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Relationships between the aspects of target costing and business size: a study in the clothing industrial hub of Santa Cruz do Capibaribe-PE

Relaciones entre los aspectos del costeo objetivo y el tamaño de la empresa: un estudio en el polo industrial de confección de Santa Cruz do Capibaribe-PE

Relações entre os aspectos do custeio alvo e o porte empresarial: um estudo no polo industrial de confecções de Santa Cruz do Capibaribe-PE

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Abstract

Purpose: This article aimed to investigate the relationship between aspects of the target costing process and business size, in the context of companies in the clothing sector in the industrial hub of Santa Cruz do Capibaribe-PE.

Methodology: The study was carried out through an exploratory, descriptive and quantitative research, with the sending of a structured questionnaire to the 110 clothing industries registered in the database of the Federation of Industries of the State of Pernambuco (FIEPE), achieving a rate of response of 21.82%. To analyze the relationships, the Kruskal-Wallis non-parametric statistical test was used, considering a significance level in the order of 95% ($p=0.05$).

Results: Based on the methodological aspects used, the main results of the research allowed us to conclude that the use of aspects related to the planning phase of the target costing process is influenced by the size of the analyzed companies. On the other hand, the use of aspects of the design phase and the production phase was not influenced by business size.

Contributions of the Study: This study contributes to the specialized literature on management accounting, especially in the Brazilian context, since target costing is still an artifact little explored in national publications. Another contribution to the literature concerns the method used, which permeated a quantitative approach, whereas most research that addresses target costing is developed through case studies. Furthermore, the research also contributes to the analyzed companies, presenting them with a useful management artifact in competitive environments, which can influence their adoption.

Keywords: Target costing process. Business size. Clothing industries.

Resumen

Objetivo: Este artículo tuvo como objetivo investigar la relación entre aspectos del proceso de costeo objetivo y el tamaño de la empresa, en el contexto de las empresas del sector de la confección en el polo industrial de Santa Cruz do Capibaribe-PE.

Metodología: El estudio se realizó mediante una investigación exploratoria, descriptiva y cuantitativa, con el envío de un cuestionario estructurado a las 110 industrias del vestido registradas en la base de datos de la Federación de Industrias del Estado de Pernambuco (FIEPE), logrando una tasa de respuesta de 21,82%. Para analizar las relaciones se utilizó la prueba estadística no paramétrica de Kruskal-Wallis, considerando un nivel de significancia del orden del 95% ($p = 0,05$).

Resultados: A partir de los aspectos metodológicos utilizados, los principales resultados de la investigación permitieron concluir que el uso de aspectos relacionados con la fase de planificación del proceso de costeo objetivo está influenciado por el tamaño de las empresas analizadas. Por otro lado, el uso de aspectos de la fase de diseño y la fase de producción no se vio influenciado por el tamaño de la empresa.

Contribuciones del Estudio: Este estudio contribuye a la literatura especializada sobre contabilidad de gestión, especialmente en el contexto brasileño, ya que el costeo objetivo es todavía un artefacto poco explorado en las publicaciones nacionales. Otra contribución a la literatura se refiere al método utilizado, que impregna un enfoque cuantitativo, mientras que la mayoría de las investigaciones que abordan el costeo objetivo se desarrollan a través de estudios de casos. Además, la investigación también contribuye a las empresas analizadas, presentándoles un artefacto de gestión útil en entornos competitivos, que puede influir en su adopción.

Palabras clave: Proceso de costeo objetivo. Tamaño de la empresa. Industrias de la confección.

Resumo

Objetivo: Este artigo teve como objetivo investigar as relações entre aspectos do processo do custeio alvo e o porte empresarial, no âmbito de empresas do setor de confecções do polo industrial de Santa Cruz do Capibaribe-PE.

Metodologia: O estudo foi realizado por meio de uma pesquisa exploratória, descritiva e quantitativa, com envio de um questionário estruturado para as 110 indústrias de confecções cadastradas na base de dados da Federação das Indústrias do Estado de Pernambuco (FIEPE), conseguindo-se uma taxa de resposta de 21,82%. Para analisar as relações foi utilizado o teste estatístico não-paramétrico de *Kruskall-Wallis*, considerando-se um nível de significância na ordem de 95% ($p=0,05$).

Resultados: Com base nos aspectos metodológicos empregados, os principais resultados da pesquisa permitiram concluir que a utilização dos aspectos relativos à fase de planejamento do processo do custeio alvo é influenciada pelo porte das empresas analisadas. Por outro lado, a utilização dos aspectos da fase de desenho e da fase de produção não se mostrou influenciada pelo porte empresarial.

Contribuições do Estudo: A realização deste estudo contribui com a literatura especializada sobre a contabilidade gerencial, sobretudo no contexto brasileiro, uma vez que, o custeio alvo ainda é um artefato pouco explorado nas publicações nacionais. Outra contribuição à literatura diz respeito ao método utilizado, que permeou em uma abordagem quantitativa, ao passo que a maioria das pesquisas que abordam o custeio alvo são desenvolvidas por meio de estudos de caso. Ademais, a pesquisa também contribui com as empresas analisadas, apresentando-lhes um artefato gerencial útil em ambientes competitivos, o que pode influenciar na sua adoção.

Palavras-chave: Processo do custeio alvo. Porte empresarial. Indústrias de confecções.

1 Introduction

The insertion of refined technologies in production processes and the globalization of markets triggered a highly competitive scenario, requiring companies to have mechanisms capable of guaranteeing their continuity and competitiveness (Ono & Robles Júnior, 2004).

In this sense, Brito, Garcia and Morgan (2008) consider that the development of capitalist economies, the globalization of markets and consumer demands, both in terms of quality and price, have driven the development of new management techniques, the which also involved the refinement of costing techniques, especially during the 1990s (Brito et al., 2008; Braga, Nascimento & Callado, 2021).

Scapens (2006) states that in order to understand the management accounting practices adopted, it is necessary to understand the various influences that interrelate and shape the characteristics of the practices aggregated to the activities. In this context, it appears that the size of companies has been frequently analyzed in studies on management accounting, which converge in the sense that the sophistication of a cost accounting system increases directly proportional to the increase in the size of the organization (Cadez & Guilding, 2008; Haldma & Lääts, 2002).

Corroborating this, Ax, Greve and Nilsson (2008) pointed out that previous empirical research has shown that business size has an impact on the use and design of the adopted management control system, as the results discussed the rates of adoption of cost control practices, whose utilization rates are higher in large companies. Thus, the influence that size has on management practices is evident, especially in relation to cost management practices.

Kato (1993), Gagne and Discenza (1995) and Cooper and Slagmulder (1997) highlighted the importance of using managerial artifacts when working in environments with business competition, pointing out target costing as an adequate tool to be adopted in environments with accentuated level of dynamism and competition.

It can be said that target costing is based on assessing costs even before they are incurred, as it is concentrated in the product development phase, as it is in this phase that the use of management techniques that allow the reduction or even elimination of costs. Target costing is an approach that allows for the setting of costs based on market conditions and prices (Filomena, Kliemann Neto & Duffey, 2009; Palulun, Luhsasi & Sitorus, 2021).

Furthermore, this research proposes an investigation into target costing in the clothing industries in the city of Santa Cruz do Capibaribe, a Brazilian municipality located in the State of Pernambuco, given that there is strong competition in this environment (Araújo, Castro & Costa, 2017) and willingness to set prices based on market conditions (Lima, Lagioia, Almeida Santos, Lima & Vasconcelos, 2010), which represents adherence to some of the target costing assumptions presented in the literature. Works of a similar nature considering this object of study are scarce in the national literature, especially with regard to the proposed method, predominantly quantitative, a gap that the present work aims to minimize.

The city of Santa Cruz do Capibaribe is the most expressive among those that make up the Local Productive Arrangement (APL) of garments in the agreste of Pernambuco, moving about 1 billion reais per year, with a production volume that figures in the order of 700 million pieces (ABIT, 2012). Due to the heated market, there was a 64% growth in the city's GDP between 2000 and 2009, while Pernambuco grew 44%. In 2018, GDP per capita was R\$ 33,593.82, representing an increase of 94.51% compared to 2009 (IBGE, 2021).

Thus, highlighting the discussion presented, which permeates the adequacy of the object considered with the assumptions of target costing and the influence that business size has on cost management, the following research problem emerges: As aspects of the costing process target relate to business size, within the scope of companies in the clothing sector of the industrial center of Santa Cruz do Capibaribe-PE? Thus, this article aims to investigate the relationships between aspects of the target costing process and business size, within companies in the clothing sector of the industrial center of Santa Cruz do Capibaribe-PE.

Theoretically, the development of the research is justified by the need to increase the volume of publications related to target costing in the Brazilian context, since the topic is still little explored here in Brazil (Ahn, Clermont & Schwetschke, 2018; Mattos, Nepomuceno & Silva, 2016; Ribeiro, Makosky, Alves & Macedo, 2019; Scarpin & Rocha, 2000). In this way, it is another work that helps to develop the literature on target costing, especially using a different method (survey) from those that are generally used (case studies) in approaches on target costing.

In practical terms, the research contributes to the analyzed companies, as it can influence and even help in the adoption of aspects of target costing, which proves to be an interesting and suitable artifact for companies in the sector, being able to add value and produce a competitive advantage.

The work is structured in five sections, starting with the present introduction, followed by the approach about target costing, methodology, presentation and analysis of results and conclusion formulated based on the research findings.

2 Literature review

Target costing, or *genka kikaku* in Japanese, had been developed in the 1960s in Japan, more specifically in 1965, at the Toyota factory, spreading across Japanese industries until the 1970s, after the oil crisis, especially in automakers. automobiles (Camacho & Rocha, 2007; Scarpin & Rocha, 2000; Zengin & Ada, 2010). According to Cruz and Rocha (2008) target costing was developed in business circles, in reaction to difficult market conditions in the years 1960 to 1970.

In this context, marked by the increase in raw materials, the Japanese added the idea of value engineering in the product development phase in order to minimize costs without compromising quality (Guadanhim, Hirota & Leal, 2011). According to Brito et al. (2008) target costing quickly spread across Japanese automakers and also reached other countries that had industries installed in Japanese territory.

Once there was the expansion and consolidation of target costing in Japanese territory, the concept and practice were taken to the United States and Germany, at first to vehicle assembly companies, being later adapted and inserted in transformation and computing industries (Colauto & Beuren, 2005; Colauto, Beuren & Rocha, 2004). Moreover, this approach was only popularized in the West in the 1980s, through translations of Japanese works, especially by Americans and Germans, who were the main supporters of target costing here in the West (Ono & Robles Júnior, 2004).

Processes related to target costing are mature in Japanese industries. On the other hand, the target costing processes adopted by American and European companies are quite young, as many of their companies still have their prices defined based on costs, and not by market dynamics as preached by target costing. Over the last 20 years, target costing has drawn the attention of Japanese and Western scholars, who have begun to study the topic more closely (Ansari, Bel & Okano, 2007). In relation to Brazil, target funding is still not widespread, even though it has been in existence for more than 40 years in literary and business circles (Camacho & Rocha, 2007).

Target costing is understood as a cost management process that takes into account the determination of an ideal to be achieved, in order to ensure the return desired by the organization and satisfy the requirements sought by consumers (Marques & Rocha, 2015). Braun, Biedermann and Lindemann (2008) have the same thought when they argue that target costing is a method predominantly used in cost management. Complementarily, Binte, Ahmed, Klan, Haque & Mahboob (2020) and Kee (2010) consider that target costing can be considered a cost management system aimed at developing products that meet the demands and restrictions imposed by the market.

In the sense of Sharafoddin (2016) target costing is a system for managing the initial cost of a product, whose intention is to reduce it and thus maximize the profitability of the product. It is also an ideal process for competitive markets, allowing you to minimize primary costs and reach the margin targeted by the organization. It has an essentially managerial character. According to this idea, it is a technique that aims to manage costs from the design stage of a product to its development (Zengin & Ada, 2010).

From the perspective of planning, target costing is presented as a system that seeks to quantify costs even before they are incurred (Brito et al., 2008), since, from the moment that

production starts, the reduction and Cost elimination becomes more difficult to achieve (Al-Hattami, Kabra & Lokhande, 2020; Jayeola & Onou, 2014). These authors also point out that this methodology is applicable to new products and can also be applied to modify existing products.

As for the objectives of target costing, Dekker and Smidt (2003) explain that cost reduction is a relevant objective, or even can be pointed out as the main objective of this costing methodology. However, the process of obtaining a product is characterized by several objectives, many of them conflicting with each other, such as low cost, high quality, consumer satisfaction and assertive entry into the market. In this sense, target costing contributes to the achievement of these divergent objectives, encouraging designers to carry out explicit exchanges between such objectives.

In turn, Araújo, Marques and Silva (2001) understand that target costing aims to define how much a product should cost, and not how much it costs, to provide the profitability targeted by the organization in view of the conditions imposed by the market. According to this idea, the purpose of target costing is to ensure targeted profits through cost and profit planning (Ono & Robles Júnior, 2004). Thus, Rocha and Martins (1998) consider that the objective of target costing is to create a product aimed at the market that guarantees the desired margin in accordance with the strategies outlined by the organization.

The target costing process is based on some guiding principles, such as: costs are guided by the market price, not the other way around; consumer-oriented focus; encourages efforts to be made during the design phase, as its logic means that costs can be better managed in this phase, before the start of production; involvement of the entire company; guidance for the cost of the life cycle, that is, it is concerned from the design phase, to its consumption and disposal by the customer; as well as involving the value chain (Binte et al., 2020; Ono & Robles Júnior, 2004).

Corroborating this, Kee (2010) points out that target costing is guided by the definition of cost during the development stage of a product, consequently, it is in this phase that target costing focuses on the use of joint efforts, because it is in this phase that it has the greater cost management potential. Furthermore, target costing “has the principle of transforming cost into an input of the product development process and not into its result” (Colauto & Beuren, 2005, p. 3).

The main elements that are part of the target costing approach are identified in the literature, namely: target price, target profit, target cost and value engineering. About the target price, it is pertinent to add that this element is based on the assessment of market needs, on the competitive analysis and on the company's preliminary plans to deliver a product with the functions, characteristics, quality and other issues required by consumers (Jayeola & Onou, 2014). For these authors, the first step in the process of determining target costs is to establish the target price, which involves several considerations, such as current and future market needs, desires and prices that customers are willing to pay for alternative resources. A good way to determine current and future wants and needs is to interview consumers through market research.

Once the target price has been determined, which is done through market research and customer relationship, a profit margin desired by the company must be defined, a margin that is capable of supporting the target cost, providing returns and ensure the continuity of the organization (Biazebete, Borinelli & Camacho, 2009).

After defining the sales price and margin targeted by the company, the target cost is calculated, which can be understood as the result of subtracting the defined target price and the targeted profit margin (Cardoso & Beuren, 2006; Melo & Callado, 2019). In order to

achieve the target cost, all members of the company need to work together and be guided by a single common objective, the achievement of the defined target cost (Gagne & Discenza, 1995).

Finally, regarding value engineering, it can be said that it consists of an organized approach to engineering on how to produce products in the face of material shortages, later evolving into a joint and organized effort to analyze how to develop products with quality unchanged at the lowest possible cost (Ono & Robles Júnior, 2004). Basically, value engineering includes the following main tasks: identifying the relevant functions of the product or service; establishment of monetary values to identify functions; and, provide the necessary functions at the lowest total cost (Bock & Pütz, 2017).

Concerning the target costing process, Zengin and Ada (2010) pointed out the main steps that must be followed in the use of this methodology. The first step is to determine the specifications, functionality and qualities that consumers want. Next, you must determine the target price. In the third step, considering the target price and the defined margin, the target cost is calculated. The fourth step involves the analysis of the costs obtained and the application of value engineering, to reduce costs even in the product design phase. Once the target cost is achieved, continuous improvement is incorporated through the Kaizen philosophy, which preaches the undertaking of efforts for the continuous improvement of processes.

The stages of the target costing process were grouped into three stages by CAM-I (1998), in which there is the planning stage, the design stage and the production stage. The planning phase includes defining the target price, defining the target margin and calculating the target cost. In turn, the design phase covers the achievement of the target cost, which takes place through the breakdown of costs and the application of value engineering. The production phase, on the other hand, contemplates the continuation of the reduction of costs and the continuous improvement of the processes carried out.

Regarding the advantages of target costing, Ellram (2000) highlights the following: ability to support the company's cost reduction process; optimizes and saves the organization's resources, helps manage material costs; provides credibility to discussions on cost reduction with suppliers; as it is also one of the tools capable of assisting in the company's performance evaluation processes.

However, the literature also presents disadvantages related to target costing, such as the difficulty in its implementation, as it requires a harmonious relationship between several variables and company departments (Horsch, 1998). The difficulty in implementing the technique is also related to the volume of time and huge investments that are necessary for the process to work properly (Brito et al., 2008).

3 Methodology

The present research is classified as exploratory and descriptive, having a quantitative approach in relation to the nature of the formulated problem. The operationalization of the data collection was carried out through a survey, with the application of a structured questionnaire, sent to the companies by e-mail in a google forms link.

The universe considered in the research were the 110 clothing industries installed in the city of Santa Cruz do Capibaribe-PE, included in the register of the Federation of Industries of the State of Pernambuco (FIEPE). In this sense, it is important to comment that initially there were 142 companies in the considered register, however, a consultation of the registration situation of the CNPJ was carried out with the Federal Revenue of Brazil of the

142 industries, with the objective of validating the database obtained. In this query, it was found that 22 companies had been written off and another 10 were unfit (irregular), leaving 110 companies with active status, which were considered as the universe of this research.

All companies considered were duly contacted by telephone and also by e-mail, thus attributing a census nature to the research. Initially, the companies were called, at which point the researcher asked to speak with someone responsible for the company, explaining that it could be the manager or the owner. For companies where there was no e-mail address in the CNPJ query, the researcher requested it at the time of the call. Subsequently, the link to the electronic form with the questionnaire was sent by e-mail. Data collection covered the period from 08/03/2020 to 11/04/2020, with the participation of 24 companies, representing a response rate of around 21.82%.

The questionnaire was composed of four parts, the first containing questions about the size of the companies, and the other three parts addressing questions related to each of the stages of the target costing process, as recommended by CAM-I (1998). The questionnaire consisted of 18 questions, for which there were previously defined answers, elaborated on a 5-point Likert-type scale, ranging from “never” to “always”.

For the construction of the data collection instrument, the following variables associated with business size were considered: number of hierarchical levels, billing and number of employees. Regarding aspects of target costing, the following variables were considered: market research, product characteristics, consumer needs, prices according to customers, prices charged by competitors, product return, timing of cost estimation, cost calculation target (planning phase); target cost decomposition to identify improvements, global team involvement, project remodeling, functionality, quality (design phase); monitoring, cost reduction, optimization of resources and processes, continuous improvement (production phase) (Biazebete et al., 2009; Dekker & Smidt, 2003; Dimi & Simona, 2014; Zengin & Ada, 2010).

To analyze the significance of the established relationships, the Kruskal-Wallis non-parametric statistical test was used. The Kruskal-Wallis test investigates the significance of statistical differences observed between three or more groups of data (Levine, Berenson & Stephan, 2000). In turn, Levin (1987) shows that this test can be used to establish a comparison between several samples, provided that it respects the assumption that the data must be expressed in at least one ordinal scale. For this study, statistically significant differences were those that presented a significance level of 95% (p value=0.05). The test was applied using Statistica for Windows

4 Results and discussion

4.1 Sample

In this section, the results obtained through the research process will be presented and discussed. Initially, descriptive statistics are presented regarding the companies that effectively participated in the research, in order to characterize and understand the profile of the investigated companies. In this sense, Table 1 presents data related to the companies' operating time.

Table 1*Time in market*

Time	Absolute frequency	Relative frequency (%)
From 1 to 3 years	1	4.17
From 4 to 6 years	0	0
From 7 to 9 years	0	0
From 10 to 12 years	6	25
From 13 to 15 years	1	4.17
More than 16 years	16	66.66
Total	24	100

Source: *Research data (2020).*

Through Table 1, it is observed that most of the companies surveyed have been operating in the market for more than 16 years, that is, 16 companies among the 24, which represented a percentage of 66.66% in relation to the total. This result suggests that the clothing industries surveyed are companies that are already consolidated in the market, considering the variable length of time.

In turn, Table 2 presents the results related to the market range of the investigated companies, that is, the scope of action.

Table 2*Market range*

Range	Absolute frequency	Relative frequency (%)
Local	0	0
Regional	0	0
National	23	95.83
International	1	4,17
Total	24	100

Source: *Research data (2020).*

Based on Table 2, it is possible to observe that, almost unanimously, that is, 23 of the 24 companies surveyed operate nationally, which represents a percentage order of 95.83%. This result can be considered quite expressive and provides subsidies about the market expansion of these industries. Therefore, the data collected allow us to infer that, in relation to the profile, most of the companies surveyed are companies that are already consolidated in the market, considering the time of operation, as well as companies that are active at a national level, almost unanimously.

Finally, regarding the characterization of the investigated companies, Table 3 presents data related to the companies' gross annual revenues, a variable that is related to the size of the company.

Table 3*Gross anual revenues*

Revenues	Absolute frequency	Relative frequency (%)
Up to 360,000.00	7	29.16
From 360,000.01 to 4,800,000.00	13	54.17
From 4.800.000,01 to 78,000,000.00	4	16.67
Above 78,000,000.00	0	0
Total	24	100

Source: Research data (2020).

Considering Table 3, it is observed that the majority of companies invoice from 360,000.01 to 4,800,000.00, corresponding to a percentage of 54.17%. Therefore, based on revenue, most companies can be considered small businesses. Already 29.16% of companies earn up to 360,000.00, being considered micro-enterprises. On the other hand, 16.67% of companies earn between 4,800,000.01 and 78,000,000.00, that is, they are already considered medium-sized companies. In this sense, the results found converge with the findings of Macêdo, Monte and Callado (2020), who in their study on the adoption of target costing in the manufacturing industries of Campina Grande-PB identified that the majority of companies are micro-enterprises and small size.

4.2 Significance analysis

This section addresses the presentation and discussion of the results obtained during the research process. Furthermore, firstly, an attempt was made to establish relationships between aspects of the planning phase of the target costing process and the variables related to business size. The results found can be seen in Table 4.

Table 4

Analysis of the significance of the relationships between aspects related to the planning phase of the target costing process and business size

Aspects	Number of hierarchy levels	Revenues	Numer of employees
Product characteristics	0.01*	0.01*	0.01*
Especifications, functionality and quality	0.01*	0.04*	0.02*
Sale price definition	0.04*	0.25	0.04*
Profit margin definition	0.39	0.08	0.01*
Cost estimation before production	0.95	0.45	0.05*
Estimation of the maximum allowable cost	0.49	0.87	0.07

Source: Research data (2020).

Note: (*) statistically significant differences at the level of 95% ($p=0.05$).

According to Table 4, it is possible to identify that, in the established relationship, significant statistical differences were found between the groups of variables related to size when compared through the aspect of target costing that concerns the carrying out of market research that seeks to extract information about the characteristics of the products. Convergenly, significant statistical differences were also found between all variables related to size and the aspect of target costing with regard to carrying out surveys that seek to extract information about the specifications, functionality and quality of products.

In view of the above, these results suggest that conducting market research according to the logic of target costing is influenced by the size of the companies, as statistically significant relationships were found between all variables related to size.

The data also point to significant statistical differences in the relationships between the number of hierarchical levels and number of employees with the aspect of defining the sale price as stipulated in target costing, in which prices are based on market conditions and how much customers are willing to pay.

Additionally, significant statistical differences were found in the relationships established between the number of employees and two of the aspects of the planning phase of the target costing process, namely: the estimation of the profit margin according to the precepts of the target costing and the estimation of costs before the beginning of the production process.

In general, it is possible to infer that most aspects related to the planning phase of the target costing process have their use influenced by the size of the analyzed companies, since there was significance in the statistical differences in relation to almost all aspects, only in one of the aspects did not show a significant difference, which was the estimation of the maximum admissible cost in the light of target costing.

Therefore, these findings converge with the results reported by Cadez and Guilding (2008), as these authors reported statistically significant associations between business size and the use of management artifacts, including target costing. In this sense, there is also convergence in the study by Dutra and Callado (2020), since, when analyzing the relationships between organizational characteristics and the use of management accounting artifacts, they identified that target costing is one of the most used modern artifacts in companies investigated, with some statistically significant relationships with regard to variables related to business size/size.

Continuing with the presentation and analysis of the data, the second part of the research adduces the results found in the relations established between the aspects of the design phase of the target costing process and the variables related to the business size. In this sense, the findings of these relationships can be seen in Table 5.

Table 5

Analysis of the significance of the relationships between aspects related to the design phase of the target costing process and business size

Aspects	Number of hierarchy levels	Revenues	Numer of employees
Cost is detailed between the parts of the product	0.71	0.02*	0.34
Employees from different departments are involved in the design and creation process	0.49	0.09	0.40
When the cost is not reached, the project is remodeled	0.17	0.44	0.10
When the product needs to be modified, the ideals of quality	0.14	0.58	0.33

Source: Research data (2020).

Note: (*) statistically significant differences at the level of 95% ($p=0.05$).

Based on the data in Table 5, it is observed that only one relationship with a statistically significant difference was found. In this sense, a statistically significant difference was found in the relationship established between billing and the detailing aspect of costs between the parts that make up the products.

Thus, no other statistically significant difference was found in the other relationships established, suggesting that aspects of the design phase of the target costing process are not influenced by the size of the companies investigated in this study.

Finally, the relationships between the aspects of the production phase of the target costing process and the variables concerning the business size were analyzed. The results associated with these relationships are shown in Table 6.

Table 6

Analysis of the significance of the relationships between aspects related to the production phase of the target costing process and business size

Aspects	Number of hierarchy levels	Revenues	Numer of employees
Search for cost reduction occurs throughout the production process	0.31	0.56	0.15
Costs continue to be constantly monitored	0.47	0.67	0.22
Optimization of executed processes and resources used in production	0.01*	0.01*	0.08
Continuous improvement, reviewing the suitability of procedures carried out for product design	0.35	0.01*	0.17

Source: *Research data (2020).*

Note: (*) statistically significant differences at the level of 95% ($p=0.05$).

There is a statistically significant difference in the relationships between the number of hierarchical levels and billing with the aspect of the target costing production phase that concerns the optimization of processes and resources used in production. A statistically significant difference was also verified in the relationship between revenue and the aspect of continuous improvement inherent to the production phase of the target costing process.

Therefore, these findings suggest that aspects of the production phase of the target costing process do not have their use influenced by the size of the companies analyzed, since statistically significant differences were not identified sufficient to support the understanding that there is influence of the size on the use of aspects of the production phase in the case of the investigated companies.

5 Conclusion

This article aimed to investigate the relationships between aspects of the target costing process and business size, within companies in the clothing sector of the industrial center of Santa Cruz do Capibaribe-PE. Based on the objective outlined and the methodological procedures used, the main findings of the research allowed us to conclude that the use of aspects related to the planning phase of the target costing process is influenced by the size of the analyzed companies.

However, the results found suggest that there is no influence of size on the use of aspects related to the design and production phases of the target costing process, as the reported statistical differences were not sufficient to express the opposite.

This study contributes to the specialized literature on management accounting, especially in the Brazilian context, since target costing is still an artifact little explored in national publications. Another contribution to the literature concerns the method used, which

permeated a quantitative approach, while most research that addresses target costing is developed through case studies. Furthermore, the research also contributes to the analyzed companies, presenting them with a useful managerial artifact in competitive environments, which can influence their adoption. Therefore, the research showed as a managerial implication that target costing can be a suitable artifact for companies in the sector, being able to help them achieve their objectives and enhance their results, by subsidizing the reduction of costs and also increasing adequacy of companies to the environment in which they operate.

As a limitation of this research, the low adherence of the companies included in the considered universe stands out, which made it impossible to apply statistical tools capable of supporting more generalized conclusions. In this sense, it is suggested the undertaking of other quantitative research on the subject of target costing in the context of the clothing industries in the city of Santa Cruz do Capibaribe-PE, as well as in other cities that are part of the APL of clothing in the State of Pernambuco, thus being able to increase adherence, making it possible to use statistical tools that allow generalized inferences.

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