An Analysis of the New Norwegian Customer Satisfaction Barometer (New NCSB) in a Supermarket Context

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Abstract: A lot of consumer satisfaction barometers have been proposed by the literature. Initiatives for such propose in Brazil begun to take form in the end of 90's. Initially, Rossi and Slongo (1997) proposed a method for measuring costumer satisfaction, basing on a state-of-art review and their practical consulting experience. As a result, subsequent ideas emerged. However, a dilemma is that the validity, the reliability, and the methods used to assess customer satisfaction and related constructs continue to learn, to adapt, and to improve over time. Thus, this paper tries to understand the modifications and improvements proposed by the new NCSB in Brazil. New NCSB is considers one of the last satisfaction barometers projected by the literature. The method was a survey in a supermarket context, including 264 respondents. The convergent and discriminant validity were supported for all constructs evaluated, using structural equation modeling. In summarize, the results showed support to seven from twelve hypotheses proposed by the model (the relations supported were: Quality on Satisfaction; Complaing Handling on Satisfaction; Price on Satisfaction; Satisfaction on Image; Satisfaction on Affective Commitment; and Affective Commitment on Loyalty). Conclusions for the model as overall and general comments from each hypothesis end the paper.
Key-Words: Satisfaction, Barometer, Supermarket

Resumo: Muitos Barômetros de satisfação de consumidor foram propostos pela literatura nos últimos anos. Iniciativas para tal finalidade começaram a tomar forma no fim da década de 90. Inicialmente, Rossi e Slongo (1997) proporam um método por medir a satisfação de cliente, sob a fundamentação de uma revisão de estado-de-arte no tópico e a experiência de consultoria. Como resultado, idéias subseqüentes emergiram. Porém, um dilema é que a validade, a confiança, e os métodos de avaliar a satisfação de cliente continuam sendo modificados, adaptados e melhorados com o passar dos anos e avanço das técnicas estatísticas. Assim, este paper tenta entender as modificações e melhorias propostas pelo new NCSB no Brasil. O new NCSB é considerado um dos últimos barômetros de satisfação projetados pela literatura. O método de pesquisa foi o de uma survey em um contexto de supermercado, enquanto incluindo 264 respondentes. A validade convergente e discriminante dos construtos foi encontrada, utilizando a modelagem de equações estruturais. Em resumo, os resultados mostraram suporte para sete de doze hipóteses propostas pelo modelo norueguês (as relações apoiadas foram: Qualidade sobre Satisfação do Consumidor; Gerenciamento da Reclamação sobre Satisfação; Preço sobre Satisfação; Satisfação sobre Imagem; Satisfação sobre Compromisso Afetivo; e Compromisso Afetivo sobre Lealdade). Conclusões para o modelo, bem como comentários globais e gerais de cada hipótese, finalizam o trabalho teórico-empírico.
Palavras-Chaves: Satisfação, Barômetros, Supermercado

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Introduction

According to Martensen et al (2000), in 1989, Sweden became the first country in the world to have an uniform, cross-company, cross-industry national measurement instrument of customer satisfaction and evaluations of quality of products and services, denominated the Swedish Customer Satisfaction Barometer (SCSB). Since then, SCSB has been adopted and adapted for using in the United States, known as American Customer Satisfaction Index (ACSI) (Fornell et al., 1996).

In fact, the successful experiences of the SCSB (Fornell 1992) and the ASCI (Fornell et al., 1996) indexes have inspired recent moves towards creating an European Customer Satisfaction Index (ECSI) and a Norway (Andreassen and Lindestad, 1998). As a consequence, other countries have started to use similar national indexes to measure the industry progress. In Brazil, this tendency to use satisfaction barometers is not so different, although the country does not have its own national index.

However, a problem is that the validity, the reliability, the models and the methods used to measure customer satisfaction and related constructs continue to learn, to adapt, and to improve over time (Johnson, et al., 2001). For an example of that evolution, Marchetti e Prado (2001) classify satisfaction measurement in three groups. Models based on Paradigm of Disconfirmation, models based on multiple satisfaction indexes and models based on structural equation modeling. Thus, efforts are needed at all levels of society in order to offer additional performance indicator of satisfaction (Eklof and Westlund 1998). Consequently, looking for fulfilling this gap, the New Norwegian Customer Satisfaction Barometer (new NCSB) was proposed in the literature. Therefore, analyzing from the point of view that countries need of better satisfaction indexes, aligned to the needed of a Brazilian barometer and the verification of new NCSB, this paper has as main goal to understand more the modifications and improvements proposed by the new NCSB in Brazil.

Based on this context, the paper is structured as follow. First, it discusses the theory and the hypothesis behind the new NCSB. Second, the method used in the empirical part of the investigation. Next, it presents and explains the main results. In the end, the paper is closed with general discussions.

Theory And Hypothesis Development

The new NSCB was built based on several barometers introduced in the last decade. In fact there are a lot of indicators of satisfaction around the word, such as: Swedish Customer Satisfaction Barometer, American Customer Satisfaction Index, Norwegian Customer Satisfaction Barometer, European Customer Satisfaction Index, German Barometer, Danish Customer Satisfaction Index, Korean Customer Satisfaction Index, Hong Kong Customer Satisfaction Index and so forth. This paper will not explain each model individually, since it is not our goal and since it was elucidated with more details by Johnson et al., (2001). The model that will be evaluated in this research is in Figure 1. There are differences between it and the original NCSB. Therefore, this essay will explain the inclusion and the exclusion of some constructs during the hypothesis development.

Initiating on the company level, image has been defined as "perceptions of an organization reflected in the associations held in consumer memory" (Keller 1993). The history of corporate image definition reveals convergence on a gestalt meaning, but one that omits corporate attributes and focuses exclusively on perceiver images (Ster et al., 2001) starts to appear – the transactional process. In this meaning, the process is developed between the brand stimulus and the consumer perceiver. Thus, It is hoped that any consumer starts its purchase process by evaluating the image of something or by remembering the old ones (mainly the positive ones). Therefore, corporate image, in the service marketing literature, was early identified as an important factor in the overall evaluation of the service and the company (Andreassen and Lindestad 1997; Grönroos 1984). Moreover, it is also one of the most important tools for diverging among competitors.

The cross-sectional nature of national customer satisfaction data means that pre-purchase expectations are collected post purchase, or at the same time that satisfaction is been measured (Johnson et al., 2001). However, what is really being collected is a customer's more recent consumption experience, or customer satisfaction (Johnson et al., 2001). As a consequence, corporate image should be modeled as an outcome rather than a driver of satisfaction, because it is recreated post satisfaction exposition. In addition, the effect of satisfaction on corporate image reflects both the degree to which customers' purchase and consumption experiences (Churchill and Suprenant 1982) enhance a product's or service provider's image and the consistency of customers' experiences over time.

On the other hand, key to perceptions of corporate image is the organization-related associations held in a customer's memory (Johnson et al., 2001). Since consumer could evoke the past experiences in a future purchase intention, previously image could appear as an explicatory variable of the purchase intention in this context. In turn, the salient corporate image should affect effective behavioral intentions, such as loyalty. Selnes (1993) hypothesized this result for brand reputation and found consistent results. Other studies also support the fact that corporate image is predictor of loyalty (for example, Loughlin and Coenders 2002; Kristensen, Martensen and Gronholdt 2000; Bloemer and Schroder 2002). Thus, it is expected that corporate image leads directly customer loyalty. Based on these circumstances, the hypotheses are:

> H_1: Customer satisfaction has a positive influence on Corporate Image.
> H_2: Corporate image has a positive influence on Loyalty.

The next two causal links are regarding complaint handling and customer satisfaction and/or loyalty. Although no prediction is made regarding this relationship, the direction and size of this relationship provides some diagnostic information as to the efficacy of a firm's customer service and complaint handlings systems (Fornell, 1992). Johnson et al., (2001) believes that complaint handling, which is now used in the place of complaint behavior, should have a direct and positive effect on satisfaction as well as loyalty. It is because well-handled complaints could do the client happier, since he/she could be thinking that the company is interested in solve his/her problems, thus complaint handling could leave to satisfaction. In the words of Johnson et al., (2001, p.230), "complaint behavior should reduce cumulative satisfaction as an overall measure of the customer's experience while satisfaction, in turn, reduces complaint behavior in accord with Hirschman's Theory", appearing to be a reciprocal hypothesis.

Moreover, as a consequence of such handling, it may also be salient that when repurchasing the product or service, or recommending it to others, past complaint handling may also have a direct and positive effect on the cognitive evaluation of the product. Therefore, the complaint handling made in the past could leave to satisfaction (Smith, Balton and Wagner 1999), and as a complement, it could leave to loyalty. For that reason, when complaints are well handled, they should be viewed as driver rather than as consequence of satisfaction and loyalty in the new NCSB. Thereby, the next hypotheses are: H_3: Complaint Handling has a positive influence on Customer Satisfaction.

H_4: Complaint Handling has a positive influence on Customer Loyalty.

Second Johnson et al., (2001), because quality is part of value, the relationship between perceived quality and perceived value is confounded. As an outcome, the authors recommend replacing the perceived value construct with a perceived price construct. In fact, in those cases, "where satisfaction evaluations are weaker, or customers have less confidence in their evaluations, price may have more direct effects on loyalty" (Johnson et al., 2001, p.233) and on satisfaction. On the other hand, when price is low, customer could increase his/her satisfaction, because he/she could be perceiving a better value for his/her money. In practical terms, Mittal, Ross and Baldasare (1998) perceived the price importance and argue that price is receiving attention in customers' repurchase (loyalty) evaluations. Thus, price could leave to satisfaction and loyalty.

H_5: Price has a positive influence on customer Satisfaction.
H_6: Price has a positive influence on customer Loyalty

The next construct is loyalty. According to Zeithaml, Berry and Parasuraman (1996) clients more loyalty are better inclined to shop more. In the new NSCB, loyalty still is a consequence of satisfaction. Loyalty reflects the degree to which customers' purchase and consumption experiences directly affect loyalty (Johnson et al., 2001, Anderson, Fornell and Lehmann 1994). For Andreassen and Lindestad (1997), who treated customer satisfaction as the accumulated experience of a customer's purchase and consumption experiences, this theoretical relation was supported; however corporate image had a stronger effect on loyalty than on customer satisfaction. Other studies also supported the relation between satisfaction and loyalty (Gronholdt, Martensen and Kristensen, 2000; Anderson and Sullivan 1993; Anderson and Mittal, 2000; Rust, Zahorik and Keiningham 1995; Gustafsson and Johnson 2002). Thus, it is predictable that:

H_7: Customer Satisfaction has a positive influence on Consumer Loyalty

Talking about commitment, two proposing relations are suggested in the new NCSB. The two proposing commitment relations are affective and calculative. In fact, relationship commitment picks up on these dimensions that keep a customer loyalty to a product or company even when satisfaction and/or corporate image may be low. According to Allen and Meyer (1990) moral store-commitment refers to a feeling of obligation to an organization. Mathieu and Zajac (1990) argued that moral commitment is rare in business relationships, thus, calculative and affective commitment seem to be most relevant for business relationships. Calculative commitment is the extent to which a person feels a need to maintain a relationship based on a 'cold', rational calculus of benefits in relation to switching costs (Hemetsberger and Thelen 2003). Calculative commitment is almost exclusively due to non-psychological exit barriers (Hemetsberger and Thelen 2003). In contrast to this, affective

commitment is defined as the desire to continue a relationship and expresses a sense of loyalty and belongingness (Morgan and Hunt, 1994).

According to Johnson et al. (2001), *affective* component is "hotter" or more emotional evaluation, since it captures the affective strength of the relationship that customers have with a brand or company, and the level of involvement and trust that result. The *calculative* commitment serves as psychological barrier to switching, since the calculative component is based on "colder" or more rational and economical aspects of the service. In the new NSCB the satisfaction construct is expected to influence affective and calculative commitment. In addition, commitment constructs are modeled as mediating the effects of satisfaction on loyalty. This relation (satisfaction -> commitment -> loyalty) has been study in diverse research (Dick and Basu, 1994; Prado and Santos 2004), however, these authors do not treated commitment as affective and calculative. Thereby, based on the evidences quoted previously, we hypothesized that:

H_8: Affective Commitment has a positive influence on Customer Loyalty.
H_9: Calculative Commitment has a positive influence on Customer Loyalty.
H_{10}: Satisfaction has a positive influence on Affective Commitment.
H_{11}: Satisfaction has a positive influence on Calculative Commitment.

Johnson et al., (2001) also recommend the direct effects of price and/or quality on loyalty be considered. The literature comments that perceived quality is the consumer judgment over the general excellence or over product superiority (Zeithaml 1988). In this context, the new NCSB breaks quality up into different quality dimensions that make up the "lens" of the customer. These dimensions are the ones know from Servqual. The authors see it as a matter of choice as to whether one uses an overall quality index (as in the ASCI). Therefore, this decision should depend on the level of detail and diagnostic information desired. For Johnson et al., (2001, p.233), "because satisfaction is an attitude-type evaluation, the degree to which satisfaction will completely mediate the effects of price and quality dimensions on loyalty will be a function of the strength of the satisfaction evaluations". As a first result, price is supposed to impact loyalty (see H_6), since price is particularly likely to receive increased attention in customers' repurchase (versus satisfaction) evaluations. On the other hand, there are some evidences that quality (as a performance perception) could influence satisfaction (Szmigin and Bourne 1998; Prado and Santos; Wolfinbarger and Gilly 2003). Based on this discussion, the next hypothesis is:

H_{12}: Quality has a positive influence on Customer Satisfaction.

Therefore, the final new NCSB proposed is showed in figure 1. As a conclusion and according to Johnson et al., (2001), the new barometer of satisfaction: (1) replaces the value construct with a "pure" price construct; (2) replaces customer expectations with corporate image as a consequence of satisfaction; (3) includes two aspects of relationship commitment, as well as corporate image as drivers of loyalty; (4) incorporates the potential for direct effects of price on loyalty, and (5) includes complaint handling as driver of both satisfaction and loyalty.

Figure 1: New Norwegian Customer Satisfaction Barometer
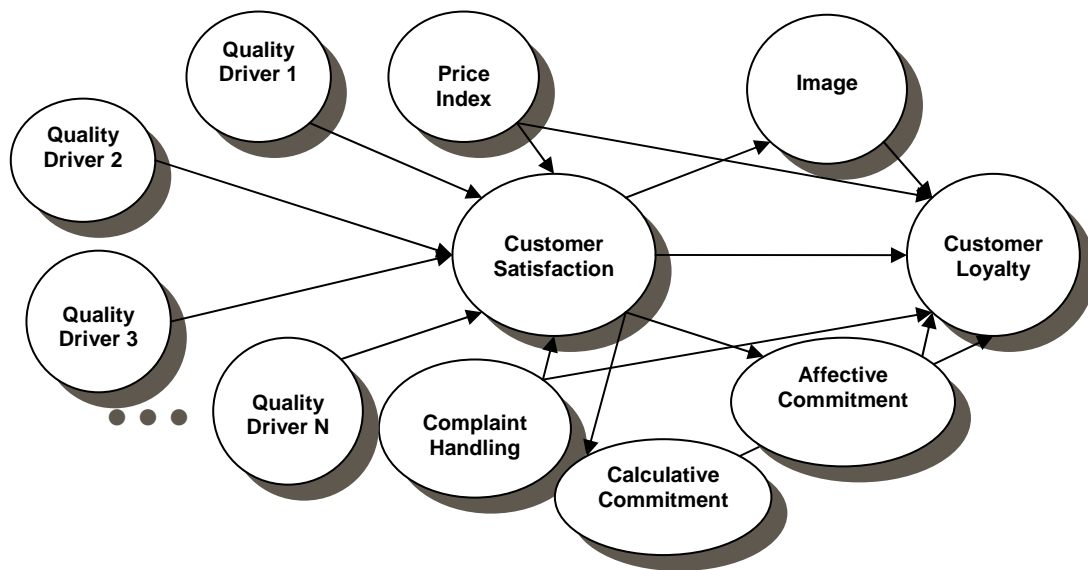
Source: Johnson et al., (2001, p.231)

Research Design And Method

Sample. The sample was characterized as non-probabilistic and by convenient (Malhotra, 1996). Based on this consideration, <u>264</u> people evaluated supermarket system. A questionnaire was posted in the internet and sent to an e-mailing list.

Measures. The measures were translated to Portuguese using double-back-translation (Malhotra, 1996). After that, the questionnaire was tested with 22 people in order to verify the understanding and the meaning of the questions. Some questions were modified and a final version was built. The measures were based on likert type scale varying from probably to unprobably, from low to high and from and good to bad. Customer (3 items) satisfaction was measured in a 10-point. Price was measured in a 10-point (3 items). Corporate image was measured in a 10-point (4 items). Complaint behavior was measured in a 10-point (2 items). Affective commitment was measured in a 10-point, (3 items). Calculative commitment was measured in a 10-point (4 items). Loyalty was measured in a 10-point (3 items). Quality was measured in a 10-point (18 items). The five dimensions of quality employed were Tangibles, Reliability, Responsiveness, Assurance and Empathy. In addition, an overall quality index was implemented.

Results

For the hypothesis test, structural equation model was used. Thus, for such propose, the data were pre-analyzed according to some criteria for better purification. The Missing values found were below 10% and they were substituted by means. Outliers were verified according two criteria: one is based on score Z, where values above ± 3 were deleted (5 cases), and the second one was based on Mahalanobis distance D^2 (none case) (Hair et al 1998). Therefore, the final sample was 259 observations. Normality was checked in terms of kurtosis (± 10), skweness (± 3), and Kolmogorov Smirnoff test ($p<0,05$). In these three features, all variables did not have problems. Multicolinearity was assessed using Pearson correlations, where values above $\pm 0,90$ were excluded because they could mean the same variable. Based on multicolinearity, one variable of loyalty was excluded (r=0,93; $p<0,01$; loyalty1) and another

one of calculative commitment was excluded (r=0,97; *p*<0,01; image2). Thus, after these initial check procedures multivariate analysis was used.

First of all, exploratory factor analysis (EFA) was used to evaluate the unidimensionality of the variables (Dunn, et all., 1994). The goal utilizing EFA was not only to define better variables that compose the factor (in terms of loads), but also to assess if the constructs are unidimensional or multidimensional. Thus, the criteria for excluding the variables in the matrix was load-values under 0,40. For extraction, principal components was used and, for rotation, varimax method was utilized (eigenvalues >1). Table 1 shows some interesting results from that analysis.

According to the data, calculative commitment was the only construct which had a value under α=0,70 and because of that low reliability it was excluded from the model. As a comparative, that construct also had poor performance in the Johnson et al., (2001) study compared to the others'. In fact, calculative commitment had values few above the limit of 50% (in average communality). In addition, price, which in the questionnaire had 3 indicators, was verified to be multidimensional. Moreover, quality (which in the questionnaire had the 5 dimensions of Parasuraman, Zeithaml and Berry 1988) appears to have just 3 dimensions, which these 3 dimensions did not frame perfectly in any one from Parasuraman, Zeithaml and Berry (1988).

Table 1: Unidimensionality test Using Exploratory Factor Analysis

Variables before EFA	Dimensions after EFA	Construct	KMO	Bartlett (*p*<0,01)	Alpha (α)	VE%
4	1	Image	0,85	,000	0,911	78%
4	1	Affective	0,80	,000	0,856	70%
2	1	Complain	0,50	,000	0,700	77%
3	1	Satisfaction	0,70	,000	0,843	76%
2	1	Loyalty	0,50	,000	0,747	80%
18	3	Quality	0,94	,000	0,940	58%*
2	1	Calculative	0,50	,000	0,420	63%
3	2	Price	0,48	,000	0,843	57%**

Source: Authors; KMO=Kaiser Test; VE=Variance Extracted
* The first dimension only, adding the second dimension = 66%, and the third dimension = 72%.; ** The first dimension, adding the second dimension = 91%.

Second, after use exploratory factor analysis, some constructs were evaluated according to confirmatory factor analysis (CFA). Thus, constructs from table 1 were assessed to be confirmed. Calculative Commitment (low alpha), Price (just two items), Handling-Complain (two items), Loyalty (two items) were not evaluated. Then, the fits for the other constructs in CFA were: Affective (χ^2=30,582; df=5; AGFI=0,903; GFI=0,952; CFI=0,946; RMSEA=0,141; *p*=0,000), Quality (χ^2=341; df=14; AGFI=0,548; GFI=0,774; CFI=0,822; RMSEA=0,301; *p*=0,000), and Image (χ^2=21,433; df=5; AGFI=0,927; GFI=0,963; CFI=0,976; RMSEA=0,113; *p*=0,001).

Third, discriminant validity was performed one-at-time chi-squared difference tests for the largest cross-construct correlations. The values for discriminant validity found were: affective-satisfaction (χ^2_{diff}=32,76; *p*<0,01); affective-quality (χ^2_{diff}=29,73; *p*<0,01); affective-image (χ^2_{diff}=12,85; *p*<0,01); image-quality (χ^2_{diff}=14,50; *p*<0,01); image-satisfaction (χ^2_{diff}=25,79; *p*<0,01) and quality-satisfaction (χ^2_{diff}=22,59; *p*<0,01). According to the values found and a cut-off of 3,84 (Moura and Gonçalvez, 2005), the discriminant validity was found

for all constructs. Fourth, convergent validity was also performed using confirmatory factor analysis. Thus, the t-values were evaluated. Convergent validity is supported when *t*-value is above 1,96 (*p*<0,05). As a result, the convergent validity was supported for all constructs evaluated (image, affective, satisfaction, and quality).

Fifth, the table 2 presents the composite reliability (CR), the average of variance extracted (AVE) and the correlations among the constructs. The CR and AVE are also measures of reliability and they are comument used in structural equation models. The values were all significant at *p*<0,01 (values indicated for AVE and CR are ≥0,50 and ≥0,70). After that, multicolinearity was assessed and none construct had a correlation above ±0,90, which could characterize the same variables (used in Prado and Santos, 2004).

Table 2: Composite Reliability, Average of Variance Extracted and Correlation

Measure	CR	AVE	Mean	Image	Affective	Comp.	Sat.	Loy.	Qual.	Price
Image	0,92	,74	7,5123	1						
Affective	0,86	0,61	6,5834	,646	1					
Complaint	*	*	7,4813	,533	,768	1				
Satisfaction	0,86	0,68	7,0431	,769	,818	,772	1			
Loyalty	*	*	6,1356	,587	,761	,680	,742	1		
Quality	0,90	0,59	7,3123	,596	,717	,842	,779	,630	1	
Price	*	*	6,6565	,598	,693	,676	,749	,641	,615	1

Source: Authors; * Construct with less then 3 indicators; Mean of a scale of 10 points; all correlations were significant at *p*<0.01

After discussing the validity and confiability of the scales and construct used in the research, the global model was tested. Global fit indicates that the model needs to be adjusted for the data before testing the hypothesis. Without a good fits on the data, the path coefficients cannot be assessed.

The global model fits were: χ^2=57,425; df=8; χ^2/df=7,17, *p*=0,000; AGFI=0,81; GFI=0,946; NFI= 0,965; IFI= 0,970; CFI=0,97; TLI= 0,921; IFI=0,970; RMSEA=0,155. As a conclusion, the poor fits were RMSEA, χ^2/df, and AGFI, which were above the minimum value indicated by theory of 0,08 and 0,90, respectively. Since some convergence of the data was found and since some fits indicated good values, the path model was estimated. The estimation method used was maximum likelihood. To do that, path analysis was used. Path analysis uses the average of the constructs and observable variables (Pestana and Gageiro 1997). Results from each hypothesis are discussed ahead.

Hypothesis Discussion

The first hypothesis was supported in this research (β = 0,77; t = 19,322; *p* = 0,000 [All Betas are standardized]). It means that customer satisfaction has a positive influence on corporate image. Based on the transaction driven nature of satisfaction experience, several writers claim that corporate image is a function of the cumulative effect of customer (dis)satisfaction (Fornell 1992, Johnson and Fornell 1991). It suggested that when more the customer is satisfied, more this affective aspect will create a positive corporate image in the customer cognitive system. In fact, corporate image is established and developed in the consumers' mind through communication and experience (Andreassen and Lindestad, 1997). As a practical terms, it could mean that a determinate degree satisfaction (e.g. with a fast attendance) could generate a positive corporate image.

The second hypothesis, stated as corporate image has a positive influence on loyalty, was not supported in this study. Contrarily, Andreassen and Lindestad (1997) found in their study that corporate image had not only a significant effect, but also a stronger effect on loyalty than customer satisfaction. From this study, the same cannot be said. In fact, image has not an effect on loyalty ($\beta = 0,03$; t = 0,57; $p = 0,568$). A possible explanation is that since supermarket segment is a very competitive market and the products price are very similar among firms, a supermarket having only positive/negative image could not influence the repurchase probability. Place availability and attendance may be better alternatives of leaving to loyalty than image. Mainly place availability, because sometimes the consumer cannot have time to go to another supermarket of his/her preference. In addition, image in supermarket segment could not have a so discriminant (e.g. Wall Mart x Carrefour) power as in other segments (i.e. fast-food). Hence, it could be another explanation to the fact that H_2 failed.

The third hypothesis comments that complaint handling has a positive influence on customer satisfaction. This hypothesis was supported in the positive relation ($\beta = 0,19$; t = 2,93; $p = 0,003$). It could mean that when the consumer makes his/her complain he/she could become happier, because this complain could be perceived as a suggestion to the company improves its quality/performance (or perceived as relief by customer). Since then, the consumer could think that this suggestion is in fact contributing not only for the company improving its service, but also for other clients (inclusive his/her) in the future customer receiving a better product. Therefore, the assumption made by Johnson et al., (2001) appears to be correct, although they did not found empirical support. It means that the consequence of such handling managing should have a more positive effect on satisfaction ($\beta=0,19$).

The fourth hypothesis was not supported. It means that a well-handled complaint does not have a positive effect on loyalty ($\beta = 0,11$; t = 1,71; $p = 0,087$). Thus, complaint managing does not mean that the consumer will repurchase the product/service. This causal result is in according to the find of Johnson et al., (2001), and could mean that making a complaint might indicate that the consumer knows that (when complaining) the organization won't give importance to that idea. On the contrary, if the consumer feels that the organization will review its complaint careful, it could be a clue of repurchase.

The fifth hypothesis believes that price leaves to satisfaction. It was supported ($\beta = 0,39$; t = 8,79; $p = 0,000$). Consumer could think that a good price could help/facilitate in his/her decision making process. When the consumer perceives that he/she is paying a fair price for the product, this purchase could generate better affective positive responses. These responses, in turn, could leave to satisfaction. This explanation could be similar to the benefit-value proportion proposed (Sideshmukh, Singh and Sabol 2002), where the consumer knows that he/she is receiving a better value for the money spending. As a complement, the relation stated that price has a positive influence on customer loyalty (sixth hypothesis) was not supported ($\beta = 0,10$; t = 1,599; $p = 0,11$). An interesting interpretation of the results is that most of the relations suppose to be antecedent of loyalty, in fact, failed in their significance. However, even without the support of theses results, the R-squared of loyalty was 62%. Summarizing, satisfaction and handling complain are the only drivers of satisfaction. Thus, it is recommended that the relation of image, handling complain and prince may be better explored in future studies, since none of them were significant in their relations.

The seventh hypothesis is a classical hypothesis. It believes that customer satisfaction has a positive influence on consumer loyalty. According to the results, this relation is supported and

the beta regression is 0,24 (t = 2,61; *p* = 0,009). The hypothesis result follows the same results from other studies (Gronholdt, Martensen and Kristensen, 2000; Anderson, Fornell and Lehmann, 1994; Anderson and Sullivan 1993; Anderson and Mittal, 2000; Rust et al., 1995; Gustafsson and Johnson 2002) and demonstrates the importance of the supermarket segment invest on this construct.

The hypothesis number eight-to-eleven analyzes commitment. Affective commitment (more emotional) and calculative commitment (more rational) are supposed to influence customer loyalty. The first result about commitment is that the factor loads and alpha cronbach value for calculative commitment was low. Thus, since the alpha value (α=0,42) was below the indicated by theory, the construct calculative commitment was excluded. Thereby, future research could generate better item for measuring the calculative commitment. The second result is that some hypotheses (8 and 10) were supported. It means that H_8 presents the idea that affective commitment could leave to loyalty (β = 0,40; t = 5,49; *p* = 0,000), and H_{10} presents that satisfaction influences positively affective commitment (β = 0,81; t = 22,86; *p* = 0,000). It appears that affective commitment arises as an important construct in the satisfaction barometers, since satisfaction and loyalty are antecedents and consequents of commitment. The beta value achieve a value of 0,77.

Although not hypothesized in the same way of this study, Prado and Santos (2004) found a significant relation from the affective positive H_{5a} (and negative H_{5b}) response to satisfaction. For these authors, affective positive responses are the feelings that the costumer develops (that can be positive or negative) in situations of buying. Therefore, it could be a strong indicative that affective response construct should play an important role in satisfaction/loyalty models, and it could be related to affective commitment construct.

The twelfth hypothesis suggests that quality has direct a positive influence on customer satisfaction (see also other studies: Kristensen, Martensen and Gronholdt 2000, Loughlin and Coenders 2000). The only problem with this relation was on the construct per se (β = 0,38; t = 6,38; *p* = 0,000). While the causal relation was supported, Johnson et al., (2001) had problems with the dimensions of quality used. This work also had the same problems. In fact, from the five dimensions that were supposed to appears, just three appeared corresponding to the 72% of variance explained. Although the variance explained could be considerate good, the dimensions found appeared confused. Thus, it was not possible to rename them. According to the path, that causal relation was supported and it is in agreement with the disconfirmation paradigm, which indicates the construct quality as an antecedent of satisfaction (Oliver, 1980, 1997, Fornell, 1992, Fornell et al., 1994). In addition to the hypothesis test, the R-squared of the constructs was verified. According to the data, good values were found in this study. Satisfaction, for example, had a R^2=73%. Affective (R^2=67%), image (R^2=59%) and loyalty (R^2=63%) also obtained good values.

Figure 2: New Norwegian Customer Satisfaction Barometer (results non standart.)
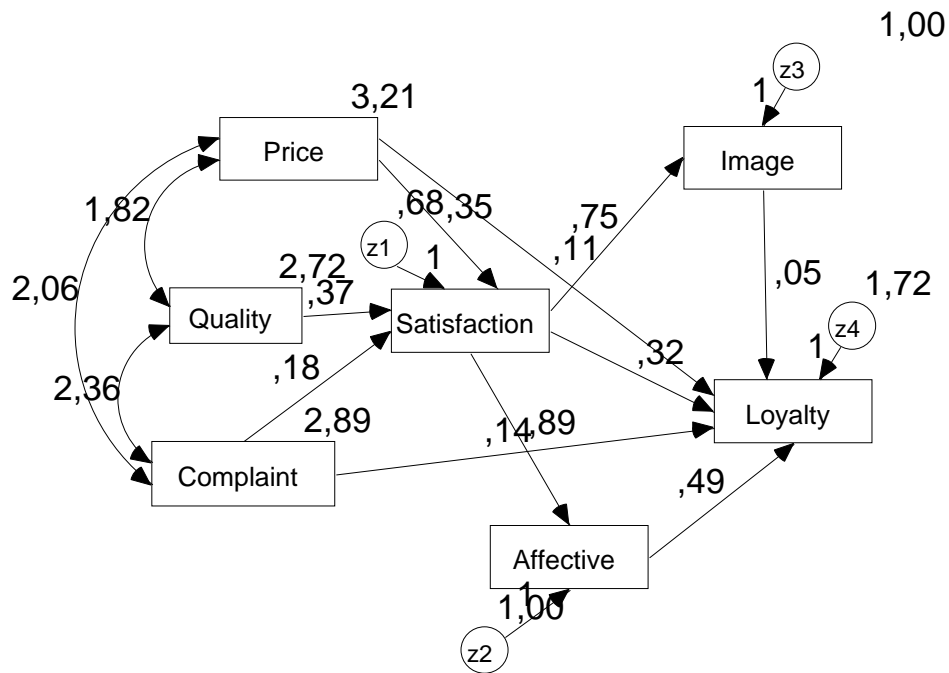
Conclusions

The new NCSB is a new type of market-based performance measure for firms. As it is new, countries need to evaluate its features and performance, because it represents a step forward in the evolution of national satisfaction indicators. Thus, this paper tried to do an initial test for that. Therefore, some results deserve to be highlight.

First, some variables in the scale had problems in their loads and in their dimensions. For instance, calculative commitment paths could not be tested because of its low alpha value. Consequently, this construct was retired from the model. In addition, based on dimensions found, the price (3 items and 2 dimensions) and the quality constructs (18 items, 5 dimensions hypothesized by theory and 3 dimensions found empirically) need to be reviewed in terms of scale and dimensionality. It is important to say that Johnson et al., (2001) also had troubles with the dimensions of quality used (based on SERVQUAL). Besides, loyalty construct lacked the number of necessary items in its dimension to use CFA. It is because from the 3 items proposed to measure loyalty, one had a high correlation with another and was excluded, disabling, consequently, the use of CFA. Second, in terms of discriminant analysis, composite reliability and variance extracted this study found good results, indicating that the high reliability of some measures and the discriminant power existed.

Third result is that price may have a direct effect on loyalty over and above its indirect effect via satisfaction; this is because satisfaction, as an attitude-type construct, may only partially mediate the effect of quality and price on loyalty (Johnson et al., 2001). The findings diverge on that argument. Price is significant an antecedent of satisfaction, however, price is not a significant antecedent of loyalty, indicating that satisfaction could not mediate the price-loyalty relation.

Fourth, complaint handling appeared as an interesting variable for future studies to analyze, since it did not was supported in the five segments studied by Johnson et al., (2001), and it was supported in this study. Moreover, the valence of the relation was found in a positive way

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(as expected). Therefore, this construct, when well managed, could help marketing professionals to achieve better satisfaction results.

Fifth, Johnson et al., (2001, p.242) argue that "the new NSCB model explains significantly more variance in loyalty than other national index models…". In this context, loyalty R-squared in this study was 62%, and in Johnson et al's study it changed from 46% to 62% on the five segments. Comparing with other studies, we have interesting results. For instance, in testing ECSI model, Leite, Elias and Sundermann (2005) did not present the R-squared values; in testing the ACSI model, Urdan and Rodrigues (1997) found a value of 86% to loyalty and in testing the adapted ACSI, Moura and Leite (2005) found a value of 60% to loyalty. In summarizing, concluded something more affirmative from these initial results could be dangerous, so this research prefers to be more cautious in assume any position. From that analysis, any future research could re-test the ASCI or ECSI model using affective commitment as plus, since it was found to be a driver of loyalty. Thus, it could be inflating the R-squared of such barometers. In the end and limiting on the sample studied, the general findings concluded that (1) quality is more important than price and complaint in determining customer satisfaction, (2) satisfaction plays an important role in determining affective commitment, (3) satisfaction and affective commitment, rather than price and image, are antecedents of customer loyalty, and (4) customer satisfaction has a positive influence on corporate image

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