Gender, store satisfaction and antecedents: a case study of a grocery store

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Abstract
Purpose – In social psychology literature, gender is often an important predictor of differential outcomes. However, gender as it influences consumer behavior has not attracted much research interest in a retailing context. The main purpose of this paper is to analyze associations between gender, drivers (antecedents) of store satisfaction and store satisfaction in grocery retailing. It employs various approaches. Thus an additional purpose is to discuss the findings from the various approaches with respect to consumer marketing.
Design/methodology/approach – The data source is a survey among customers of a chain-based Norwegian grocery store. *T*-tests, factor analyses and various multiple regression analyses were conducted.
Findings – A direct significant effect of gender on store satisfaction was found when controlling for other included antecedents. Gender does not have any moderating effect on the relationships between antecedents and store satisfaction. Females have higher satisfaction levels than males, but the satisfaction drivers are gender independent.
Research limitations/implications – This research has been applied to a specific grocery store belonging to a specific chain of retailing grocery stores.
Practical implications – Findings that could be perceived as mixed, confusing and difficult to handle in decision making are discussed and clarified, which should provide consumer marketers insights into resource allocation with respect to the "satisfaction-profit chain."
Originality/value – Gender has only a direct effect on store satisfaction. Stable gender-independent drivers of store satisfaction were identified. These insights can contribute to consumer marketing activities that favorably influence shoppers' attitudes, thus resulting in sustained revenues and profitability in the future.

Keywords Consumer marketing, Gender, Stores and supermarkets, Norway, Retailing, Customer satisfaction

Paper type Research paper

An executive summary for managers and executive readers can be found at the end of this article.

Introduction

Gender differences in shopping behavior are a fertile area for the popular press, but gender has only recently begun to engage the interest of marketing researchers (Bhagat and Williams, 2008; Noble *et al.*, 2006; Raajpoot *et al.*, 2008). Gender is often perceived as being an important predictor of differential outcomes in the literature on social psychology (Correll, 2007). A number of studies have been carried out related to various family roles and parenting topics, such as leisure and household labor, jobs and pay, inequalities in education, and effects of media representation of the sexes (Gentry *et al.*, 2003; Nysveen *et al.*, 2005). Nevertheless, gender's influence on consumer behavior has not attracted much research interest in the retailing world (Darley *et al.*, 2008; Lee and Beatty, 2002; Putrevu, 2001). However, consumer behavior can be positively influenced by identifying and implementing an appropriate retail marketing strategy that is based on a profound understanding of factors that influence shoppers' attitudes favorably (Lee and Trim, 2006; Pan and Zinkhan, 2006). Thus insight regarding gender can be useful for retailers.

The main purpose of this paper is to analyze associations among gender, drivers of consumer satisfaction (antecedents, attributes, features) and consumer satisfaction in a grocery retailing context. The following research questions are addressed:

- Are there gender differences regarding store satisfaction and drivers of store satisfaction?
- Are female consumers more satisfied than male consumers?
- Do female consumers emphasize other drivers of store satisfaction than male consumers?

Differences can be determined in various ways. We have examined three approaches with respect to consumer marketing:

1. a simple comparison of the means of variables under scrutiny;
2. statistical tests, which show whether differences of variable means are significant; and
3. statistical analyses, which show whether differences are significant when controlling for other variables.

Such insight can be useful when decisions regarding business activities are made, i.e. when allocating scarce resources in order to develop effective marketing strategies. The context is a Norwegian grocery store that belongs to a large chain of grocery stores. This industry is characterized by keen competition between the various chains and grocery stores in a geographical area.

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Literature and hypothesis

This paper is based on a simple conceptual model where drivers of store satisfaction (antecedents) and gender are perceived as being explanatory variables of variations in store satisfaction. Gender can be perceived as being a direct driver and/or as a moderator (Darley *et al.*, 2008; Homburg and Giering, 2001; Raajpoot *et al.*, 2008).

Store satisfaction

Customer satisfaction has become an important marketing performance metric in the last two decades (Johnson *et al.*, 2001; Szymanski and Henard, 2001). The concept has been included in various theoretical and conceptual models, such as National Customer Barometers (Fornell, 1992), service quality models (Seth *et al.*, 2004), goal hierarchies (balanced scorecard approaches) and business models (Kaplan and Norton, 1996, 2001, 2004). Thus measurements of customer satisfaction, antecedents or drivers of customer satisfaction, and measurements of related variables (loyalty, reputation, etc.) are frequently collected through market surveys at regular intervals and included in various managerial reports used for decision support (Clark, 1999; Helgesen, 2007a).

Customer satisfaction can be perceived and defined in various ways (Oliver, 1997), for example as:

> [...] a summary, affective and variable intensity response centred on specific aspects of acquisition and/or consumption, and which takes place at the precise moment when the individual evaluates the object (Giese and Cote, 2000, p. 3).

In this study, the "evaluated object" is a store. A consumer's satisfaction with a store can be defined as "a post-experience, subjective evaluation of the extent to which the store answers or even exceeds the customer's expectation" (Demoulin and Zidda, 2008, p. 387). Thus store satisfaction is an attitude that relies on consumers' comparisons between the perceived and expected performance of the store. Consumers who have positive experiences at a store keep visiting it.

Store satisfaction is usually perceived as being the main driver of repurchase intention and store loyalty (Bloemer and de Ruyter, 1998), both of which are positively related to the consumer's "share of wallet" (Keiningham *et al.*, 2007) and profitability, at an aggregate level as well as at the individual customer level (Helgesen, 2006; Zeithaml, 2000). This link between satisfaction and profitability is often called the "satisfaction-profit chain" (Anderson and Mittal, 2000).

Antecedents (attributes, drivers) of store satisfaction

A variety of models, such as SERVQUAL (Parasuraman *et al.*, 1988, 1994) and SERVPERF (Cronin and Taylor, 1992), and antecedents, attributes, features or drivers of satisfaction have been introduced in order to explain variations in store satisfaction (Helgesen, 2007b; Oliver, 1997). Both SERVQUAL and SERVPERF are evaluation standards that are independent of any particular retailing and service context. In the SERVQUAL approach, 22 questions are designed to measure five higher-order dimensions (Parasuraman *et al.*, 1994): tangibles, reliability, responsiveness, empathy and assurance. Additional dimensions (items) that result from industry-specific contexts, such as retail sales, should also be considered (Lee *et al.*, 2008; Westbrook, 1981).

Antecedents of satisfaction are assumed to be key drivers of customer profitability, although they are presumed to work through mediating variables such as store satisfaction and store loyalty (Baker *et al.*, 2002; Helgesen, 2006). For marketers and managers, the main purpose is to identify adjustable variables that are important to consumers and that provide a precise indication of what should be done in order to obtain increased value for money (McNair *et al.*, 2001; Smith and Wright, 2004).

Gender

While the term sex is used when referring to purely biological factors such as sex chromosomes, sex hormones and brain lateralization, the term gender is used when referring to cultural aspects (Putrevu, 2001). Thus sex is differentiated from gender in terms of its biological determinism, implying that sexual differences between females and males appear to be biologically inevitable, while gendered differences are social constructions (Gentry *et al.*, 2003; Sidin *et al.*, 2004). According to Gentry *et al.* (2003, p. 1), the term gender is "the symbolic role definition attributed to members of a sex on the basis of historically constructed interpretations of the nature, disposition, and role of members of that sex." The American Psychological Association defines gender as "a psychological phenomenon that refers to learned sex-related behaviors and attitudes of males and females" (American Psychological Association reprinted in Gerrig and Zimbardo, 2002). Consequently, females and males tend to have different attitudinal and behavioral orientations, partly from genetic makeup and partly from socialization experiences (Putrevu, 2001).

Gender is one of the demographic or socioeconomic variables that for years have been used for customer classification and product market segmentation (Alexander, 1947; Nysveen *et al.*, 2005). Other socioeconomic variables include age, marital status, education, income and occupation (Slama and Tashchian, 1985). Demographic variables are used separately or in combinations, such as gender and age. Thus, gender segmentation, differentiation and positioning have long been applied in marketing, especially regarding clothing, hairstyling, cosmetics, and magazines (Kotler and Keller, 2006). Nevertheless, marketing research is rather limited, especially with respect to the interaction of gender in selling-buying situations and gender's effects on relationship development (Bhagat and Williams, 2008; Ndubisi, 2006).

Empirical research suggests that men and women tend to have different attitudinal and behavioral orientations in their buying behavior (Homburg and Giering, 2001; Noble *et al.*, 2006). Babakus and Yavas (2008, p. 976) assert that males are "primarily guided by societal norms that require control, mastery and self-efficacy to pursue self-centered goals," while females are "guided by concerns for self and others and emphasize affiliation and harmonious relationships with others." Consequently, female customers are supposed to be more loyal, relationship-oriented and favorably socially minded than male customers (Ndubisi, 2006; Pan and Zinkhan, 2006). Based on these arguments, the following hypothesis is suggested:

H1. Female consumers tend to have a higher level of store satisfaction than male consumers.

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Context and methodology

Context

This study employs grocery retailing as context. The customers from a grocery store that is part of one of the large grocery retail chains in Norway responded to a questionnaire focusing on customer satisfaction and service quality.

The Norwegian grocery retailing industry has undergone comprehensive and systematic innovations during the last three decades. While the industry once consisted of small and medium-sized independent and local stores, it is now dominated by four commercial blocks (business houses) and their retail chains. Even though this change has occurred in a number of countries, the level of concentration in the retail trade is now relatively high in the Nordic countries compared to other countries (Einarsson, 2008). In all five Nordic countries (Denmark, Finland, Iceland, Norway and Sweden), one company controls 35-45 percent of the grocery sales, with the four biggest retail chains controlling almost the entire grocery market. In Norway, this concentration started in 1977/1979, when the two first discount grocery stores were established (Rimi500/Rema1000). This tendency was reinforced during the 1980s when the two retail chains decided to establish grocery stores nationwide. New retail grocery chains were also established. Today the following four retail chains dominate the Norwegian grocery market: Norgesgruppen, Coop, ICA and Rema1000.

The retail industry is also characterized by increasing internationalization (Evans *et al.*, 2008; Park and Sternquist, 2008). A pan-European retail structure has emerged in Europe with a particularly strong flow of retail activity between markets that are geographically and culturally proximate (Myers and Alexander, 2007). The Nordic markets are influenced by business houses from other European countries (Uusitalo, 2004; Uusitalo and Rökmann, 2007). On the other hand, Nordic grocery chains are also represented outside the Nordic countries, e.g. Rimi (ICA).

During the last five years, the number of outlets in Norway has been stable, with 4,106 grocery stores by the end of 2007, with a sales revenue amounting to NOK 117 billion (exclusive VAT). Everyday commodities are also sold in petrol stations and kiosks, which in 2006 accounted for about NOK 16 billion in sales, which suggests that the total yearly sales revenues in 2007 amounted to about NOK 135 billion. The distribution of sales from the four dominant retail chains' grocery stores in 2007 was as follows: Norgesgruppen 39.2 percent, Coop 23.8 percent, ICA 17.4 percent and Rema1000 17.3 percent. ICA has experienced a reduction in market share during the last three years from 22.4 percent in 2004 to 17.4 percent in 2007. During the same period of time Norgesgruppen has increased its market share from 34.8 percent to 39.2 percent. However, the most noteworthy occurrence in 2007 was the withdrawal of the German-based grocery chain Lidl from the Norwegian market. All the Lidl stores were sold to Rema1000.

The grocery store selected for this study is situated in Norway in an area with about 60,000 inhabitants. The store is linked to one of the retail chains. There are seven competing grocery stores in the immediate neighborhood; however, more than 20 grocery stores in surrounding areas can be seen as competitors. Some of the competitors belong to the same retail chain as the grocery store in question.

Sample

A total of 106 customers, 52 males and 54 females, answered all questions in the questionnaire relevant for this analysis. Respondents were assigned to the following age groups: 18-29 years, 30-35 years, 36-44 years, 45-49 years, 50-55 years, 56-64 years, and more than 65 years. All age groups for both females and males were represented in the survey.

Measures and measurements

This analysis was based on 19 variables. Four items (indicators) measured store satisfaction, 14 items measured antecedents of store satisfaction, and the last one reported the gender of the respondents. The variable for gender is a dummy variable where "1" is assigned to females and "0" to males. All other indicators are measured on a seven-point Likert scale where "1" indicates the least favorable response alternative (very unsatisfied, etc.) and "7" the most favorable response alternative (extremely satisfied, etc.).

Satisfaction may be measured in various ways (Danaher and Haddrell, 1996; Babin and Griffin, 1998). Ryan *et al.* (1995) assert that measurement of the concept should be based on three aspects: a summary judgment of the satisfaction level, a comparison with expectations, and a comparison with an ideal situation. This approach has been selected. In addition, an initial question regarding the customers' spontaneous judgments of their satisfaction is included.

Based on theory and other studies, a preliminary list of antecedents of satisfaction was produced. This list was discussed with representatives of the grocery store and with research colleagues. When deciding on the final number of items, the size of this preliminary survey was taken into consideration. This is further elaborated below.

Analytical approach

We used *t*-tests, factor analyses and multiple regression analyses to answer the research questions and test the formulated hypothesis. Independent samples *t*-test was used when the objective was to compare the mean scores of two different groups, in this case females and males. Factor analysis was used to confirm the coherence among items (confirmatory factor analysis) and to simplify and clarify the findings (exploratory factor analysis). In multiple regression analyses each independent variable is assessed in terms of what it adds to the dependent variable after controlling for the previous variables (Pallant, 2007). Different methods for testing whether gender has a direct effect on store satisfaction and/or moderating effects on the relationships between the antecedents and store satisfaction are discussed and applied, and is explored in more depth in the results section.

The 14 antecedents of store satisfaction were subjected to a factor analysis. Six factors were extracted and six new variables were established (summated scale variables). These new variables were treated as independent variables in a regression equation with store satisfaction as the dependent variable. In order to obtain normally distributed residuals, the dependent variable was squared. This transformation resulted in non-linear relationships among the original variables. Thus the non-linear relationships resulted from transformations and were not based on suppositions that the relationships were non-linear. However, such non-linear relationships

between attributes and satisfaction are often found to be similar to those predicted by the classic Kano Model (Johnson and Gustafsson, 2000).

Results

Descriptive statistics and correlation coefficients

Table I presents descriptive statistics of the variables included in the study. The table consists of three parts: four items that measure the concept of store satisfaction as well as the average of those four items (Store satisfaction), 14 items that are antecedents of store satisfaction, and finally, six new variables (summated scales) established by a factor analysis of the 14 items, as described below.

The mean level of Store satisfaction (Y) was 5.05 (on a scale from 1 to 7) or 67.5 (transformed to a scale from 0 to 100), which is close to what is usually found in similar studies in grocery retailing, particularly in various national customer barometers. The 14 antecedents of store satisfaction were denoted X_1-X_{14} as presented in the second part of Table I. The arithmetic means of the variables ranged from 3.87 ("Satisfaction with prices") to 6.17 ("Satisfaction with opening hours"), or 47.8 and 86.2 respectively when transformed to a scale from 0 to 100. Most of the variables were negatively skewed, a result that is often obtained when measuring perceptual data (Hair *et al.*, 2006). The six new factors or constructs described below are denoted (F_1-F_6), and have arithmetic means ranging from 3.87 (Prices) to 6.01 (Store availability), or 47.8 and 83.5 respectively when transformed to a scale from 0 to 100.

Table II shows the correlation matrix among store satisfaction, with the 14 items included as antecedents of store satisfaction and Table III shows the six factors (constructs). All correlation coefficients above (about) 0.31 were significant at the 0.001 level (two-tailed), those above 0.25 at the 0.01 level, and those higher than 0.19 at the 0.05 level.

Factor analyses, constructs and measures of reliability and validity

When asking questions with respect to antecedents of satisfaction, it is possible to ask only one or a few questions regarding one group of antecedents and several questions regarding another group. In view of this, factor analyses are often worked out in order to identify the dimensionality (the factors) of the items as well as the relationships (the factor loadings) of each of the factors for each of the items (data summarization). This insight regarding the respondents' grouping of items can be used in various ways, e.g. to improve the questionnaire by excluding items with low factor loadings and to include new ones. Factor analyses also allow for the findings to be presented in a condensed manner (data reduction), thus giving decision makers insights above and beyond those that might have been obtained by doing

Table I Descriptive statistics – store satisfaction and antecedents

Variables (concept/items/factors)	Symbol	Mean	SD	Skewness	Kurtosis
Satisfaction with the store (spontaneous judgment)	Y_1	5.18	0.98	−0.68	2.35
Satisfaction compared to expectations	Y_2	5.14	1.04	0.02	−0.12
Satisfaction compared to an ideal store	Y_3	4.82	1.26	−0.32	0.27
Overall satisfaction	Y_4	5.08	1.10	−0.37	0.74
Store satisfaction (Y_1-Y_4)	Y	5.05	0.96	−0.19	0.12
Antecedents – 14 items					
Satisfaction with the check-out point	X_1	5.09	1.28	−0.29	−0.25
Satisfaction with the serving staff	X_2	5.03	1.13	−0.43	0.43
The serving staff is friendly	X_3	5.45	1.24	−0.59	−0.15
The serving staff is competent	X_4	4.98	1.06	−0.30	0.42
Satisfaction with the store location	X_5	6.06	1.15	−1.37	2.42
Satisfaction with opening hours	X_6	6.17	1.05	−1.87	5.26
The store is easy to find	X_7	5.79	1.17	−0.61	−0.60
Satisfaction with chain product quality	X_8	4.35	1.21	−0.15	−0.02
Satisfaction with chain product price	X_9	5.02	1.32	−0.32	−0.40
Satisfaction with betting possibilities	X_{10}	5.08	1.37	−0.52	0.09
Satisfaction with (in store) postal services	X_{11}	5.33	1.36	−1.09	1.45
Satisfaction with bakery products	X_{12}	4.92	1.51	−0.73	0.12
Satisfaction with fruit and vegetables	X_{13}	5.26	1.17	−0.64	0.31
Satisfaction with prices	X_{14}	3.87	1.05	0.17	0.25
Antecedents – six factors					
Service quality	F_1	5.14	1.03	−0.50	0.56
Store availability	F_2	6.01	1.00	−1.35	2.55
Additional offer	F_3	5.21	1.23	−0.86	1.44
Chain products	F_4	4.68	1.14	−0.27	0.13
Traditional offer	F_5	5.09	1.16	−0.51	−0.18
Prices	F_6	3.87	1.05	0.17	0.25

Note: $n = 106$

Table II Correlation matrix – satisfaction variables

	Y	X_1	X_2	X_3	X_4	X_5	X_6	X_7	X_8	X_9	X_{10}	X_{11}	X_{12}	X_{13}	X_{14}	F_1	F_2
Y	1.00																
X_1	0.53	1.00															
X_2	0.56	0.78	1.00														
X_3	0.55	0.66	0.65	1.00													
X_4	0.66	0.65	0.74	0.72	1.00												
X_5	0.33	0.20	0.21	0.23	0.31	1.00											
X_6	0.28	0.18	0.23	0.21	0.29	0.80	1.00										
X_7	0.46	0.36	0.43	0.44	0.45	0.63	0.64	1.00									
X_8	0.29	0.27	0.29	0.22	0.35	0.19	0.15	0.28	1.00								
X_9	0.37	0.20	0.23	0.24	0.29	0.31	0.36	0.39	0.62	1.00							
X_{10}	0.34	0.17	0.14	0.12	0.24	0.43	0.43	0.24	0.18	0.26	1.00						
X_{11}	0.39	0.23	0.27	0.24	0.32	0.29	0.36	0.37	0.18	0.33	0.63	1.00					
X_{12}	0.36	0.18	0.19	0.19	0.30	0.12	0.20	0.21	0.19	0.26	0.27	0.33	1.00				
X_{13}	0.34	0.13	0.23	0.24	0.35	0.23	0.33	0.19	0.24	0.24	0.39	0.24	0.48	1.00			
X_{14}	0.51	0.27	0.37	0.30	0.37	0.15	0.17	0.30	0.32	0.34	0.09	0.33	0.24	0.09	1.00		
F_1	0.65	0.89	0.90	0.87	0.87	0.27	0.25	0.47	0.32	0.27	0.19	0.30	0.24	0.27	0.37	1.00	
F_2	0.40	0.28	0.33	0.33	0.40	0.91	0.91	0.86	0.23	0.40	0.41	0.38	0.20	0.28	0.23	0.38	1.00
F_3	0.41	0.22	0.23	0.20	0.31	0.40	0.44	0.34	0.20	0.32	0.90	0.90	0.33	0.35	0.24	0.27	0.44
F_4	0.37	0.26	0.29	0.25	0.36	0.28	0.29	0.38	0.89	0.91	0.25	0.28	0.25	0.27	0.37	0.32	0.36
F_5	0.41	0.18	0.24	0.24	0.38	0.19	0.30	0.24	0.25	0.29	0.38	0.34	0.90	0.82	0.20	0.29	0.27
F_6	0.51	0.27	0.37	0.30	0.37	0.15	0.17	0.30	0.32	0.34	0.09	0.33	0.24	0.09	1.00	0.37	0.23

Note: $n = 106$

Table III Correlation matrix – satisfaction variables

	F_3	F_4	F_5	F_6
F_3	1.00			
F_4	0.29	1.00		
F_5	0.40	0.30	1.00	
F_6	0.24	0.37	0.20	1.00

Note: $n = 106$

statistical analyses on the individual items. This kind of analysis is called exploratory factor analyses. Confirmatory factor analyses were also used to control the dimensionality of items measuring concepts such as Store satisfaction.

Store satisfaction

A confirmatory factor analysis of the four items used to measure the concept Store satisfaction (Y) is presented in the first part of Table IV. Only one component (factor) was extracted. The Cronbach's alpha (CA) was 0.90 and variance extracted (VE) was 0.77, as presented in the last part of Table IV. The recommended levels for the two statistics are 0.70 and 0.50, respectively, suggesting that construct reliability and convergent validity can be claimed.

Discriminant validity was examined by comparing the variance extracted (VE) for each of the constructs with the square of the correlation coefficients between the construct considered and each of the other constructs. In order to have a construct that is truly distinct from another construct, their respective VEs should be larger than the square of their correlation coefficient. Tables II and III give the correlation coefficients and Table IV the variance extracted measure (VE) for all the constructs. The relevant correlation coefficients for Store satisfaction are found in the last part of the first column of Table II. The largest coefficient was between Y (Store satisfaction) and F_1 (Service quality). Both discriminant validity and nomological validity may be claimed for Store satisfaction, as further discussed below.

Antecedents of store satisfaction

Factor analyses have requirements with respect to the absolute number of cases, the number of cases per item, the level of the correlation coefficients between items and their significance levels, as well as the overall measures of intercorrelation (Hair *et al.*, 2006). The number of cases in this study was higher than 100 and about 7.5 per item, both of which are satisfactory. In addition, more than half of the correlation coefficients were larger than 0.3 and more than 80 percent were significant at least at the 0.05 level. The Kaiser-Meyer-Olkin Measure of Sampling Adequacy (MSA) has a value of 0.78, which is also satisfactory. Accordingly, principal components analyses (varimax rotation) were calculated for the 14 items.

Table IV shows factor loadings and measures of validity of a six-factor exploratory factor analysis (F_1-F_6). Thus this table presents both the factor loadings of the confirmatory factor analysis for the concept Store satisfaction (Y) as well as an exploratory factor analysis for the antecedents of store satisfaction (X_1-X_{14}). All factor loadings above 0.55 were significant at the 0.05 level (Hair *et al.*, 2006). The first summated scale (variable F_1) of the six-factor model consisted of four items, the next (F_2) consisted of three items, the next three (F_3-F_5) consisted of two items each, and the last one (F_6) consisted of only one item. As presented in Table I, the six new constructs are labeled Service quality (F_1), Store availability (F_2), Additional offer (F_3), Chain products (F_4), Traditional offer (F_5), and Prices (F_6). Cronbach's alphas exceeded 0.7 for all constructs except for Traditional offer (F_5), where CA = 0.64. Variance extracted exceeded by far the recommended level of 0.5 for all summated scales

Table IV Factor loadings and measures of validity

Variables (concept/items/factors)	*Y*	F_1	F_2	F_3	F_4	F_5	F_6
Store satisfaction – 4 items							
Satisfaction with the store (spontaneous judgment)	0.84						
Satisfaction compared to expectations	0.94						
Satisfaction compared to an ideal store	0.89						
Overall satisfaction	0.84						
Antecedents – 14 items							
Satisfaction with the check-out point		0.88					
Satisfaction with the serving staff		0.88					
The serving staff is friendly		0.83					
The serving staff is competent		0.81					
Satisfaction with the store location			0.89				
Satisfaction with opening hours			0.89				
The store is easy to find			0.75				
Satisfaction with chain product quality				0.90			
Satisfaction with chain product price				0.80			
Satisfaction with betting possibilities					0.86		
Satisfaction with (in store) postal services					0.83		
Satisfaction with bakery products						0.82	
Satisfaction with fruit and vegetables						0.82	
Satisfaction with prices							0.84
Validity measures							
Cronbach's alpha (CA)	0.90	0.90	0.87	0.77	0.76	0.64	–
Variance extracted (VE)[a]	0.77	0.72	0.72	0.72	0.71	0.67	–

Notes: [a]Variance extracted): $\left(\sum_n^i \lambda_i^2\right)/n$, where λ is standardized loading and n is number of loadings; $n = 106$

(constructs). The VE measures of the constructs were found by squaring the factor loadings of the exploratory factor analysis. The confirmatory factor analyses that were calculated for each of the new constructs resulted in increased factor loadings and higher VE measures for all the constructs, on average by about 0.08. A closer look at the validity measures showed satisfactory findings. Thus, it was possible to claim convergent validity for all the constructs. The largest correlation coefficient among the factors (F_1-F_6) was 0.44, which was between (F_2) and (F_3). The square of this was 0.19, which was far below all of the VA measures in Table IV, suggesting that discriminant validity may be claimed for all the constructs of the factor analysis. Nomological validity can be claimed as long as all correlation coefficients are positive and also significant (at least at the 0.05 level).

Gender differences

Differences between males and females can be dissected in various ways. We offer three approaches here:

1. a simple comparison of the means of variables under scrutiny;
2. statistical tests that indicate if there were significant differences among variable means; and
3. statistical analyses which show whether differences were significant when controlling for other variables included in the study.

Comparison of variable means by gender

Table V presents means and standard error of means for males and females for Store satisfaction, for the 14 antecedents of satisfaction, and for the six factors (constructs). In addition mean differences between males and females are presented in the column to the right.

Table V shows a mathematical difference that was negative for Store satisfaction because the mean level for female respondents was higher than the mean level for male respondents. The difference in the 14 antecedents was positive for females for eight, equal for two, and negative for the remaining four. The difference for the six factors was positive for male respondents for three and positive for female respondents for the remaining three. However, mathematical differences only form a starting point for comparisons.

Gender differences illustrated by simple t*-tests*

An independent samples *t*-test is used when the intention is to compare the mean score for some continuous variable for two different groups in order to find out whether a difference is significant. As noted above, differences do exist, but just one was significant at the 0.10 level, implying that females seem to be less satisfied than males with respect to Prices. Thus the results from the *t*-tests did not support the formulated hypothesis.

Gender differences when controlling for other variables

Table VI shows the results from three OLS regression models, all with the square of Store satisfaction as the dependent variable. Model I was the general unrestricted model with the six summated scale variables (Service quality, Store availability, Chain products, Traditional offer, Additional offer, and Prices) and the Gender dummy variable as independent variables. In this model Gender was

Table V Descriptive statistics for store satisfaction and antecedents – males ($n = 52$) and females ($n = 54$)

Variables (concept/items/factors)		Males (n = 52) Mean	Males (n = 52) St. error of mean	Females (n = 54) Mean	Females (n = 54) St. error of mean	Mean difference
Store satisfaction (Y_1-Y_4)	Y	4.97	0.13	5.14	0.13	−0.17
Antecedents – 14 items						
Satisfaction with the check-out point	X_1	5.06	0.18	5.13	0.17	−0.07
Satisfaction with the serving staff	X_2	5.04	0.16	5.02	0.15	+0.02
The serving staff is friendly	X_3	5.56	0.16	5.35	0.18	+0.21
The serving staff is competent	X_4	4.98	0.16	4.98	0.13	0.00
Satisfaction with the store location	X_5	5.92	0.16	6.19	0.16	−0.27
Satisfaction with opening hours	X_6	6.12	0.13	6.22	0.15	−0.10
The store is easy to find	X_7	5.75	0.17	5.83	0.16	−0.08
Satisfaction with chain product quality	X_8	4.42	0.15	4.28	0.18	+0.14
Satisfaction with chain product price	X_9	5.00	0.18	5.04	0.18	−0.04
Satisfaction with betting possibilities	X_{10}	4.94	0.20	5.22	0.18	−0.28
Satisfaction with (in store) postal services	X_{11}	5.33	0.18	5.33	0.20	0.00
Satisfaction with bakery products	X_{12}	4.88	0.21	4.96	0.21	−0.08
Satisfaction with fruit and vegetables	X_{13}	5.21	0.16	5.31	0.16	−0.10
Satisfaction with prices *	X_{14}	4.06	0.15	3.69	0.14	+0.37
Antecedents – six factors						
Service quality	F_1	5.16	0.14	5.12	0.14	+0.04
Store availability	F_2	5.93	0.14	6.08	0.14	−0.15
Additional offer	F_3	5.14	0.17	5.28	0.17	−0.14
Chain products	F_4	4.71	0.15	4.66	0.16	+0.05
Traditional offer	F_5	5.05	0.16	5.14	0.16	−0.09
Prices *	F_6	4.06	0.15	3.69	0.14	+0.37

Note: $^*p < 0.10$

hypothesized to have a direct effect on Store satisfaction. Based on t-tests of the gender coefficient ($t = 2.02$), we can reject the null hypothesis of a zero coefficient at the 5 percent level, suggesting a significant direct effect of Gender on Store satisfaction. This model explained 56 percent of the variation in Store satisfaction (squared) by the seven explanatory variables ($R^2_{adj} = 0.56$). However, Store availability and Chain products both had insignificant coefficients, which were constrained to zero in Model II in order to obtain a parsimonious model. With such a small sample ($n = 106$) it is important to keep the degrees of freedom as high as possible.

The model fit of the parsimonious model (Model II) was the same as for Model I, and all variables had significant positive coefficients at the 5 percent level or less, except for Additional offer, which was significant at the 10 percent level. The results confirm that Gender has a direct effect on Store satisfaction. Because the dependent variable was squared in order to comply with regression analysis requirements, the opposite calculation (the square root) had to be taken in order to identify the effects regarding the original dependent variable. This gave the following estimated regression equation for Model II:

$$Y = (-19.69 + 4.32F_1 + 1.25F_3 + 1.13F_5 + 2.66F_6 + 2.70X_{15})^{1/2}. \quad (1)$$

This equation suggests that the relationships between the dependent and the independent variables were non-linear (degressive), indicating that each of the significant antecedents had a positive effect on customer satisfaction, but at a declining rate.

To test whether Gender also had moderating effects on the relationships in Model II, two different methods were applied; the median split sample method and the moderating regression method. The median split sample method is often the preferred procedure, and involves the estimation of separate regressions on the two median divided samples, where the possible moderator variable is the grouping variable. If the coefficients differ significantly between the two subsamples there is evidence of moderating effects. However, if the moderator is also a direct predictor, the split in two subsamples causes a reduction in variance in the predictor, which also carries over to the dependent variable (see e.g. Peters and Champoux, 1979; Olsen *et al.*, 2005). This might typically cause a type II error with false rejection of the null hypothesis when it is true, i.e. finding differences between the samples when there actually were none. In this case a more appropriate approach is the moderating regression method, involving an extension of the original model with interaction terms. These interaction terms are simply the possible moderator variable multiplied by each of the original explanatory variables. However it is well recognized that including such interaction terms may give rise to severe multicollinearity problems, inflating the p-values and causing an increase in the confidence intervals of the estimated coefficients. A recommended remedy in such cases is to center the original variables by computing the means of each independent variable, and then replace each value with

Table VI Estimates of regression coefficients, *t*-values, and model fit – multiple regression analyses with OLS

Variables (concept/items/factors)	Symbol	Regression coefficients	*t*	R^2_{adj}
Model I: all variables				0.56
Constant		−21.83	−4.72*	
Service quality	F_1	4.14	5.89*	
Store availability	F_2	0.76	1.02	
Additional offer	F_3	1.05	1.73***	
Chain products	F_4	−0.01	−0.01	
Traditional offer	F_5	1.10	1.79***	
Prices	F_6	2.62	3.83*	
Gender	X_{15}	2.59	2.02**	
Model II: parsimonious model				0.56
Constant		−19.69	−4.82*	
Service quality	F_1	4.32	6.42*	
Additional offer	F_3	1.25	2.21**	
Traditional offer	F_5	1.13	1.88***	
Prices	F_6	2.66	4.04*	
Gender	X_{15}	2.70	2.12**	
Model III: parsimonious centered model with interaction effects				0.56
Constant		24.86	27.30*	
Service quality (centered)	CF_1	3.49	3.07*	
Additional offer (centered)	CF_3	0.76	0.93	
Traditional offer (centered)	CF_5	1.26	1.37	
Prices (centered)	CF_6	3.84	3.92*	
Gender	X_{15}	2.74	2.15**	
Interaction effect service quality – gender	$CF_1 * X_{15}$	1.34	0.94	
Interaction effect additional offer – gender	$CF_3 * X_{15}$	0.98	0.86	
Interaction effect traditional offer – gender	$CF_5 * X_{15}$	−0.09	−0.08	
Interaction effect prices – gender	$CF_6 * X_{15}$	−2.10	−1.56	

Notes: *$p < 0.001$; **$p < 0.05$; ***$p < 0.10$; $n = 106$

the difference between it and the mean. The interaction terms are then computed by multiplying each centered variable with the possible moderating variable (see e.g. Tabachnick and Fidell, 2001). Results from this moderating regression are shown in the lower part of Table VI (Model III). None of the interaction terms were significant, ruling out moderating effects of the gender variable. When estimating Model III (on centered original variables) restricting the insignificant interaction terms to zero, we obtained exactly the same result as in Model II except for the constant term, leaving us with this parsimonious model as our preferred model. When squaring the dependent variable (Store satisfaction), the Kolmogorov-Smirnov statistic had significant low values ($p \geq 0.200$) in all three models in Table VI, suggesting that one cannot say that the residuals were not normally distributed. Additionally, other important statistics were satisfactory, e.g. regarding collinearity and outliers.

Admittedly, the results were based on one small sample, suggesting caution should be exercised with respect to external validity interpretation. The robustness of this moderating regression was therefore also considered by executing a split sample procedure. Splitting the sample based on gender gave a male and a female sample of 52 and 54 observations respectively. Running separate regressions based on Model II on these samples showed that female satisfaction levels were more influenced by a change in service quality and less by a change in prices than male satisfaction levels. However, the *F*-distributed Chow test for parameter stability across samples had a value of Chow (7.93) = 1.05, which is well below the critical value at the 5 percent level. Even when excluding insignificant variables, the Chow test had a value below the critical value, confirming the result from the moderating regression of no moderating effects of gender.

Discussion, implications and conclusion

The context of this study was a Norwegian grocery store belonging to a large chain of grocery stores. The main purpose was to analyze associations between gender, drivers of consumer satisfaction (antecedents, attributes, features) and consumer satisfaction. The following research questions were addressed: Are there gender differences regarding store satisfaction and drivers of store satisfaction? Are female consumers more satisfied than male consumers? Do female consumers emphasize other drivers of store satisfaction then male consumers? Differences were discovered and analyzed in various ways, i.e. as:

- a simple comparison of the means of the variables included in the study;
- statistical tests to determine whether differences of variable means were significant; and
- statistical analyses to determine whether differences were significant when controlling for other variables included in the study.

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An additional purpose of the paper was briefly to discuss the various approaches with respect to consumer marketing.

The mean levels of Store satisfaction were 5.14 for female respondents and 4.97 for male respondents (scale 1 to 7). Thus there was a mathematical difference. However, a simple *t*-test revealed that the mean difference of 0.17 was not significant. When comparing the 14 included antecedents of satisfaction, just one was significant at the 0.1 level. When comparing the six factors based on the 14 antecedents, still just one was significant at the 0.1 level. Thus these results do not support the suggested hypothesis. However, when analyzing Store satisfaction in a multiple regression model controlling for the effects of the antecedents, Gender appears to have a significant direct effect on Store satisfaction. By taking the partial derivative of Store satisfaction with respect to Gender in equation (1) above, the gender-effect was calculated to be 2.70/2Y; i.e. if the mean satisfaction level for men (Y_{males}) on a scale from 1 to 7 was 3, the mean satisfaction level for women (Y_{females}) would be 3.45. The gender effect will, however, decrease with the level of satisfaction. This result was more robust than the results based on simple *t*-tests, thus supporting the suggested hypothesis that "female consumers tend to have a higher level of store satisfaction than male consumers' (*H1*), but also implying that this difference will decrease with the level of satisfaction.

In the three regression models (Models I-III in Table VI) discussed, the relationships between the dependent and the independent variables were non-linear (degressive), indicating that each of the significant antecedents had a positive effect on Store satisfaction, however at a declining rate. As underscored above, the non-linear relationships between variables were the result of a transformation (squaring) of the dependent variable (Store satisfaction) in order to comply with methodical requirements. Nevertheless, such non-linear relationships between attributes and satisfaction are often found. In all the three regression models the constant was negative, implying that the sum of the effects of the drivers of Store satisfaction had to compensate positively for this negative "starting point." If not, the regression equation would result in an irrational number for Store satisfaction. This can interpreted as if the drivers of satisfaction have to pass certain thresholds in order to have any impact on Store satisfaction.

Marketers may find these results rather mixed, confusing and difficult to handle. Long-term goals form the basis for decision making for a business unit. A customer- and market-oriented company usually focuses on long-term profitability (Helgesen, 2006; Zeithaml, 2000), implying that information regarding the "satisfaction-profit chain" should be of great importance (Anderson and Mittal, 2000; Zineldin, 2007). Thus significant drivers of Store satisfaction should be identified and considered, which in turn suggests that decision makers in this case should focus on adjustable drivers regarding Service quality. This factor was measured by four items (satisfaction with the check-out point, satisfaction with the serving staff, the serving staff is friendly and the serving staff is competent). The factor loadings of the four items (Table IV) were approximately at the same level (varying from 0.81 to 0.88), implying that they were almost of equal importance. Their obtained performance levels varied from 4.98 to 5.45 for the whole sample (Table I). They should all be considered closely in activities (job training, marketing, etc.) that can have a positive effect regarding customers' perceptions of Service quality. For example, can the check-out points be changed in a favorable way? What can be done to increase the competency of the serving staff? Even if the measures of reliability and validity are satisfactory regarding Service quality with CA = 0.90 and VE = 0.72 as presented in Table IV, more insight can probably be obtained by examining this business area more closely.

Next to Service quality, Prices had the most to say in Store satisfaction. Prices can be reduced in order to increase the satisfaction level. Another strategy is to communicate that the grocery store's value proposition is favorable for customers. The challenge is thus to convince consumers that they achieve value for money. There has to be consistency between the store's consumer value proposition, market communication (messages) and customers' perceptions.

When doing market surveys, great effort is usually put into data collection, but not that much effort is put into other aspects, such as questionnaire refinement and analyses of the data set. The findings are often discussed by scrutinizing descriptive statistics. This can be a weak basis for decision making. For example, the satisfaction levels regarding chain products (quality and price) are rather low, with values of 4.35 and 5.02 respectively and averaging 4.68 as presented in Table I. Except for Prices, Chain products (F_3) obtained the lowest satisfaction level of the variables considered. However, Chain products was not a significant driver of Store satisfaction. A more thorough analysis of data sets provides increased insights. This makes decision making easier, because pieces of information are put together into meaningful and coherent pictures. The findings of one market survey proved inputs to the next one. In this case, service quality should be more thoroughly investigated in the next survey. The number of items should also be increased owing to the fact that the explanation of the variances of Store satisfaction in this preliminary survey was rather low ($R^2_{\text{adj.}} = 0.56$). Measurements of other concepts such as Store image and Store loyalty should probably also be included. Additionally, the number of respondents should be increased in accordance with the number of antecedents and concepts included in the study, or more precisely, in accordance with the number of items that were included in the selected research model.

Two "dimensions" of gender were touched upon in this paper, sex or purely biological factors and gender or social constructions related to cultural aspects. Other "dimensions" are also relevant regarding research in consumer behavior such as gender roles and gender identity (American Psychological Association reprinted in Gerrig and Zimbardo, 2002; Palan, 2001). Considering the scarcity of publications in this area, more studies are welcomed.

Consumer behavior in grocery retailing can be enhanced by identifying and implementing an appropriate marketing strategy that is based on a profound understanding of the many factors and relationships that influence shoppers' attitudes favorably. The creation of store satisfaction is an important ingredient of such a marketing strategy. Consumers with a positive attitude towards a grocery store usually recommend the store to others, are willing to pay for the benefits they receive, are tolerant of prices increases, and are willing to spend a larger share of their wallets. By identifying significant and adjustable drivers of store satisfaction, managers may learn a lot about the store's value

proposition. When making decisions on activities, costs should also be considered so increased customer value is obtained in a cost effective way, thus creating customer value for the consumer and economic customer value for the store.

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Executive summary and implications for managers and executives

This summary has been provided to allow managers and executives a rapid appreciation of the content of the article. Those with a particular interest in the topic covered may then read the article in toto *to take advantage of the more comprehensive description of the research undertaken and its results to get the full benefit of the material present.*

Over the last two decades, academics and marketers have increasingly recognized customer satisfaction as a key performance indicator. This perception has led to the concept's incorporation into theoretical and business models pertaining to a diverse range of areas. Various definitions of customer satisfaction persist and can reflect the "affective and variable intensity response" either during or after the experience being evaluated. For example, analysts have used "post experience" to measure how satisfied a customer is with a retail outlet as this enables comparison between what performance was expected of the store and what the customer believed was delivered.

Issues to consider

The value of store satisfaction is reflected in spending levels, repurchase intention, word-of-mouth recommendations, loyalty and profitability of both individual patrons and the entire customer base. Since store satisfaction is subject to variance and fluctuation, researchers have sought to identify its antecedents, attributes and drivers. The influence of gender may be particularly significant.

Although sex and gender are sometimes used interchangeably, it is widely accepted that the first term refers to biological factors and the second to socially-defined characteristics. While sexual differences between males and females are intrinsic, their gender-related equivalents are subject to cultural influence. Many scholars believe that these nature and nurture aspects combine to shape how males and females think, feel and behave.

The significance of gender has been explored within numerous studies relating to contexts that include family roles, work, education and leisure. Meaningful research into gender influence on consumer activity within a retailing environment is limited by comparison.

Marketing efforts to categorize consumers in order to enhance segmentation strategies have routinely used gender either alone or in combination with other demographic variables like age, education, occupation and income. Previous studies have noted gender's role in defining market segments within product categories that include clothing, cosmetics, hair fashions and magazines.

Gender stereotyping maintains that males are assertive and seek control to achieve "self-centered" objectives. Females on the other hand place higher value on social relationships and loyalty. The prevalence of these characteristics invites the supposition that store satisfaction will typically be higher among female consumers than male consumers.

Survey and findings

Helgesen and Nesset investigate gender's impact on customer satisfaction and perception of service quality in a study of Norwegian consumers. The sample consisted of 52 males and 54 females, with ages ranging from 18 to over 65 years. Participants are customers of a grocery store situated in an area of Norway with a population of around 60,000 people. The store is associated with one of the four major retail chains now dominant in a grocery market that once consisted of smaller local and independent outlets. Researchers claim that international influences are partly responsible for this transformation. A number of competing stores are situated in neighboring vicinities and are tied to either the same retail chain or rival operators.

The authors adopted an approach used in previous studies whereby satisfaction was measured as a summary judgment and how it compares to both prior expectations and an ideal scenario. Theory and research were used to compile a list containing 14 satisfaction antecedents that was exposed to analysis and subsequently modified. This analysis generated six new constructs labeled as service quality, store availability, additional offer, chain products, traditional offer and prices.

Results indicated that the mean level of store satisfaction corresponded with findings from similar explorations of grocery retailing. Various analyses were then performed in order to identify any gender differences. Examination of the antecedents and constructs based upon them in the first test revealed just one statistically significant difference in each case. Therefore, although the mean levels of store satisfaction showed a mathematical variation between males and females, this difference was negligible.

Application of more sophisticated models produced results supporting the prediction that store satisfaction is subject to gender influence. Helgesen and Nesset suggest that findings in this case are stronger and note the positive correlation between gender impact and satisfaction levels. They similarly point out that the "significant antecedents" all positively impacted to declining extents on store satisfaction too.

Ideas for marketing and future study

The authors acknowledge that the findings produced may appear inconclusive and could be difficult for marketers to interpret and exploit. However, they emphasize the importance of identifying key drivers of store satisfaction and suggest that those relating to service quality are most

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significant here. This was revealed through survey responses to questions measuring satisfaction with serving-staff and checkout points, and perceptions of staff competence and friendliness. Respondents indicated the importance of these four antecedents to be roughly equal.

Retail organizations are thus urged to focus closely on this business area within activities like marketing and employee training in order to enhance consumer perception of service quality. A consideration of changes to checkout points would be one possibility. Data also revealed the importance of prices. In this respect, a positive impact on consumer satisfaction levels may be attainable through price reductions or an emphasis on providing value for money. Consistency between this value proposition, marketing messages and consumer perception is vital for the strategy to have the desired outcome.

Helgesen and Nesset claim that results will only prove accurate if relevant analysis is undertaken and warn against relying solely on descriptive statistics. They argue that analyzing date more rigorously increases the meaningfulness and coherence of insights generated. Researchers are encouraged to incorporate concepts such as store image and store loyalty into future studies. Another suggestion is to correspondingly increase the number of study participants when the number of antecedents and concepts included rises. Incorporating additional gender dimensions relating to such as gender roles and gender identity provides further scope for investigation.

(A précis of the article "Gender, store satisfaction and antecedents: a case study of a grocery store". Supplied by Marketing Consultants for Emerald.)