

# Linear and Non-Linear Effects of Trust Determinants in the Grocery Retailing Industry

## Introduction

Trust has received a great deal of attention in the social sciences literature (Singh and Sirdeshmukh 2000). In the marketing discipline trust has been given special attention in the relationship marketing literature (e.g. Dwyer; Schurr and Oh 1987). Gundlach and Murphy (1993 p.41), identify trust as “...*the variable most universally accepted as a basis for any human interaction or exchange*”. In the same vein Berry (1995) reflecting on the growing interest on relationship marketing of services, suggests trust as marketing tool and identifies it as a central relationship building block.

Trust has been extensively tested in channel relationships (Geyskens, Steenkamp and Kumar 1998) whereas this is not the case for business to consumer markets. In a recent study Sirdeshmukh, Sing and Sabol (2002 p.15) suggest that “...*although sufficient evidence exists to suggest that trust matters for critical relational outcomes fundamental gaps remain in the understanding of the factors that build or deplete consumer trust*”.

Just recently the services marketing literature has started identifying the importance of trust in consumer decision making models most probably due to consumers' heightened mistrust in their relationships with firms and institutions and due to eroded consumer loyalty and intensive competitive pressures that push service providers towards using relational constructs-such as trust- in their consumer marketing strategies.

We conducted an empirical study that aims to extend the existing consumer trust literature in the context of consumer relational service exchanges in some important ways. First we develop and empirically test a model of multiple consumer trust determinants. We posit perceived service quality, satisfaction and perceived value constructs as simultaneous direct determinants of consumer trust while controlling for the effects of perceived price, thus filling a research gap in the “antecedents of trust” literature. For doing so we hypothesize these interrelationships based on a) the cognitive-emotive-coping attitudinal framework (Bagozzi 1992) and the service delivery evaluation literature (Brady et al. 2005). Second and most importantly we fill an important research gap in the trust literature by hypothesizing and empirically testing curvilinear effects of multiple higher-order trust determinants. We empirically examine our hypotheses in the food retailing industry and more specifically in the context of super markets which are identified as an important component of the food retail system.

## The Food Retailing Industry

During the past years, the grocery retail sector has demonstrated an increasing focus on consumer evaluation studies pertaining to prominent service evaluation constructs like quality, satisfaction and value. Especially in Europe this trend has been expressed through broader collaboration strategies such as Efficient Consumer Response but also through more focused marketing activities.

The supermarket sector is characterized by increased competition, low perceived switching costs due to the proliferation of supermarkets and greater shopper expectations.

Sirohi, McLaughlin and Wittink (1998) suggest that the super-market channel, in the face of slow growth and intensified competition, should turn its resources in cultivating long-term relationships with the right customers. Consequently, trust as a relational construct and as a critical social exchange favourably influencing loyalty intentions, (Agustin and Singh 2005) should be the focal point of food retailers' relationship marketing strategy. For example McKinsey & Company (2002) based on a research study conducted in three major European markets (Germany, U.K and France) points that trust is an important tool for grocers so as to convert "occasionally purchasing consumers" to loyal ones.

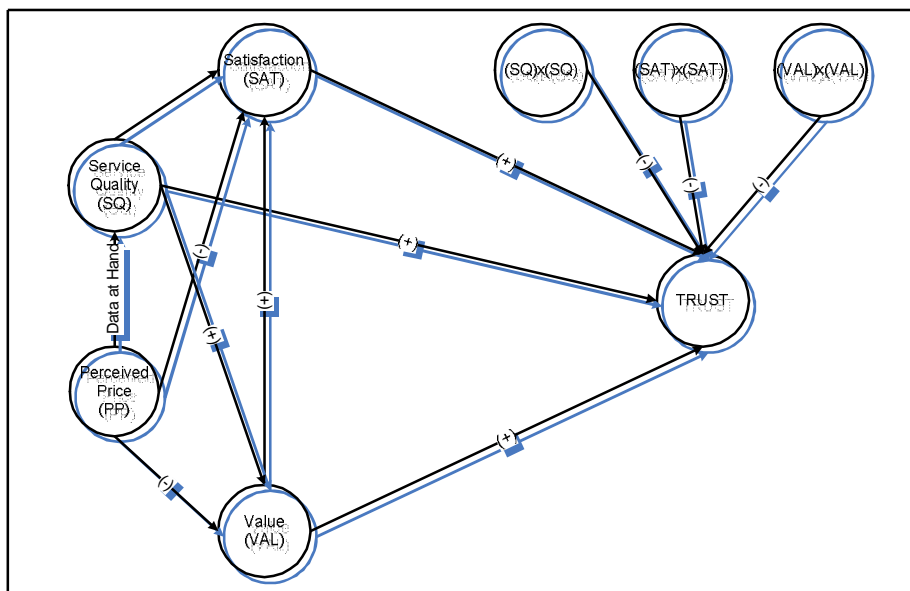
The importance of trust in the food retailing sector is further exemplified in that it sells products that are required for basic survival. Emerging consumer concerns about food safety and food nutritional value (Mitchell 1998) heightens consumers' perceptions of being vulnerable to grocers' practices and policies making this research context quite trust-relevant. A recent online poll conducted from Harris Interactive in the United States among a nationwide cross section of 2,271 adults, reports that only 4 out of 10 respondents think of supermarkets as "*generally honest and trustworthy*" (Taylor 2003). This statistic however, should be interpreted in light of a generalized distrust towards consumer industries (e.g 37% of respondents seem to consider *all* fifteen industries included in the study as not being honest and trustworthy). The supermarket percentage is the highest among all industries investigated, but ultimately 60% of respondents seem to view the supermarket sector as not being generally honest and trustworthy.

In essence it seems that consumers have numerous reasons so as to feel vulnerable to grocers' practices. Buying and consuming merchandise from the supermarket channel entails numerous perceived risks for the consumer and risk is a necessary condition for the development of trust (Molm, Takahashi and Peterson 2000). Currently, consumers are flooded with stories in the popular press-creating considerable negative publicity for the grocery retailing sector-pertaining to food safety issues and unfair price practices on behalf of the supermarket retailers. Most importantly, food safety incidents and scares are quite often in today's food markets especially in Europe (e.g. BSE-"mad cow crisis"). From a marketing perspective, the role of the supermarket channel is critical in the food supply chain since the grocery retailer is ultimately the one that will finally decide whether its merchandise assortment is safe or not for the consumer. Essentially the supermarkets' role is to deliver consumers with time, place and possession utility for food (and admittedly non-food) products. Ultimately consumers expect from the grocery retailer to take care of them with extra levels of competence and benevolence when it comes to the procurement of safe and nutritionally superior food products. Consequently trust management is critical for the supermarket retailers since it will enable them to reduce consumers' heightened levels of perceived risk. Notwithstanding, studies pertaining to the development of service evaluation models in the grocery retailing industry have neglected the trust construct.

## **Conceptual Background and Hypotheses Development**

Based on the attitudinal and service evaluation literature we adopt a holistic approach in developing a model of consumer trust based on higher-order prominent service evaluation constructs meaning that an antecedent variable (service quality, value and

satisfaction) have both a direct and an indirect effect on the dependent variable (trust). Furthermore, we hypothesize and empirically examine the existence of curvilinear effects of service quality, satisfaction and value on trust perceptions (see Figure 1). To the best of our knowledge no study to date has empirically examined the possibility of *simultaneous quadratic relationships of multiple trust determinants on trust perceptions*. We view trust as a relational, higher-order need that mostly relates to the social and psychological aspects of a relational exchange (Gwinner, Gremler and Bitner 1995). On the other hand we hypothesize service quality, satisfaction and value as lower-order, trust-maintaining variables, mainly tapping the utilitarian aspects of a relational exchange. We suggest the existence of a complex relationship between the service evaluation constructs utilized in this study (namely service quality, value and satisfaction) and trust and argue for a ceiling effect of the importance of the former in further generating trust perceptions. Our point is exemplified in the work of Singh et al. (2005). They present a case study of 3M's company decision to pull Scotchgard-a fabric protection product-from the market. The Scotchgard brand offered consumers a remarkable economic value and was deemed to be one of the most profitable products in 3M's history. Whatsoever 3M pulled this product of the market based on environmental concerns pertaining to the product's chemical ingredients. Therefore, 3M "...was taking a precautionary measure, thereby placing the interests of its consumers and the general public above its own self-interest" (Singh et al. 2005 p. 42). We argue that for further enhancing trust perceptions in a relationship, consumers should be convinced about the ethics that a service provider brings into the exchange (Gundlach and Murphy 1993) and essentially whether the service provider will take care of consumers' interest instead of his bottom line when potential harmful situations for the consumer arise. Merely having consumers satisfied through superior service quality and economic value in a consistent and cumulative way does not necessitate that consumers will further enhance their trust perceptions for the service provider.



**Figure 1: The Research Model**

## Data Collection and Sample

We used pseudo-random sampling for selecting respondents (Kleijnen, Ko de Ruyter and Wetzels 2004). Subjects who participated in the study were asked to answer a five-page questionnaire. The first page asked questions for the supermarkets sector in general. The second page compared the supermarket channel with alternative shopping channels offering similar products, e.g. butchery, specialized cosmetics store, open market, etc. The next two pages of the questionnaire dealt with measuring consumers' perception about shopping in supermarkets in general, attitudes, perceived value and overall satisfaction. The questionnaire concluded with a ranking of the supermarket selection criteria and with demographic questions on age, income and level of education. The questions and the data collection method were finalized after an initial pilot test with 70 respondents, indicating some vague items to be reworded.

The population targeted for this study was inhabitants of the broader Attica region. The questionnaires were administered through personal interviews by researchers. A total of 942 respondents were "intercepted" in supermarket stores, where the researcher was present for two or three different days in a week and at different times so as to avoid respondent bias according to Bush and Hair (1985). The interviews took place mainly at the exit of the supermarket store and lasted for about 10 minutes. In order to ensure a representative sample, 18 stores were selected from four different retail chains in a way to offer a broad geographical coverage of the Attica region. Women as well as the ages 18-55 and highly educated people are overrepresented in the sample, in comparison to the other population segments. This is not necessarily a problem for the study's objective since it has been reported in prior research that women are the primary shoppers in the family unit (Laroche *et al.* 2003).

## Analytical Method and Results

A key concern in the selection of method for the estimation of the model parameters was that measurement error might undermine the statistical significance and/or curtail the magnitude of linear and quadratic effects, making them difficult to detect (Agustin and Singh 2005). So as to deal with this problem we selected an analytical method that explicitly model measurement error in the linear and quadratic variables. We used structural equation modeling (SEM) for simultaneous estimation of multiple equations with latent variables so as to estimate the linear effects models and the two-step version of Ping's (1998) single-indicator estimation method (2SI) for latent continuous variables. We conducted Confirmatory Factor Analysis (CFA) so as to establish convergent validity, discriminant validity unidimensionality and reliability for a five factor model consisting of service quality, perceived price, satisfaction, value and trust. Research to date indicates using more than one goodness-of-fit measures or heuristics, so as to minimize the likelihood of making Type I or II errors (Ping 2004). Based on this guideline, the *CFI*, *Delta 2*, *RMSEA*, *chi-square* and *standardized RMR* fit indices were employed. *CFI* and *Delta 2* are used since according to Gerbing and Anderson (1992) they are the most stable fit indices, while the *RMSEA* and *chi-square* are proposed as

typical criteria in judging the statistical significance and substantive meaning of a theoretical model (Schumacker and Lomax 2004). Finally, according to Hu and Bentler (1999), the standardized RMR should always be used to assess model fit. These heuristics are not acceptable for this model since they do not meet established cut-off points (Bagozzi and Yi 1988).

The chi-square value ( $\chi^2(110) = 1153.4$ ,  $p < .000$ ) is insignificant suggesting the model should be rejected. However this fit statistics is sensitive to sample size (Bagozzi and Yi 1988). RMSEA is above the .08 benchmark (.10) suggesting a poor fit between the four factor model and the data and the same stands for CFI, Delta 2 and standardized RMSR. It seems that some of the indicators used are rather problematic. Modification indices suggest problems with two items pertaining to the service quality construct and one manifestation of the satisfaction construct. Based on theoretical and empirical grounds we removed them from the consequent analyses. We repeated the CFA items with these items removed. The fit indices suggest an acceptable model fit (SRMSR=.028, RMSEA=.051, CFI=.98 and Delta 2=.98,  $\chi^2(68) = 237.7$ ,  $p < .000$ ) indicating that our model should not be rejected

We examine the internal structure of our model based on the writings of Bagozzi and Yi (1988). A conservative test of convergent validity pertains to AVE from each construct as being greater than .50. AVE for each construct is greater than this benchmark with the exception of the trust construct extracting variance that is marginally below (.048) the established benchmark. However all factor loadings are greater than the 0.60 level proposed by Bagozzi and Yi (1988). Moreover, all factor loadings are significant and strong with t-values greater than 17.0, suggesting convergent validity. Continuing with measurement model fit, we used the *Composite Reliability* ( $\rho_c$ ) criterion. Bagozzi and Yi (1988) propose that  $\rho_c$  should be greater than 0.6. Composite reliability of all four constructs ranges between .79 and .91. Discriminant validity can be demonstrated if variance shared between the constructs is less than the average variance extracted by the constructs. Variance shared between the constructs ranges between .16 and .40 with AVE ranging between .48 and .83 establishing discriminant validity.

These results suggest that our measurement model is adequate so as to proceed with the examination of the structural model, namely the examination of the research hypotheses. Fit indices for the structural model surpass the established criteria indicating an acceptable fit of our model with the data (RMSEA=.045, SRMSR=.039, CFI=.98 and Delta 2=.98,  $\chi^2(135)=388.86$ ,  $p < .000$ ). Examination of the structural model results suggests service quality, satisfaction and value as direct and simultaneous determinants of trust perceptions. Additionally it seems that service quality and value influence the satisfaction judgment, while service quality significantly influences value perceptions. Perceived price has a direct and negative impact on satisfaction and value perceptions as expected. Finally it seems that service quality<sup>1</sup> and satisfaction have a negative quadratic effect on trust consistent with our hypotheses while value seems to have a positive quadratic effect on trust contrary to our hypothesis.

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<sup>1</sup> Service quality has a non-significant quadratic effect on trust when a simultaneous quadratic effect of satisfaction is modeled. Whatsoever, it seems that the existence of the satisfaction quadratic effect suppresses that service quality quadratic effect (Ping 1998). We run a model with the satisfaction quadratic effect restricted to zero and find a negative statistically significant at a .01 level

## Conclusions & Managerial Implications

We theorize and find empirical evidence that in the grocery retailing industry-and in most market settings admittedly-the reality is far from being linear and simplistic. Our study confirms that, consistent with the literature, consumer decision making is a complex phenomenon guided by linear and non-linear effects. The grocery retailing industry is characterized by slow growth, intensified competition and efforts from grocers to differentiate themselves based on value components beyond price. Having this in mind, we argue that the industry should focus on relational constructs that tap socio-emotional benefits for the consumer. Grocers should always bear in mind that economic exchanges are in large part social exchanges too, meaning that consumers evaluate these based on socio-emotional elements too. We investigate the antecedents of such a relational construct (trust) further examining more complex functional forms (quadratics) for that construct and its determinants. We suggest that, investing resources in service quality and satisfaction programs are necessary but not sufficient conditions for further deepening a trust relationship. On the other hand economic value is both a necessary and sufficient condition for further enhancing trust perceptions, since it seems that it might signal efforts on behalf of the retailers to treat consumers in a fair and equitable manner. We argue that all trust determinants posited are important in building trusted relationships with consumers but managers should understand that investment decisions in trust building initiatives should be guided from careful target segmentation analysis. In low trust segments priority should be given in developing service quality perceptions and the satisfaction judgment without necessarily investing more resources in value perceptions. To put it another way, grocers should get the basics right if they want to cultivate a trusting relationship with consumers. For further deepening such a relationship- i.e. in the case of the high trust segment- investing further in service quality and satisfaction will not be effective since in higher levels of these variables each additional unit increase will bring less in incremental trust than the previous unit did.

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