Customer Satisfaction and Links to Customer Profitability: An Empirical Examination of the Association Between Attitudes and Behavior

Magnus Söderlund & Mats Vilgon

SSE/EFI Working Paper Series in Business Administration No. 1999:1
January 1999

Abstract:

This paper explores links between customer satisfaction, repurchase intentions, purchase behavior, and customer profitability with empirical data on attitudes, behavior, and profitability at the customer level of analysis. Purchase behavior and profitability data, derived from the accounting system of a firm, are matched with the responses of the firm's customers to survey questions distributed prior to the behavior and profitability outcomes. The analysis reveals a strong link between customer behavior and customer profitability, while modest links exist between repurchase intentions and subsequent behavior. Only a weak and non-significant direct link can be observed between customer satisfaction and customer profitability. This paper, then, questions customer satisfaction's commonly assumed role as a proxy for profitability.

Keywords: Customer satisfaction; Customer profitability
JEL Code: M31

1. Introduction

Several authors have noted that customers generally vary in terms of profitability (Cooper & Kaplan 1991, Peppers & Rogers 1997, Petro 1990, Reichheld 1996, Shapiro et al 1987, Slywotzky & Shapiro 1993, Wang & Splegel 1994, Wayland & Cole 1997). That is to say, one particular customer does not generate the same costs and revenues over time as another customer. Moreover, not all customers generate *acceptable* cost and revenue streams. For example, in retail banking, some 50-60 percent of customers may be unprofitable (Carroll 1991-1992, Storbacka et al 1994). It has been suggested, therefore, that the firm should actively encourage relationships with profitable customers and attempt to terminate relationships with unprofitable customers (Jones & Sasser 1995, Peppers & Rogers 1997, Shapiro et al 1987, Slywotzky & Shapiro 1993). In Reichheld's (1996) words, *caveat mercator* (seller beware) ought to be a relevant principle for most firms today.

An increased focus on profitability at the customer level is a reflection of a movement within the marketing discipline towards a less aggregate view of markets. In other words, the individual customer - rather than segments of customers - is increasingly stressed as the unit of analysis. This movement has given birth to labels such as ''one-to-one marketing'' and ''micro marketing''. Seen from this perspective, customer profitability is emerging as an important dimension in which each (unique) customer can be described. A focus on customer-level profitability can also be conceived of as a reflection of marketing's changing role within the firm (cf. Webster 1992). An important aspect of the new role is that ''marketing is too important to be left to the marketing department''. Consequently, at least in marketing literature, other departments are encouraged to deal with marketing issues. This can be seen particularly in terms of cost control, in the sense that marketing performance measures are being introduced in cost accounting literature and practice. For example, activity-based costing and balanced scorecard techniques often include dimensions which are highly relevant to marketing (cf. Cooper & Kaplan 1991, Kaplan & Norton 1992). In this context, it is worth noting that marketing has traditionally lagged behind other functional areas of business with respect to the implementation of cost control systems (Dunne & Wolk 1977, Morgan & Morgan 1980). Another factor behind the interest in customer profitability (and its links to behaviour and attitudes) is the development of information technology, e.g. in terms of ''data warehouses'', which allows for a detailed analysis of each customer.

Despite the growing interest in customer profitability, identifying profitable customers is likely to be easier said than done for most firms. The main reason is that few firms have an internal accounting system which allows for an analysis of profitability at the individual customer level. At least this is what many academicians claim (Howell & Soucy 1990, Myer 1989, Reichheld 1996, Slywotzky & Shapiro 1993). However, given that several computerized systems which facilitate an analysis of customer profitability are commercially availiable on the market, there are reasons to belive that practitioners are experimenting with such data to an extent that is not yet reported in academic journals. In any case, profitability data on the customer level are generally not collected in empirical studies carried out by marketing scholars. This is not likely to advance marketing theory. After all, profitability lies at the heart of the marketing concept (Kohli & Jaworski 1990, Narver & Slater 1990). Similarly, marketing's link to profitability is stressed in the definitions of marketing offered by the Chartered Institute of Marketing and the American Marketing Association (cf. Buttle 1996).

However, attention in the marketing literature has instead been focused on other customer-level variables than customer profitability which a) provide marketers and market researchers with an easier access to data, particularly in terms of customer surveys, and b) are assumed to be carriers of information about customer profitability. Customer satisfaction is a variable of this type. The attention devoted to this particular variable can be seen in the light of the current interest in relationship marketing. It is assumed, in brief, that it is more profitable to keep existing customers than to attract new customers, and it is commonly assumed that customer satisfaction serves as a particularly important antecedent of customer retention and thus long-term customer relationships (cf. Anderson et al 1994, Buttle 1996, Rust et al 1995). However, due to the lack of data on customer profitability, the nature of the satisfaction-profitability link has rarely been analyzed in empirical terms.

This study explores customer satisfaction as a predictor of customer profitability on the customer level of analysis. In order to do so, in empirical terms, purchase behavior and profitability data derived from the accounting system of a firm are matched with the responses of the firm's customers to survey questions distributed prior to the behavior and profitability outcomes. This design, then, should be seen as an attempt to respond to a frequent call for data on real behavior in studies of customer behavior (cf. Jacoby 1978).

2. Theoretical framework

2.1. Outline of the theoretical framework

In the following sections, satisfaction is viewed as a possible antecedent of customer behavior, while customer profitability is viewed as a performance outcome (from the supplier's point of view) of customer behavior. Definitions of customer satisfaction and customer profitability serve as the point of departure. In the next step, hypotheses about causal links between the two concepts are formulated. This step focuses on an intermediate class of variables consisting of the customer's repurchase intentions and actual purchasing patterns.

2.2. Customer satisfaction

Customer satisfaction is a mental state which results from the customer's comparison of a) expectations prior to a purchase with b) performance perceptions after a purchase (cf. Oliver 1993, Oliver 1996, Westbrook 1987, Westbrook & Oliver 1991). A customer may make such comparisons for each part of an offer (''domain-specific satisfaction'') or for the offer in total (''global satisfaction''). In the satisfaction literature, customer satisfaction usually refers to the latter type of outcome. Moreover, this mental state, which we view as a cognitive judgement, is conceived of as falling somewhere on a bipolar continuum bounded at the lower end by a low level of satisfaction (expectations exceed performance perceptions) and at the higher end by a high level of satisfaction (performance perceptions exceed expectations).

2.3 Customer profitability

Customer profitability is a customer-level variable which refers to the revenues less the costs which one particular customer generates over a given period of time. As such, this variable refers to the *supplier's* value of having one particular customer, not the *customer's* value of having a particular supplier. Customer profitability appears in two temporal forms in marketing-related literature.

First, it appears as a matter of historical record. In this sense, a customer profitability analysis is similar to the firm's profit and loss statement. The main difference is that a customer profitability analysis refers to *one* particular customer, whereas a profit and loss statement refers to all customers. A history-oriented customer profitability analysis can be made at several levels. A common point of departure is to calculate the contribution margin (gross contribution margin), i.e. sales revenue less all product-related expenses for all products sold to an individual customer during one particular period of time (cf. Wang & Splegel 1994). Then, depending on the availability of data, sales, general and administrative expenses traceable to the individual customer are subtracted (Cooper & Kaplan 1991, Howell & Soucy 1990). The result of this calculation is the operating profit generated by the customer. An extension of this line of thinking is the computation of ''customer return on assets'', i.e. customer profitability divided by e.g. the sum of accounts receivable and inventory (Rust et al 1996).

Second, customer profitability is also referred to in a future sense in the literature. In this case, it often takes the form of the output from a net present value analysis. The output is sometimes referred to as the ‘‘lifetime value’’ of a customer (cf. Heskett et al 1997, Peppers & Rogers 1993, Petrison et al 1993, Rust et al 1996). It has been defined, for example, as the stream of expected future profits, net of costs, on a customer’s transactions, discounted at some appropriate rate back to its current net present value (Peppers & Rogers 1997, p 32). A similar concept is ‘‘customer equity’’ which is seen as a function of the customer’s volume of purchases, margin per unit of purchase, and acquisition, development and retention costs traceable to this customer (Blattberg & Deighton 1996, Wayland & Cole 1997).

2.4. Links between customer satisfaction and customer profitability

2.4.1. Customer satisfaction and repurchase intentions

It should be noted that customer satisfaction (a mental state) cannot have any direct impact on customer profitability. It is the *behavior* of the customer, which may follow from a certain level of satisfaction, that affects customer profitability. Consequently, a number of variables which are assumed to be a) consequences of customer satisfaction and b) predictors of profitability have been suggested in the literature. These include loyalty, word-of-mouth, price sensitivity, feedback to the supplier, and job satisfaction among the supplier’s personnel (Anderson et al 1994, Peppers & Rogers 1997, Reichheld 1996). In this study, however, focus is on a particular class of variables related to purchasing patterns.

In the customer satisfaction literature, one particular purchase-related variable dominates: repurchase intentions. Several studies have shown that a positive association is at hand between customer satisfaction and intentions to purchase again from the supplier who was responsible for the initial level of satisfaction (Anderson & Sullivan 1993, Biong 1993, Bloemer & Kasper 1994, Jones & Sasser 1995, LaBarbera & Mazursky 1983, Macintosh & Lockshin 1997, Söderlund 1998, Taylor & Baker 1994). The main rationale behind this link may be stated as follows: a behavioral intention is a function of a) the customer’s expectation that the performance of a specific behavior will lead to a certain outcome and b) the positive or negative evaluation of this outcome (Ryan 1982). With this view, there are two ways in which satisfaction may affect repurchase intentions. First, given that the customer is satisfied, satisfaction serves to narrow the variance in expectations (Anderson & Sullivan 1993). This, in turn, is likely to reduce uncertainty and provide cognitive economy in future choices, which may be important objectives per se. Second, given again that the customer is satisfied, the result is positive evaluations. Hence, a positive association between customer satisfaction and repurchase intentions is assumed.

H1: Customer satisfaction is positively associated with repurchase intentions.

2.4.2. Repurchase intentions and purchase behavior

Given an intention to continue to purchase from a supplier, and that the customer does in fact continue to purchase, how can one describe what happens over time? A broad label for purchase behaviour over time is loyalty. However, as noted by several authors, this construct is highly multidimensional, since a wide range of behaviors, and attitudes, have been referred to as loyalty (cf. the brand loyalty review made by Jacoby & Chestnut 1978). For example, repurchase intentions are quite often referred to as loyalty. In recent years, even more meanings have been added to the loyalty construct, in that several aspects derived from interpersonal relationships theory and anthropology have been suggested as indicators (Fournier 1996, 1998).

Since this study is concerned with several particular aspects of actual purchasing behaviour (which appear in some parts of the loyalty literature), we wish to avoid the label ‘‘loyalty’’. In order to emphasize our focus, we prefer the term purchase behavior. For the purposes of this study, purchase behaviour comprises three dimensions in purchasing over time: the number of orders, the purchasing volume (in terms of tons), and the purchase amount. These dimensions do not need to be intimately related at the customer level. For instance, one customer may purchase large volumes of low-priced items highly infrequently, another customer frequently purchases small volumes of high-priced items, and so on.

To what extent, then, are repurchase intentions related to purchase behavior in the three selected dimensions? Little is known about this from previous research, since the majority of existing studies, particularly in a customer satisfaction context, have dealt with purchase intentions and not actual purchases. A common assumption, however, is that positive associations do exist between behavioral intentions and actual behavior (cf. Innis & LaLonde 1994). Yet an intention is an attitude, i.e. a ‘‘mental state of readiness’’ (Insko 1967), which may, or may not, manifest itself in actual behavior. Consequently, other authors, such as Rust et al (1995) and Storbacka et al (1994), are more skeptical. A few empirical studies have compared intentions at one particular point in time with actual behavior at a later point in time, and these studies show that the association may be low (LaBarbera & Mazursky 1983, Pickering & Usherwood 1974). In this study, the hypotheses are framed in terms of the view in the majority of repurchase intentions studies - i.e. repurchase intentions at one particular point are assumed to be positively associated with purchase behavior at subsequent points in time.

H2: Repurchase intentions are positively associated with the number of orders.

H3: Repurchase intentions are positively associated with purchase volume.

H4: Repurchase intentions are positively associated with purchase amount.

2.4.3. Purchase behavior and customer profitability

Turning to the link between purchase behavior (in terms of the three selected dimensions) and profitability, a positive association is often assumed in the marketing literature. That is to say, the ‘‘more’’ the customers purchase, the higher the level of profits. Such assumptions are found at different levels of analysis. On an aggregate level, i.e. the market-level, a volume-related link to profitability is often discussed in terms of the effects of economies of scale and experience curves (cf. Buzzell et al 1975). Assumptions that ‘‘more is better’’ (i.e. more profitable) are also frequently encountered at the segment level of analysis. For instance, in the segmentation literature, substantiality is a frequently mentioned criterion for determining segment profitability. This criterion is commonly referred to in terms of volume. Consequently, volume-related segmentation bases, such as usage frequency, are common in normative approaches (cf. Gross et al 1993, van Raaij & Verhallen 1994, Wedel & Kamakura 1998, Weinstein 1987). In a business-to-business context, annual purchases in dollars has been used as a segmentation variable by Doyle & Saunders (1985) and Rangan et al (1992).

On the customer level of analyis, purchase behavior is assumed to affect profitability by effects on both revenues and costs. First, as the customer continues to purchase from the same supplier, the supplier’s revenues increase. In addition, as the purchases continue, the customer may discover, and purchase, additional products in the supplier’s assortment. In other words, the potential for cross-selling may increase over time - which affects revenues positively (Kalwani & Narayandas 1995). It has also been claimed that the customer’s price sensitivity may be reduced as the relationship continues (Reichheld & Sasser 1990). Increases in prices may therefore serve to further increase revenues. Second, a high level of repeated purchases is likely to go hand in hand with having contacts with the supplier at several occasions. It is often assumed that such multiple encounters reduce customer-handling costs (Heskett et al 1997, Reichheld & Sasser 1990, Shapiro et al 1987). For example, according to Reichheld (1996, p 45), as customers get to know the supplier through repeated purchases, they become less dependent on the employees for information and advice, and the effects of such learning are likely to translate into lower costs. In other words, then, transaction costs are expected to decrease as familiarity develops between buyer and seller.

However, the purchase behavior-profitability link has been criticized by authors who claim that large volumes may not go hand in hand with high profits at the customer level of analysis (Howell & Soucy 1990, Myer 1989, Shapiro et al 1987). An illustrative case is reported by Cooper & Kaplan (1990) who found that large-volume buyers tend to demand frequent deliveries of small volumes, discounts, expensive product adaptations and substantial technical support due to the large size of their orders. In fact, many large customers were found to be unprofitable. Similarly, Porter (1980) has suggested that large-volume buyers are particularly prone to reducing the supplier's profitability - if the purchased volume represents a significant portion of the customer's costs or purchases, and if high fixed costs characterize the supplier's business. Thus, a myopic focus on the *revenues* generated by a customer may conceal important facts about the *costs* generated by the same customer. The final set of hypotheses are therefore framed in a non-directed way:

H5: The number of orders is associated with customer profitability.

H6: Purchase volume is associated with customer profitability.

H7: Purchase amount is associated with customer profitability.

3. Research method

3.1. General research design

The point of departure for this study was the authors' desire to match customer satisfaction and repurchase intentions data (at the customer level) from one particular point in time with purchase behavior and profitability data (also at the customer level) from later points in time. In other words, we specifically wanted to use an approach which would allow for a temporal assymetry of the empirical observations. That is to say, X needs to preceed Y in time if we are to infer that X is a cause of Y (cf. Asher 1988). Similar attempts to match satisfaction data, or ''perceived service quality'' data, with profitability data appear in Aaker & Jacobson (1994) and Anderson et al (1994). However, these studies were made on the firm level of analysis, not on the individual customer level.

Given this, the first step was to identify a firm which a) had an acceptable way of keeping track of costs and revenues over time on the customer level, and b) was willing to provide access to this data. One such firm was identified. We will refer to it as Alpha. The original intention was to carry out a survey with regard to a sample of Alpha's customers, wait for the potential effects of customer satisfaction and purchase intentions to play out, gather data from the internal accounting system, and match the survey data with purchase behavior and profitability observations for each customer. However, as trust developed between Alpha and the researchers, we were given access to a customer survey which Alpha had commissioned from a commercial research firm. This survey measured customer satisfaction and repurchase intentions in such a way that each customer could be identified and thus facilitated a matching with purchase behavior and profitability data from later points in time. We decided to use data from this survey in the measurements of the attitudinal variables.

The survey was conducted in July 1995. It comprised telephone interviews with randomly selected customers. The respondent in the firms was Alpha's contact person who is, in general, the person responsible for executing the purchases from Alpha. The interviewer entered the responses, and the customer's telephone number, into a computer file. The telephone number was the key to matching the survey responses with the purchase behavior and profitability records kept by Alpha on each customer. That is to say, the survey responses constituted an initial database. In the next step, Alpha provided us with access to its records for 1995, 1996, and 1997 for each customer who had participated in the survey. Data from these records were then entered into the same database as the survey responses. Thus, the database used in this study was derived from two sources: a survey of Alpha's customers, and Alpha's accounting system. The database for the analysis consists of 418 customers.

3.2. Alpha and its business

Alpha is a European wholesaler of paper (e.g. printing and copying paper) and various related products such as cleaning equipment and bags. Its current range consists of about 5,000 different items. Some 10,000 customers purchase from Alpha on a regular basis. The customers are broadly categorized by Alpha as belonging to two segments: ''graphic industry'' and ''heavy users''. The first segment consists mainly of printers, and customers in this segment demand a deep assortment of paper. The second segment includes industrial firms, military units and schools. Customers in this segment require a narrower assortment of paper types, but a wide assortment of paper-related products. The products developed for the second segment, which is the result of a diversification strategy during the 1970s, is today generating the major part of Alpha's revenues. One main difference between the two segments is that Alpha's share of the total purchasing amount is generally larger for customers in the ''graphic industry'' segment.

Alpha's cost accounting system allows for a detailed analysis of customer behavior, as well as analyses of profitability at several levels (customers, products, sales persons, etc). It is the outcome of early attempts, dating from the 1970s, to integrate the distribution system and to establish closer bonds with the customers. Originally, Alpha worked in a way which Federal Express later came to adopt: through computer terminals at the customers' premises, each customer could interact on-line with the supplier. For example, the customer is able to see which items Alpha has in its inventory and to place orders from the terminals. This technology has recently been complemented with Web-based connections to the customers.

3.3. Measurements

3.3.1. Customer satisfaction

Customer satisfaction was measured as the unweighted mean of the responses to two items in the market survey. Both items were scored on a 5-point scale: ''If you think about Alpha as your supplier, how well do you think that this firm performs?'' (1 = Extremely good, 5 = Bad), and ''If you think about Alpha as a supplier, and if you compare Alpha with other suppliers, how valuable is it to have Alpha as a supplier?'' (1 = Extremely valuable, 5 = Not valuable at all). Several attempts were made to examine the quality of this measurement.

First, Cronbach's alpha is .64, which is slightly higher than Malhotra's (1993, p 308) .60 limit for acceptable reliability in terms of internal consistency. Second, the distribution of customer satisfaction in the sample was examined. This analysis reveals that the distribution is significantly different from the normal distribution, according to

Kolmogorov-Smirnoff's test (z = 3.49, p • 0.001). More specifically, the distribution is skewed in the sense that the majority of the customers are satisfied rather than dissatisfied. This result is similar to what is known about the distribution of satisfaction from many other studies (cf. Fornell 1992, Peterson & Wilson 1992). Finally, a common assumption is that customer satisfaction is positively associated with positive word-of-mouth (Anderson et al 1994). From a validity point of view, then, an examination was made of the association between customer satisfaction and the response to the following item in the survey: ''Would you recommend Alpha as a supplier to colleagues in other firms?''. This item was scored on a 5-point scale (1 = Definitely, 5 = Definitely not). The analysis revealed that customer satisfaction is positively and significantly associated with word-of-mouth (r = .38, p • .001). It can be contended, therefore, that a certain level of reliability and validity appears to be at hand in the measure of customer satisfaction.

3.3.2 Repurchase intentions and purchase behavior

Repurchase intentions was assessed with this item in the survey: ''The next time your firm needs the types of goods supplied by Alpha, is it likely that you will choose Alpha?''. It was scored on a 5-point scale (1 = Definitely, 5 = Definitely not).

With regard to the three dimensions of purchase behavior (number of orders, purchase volume, and purchase amount), data were derived from Alpha's records. Purchase volume was operationalized in terms of tons, while purchase amount refers to Swedish kronor (SEK). Observations on the three purchase behavior dimensions were availiable for three periods: 1995, 1996 and 1997.

3.3.3 Customer profitability

Customer profitability was operationalized for each customer in the sample as sales minus the cost of goods sold in one year. This, then, is the annual gross margin generated by the customer (cf. Cooper and Kaplan 1991, Howell & Soucy 1990, Wang & Splegel 1994). Again, the currency is Swedish kronor (SEK), and three periods are included in the analysis: 1995, 1996, and 1997. Thus, the profitability observations for each customer consist of the gross margin for three different points in time.

4. Analysis and results

The means, standard deviations and zero-order correlations are reported in Table 1. Some observations should be made before we examine the outcome with regard to the hypotheses.

First, the standard deviations for customer profitability confirm what was claimed about this variable in the introduction. That is to say, customers clearly do vary in terms of the profitability they generate. For example, in 1995, the top ten customers (i.e. 2.4 percent of the sample) who ranked highest in terms of customer profitability generated 25 percent of the total customer profitability in the sample.

Second, it has been suggested that in a typical company today, customers are defecting at the rate of 10 to 30 percent per year (Reichheld 1996, p 4). Therefore, it was expected that the number of customers in the sample had not remained constant over the three years. This was indeed the case. If a ‘‘customer’’ is defined as an actor who purchases for an amount greater than zero in one particular year, the number of customers decreased by 8 percent between 1995 and 1996. This number was further reduced with 11 percent between 1996 and 1997. Given the Reichheld (1996) defection rate interval, the defection rate in the sample can be conceived as low rather than high. Moreover, it has also been suggested that dissatisfaction is hardly the only cause for defection (Buttle 1996, Reichheld 1993). In order to provide a context for the defections in the sample, the level of satisfaction between remaining customers and defectors was compared. This analysis shows that those who defected between 1995 and 1996 were not significantly less satisfied in 1995 than those who remained in 1996 ($t = -1.02$, $p = 0.34$). Similarly, there is no significant difference in satisfaction in 1995 between those who remained in 1997 and those who defected between 1996 and 1997 ($t = -0.93$, $p = 0.35$).

Third, it has been suggested that customer spending tends to increase over time as the customer continues to purchase from the same supplier (Reichheld & Sasser 1990, Reichheld 1996). However, this tendency cannot be observed in the data at hand here. An analysis of the customers who remained over the three years (i.e. actors who purchased for an amount greater than zero in each of the three years) reveals that the mean purchasing amount decreased for each year. However, only the 1995-1996 decrease is significant ($t = 3.30$, $p < 0.001$).

Table 1:
Means, standard deviations and zero-order correlations

	Mean	S.D.	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Customer satisfaction 95	2.51	0.60	1.00												
2. Repurchase intentions 95	1.84	0.72	0.42•••	1.00											
3. Number of orders 95	66	108	-0.08	-0.12••	1.00										
4. Number of orders 96	65	108	-0.07	-0.11••	0.96•••	1.00									
5. Number of orders 97	61	111	-0.07	-0.12••	0.89•••	0.95•••	1.00								
6. Purchase volume (ton) 95	48	144	0.04	-0.06	0.66•••	0.64•••	0.59•••	1.00							
7. Purchase volume (ton) 96	44	130	0.05	-0.06	0.65•••	0.67•••	0.64•••	0.97•••	1.00						
8. Purchase volume (ton) 97	38	119	0.01	-0.11••	0.63•••	0.68•••	0.74•••	0.78•••	0.87•••	1.00					
9. Purchase amount (SEK) 95	609	1560	0.02	-0.08•	0.73•••	0.72•••	0.67•••	0.98•••	0.97•••	0.84•••	1.00				
10. Purchase amount (SEK) 96	521	1325	0.02	-0.08•	0.71•••	0.74•••	0.72•••	0.92•••	0.97•••	0.91•••	0.96•••	1.00			
11. Purchase amount (SEK) 97	446	1194	-0.01	-0.11••	0.66•••	0.72•••	0.77•••	0.76•••	0.85•••	0.98•••	0.84•••	0.92•••	1.00		
12. Customer profitability 95	81	153	-0.05	-0.10••	0.86•••	0.85•••	0.80•••	0.83•••	0.82•••	0.78•••	0.91•••	0.88•••	0.82•••	1.00	
13. Customer profitability 96	76	148	-0.05	-0.09•	0.84•••	0.87•••	0.85•••	0.77•••	0.82•••	0.82•••	0.86•••	0.90•••	0.86•••	0.96•••	1.00
14. Customer profitability 97	71	140	-0.05	-0.10••	0.76•••	0.83•••	0.87•••	0.66•••	0.74•••	0.86•••	0.76•••	0.84•••	0.91•••	0.87•••	0.94•••

••• $p < 0.01$, •• $p < 0.05$, • $p < 0.10$

Turning to the hypotheses, Table 1 shows that a positive and significant association is at hand between customer satisfaction and repurchase intentions ($r = .42$, $p < .001$). This means that H1 cannot be rejected. However, the correlation is substantially less than unity. Thus, satisfaction is hardly the only antecedent of repurchase intentions. As a further illustration of this, Table 1 reveals that the mean satisfaction (2.51) takes on a higher value than mean future purchase intentions (1.84). Given the (reversed) scales used in measuring these two variables, it can be contended that the level of intentions is higher than the level of satisfaction. A paired t-test indicates that the difference is significant ($t = 18.5$, $p < 0.001$). Presumably, then, the presence of (unmeasured) aspects such as long-term contracts and mutual adaptation serve to direct the customers towards repurchasing.

Before examining the outcome of hypotheses H2-H4, which refer to the link between repurchase intentions and purchase behavior, recall that repurchase intentions was measured in the survey with a 5-point scale in which 1 denotes a high level of repurchase intentions and 5 a low level. Thus, given the hypotheses, correlation coefficients with negative signs are expected. This is the case for all three purchase behavior variables, and for each of the three years. However, the association between repurchase intentions and purchase volume (H2) fails to reach significance at the 10 percent level in 1995 and 1996. The other associations are significant at this level, but they are indeed modest. In any case, then, H3 and H4 are supported.

With regard to the effects of the three dimensions of purchase behavior on customer profitability (H5-H7), positive associations appear for each of the three years. All associations are significant at the 1 percent level. For each year, purchase amount is more highly correlated with customer profitability than the other purchase behavior variables. This is probaly due to the fact that gross contribution margin is a function of purchase amount.

Finally, it can be noted that significant associations between customer satisfaction in 1995 and customer profitability in 1995, 1996 and 1997 are not at hand here. Moreover, the (weak) associations have remained stable over the three periods. On the other hand, repurchase intentions are significantly related to customer profitability with respect to each of the three years. Given the (reversed) measurement scale used in the assessment of repurchase intentions, a positive association is thus at hand between repurchase intentions and customer profitability.

5. Discussion

5.1. Summary of the results and limitations

The framework for this study may be summarized as a linear causal flow consisting of the following links in a temporally ordered chain: customer satisfaction - repurchase intentions - purchasing behavior - customer profitability. Overall, the results provide support for the hypothesized links. However, there are several limitations in our approach which should be noted.

With regard to the measures which were used, it should be observed that only two questionnaire items - with moderate internal consistency - were used to assess customer satisfaction, whereas one single item was used in the measurement of repurchase intentions. It cannot be ruled out that a more sophisticated measurement approach (with more scale items) would have resulted in higher correlations, given that low reliability may attenuate correlations between variables (Peter 1979).

Turning to unmeasured variables, it is clear that gross contribution margin hardly provides the full picture of customer profitability. As previously indicated, each customer is likely to vary in terms of other costs and revenues apart from those that are product-related. Attempts must be made in future studies to incorporate such additional costs and revenues, and to examine how they are related to gross contribution margin. It should also be noted that customer profitability, as it was measured here, does not take into account what might be referred to as second-order effects of what one particular customer does. For example, one customer with a negative gross contribution margin, who is thus an unprofitable customer in terms of gross contribution margin, may affect the firm's profits positively by engaging in positive word-of-mouth. An ''unprofitable'' customer may also attract other customers by serving as a reference object in the supplier's marketing efforts; it may provide the supplier with highly significant and cost-reducing feedback; and it may positively affect job satisfaction and morale in the supplying firm (cf. Heskett et al 1997, Peppers & Rogers 1997, Reichheld & Sasser 1990, Reichheld 1996). To incorporate such aspects of customer behavior into a profitability analysis is indeed a challenge for future research and business practice.

Moreover, although a positive and significant link was found between customer satisfaction and repurchase intentions, the former variable explains only a fraction of the variation in the latter ($r = 0.42$). This suggests that factors other than satisfaction affect repurchase intentions. Early attempts to come to terms with this, albeit outside the satisfaction literature, can be found in Fishbein & Ajzen's (1975) discussion of the individual's perception of what relevant reference groups think, and in literature dealing with variety-seeking behavior (Maddi 1968). More recently, various switching barriers (Fornell 1992, Tax et al 1998) have received attention as factors which may moderate the relationship between customer satisfaction and repurchase intentions. Moreover, in markets where both suppliers and customers are firms or other organizations, it can be expected that relationship-related factors, such as product and process adjustments, logistical co-ordination, knowledge about the counterpart's strengths and weaknesses, personal confidence, and legal contracts serve to create long-term relationships between customers and suppliers (Hallén et al 1991, Mattsson 1987). An additional potentially moderating variable is relationship commitment, in the sense that the satisfaction-repurchase intention link may be strongest among customers who are highly committed to the supplier (Storbacka et al 1994).

Another limitation is related to the time periods used in the study. That is to say, it is not clear to what extent the time periods have provided a proper context for an analysis of the relationships between attitudinal variables and behavioral variables. However, it does seem clear that attitudinal variables such as customer satisfaction do not remain constant over time (cf. Peterson & Wilson 1992). It means, among other things, that the timing of the survey (in terms of how much time one would allow between the survey and the most recent experience of the supplier) deserves some careful thought. One may also consider if the (accounting-oriented) time unit ''year'' really represents a useful time unit. In addition, if customer relationships are viewed as investments (cf. Mattsson 1987), a period longer than a few years may be needed to determine the extent to which one particular customer is profitable (cf. Reichheld 1996).

Furthermore, it has been assumed that the attitudinal variables in this study, customer satisfaction and repurchase intentions, refer to the same level of analysis as the purchasing behavior and customer profitability variables, i.e. the customer level. However, it should be kept in mind that the attitudinal data were derived from the supplier's contact person in the sample firms. This person may or may not be representative of other people in the same firm, and this person's level of influence on the firm's purchasing decisions may be subject to variation. As a further source of distortion, some of the contact persons may have changed job positions since they answered the survey questions. Such factors may explain the modest links between repurchase intentions and the purchase behaviors in the present study. Future studies should therefore include more information on the potentially complex nature of the buying center (cf. Webster & Wind 1972).

Finally, the customer-level of analysis may be questioned. It has been argued by Johnson et al (1995) that there are several scientific reasons for studying customer satisfaction at the market-level of analysis. According to these authors, an aggregation serves both to reduce error in the measurement of satisfaction and to increase the establishment of coherent relationships with other variables such as repurchase intentions. On the other hand, a market-level analysis is hardly likely to provide valuable inputs to marketers who wish to experiment with the implications of the one-to-one marketing approaches currently in vouge.

5.2. Some implications for research and practice

This study has identified several significant associations between variables in the customer satisfaction - repurchase intentions - purchase behavior - customer profitability chain. The associations between the two latter types of variables should not be surprising, since it is the actual acts by customers, not their attitudes, that affect the firm's performance (cf. Storbacka et al 1994). However, purchasing behavior variables, which are related to what customers do, are commonly missing in many parts of the marketing literature. Segmentation literature, and particularly the literature on segmentation of business markets, is one area in which the void is salient. That is to say, many segmentation variables have been described as candidates for the segmentation of business markets, but they are generally related to other characteristics of the buyer than what the buyer actually is actually doing over time in terms of purchases (cf. Shapiro & Bonoma 1984, Webster 1984). One implication of the present analysis, then, is that segmentation efforts may benefit if detailed purchase behavior is included. After all, segmentation becomes necessary when variation between customers is at hand, and as this study has shown, a substantial variation may exist in terms of both purchasing behavior and customer profitability.

For a further implication, assume that it is possible for a firm to satisfactorily assess each customer's profitability. According to some authors, a logical next step would be to engage in ‘‘demarketing’’ (Kotler & Levy 1971) or a ‘‘creative filtering program’’ (Reichheld 1996). That is to say, once unprofitable customers are identified, the firm would want to terminate relationships with them. This step raises several issues. One issue is how to say no to unprofitable customers and what the consequences of this might be. Anecdotal evidence suggests that saying no is indeed tricky, since a ‘‘no’’ is a potential driver of bad publicity. For example, First Chicago Bank began charging customers for doing transactions at a teller window that could have been performed on an automatic basis. This move was meant to provide a disincentive to those customers who tended to take up more teller-window time and money than they could return in profits. The result? A wave of bad publicity in the press - and competitors who advertised that no First Chicago customer would be too unprofitable for them (Peppers & Rogers 1997, p 127).

However, an even more challenging issue - after a profitability analysis has been carried out on the customer level - concerns how to turn unprofitable customers into profitable ones. This would require knowledge of *why* certain customers behave in a more profitable way than others. In other words, what do profitable customers actually do in terms of behaviours which distinguish them from less profitable customers? While the present study does not provide a rich understanding of this, it does suggest that variables other than satisfaction and repurchase intentions need to be explored in more depth. Examples of such variables are contractual agreements, switching barriers, relationship commitment, purchasing policy-related variables, the level of product adaptations and personal bonds.

References

Aaker DA & Jacobson R, 1994, The Financial Information Content of Perceived Quality, *Journal of Marketing Research*, Vol. XXXI, May, 191-201

Anderson EW & Sullivan MW, 1993, The Antecedents and Consequences of Customer Satisfaction for Firms, *Marketing Science*, Vol. 12, No. 2, Spring, 125-143

Anderson EW, Fornell C & Lehmannn DR, 1994, Customer Satisfaction, Market Share, and Profitability: Findings from Sweden, *Journal of Marketing*, Vol. 58, July, 53-66

Asher HB, 1988, *Causal Modeling*, Sage University Paper Series on Quantitative Applications in the Social Sciences, 07-003, Sage Publications, Beverly Hills

Biong H, 1993, Satisfaction and Loyalty to Suppliers within the Grocery Trade, *European Journal of Marketing*, Vol. 27, No. 7, 21-38

Blattberg RC & Deighton J, 1996, Manage Marketing by the Customer Equity Test, *Harvard Business Review*, July-August, 136-144

Bloemer JMM & Kasper HDP, 1994, The Impact of Satisfaction on Brand Loyalty: Urging on Classifying Satisfaction and Brand Loyalty, *Journal of Consumer Satisfaction, Dissatisfaction and Complaining Behavior*, Vol. 7, 152-160

Buttle F (Ed.), 1996, *Relationship Marketing: Theory and Practice*, Paul Chapman Publishing, London

Buzzell RD, Gale BT & Sultan RGN, 1975, Market share - the key to profitability, *Harvard Business Review*, January-February, 97-106

Carroll P, 1991-1992, The Fallacy of Customer Retention, *Journal of Retail Banking*, Vol. XIII, No. 4, Winter, 15-20

Cooper R & Kaplan RS, 1991, Profit Priorities from Activity-Based Costing, *Harvard Business Review*, May-June, 130-135

Doyle P & Saunders J, 1985, Market Segmentation and Positioning in Specialized Industrial Markets, *Journal of Marketing*, Vol. 49, Spring, 24-32

Dunne PM & Wolk HI, 1977, Marketing Cost Analysis: A Modularized Contribution Approach, *Journal of Marketing*, July, 83-94

Fishbein M & Ajzen I, 1975, *Belief, Attitude, Intention and Behavior: An Introduction to Theory and Research*, Addison-Wesley, Reading, Massachusetts

Fornell C, 1992, A National Customer Satisfaction Barometer: The Swedish Experience, *Journal of Marketing*, Vol. 56, January, 6-21

Fournier S, 1996, The Consumer and the Brand: An Understanding within the Framework of Personal Relationships, Working Paper 97-024, Harvard Business School

Fournier S, 1998, Consumers and Their Brands: Developing Relationships Theory in Consumer Research, *Journal of Consumer Research*, Vol. 24, March, 343-373

Gross AC, Banting PM, Meredith LN & Ford DI, 1993, *Business Marketing*, Houghton Mifflin Co., Boston

Hallén L, Johanson J & Håkansson H, 1991, Interfirm Adaptation in Business Relationships, *Journal of Marketing*, Vol. 55, April, 29-37

Heskett JL, Sasser WE & Schlesinger LA, 1997, *The Service Profit Chain*, The Free Press, New York

Howell RA & Soucy SR, 1990, Customer Profitability: As Critical as Product Profitability, *Management Accounting*, October, 43-47

Innis DE & LaLonde BJ, 1994, Customer Service: The Key to Customer Satisfaction, Customer Loyalty, and Market Share, *Journal of Business Logistics*, Vol. 15, No. 1, 1-27

Insko CA (Ed.), 1967, *Theories of Attitude Change*, Apleton-Century-Crofts, New York

Jacoby J, 1978, Consumer Research: A State of the Art Review, *Journal of Marketing*, April, 87-96

Jacoby J & Chestnut RW, 1978, *Brand Loyalty: Measurement and Management*, John Wiley, New York

Johnson MD, Anderson EW & Fornell C, 1995, Rational and Adaptive Performance Expectations in a Customer Satisfaction Framework, *Journal of Consumer Research*, Vol. 21, March, 695-707

Jones TO & Sasser WE, 1995, Why Satisfied Customers Defect, *Harvard Business Review*, November-December, 88-99

Kalwani MU & Narayandas N, 1995, Long-Term Manufacturer-Supplier Relationships: Do They Pay Off for Supplier Firms?, *Journal of Marketing*, Vol. 59, January, 1-16

Kaplan RS & Norton DP, 1992, The Balanced Scorecard - Measures That Drive Performance, *Harvard Business Review*, January-February, 71-79

Kohli AK & Jaworski BJ, 1990. Market Orientation: The Construct, Research Propositions, and Managerial Implications, *Journal of Marketing*, Vol. 54, April, 1-18

Kotler P & Levy SJ, 1971, Demarketing, yes, demarketing, *Harvard Business Review*, November-December

LaBarbera PA & Mazursky D, 1983, A Longitudinal Assessment of Consumer Satisfaction/Dissatisfaction: The Dynamic Aspect of Cognitive Process, *Journal of Marketing Research*, Vol. XX, November, 393-404

Macintosh G & Lockshin LS, 1997, Retail relationships and store loyalty: A multi-level perspective, *International Journal of Research in Marketing*, Vol. 14, 487-497

Maddi SR, 1968, The Pursuit of Consistency and Variety. In: Abelson RP et al (Eds.), *Theories of Cognitive Constitency: A Sourcebook*, Rand MacNally and Company, Chicago

Malhotra NK, 1993, *Marketing Research*, Prentice-Hall, New Jersey

Mattsson L-G, 1987, Management of Strategic Change in a ‘‘Markets-as-Networks’’ Perspective. In: Pettigrew A (Ed.), *The Management of Strategic Change*, Basil Blackwell, Great Britain

Morgan DS & Morgan FM, 1980, Marketing Cost Contols: A Survey of Industry Practices, *Industrial Marketing Management*, Vol. 9, 217-221

Myer R, 1989, Suppliers - Manage Your Customers, *Harvard Business Review*, November-December, 160-168

Narver JC & Slater SF, 1990, The Effect of a Market Orientation on Business Profitability, *Journal of Marketing*, October, 20-35

Oliver RL, 1993, Cognitive, Affective, and Attribute Bases of the Satisfaction Response, *Journal of Consumer Research*, Vol. 20, December, 418-430

Oliver RL, 1996, S*atisfaction: A Behavioral Perspective on the Consumer*, McGraw-Hill, New York

Peppers D & Rogers M, 1993, *The One-To-One Future*, Piatkus, London

Peppers D & Rogers M, 1997, *Enterprise One to One*, Dobleday, New York

Peter JP, 1979, Reliability: A Review of Psychometric Basics and Recent Marketing Practices, *Journal of Marketing Research*, Vol. XVI, February, 6-17

Peterson RA & Wilson WR, 1992, Measuring Customer Satisfaction: Fact and Artifact, *Journal of the Academy of Marketing Science*, Vol. 20, No. 1, Winter, 61-71

Petrison LA, Blattberg RC & wang P, 1993, Database Marketing: Past, Present, and Future, *Journal of Direct Marketing*, Vol. 7, No. 3, Summer, 27-43

Petro TM, 1990, Profitability: The Fifth ‘‘P’’ of Marketing, *Bank Marketing*, September, 48-52

Pickering JF & Isherwood BC, 1974, Purchase probabilities and consumer durable behaviour, *Journal of The Market Research Society*, Vol. 16, No. 3, 203-226

Porter ME, 1980, *Competitive Strategy*, The Free Press, New York

van Raaij WF & Verhallen TMM, 1994, Domain-specific Market Segmentation, *European Journal of Marketing*, Vol. 28, No. 10, 49-66

Rangan VK, Moriarty RT & Swartz GS, 1992, Segmenting Customers in Mature Industrial Markets, *Journal of Marketing*, Vol. 56, October, 72-82

Reichheld FF & Sasser WE, 1990, Zero Defections: Quality Comes to Services, *Harvard Business Review*, September-October, 105-111

Reichheld FF, 1993, Loyalty-Based Management, *Harvard Business Review*, March-April, 64-73

Reichheld FF, 1996, *The Loyalty Effect*, Harvard Business School Press, Boston, Massachusetts

Rust RT, Zahorik AJ & Keiningham TL, 1995, Return on Quality (ROQ): Making Service Quality Financially Accountable, *Journal of Marketing*, Vol. 59, April, 58-70

Rust RT, Zahorik AJ & Keiningham TL, 1996, *Service Marketing*, HarperCollins, New York

Ryan MJ, 1982, Behavioral Intention Formation: The Interdependency of Attitudinal and Social Influence Variables, *Journal of Consumer Research*, Vol. 9, December, 263-278

Shapiro BP & Bonoma TV, 1984, How to segment industrial markets, *Harvard Business Review*, May-June, 104-110

Shapiro BP, Rangan VK, Moriarty RT & Ross EB, 1987, Manage customers for profits (not just sales), *Harvard Business Review*, September-October, 101-108

Slywotsky AJ & Shapiro BP, 1993, Leveraging to Beat the Odds: The New Marketing Mind-Set, *Harvard Business Review*, September-October, 97-107

Storbacka K, Strandvik T & Grönroos C, 1994, Managing Customer Relationships for Profit: The Dynamics of Relationship Quality, *International Journal of Service Industry Management*, Vol. 5, No. 5, 21-38

Söderlund M, 1998, Customer satisfaction and its consequences on customer behavior revisited: The impact of different levels of satisfaction on word-of-mouth, feedback to the supplier, and loyalty, *International Journal of Services Industry Management*, Vol. 9, No. 2, 169-188

Tax SS, Brown SW & Chandrashekaran M, 1998, Customer Evaluations of Service Complaint Experiences: Implications for Relationship Marketing, *Journal of Marketing*, Vol. 62, April, 60-76

Taylor SA & Baker TL, 1994, An Assessment of the Relationship Between Service Quality and Customer Satisfaction in the Formation of Consumers' Purchase Intentions, *Journal of Retailing*, Vol. 70, No. 2, 163-178

Wang P & Splegel T, 1994, Database Marketing and Its Measurements of Success, *Journal of Direct Marketing*, Vol. 8, No. 2, Spring, 73-84

Wayland RE & Cole PM, 1997, *Customer Connections: New Strategies for Growth*, Harvard Business School Press, Boston, Massachusetts

Webster FE & Wind Y, 1972, *Organizational Buying Behavior*, Prentice-Hall, New Jersey

Webster FE, 1984, *Industrial Marketing Strategy*, John Wiley & Sons, New York

Webster FE, 1992, The Changing Role of Marketing in the Corporation, *Journal of Marketing*, Vol. 56, October, 1-17

Wedel M & Kamakura WA, 1998, *Market Segmentation: Conceptual and Methodological Foundations*, Kluwer Academic Publishers, Boston

Weinstein A, 1987, *Market Segmentation*, Probus, Chicago

Westbrook RA, 1987, Product/Consumption-Based Affective Responses and Postpurchase Processes, *Journal of Marketing Research*, Vol. XXIV, August, 258-270

Westbrook RA & Oliver RL, 1991, The Dimensionality of Consumption Emotion Patterns and Consumer Satisfaction, *Journal of Consumer Research*, Vol. 18, June, 84-91