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Competitiveness Analysis of the Textile Sector

Análisis de la competitividad del sector textil
Análise de Competitividade do Setor Têxtil

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This study examines the link between competitiveness and cost leadership, differentiation, and focus strategies in textile companies in Antonio Ante. Using a quantitative approach, statistical tests were conducted on 97 clothing establishments, revealing significant impacts of differentiation and focus on competitiveness. Cluster analysis showed that highly competitive companies are mostly micro-enterprises with 1-10 years in the market, emphasizing innovation, design, and value propositions. The findings suggest that adapting textile products to specific market segments enhances customer preference, advising entrepreneurs to reinforce these strategies. This research provides insights for making informed decisions and developing effective strategies.

Este estudio examina el vínculo entre la competitividad y el liderazgo en costos, la diferenciación y las estrategias de enfoque en las empresas textiles de Antonio Ante. Utilizando un enfoque cuantitativo, se realizaron pruebas estadísticas en 97 establecimientos de confección, revelando impactos significativos de la diferenciación y el enfoque en la competitividad. El análisis de conglomerados mostró que las empresas altamente competitivas son en su mayoría microempresas con 1 a 10 años en el mercado, que enfatizan la innovación, el diseño y las propuestas de valor. Los hallazgos sugieren que la adaptación de los productos textiles a segmentos específicos del mercado mejora la preferencia del cliente, por lo que se recomienda a los empresarios reforzar estas estrategias. Esta investigación proporciona información para tomar decisiones informadas y desarrollar estrategias efectivas.

Este estudo examina a ligação entre competitividade e liderança de custos, diferenciação e estratégias de foco em empresas têxteis em Antonio Ante. Usando uma abordagem quantitativa, testes estatísticos foram conduzidos em 97 estabelecimentos de vestuário, revelando impactos significativos de diferenciação e foco na competitividade. A análise de cluster mostrou que empresas altamente competitivas são, em sua maioria, microempresas com 1 a 10 anos no mercado, enfatizando inovação, design e propostas de valor. As descobertas sugerem que adaptar produtos têxteis a segmentos de mercado específicos aumenta a preferência do cliente, aconselhando os empreendedores a reforçar essas estratégias. Esta pesquisa fornece insights para tomar decisões informadas e desenvolver estratégias eficazes.

1. Introduction

Small and medium-sized enterprises (SMEs) represent 99% of businesses and nearly 60% of the value added to the business sector. They play a crucial role in the economy by generating employment and contributing to wealth distribution. Additionally, they drive ecological and digital transitions (OECD, 2019; OECD, 2024).

The textile and garment industry is vital for Ecuador's social, productive, and economic development, contributing 7% to the country's GDP in (Corporación Mucho Mejor Ecuador, 2021). This sector is the second-largest manufacturing industry in terms of job opportunities, with a significant portion of its workforce being women, many of whom are mothers and heads of households (AITE, 2019). By the fourth quarter of 2023, the sector contributed 16.4% to manufacturing employment, 1% higher than in 2022 (AITE, 2024).

Post-pandemic, the textile sector in Antonio Ante is in a recovery phase, aiming to improve the economy and living conditions of its stakeholders. As of January 2024, there was a 7.8% decrease in dollar value and an 18.3% drop in volume compared to 2019 (AITE, 2024), indicating that entrepreneurs are still implementing measures to enhance their economic standing. The significance of the sector lies not only in the value added by textile factories but also in its entire production chain across various primary, secondary, and tertiary sectors (Gestión, 2018).

The Ecuadorian textile industry anticipates potential growth through increased exports over the next five years. In 2021, textile exports were nearly $130 million, with expectations to reach $300 million by 2025 (Gonzalez, 2022).

Several studies analyze the impacts of the textile sector from both external and internal perspectives. Duana Avila et al., (2021) investigated the competitiveness of Mexico's textile sector during 2019-2020, revealing a loss of 70,000 jobs post-pandemic. Urco & Castillo, (2019) compared three major international markets: Spain, the United States, and Mexico, using the CAGE model for Ecuador's textile industry. Spain showed lower cultural and administrative distances, while the U.S. represented an attractive market due to its population and GDP per capita. Mexico had potential due to its population and proximity (Sablón-Cossío et al., 2021).

Guzmán Toasa & Curillo Paguay, (2022) emphasized that in a competitive global environment, companies must align with manufacturing strategies focused on quality, cost optimization, logistics, and flexibility. The textile sector in Latin America contributes significantly to employment but shows a low production contribution, with productivity gaps compared to the European Union. These gaps reflect disparities in capabilities, technological advancements, and access to networks. Without overcoming these challenges, SMEs will continue to face competitiveness issues and limited growth potential (Dini & Stumpo, 2018).

Competitiveness is crucial as it relates to how companies enhance efficiency, productivity, quality, and market participation domestically and internationally to achieve competitive advantages (Gallegos et al., 2020). This involves increased investments in physical, technological, and human capital to develop components that align with overall factor productivity competitiveness. Progress in Latin American countries is slow due to challenges in technological innovation and

investments in infrastructure and intellectual capital, significantly impacting multifactor productivity (Benites et al., 2020).

2. Theoretical Framework

Competitiveness refers to a company's ability to achieve profitability within its competitive landscape, involving the strategic allocation of resources to develop competitive advantages that drive market positioning. Key strategies and customer satisfaction levels directly impact business competitiveness, which can be seen as an organization's productive capability to assert itself in the market and generate growth through efficient operations in various economic sectors (Ahumada Tello & Perusquia Velasco, 2016; Shaadi Rodríguez et al., 2018).

In a constantly evolving business environment, companies must adopt innovative strategies that promote growth and enhance corporate cultures to strengthen customer relationships and maintain competitiveness (Rahman et al., 2020; Vargas et al., 2020; Azeem & Hayat, 2022). The pursuit of competitiveness often involves optimizing resources, particularly through the development of intangible assets, knowledge, and high-quality business management practices. This includes innovation in products and processes and the ability to negotiate within a competitive market environment (Romero-Suárez et al., 2020).

Michael Porter's theory emphasizes that a company can maintain a superior position by creating value that exceeds the cost of resources employed, leading to the development of unique and sustainable characteristics that differentiate it from competitors. These traits allow for customer retention, better profit margins, and market growth. Porter outlines three generic strategies to strengthen competitive advantage: cost leadership, differentiation, and focus (Porter, 2015; Narvaéz & Fernández, 2008).

H1. Cost leadership has a direct relationship with competitiveness. The greater the cost leadership (+), the more competitiveness increases (+).

Cost leadership strategy is essential for companies aiming to reduce costs while maintaining profitability. It involves implementing measures that efficiently reduce production and distribution costs, allowing for lower prices compared to competitors. Accurate cost management is crucial, employing reliable methodologies to calculate process costs and support continuous improvement towards achieving business objectives (Bernal et al., 2012; Saldarriaga et al., 2019). As consumer demand for quality and affordability grows, companies must enhance productivity through standardized processes and cost reduction (Chirinos-Cuadros & Rosado-Samaniego, 2016). Effective cost management systems are powerful tools for strategic decision-making, increasing profitability and customer accessibility, thus becoming a significant competitive advantage (Carpio-Valencia, 2019; (YongFu & JiYe, 2024).

H2. Differentiation has a direct relationship with competitiveness. The greater the differentiation (+), the higher the competitiveness (+).

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Differentiation strategies help companies create unique and valuable market positions through offerings that stand out in design, functionality, and service. Businesses must build a quality-driven value chain, focus on innovation, and meet customer expectations to enhance consumer experiences, leading to a sustainable competitive advantage (Cao et al., 2019; Cao et al., 2021; Kumar et al., 2013). In a highly dynamic market, companies must offer agile and operational responses, fostering growth and competitiveness. Differentiation also extends to the use of ICTs (Information and Communication Technologies), which optimize resources, boost productivity, and enhance business value (Rodríguez Lemus et al., 2020)

Customer relationship management (CRM), including innovative approaches like social CRM, is another vital aspect of differentiation. Social media platforms provide valuable tools for engaging customers, offering products, promotions, and user-generated content that enhance customer experiences and drive sales (Arora et al., 2021). Effective CRM systems help organizations understand consumer behavior, enabling better segmentation and catering to markets genuinely interested in their offerings, ultimately leading to increased loyalty, retention, and satisfaction (Suoniemi et al., 2022; Diffley & McCole, 2015; Frare et al., 2023).

H3. Focus has a direct relationship with competitiveness. The greater the focus (+), the higher the competitiveness (+).

The focus strategy targets specific market niches, meeting the unique needs of a particular customer group through flexible, differentiated offerings that competitors find hard to replicate. This approach requires dynamic marketing capabilities to develop and integrate market knowledge and resources, enhancing market effectiveness and sustaining a competitive edge (Apodaca Del Angel et al., 2016). The integration of intelligent, automated methods in business processes, such as algorithms and artificial intelligence, is critical in improving efficiency, reducing costs, and enhancing product quality (Liu & Wang, 2024). For SMEs, identifying and serving niche markets can be a cornerstone for discovering new consumer preferences and expanding operations (Zhu et al., 2022).

Intellectual capital is another key component of competitiveness, where human resource development, motivation, and training positively affect organizational performance. Satisfied employees contribute to an efficient value chain, leading to stakeholder satisfaction. Investments in performance evaluation and proactive leadership also support organizational performance and competitiveness (Blanco-Mazagatos et al., 2018; Bohórquez, et al., 2020; Nosratabadi et al., 2019).

3. Methodology

The competitive strategy involves choosing specific activities to deliver a unique value combination. Today, formulating strategies solely at the company level through value chains is insufficient. There is a growing need to create sectors that facilitate joint interactions and strengthen companies, promoting free competition and productive collaboration through business chains and partnerships. Effective liaison with governments further supports the long-term sustainability of involved companies.

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This analysis focuses on 97 textile companies in Antonio Ante dedicated to clothing production and commercialization. A non-probability convenience sampling was used, selecting participants based on the researcher's convenience, leading to an arbitrary sample (Otzen & Manterola, 2017).

This research determined the relationship between competitiveness as the dependent variable and Michael Porter's strategies: cost leadership, differentiation, and focus as independent variables. Control variables such as the type of investment (internal or external financing) and the market situation (growth, decline, or stagnation) were added, as these variables were considered part of the research context. The scope is descriptive-relational, aiming to understand the relationship between the variables (Hernández-Sampieri & Mendoza Torres, 2018). In this regard, the proposal includes the formulation of three hypotheses.

The hypotheses were proposed, according to (Gómez Bastar, 2012), as an attempt to address a deficiency in the competitiveness of the textile sector in the Antonio Ante canton. A logistic estimate was used to analyze the relationship between competitiveness and Porter's generic strategies. Data was collected through a survey using a quantitative Likert scale questionnaire (1 to 5) applied to the 97 textile company owners in Antonio Ante.

The research employed Porter's theory of competitive advantage, which grows based on the value generated by a company (Porter, 2012). Using Porter's generic strategies, the data was used to correlate variables and assess their impact on competitiveness.

A questionnaire was developed based on related research to determine the relationships between the dimensions and indicators of the dependent and independent variables.

Table 1. - Study Variables and Indicators.

Dependent Variable	Indicators	Reference Studies
Competitiveness	Know How in managment and operations	Guzmán Toasa & Curilio Paguay, (2022), María et al., (2018).
	Strategic planning	
	Optimal production and delivery times	
	Technological sophistication	Benítes et al., (2020), Gallegos et al., (2020)
	Market satisfaction	
	Human talent management	Romero-Suárez et al., (2020)
	Training programs	
	Efficiency and performance	
	Supply chain management	Sablón-Cossío et al,. (2021)

Independent Variables	Indicators	Reference Studies
Cost Leadership	Production costs	Bernal et al., (2012), Chirinos-Cuadros & Rosado-Samaniego, (2016).
	Profit generation	
	Pricing policy	
	Quality resources	
	Profit margin	
	Cost reduction	Saldariaga et al., (2019)
	Quality-associated costs	
	Profitability	Carpio-Valencia, (2019), (YongFu & JiYe, 2024)
	Investments in technology and innovation	
Differentiation	Customer relationship management	Suoniemi et al (2022)
	Innovation and differentiation	Romero-Suárez et al., (2020)
	Marketing channels	Rahman et al., (2022), Vargas et al., (2020).
	Advertising strategies	
	Quality attributes	Cao et al., (2019), Cao et al (2021)
	Work tool administration control	
	Design optimization	
	Responsiveness	Cao et al (2021)
	Customer loyalty	Frare et al., (2023), Suoniemi et al (2022), Diffley & McCole, (2015)
	Information and communication technology	
	Business model	
	Building competitive advantage and positioning	Tello & Perusquia, (2016), Azeem & Hayat,
Focus	Market niche	Apodaca Del Angel et al., (2016)
	Design and model specialization	
	Customization capabilities	
	Dynamic marketing capabilities	Vargas et al., (2020).
	Intelligent and automated systems	Liu & Wang, (2024)
	Niche distribution	Zhu et al., 2022
	Participation in new markets	
	Quality and pricing	Saldariaga et al., (2019)

Note: Based on several research studies

The instrument design included 36 variables related to Competitiveness and Porter's three generic strategies—Cost Leadership, Differentiation, and Focus. It also incorporated variables to understand the general context of the sector, considering five categories for the study. Clusters were implemented based on company type (large, medium, small, and micro-enterprises as per Ecuador's (INEC, 2023) years of operation, and perceived market growth. Competitiveness scale parameters were also applied, which are detailed in the results.

4. Results

In the textile industry of Antonio Ante canton, the study examined the relationship between cost leadership, differentiation, focus, and competitiveness. It first assessed the current state of textile companies, noting a predominance of micro-enterprises, followed by small, medium, and large ones. This contrasts with national data indicating a prevalence of SMEs in Ecuador (Observatorio de la PyME de la Universidad Andina Simón Bolívar, 2019). A key finding is that 43.30% of these companies have been operating for several years, reflecting their extensive experience and adaptability in various competitive environments. Additionally, many of these firms are family-owned, benefiting from family cooperation and significant cost savings on payroll, a crucial factor for new businesses (Ortiz Chimbo et al., 2019).

Figure 1. - Size of Textile Sector Enterprises
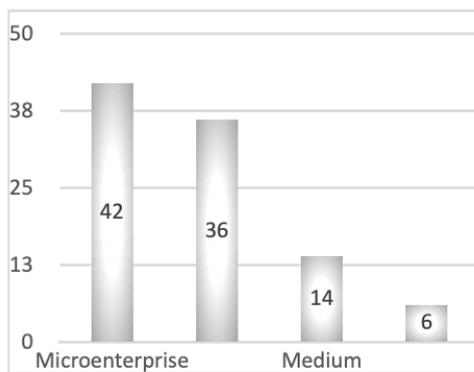
Figure 2. - Years of Operation in the Market

Figure 3. - Types of companies in the sector
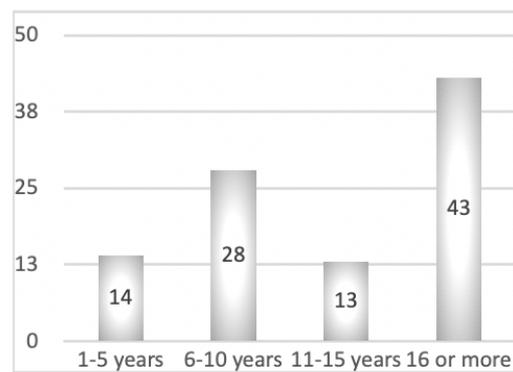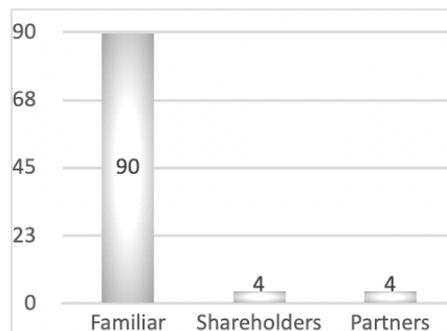

The instrument was designed and validated prior to its application. For this purpose, a reliability test was conducted using Cronbach's alpha coefficient, which is a measure of reliability that assesses the validity of the instrument and whether it measures what it is intended to measure (Qi et al., 2020). This measure yielded a coefficient of 0.89, reflecting high reliability.

Table 2. - Results of Cronbach's Alpha Coefficient Application

Item total statistics				
	Scale measure if the element has been deleted	Scale variance if item has been deleted	Total corrected correlation of items	Alpha if item deleted
Know How in managment and operations	243,2632	1436,217	0,375	0,891
Strategic planning	241,9263	1445,069	0,651	0,890
Market satisfaction	242,0737	1443,197	0,646	0,890
Technological sophistication	241,9895	1442,011	0,586	0,890
Quality and pricing	242,4947	1433,040	0,599	0,889
Human talent management	242,4000	1440,264	0,504	0,890
Training programs	242,8105	1426,134	0,584	0,889
Customer relationship management	242,0316	1441,669	0,576	0,890
Customization capabilities	242,7053	1420,146	0,572	0,889
Efficiency and performance	242,8316	1417,461	0,556	0,889
Work tool administration control	242,6737	1424,052	0,551	0,889
Supply chain management	242,0526	1427,753	0,672	0,889
Design optimization	242,3368	1425,417	0,609	0,889
Production costs	242,9579	1426,807	0,548	0,889
Optimal production and delivery times	242,2947	1431,678	0,627	0,889
Profit generation	242,1368	1438,502	0,632	0,890
Pricing policy	242,8632	1450,375	0,299	0,892
Cost reduction	242,5895	1454,500	0,282	0,892
Quality-associated costs	242,1895	1443,006	0,462	0,890
Participation in new markets	242,3368	1434,673	0,627	0,889
Advertising strategies	241,9368	1435,464	0,649	0,889
Marketing channels	242,3474	1424,378	0,713	0,889
Customer loyalty	241,8842	1450,167	0,525	0,891
Quality attributes	242,6105	1422,964	0,576	0,889
Business model	242,3053	1452,853	0,381	0,891
Building competitive advantage and positioning	242,3895	1434,942	0,506	0,890
Investments in technology and innovation	242,2947	1417,657	0,683	0,888
Innovation and differentiation	241,9579	1436,424	0,683	0,889
Intelligent and automated systems	242,9368	1465,145	0,255	0,892
Media	242,7684	1475,499	0,082	0,894
Competitiveness	193,2737	883,435	0,853	0,915
Cost leadership	218,2105	1192,274	0,667	0,887
Approach	229,7053	1269,274	0,835	0,880
Differentiation	221,7895	1250,998	0,821	0,880
TOTAL				89%

Note: Results are self-produced based on Cronbach's alpha.

<div align="center">**Table 3. - Assumption of normality.**</div>

Ho: Data follows a normal distribution	If p-value<0,05 the Ho is rejected	Non-parametric test
H1: The data does not follow a normal distribution	If p-value>0,05 Ho is accepted and H1 is rejected	Parametric Test
Level of significance Nc: 95% α: 5%	Normality Test If n>50 applies Kolmogorov_Smirnov If n≤50 applies Shapiro_Wilk	

<div align="center">*Note: Assumption of normality elaborated by the authors.*</div>

Decision criteria:

If p-value<0,05 the Ho is rejected

If p-value≥ 0,05 Ho is accepted and H1 is rejected

<div align="center">**Table 4 - Tests of Normality, Competitiveness and Generic Strategies**</div>

	Normality Tests					
	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistical	gl	Sig.	Statistical	gl	Sig.
Competitiveness	0,138	95	0,000	0,881	95	0,000
Sum_Generic_Estrategies	0,178	95	0,000	0,842	95	0,000

<div align="center">Note: Result of the own elaboration of the normality tests</div>

The correlation analysis between generic strategies—cost leadership, differentiation, and focus—and competitiveness used the non-parametric Pearson Correlation test due to non-normally distributed data. The Kolmogorov-Smirnov test was also applied, as recommended by (Romero-Saldaña, 2016) for samples over 50 observations. This analysis included 36 variables across five key categories: company context, competitiveness, cost leadership, differentiation, and focus.

To ensure accurate results, the analysis prioritized variables showing high levels of association. This led to the selection of 14 critical variables representing each category, facilitating a focused and manageable analysis. Notably, the cost leadership dimension, due to its low significance, was considered with only one variable, while focus and differentiation dimensions included additional variables. This approach allowed for robust conclusions based on the most significant elements of the data.

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Table 5. - Non-parametric correlations

		Production and Marketing Objectives	Strategic planning	Style Direction	Supply Chain Management	Market Satisfaction	Efficient work	Human Talent Management	Production costs	Niche Market	Direct marketing	Design Specialization	Customer Loyalty	Business Model	Product Portfolio
Competitiveness	Production and Marketing Objectives	1													
	Strategic planning	0,9999	1												
	Style Direction	0,9998	0,9997	1											
	Supply Chain Management	0,9996	0,9995	0,9997	1										
	Market Satisfaction	0,9998	0,9998	0,9996	0,9995	1									
	Efficient work	0,9997	0,9997	0,9996	0,9995	0,9997	1								
	Human Talent Management	0,9995	0,9995	0,9996	0,9996	0,9997	0,9995	1							
Cost leadership	Production costs	0,9998	0,9998	0,9997	0,9994	0,9996	0,9999	0,9994	1						
Differentiation	Customer Loyalty	0,9999	0,9999	0,9998	0,9995	0,9998	0,9998	0,9995	0,9997	0,9999	0,9997	0,9997	1		
	Business Model	0,9996	0,9996	0,9995	0,9995	0,9996	0,9996	0,9996	0,9995	0,9995	0,9996	0,9995	0,9995	1	
	Product Portfolio	0,9998	0,9998	0,9998	0,9995	0,9998	0,9997	0,9996	0,9997	0,9997	0,9998	0,9996	0,9998	0,9997	1
Focus	Niche Market	0,9998	0,9998	0,9997	0,9995	0,9997	0,9998	0,9995	0,9997	1					
	Direct marketing	0,9998	0,9998	0,9996	0,9993	0,9997	0,9998	0,9994	0,9997	0,9997	1				
	Design Specialization	0,9996	0,9996	0,9994	0,9993	0,9997	0,9996	0,9995	0,9994	0,9996	0,9995	1			

Note: Own elaboration: *. The correlation is significant at the 0.01 level (bilateral)

A direct positive relationship is evident among the 14 most influential variables within each dimension. For the dependent variable, competitiveness, production and marketing objectives show a near-perfect correlation with strategic planning (0.9999), indicating strong alignment. Management style correlates highly with strategic planning (0.9997) and supply chain management (0.9997), suggesting that management practices are closely linked to these areas. Market satisfaction and efficient work also correlate strongly with other competitiveness factors, suggesting improvements here could enhance overall competitiveness.

Among the independent variables, Cost Leadership reveals that production costs are highly correlated with market niche (0.9997) and direct marketing (0.9997), linking cost reduction to market approach and communication. For the focus strategy, market niche has a perfect correlation with direct marketing (1.0000), showing alignment between niche focus and marketing strategies. Design specialization has a high but slightly lower correlation with direct marketing (0.9995), indicating compatibility between design and marketing.

In the differentiation strategy, customer loyalty and product portfolio have a high correlation (0.9998), suggesting that strategies focusing on customer loyalty consider the product portfolio. The business model shows slightly lower but still high correlations with other differentiation factors, indicating that various business models relate to how differentiation and loyalty are managed.

Overall, high correlation values indicate that different management areas within a company are closely interrelated. Strategic planning, management style, and supply chain management significantly influence competitiveness. Similarly, cost management, market niche focus, and direct marketing strategies are interconnected in cost leadership and market focus. Differentiation through customer loyalty, business model, and product portfolio also demonstrates strong interdependence.

5. Regression

In order to complement the correlation analysis of the companies, a logistic regression was performed using the statistical package Stata 16, where I considered as a binary dependent variable those companies that are competitive and those that are not.

The binary dependent variable was obtained by averaging the results of the sum of each of the variables from the competitiveness dimensions (Production and Marketing Objectives, Strategic Planning, Management Style, Supply Chain Management, Market Satisfaction, Efficient Work, Human Talent Management) and the independent variables through the sum of their significant variables: Cost Leadership (Production Costs), Focus (Market Niche, Direct Marketing, Design Specialization), and Differentiation (Customer Loyalty, Business Model, Product Portfolio) obtained for each company. The overall average competitiveness score was 4.10; all observations above the average were considered competitive companies (assigned a value of 1), and those below the average were considered non-competitive companies (assigned a value of 0).

A confidence level of 95% was used, and therefore a significance level of $p < 0.05$ was applied.

Additionally, two control variables, type of investment and market situation, were included to control for variables that influence the results and affect the precision of the findings.

The logistic regression model was formulated as follows:

$$Y = \beta_0 + \beta_1 * X_1 + \beta_2 * X_2, + \beta_3 * X_3 + \beta_4 * X_4 + \beta_5 * X_5 + u$$

Where:

Y: Dichotomous variable (Competitive companies = 1); (Non-competitive companies = 0).
X_1 = Cost leadership
X_2 = Differentiation
X_3 = Focus
X_4 = Investment type
X_5 = Market Situation

$H_0 = \beta_{1=0}$	If p-value > 0.05, the null hypothesis (Ho) is rejected. Cost leadership has a direct relationship with competitiveness. The greater the cost leadership (+), the more competitiveness increases (+).

$H_0 = \beta_{2=0}$	If p-value > 0.05, the null hypothesis (Ho) is rejected. Differentiation has a direct relationship with competitiveness. The greater the differentiation (+), the higher the competitiveness (+)

$H_0 = \beta_{3=0}$	If p-value > 0.05, the null hypothesis (Ho) is rejected. The focus has a direct relationship with competitiveness. The greater the focus (+), the higher the competitiveness (+)

The results of the marginal effects of the logistic regression are as follows:

Table 6 - Logistic Regression-Marginal Effects

COMPETITIVENESS	dy/dx	Std. Err.	z	P>|z|	[95% Conf. Interval]
COST LEADERSHIP	0,1743632	0,0808012	2,16	0,03	0.0159958 0.3327306
DIFFRENTIATION	0,2897109	0,0895099	3,24	0	0.1142747 0.4651472
FOCUS	0,0157502	0,0849327	0,19	0,85	-0.1507149 0.1822153
INVESTMENT TYPE	-0,1680983	0,0861255	-1,95	0,05	-0.3369012 0.0007046
MARKET SITUATION	-0,1546384	0,059641	-2,59	0,01	-0.2715326 -0.0377442

Note: 1 failure and 0 successes completely determined

The model is found to be significant for the variables of cost leadership and differentiation, but not for the variable of focus, meaning that this variable does not significantly influence the competitiveness of the companies in the sample. Regarding the control variables, the type of investment and market situation are significant.

To measure the goodness of fit of the model, and because it is a probabilistic model, the R count is used instead of the R-squared coefficient. This is to establish the percentage of correct and incorrect predictions of the model, resulting in a percentage of 77.32%, indicating a high prediction accuracy of the model.

Table 7 - Truth-classification and goodness-of-fit of logistic regression

		True		
Classified		D	~D	Total
+		44	8	52
-		14	31	45
Total		58	39	97
Classified + if predicted Pr(D) >= 0.645				
True D defined as TOTALCOMPETITIVIDAD != 0				
Sensitivity		Pr(+| D)		75,86%
Specificity		Pr(-|~D)		79,49%
Positive predictive value		Pr(D| +)		84,62%
Negative predictive value		Pr(~D| -)		68,89%
False + rate for true ~D		Pr(+|~D)		20,51%
False - rate for true D		Pr(-| D)		24,14%
False + rate for classified +		Pr(~D| +)		15,38%

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False - rate for classified -	Pr(D| -)	31,11%
Correctly classified		77,32%

Note: 1 failure and 0 successes completely determined

Since it is an econometric model, it is necessary to subject it to validation tests that allow the identification of its predictive capacity (goodness of fit).

The econometric model has been validated through the R count, Pearson's goodness-of-fit test, and the ROC curve. The R count of 77.32% indicates a high percentage of correct predictions. Pearson's goodness-of-fit test, with a Chi2 probability of 0.54, confirms that the model fits a normal probability distribution. Additionally, the ROC curve area of 0.86 validates the model's ability to distinguish between competitive and non-competitive firms
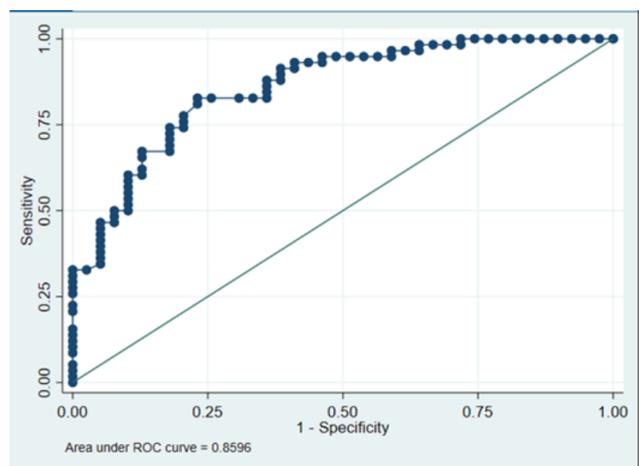
Pearson's goodness of fit is shown below:

Table 8 - Pearson goodness of fit

Logistic model for CompetitividadBinaria, goodness-of-fit test

Number of observations	=	97
Number of covariate patterns	=	87
Pearson chi2(81)	=	79,13
Prob > chi2	=	0.5382

The ROC curve is shown below:

Figure 4 - ROC Curve

Area under ROC curve = 0.8596

Source: Logistics Estimate - competitiveness analysis survey

The marginal effects of the regression yield the following results:

- For each additional unit in the cost leadership dimension, the probability of companies being competitive increases by 17.4%.
- For each additional unit in the differentiation dimension, the probability of companies being competitive increases by 29%.
- For each additional unit in the focus dimension, the probability of companies being competitive increases by 1.6%.
- For each change in the type of investment, the probability of the company being competitive decreases by 16.8%.
- For each variation in market situation, the probability of the company being competitive decreases by 15.5%.

5.1. Competitiveness and Cost Leadership

As shown in the analyses conducted and according to the marginal effects, cost leadership proves to be significant and therefore directly influences competitiveness. In other words, employing standardized costs and competitive prices are factors that affect the purchasing decision. Therefore, producers should implement attractive pricing strategies to capture the attention of their customers and potential clients.

Competitiveness is linked to the use of various business strategies and tactics that can achieve business consolidation and growth through diverse offerings and services that meet consumer needs (Mora-Riapira et al., 2015). Therefore, working with cost standardization is necessary, but it's not the only factor influencing companies in competing in highly demanding markets.

5.2. Competitiveness and Differentiation

Differentiation is the variable with the greatest impact, increasing the probability of competitiveness by 29%. This suggests that companies that manage to offer unique products tailored to local preferences can stand out significantly in the market. This strategy helps establish a strong brand identity and attract consumers seeking exclusivity and added value in their purchases. Therefore, understanding the present and future needs of customers, and meeting and exceeding their expectations becomes a vital requirement for companies in this sector (Ruiz-Cabezas et al., 2019).

The differentiation strategy aims precisely to enhance added value and improvements in current offerings. Managers are tasked with integrating various factors related to value chain activities and strategic alliances to pursue continuous improvement in their organization and enhance quality, factors highly valued by customers (Benites et al., 2020).

The study demonstrates that consumers visiting the textile sector consistently seek garments with distinguishing elements, exclusivity, quality, and conditions suitable to their needs.

5.3. Competitiveness and Focus

In the case of the focus, after adding the control variables, it turns out to be non-significant, therefore, it would not have a significant impact on the competitiveness of the investigated companies. The consideration of investment type and market situation as control variables indicates that companies

in the sector are not investing in new market niches due to the current restrictive economic situation, characterized by a lack of liquidity in the Ecuadorian economy.

The focus strategy is very important in today's textile and fashion markets; however, in the case study, it is observed that textile companies in the canton currently lack the economic conditions to strengthen this strategy. Nevertheless, they are aware of its importance in the competitive landscape.

To implement this strategy, it is necessary for companies to constantly improve their products and services online through innovation (Tsou & Yang, 2019) and consider rethinking strategies that allow the development of solid competitive advantages based on knowledge to thrive in highly dynamic markets (Olea-Miranda et al., 2016). The implementation of these new production and commercial tactics needs to be oriented towards current demands, clearly identifying market segments and creating proposals that meet these needs.

5.4. Cluster Competitiveness Analysis

For this analysis, competitiveness scales were used, which are detailed below:

High: 80% - 100%

Medium-High: 60% - 79%

Medium: 40% - 59%

Medium-Low: 20% - 39%

Low: 0% - 19%

To obtain the competitiveness scales in the sample of 97 companies, the following context variables were used: type of company, years of operation and situation of the textile market. The results obtained in the 3 variables were added and a percentage of compliance with the 3 was obtained based on the maximum result that a company can obtain.

Below is the percentage of classification of companies according to the competitiveness scale:

Table 9 - Companies by level of competitiveness

Competitiveness scales	
Low	0%
Medium Low	18%
Medium	43%
Medium High	18%
High	22%

Most companies in the textile sector are concentrated in a medium level of competitiveness, followed by high competitiveness and companies with medium-low and medium-high competitiveness.

Table 10 - Results of the variable categories

Scales	Size of the company				Years of operation				Textile market situation		
	Microenter-prise	Small	Medium	Big company	1 to 5 years	6 to 10 years	11 to 15 years	16 or more	Growth	Arrested	Decrease
Low	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Medium Low	41%	53%	6%	0%	0%	6%	18%	76%	6%	53%	41%
Medium	45%	52%	2%	0%	14%	43%	24%	19%	10%	33%	57%
Medium High	0%	14%	57%	29%	0%	0%	0%	100%	10%	48%	43%
High	88%	12%	0%	0%	47%	53%	0%	0%	12%	53%	35%

Source: Variable categories -competitiveness analysis survey

Predominance and Competitiveness of Microenterprises: In the Antonio Ante canton's textile sector, microenterprises are predominant, comprising 42% of the total, followed by small enterprises at 37%, with medium and large enterprises representing 14% and 6%, respectively. This structure indicates a market dominated by smaller players. Despite their size, microenterprises show significant competitiveness, particularly those operating for 1 to 10 years. This suggests that new microenterprises have rapidly adapted to the local market, leveraging their ability to focus on niche markets that avoid direct competition with large fashion brands. Their success is attributed to personalized offerings that cater to local preferences, enabling sustained growth despite their limitations.

Challenges of Older Companies and Their Competitiveness: Small enterprises with over 16 years of operation often display medium-low competitiveness. This may be due to difficulties in innovating and adapting to a market that has evolved significantly, particularly with the entry of international brands and the lingering impacts of the COVID-19 pandemic. Older companies face liquidity issues and cost pressures in a globalized economy, further compounded by limited investment in innovation and sustainability. Such constraints restrict their ability to enhance competitiveness in an increasingly demanding market.

Influence of Market Context on Competitiveness: The market context greatly affects perceived competitiveness. While some companies in the textile sector are experiencing growth (12%), a notable portion remains stagnant or in decline, potentially due to economic instability and shifting consumer preferences. Nevertheless, growing microenterprises are notable for their resilience and adaptability, likely due to their flexibility and lower dependence on economies of scale. In contrast, medium and large enterprises, though a smaller percentage of the total, are perceived as more competitive, suggesting that their size enables them to establish a stronger market presence. However, these larger companies must continually strive to maintain their competitiveness in a dynamic environment.

Comparative Studies: Comparative studies in other textile sectors reveal that larger companies generally exhibit higher competitiveness compared to small and medium enterprises. This is often due to their ability to exploit economies of scale, access robust financial resources, and invest in advanced technology and innovative processes. In Ecuador, large textile companies in other regions typically have a stronger international market presence, allowing them to diversify risks and reach a broader customer base. These advantages enable them to stay ahead in the market and adapt more effectively to sector

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dynamics and challenges (Corporación Mucho Mejor Ecuador, 2021; Chirinos-Cuadros & Rosado-Samaniego, (2016).

Sector-Specific Reality: In the Antonio Ante canton, the competitiveness landscape is distinct. Local entrepreneurs are focused on improving competitiveness and enhancing the sector's national profile. They are working on strengthening management and business strategies in response to current market changes.

Product Variety and Strategies: Companies with medium-high and high competitiveness offer a diverse range of products, such as sportswear and home textiles. Differentiation is a key strategy, with the logistic model indicating a 29% increase in competitiveness probability due to differentiation. Additionally, companies with medium-high and high competitiveness have adopted cost-reduction strategies in response to the pandemic, combining economies of scale with pricing strategies to introduce new clothing models. These strategies, as reflected in the logistic model, show a 17.4% increase in competitiveness probability.

Impact of Investment and Market Situation: Investment and market conditions significantly affect competitiveness. Limited financing and liquidity issues impact all companies, particularly those with medium-low and low competitiveness. In these cases, the probability of improved competitiveness decreases by 16.8% for investment and 15.5% for market situation.

6. Conclusions

Competitiveness is crucial for the survival and growth of textile companies. To stay ahead, these companies need effective strategies that align with market trends. Research shows that differentiation strategies significantly enhance competitiveness in the textile sector. Companies focusing on innovation, design, and value propositions for specific market segments tend to improve their competitive position. This differentiation not only attracts new customers but also strengthens existing customer loyalty, which is essential for long-term success.

Cost leadership is another key strategy. Companies that manage to reduce production and distribution costs can offer more competitive prices, which is especially relevant in a market recovering from post-pandemic losses. Maintaining quality while reducing costs is crucial for enhancing profitability in a price-sensitive environment.

For textile companies in the canton, overcoming current economic limitations through continuous improvement and innovation in products and services is crucial. Effective implementation of focus strategies requires adapting offerings to market needs and strategic planning to address consumer preferences.

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Michael Porter's three generic strategies—differentiation, cost leadership, and focus—are necessary for building a solid competitive advantage. Future research should explore additional factors such as technology, innovation, and operational efficiency to develop a more comprehensive competitiveness model. Longitudinal studies could reveal trends over time, and expanding research to other sectors could identify universal and industry-specific strategies. Investigating the impact of sustainability on competitiveness would also be valuable for understanding how sustainable practices influence consumer perception and business performance.

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