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Reflections on cost-based pricing and competition-based pricing: the gap may not be so deep

Reflexões sobre o estabelecimento de preços a partir dos custos e dos preços das ofertas concorrentes: a lacuna pode não ser tão profunda

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Keywords
Pricing.
Costs.
Competition.
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Cost plus pricing.

Abstract

Studies on pricing indicate a gap, prices of products and services should be set based on their value to customers (value-based prices), but actually are set based on costs and on competitors' price offers (cost-based prices and competition-based prices). Thus, the study identifies the circumstances in which cost-based prices and competition-based prices are considered (or not) based on the value of the companies' product and services. A survey was applied to Brazilian industrial companies, and the answers by 380 pricing professionals suggest that the companies setting cost-based prices and competition-based prices do not necessarily ignore the value of the associated product.

Palavras-chave
Formação de preços.
Custos.
Concorrência.
Valor.
Custos mais margem.

Resumo

As pesquisas sobre estabelecimento de preços apontam uma lacuna, de um lado os preços de produtos e serviços deveriam ser definidos pautados no valor entregue ao cliente, por outro os preços são de fato definidos com base nos custos incorridos ou nos preços das ofertas concorrentes. Diante disto, o artigo aponta as circunstâncias em que as empresas, durante o estabelecimento dos preços (pelos custos ou pelas ofertas concorrentes), consideram ou não o valor de seus produtos ou serviços. Para isso, foi feito um levantamento em empresas industriais brasileiras, com a obtenção de 380 respostas junto a profissionais responsáveis pela fixação de preços. Os resultados indicam que as empresas definem seus preços a partir daqueles estipulados pelos concorrentes e a partir dos custos, mas não, necessariamente, desprezam a informação do valor de seu produto.

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Practical implications

Controllers, marketing consultants, sales managers, and other professionals should notice that "cost plus margin" pricing formulas have been employed along with product value information and price offerings from the competition, depending on the posture of price makers or price takers. Considering market reference prices, but also other bases for defining the pricing of products and services.

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1 INTRODUCTION

In the literature on price formation, especially in marketing, it is recommended that prices be defined based on the value that the product offers to the customer. Piercy, Cravens and Lane (2010), for example, argue that when prices are not established based on the value of the product or service, companies enter a vicious cycle, which only hinders their development. After all, as they are obliged to compete in function of the price, they do not see any reason to offer value solutions, preferring to offer little value, at a lower price.

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In practice, studies on pricing suggest that prices are actually defined based on the costs or competitors' offers, not the value of the product or service offered to the customer. Ingenbleek (2007), after reviewing 53 empirical studies, concluded that most companies determine prices from cost information. On the other hand, the empirical studies reviewed by Hinterhuber (2008) point out that prices are defined from competitors' price offers or from costs. More recently, Calabrese and Francesco (2014) have also concluded that companies define their prices based on competitors' offers and their own costs.

From the contrast between the suggestion of use of the value offered to the client and the practice of price based on costs and competition, it is argued that there is a gap between how prices should be defined and how they are actually defined (Ingenbleek, 2007; Hinterhuber, 2008; Calabrese & Francesco, 2014). However, we argue that setting prices based on costs and competitors' offers does not imply, necessarily, disregard the value delivered to customers when setting prices. This issue still afflicts the professionals who work in pricing, as the use of information disconnected from the value of the product or service may be associated with the bankruptcy of many companies (Hinterhuber, 2016).

We emphasize that price taker and price maker companies should be treated differently. Companies characterized as price takers, such as those that offer commodities and standardized products, especially in the consumer market (business-to-consumer – B2C), monitor and are inspired by the prices of competing offers to define their own prices (Strickland, 2007; Simons, 2012), but do not necessarily ignore the notion of the value of the product in their decisions. On the other hand, price makers use cost formulas (Drury & Tayles, 2006), but nothing prevents them from using the value delivered to customers in a combined way, adding the contribution margin to the costs of products and services in the formulas adopted.

2 CONCEPTUAL STRUCTURE AND HYPOTHESES

Empirical studies and literature reviews indicate that prices are not defined based on the value of the good or service delivered to customers. The main cause would be the dominance of product costs or competitors' prices offers to determine prices (Ingenbleek, 2007; Hinterhuber, 2008; Calabrese & Francesco, 2014). The problem is that this conclusion is inferred without considering, at least, four specificities of the process of price setting.

Not all companies have the power to set prices

Although present among economists, the separation of companies in those that "make prices" (price makers) and "take prices" (price takers) is usually ignored in other areas of knowledge (Tishlias, 1984; Chand, 2009) (e.g. marketing and accounting).

To incorporate the aforementioned distinction into the price-fixing debate, the analysis should consider the companies' ability to generate differentiations in the products and services offered (Banterle, Carraresi & Cavaliere, 2011). When the company offers products similar to those of competitors, it has less power over the definition of its prices, because given the similarity of offers, consumers prioritize the price and do not care which company produces the product or service. In this situation, the company would have no choice and would need to take the price determined by the market as a whole (Hofstrand, 2007).

When the company offers different products from competitors, it has more autonomy to set its prices, according to the importance that customers give to the differentials of the offer. In this situation, the company would have, to some extent, power to make the prices. The degree of differentiation perceived by the buyers and the importance attributed by them to this differentiation may affect the company's power over the establishment of prices (Oxenfeldt, 1961).

H_1: The differentiation of the product is positively associated with the power to set prices. The less differentiated the products, the greater the need for price taking and the lower the possibility of guiding the process according to value.

It is known that a company may not be fully a price maker or taker, but predominantly one or the other, depending on the portfolio of products and services it offers (predominance of a portfolio of products and services with greater or less differentiation compared to competitors). Certain sectors, such as commodities (i.e., corn, steel) and standardized products in B2C (i.e., instant noodles), naturally have a greater tendency to present price taker companies, while others, such as luxury goods in B2C and customized machines in the industrial market (business-to-business – B2B), have greater propensity to be price makers.

Price takers and price makers: prices from different information

The prices practiced by companies that are price takers are inspired by the prices of the offers available on the market. On the other hand, from price maker companies, whose products do not have direct substitutes, prices do not need to reflect with the same intensity the prices of offers already in the market.

For price takers, as already mentioned, the alignment to the market price is the most sensible option (Simons, 2012). However, taking the market price does not imply the exclusive use of information from competitors' offers. After all, the price takers have access to external data (i.e., availability of the prices of similar products offered by competitors; value perceived by customers), as well as internal data (i.e., product costs and cost structure of the company's own processes). The lack of power to set a price is not a justification to disregard that the internal operation is responsible for the production efficiency, affecting the viability of a certain price practiced by the market (Strickland, 2007).

For price maker companies, given the lower similarity of competing offers, it is more difficult to set prices based on the market and greater the power not to align themselves with the market. For example, the difficulty may come from the lack of price lists distributed for competing offers (Dutta, Zbaracki & Bergen, 2003). Thus, price definition comes from internal references, such as production costs and logistics. Using costs as a basis for prices does not mean, however, that analyses of the value of products and services delivered to customers cannot be incorporated.

H_{2a}: Price taker companies use information from competitors' offers prices, costs, and customer value to establish prices.

H_{2b}: Price maker companies use information of costs and customer value to establish prices.

Price takers and price makers: use of formulas to calculate the price

In 1952, Edwards (1952) indicated that companies often employed mathematical formulas to determine their prices. After all, the use of formulas allows not only to calculate prices, but also to justify the prices that must, inevitably, be practiced. Thus, while price taker companies use formulas to adjust prices taken from the market, price maker companies use formulas to fix prices (accepted by customers), aiming at profit sustainability.

Some formulas are fairly simple and others are sophisticated (Avlonitis & Indounas, 2006). The formulas based on the prices of competitors, common in price takers, are, for example: "sale price = price of competitors in the market" and "sale price = price of competitors in the market +/- adjustments" (Avlonitis & Indounas, 2005). However, to price takers it is also common to find formulas that start from costs, which are often employed by price makers (Drury & Tayles, 2006).

Therefore, the formula "cost plus margin" can be present both in price maker and price taker companies. Thus, it is not difficult to understand why Wentz (1966) had already recognized the wide use of the formula by companies and why most empirical researches ratify this recognition.

H_3: Formulas of the "cost plus margin" type are present both in price maker and price taker companies.

The essence of the process is not indicated by the formula used

We argue that it is not because companies, price makers or price takers, use the formula "cost plus margin" that prices are set solely based on costs. After all, in price takers the combination "cost plus margin" can be employed to guide the setting process, even though the final prices should equate to market prices (Lere, 1979; Drury & Tayles, 2006). To this end, there are two options: the margin already mirrors competitors' prices (possibly adjusted for differences in the value of the proposal delivered), which enables the setting of prices in a single step, or the margin initially proposed is arbitrary, with subsequent adjustment in the price to match the prices of competitors' offers.

In price maker companies, the use of the "cost plus margin" combination, in addition to enabling price setting to ensure cost coverage and the generation of the desired profit, may cause the value of the product or service delivered to be considered regarding the margin (Indounas, 2006). As closed numbers are not able to incorporate market conditions or the weight of a given customer or even the importance of a particular product (Haynes & Wilkens, 1974), it could be expected that companies would recognize this risk in a certain way. Thus, perhaps it is a great misunderstanding to state that when the formula "cost plus margin" is used, only the costs are considered by the companies (Foxall, 1972; 1980).

Therefore, the use of the formula “cost plus margin” does not mean that costs are the essence of the process, in some cases it can be simply the mechanics to operationalize the establishment of prices.

H_4: The use of the “cost plus margin” formula is not, necessarily, synonymous with a price setting that has costs as essence. When the margin connects information on cost with information on the price of competitors’ offerings (price takers) and on the value of products and services (price makers), the result is the shape of pricing, but not a cost-based essence.

3 DATA AND METHOD

The data were collected through a survey made available on a web page and as an attachment of electronic messages sent to professionals who work with pricing. We performed a pre-test divided into three stages to ensure the validity of the questionnaire, the first directed to three researchers, the second to two consultants, and the third to sixteen potential respondents.

We opted to restrict the focus of the survey to industrial companies, using the list of companies made available by the magazine *Exame Melhores e Maiores* [Better and Greater] and by the magazine NEI (*Noticiários de Equipamentos Industriais*) [Industrial Equipment News]. From this list, the 1,616 companies identified were considered as the research population. The questionnaire was sent to 1,544 companies. We chose not to send it to those companies of the population whose sector was not in fact industrial, as well as to those involved in the process of judicial recovery and in the *Lava Jato* operation [Car Wash operation].

With the achievement of 395 responses to the questionnaire and a final sample of 380 companies (response rate of 26%), the sample is characterized as non-probabilistic. We eliminated 15 responses, as they were incomplete (8 cases), or incorrectly filled (2 cases), delivered to another non-specialized professional of the company (3 cases), or originated from companies that were not part of the research population (2 cases).

To ensure simultaneous validity, we analyzed the non-response bias, according to Armstrong and Overton (1977), in which the participants who promptly answered to the questionnaire resemble the respondents, and the participants who answered after reiterations were equivalent to non-respondents. No statistically significant differences were observed between the two groups. To evaluate the reliability of the research, Cronbach’s alpha was calculated. The result of 0.794 indicated that the research could be considered reliable (Maroco & Garcia-Marques, 2006).

The questionnaire used, which is available in Appendix A, includes five constructs captured by open, multiple-choice questions or employing a five-point Likert scale. The first construct deals with the classification of companies as price takers or makers. We infer the classification from three variables defined to investigate whether or not there is a decision to be made regarding prices. The first variable aligns with the findings of Harper (1966), Hofstrand (2007) and D’Aveni (2009) that commodities companies offer products identical to competitors and need to take the prices available on the market. The second variable investigates the differentiation, which customers perceive, for the products offered in the consumer market (B2C). This variable was defined from Maxwell’s argument (1998) that price decisions in the consumer market are usually guided collectively by the competition, in view of the similarity of the products.

Consumer market companies offering products perceived as identical do not have what to decide concerning prices and should take the prices available on the market. The third variable, based on the study by Al-Hussari (2006), analyzes directly whether there is a need to set prices exactly which are identical to competitors’ prices. Al-Hussari (2006) argues that only those companies with conditions to influence prices may be called price makers, i.e., companies that do not have the need to follow the prices determined by other market participants.

Thus, we classified as price takers: (i) all companies offering commodities, according to the answer to the question of the three main products sold; (ii) all companies operating in the consumer market that offer products that are not perceived by customers as differentiated, according to the answer to question 1b; and (iii) all other companies that claimed to have the need to set prices equal to those of competitors, according to the answer to question 1g. As price maker, we classified companies that: (i) did not offer commodities; (ii) offered highly differentiated products in the consumer market and, therefore, did not need to set prices identical to that of competitors; and (iii) claimed to be able to set different prices from competitors.

The second construct, captured by question 1l of the questionnaire, refers to differentiation, and was assessed from the analysis of the customization, i.e., the extent to which they met specific requests of customers in the attributes and functionalities of the products offered by the company. It relates to intrinsic (e.g., aesthetics, ethics, spirituality, and fun) and/or extrinsic attributes (e.g., efficiency, excellence, status, and reputation) (Holbrook,1996).

The use of information was defined similarly to previous studies, in which the professionals were questioned about the intensity with which they use information on costs, competitors, value, and any other types (e.g., Ingenbleek, Debruyne, Frambach & Verhallen, 2003; Avlonitis & Indounas, 2006; Ingenbleek & Van der Lans, 2013; Liozu & Hinterhuber, 2013). In this sense, question 2 was applied to identify the information used by respondents in the process of establishing prices.

The third construct used previous studies as framework. Captured by the 3rd question, the formula for establishing prices tends to be supported by a specific type of information, after all, companies, as much as they based themselves on various perspectives, end up prioritizing one of them to simplify the decision-making process (Marn & Rosiello, 1992; Smith & Nagle, 1994; Ingenbleek et al., 2003).

Finally, the essence of pricing is marked by costs when the margin is arbitrary and does not connect costs to other types of information. When the margin is variable and adaptable to promote the connection between the costs and the reference prices of competitors for price takers, or the value that the product offers to the customer for price makers, the costs are not the essence, as much as the "cost plus margin" combination is used. To operationalize this last construct, we used questions 6a, 6f, and 6g in all companies, as well as 1j for price taker companies and 7f for price maker companies.

In the sample, 188 companies could be categorized as price takers and 192 companies as price makers. Table 1 details the sample composition and also summarizes the descriptive statistics of the research constructs. It is worth clarifying that, except for the classification and for the formulas employed, the questions asked the respondents to express their degree of agreement with a 5-point Likert scale, whose extremes were from 1 (complete disagreement) to 5 (complete agreement). In all questions that employed this scale, at least one respondent indicated both the minimum (1) and the maximum (5) points.

Table 1. Description of the data collected for the sample

Construct	Descriptive statistics	Price takers	Price makers	Total
Classification: price takers or price makers	**Questions: Main products; 1b 1g**	**Qty.**	**Qty.**	**Qty.**
	Commodities	40	-	40
	B2C – Non-differentiated products	26	-	26
	B2C - Differentiated products - do not influence prices	8	-	8
	B2C - Differentiated products - may influence prices	-	16	16
	B2B - do not influence prices	104	-	104
	B2B - may influence prices	-	172	172
	EC - do not influence prices	10	-	10
	EC - may influence prices	-	4	4
Differentiation	**Question: 1l**			
	Mean	3.13	3.82	3.48
	Median	3	4	4
	Standard Deviation	1.46	1.30	1.42
Use of cost information	**Questions: 2a; 2b; 2c; 2d; 2e; 2f**			
	Mean	3.89	4.05	3.97
	Median	4	4	4
	Standard Deviation	1.30	1.17	1.24
Use of competitors' information	**Questions: 2k; 2l; 2m; 2n**			
	Mean	3.58	3.20	3.38
	Median	4	3	3
	Standard Deviation	1.20	1.15	1.19

Table 1. Description of the data collected for the sample (continued)

Construct	Descriptive statistics	Price takers	Price makers	Total
Use of value information	**Questions: 2g; 2h; 2i; 2j**			
	Mean	3.38	3.78	3.58
	Median	4	4	4
	Standard Deviation	1.28	1.12	1.22
Formulas used to set prices	**Question: 3**			
	Cost plus margin (only)	112	153	265
	More than one formula (with cost plus margin)	11	8	19
	Competitors' prices	36	9	45
	Value	4	19	23
	Market	15	-	15
	More than one formula (without cost plus margin)	5	2	7
	Trial and error	2	-	2
	Other	3	1	4
Essence - price takers: absence of reference prices	**Question: 1j**			
	Mean	2.55	N/A	2.55
	Median	2	N/A	2
	Standard Deviation	1.46	N/A	1.46
Essence - price makers: "cost plus margin" – value reigns	**Question: 7f**			
	Mean	N/A	2.78	2.96
	Median	N/A	3	3
	Standard Deviation	N/A	1.26	1.08
Essence costs: margin defined by the financial department	**Question: 6a**			
	Mean	1.69	2.07	1.88
	Median	1	2	1
	Standard Deviation	0.99	1.22	1.13
Essence costs: similar margin for all products	**Question: 6f**			
	Mean	2.24	2.39	2.32
	Median	2	2	2
	Standard Deviation	1.35	1.27	1.31
Essence costs: similar margin for all costumers	**Question: 6g**			
	Mean	2.36	2.36	2.36
	Median	2	2	2
	Standard Deviation	1.33	1.29	1.31

Source: Research data.

Note: B2C - Consumer market, B2B - Industrial market, EC - engineering and construction.

4 RESULTS ANALYSIS AND DISCUSSION

4.1 Power to set prices and product differentiation

If the differentiation of the product is associated with the power to set prices, it should be observed a greater presence of price makers when the products have a greater level of differentiation (Hypothesis 1). The non-parametric Mann-Whitney test among the samples of price maker and price taker companies indicates greater differentiation of products for price makers (sig. 0.000).

To illustrate the impact of the influence of price takers versus price makers, the perceptual map in Figure 1 associates the two types of companies considering the product's differentiation. It was developed from the Correspondence Analysis, which assesses the interdependence relationships between variables (Hair, Anderson, Tatham & Black, 2009). In this research, we analyzed the relationship between differentiation and power (or not) of defining prices.

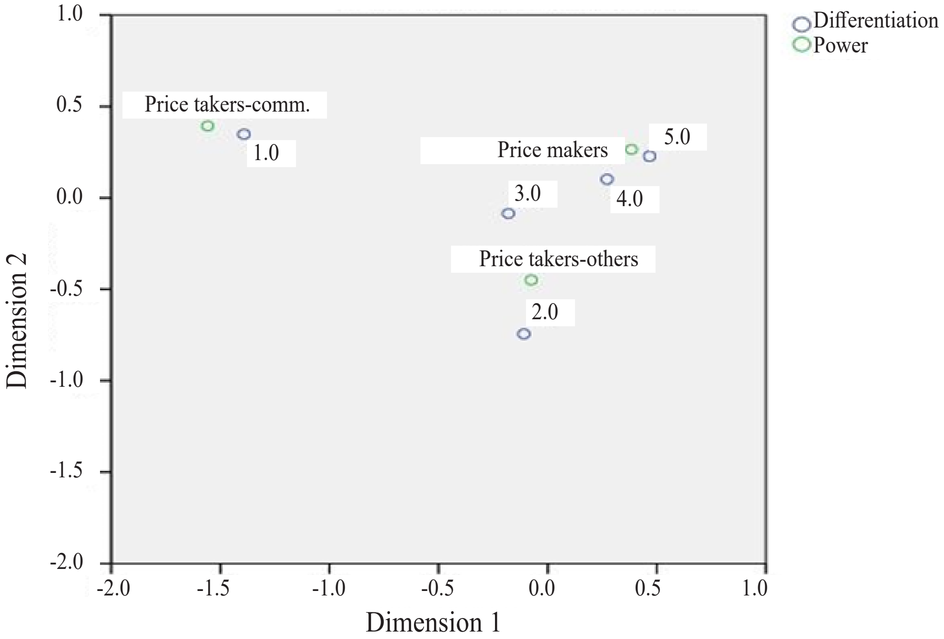

Figure 1. Perceptual map: differentiation of products and power to set prices
Source: Research data.

We observed that price makers are associated with the offer of customized products (higher differentiation points 4 and 5), while price takers are associated with offers of standardized products (points 1 and 2). Commodity companies are associated with the lowest level of differentiation. Therefore, confirming Banterle, Carraresi and Cavaliere (2011), we noticed that the differentiation of products is related to the power of setting prices and, consequently, companies with less differentiated products have price setting processes less associated with information on the product's value to customers and more related to competitors' offers prices.

4.2 Power to set prices and use of information

Each company type, defined according to the power to define prices, would use preponderantly a type of information to set its prices. Price taker companies would use competitors' offers prices and costs to set prices (Hypothesis 2a), while price makers use costs information (Hypothesis 2b). However, both to some extent could consider the value of the product to the customer. Table 2 shows the intensity of use of the different types of information (costs, competition, and value) in the establishment of prices by the informational entropy method.

Informational entropy deals with the dispersion of answers and reveals where less variation is found, following the method by Zeleny (1982). The greater the entropy, the lower the informational weight and the lower the dispersion of results; the lower the entropy, the greater the informational weight and the variability of answers (Santos, Beuren & Conte, 2017). Higher degrees of entropy represent smaller surprise effects, i.e., less variation in the responses obtained (Rocha, Hein, Lavarda & Nascimento, 2011). The lower the entropy, the greater the surprise effect, as not all respondents mark the same points in the proposed scale.

Table 2. Power to set prices and information used

Price makers					
Information	**Type**	**Partial entropy**	**Weight**	**Mean**	**Standard deviation**
Desired margin	Costs	0.9955	0.0274	4.4271	0.8950
Variable costs	Costs	0.9953	0.0285	4.3177	0.9084
Taxes	Costs	0.9951	0.0297	4.4219	0.9233
Fixed costs	Costs	0.9927	0.0443	4.1354	1.0597
Customers' needs and interests	**Value**	0.9921	0.0477	3.9323	1.0489
Price takers (Commodities and Others)					
Information	**Type**	**Partial entropy**	**Weight**	**Mean**	**Standard deviation**
Variable costs	Costs	0.9922	0.0392	4.2447	1.1108
Competitors' price level	**Competition**	0.9906	0.0468	3.8191	1.1183
Taxes	Costs	0.9905	0.0475	4.1915	1.2041
Desired margin	Costs	0.9888	0.0558	3.9415	1.2461
Prices of competitors' similar products	**Competition**	0.9887	0.0566	3.5266	1.1536

Source: Research data.

The intensity of use of cost information is high throughout the sample, especially in price makers. Price maker companies mix costs with value information (no information on competitors appears amid the five most used). As for price takers, the costs are mixed with information on competitors' offers.

Table 3 confirms the statistically significant difference obtained in the Mann-Whitney test between the two categories of companies regarding the use of information on value and competitors. The use of cost information showed no difference, as it is intense in both categories.

Table 3. Comparison between price makers and price takers concerning the intensity of information use

Null hypothesis	**Sig.**	**Decision**
The distribution of the use of cost information is the same among the classification categories	**0.236**	**Do not reject the null hypothesis**
The distribution of the use of value information is the same among the classification categories	0.000	Reject the null hypothesis.
The distribution of the use of competitors information is the same among the classification categories	0.000	Reject the null hypothesis.

Source: Research data.

Finally, the average use of cost information, presented in Table 1, is high for both price makers (4.05) and price takers (3.89). This result confirms that for price takers, even if prices reflect the market, production cost information can be used to enable the practice of the prices, as indicated by Strickland (2007). As for the use of competitors' prices, it is more intense for price takers (3.58) than price makers (3.20). The information on the value of the products to customers are more employed by price makers (3.78) than price takers (3.38). These results show that value information is emphasized by price maker companies.

4.3 Power to set prices and formulas employed

From Table 2, we can observe that in the two types of companies, the margin information is intensely used. *It shows that formulas of the "cost plus margin" type are present both in price maker and price taker companies (Hypothesis 3).*

The professionals' answers indicate that the main formula used for setting prices is "cost plus margin", by both price makers and price takers. In the sample, 265 respondents affirmed that this is how they operationalize the process of price setting. In addition, 19 respondents assumed articulating ways to define prices, with one of them being "cost plus margin". Figure 2 illustrates the main formulas of setting prices.

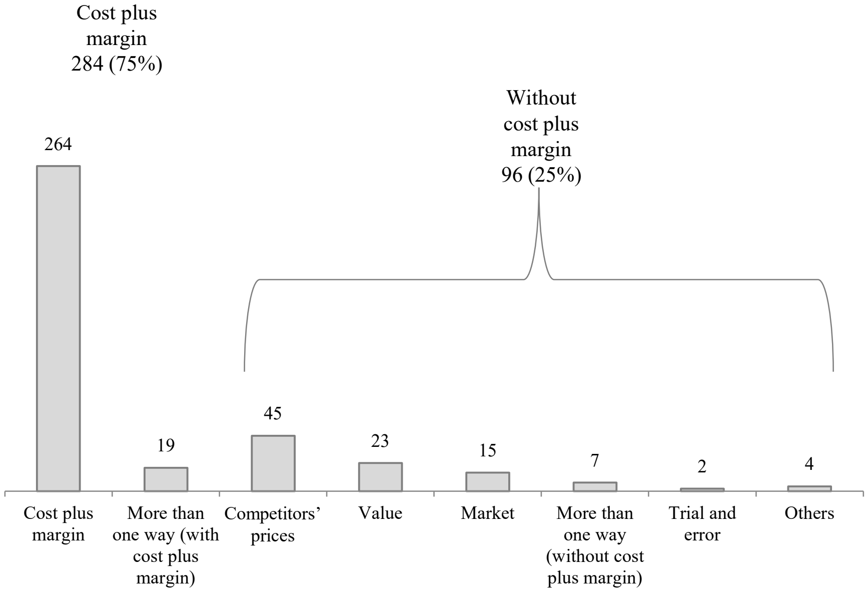

Figure 2. Formulas to set prices
Source: Research data.

Formulas of the "cost plus margin" type are more present in the price makers, but are also used by price taker companies, consonant with the findings of Drury and Tayles (2006). Of the companies that participated in our study and adopted "cost plus margin" formulas, 123 were price takers (112 used only "cost plus margin" + 11 "cost plus margin" articulated with other formulas) and 161 were price makers (153 used only "cost plus margin" + 8 articulated with other formulas). The use of this formula does not, however, mean that prices are based solely on costs, it simply shows that prices are defined taking costs into consideration.

4.4 Power to set prices and essence of price setting

Finally, *the use of the "cost plus margin" formula would not necessarily be synonymous with a price setting that has costs as essence (Hypothesis 4).* After all, for price takers, the use of this formula does not eliminate the need to follow reference prices. As shown in Table 4, 55% of the total of price takers report this need, which is even more pronounced in commodities companies (75%).

Table 4. Price taker companies and the need to follow reference prices

In our segment, there are no reference prices that need to be strictly followed						
	Price takers (Commodities)		**Price takers (Others)**		**Total of price takers**	
Manifestation	**Qty.**	**%**	**Qty.**	**%**	**Qty.**	**%**
Disagreement	**30**	**75**	**73**	**49**	**103**	**55**
Neutrality	2	5	32	22	34	18
Agreement	8	20	43	29	51	27
Total	**40**	**100**	**148**	**100**	**188**	**100**

Source: Research data.

We found that most price takers follow strictly the reference prices, as recommended by Hofstrand (2007), regardless of the mechanics used to operationalize the process. Also, there are significant statistical differences among the 123 companies that adhere and the 65 companies that do not adhere to the "cost plus margin" combination to operationalize the reference prices (Mann-Whitney test). Interestingly, the companies that use "cost plus margin" are the ones that most need to follow reference prices (mean of 2.740 versus mean of 2.200 for companies that do not use "cost plus margin"). In other words, the use of formulas based on costs does not prevent price takers from adjusting to the market price.

In this context, a doubt can arise: how do price takers operationalize pricing based on the formula "cost plus margin" and still set prices consistent with reference prices? Our argument is that the key element capable of connecting the cost information with the prices of competitors' offers is "expected margin". When assessing how the margin is deliberated in the company, it can be analyzed whether: (a) prices are defined considering only how much it takes to cover costs and gain profit, or (b) prices are defined from the costs, but also considering the prices of competitors' offers.

Table 5 shows that the price taker companies from our sample, in general, disagree or do not dispute the statements that the segments of customers or products have similar margins, thus, the margin is an aspect that varies according to the product or segment. They also disagree that the margin is defined separately by the financial department.

Table 5. Price takers and the margin expected from the "cost plus margin" formulas

1 – The margin placed on costs is defined separately by the financial department						
Manifestation	**Price takers (Commodities)**		**Price takers (Others)**		**Total of price takers**	
	Qty.	**%**	**Qty.**	**%**	**Qty.**	**%**
Disagreement	**8**	**80**	**89**	**79**	**97**	**79**
Neutrality	1	10	14	12	15	12
Agreement	1	10	10	9	11	9
Total	**10**	**100**	**113**	**100**	**123**	**100**
2 – All our products have similar margins						
Manifestation	**Price takers (Commodities)**		**Price takers (Others)**		**Total of price takers**	
	Qty.	**%**	**Qty.**	**%**	**Qty.**	**%**
Disagreement	**6**	**60**	**63**	**56**	**69**	**56**
Neutrality	2	20	26	23	28	23
Agreement	2	20	24	21	26	21
Total	**10**	**100**	**113**	**100**	**123**	**100**
3 – All our customer segments have similar margins						
Manifestation	**Price takers (Commodities)**		**Price takers (Others)**		**Total of price takers**	
	Qty.	**%**	**Qty.**	**%**	**Qty.**	**%**
Disagreement	**5**	**50**	**65**	**58**	**70**	**57**
Neutrality	3	30	22	19	25	20
Agreement	2	20	26	23	28	23
Total	**10**	**100**	**113**	**100**	**123**	**100**

Source: Research data.

Price makers, despite having the power to fix prices due to the differentiation of their products, have a certain limitation regarding forcing customers to buy their products at any price. Therefore, the final price should reflect the value offered to the customer, regardless of the shape adopted (Hofstrand, 2007).

We did not find a statistically significant difference in the perception of the possibility of setting prices, without having to evaluate the value offered to customers, among the groups that use and did not use a "cost plus margin" formula. Moreover, of the 161 price makers that set prices based on the "cost plus margin" formula, 64 (40%) disagreed with the statement that they did not need to evaluate the value delivered to customers simply because they used a "cost plus margin" formula (Table 6).

Table 6. Price maker companies and the disregard for the goods' value

The use of costs and margin enables the setting of the price without having to evaluate the value offered to customers		
Manifestation	**Total of price makers**	
	Qty.	**%**
Disagreement	**64**	**40**
Neutrality	48	30
Agreement	49	30
Total	**161**	**100**

Source: Research data.

Thus, it can be asked to price makers: how prices operationalized by formulas of the "cost plus margin" type are associated with the value offered to customers? Once again, our argument is that the "expected margin" connects the value delivered to the customer and the costs of the company, as the prices could be set considering (a) only the amount needed to cover the costs and gain profit, or (b) starting from the costs, but incorporating the value offered to the customer.

Table 7 shows that price makers disagree with the statement that the margin is deliberated separately by the financial department. This fact is aligned with the notion that pricing would integrate the marketing and sales departments versus controllership and financial departments, because they traditionally assumed different perspectives on the issue of product viability (Carricano, Trinquecoste & Mondejar, 2010). In addition, most price maker companies disagree that all products and customers have similar margins, which can indicate a planned margin for each product and each customer, which, therefore, can act as a connector element of cost to value.

Table 7. Price maker companies and the margin expected from the formulas "cost plus margin

1 – The margin placed on costs is defined separately by the financial department		
Manifestation	**Qty.**	**%**
Disagreement	**108**	**67**
Neutrality	25	16
Agreement	28	17
Total	**161**	**100**
2 – All our products have similar margins		
Manifestation	**Qty.**	**%**
Disagreement	**86**	**53**
Neutrality	38	24
Agreement	37	23
Total	**161**	**100**
3 – All our customer segments have similar margins		
Manifestation	**Qty.**	**%**
Disagreement	**91**	**57**
Neutrality	31	19
Agreement	39	24
Total	**161**	**100**

Source: Research data.

Thus, both price makers and price takers use "cost plus margin" formulas without the costs necessarily being the only information considered for setting prices. Thus leaving space to assume that information on the "value delivered to the customer" is also considered in the process of pricing in the case of price maker companies. For price takers, the margin can connect the costs and prices of competitors' offers, as there is a need to observe reference prices.

5 DISCUSSION AND CONCLUSION

Similarly to previous studies, we have found that “cost plus margin” formulas and information on competitors’ offers prices are widely used by the companies in the sample. However, unlike previous research, we seek to demonstrate that such use does not necessarily indicate that the essence of price setting is directed by costs and competitors. First, because it depends on whether the company is a price taker or a price maker, and secondly because other information are taken into consideration by companies for the establishment of prices.

It is customary in the literature on costs and prices to conclude that prices are based on costs simply because the combination “cost plus margin” is employed. As we argue in the study, there is no reason to make this direct association in the process of price setting. It is possible that, through the margin, prices defined from the costs reflect or approach the value of the product or service or correspond to the prices of competitors.

For similar pricing studies, we suggest that price maker and price taker companies are analyzed separately, by the natural basis of price setting. Furthermore, we emphasize that the process of setting the price itself, the use of formulas, and how they embed assumptions and pricing strategies can be more explored in the national market. For example, how taxes and different costs are considered in the formulas “cost plus margin”, and whether the result of the formula is always followed. Also, if the company, for the preservation of market share or competition level, gives up part of the margin to position its prices below competitors’ offers. Future studies may also deepen discussions on the reasons that lead these companies to adopt the essence of costs in their pricing process, and how the degree of differentiation throughout time remains or is altered.

Finally, companies may adopt different postures depending on the product line, some tending to be more price makers or price takers, with possible coexistence of different pricing postures within the same company or strategic business unit. One aspect to be observed is how these units coexist and relate to the financial departments and controllership of an organization. In addition, if any pricing practices, routines, or formulas present in electronic systems (ERP) can be better applied to one unit or the other, or benefit one rather than the other.

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APPENDIX A

Research questionnaire on price setting by industries in Brazil

Instructions

This questionnaire was developed to identify characteristics of price setting in industrial companies installed in Brazil.

The questions apply to the definition of the prices of the products of the main segment of your company, that is, that segment that has the highest expressiveness in your business.

The answers to the questionnaire should reflect the situation that predominates in your company.

GENERAL CHARACTERIZATION OF THE MAIN SEGMENT

1- To what extent do you agree with the following statements:

a	Many other companies operate in our segment (we have many competitors)
b	Customers consider our products to be different from the products offered by our competitors
c	The attributes and functionalities of our products are different from the attributes and functionalities of our competitors' products
d	The quality level of our products is high compared to our competitors
e	Our competitors can easily copy our products
f	The price level of our products is high (premium price)
g	Since our products are differentiated, we do not need to set prices exactly equal to that of our competitors
h	We have difficulty in identifying the prices charged by our competitors (the previous disclose of the prices on websites, catalogs etc. is scarce)
i	The difficulty of obtaining competitors' prices explains our need to use alternative information to set the prices
j	In our segment, there are no reference prices that need to be strictly followed
k	We have many customers
l	We prioritize custom production, that is, we often meet specific customer requests when developing our products

Likert, 5 points: 1 – Completely disagree, and 5 – Completely agree

INFORMATION AND FORMULAS USED IN THE ESTABLISHMENT OF PRICES

In this part of the questionnaire, the goal is to raise details about the information and formulas used in the process of establishing the prices of products from the main segment.

2- Indicate the intensity of the use of the following information when establishing prices:

Cost information	a	Variable/direct costs of products
	b	Fixed costs of products manufacturing
	c	Sales tax
	d	Expenses (administrative, commercial, and financial)
	e	Investment values (in machinery, facilities, etc.)
	f	Desired margin for products (contribution, gross profit, or net profit margins)
Value information offered to customers	g	Customers' needs and interests
	h	Customers' ability to pay
	i	Customers' perceptions regarding the products
	j	Comparison between the benefits offered and the costs brought to customers by the products
Competitors' information	k	Prices of competing products that are the same as our products
	l	Prices of competing products that are similar to our products
	m	Competitors' price level
	n	Competitors' price strategy
Other information	o	For example, economic, political, technological, regulatory, ecological and social information

Likert, 5 points: 1 – Low intensity of use, and 5 – High intensity of use.

3- Indicate among the following statements which demonstrates the MAIN operationalization way to set prices

□ The price is established from cost plus margin (contribution, gross profit, or net profit margin)
□ The price is established from competitors' prices (+/-) adjustments
□ The price is established based on the value offered to the customer
□ The price is established from trial and error
□ The price is otherwise established (not described in the previous four options)

4- Do you use any mathematical formula of cost plus margin when setting prices?

□ Yes
□ No

COST PLUS MARGIN

In this part of the questionnaire, the goal is to raise details of the use of costs and margin in the process of establishing prices.

Costs

5- To what extent do you agree with the following statements:

a	All fixed production costs (e.g. factory rent, supervisor salary, etc.) must be NECESSARILY included in the price formulas
b	All fixed expenses (administrative, commercial, and financial) must be NECESSARILY included in the price formulas

Likert, 5 points: 1 – Low intensity of use, and 5 – High intensity of use.

Margin

6- To what extent do you agree with the following statements:

a	The margin placed on costs is defined separately by the financial department
b	The desired profitability is the main information considered to define the margin
c	The margin is defined regardless of the consideration of specific product characteristics (e.g. the margin of simple products is similar to the margin of sophisticated products)
d	The margin is defined regardless of the consideration of specific customers' characteristics, such as size and location
e	The margin is defined regardless of the consideration of the importance given by customers to the products
f	All our products have similar margins
g	All our customer segments have similar margins
h	We prioritize the use of percentage margins, that is, we use margins MORE in the percentage form (% plus costs) than in the unitary form (margin in R$ plus costs)

Likert, 5 points: 1 – Low intensity of use, and 5 – High intensity of use.

Cost plus margin

Note: Consider that the "value offered to customers" corresponds to the combination of the benefits and costs of the products, according to the CUSTOMERS' PERCEPTION.

7- To what extent do you agree with the following statements:

a	We have given up entering a segment in which the price acceptable by customers is lower than the price suggested by the combination of costs and margin
b	Even when there is idle production capacity, we reject price proposals lower than the result of the combination of costs and margin
c	We will have sale losses if we accept that customers pay lower prices than the result of the combination of costs and margin
d	When the price resulting from the combination of costs and margin is not well accepted on the market, we opt for discontinuing the product
e	By ensuring the achievement of the desired profit, the result of the combination of costs and margin is more important than the information on the value offered to customers
f	The use of costs and margin enables the setting of the price without having to evaluate the value offered to customers

Likert, 5 points: 1 – Low intensity of use, and 5 – High intensity of use.

FACTORS RELATED TO PRICE SETTING

In this part of the questionnaire, the goal is to identify the factors that influenced your company to decide how the prices of the products of the main segment would be established.

8- To what extent do you agree with the following statements:

a	In our understanding, significant investments and expenditures are necessary to be able to charge prices in accordance with the value offered to customers
b	Our employees are not prepared to calculate the value offered to customers
c	Our customers are not willing to pay prices that fully correspond to the value offered to them
d	There are impositions from the headquarters, government, and/or regulatory bodies that oblige us to set prices according to costs
e	We follow the guidelines of books, case studies, and/or professional associations that suggest the establishment of prices according to costs
f	We acquired a software in which the prices are necessarily established according to costs

Likert, 5 points: 1 – Low intensity of use, and 5 – High intensity of use.

CONCLUSION

This is the last section of the questionnaire. In it, questions are brought to know a little more about the respondents and the companies participating in the research.

Name of the respondent:

Company:

E-mail:

Department/area in which you work within the company (Prices, Marketing, Sales, Financial or Others - which?):

Position you occupy in the company (Analyst, Supervisor/Coordinator, Manager/Director, or Other - which?):

APPROXIMATELY how long have you, or the main responsible for the process, been establishing prices? (Years)

Is there in the company an area specifically dedicated to setting prices? (Yes; No)

If there is an area specifically focused on setting prices, for APPROXIMATELY how much time has it existed? (Years)

APPROXIMATELY, how many employees work in the company? (Up to 19 employees, from 20 to 99 employees, from 100 to 499 employees, more than 500 employees)

In the main segment, your company is the market leader, that is, is the company with the highest market share? (Yes; No)

What are the three main products sold by the company?