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1. Mario Gilberto Lütkemeyer Filho

Master in Production
Engineering and Systems

Unisinos

(Brazil)

[mariogl.filho@gmail.com]

2. Guilherme Luís RocheVaccaro

Doctor in Computer Science

UFRGS

(Brazil)

[guilhermev@unisinos.br]

3. Ernani Cesar de Freitas

Doctor in Letters

PUCRS

(Brazil)

[ernanic@feevale.br]

Identification of customer satisfaction in services: a study on agribusiness dealers

Mario Gilberto Lütkemeyer Filho,

Guilherme Luís RocheVaccaro

*Graduate Program of Production Engineering
and Systems, Unisinos, RS, Brazil*

Ernani Cesar de Freitas

Social Applied Sciences Institute, Universidade Feevale, RS, Brazil

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ABSTRACT

Objective – This paper presents an analysis of service factors that impact customer satisfaction with dealers in the sugarcane segment in Sao Paulo state – Brazil.

Design/methodology/approach – The research method is descriptive quantitative, based on survey. Data is secondary gathered from the tractor-making company's database, with n = 88. Tools used for multivariate statistical analysis were factor analysis and correspondence analysis.

Findings – The results revealed a reduction in latent variables into two components: trust and relationship. The correspondence analysis presents association among variables “cost-benefit of spare parts” and “treated fairly and honestly”.

Practical implications – Despite the evidence of a relationship between the results and the information available in the literature, results cannot be generalized, since theory doesn't fully describes the investigated sector. Future research may advance towards validating if the emerged variables are relevant on the strategic decision making process for this segment.

Keywords – Dealers; Customer satisfaction; Services; Sugarcane segment.



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1 INTRODUCTION

The customer-supplier relationship is multidimensional. It involves tangible aspects related to the goods or services that connect customer and supplier, as well as intangible aspects related to the empathy, trust and courtesy dimensions, among others (Fitzsimmons & Fitzsimmons, 2010). Over the years, the development of market relations and competition in some segments, such as automotive, promoted changes in the customer-supplier relationship (Vargo & Lusch, 2004). Those changes are intended to improve the levels of satisfaction, but also to create a favorable atmosphere for new businesses, influencing intention to repurchase (Eggert & Ulaga, 2002).

Due to dynamic and competitive markets, organizations are gradually changing the product-driven pattern of production rooted in the industrial system, to a service-driven logic of business (Kotler & Keller, 2006). This logic is rooted in focusing on intangibles such as skills, information, knowledge, connectivity (Sheth & Sharma, 2008; Vargo & Lusch, 2004). The effects of that context on capital goods companies include offering value through services or Product Service Systems (PSS) or Service Infusion (Gebauer & Fleisch, 2007; Grönroos & Helle, 2010; Yee Yeung, & Cheng, 2009). The typical business structure existing in a business-to-business context (B2B) becomes more complex, especially if we consider the relationships between the players in the change process and value perception by customers. This view is supported by Kellar & Preis (2011), who point to the difference whose elements of satisfaction in a B2B relationship differ for organizations high, medium or low technological level. Sugar-energy industry companies fall into low-tech organizations (Organization for Economic Co-operation and Development [OECD], 2011), which made the subject relevant for discussion.

This complexity also occurs in markets or segments in expansion, in which case the sector of machinery and equipment for the sugarcane

industry in Brazil. Investment in production of clean fuels and renewable energy, alternative to the energy matrix based on fossil fuels accounts for 2.65% of Gross Domestic Product (Brazilian Development Bank [BNDES] & Strategic Studies Management Center [CGEE], 2008), with a trend of expansion through a framework of diversification of sources, such as hydro, solar, wind, nuclear, biofuels and the pre-salt by 2030 (Ministry of Mines and Energy [MME], 2007). Significance of the abovementioned industry is increased especially when comparing the representativeness of sugarcane production in the State of São Paulo, equivalent to 61% of local production (Sugarcane Industry Union [Única], 2012).

The industry has been fostered by the Brazilian government by means of programs that encourage academic research and production (Longhi et al., 2013). In addition to the need to develop clean energy, there is a market favorable to wealth creation for the country (Hofsetz & Silva, 2012; Brazilian Institute of Geography and Statistics [IBGE], 2013). Therefore, there is a possibility for exploration at enterprise-level, given the opportunities for innovation of production processes and in the service chain, which facilitates interactions between academy and market regarding the transfer of knowledge.

Considering B2B relationship context, a typical relationship between segment customers and dealers is essential for the customer to receive monitoring and quality services, with a view to reducing waste in crops, property costs and increase in competitiveness of companies in the segment. This way, dealers can identify and lead strategic elements that contribute to adapt the service level to the customer's expectations in order to reach satisfaction, leverage new sales and future demands (Reis & Peña, 2000).

Despite industry instability, the government intends to create plans to consolidate the development of this clean energy matrix in the country (Sugarcane Industry Union [Única], 2013). Future plans and growth occurred in recent years have demanded and will still

demand investments in agricultural tractors and, consequently, the appropriate workforce level of dealers in order to meet customer needs, from the perspective of services. Based on this perspective, it is possible to establish a guiding question of research that supports the existence of associations between satisfaction construction elements and identification of new factors that may emerge from the proposed system. This work aimed to investigate and analyze service factors that contribute to customer satisfaction in relation to the dealer network of sugarcane agribusiness segment in the state of São Paulo. Our starting point is the model proposed by Parasuraman, Zeithaml & Berry (1988), Lapierre (2000), Gil-Saura, Frasset-Deltoro & Cervera-Taulet (2009), and the model developed by The American Customer Satisfaction Index (ACSI) (2012).

As for methodological procedures, this paper is descriptive, documentary and a survey, with regard to addressing this issue. The data is secondary, derived from the database of an agricultural equipment manufacturer. Data collected seeks to present contributions and elements that explain the context of the work from a confrontation with the theoretical framework studied, progress in understanding the formation of customer satisfaction with the services, but is not intended to exhaust discussion for the academy. As far as business is concerned, the identification of elements tends to contribute to determining the business strategies with the segment studied, serving as a result of the above, workforce training activities to meet the market demands.

The name of the organization which provided the data for analysis will be kept secret, as it requested. The company is a producer of tractors, ranging in size, power and application. The choice is justified by the volume of sales and market share in the sugarcane industry in São Paulo represents approximately 40% for power range of 145hp – 165hp. There are also tractors with power ranging from 180hp – 230hp, normally used for soil preparation or

transshipment operations in the segment. Despite the significance of these models, they will not be discussed here.

The rest of the article is presented in the following order: in the following section, the theoretical framework supporting the research is described, such as B2B relationship, dealer network and customer satisfaction; then, the research method is presented, followed by the results, discussions and closing remarks.

2 THEORETICAL FRAMEWORK

2.1 Business-to-business (B2B) relationship

The guiding logic of the modern business context is built on relationships. To Gordon (2013), traditional and relationship marketing seeks to identify and meet the needs of customers in alignment with the organization's objectives. Relationship marketing, however, breaks a guiding paradigm of traditional marketing, by changing the focus from tangible to intangible elements and from the transaction to the long-term oriented relationship, in order to create an atmosphere of trust between the customer and the company (Gordon, 2013; Nickels & Wood, 1999; Vargo & Lusch, 2004). To Ravald and Grönroos (1996) and Eggert, Ulaga & Schultz (2006), the purpose of B2B marketing is to create value to the customer before the moments of truth and throughout the relationship lifecycle. Eggert and Ulaga (2002) complement that the B2B marketing allows the customer to choose from available options, drawing on the elements benefits and sacrifices by the provider.

In this sense, service offers are not only considered as an essential element in building customer satisfaction, but enable the determination of the type of positioning of services in the market, and thus determination of strategies that differ from other companies in the market. Additionally, Lovelock and Wright (2006) point out significant constructs for customer satisfaction, such as attributes, service quality,

price, package of offers of competitors and others.

The relationship between the customers of the sugarcane field and agricultural equipment dealers presented as a B2B relationship, as the core of customer management is industrial logic, typically fleet of equipment. Similarly to other industries, the delivery of value to customers in the sugarcane segment derived from the exchange process with the dealers may be reflected in results that influence the loyalty to the manufacturer's brand, given that the customer typically perceives the dealer as a manufacturer extension in the relationship process (Kotler & Keller, 2006; Verhoef, Langerak & Donkers, 2007). In line with the above, Choi, Cho, Lee, Lee and Kim (2004) and Fazlzadeh, Bagherzadeh & Mohamadi (2011) postulate that the perceived value contributes to building the customer satisfaction process and influence their behavior and future intentions.

Considering this context, we assume, as a first study assumption, that the customer value is derived from the relationship.

2.2 Dealer network

In the context of agricultural machinery and equipment, the distribution model between producer and customer is established indirectly, so that a manufacturer usually does not sell its products directly to customers. Sales are typically performed by a dealer network also responsible for providing technical assistance and advisory services to the customer. Even when direct sale takes place, the dealer is responsible for carrying out the delivery process and customer support. For all purposes, the dealer is, in customer perception, the representative of a brand. Formally, it is incumbent upon the brand's representative to sell the items to the end consumer, provide means of financing, deliver items, provide services and reviews on the product on request, and manage the process of communication with the customer (Fazlzadeh et al., 2011; Silk, 2008).

According to Kotler & Keller (2006), the dealer's mission is to convert potential buyers in orders, create new markets, cultivate long-term

relationships and maximize the value of the product/service pair to the customer. Verhoef et al. (2007) state that, while there are efforts by manufacturers to improve customer retention rates, the decision to remain loyal to a brand is typically the direct result of trust on the dealer service performance. This argument reinforces what is defended by Yee et al. (2009), who indicate that satisfied customers tend to be loyal to their service providers. Accordingly, environmental factors, such as market competitiveness and switching costs do not have such a strong effect between customer satisfaction and loyalty.

Thus, the overall performance of the service is, from the point of view of Truch (2006), crucial to the development of marketing strategies and is related to building customer satisfaction. In seeking competitive advantage in relation to competitors, companies should focus their attention to this element, since that satisfaction, when built, tends to keep a customer base essential for forecasting future revenues, reduced price elasticity, and avoid that customers hesitate to stay with the brand in the event of deficiencies.

The contextual factors associated with dealers support the study assumption that the dealer influences expectations, service quality, adds value and builds customer satisfaction.

2.3 Service quality, perceived value and customer satisfaction

There are several approaches on how to build customer satisfaction in services. According to Zeithaml and Bitner (2003), expectations are formed from the comparative performance standards of service performance experienced by customers, past experiences and word-of-mouth recommendations (Fazlzadeh et al., 2011). The American Customer Satisfaction Index (ACSI) (2012), on the other hand, lists three key elements prior to the determination of customer satisfaction, namely: perceived quality, expectations and perceived value.

To Lovelock & Wright (2006) and Johnston & Kong (2011), customer satisfaction is

built from the difference between the expectation of the desired service and service received. Wong, Chan, Ngai & Oswald (2007) point out the perceived service quality as a preceding factor for customer satisfaction and loyalty. Verhoef et al. (2007) point to the positive relationship between customer satisfaction and retention.

Parasuraman et al. (1988) present an approach to measuring service quality, with five dimensions: trust, responsiveness, security, empathy and tangibility. Berry & Terry (2008) point to the existence of a relationship between evidence on the quality and competence of the service provider. In the same vein, Ramseook-Munhurrin, Naidoo & Lukea-Bhiwajee (2009, p. 51) state that “performance of right services the first time, providing correct and accurate information, being able to solve problems and provide fast service to answer the request” is an essential element for the construction of service quality.

From situations whose interaction between customer and dealer generates performance lower than expected, Lin & Lin (2011) suggest that frontline staff should be encouraged to promote an empathetic approach, seeking to understand the customers’ position while regulating their own internal emotions. In addition to the empathy and trust factors, sense of justice and solidarity appear as important elements for building satisfaction (Fazlzadeh et al., 2011).

However, for decades, Parasuraman et al. (1988) point to the difficulties of defining and measuring these constructs, given their intangibility and complexity. Caro & García

(2007) and Zacharias, Figueiredo & Almeida (2008) corroborate this claim to argue about the lack of consensus on how to conceptualize the perceived quality of service. Such difficulties, in a sense, are related to limited rationality vision, since people tend to maximize the expected objective utility, and therefore accept the possible solutions to a given moment, but with alternation of demand and perception levels as time passes by (Pidd, 1998). In short, it is argued that the perceived value is a preceding element to customer satisfaction (Eggert & Ulaga, 2002; Gil-Saura et al., 2009).

Lapierre (2000) presents a proposal for the organization of the significant factors for the perceived value by proposing a division into two groups: benefits and sacrifice. Benefits, according to the author, are the elements that somehow add value to the customer, and are divided into product, service and relationship. Sacrifices are expenditures that the customer needs to incur, whether temporal, financial or otherwise. In the context of services, the same author cites the following as benefits: problem solving, flexibility, expertise and trust, and sacrifice as the price of the service. Targanski, Tinoco & Ribeiro (2012) complement it by citing that the service price is influenced by the perceived value, which acts positively on the customer’s tolerance level. For the relationship dimension, the author lists benefit inducing elements, such as image, trust and solidarity. Regarding the sacrifice dimension, time, effort and conflicts are listed, as outlined in Table 1:

TABLE 1 – Benefit and sacrifice characteristics

Dimension	Product	Service	Relationship
Benefits	Alternative solutions Product quality Product customization	Problem solving Flexibility Technical skill Ability	Image Trust Solidarity
Sacrifice	Price	Price	Time/effort/energy/ conflict

In order to systematize the concepts presented so far, here is a summary of references addressed, as shown in Table 2:

TABLE 2 – Summary of references

Construct	Concept	References
B2B relationship	Long-term-driven relationship, for purposes of creating a commitment and trust atmosphere between customer and company, by creating value.	Nickels & Wood, (1999); Vargo & Lusch (2004); Gordon (2013).
Dealer network	The dealer's mission is to convert potential buyers in orders, create new markets, cultivate long-term relationships and maximize the value of the product/service pair to the customer. The authors indicate that satisfied customers tend to be loyal to their service providers.	Kotler & Keller, (2006); Silk (2009); Fazlzadeh; Bagherzadeh & Mohamadi (2011). Truch (2006); Yee, Yeung & Cheng (2009).
Service quality	Build based on trust, responsiveness, security, empathy and tangibility. Perceived quality of the service precedes customer satisfaction and loyalty.	Parasuraman, Zeithaml & Berry (1988). Wong et al. (2007).
Perceived value	Perceived value is a multidimensional construct arising from the choice between benefits and sacrifices.	Lapierre (2000); Eggert & Ulaga (2002); Ulaga (2003).
Customer satisfaction	Customer satisfaction is built from the difference between the expectation of the desired service and service received.	Lovelock & Wright (2006) and Johnston & Kong (2011).

Based on the critical factors presented, a conceptual framework was designed in order to systematize the study and guide research. The framework shown in Figure 1 was based on the model presented by Lapierre (2000) and also on the theory disclosed by Parasuraman et al. (1988), Gil-Saura et al. (2009), and the American Customer Satisfaction Index (ACSI) (2012).

Generally, the framework presents both service quality and service expectations as elements associated with the perceived value; the perceived value composed of benefit and sacrifice elements. And finally, as a result of those relationships, we have customer satisfaction, which is the central element within the context under analysis.

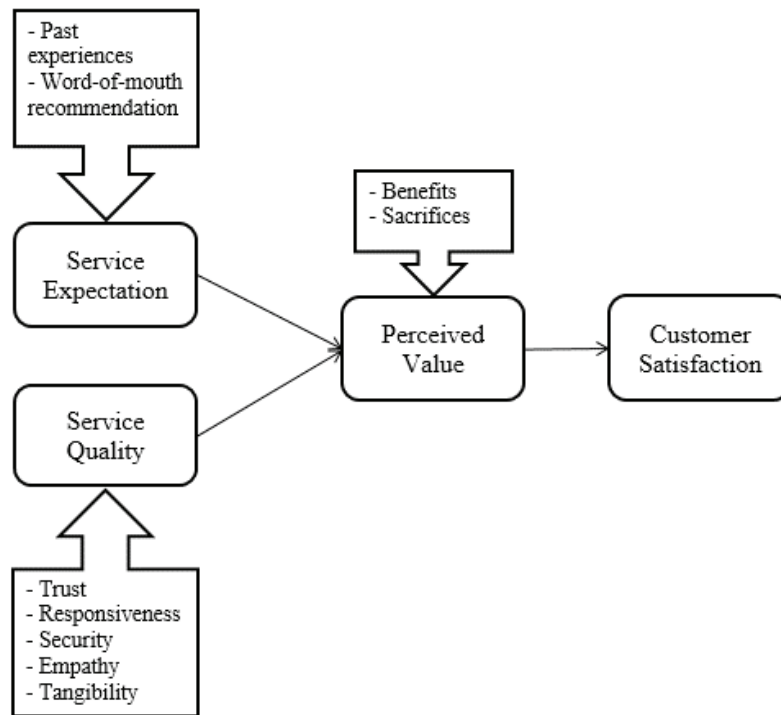


FIGURE 1 – Conceptual framework

Given the theoretical model described above, we needed to understand and adapt the relationships between the variables used in order to structure a line of reasoning that would allow us to concatenate theory and practice, in accordance

with the established test model presented in Table 3. Exposed elements fall into the context of services and the relationship built between the dealer and the customer, evaluated by means of surveys conducted by the organization.

TABLE 3 – Relationship model between variables and dimensions

Variable	Dimension
Repairs carried out correctly the first time	Service quality
Personnel knowledge of the services	Service quality
General experience with warranty services	Perceived value – Benefits
Promptness and courtesy	Perceived value – Benefits
Fair and honest treatment	Perceived value – Benefits
Contact as from product delivery	Perceived value – Benefits
Cost-effectiveness – parts	Perceived value – Sacrifices
Cost-effectiveness – services	Perceived value – Sacrifices

The following section presents materials and methods that structure our scientific approach to our paper.

3 METHODOLOGY

This research was conducted as follows: applied research, as to its nature; descriptive research, as to objectives, and documentary survey, as to technical procedures; in addition to quantitative research in regard to addressing this problem.

According to Gil (2008, p. 42), “the main objective of descriptive research is describing the characteristics of a given population or phenomenon, or establishing relationships between variables.” On the other hand, Malhotra (2011) points out that the survey process aims to get specific information from a population sample and can be used to structured data collection. The application is considered one of the advantages, as, according to the author, it is simple, reduces variability and facilitates the analysis and interpretation of data.

Data obtained for the research comes from the database of a multinational company, a manufacturer of agricultural tractors, which made the collection using a technique called survey, providing this quantitative base (therefore secondary data) for the purposes of this study. For confidentiality reasons, the company will not be identified. Malhotra (2011) points out advantages related to the use of secondary data, such as lower cost, quick access, better definition of a problem, formulation of better research and test some hypotheses.-

While the data used is secondary, as the documentary research has been performed based on the data collected by the manufacturer of agricultural tractors, the review process was engineered under a process focused on customer satisfaction of the organization subject matter of this study. All customers who buy tractors are eligible for application of the survey, six months after delivery of the product. The company relies on software for random determination of customers to be surveyed, with sampling probabilistic nature. With a view to obtaining the answers, we applied a questionnaire with 15 closed questions during a phone call, among which

we explored questions about the dealer services presented in Table 3. The omitted variables focus on the sales process and general issues which do not fall under the scope of the paper. The research instrument starts from the following question: How do you agree with the statements about the following types of interaction with the dealer (choose one). Each question was presented assertively showing the ideal result. Response alternatives followed a Likert scale of 5 points. This scale is to assign the degree of perception or importance and ranges from 1 (strongly disagree) to 5 (strongly agree). The survey instrument was designed, standardized, pre-tested and approved beforehand by the Market Research Department of the reference company in this research. After conducting the survey, the database can be accessed for analysis determined by the company.

For this study, surveys were conducted with selected customers from November 2008 to November 2011, in the state of São Paulo. In order to define the target population, we defined the criteria to consider only customers in the cities of São Paulo state for whom the tractor is used only in the sugarcane crop. During the stated period, 350 pieces of equipment that meet this criterion were delivered. Considering the nature of the B2B relationship, the data correspond to 236 customers, and of those, $n = 88$ (37.3%) customers were interviewed, with valid answers for the study. This filter is necessary since not all collections made by the company are effectively answered by customers. As previously mentioned, all customers receiving the equipment are eligible to be interviewed, but not all respond to the satisfaction survey by a number of factors: (i) the customer is not located after the requisite number of attempts in the process; (ii) the customer is not willing to answer; and (iii) the customer did not undergo after-sales service experience to exercise judgment about the questions. Note that, regardless of the number of machines received for the same request, only one questionnaire application is conducted.

The obtained sample can be tested with significance level $\alpha = 10\%$ and power $1 - \beta = 90\%$

approximately for purposes of detecting the effects of order medium standard deviation on the average of groups. For purposes of application of factor analysis, analysis technique used, we limited the study to cases by variables in the region of 10, indicating the possibility of analysis of up to eight variables.

Factor analysis, according to Hair, Anderson, Tatham & Black (2009), aims to discover latent dimensions derived from a large set of variables. Features characterized by the ability to analyze the degree of explanation of variables by factors, using data summary and reduction by replacing the original variables. As advantages, the technique enables the process of interpretation and list of complex variables, which is not achieved by univariate and bivariate methods. Among the assumptions analyzed for its implementation, we observed: sample size above 50 events; the existence of significant correlations and above 0.3 between variables; and significance in the Bartlett’s sphericity test; and sample adequacy measurement of Kaiser-Meyer-Olkin (KMO or MSA) greater than 0.6 (Hair et al., 2009).

Regarding data normality, data distribution was not normal. While subliminal judgment of data normal distribution to multivariate analyses provides stronger results, non-normal data should not be neglected because, despite the reduction in the degree of variance explanation, valid results can be presented (Tabachnick & Fidell, 2001).

In order to evaluate the association between the response patterns of model variables, we applied the correlation analysis technique. This technique is a compositional approach and consists of determining a perceptual map of variables, based on association of service features or attributes, and is aligned with exploratory data methods (Hair et al., 2009). The technique fits in applications in which the researcher aims to understand the relationships between variables of a given topic, develop hypotheses, or even create demands for future research (Malhotra, 2011).

Analyses applied to research variables were conducted with support from IBM SPSS 20 software. The results of research and analysis conducted based on procedures highlighted above are presented in the next section.

4 PRESENTATION AND ANALYSIS OF FINDINGS

Factor analysis was initially conducted including the eight variables listed in Table 3, which resulted in a value of $KMO = 0.472 < 0.6$ and, therefore, unsuitable. Analysis of the anti-image measures resulted in systematic removal of variables “service personnel knowledge,” “contact since delivery of product,” and “cost-effectiveness – services.” The remaining variables resulted in $KMO = 0.616 > 0.6$. Accordingly, the elements considered effectively in the factor analysis were: promptness and courtesy, effectiveness of repairs (performs repairs correctly), fair and honest treatment, cost-effectiveness of parts, and experience with warranty.

The cases/variables relationship was estimated at $17.6 > 10$. Significant correlations were identified between variables, result which was also confirmed by means of the Bartlett’s sphericity test, shown in Table 4.

TABLE 4 – KMO result and Bartlett’s sphericity test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.616
Bartlett's Test of Sphericity	Approx. Chi-Square	36.480
	df	10
	Sig.	.000

As a result of factor analysis, two latent dimensions emerged and explained 67.33% of total variance. The first factor identified accounts for 37.27% of total variance, whereas the second one accounts for 30.06%, totaling 67.33%. Those factors were rotated by the Varimax criterion, in order to concentrate the loads of variables in different factors. The extracted and rotated factors are presented in Table 5:

TABLE 5 – Varimax rotated factor matrix

	Factor	
	1	2
Promptness and courtesy	-.101	.922
Performs repairs correctly	.769	-.052
Fair and honest treatment	.418	.779
Cost-effectiveness - parts	.723	.164
Experience with warranty	.751	.132

Extraction method: Analysis of key components.

Rotation method: Varimax with Kaiser's normalization.

Factor 1 concentrates loads related to variables: (i) effectiveness of repairs (0.769); (ii) cost-effectiveness of parts (0.723); and (iii) experience with warranty (0.751). Given the characteristics of these factors, latent factor 1 was called "trust." Regarding latent factor 2, these elements were detected in this order: (i) promptness and courtesy (0.922); and (ii) fair and honest treatment (0.779). As a result, it has been called "relationship."

The identified factors are corroborated by the reference on the matter. Latent factor "trust" is supported by the statements of Lovelock & Wright (2006), whose organization not only indicates good reputation and positive image, but also the quality of service that is enhanced by this level of perception. Such associations are related to the reduction of service variability, given its consumption characteristics at the time of delivery, inability to be stored and heterogeneity. It is understood that carrying out repairs correctly is important for the segment customer, as it directly refers to factors such as availability of equipment and is reflected on the customer's production capacity. Experience with warranty refers to the realization of expectations about a moment of truth (Bateson & Hoffman, 2001; Lovelock & Wright, 2006). It reiterates the trust dimension, as receiving the warranty service properly is referred to as a reinforcing factor of belief in the brand (Bateson & Hoffman, 2001; Lovelock & Wright, 2006). As for cost-effectiveness of parts

price, results show that customers tend to perceive this variable as a member of the trust factor. From that, one can infer that this sacrifice, according to Lapierre (2000), is also represented on the service provider's trust image, to the extent that a disadvantageous cost-effectiveness relationship in parts may reflect an unacceptable behavior to the customer. In short, the trust factor indicates that one of the latent dimensions of satisfaction about the after-sales service is associated with the ability to make effective repairs, with adequate access to warranty service and a proper cost-effectiveness relationship.

As for latent factor "relationship," determined among the variables included in the model, it is associated with the statements of Lapierre (2000), given that the author cites some elements tangent to the benefits as essential to perceived value. In this sense, statements of Nickels & Wood (1999) and Vargo & Lusch (2004) corroborate the results, since, according to these authors, the relationship in a B2B context seeks to change business perspective from the moment to the long-term, by means of mutual trust ("fair and honest treatment" variable), which are reinforced by a communication management process, in this case translated by the "promptness and courtesy" variable. As one can see, this element mitigates conflicts and positively induces perception of effort and energy used in the relationship.

With regard to correspondence analysis, the model variables were analyzed in comparison with the "overall satisfaction with dealer" variable. Of the eight tested variables, we identified moments of significant association of overall satisfaction with dealer in relation to: (i) cost-effectiveness of spare parts; and (ii) fair and honest treatment. Other variables showed no significant results with respect to this outcome variable.

Table 6 shows the results extracted from the correspondence analysis between variables that showed significant associations.

TABLE 6 – Correspondence analysis of overall satisfaction with dealer vs. cost-effectiveness of spare parts

Overview Row Points ^a									
Overall satisfaction with dealer	Mass	Score in Dimension		Inertia	Contribution				
		1	2		Of Point to Inertia of		Of Dimension to Inertia of Point		
					1	2	1	2	Total
1	.012	-9.220	.000	.988	.988	.000	1.000	.000	1.000
2	.023	.108	-.081	.037	.000	.000	.007	.002	.009
3	.058	.108	.093	.002	.001	.001	.324	.094	.418
4	.477	.108	.618	.077	.006	.468	.073	.921	.994
5	.430	.108	-.693	.086	.005	.531	.059	.934	.993
Active Total	1.000			1.191	1.000	1.000			

a. Symmetrical normalization

Overview Column Points ^a									
Cost-effectiveness of spare parts	Mass	Score in Dimension		Inertia	Contribution				
		1	2		Of Point to Inertia of Dimension		Of Dimension to Inertia of Point		
					1	2	1	2	Total
1	.012	-9.220	0.000	.988	.988	0.000	1.000	0.000	1.000
2	.198	.108	1.111	.102	.002	.626	.023	.936	.959
3	.384	.108	-.032	.028	.005	.001	.162	.005	.167
4	.384	.108	-.433	.043	.005	.184	.106	.658	.764
5	.023	.108	-1.779	.031	.000	.189	.009	.931	.940
Active Total	1.000			1.191	1.000	1.000			

a. Symmetrical normalization

From the analysis of the moments generated among data from respondents for the overall satisfaction with dealer variable and cost-effectiveness of spare parts, we can see that significance of 0.000 allows us to point out that there is an association between the observations of the answers for both groups in question.

Similarly, it is possible to assess, for dimension 1 of the inertia point, the existence of an association among respondents who gave a rating of “1” for both satisfaction with dealer and for cost-effectiveness of spare parts. Based on the Likert scale of 5 points, we can see that the low level of agreement allows us to infer that customers are more susceptible to judgment of positive satisfaction.

Regarding dimension 2 of the inertia point, there is an association between respondents who rated the overall satisfaction with dealer in 4 and 5 with respondents who rated 2 to cost-effectiveness of parts.

From a practical point of view, the cost-effectiveness of spare parts is a crucial element

within the sugarcane segment, as customers operating in the industry require high equipment usage rates. Therefore, wearing parts are replaced more often, which requires efforts to allocate financial resources to maintain the operating fleet according to the demand. The goal is to minimize downtime, either programmed or corrective maintenance, which means reducing and leveraging machine availability and, as a result, reducing cost of ownership. So, a piece available, with affordable price, is in line with the dealer services and competences, and is an element that adds value to the segment customer. This discussion is supported by Lapierre (2000), Eggert & Ulaga (2002), when it points out the value as the difference between the benefits and sacrifices, and Lovelock & Wright (2006) and Johnston & Kong (2011), who state that customer satisfaction is built based on the difference between deliveries and expectations.

The discussion outlined on Table 6 can be viewed through the perceptual map, as shown in Figure 2:

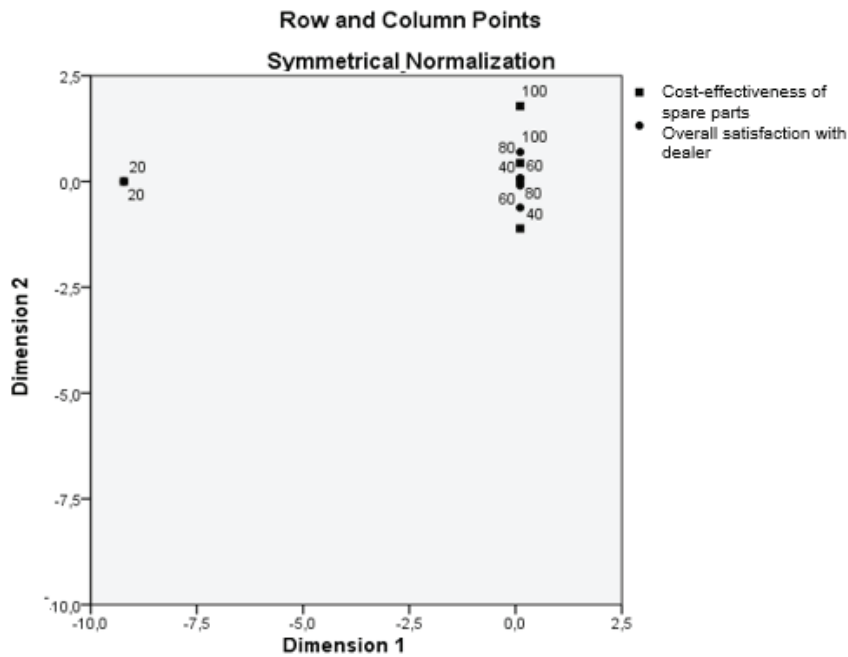


FIGURE 2 – Cost-effectiveness of spare parts vs. overall satisfaction with dealer

With regard to the Table 7, the correspondence analysis is performed between variables Overall satisfaction with dealer and Fair and honest treatment.

TABLE 7 – Correspondence analysis between overall satisfaction with dealer vs. fair and honest treatment

Overview Row Points ^a									
Overall satisfaction with dealer	Mass	Score in Dimension		Inertia	Contribution				
		1	2		Of Point to Inertia of		Of Dimension to Inertia of Point		
					1	2	1	2	Total
40	.037	-.098	-.368	.009	.001	.014	.023	.183	.206
60	.056	3.163	-.418	.341	.915	.028	.990	.010	1.000
80	.574	-.080	.501	.052	.006	.415	.043	.957	.999
100	.333	-.379	-.752	.095	.079	.543	.307	.690	.996
Active Total	1.000			.498	1.000	1.000			

a. Symmetrical normalization

Overview Column Points ^a									
Fair and honest treatment (empathy)	Mass	Score in Dimension		Inertia	Contribution				
		1	2		Of Point to Inertia of		Of Dimension to Inertia of Point		
					1	2	1	2	Total
40	.019	5.205	-1.203	.315	.825	.077	.968	.030	.998
60	.185	-.230	.721	.043	.016	.277	.137	.768	.905
80	.389	.282	.384	.042	.051	.165	.449	.476	.925
100	.407	-.401	-.640	.098	.108	.480	.408	.592	1.000
Active Total	1.000			.498	1.000	1.000			

a. Symmetrical normalization

From the results, it is clear that there is significance and association between both elements, as $\alpha = 0.043$. For dimension 1 of the inertia point, we can see adherence among the respondents who attributed rated 2 on Likert scale for overall satisfaction with dealer and 1 for fair and honest treatment. As regards the dimension 2, respondents who rated 4 and 5 for the overall satisfaction with dealer are associated with those who rated 5 for fair and honest treatment.

Within the segment, customers claiming dealer services expect quick responses in order to reduce downtime and equipment maintenance time. Another important point that impacts customer's perception is that of the dealer who gives priority to customers who buy more machines, have greater fleet or even greater potential for future purchases. In the end, customers, regardless of size of their property and fleet, expect equal treatment and build their expectations from those experiences or to the extent they hear word-of-mouth reports.

It is understood that these attributes are related to the level of communication, an element intrinsic to the security and empathy dimension, and in line with Parasuraman et al. (1988). Therefore, the profiles of sugarcane segment customers can build their perceptions in different ways, according to the contacts provided by the dealer over the product lifecycle. We can also concatenate the results with the findings of Lin & Lin (2011), who highlight the importance of empathy with the customer. Furthermore, Parasuraman et al. (1988) and Lovelock & Wright (2006) show the importance of the variable to serve the customer in a careful and customized fashion, and Wong et al. (2007), who reinforce the need for perceived quality of service and need to provide services whenever requested. The speed tolerated in service is inversely proportional to the impact on the cost, as the machine is stopped due to the unavailability of manpower.

The discussions above can be seen in terms of the conceptual map, as in Figure 3.

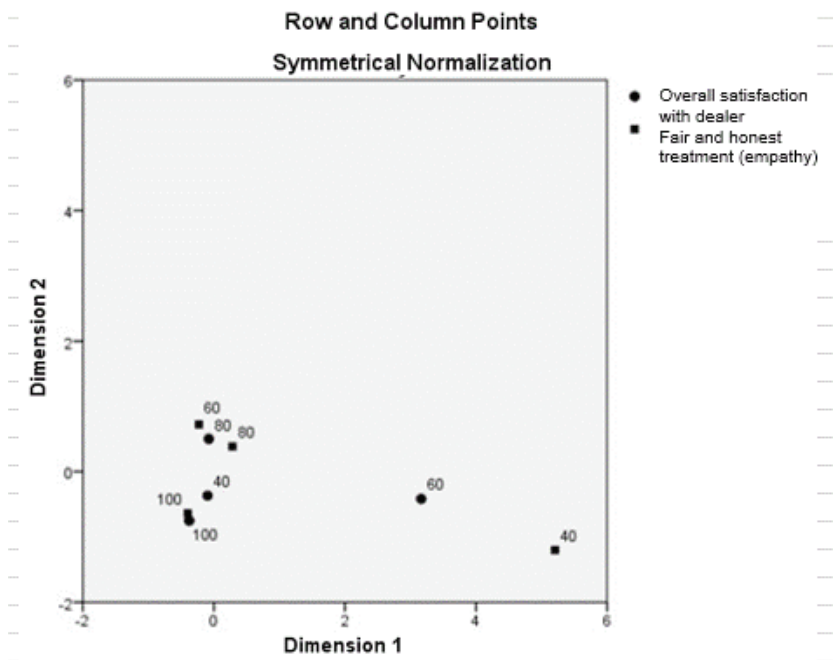


FIGURE 3 – Fair and honest treatment vs. Overall satisfaction with dealer

From the study, we can infer the following significant decision framework on the previously proposed model (Figure 1).

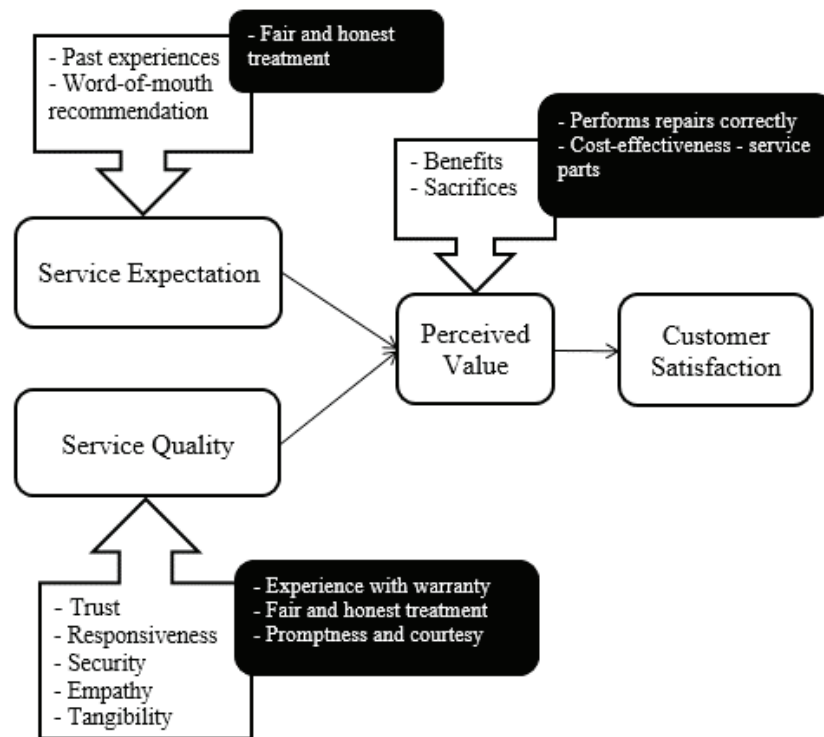


FIGURE 4 – Framework with dimension adhering the model

After the analyses, we perceived that the dimensions mentioned and discussed above, listed in the shaded rectangles in Figure 4, were the ones adhering to the proposed model. For an analysis within the research context, the dimensions considered for interviews with customers reveal consistent results with theoretical discussions identified in the literature for variables associated with service expectations (fair and honest treatment), service quality (experience with warranty, fair and honest treatment, and promptness and courtesy) and perceived value (performs repairs properly and cost-effectiveness – parts). However, other variables such as cost-effectiveness of services, contact from the delivery of equipment, and knowledge of service personnel do not adhere to the model, pointing to new elements and assumptions of literature, from the agribusiness context. Therefore, we use the contributions of Parasuraman et al. (1988), Lapierre (2000), Berry & Terry (2008) and Gil-Saura et al. (2009) to open up new frontiers for

the segment studied and close the gap pointed out by Kellar & Preis (2011).

5 CONCLUSION

This study investigated the factors that are associated with satisfaction of customers of agricultural machinery dealers for the sugarcane segment in the state of São Paulo, based on secondary data obtained from an after-sales base of a major producer of machines in this segment.

Despite the extensive dissemination of research on inducing elements of customer satisfaction in the academy (Choi et al., 2004; Caro & Garcia, 2007; Gebauer & Fleisch, 2007; Gordon, 2013), this paper presents elements of the perceived value and, as a result, elements needed to meet the expected customer satisfaction levels. As pointed out by Kellar & Preis (2011), expectations to meet customer needs in a B2B environment differ according to the technological

level of the organization providing the service (Kellar & Preis, 2011), making room for research on agents inducing customer satisfaction to continue.

The model established was designed based on the literature, with the use of variables related to customer satisfaction, perceived value, service quality and service expectation, which enabled identification of two latent factors that can be translated into customer satisfaction in the segment studied, called “trust” and “relationship.” The result is echoed in the references used, which indicates options for managerial decision when competitive strategies for dealers are implemented in order to win new businesses based on the quality of service provided by the dealer.

The limitations with respect to the variables available for analysis, as well as the amount of responses, do not allow us to generalize results, but allow us assume the consistency of the model. We observed that these latent factors explain only 66.37% of total variance associated with the satisfaction of the contacted customers.

While the model has consistency, to this research we can observe that some of the variables highlighted in the literature failed to fully adhere to it. To results found, we assigned the following reasons, to wit: (i) the need for larger sample, (ii) literature does not fit in a B2B context, and (iii) unidentified causal relationships.

Moreover, the results identified in this paper allow the organization to establish competitive strategies for the segment dealers, focusing upon trust and relationship in order to win new businesses, based on the quality of service provided by the dealer.

From this study, a possibility for future studies is to conduct a broader explanatory research, considering the collection of primary data and the stratification of the profiles of customers in the sugarcane industry dealers, including more explanatory variables to identify other relevant latent factors, and measure the impact of and the gaps in services of dealers in the industry. Another study could consider the impact of the customer service quality, and reduction

of customer losses and waste in relation to the dealers, element also associated with customer satisfaction and that we failed to address in this study. In addition, the impact of services in the industry, within the B2B relationship, is a missing element in the literature and which can be addressed.

Finally, understanding customer needs in order to build lasting relationships is an aspect that constitutes a potential for earnings in the segment, because customers need to increase their gains and minimize total cost of ownership, something complex and that requires effective management and monitoring of the customers' lives. Those who know how to explore these elements will be rewarded in this market, which, despite the structural problems and crises faced in recent years, tends to grow considering future change demands of clean energy matrix in Brazil.

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