



COMPETITIVENESS OF COMPANIES IN THE RICE MILLING SECTOR: EMPIRICAL STUDY

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Recepción Date: December 7, 2022

Recepción Date: March 20, 2023

Abstract:

The objective of the research is to analyze the competitiveness of companies in the rice milling sector. The study is qualitative with a descriptive and field design. A sample of eight companies registered in the Chamber of Commerce of Cúcuta, Norte de Santander, Colombia, undergoes an analysis of the environment, to identify weaknesses-strengths and opportunities-threats in the processes that make up the supply chain. Porter's value. The results reveal that the greatest opportunity that is presented is the growing behavior of the demand and that until now has not been covered by the companies that operate in the sector, even when they have enough installed capacity to serve this market. Therefore, the market of the rice sector requires conditions of efficiency and effectiveness of the participating companies to achieve adequate levels of competitiveness. This research allows formulating applicable strategies in the sector to take advantage of competitive advantages.

Keywords: Agri-foods, Competitive Strategy, Business Strategy

* Research article linked to the research project "leadership and financial performance in the Colombian clay sector" attached to the Research Center of the Cúcuta Sectional Free University. Research assistant assigned to the project: Lenny Faubricio Cudris Niño.

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COMPETITIVIDAD DE LAS EMPRESAS DEL SECTOR DE MOIENDA DE ARROZ: ESTUDIO EMPÍRICO

Resumen:

El objetivo de la investigación es analizar la competitividad de las empresas del sector molinería de arroz. El estudio es tipo cualitativo con un diseño descriptivo y de campo. A una muestra de ocho empresas registradas en la Cámara de Comercio de Cúcuta, Norte de Santander, Colombia, se les realiza un análisis del entorno, a fin de identificar las debilidades-fortalezas y las oportunidades-amenazas en los procesos que integran la cadena de valor de Porter. Los resultados revelan que la mayor oportunidad que se presenta es el comportamiento creciente de la demanda y que hasta ahora no ha sido cubierta por las empresas que operan en el sector, aun cuando ellas poseen capacidad instalada suficiente para atender este mercado. Por lo tanto, el mercado del sector arrocero requiere condiciones de eficiencia y efectividad de las empresas participantes para lograr adecuados niveles de competitividad. Esta investigación permite formular estrategias aplicables en el sector para aprovechar las ventajas competitivas.

Palabras Clave: Agroalimentario, Estrategia Competitiva, Estrategia Empresarial

COMPETITIVIDADE DAS EMPRESAS DO SETOR DE MOAGEM DE ARROZ: UM ESTUDO EMPÍRICO

Resumo:

O objetivo da pesquisa é analisar a competitividade das empresas do setor de moagem de arroz. O estudo é um estudo qualitativo com um desenho descritivo e de campo. Uma amostra de oito empresas registradas na Câmara de Comércio de Cúcuta, Norte de Santander, Colômbia, foi submetida a uma análise ambiental a fim de identificar os pontos fortes - pontos fracos e oportunidades - ameaças nos processos que compõem a cadeia de valor de Porter. Os resultados revelam que a maior oportunidade é o comportamento crescente da demanda, que até agora não tem sido coberta pelas empresas que operam no setor, mesmo tendo capacidade instalada suficiente para atender a este mercado. Portanto, o mercado do arroz exige eficiência e eficácia das empresas participantes para atingir níveis adequados de competitividade. Esta pesquisa permite a formulação de estratégias aplicáveis no setor para tirar proveito das vantagens competitivas.

Palavras Chave: Agro-alimentar, Estratégia Competitiva, Estratégia Empresarial

1. INTRODUCTION:

Every day the challenges companies face to survive in the market are higher. Production and marketing practices require strategies that allow companies to compete and improve performance. Productivity, profitability, or market position are elements that determine competitiveness, which, in turn, is articulated by four levels, namely: macro level (economic environment), meta-level (sociocultural factors), meso level (development regional), and micro level (internal aspects) (Saavedra García, Demuner Flores & Choy Zevallos, 2020, p. 288).

Competitiveness has gained worldwide importance due to the contribution of Small and Medium Enterprises (SMEs) to the economy and its impact on the generation of employment and income; hence, the importance of implementing strategies to strengthen entry into new markets, both national and international. Competitiveness is a crucial attribute of the productive sectors to produce goods and services with better prices and quality than competitors, under efficient costs. Therefore, competitiveness is a complex phenomenon, determined by multiple factors such as production or business management (Romero Suárez, Pertuz & Orozco Acosta, 2020, p. 22).

The economic prosperity of countries is closely linked to the creation of knowledge by companies, which promotes qualified and well-paid employment. Many interrelated companies have created clusters to boost the region's development and achieve competitive advantages. In this address, the five constructs that influence the competitiveness of the regions are: "Input factors; related and support institutions; demand conditions; context for company strategy; as well as investment promotion and generation of new companies (De la Mora, Alarcón & López, 2020, p. 172).

Also, Research and Development (R&D) are essential for creating knowledge and market entry; interacting with large markets, costs, and human capital help to develop valuable products to grow economically. Creating knowledge means

interacting with governments and other organizations to produce new processes and products that contribute to competitiveness and long-term growth strategies (Ayvar Campos, Bonales Valencia & Meraz Rodríguez, 2020, p. 73).

In the global context, competitive advantages focus on productivity, investment, technological and human capital, among other factors. The significant investment in these factors and the generation of innovative products and services will make competitiveness sustainable. Also, macroeconomic factors such as economic policies or social economies negatively impact the operations of SMEs, constraining resources and limiting external financing; this condition increases the vulnerability compared to large competitors, to maintain standards of quality and market the products properly (Benites Gutiérrez, Ruff Escobar, Ruiz Toledo, Matheu Pérez, Inca Alayo & Juica Martínez, 2020, p. 210).

The agribusiness sector, faced with globalization, has taken essential steps in the search for factors to achieve competitive advantages. Regarding this, sociocultural factors are liking the company's management capacity and the organizational factors related to management practices. Therefore, developing these factors will make differentiated products and services valuable for the client (Vega Martínez, Martínez Serna, Parga Montoya & Bautista Sánchez, 2020, p. 1687).

In Colombia, SMEs present weaknesses in the value chain, as adding value to the product does not meet the requirements to offer good products to the final consumer. It shows that the value chain allows the economic development of companies due to the healthy financial, human, and technological resources; however, in Colombia, the expected growth of companies is not being achieved because they do not have a productive infrastructure and innovation processes to gain new markets (Ospina Parra, Garavito & Correa, 2023, p. 237).

Therefore, this work aimed to analyze the competitiveness of companies in the rice milling sector. The study is qualitative with a descriptive

and field design; the context analysis is based on Porter's value chain and carried out from a sample of eight companies established in the Chamber of Commerce of Cúcuta, Norte de Santander, Colombia.

2. THEORETICAL BACKGROUND:

Competitiveness in companies

Competitiveness is the ability of the company to adapt resources to achieve competitive advantages and positioning before competitors; For companies, competitiveness can be achieved through the development of infrastructure, a reliable analysis of the macroeconomic context, and the value of an efficient financial market (Saltos Cruz, Araque Jaramillo & Saltos Cruz, 2022, p. 190-191); as well as having information on the environmental impact and the management of sustainable costs (Sinforoso Martínez, Villafuerte Valdès & Carrera Mora, 2022, p. 51). To reach a high level of performance to compete Latinoamerican countries have implemented "information and communication technologies (ICT), international openness and transport infrastructures" (Guaita Martínez, Serdeira Azevedo, Martín & Puertas Medina, 2022, p. 131).

Competitiveness implies that a company exceeds its competitors in production and sales through the quality of production processes and technologies. Also, competitiveness is related to strategies such as penetration in international markets and foreign trade activity (Escalante Yaulilahua, Lezama Verástegui, Verástegui Espíritu, Muñoz Acevedo & Venegas Rodríguez, 2022, p. 105) and export efficiency (Hernández Soto & González Farias, 2022, p. 66).

However, the external competitiveness of companies is based on macroeconomic variables such as relative prices, labor costs, or the exchange rate. But it can also be linked to productivity levels and global value chains. This context shows how governments use aggregate economic indicators to assess the country's performance in international competition through

the trade balance and world trade. Therefore, the workers' productivity, technological changes, external demand, or geographic location can increase productivity (Vázquez López, 2021, p. 3; Kolpak, Borisova & Panfilova, 2021, p.106).

Productivity from the macroeconomic perspective is related to the capacity of nations to produce, export, and generate high standards of living in the population, which, without a doubt, favors the development of institutions, a healthy context for business, and competition. (González, 2021, p. 127); Likewise, competitiveness is related to productivity growth, manufacturing process efficiency, and the quality of the products traded (Vázquez López, 2021, p. 141). Competitiveness from the macroeconomic perspective focuses on factors such as institutional, technological readiness, market size, infrastructure, health, education, business sophistication, financial market, and market efficiency (Arroyo, 2020, 271). However, from the microeconomic perspective is related to the ability of companies to compete (González, 2021, p. 127; Ruiz Chico, Peña Sánchez & Jiménez García, 2021, p. 2); Likewise, Cortés Villafradez & De la Peña Cárdenas (2019, p. 279), also prices, quality, and innovation are variables that affect the profits and growth of the companies market.

Economic globalization is a factor that has driven progress in technology and complex global networks around production in countries. The manufacturing processes have produced changes in making and employing workers, above all, due to the geographical relocation of activities; therefore, the large companies are impacting the global value chain. They are causing significant wage costs and labor productivity gaps, undoubtedly affecting competitiveness (Vázquez López, 2021, p. 2). Another critical factor that influences competitiveness is corruption because it affects the fulfillment of government objectives and undermines private companies' interest in investing or doing business (Useche & Reyes, 2020, 97).

Latinoamerican companies have shown improvements in the processes of the value chain. Specifically, the agricultural sector suffers

disadvantages in the value chain related to production costs and social, economic, and institutional aspects. Highlight the four essential functions of the value chain: production, grouping, processing, and distribution (Analuisa Aroca, Jimber del Río, Sorhegui Ortega & Vergara Romero, 2020, p. 1198).

3. METHODOLOGY:

The research is qualitative with a descriptive and field design (Ocando Ruíz & Eslava Zapata, 2022, p. 68). The study sample consisted of eight companies from the rice milling sector registered in the Chamber of Commerce of Cúcuta, Norte de Santander, Colombia; these companies are Coagronorte, Arrocería Gelvez, Comercializadora Gómez y Gómez, Arrocería San Valentín, Arrocería Santa Clara, San Pedro rice, La Perla MT rice cooker, and Agua Clara rice cooker. In this address, the research focuses on a documentary review and an interview with the companies' managers to understand the factors of competitiveness and the internal characteristics of the rice sector.

4. RESULTS:

a. Internal analysis of the sector

In the results of the internal analysis of the rice milling sector, it is possible to show valuable information to understand its structure and internal dynamics. In general, it was possible to observe a high concentration of companies in the market, which can limit competition and affect the final price of the product (Eslava Zapata, 2023, p. 55). In addition, a trend towards vertical integration was identified by some companies, which allows them to control the entire production chain and increase its efficiency by detecting a predominant use of obsolete technology in production processes, which can affect the competitiveness and profitability of companies in the long term (table 1).

The rice milling sector must consider strategies that promote innovation to improve

efficiency and competitiveness and adapt to an increasingly demanding market; this is a fundamental challenge for the rice sector and does not affect profitability (Eslava Zapata, Chacón Guerrero & Parra González, 2022, p. 466). Mills must implement more effective production management and marketing strategies to utilize installed capacity and increase market share. The lack of development in research, innovation, and development is a significant obstacle to the competitiveness of the sector in the long term. Finally, the rice milling sector provides valuable information for strategic decision-making and to design public policies to promote sustainable development.

Table 1. Result of the internal analysis of the rice milling sector

STRENGTHS	WEAKNESSES
F1. Updated strategic approach.	D1. Integrated management systems
F2. Optimal annual income for the development of investment projects.	D2. Waste of installed capacity and marketing plans.
F3. Inductions and training for employees.	D3. Little development in research, innovation and development
F4. Mechanical and automatic machinery.	D4. Low articulation of the companies in the sector with the actors of science, technology and innovation to improve competitiveness.
F5. Security in the centralization and backup of information.	D5. Scarce strategic alliances with suppliers to achieve the availability of paddy rice during the year.
F6. There are selection criteria for suppliers.	D6. Manual inventory control
F7. Good manufacturing practices.	D7. Advertising of the product portfolio in the media.
F8. Use of rice husk residue as fuel.	
F9. Diversification of products marketed regionally and nationally.	

Source: own elaboration.

b. External analysis of the sector

The external analysis of the rice milling sector made it possible to detect a series of factors that affect the competitiveness and development of companies in the market, identifying a high degree of competition in the market, which suggests that companies should strive to differentiate themselves, and highlight its offer of products and services (Romero, Ramoni Perazzi, Fajardo & Gómez Patiño, 2023, p. 2). The previous comment is related to consumers being

increasingly demanding and seeking quality products at competitive prices.

The results indicate that the demand for rice is relatively stable and is related to demographic factors, such as the population growth that requires companies to face technological changes to improve production processes' quality, productivity, and efficiency. Also, the rice milling sector is subject to a series of government regulations and regulations, such as quality standards and food safety, which obliges companies to comply with a series of rules to maintain their operating license to gain the trust of consumers from neighboring countries where the market could be growth (Borges de Souza, Triana Riveros, Fornazier, & Ladeira Garbaccio, 2023, p. 3).

Table 2. Results of the external analysis of the rice milling sector

OPPORTUNITIES	THREATS
O1. Availability of educational offers at a higher level and research hotbeds	A1. Rivalry for the commercialization of products from other regions of the country and for the presence of imported products.
O2. Access to raw material due to proximity to suppliers and adequate road infrastructure.	A2. Lack level of specialization of the workforce available in the sector, the operation and maintenance of industrial machines and equipment is increasingly automated.
O3. Existence of a Free Trade Agreement with the United States.	A3. Requirement of organoleptic properties and price by customers, as a decision factor for the purchase of products.
O4. Representation through the union and institutions that support the sector.	A4. High bargaining power of customers, being able to replace products from the sector produced in the department by other well-known national brands.
O5. Current regulatory framework and control agencies for monitoring operations.	A5. Lower participation in economic indices of the local business sector.
O6. Lower interest from suppliers towards forward integration.	A6. Strict environmental regulation.
O7. Requirement of legal barriers, knowledge, and financial investment for the entry of new competitors.	
O8 Substitute products are not relevant because rice represents a staple in the family basket.	

Source: own elaboration.

c. Factors that affect the competitiveness of the sector

The rice milling sector in Norte de Santander has faced many challenges that have affected its competitiveness in recent years. These challenges range from competition and technology to productivity and access to finance. One of the main factors that affect the sector's competitiveness is the competition from national and foreign companies that offer lower prices and higher quality in some cases (Valero Valencia & Jiménez Ramírez, 2023, p. 3). The lack of investment in technology and the Use of obsolete production methods have made the sector less efficient than other producing countries in the region.

In addition, companies in the rice milling sector often have difficulties obtaining adequate financing to invest in technology and improve productivity; Likewise, the lack of clear and effective government policies to support the rice sector has made it less competitive. Tariff and non-tariff barriers are another obstacle since they favor the importation of products (Eslava Zapata, Parra González & Chacón Guerrero, 2022, p. 213).

Investment in technology and improving productivity are essential to reduce costs and increase production efficiency. Therefore, the State must establish effective government policies to support the sector and overcome trade barriers (Báez Sandoval, Mogrovejo Andrade & Bastos Osorio, 2023, p. 3). Also, it is essential to take measures to face the challenges posed by climate change to guarantee rice production in the region. Only in this address can the sector's competitiveness be improved, and its long-term sustainability guaranteed.

Barriers to entry to new competitors

The rice milling sector in Norte de Santander, as in other regions of Colombia, is facing a series of barriers for new competitors, and, in some cases, it is negatively affecting the quality and price of the product, among the main barriers to income are an investment in infrastructure and technology. Highlighting the

knowledge and experience in the market of other producers gives them an advantage in understanding suppliers, customers, processes, and quality standards. For these reasons, new entrants could find obstacles to establishing relationships with key suppliers and customers (Omaña, Vanoni & Sierra, 2022, p. 2).

Legal and regulatory barriers, like permissions and license costs, can also make it difficult for new entrants. Regulations on the import and export of rice, tariff quotas, and sanitary barriers can limit the entry of new players' entry into the markets. Economies of scale and control of production costs are essential for success in the market. In this regard, Molinos de Norte de Santander may have an advantage in economies of scale, allowing them to produce at a lower cost, lower per unit; however, this activity will hurt new entrants since they do not have the same ability to reduce production costs and compete with prices.

Existence of substitute products

The rice milling sector in Norte de Santander faces competition from various substitute products, which may affect its competitiveness. Substitute products can satisfy customer needs through rice produced with other ingredients. One of the most common substitute products for rice is pasta, which is made of wheat flour and can be prepared in various recipes such as noodles, spaghetti, and noodles. In addition, pasta is a widely consumed product in Colombia and the world, making competition high (Omaña & Vanoni, 2023, p. 2).

Consumers may decide for pasta over rice, mainly because of significant variations in the price or quality of the product; For this reason, it is possible to detect corn as a substitute product for rice because of a common ingredient in the diet of many people, and the diversity of recipes such as tortillas, tamales, arepas, among others. The supply of maize in the market can affect rice consumption, especially in households that choose to consume foods based on maize instead of rice.

In addition, there are other substitute products, such as quinoa, buckwheat, and barley,

which can meet the nutritional needs of consumers and compete with rice in the market. Among the strategies to face the competition of substitute products by the rice milling sector is highlighting the unique characteristics of rice and differentiating itself from substitute products; for example, the nutritional properties and health benefits; likewise, as its versatility in the preparation of different dishes.

Bargaining power of customers

The bargaining power of customers in the rice milling sector in Norte de Santander is an essential factor that affects the sector's competitiveness. Customers can be the final rice consumers, distributors, and wholesalers who buy large quantities of rice for resale. In the case of final consumers, there is a wide range of rice on the market, which gives them a more extraordinary ability to choose between different brands and prices. In addition, consumers can change brands or types of rice based on their preferences, quality, and price (Omaña Guerrero, Martínez & Carrasco, 2022, p. 52).

In this sense, end customers have significant bargaining power in the rice market, and their purchase decision can be influenced by various factors such as product quality, price, presentation, and brand; This allows distributors and wholesalers to have greater bargaining power since they buy large quantities of rice from rice producers or mills and can press for better prices or payment conditions.

To face the bargaining power of customers, the rice milling sector can implement strategies such as innovation in product offerings, improvement in rice quality, competitive pricing, and improvement in customer service. Also can establish a collaborative relationship with distributors and wholesalers to maintain a constant dialogue and establish beneficial agreements for both parties.

Bargaining power of suppliers

The suppliers can be both the paddy rice producers and the suppliers of inputs and machinery necessary to produce rice. In the case

of paddy rice suppliers, there is a high concentration of supply, which gives them greater bargaining power in the market. In addition, the cost of paddy rice represents a significant part of the total cost of rice production, so any increase in the price of paddy rice can significantly impact the profitability of the rice milling sector.

Raw materials and machinery suppliers have significant bargaining power, mainly if rice mills depend on a specific supplier for the raw materials or machinery needed for production. An increase in the price of these inputs or machinery can negatively impact the sector's profitability.

Within the alternatives to face suppliers' bargaining power, the rice milling sector can implement strategies such as supplier diversification, improvement in supply chain management efficiency, price and conditions negotiation, more favorable payment terms, and investment in own technology and machinery to reduce dependence on suppliers.

The bargaining power of suppliers is a critical factor that affects the competitiveness of the rice milling sector in Norte de Santander, in which it is possible to implement strategies to diversify suppliers that improve efficiency in supply chain management, to negotiate more favorable prices and payment terms to reduce your vulnerability to suppliers.

Rivalry between competitors

The rivalry between competitors in the rice milling sector in Norte de Santander is a critical factor affecting the sector's competitiveness; several companies compete for the same customers and seek to obtain a competitive advantage to increase their participation in the market.

Several factors, such as the concentration of the industry, the degree of product differentiation, and the entry barrier, influence the rivalry between competitors. The rice milling sector in Norte de Santander is affected because of the limited number of companies, which implies a high concentration of the market and more significant rivalry, which within the homogeneity of the product (white rice), manages to limit the

possibilities of differentiation of products and increases price competition. Those exposed forces companies to reduce prices to compete in the market, which generates more intense competition.

d. Strategies to improve the competitiveness of the sector.

Improving competitiveness is still a challenge through recognizing the existence of substitute products. The production and marketing of organic rice or other types of rice not produced in the region can be implemented, which can be an essential differentiator in the market (table 3) (Tamayo Medina, Carvajal Guerrero & Maldonado Niño, 2023, p. 4).

Regarding suppliers' bargaining power, strategic alliances with raw materials suppliers should be an excellent option to achieve better prices and delivery conditions. Likewise, producing the necessary raw materials for rice production in the same region can be explored.

About the rivalry between competitors, marketing and advertising strategies must be developed to highlight the attributes of the brand and the product in the market, as well as the diversification of the portfolio of products and services to satisfy the needs of the different segments of the market customers.

Also, some strategies can improve the participation and satisfaction of market demands, for example, the bargaining power of customers, the quality of customer service, the design of promotions and discounts, and, the implementation of loyalty programs and product innovation

Finally, to improve the competitiveness of the rice milling sector in Norte de Santander, the development of research, innovation, and development must be promoted, as well as the articulation with actors of science, technology, and innovation, which will allow the implementation of new technologies and practices that optimize production processes and reduce production costs.

In general, to improve the competitiveness of the rice milling sector in Norte de Santander, it is necessary to design strategies through innovation, product diversification, strategic alliances, improvement of customer service, implementation of new technologies, and improve practices in production processes.

Table 3. Strategies to improve the competitiveness of the rice milling sector

FO STRATEGIES	FA STRATEGIES
Expand management in international markets making use of the free trade agreement. Train staff in the management and maintenance of industrial equipment according to technological inventions that are presented in the organization.	Seek compliance with environmental protection regulations, avoiding actions that harm the interaction of the sector with the environment. Exalt the characteristics involved in the process and in the products offered in the sector, relevant to the competition, inducing the purchase.
DO STRATEGIES	DA STRATEGIES
Create an area of research, innovation, and development with the support of the union and institutions of the sector that strengthen the competitiveness of this. Develop research and innovation projects that promote the growth of the sector by encouraging the granting of financial support by government entities. Establish alliances with suppliers of raw materials that provide guarantees and mutual benefits. Involve the union and institutions of the sector in the realization and participation of a business fair that promotes recognition by developing objected marketing activities according to the marketing plan.	Promote sector products using technological sources, covering another marketing alternative in the market. Evaluate customer satisfaction and/or expectations regarding products offered in the market through a questionnaire using communication media that object to ideas for improvement.

Source: own elaboration.

5. CONCLUSIONS:

In conclusion, the results evidenced that the competitiveness of companies in the rice milling sector in Norte de Santander is possible by identifying factors that influence their performance and positioning in the market and recognizing the existence of barriers to entry and rivalry among competitors. Also, some challenges to face in the rice sector are the technology and the implementation of management systems that improve the efficiency of companies.

Coordination with suppliers and market diversification are also crucial elements to improve the competitiveness of the rice milling sector in Norte de Santander. In addition, promoting products and using marketing tools can help consolidate the presence of companies in the market.

In general, the competitiveness of the rice milling sector in Norte de Santander depends on a series of internal and external factors that interact with each other. Implementing appropriate strategies to address these factors can allow companies in the sector to improve their position in the market and take advantage of the opportunities that arise.

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