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## Market Segmentation Models to Obtain Different Kinds of Customer Loyalty

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**Abstract:** Business databases are sources of information that a company can use together with analyses of business statistics for acquiring knowledge of its own customers. Such large availability of information allows companies to devise new models of market segmentation, customer satisfaction and customer loyalty, which require great amount of data. We investigate the possibility of defining new types of customer loyalty by using strategies of market segmentation and statistical indexes of customer satisfaction.

**Key words:** Market segmentation, customer satisfaction, customer loyalty

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### INTRODUCTION

Market segmentation is a main goal of commercial companies and is developed through different marketing activities. It can be said that the process of segmentation requires, as a preliminary step, the knowledge of the characteristics of its own customers in order to check if they are coherent with the corporate objectives. In fact, customers may differ in many aspects, e.g., their purchasing power and their specific needs. Therefore, a company needs to identify and address their different expectations in order to develop strategies that increase their satisfaction and value.

Segmentation starts from the selection of variables that measure those customers' characteristics that are considered appropriate for classifying clients in homogeneous groups or clusters. There exist two main approaches to segmentation, the top-down method and the bottom-up method. According to the former, the management selects *ex ante* the variables to be used for the cluster analysis. As for the bottom-up method, the process of segmentation defines the clusters through correlation coefficients that are calculated on the basis of all the available information on customers, information that is typically collected via data mining.

The selection of these segmentation variables is highly strategic; it can involve variables largely known in the marketing literature, such as socio-demographic variables which lead to the so called geo-demographic segmentation, or individual-specific variables, such as purchasing power, purchase frequency, frequently purchased goods and average expenditure. A third class of variables is given by variables that describe the life and consumption styles of a customer, giving rise to a psychographic segmentation.

Segmentation can also be based on variables of customer loyalty and customer satisfaction, although they may be measured in many different ways according to the existing marketing literature. For example, consider the bottom-up method and support it with data analysis techniques. Then, it is possible to associate socio-demographic and behavioral variables, including indexes of customer satisfaction and customer loyalty.

We first review different models of market segmentation, some of them associated with models of customer satisfaction. Then, we consider different types of loyalty and finally, we show how market segmentation models commonly used in the literature (which use different variables for clustering) may generate different types of loyalty.

### ON MARKET SEGMENTATION MODELS

Smith (1956) said: "Market segmentation involves viewing a heterogeneous market as a number of smaller homogeneous markets, in response to differing preferences, attributable to the desires of customers for more precise satisfactions of their varying wants". Market segmentation models have emerged as a strategic activity of management: they aim at formulating different alternatives, ranging from mass marketing to one-to-one marketing. The recent availability of transnational corporate data has promoted a frenetic activity of market segmentation, moving from simple socio-demographic variables to more complex variables generated from the customer behavioral styles. Consequently, market segmentation has become an important part of business for firms that have customer loyalty as their main goal.

Segmentation models have the role of simplifying a complex situation by dividing the clients in groups so as

to address specific strategies of product and service marketing to each one of them. However, it is worth noting that market segments are not real entities but theoretical concepts that are necessary when it has to be decided which strategies to implement for detecting customers' needs and increasing the profit.

If one agrees that markets segments are determined by the need of simplifying a given market and by the strategic view of the management, then different segmentation models should produce different kinds of customer loyalty.

Many recent papers analyze how market segmentation has changed because of the market globalization which has taken place in the last decades: they all agree that globalization causes a profound reconsideration of marketing strategies towards the definition of international market segments of customers. To name a few, Steenkamp and Hofstede (2002) consider the interesting phenomenon of international market segmentation, while Brangule-Vlagsma *et al.* (2002) analyze the change in the system of values, trying to understand the change in customer attitudes and the consequent changes in market segmentation. Boone and Roehm (2002) proposes neural networks as an alternative method for market segmentation and makes a comparison with other existing methods, Leung (2009) propose an inductive learning approach to assist in classifying customers into market segments and Lai and Wu (2011) apply statistical techniques to identify significant demographic variables for market segmentation.

**The relatively new values segmentation:** Human values are significant for understanding consumers' motivations. They have been used both for market segmentation and for the analysis of segments changes. Several values are involved in human attitudes and in people motivations. However, it seems engaging to found attitudes and motivations on a set of values. In fact, human situations can involve conflicts between different values and these conflicts could be resolved according to a singular system of values that represents the individual list of priority. An interesting study in the field of market segmentation that uses a system of values can be found in Kamakura and Novak (1992); this study analyzes the system of values in a sample of customers. Another relevant research is given in Brangule-Vlagsma *et al.* (2002) which focuses on changes of a system of values that addresses changes in individual systems of values over time. In this work the authors conceptualize many ways in which systems of values can change over time.

Analyses of changes of a selected value are instead collected in Rokeach and Ball-Rokeach (1989), where it is found that mean rankings are remarkably stable, whereas means of few values have dramatically decreased in

importance from 1968 to 1981. Inglehart and Abramson (1994) describe a permanent shift from materialist to postmaterialist value orientation, a trend that results from generational replacement and is closely linked with prosperity. Hamberg (1995) finds out that values of immigrants are similar to those of Swedes, in particular between Hungarian and Swedish people: the process of assimilation and the exposure to a new culture lead to a values change. Flanagan and Lee (2000) suggest that the value orientation has changed from an authoritarian to a libertarian set of attitudinal orientations: a change of value orientation is caused by the generational replacement and is closely related to the increasing need for self-actualization that is facilitated by economic prosperity.

Value system can change also over time: determinants of change can be endogenous or exogenous. As for endogenous determinants, we can consider the individual experience, while environmental experience is an example of an exogenous determinant. Most of the studies of values segmentation have made a direct comparison with models with a priori defined segments: a relatively recent work has shown the convenience of analyzing value system at the level of a posteriori defined segments (Kamakura and Mazzon, 1991; Brangule-Vlagsma *et al.*, 2002).

The model set forth in Kamakura and Mazzon (1991) is a mixture model that identifies segments and value systems in the population by clustering individuals. The paper of Brangule-Vlagsma *et al.* (2002) describes dynamic values segmentation and shows that a model that assumes stable values systems has a better fit with respect to models with an unstable values system. This model accounts for similarity of observed judgements among individuals in a segment at a given time: it accounts for changes in values system by specifying a whole class of models. These models are: idiosyncratic value system and segments per time, *panta rei*, stable value system and fixed segments across time, *hen ta panta*, stable value system and moving consumer across time, stable value system and time heterogeneous and homogeneous latent Markov moving consumers between segments.

However, it is important that marketing managers understand the switching of consumer behavior among segments. In fact, despite the overall value system in society is often very stable, consumers can shift between value system segments.

Human values can exist also on different socio-demographic classes (Carman, 1978). Segmentation is necessary to reduce the market complexity and human values can contribute to this simplification by grouping consumers with similar motivations, i.e., consumers which can share common attitudes and behaviours. The segmentation model set forth in Kamakura and Novak

(1992) describes four types of consumers that share a similar values structure. This study suggests that values system can be used for a better comprehension of consumers' behaviour and that the interference with other drivers of behaviour comprehension should also be taken into account. For example, price, promotion and other ambient influences can be considered together with values system in order to understand the influences on attitudes and behaviours. The conjugation between ambient influences, classical segmentation variables (such as socio demographic variables) and system values can contribute to build specific market segments in which consumers are grouped according to a relatively new variables mixture.

The List of Values (LOV) and Values and Life Styles (VALS) are the principal segmentation schemes that interpret the value system variables. Novak and MacEvoy (1990) compare these segmentation schemes by using different regression model to evaluate a VALS model and a model with demographic variables together with LOV variables. The VALS segments obtained are survivors, sustainers, belongers, emulators, achievers, I-am-me, experiential, socially conscious.

The use of LOV and VALS schemes can lead to new and creative segments that can be specific for a given good. It suggests a relative segmentation (focused on a particular product) based on a particular variables mixture. In this paper we suggest a linkage between market segmentation and customer loyalty. We propose to use the same constructs or variables but with a different specification of values system for both market segmentation and the measurement of customer loyalty. We believe that market segmentation and customer loyalty could be linked on the basis of the studies and results aforementioned. Our aim is to analyze the relevant literature in market segmentation and customer loyalty in order to collect constructs applicable to both sides.

#### **ON GENERATION OF DIFFERENT KINDS OF LOYALTY**

The notion of loyalty has received an increasing attention in the marketing literature in the last forty years. There exist two different points of view, a deterministic approach, focusing on loyalty from an attitudinal perspective and a stochastic approach, which considers loyalty from a behavioral perspective.

Day (1969) was the first to advance the idea that loyalty is a two-dimensional concept involving attitudinal loyalty and behavioral loyalty. In the last years, a multidimensional view of loyalty has emerged making the

concept of loyalty more complex and engaging for researchers. Let us focus now on the recent marketing literature. We may start from the loyalty models considered in Agustin and Singh (2005). They consider the curvilinear effects of customer loyalty on relational exchanges: on the basis of the theories on needs, reasons and social exchanges, they examine the curvilinear effects of loyalty caused by transnational satisfaction, loyalty and value in relational exchanges. Their main contributions to the study of loyalty are of three different types: (a) the theoretical proposal of the nature and the shape of the influence of different loyalty determinants; (b) the consideration of simultaneous and differential effects of multiple determinants; (c) the study of the implications of these effects for theory and management practice.

Liu (2007) develops further this perspective by considering the effects of loyalty programs on long term loyalty. His research examines the long-term impact of a loyalty program on consumers' usage levels and their exclusive loyalties to the firm. Using longitudinal data from a convenience store franchise, the study shows that consumers, who were heavy buyers at the beginning of a loyalty program, were most likely to claim their qualified rewards, but the program did not prompt them to change their purchase behavior. In contrast, consumers whose initial patronage levels were low or moderate, gradually purchased more and became more loyal to the firm. Aderson and Srinivasan (2003) study the effect of satisfaction on loyalty in the context of electronic commerce. They show that the relationship between satisfaction and loyalty is moderated by consumers' individual level factors and firms' business level factors. Among consumers' level factors, the effect of satisfaction on loyalty is increased by convenience motivation and purchase size, whereas the effect is reduced by inertia. With respect to firms' level factors, the effect is increased by trust and perceived value. According to Oliver (1999), the relationship between satisfaction and loyalty is asymmetric. He investigates what aspect of the customer satisfaction response has implications for loyalty and what proportion of the loyalty response is due to this satisfaction component. His results show that satisfaction is a necessary step in creating loyalty, but becomes less effective when loyalty begins to set through other mechanisms. Bandyopadhyay and Martell (2007) extend the idea set forth in Dick and Basu (1994) of loyalty as essentially given by a positive attitude towards the brand and repeated purchasing. Bandyopadhyay and Martell (2007) propose a market segmentation model on the basis of attitudes that govern the loyalty behavior. Moreover,

they propose a behavioral model for a non-user customer to be included along with two known behavioral patterns, single user and multiple user. Chaudhuri and Holbrook (2001) consider two different aspects of brand loyalty, purchase loyalty and attitudinal loyalty and develop a model which includes different types of variables inside the process that creates indexes of brand performances from loyalty. Their results suggest that purchase loyalty leads to greater market share and attitudinal loyalty leads to a higher relative price for the brand.

**The loyalty categories:** The repeated purchase can be distinguished from the definition of loyalty according to Jacoby and Chesnut (1978). Other studies have explored consumer belief, affect and intention within the traditional consumer attitude structure (Dick and Basu, 1994; Oliver, 1999).

Oliver (1999) identifies four different loyalty phases:

- **Cognitive loyalty:** The brand attribute information available to the consumer indicates that one brand is preferable to its alternatives. This stage is referred to as cognitive loyalty, or loyalty based on brand belief only. Cognition can be based on prior or vicarious knowledge or on recent experience-based information
- **Affective loyalty:** A linking or attitude toward the brand has developed on the basis of cumulatively satisfying usage occasions. This reflects the pleasure dimension of the satisfaction definition and the commitment at this phase is referred to as affective loyalty and is encoded in the consumer's mind as cognition and affect
- **Conative loyalty:** Repeated episodes of positive affect toward the brand influence behavioural intentions. Conation implies a brand-specific commitment to repurchase. It appears to be the deeply held commitment to buy noted in the loyalty definition
- **Action loyalty:** The motivated intention in the conative loyalty state is transformed into readiness to act. The transforming mechanism involves also the overcoming of obstacles. This loyalty is commitment to the action of rebuying

Chaudhuri and Holbrook (2001) suggest two loyalty categories: purchase loyalty and attitudinal loyalty. These categories are antecedents of brand performance. Purchase loyalty leads to greater market share and attitudinal loyalty leads to a higher relative price for the brand. This study focuses on understanding the linking role played by brand loyalty on the relationship among

brand trust, brand affect and brand performance outcomes.

We agree with the customer loyalty and brand loyalty constructs proposed by researchers of Oliver (1999) and Chaudhuri and Holbrook (2001) because both of them describe the consumer attitude to pay more for a specific brand that they consider with some unique value that no alternative can provide, see also Jacoby and Chesnut (1978). In particular, Oliver (1999) comprises four categories: cognitive, affective, conative, action loyalty, whilst Chaudhuri and Holbrook (2001) comprises two categories: purchase and attitudinal loyalty.

In our opinion both interpretations go beyond the behavioral conception of loyalty considered in past marketing literature only on repeated purchase and on customer satisfaction. These constructs involve attitude disposition toward a brand.

Let us consider some of our assumption on the implications as illustrated in Fig. 1. Customer satisfaction models are involved in behavioral perspectives toward the brand; the measurement they consider involves the repeat purchase as the principal driver of satisfaction that is behavioral-oriented customer satisfaction. Customer loyalty models are involved in behavioral and attitudinal perspective; their measurement instead considers the affective and attitudinal disposition like the principal drivers of loyalty.

Next we consider loyalty measurement. In Chaudhuri and Holbrook (2001) brand loyalty is measured as a multiple item index based on seven-point ratings of agreement (1= very strongly disagree, 7= very strongly agree). Purchase loyalty agreement is: "I will buy this brand the next time I buy (product name)" and "I intend to keep purchasing this brand". Attitudinal loyalty is

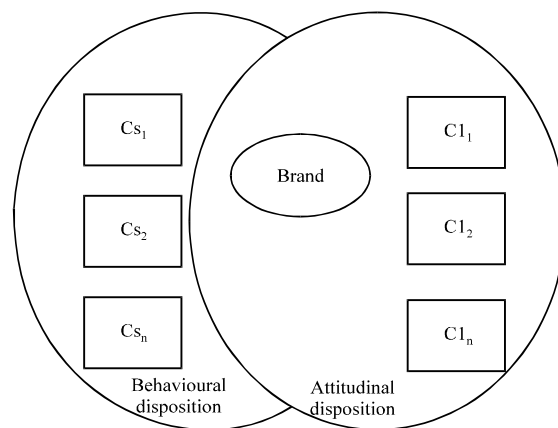


Fig. 1: Behavioral and attitudinal disposition toward the brand

measured by “I am committed to this brand” and “I would be willing to pay a higher price for this brand over other brands”.

Customer loyalty measurement is an engaging task. One can use a limited number of item, for example in Chaudhuri and Holbrook (2001) only two items are considered, but they can be more as described in Fig. 2. If one assumes Oliver’s loyalty categories, then two or three item can be used for building a customer loyalty indicator. Then, one has to find a classification model that can insert every individual consumer into a specific loyalty group.

We interpret this suggestion as loyalty a measurement question that implies  $n$  item and  $n$  categories. A possible solution for application is to translate Oliver’s loyalty phases in loyalty categories or “segments” by applying a loyalty measurement that chooses  $n$  items for every loyalty categories. This leads to a reduction of the reality complexity since one can also say that there exist more than the four types of loyalty already mentioned (cognitive, affective, conative and action). If we decide to use only  $n$  loyalty categories, then we induce for loyalty measurement the same complexity reduction made in market segmentation.

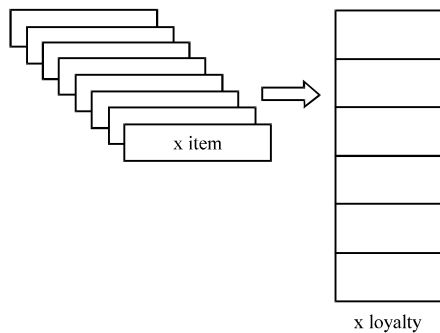


Fig. 2: From  $n$  items to  $n$  customer loyalty categories

**ON SEGMENTATION-LOYALTY LINK**

On the basis of our previous analysis, we may state that there exist three fundamental instruments of marketing: market segmentation, customer satisfaction and customer loyalty. Customer satisfaction involves the analysis of the level of satisfaction of a consumer through statistical models and refers to attitudes and behaviors of customers. The perspective of the customer to evaluate the performance of the enterprise for their overall quality system is considered in Yen *et al.* (2007) and Montinaro and Chirico (2006) provide an overview of the principal methods of measurement of customer satisfaction and a discussion of their strengths and limits. The activities associated to customer satisfaction can be considered short term plans, that is, tactics. More complex business activities oriented to customer loyalty are instead strategics (Montinaro, 2007). Customer loyalty needs realization periods that are of medium to long term range, which are linked to the life span of a product and require high costs.

In fact, a firm needs to have two important components: highly qualified human resources and advanced technology. The availability of complex informative sources, such as corporate databases which collect transnational data, makes possible the definition of well-defined market segments through marketing studies that can involve large number of variables and which were unaffordable even few years ago. If we associate to these market segments, those measures of customer satisfactions that describe, on the basis of the analysis of customers’ attitudes and behavior, how much a product or a service match clients’ expectations, then we get a winning strategy that ends up characterizing the different profiles of customer loyalty. Customer loyalty is a strategic objective for a company since gaining the trust

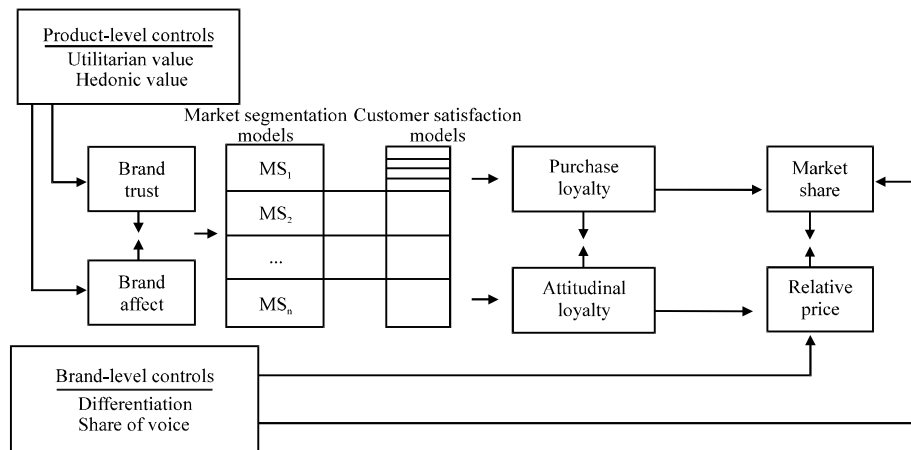


Fig. 3: From segmentation models to different types of customer loyalty

of a customer leads to an increase of profit. We believe that effective market segmentation represents the right methodological tool for defining the new kinds of customer loyalty required by a global economy. The Fig. 3 illustrates the process which begins with a segmentation model and by associating to each segment a corresponding measure of customer satisfaction, leads to the definition of different types of customer loyalty proposed by Chaudhuri and Holbrook (2001).

**Further research:** We intend to develop further the suggestions set forth in this study. The first suggestion concerning market segmentation indicates that values and lifestyles variables should join traditional demographic variable for a better identification of today consumers that change quickly in preferences and attitudes through frequent switching behaviors. The segmentation activity is strategic and should use these advanced variables. Moreover, it should use advanced segmentation models that implies values and lifestyles variables, since the literature shows that consumers switch from segments to others (Brangule-Vlagsma *et al.*, 2002). In conclusion, the segmentation activity should be a frequent marketing activity. Market segmentation should also be implemented in connection with customer loyalty measurement. The question is: do the segmentation decisions influence customer loyalty measurement? We believe they do. Further research could confirm or disconfirm our hypotheses. Further information could find a functional link of market segmentation models with several types of customer loyalty.

**THE METHODOLOGICAL APPROACH**

The very aim of this paragraph is to present an explorative model regarding the joint employment of three functions: market segmentation, customer satisfaction, customer loyalty.

- Market segmentation can be obtained through the employment of Cluster Analysis with the k-mean

technique and by using sociodemographical variables measured on discrete scales

- Customer satisfaction can be measured with a latent variable model (Zanella, 1998)

$$SAT = \sum_{k=1}^K \beta_k W_k X_k + \epsilon \tag{1}$$

Considering  $W_k$  e  $X_k$  casual variables,  $\beta_k$  real unknown parameters and  $\epsilon$  a casual variable with null mean and infinite variance.

Being  $x_{ki} \in \{1,2,\dots,I_k\}$ ,  $k = 1,2,\dots,K$  the possible modes of the variable  $X_k$  (for example, the quality of a product, the range of the products in stock), suppose that, in an independent way, for each of the previous characteristics taken from the variables  $X_k$ , from each interviewee, equivalent evaluations of importance and weight, expressed on discrete scoring-scales only, can be obtained:

$$w_{ki} \in \{1,2,\dots,I_w\}, k=1,2,\dots,K$$

- Customer loyalty can be considered and calculated as function of market segmentation and customer satisfaction. In general

$$LOY = f(\text{Market Segmentation, SAT})$$

Once the SAT index is measured and the cluster analysis cases are classified, the Clusters (rows) and the SAT index (columns) can be crossed. A table like Table 1 is hence obtained:

With cluster number  $\in \{1,\dots,Q\}$  and  $SAT \in \{1,\dots,N\}$

From the CLUSTER\*SAT crosstabulation it is possible to build a Customer Loyalty index, LOY, based on the percentages of the SAT index within individual clusters:

$$LOY = \left( \sum_{j=1}^Q \sum_{i=1}^N SAT_i * p_{ij} * \frac{nQ}{nT} \right) \tag{2}$$

Table 1: An example of empty grid for crosstabulation

			SAT				
			0	1	2	N	Total
Cluster number	1	Count					
		% within Cluster number					100,0%
	2	Count					
		% within Cluster number					100,0%
	3	Count					
		% within Cluster number					100,0%
	4	Count					
		% within Cluster number					100,0%
Total		Count					
		% within Cluster number					100,0%

Table 2: Data grid: Cluster number \* SAT Crosstabulation

			SAT			
			0	1	2	Total
Cluster number	1	Count	0	2	7	9
		% within Cluster number	0%	22,2%	77,8%	100,0%
	2	Count	0	6	28	34
		% within Cluster number	0%	17,6%	82,4%	100,0%
	3	Count	2	6	29	37
		% within Cluster number	5,4%	16,2%	78,4%	100,0%
Total		Count	2	14	64	80
		% within Cluster number	2,5%	17,5%	80,0%	100,0%

where, SAT is the index of the column,  $p_{ij}$  the relative percentage of the line and  $\frac{nQ}{nT}$  is the proportion between the cases regarding the nQ clusters and the total amount of the respondents nT.

**An application:** In a sample of 80 respondents, various variables like the age, the school-leaving examination mark and two items to evaluate the Customer Satisfaction regarding the brand of cellular phones, have been singled out. The two items are:

Have you been satisfied by your purchase? Codes: yes=1; no=2 ( $V_1$ )

Do you think the brand of the cellular phone you have purchased is glamorous? Codes: yes=1; no=2 ( $V_2$ )

Customer Satisfaction has been calculated as follows:

$$SAT_i = V_{1i} + V_{2i}$$

The SAT variable can assume 0, 1, 2 values going from dissatisfaction to maximum satisfaction. As a “stated satisfaction variable” has not been singled out as well as the relative characteristics and importance of the product, it has been chosen not to use a latent variable model for this application example.

The segmentation of the sample regarding the respondents has been obtained through the cluster analysis with k-means’s technique by using the age and school-leaving examination mark variables, thus obtaining three clusters.

The measurement of Customer Loyalty (LOY) has been obtained from the previous two, being, as far as the method here proposed is concerned, function of market segmentation and customer satisfaction.

By crossing, through the contingency table, the obtained Clusters with the SAT index, it is possible to study the connection intercurring between the two variables by calculating the relative probabilities of the lines. The results of the cross tabulation are shown in Table 2.

With the example of this contingency table thus built and re-proposing the formula regarding the calculation of the LOY index, we obtain:

$$Q1 = (0 \cdot 0 + 1 \cdot 0.222 + 2 \cdot 0.778) \cdot 9 / 80 = 0.200025$$

$$Q2 = (0 \cdot 0 + 1 \cdot 0.176 + 2 \cdot 0.824) \cdot 34 / 80 = 0.7752$$

$$Q3 = (0 \cdot 0.054 + 1 \cdot 0.162 + 2 \cdot 0.784) \cdot 37 / 80 = 0.800125$$

$$LOY = Q1 + Q2 + Q3 = 0.200025 + 0.7752 + 0.800125 = 1.77535$$

It is also possible to consider, to comparative ends, the conditions WORST CASE and BEST CASE.

With the formula presented in (2) it is possible to consider the worst condition to calculate LOY, by inserting in the contingency table  $p=100\%$  for the SAT=0 mode (dissatisfaction) for each cluster. Hence we obtain:

WORST CASE

$$Q1 = (0 \cdot 1 + 1 \cdot 0 + 2 \cdot 0) \cdot 9 / 80 = 0$$

$$Q2 = (0 \cdot 1 + 1 \cdot 0 + 2 \cdot 0) \cdot 34 / 80 = 0$$

$$Q3 = (0 \cdot 1 + 1 \cdot 0 + 2 \cdot 0) \cdot 37 / 80 = 0$$

$$LOY = 0$$

Whilst this is what we obtain with the best condition, namely  $p=100\%$  for the SAT=2 mode (maximum satisfaction) for each cluster:

BEST CASE

$$Q1 = (0 \cdot 0 + 1 \cdot 0 + 2 \cdot 1) \cdot 9 / 80 = 0.225$$

$$Q2 = (0 \cdot 0 + 1 \cdot 0 + 2 \cdot 1) \cdot 34 / 80 = 0.85$$

$$Q3 = (0 \cdot 0 + 1 \cdot 0 + 2 \cdot 1) \cdot 37 / 80 = 0.925$$

$$LOY = 2$$

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