation to which the managers refer.

Company A - The main advantage is the know - how that ends up being created in the region.

Company B - There is a large supply of suppliers, operational labor, specialized services and a great interaction between companies in the same segment.

Company C- Yes, because of the proximity to other footwear hubs and the interactivity that exists between companies.

6 Discussion of results

In the beginning, the positive points highlighted by the companies for belonging to the footwear pole of Cariri were researched. Most companies belonging to the cluster are small and medium-sized companies [3], responsible for a significant amount of production and operating in the local market. Large companies have a greater volume of production and supply the national and world markets. EVA and PVC products that are used on a large scale characterize local production.

The Cariri cluster points out as an important activity for the use of skilled workforce. In the case of footwear production, it is an important element for differentiation. This is because the products, in their great majority are classified as of low production complexity, as is the example of sandals.

The study showed that companies are going through a recovery moment. This is due to market difficulties, but there is a perception of the need to be attentive to the market. This strategy is the opportunity for growth in the relationship network, which is very important for the Cluster. In accordance to [18], brand awareness is of fundamental importance.

With regard to existing labor, the concentration of companies in the same location generates an approximation of skilled workforce. This is already a strategy that brings benefits to entrepreneurs and workers in general, this finding was exposed in the research results.

In general, it was possible to notice that the footwear cluster in Cariri region has characteristics and similarities with the other existing ones. [22] defines in his article that the cluster is a fundamental strategy for stimulating wealth formation and promoting economic development.

7 Conclusion

The footwear industry is traditional and of great importance for the national economy. Economic activity is explored in different parts of the world, generating great competitiveness in the sector. With the globalized economy, trade barriers decreased, with an increase in competitiveness and the adoption of management strategies for maintaining the market.

[22] starts to study and propose the strategy of industrial clusters which derive from the concept of industrial districts already mentioned by [23]. The footwear sector has been adopting the formation of clusters as a way of strengthening itself with the competition to obtain competitive advantages.

The Cariri region has an important history of its industrial formation. From the creation of the first shoe industries, constituting an important cluster. In addition to being responsible for a good part of the national production, being the third industrial centre.

The importance of the cluster generated interest in its study. The literature review on clusters show the need to better understand the characteristics of important clusters. Despite research carried out, we did not have descriptions of the characteristics of the Cariri shoe cluster, being an identified gap that justified the performance of this work.

We conducted a literature review on the history of formation, in addition to identifying its characteristics. The main advantages and disadvantages were highlighted, thus contributing to the advancement of knowledge of these factors. Academically, research can contribute to deepen future research.

Regarding the contributions of this research, we can highlight contributions in the strategic management of the companies in the cluster. In addition, we highlight the increased cooperation with educational institutions and technological centres in the region. This may generate important innovations, which will generate greater competitiveness. Indicators of brand formation and use of specialized labor to produce greater competitiveness in the industry.

Future research is suggested determining the size of the cluster and the level of maturity of the cluster, among other possibilities. Finally, we suggested deepening the findings of this research with the expansion of the sample and the number of items researched.

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