

Customer Satisfaction and Word of Mouth

Eugene W. Anderson

University of Michigan

Do dissatisfied customers engage in more or less word of mouth than satisfied customers? There is theoretical and empirical support for both possibilities. To better understand this issue, the authors developed a utility-based model of the relationship between customer satisfaction and word of mouth. The hypothesized functional form—an asymmetric U-shape—cannot be rejected based on data from the United States and Sweden. In addition, the estimation results based on the two samples are similar, suggesting that the proposed relationship is generalizable. The findings also indicate that although dissatisfied customers do engage in greater word of mouth than satisfied ones, common suppositions concerning the size of this difference appear to be exaggerated.

Do dissatisfied customers engage in more or less word of mouth than satisfied customers? There is theoretical and empirical support for both possibilities (Yi 1991). In particular, although the nature and existence of a positive relationship between customer satisfaction and word of mouth have been posited and/or demonstrated by several studies (e.g., Bolton and Drew 1992; Holmes and Lett 1977; Reichheld and Sasser 1990; Schlesinger and Heskett 1991; Swan and Oliver 1989), there is also ample anecdotal, theoretical, and empirical support for a negative or inverse

relationship (e.g., Richins 1983a, 1983b, 1984; Technical Assistance Research Program [TARP] 1981; Westbrook 1987).

The purpose of this study is to develop a better understanding of the relationship between customer satisfaction and word of mouth (CS-WOM). The next section begins by discussing the two main perspectives on word of mouth as a consequence of customer satisfaction. Following this review, I develop a utility-based model of word-of-mouth activity. The model proves useful in understanding the CS-WOM relationship and integrating these contradictory viewpoints.

To test the model's hypothesized functional form—an asymmetric U-shape—against the traditional linear model of the CS-WOM relationship, data are used from nationally representative samples of U.S. and Swedish consumers of multiple types of goods and services. The scope of this combined database provides a unique opportunity for testing the alternative models, as well as assessing the generalizability of the findings. To assess the latter, estimation results are compared across the two samples. If the estimates of the model parameters are relatively stable across the two samples, this would suggest that the study has identified a fundamental relationship that can provide a viable starting point for future research. This article concludes by discussing the findings and potential directions for future research.

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WORD OF MOUTH AND CUSTOMER SATISFACTION

Word of Mouth

Throughout this article, *word of mouth* refers to informal communications between private parties concerning evaluations of goods and services (Dichter 1966; Fornell and Bookstein 1982; Singh 1988; Westbrook 1987) rather than formal complaints to firms and/or personnel. The valence of word of mouth may be positive, neutral, or negative. Examples of positive word of mouth, broadly defined, include relating pleasant, vivid, or novel experiences; recommendations to others; and even conspicuous display. Negative word of mouth includes behaviors such as product denigration, relating unpleasant experiences, rumor, and private complaining.

There are relatively few studies of word of mouth outside the context of its role in the diffusion of innovations (Rogers 1962; see Mahajan, Muller, and Bass 1990 for a review) and its influence on a receiver's attitude and behavior—such as communicator characteristics (Arndt 1967; Bearden and Etzel 1982; Bearden, Netemeyer, and Teel 1989; Price, Feick, and Higie 1994), factors mediating the influence of word of mouth on the receiver (Herr, Kardes, and Kim 1991), and the impact of social structure on word-of-mouth transmission (Frenzen and Nakamoto 1993; Reingen and Kernan 1986). In particular, the antecedents of word of mouth have seldom received direct attention.

Individual degree of satisfaction or dissatisfaction with consumption experience is generally regarded as the key antecedent of product-related word of mouth (Arndt 1967; Bitner 1990; Dichter 1966; Reichheld and Sasser 1990; Rogers 1962; Westbrook 1987; Yi 1991). It is notable, for example, that the majority of studies that investigate factors influencing the outcomes or efficacy of word of mouth—studies not directly concerned with customer satisfaction per se—rely on stimuli based on a high or low quality of consumption experience as the key antecedent of the interest and message to be communicated (see, e.g., Herr, Kardes, and Kim 1991). Other antecedents that have received attention include relative expertise (Feick and Price 1987; Katz and Lazarsfeld 1955; Rogers 1962), involvement or commitment (Dichter 1966; Richins 1983a, 1983b, 1984), the perceived benefits of social exchange (Brown and Reingen 1987; Dichter 1966; Rogers 1962), and individual assessments of the degree of moral hazard (Frenzen and Nakamoto 1993). For the moment, this investigation is restricted to the effects of customer satisfaction on word of mouth. However, it is also reasonable to expect that category characteristics related to the remaining antecedents of word of mouth will

influence the nature of the CS-WOM relationship. For example, many services have experience or credence qualities that may make word of mouth more valuable and, therefore, satisfaction may have a larger impact on word of mouth in such industries. Although beyond the scope of this article, cross-category variation in the CS-WOM relationship seems worthy of investigation by future research.

Satisfied Customers Engage in Greater Word of Mouth

It is widely held that loyal, satisfied customers will engage in word of mouth favorable to the firm (Bitner 1990; Bloch 1986; Hunt 1977; Oliver 1980; Reichheld and Sasser 1990). "Willingness to recommend" and "recommendations to others" measures are widely used in practice to assess the impact of customers' overall levels of satisfaction. Consistent with this perspective, Swan and Oliver (1989) and Schlesinger and Heskett (1991) report finding a positive relationship between CS-WOM. Using the number of recipients as a dependent measure, Holmes and Lett (1977) find that satisfied customers engage in more word of mouth than dissatisfied customers. Greater word of mouth is also found to occur as a result of greater satisfaction with complaint handling (TARP 1981).

Dichter (1966) and Arndt (1967) provide a variety of theoretical reasons in support of a positive CS-WOM relationship, including (a) altruism (desire to help others), (b) instrumentalism (a desire to appear well informed or "smart"), (c) ego defense, and (d) reduction of cognitive dissonance. Engaging in positive word of mouth is also consistent with the need to present the self in as positive a light as possible (Goffman 1959; Richins 1984), as well as a general bias toward cognitive processes, stimuli, and relationships that are positive in nature (Holmes and Lett 1977; Whitney 1971). Moreover, there may be motivation to avoid engaging in negative word of mouth. Tesser and Rosen (1975) suggest that individuals may be reluctant to transmit bad news to avoid guilt feelings, association with bad news (e.g., bearers of bad tidings to the rulers of ancient Persia were frequently beheaded), or alienating recipients. These supporting arguments, together with the empirical findings cited above, can be summarized as follows:

Hypothesis 1a: High-satisfaction customers should engage in greater word of mouth than low-satisfaction (dissatisfied) customers.

Dissatisfied Customers Engage in Greater Word of Mouth

In contrast to the preceding, there is also ample support for the existence of a negative or inverse

relationship between satisfaction and word of mouth. A study of Coca-Cola's customers shows that dissatisfied customers engage in twice as much word of mouth as satisfied customers (TARP 1981). Richins (1983b) finds that dissatisfaction, rather than satisfaction, leads to greater word of mouth. Westbrook (1987) finds a negative, although marginally significant, relationship between customer satisfaction and word of mouth. Trade press reports echo these findings. For example, Xerox believes that dissatisfied customers engage in between 2 and 3 times as much word of mouth as satisfied customers, whereas other estimates run as high as 10 times (Schlossberg 1991).

As with Hypothesis 1a, compelling theoretical arguments are also offered for why dissatisfied customers engage in greater word of mouth. There may be a greater motivation to engage in word of mouth when dissatisfied to vent hostility (Jung 1959), as well as reduce anxiety, warn others, or seek vengeance (Allport and Postman 1947; Knapp 1944; Richins 1984). Engaging in negative word of mouth may also be an important survival mechanism for groups of individuals (Allport and Postman 1947; Rosnow 1988; Shibutani 1966). These arguments and findings can be summarized in a second, alternative hypothesis:

Hypothesis 1b: Low-satisfaction (dissatisfied) customers should engage in greater word of mouth than high-satisfaction customers.

Finally, it is worth noting that Engel, Blackwell, and Kegerreis (1969), although they argue in favor of Hypothesis 1b, find no difference in word of mouth between satisfied and dissatisfied customers. Richins (1984) suggests that one possible explanation for these disparate findings is that the degree of involvement or commitment increases the ratio of word of mouth by dissatisfied customers to word of mouth by satisfied customers. For example, Holmes and Lett's (1977) finding of greater word of mouth by satisfied customers is for free samples of instant coffee, whereas the TARP (1981) finding that dissatisfied customers engage in greater word of mouth is for customers who complain about the product. However, this explanation does not appear to apply to Swan and Oliver's (1989) finding of a positive CS-WOM relationship for automobile purchase and ownership.

MODEL DEVELOPMENT

In resolving the conflicting viewpoints described above, this study develops a utility-based model linking customer satisfaction with word of mouth. There are two primary arguments in favor of such an approach. First,

there is need for a parsimonious model capturing the fundamental relationship between customer satisfaction and word of mouth. By fundamental, I mean a pattern that repeats itself in multiple circumstances and can be described simply by mathematical, graphical, and/or symbolic methods. Identifying such fundamental relationships has come to be recognized as a critical pursuit for research in marketing (Bass 1993). In the absence of fundamental theory regarding a particular phenomena, there is risk of accepting spurious empirical results. Moreover, such a model is more likely to be generalizable and provide a starting point for future research to replicate, extend, and/or revise.

Second, a utility orientation provides a means of integrating the host of different reasons why an individual might choose to engage in word of mouth. Utility is an abstract or latent construct rather than a concrete feature associated with a given product or activity. For example, a kitchen oven does not, in and of itself, directly provide utility but can be used in the production of meals that more directly produce utility through satiating hunger, stimulating taste, and/or focusing a social setting (Becker 1965). In this sense, a relatively more concrete objective that might compel an individual to engage in more or less word-of-mouth activity—such as altruism, reduction of cognitive dissonance, reluctance to transmit bad news, and a desire to vent hostility, warn others, or seek vengeance—is a subordinate means of achieving the supraordinate goal of greater utility for the individual (Howard 1977). Hence, a utility-oriented model is a useful way of organizing the diverse set of theories advanced in support of both positive and negative views of the CS-WOM relationship.

A Utility-Oriented Model of the CS-WOM Relationship

The relationship between customer satisfaction and word-of-mouth activity is posited to exhibit two central features. First, word-of-mouth activity should increase as the utility of engaging in word-of-mouth activity increases. This might occur as either satisfaction or dissatisfaction with product experience increases. Either way, the information conveyed should be of greater value. Second, the impact of dissatisfaction on the degree of word-of-mouth activity should be greater than the impact of satisfaction. Accordingly—consistent with Bass's (1993) recommendation of describing simply an expected pattern or relationship—the CS-WOM relationship can be expressed as follows:

$$\text{WOM} = f(\text{SAT}), \quad (1)$$

where

$$\frac{d(\text{WOM})}{d(\text{SAT})} = \begin{cases} > 0 & \text{if } \text{SAT} > \phi \\ = 0 & \text{if } \text{SAT} = \phi \\ < 0 & \text{if } \text{SAT} < \phi \end{cases}$$

$$\left. \frac{d(\text{WOM})}{d(\text{SAT})} \right|_{\text{SAT} > \phi} < - \left. \frac{d(\text{WOM})}{d(\text{SAT})} \right|_{\text{SAT} < \phi}$$

where WOM = word-of-mouth activity, SAT = level of customer satisfaction, and ϕ = neutral point of the U-shaped relationship between SAT and WOM.

The primary feature of Equation (1) is that increasingly positive or negative product-related experiences are expected to increase the marginal utility of engaging in word of mouth (assuming the marginal cost of engaging in word of mouth remains constant). Consequently, the level of word-of-mouth activity should be higher for customers whose evaluations of product experience tend toward either extreme. The relationship should be asymmetric, given diminishing marginal utility to increasing customer satisfaction. Diminishing returns to higher levels of satisfaction suggest that decreases in customer satisfaction should always have a greater impact on word-of-mouth behavior relative to increases in customer satisfaction.

To evaluate whether the features of Equation (1) are reasonable, first consider that limits on the time and effort can be devoted to any activity. An increase or decrease in the amount of word of mouth an individual chooses to engage in should depend on the marginal utility that will be derived from such an activity relative to all other activities. Given that an extremely positive or negative product experience should increase the marginal utility of engaging in word of mouth relative to that of other alternative actions, individuals with such experiences should choose to devote more time and effort to word of mouth and decrease time and effort allocated to other activities. For example, customers who have received superior quality and service may wish to inform friends or demonstrate their own expertise. Customers who have received poor quality or service may engage in word of mouth to warn others or satisfy an urge to complain, as well as to seek revenge. In general, individuals may seek to maximize their own utility by providing information to others as a means of social exchange or to satisfy personal motivations. Moreover, in the economy of the mind, such information is more likely to be both accessible and diagnostic, as suggested by research concerned with extremity biases (Skowronski and Carlston 1989; Wyer 1974). If an individual receives utility from engaging in such acts, then greater satisfaction or dissatisfaction should increase the marginal utility of engaging in word of mouth and

therefore the level of word of mouth, as summarized in Hypothesis 2:

Hypothesis 2: Word of mouth should be higher for extremely satisfied or extremely dissatisfied customers relative to those experiencing more moderate levels of satisfaction.

Hypothesis 2 provides an important alternative to the monotonically increasing or decreasing relationships summarized in Hypotheses 1a and 1b by suggesting an interaction dependent on whether product experience was, on the whole, positive or negative. If word of mouth is increasing as satisfaction either increases or decreases, then the linear specifications commonly used to estimate this relationship are inappropriate, and the results of such estimation are biased and unreliable. Given that Hypothesis 2 is straightforward—particularly in hindsight, because the failure to test for a more complex relationship may be attributable to word of mouth not being the primary focus of most of the aforementioned studies or to respondents being primed for either positive or negative word of mouth, but not both. For example, satisfaction research addressing the consequences of customer satisfaction generally focuses on repurchase intentions or behavior rather than other potential consequences of satisfaction, such as complaining behavior, willingness to pay, and word of mouth (Yi 1991).

The second key feature of Equation (1) is the proposed asymmetry of the impact of customer satisfaction on word of mouth. Asymmetry is to be expected, given diminishing returns to customer satisfaction. From a behavioral perspective, negative experiences (losses) should be expected to loom larger than positive ones (gains) in determining the extent to which product evaluations influence word of mouth (Kahneman and Tversky 1979). This is likely to be the case because negative information about products is not only more salient (Taylor 1991) but also likely to be relatively scarce (Lutz 1975). Such a negativity bias is to be expected when negative experiences are likely to be more diagnostic and accessible than positive ones (Skowronski and Carlston 1989). As a result, greater perceived utility may accrue for engaging in word of mouth following a dissatisfactory experience. This is consistent with viewing word of mouth as a form of exchange (Bagozzi 1975). Hence, increasingly dissatisfactory experiences are posited to lead to greater word of mouth than increasingly satisfactory experiences:

Hypothesis 3: Word-of-mouth activity will increase at a greater rate as dissatisfaction increases than as satisfaction increases.

Potential Generalizability of the Model: Testing Across Two National Data Sets

An important aspect of any modeling effort is the degree to which the underlying theory and empirical findings based on the model are generalizable (Bass 1993). We have the opportunity to gain insight into the degree to which this study generalizes across national boundaries by testing the model's hypotheses using data from both the United States and Sweden.

There is a precedent for anticipating that the proposed model will generalize across the two nations. Wikstrom's (1983) replication of Andreason and Best's (1977) work on customer satisfaction and complaining behavior suggests that there are more similarities than dissimilarities. Her investigation indicates that although national differences—in industrial organization, macro- and socioeconomic factors, and culture—appear to be associated with different levels of consumer dissatisfaction, there does not appear to be a discernible difference in the relationship between the quality of goods and services and the degree of dissatisfaction.

Although no formal methodology is employed, Wikstrom (1983) attributes observed differences to variation in cultural characteristics, as well as structural characteristics such as differences in industrial organization and socioeconomic characteristics. For example, the observed differences are consistent with theory indicating that customer satisfaction should vary across categories due to industrial organization factors. Higher levels of competition or differentiation in a product category have been found to be associated with higher levels of customer satisfaction (Anderson 1994; Fornell and Johnson 1993; Fornell and Robinson 1983).

Because industrial organization characteristics provide the strongest theoretical ground for predicting how customer satisfaction might vary across the two countries, it seems reasonable to predict that customer satisfaction should be higher in the United States. The United States is characterized by a higher level of competition and consumer choice combined with relatively low prices. Current macroeconomic conditions are also more favorable. If the average level of customer satisfaction is higher in the United States, then the model would predict that the average level of word of mouth should be lower, given fewer dissatisfied customers and the asymmetry of the CS-WOM relationship, as discussed earlier.

For systematic differences to exist in the degree to which word of mouth is affected by customer satisfaction, the marginal utility of engaging in word-of-mouth activity relative to other activities would have to vary in a predictable fashion. However, Wikstrom (1983) finds that respondents in the two nations give a similar rating to the importance of consumer problems relative to other problems

faced by the average family. Although this does not directly address the issue of word of mouth, particularly word of mouth regarding positive product experience, this finding suggests that the impact of customer satisfaction on word of mouth is likely to be similar across the two nations, given the underlying assumption that allocating time and effort to word of mouth comes at the expense of other activities. Hence, although there is a precedent for expecting differences in the overall levels of word of mouth and satisfaction between the United States and Sweden, there is no a priori reason to expect differences in the relationship between customer satisfaction and word of mouth. These arguments are summarized in the following hypotheses:

Hypothesis 4: The level of customer satisfaction should be higher and the level of word of mouth should be lower in the United States, as opposed to Sweden.

Hypothesis 5: The relationship between customer satisfaction and word of mouth should be, on average, stable across the two nations.

DESCRIPTION OF THE DATA

Appropriate data are available from two ongoing survey research projects managed by the National Quality Research Center (NQRC) at the University of Michigan Business School:¹ (a) the Swedish Customer Satisfaction Barometer (SCSB) and (b) the American Customer Satisfaction Index (ACSI). A common purpose and methodology underlie both research projects. Fornell (1992) and the NQRC (1994) provide full descriptions of the nature and purpose of the index projects.

The stated objective of the index projects is to achieve a better understanding of firm performance, industrial organization, national competitiveness, and overall standard of living by measuring individual customers' satisfaction with goods and services. On an annual basis, each project estimates a uniform set of customer satisfaction measures for a sample of firms representative of the host country's national economy. In the United States, for example, the firms included compete in the two- and four-digit Standard Industry Classification (SIC) industries with the largest dollar sales in each one-digit SIC sector (excluding agriculture, mining, construction, wholesale trade, and real estate). The largest firms within each industry were selected first, with increasingly smaller firms selected until the cumulative share reached approximately 70% of dollar sales. The 203 firms selected by this method have

1. The Swedish Customer Satisfaction Barometer is jointly managed with the International Center for Studies of Quality and Productivity at the Stockholm School of Economics. The American Customer Satisfaction Index is cosponsored by the American Society for Quality Control.

total dollar sales exceeding 40% of the U.S. gross national product. The estimated firm-level indices are used as the basis for calculating industry or category indices, sector indices, and a national index. The resulting indices are used to compare the quality of goods and services offered by a firm, industry, sector, or nation with one another, as well as with financial measures of firm, industry, and national economic performance (Fornell 1992).

The foundation of both the SCSB and ACSI is a substantial data collection effort. A national probability sample of households with telephones is screened to identify respondents with recent experience with the targeted set of goods and services firms and their products. In both nations, the resulting sample matches the most recent census figures in terms of the number of persons per household and ethnicity, but it is very slightly above average in terms of income, education, and proportion of women (due to the product classes and probability of contact by phone). Respondents are asked about multiple questions on each of the following topics: preconsumption expectations, subsequent experience with product quality, perceived value, overall satisfaction, repurchase likelihood, word of mouth, price tolerance, and complaining behavior. Once collected, the data are used to estimate each firm's satisfaction index via the multiequation econometric model described by Fornell (1992).

The SCSB, which has been in operation since 1989, is the prototype on which the recently initiated (1994) ACSI is based. Over the years of implementation in Sweden, the survey instrument was continually tested and refined. In translating the methodology to the United States, extensive pretesting of the questionnaire and a pilot test of firms in several industries were conducted. The two questions on which this study focuses have remained essentially the same. Although the satisfaction measure has received attention in a wide variety of research based on the SCSB data, the word-of-mouth variable has not been examined previously (Anderson 1994, 1996; Anderson, Fornell, and Lehmann 1994; Anderson, Fornell, and Rust 1997; Anderson and Sullivan 1993; Fornell 1992; Fornell and Johnson 1993; Johnson, Anderson, and Fornell 1995). For customer satisfaction, respondents are asked to evaluate their overall level of satisfaction with a particular supplier on a 10-point scale ranging from 1 = *very dissatisfied* to 10 = *very satisfied*. Respondents report word-of-mouth activity in terms of the number of individuals spoken to about recent experiences with quality.

Table 1 presents the mean levels of satisfaction and word-of-mouth activity for both the Swedish and U.S. data samples. The 1994 averages for industries common to both samples are given. In both cases, average satisfaction is lower and word of mouth is higher in Sweden. The

TABLE 1
Word-of-Mouth and
Customer Satisfaction Averages

	<i>Full Sample</i>		<i>Common Industries, 1994</i>	
	<i>Sweden</i>	<i>United States</i>	<i>Sweden</i>	<i>United States</i>
Average satisfaction	7.51	8.44	7.38	8.40
Average word of mouth (WOM), given WOM > 0	9.49	7.88	10.05	8.34
Number of observations	92,273	37,340	13,157	22,439
% observations for which WOM > 0	57	52	55	54
Number of firms	452	177	57	101

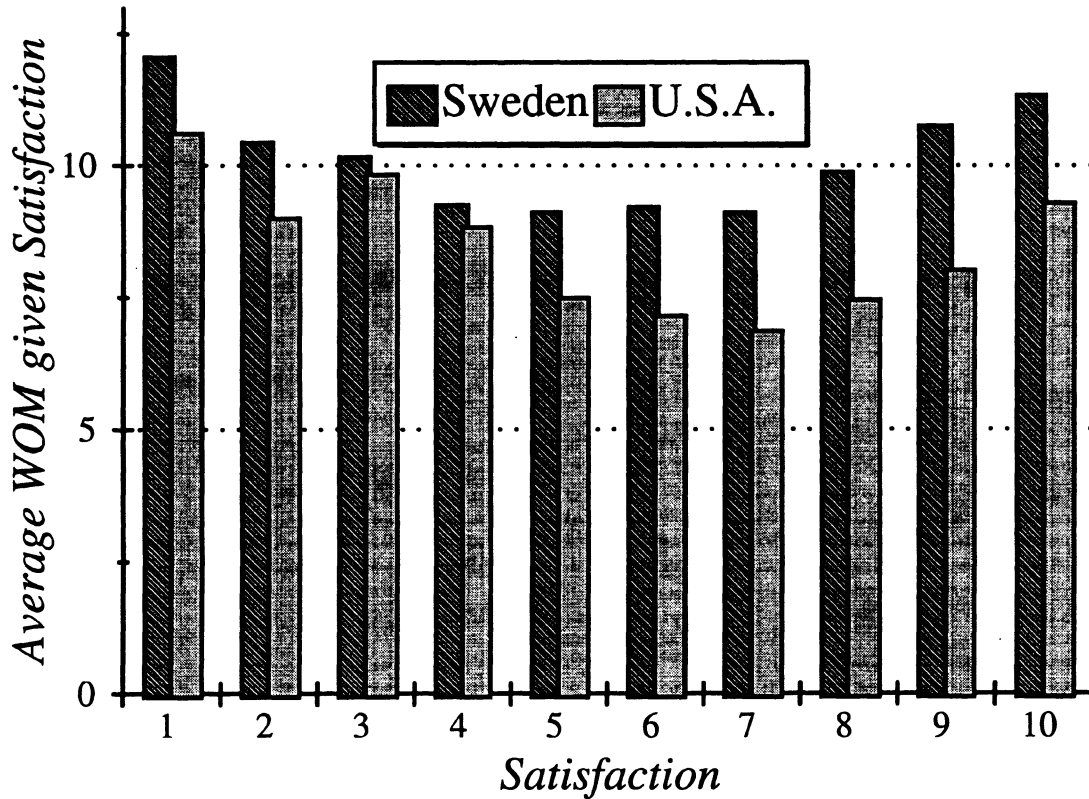
correlation between satisfaction and word of mouth is .07 in Sweden and .02 in the United States.

For the SCSB, the firms included in the database study represent major competitors in a wide variety of industries: airlines, automobiles, banking, charter travel, clothing retail, department stores, furniture stores, gas stations, insurance (life, auto, and business), mainframe computers, personal computers, newspapers, shipping, supermarkets, and television broadcasting. Several state-owned monopolies are also measured by the SCSB, including the state-run pharmacy, post office, police department, railroad, and telecommunications service. For each firm, the SCSB collects approximately 200 individual-level observations. The model is estimated for each firm. The sample for this study includes all firms for which the SCSB collects both customer satisfaction and word of mouth and spans the years 1989 through 1994 (word of mouth is not collected for many basic food categories). There are 56 firms in 1989, 74 firms in 1990, 79 firms in 1991, 80 firms in 1992 and 1994, and 83 firms in 1993, for a total of 452 firm-level observations.

The industries represented by the firms in the ACSI are somewhat more diverse: airlines, apparel, appliances, automobiles, banking, beverages, consumer electronics, department stores, discount stores, fast food, food processing, gas stations, hospitals, hotels, insurance (life and auto), Internal Revenue Service, motion pictures, newspapers, personal care, personal computers, post office, shipping, supermarkets, telecommunications, tobacco, TV broadcasting, and utilities. For 1994, 177 firms are available for the analysis.

Figure 1 shows the average level of word of mouth conditional on the level of customer satisfaction for both samples. Although one must be careful not to draw strong conclusions from such basic analyses, the aggregate data do appear to support the general idea that word of mouth increases as satisfaction moves toward either extreme.

FIGURE 1
Conditional Mean of Word of Mouth
(WOM > 0) Given Customer Satisfaction



It should not be surprising that a pattern suggestive of “lawlike” behavior can emerge at the level of aggregation used to develop Figure 1. As aggregation over time and/or individuals increases, unique situational and individual differences become increasingly marginal and/or cancel one another out (Epstein 1979; Katona 1975, 1979). For example, individual-level time-series studies often find little or no relationship between attitudes and subsequent behavior, yet such relationships are relatively clear and appear robust in aggregate, cross-sectional analyses (Katona 1975, 1979).

APPROACH TO TESTING THE HYPOTHESES

Hypotheses 1a, 1b, and 2

The hypotheses concerning whether the CS-WOM relationship is monotonically increasing (Hypothesis 1a), monotonically decreasing (Hypothesis 1b), or U-shaped

(Hypothesis 2) can be tested by comparing the estimation of a linear model versus the estimation of a U-shaped or quadratic specification of the CS-WOM relationship:

$$WOM_{ijt} = \alpha^j + \beta_{SAT}^j SAT_{ijt} + u_{ijt} \quad (2a)$$

$$WOM_{ijt} = \alpha^j + \beta_{SAT}^j SAT_{ijt} + \beta_{SAT^2}^j SAT_{ijt}^2 + u_{ijt}, \quad (2b)$$

where WOM_{ijt} = word of mouth by customer i of firm j at time t , SAT_{ijt} = satisfaction of customer i of firm j at time t , α^j = constant term for firm j at time t , $\beta_{Variable\ name}^j$ = coefficient for firm j at time t , and u_{ijt} = error term.

Equation (2a) depicts the CS-WOM relationship as a simple linear model. Equation (2b) is a specification appropriate for capturing the U-shaped relationship implied by Hypothesis 2. Hypothesis 2 will be accepted if Equation (2b) provides a superior fit to Equation (2a) and exhibits the proper pattern for the coefficients: The linear coefficient for satisfaction is negative, and the coefficient for squared satisfaction is positive.

TABLE 2
Word of Mouth as a Function of Satisfaction

	<i>Sweden (n = 452)</i>			<i>United States (n = 177)</i>		
	$\hat{\alpha}$	$\hat{\beta}_{SAT}$	$\hat{\beta}_{SAT^2}$	$\hat{\alpha}$	$\hat{\beta}_{SAT}$	$\hat{\beta}_{SAT^2}$
WOM _{ijt} = $\alpha^{jt} + \beta_{SAT}^{jt} SAT_{ijt} + \beta_{SAT^2}^{jt} SAT_{ijt}^2 + u_{ijt}$				if WOM _{ijt} * > 0		
WOM _{ijt} = 0				otherwise		
Average	5.30	-1.58	0.134	8.55	-2.24	0.138
% proportion $\beta > 0$	75	24	78	89	15	78
% proportion $\beta < 0$	25	76	22	11	85	22
H: All β s = 0?	Accept	Reject	Reject	Accept	Reject	Reject
H: All β s > 0?	Reject	Reject	Accept	Reject	Reject	Accept
H: All β s < 0?	Reject	Accept	Reject	Reject	Accept	Reject
Sample <i>t</i> statistic	8.89	-9.86	12.37	13.13	-11.39	9.43
H: Equation (3a)	Reject 89% of cases and overall			Reject 91% of cases and overall		

NOTE: "Reject" indicates that the restricted-unrestricted likelihood ratio test is significant at the .10 level.

In estimating these equations, an important methodological issue is the censored nature of the data. With regard to the former, no attempts have been made to account for the problem that the "true" propensity to engage in word of mouth, WOM_{ijt}^* , is unobserved. To see this, consider that to engage in word of mouth, the utility derived from the act depends on whether the perceived benefits outweigh associated costs, such as time costs (Becker 1965). Although extreme customer satisfaction or dissatisfaction increases the utility and, therefore, the degree of word of mouth, only the behavior of those for whom the utility of word of mouth exceeds the costs of engaging in word of mouth is observed. In the remaining cases, only an absence of word of mouth is observed. The true propensity to engage in word of mouth is "censored." Hence, an approach is required to estimate relationships characterized by such censored data (Maddala 1983). Tobin's probit or TOBIT—developed by Tobin (1958) and subsequently improved on by Amemiya (1973) and Heckman (1976)—provides a maximum likelihood approach for estimating such relationships. Equations (2a) and (2b) can be rewritten to account for the censored nature of the observed data:

$$\begin{aligned} WOM_{ijt} &= \alpha^{jt} + \beta_{SAT}^{jt} SAT_{ijt} + u_{ijt} && \text{if } WOM_{ijt}^* > 0 \\ WOM_{ijt} &= 0 && \text{otherwise} \end{aligned} \quad (3a)$$

$$\begin{aligned} WOM_{ijt} &= \alpha^{jt} + \beta_{SAT}^{jt} SAT_{ijt} + \beta_{SAT^2}^{jt} SAT_{ijt}^2 + u_{ijt} && \text{if } WOM_{ijt}^* > 0 \\ WOM_{ijt} &= 0 && \text{otherwise} \end{aligned} \quad (3b)$$

Hypothesis 3

Hypothesis 3 suggests that we should expect the CS-WOM relationship to be not only U-shaped but also asymmetric. To test whether the relationship takes this form, it is examined whether the expected level of word of

mouth is greater for dissatisfied customers. To this end, estimates of Equation (3b) are used to predict the level of word of mouth for extremely satisfied ($SAT = 10$) and extremely dissatisfied customers ($SAT = 1$). The predicted values are used to test whether the expected level of word of mouth is significantly higher for dissatisfied customers. As before, Hypothesis 3 is accepted if the null hypothesis of equality is rejected.

Hypotheses 4 and 5

Hypotheses 4 and 5 are tested by comparing the estimation of the CS-WOM relationship, as given by Equation (3b), in Sweden against estimates based on the same product categories in the United States. By focusing on those categories that are common to both countries, we hope to control for differences in the category mix of the two samples that might otherwise affect the analysis. Hypotheses 4 and 5 are accepted if the data reject the null hypothesis of equal means for satisfaction and word of mouth, but the data cannot reject the null hypothesis of equal parameters across the two samples for Equation (3b).

FINDINGS

Table 2 presents the average estimates for the proposed U-shaped CS-WOM relationship specified in Equation (3b). The results of testing Equation (3b) against the equation for the traditional linear model (3a) are summarized in row 8 of the table. As shown, Equation (3a) is rejected on the basis of a restricted-unrestricted likelihood ratio test in 89% of all cases in Sweden and 91% of all cases in the United States. In testing for overall significance—the joint test of the specification given by Equation (3b) versus (3a) for all firms—using a likelihood ratio test, the linear model

is rejected (at the $p = .01$ level) and the functional form, specified by Equation (3b), is accepted.

Hypotheses 1a, 1b, and 2

However, rejection of the linear specification does not provide sufficient information on whether to accept Hypothesis 2, only that Hypotheses 1a and 1b should be rejected. For Hypothesis 2 to be accepted, the general pattern of the coefficients must support the posited U-shaped pattern. Rows 1 through 7 of Table 2 are relevant to this issue. From row 1, it can be seen that the coefficient estimates are not only strikingly similar but indicate that, on average, word of mouth is increasing as satisfaction moves toward either extreme. The proportion of cases for which the linear satisfaction coefficient is negative (76% Sweden, 85% United States) and the quadratic satisfaction coefficient is positive (78% in both samples) is also supportive. To ascertain overall significance, the joint hypotheses are tested as to whether each is equal to, greater than, or less than zero for all firms in each sample. As shown, the resulting likelihood-ratio tests reject (cannot accept) the null hypotheses that all coefficients are zero and accept (cannot reject) the hypotheses that high- and low-satisfaction customers engage in greater word of mouth as satisfaction moves toward either extreme. An identical pattern emerges if the individual coefficient estimates are treated as individual observations to test whether the mean of each coefficient is equal to, greater than, or less than zero using a sample t statistic, as shown in row 7.

The relative superiority of Equation (3b) over Equation (3a), combined with accepting the hypothesis of a negative linear coefficient for satisfaction and a positive quadratic coefficient, suggests that we can accept (cannot reject) Hypothesis 2 over Hypotheses 1a and 1b.

Hypothesis 3

In determining whether to accept or reject Hypothesis 3, a test is used to determine whether the level of word of mouth for extremely satisfied customers ($SAT = 10$), WOM_{10} , is significantly lower than that for extremely dissatisfied customers ($SAT = 1$), WOM_1 . The average predicted value for each is presented in Table 3. As shown, the predicted level of word of mouth for extremely dissatisfied customers is higher than for extremely satisfied customers. In Sweden, dissatisfied customers are likely to relate their experiences 2.6 more times than satisfied customers. This difference is significant ($t = -4.01$) and 2.5 times larger in the United States. Hence, there is support for the asymmetry hypothesis in that dissatisfied customers engage in greater word of mouth than satisfied customers.

TABLE 3
Predicted Levels of Word of Mouth (WOM)
for Extreme Levels of Customer Satisfaction

	Sweden (n = 452)		United States (n = 177)	
	Predicted WOM_{10} (SAT = 10)	Predicted WOM_1 (SAT = 1)	Predicted WOM_{10} (SAT = 10)	Predicted WOM_1 (SAT = 1)
Average	2.97	5.57	-0.14	6.44
t statistic for difference between sample means		-4.01		-10.69

NOTE: SAT = level of customer satisfaction.

Hypotheses 4 and 5

To compare differences across the two nations, both samples are limited to common industries and years (1994). Table 4 reproduces the analysis of Table 2 for the new set of firms in each country.

As shown, the findings based on the sample of common industries are quite similar to those of the full analysis presented in Table 2. The U-shaped functional form for the CS-WOM relationship of Hypothesis 2 is favored over the monotonically increasing or decreasing linear specifications of Hypotheses 1a and 1b. Hence, the substantive implications of the estimates are identical. To ascertain whether the CS-WOM relationship is asymmetric, Table 5 reproduces the analysis of Table 3 for the common industries in both samples.

As before, the estimates in Table 5 suggest that the predicted level of word of mouth for extremely dissatisfied customers is higher than that for extremely satisfied customers. In Sweden, dissatisfied customers are likely to relate their experiences at more than twice the rate of satisfied customers. In the United States, dissatisfied customers communicate with an average of 6.48 more individuals than satisfied customers. Hence, the limited sample appears to offer the same degree of support for asymmetry in the CS-WOM relationship as the full sample.

How similar are the findings across the two nations? A straightforward approach to testing whether the CS-WOM relationship follows the same pattern in both samples is to perform a within-study meta-analysis, with the parameters of interest as dependent variables and country of origin as the independent variable. The estimated coefficients from this analysis are presented in Table 6. The constant term represents the mean level of the dependent variable for Sweden, and the country of origin dummy variable

TABLE 4
Word of Mouth as a Function of Satisfaction

	<i>Sweden (n = 57)</i>			<i>United States (n = 101)</i>		
	$\hat{\alpha}$	$\hat{\beta}_{SAT}$	$\hat{\beta}_{SAT^2}$	$\hat{\alpha}$	$\hat{\beta}_{SAT}$	$\hat{\beta}_{SAT^2}$
Average	4.90	-1.86	0.16	9.29	-2.24	0.138
% proportion $\beta > 0$	68	26	73	89	15	77
% proportion $\beta < 0$	32	74	27	11	85	23
H: All β s = 0?	Accept	Reject	Reject	Accept	Reject	Reject
H: All β s > 0?	Reject	Reject	Accept	Reject	Reject	Accept
H: All β s < 0?	Reject	Accept	Reject	Reject	Accept	Reject
Sample <i>t</i> statistic	3.98	-4.43	5.23	9.69	-7.92	7.05
H: Equation (3a)	Reject 98% of cases and overall			Reject 90% of cases and overall		

NOTE: "Reject" indicates that the restricted-unrestricted likelihood ratio test is significant at the .10 level.

TABLE 5
**Predicted Levels of Word of Mouth
 for Extreme Levels of Customer Satisfaction**

	<i>Sweden (n = 57)</i>		<i>United States (n = 101)</i>	
	<i>Predicted WOM₁₀ (SAT = 10)</i>	<i>Predicted WOM₁ (SAT = 1)</i>	<i>Predicted WOM₁₀ (SAT = 10)</i>	<i>Predicted WOM₁ (SAT = 1)</i>
Average	2.36	5.22	0.69	7.17
<i>t</i> statistic for difference between sample means	-2.04		-8.20	

NOTE: WOM = word-of-mouth activity; SAT = level of customer satisfaction.

captures the difference in the mean level of the dependent variable in the United States.

The estimates in Table 6 indicate that although there are significant differences in the average levels of satisfaction and word of mouth in Sweden and the United States, the shape of the CS-WOM relationship is relatively stable. This is consistent with Hypotheses 4 and 5, which state that although there is a precedent for expecting differences in the overall levels of word of mouth and satisfaction between the United States and Sweden, there is no a priori reason to expect differences in the relationship between customer satisfaction and word of mouth.

The first two columns in Table 6 provide a test of Hypothesis 4, which draws on the literature to predict differences in the overall levels of word of mouth and customer satisfaction. The average level of reported customer satisfaction in the United States appears to be almost a full point higher (0.90). Swedish citizens appear to communicate their experiences to slightly less than two additional

people. Although this may be due, as suggested earlier, to differences in the Swedish and U.S. markets (e.g., greater variety at lower prices in the United States), attributing this difference to one factor or another is difficult given the exploratory nature of this analysis. Achieving a better understanding of the underlying nature of the observed difference would seem to be a particularly good direction for future research.

Columns 3 through 5 of Table 6 present estimates useful in determining the overall similarity of the CS-WOM relationship across the two samples. Each column represents one of the parameters of the U-shape for the CS-WOM relationship as specified in Equation (3b). As indicated, although significant differences are observed in the intercept, there are no significant differences in linear or quadratic satisfaction terms. This suggests that, at least at this aggregate level, the model of the CS-WOM relationship developed in this article generalizes well across the two countries.

However, it is worth looking beyond the parameters of the model to analyze the predicted levels of word of mouth based on the model, as given by columns 6 through 8. There is significantly less word of mouth by satisfied customers in the United States, significantly more word of mouth by dissatisfied customers, and there is a greater difference between word of mouth by dissatisfied customers relative to word of mouth by satisfied customers. The larger gap between the two in the United States may imply that competitors in the U.S. market have a greater relative incentive to minimize damage to their reputation by dissatisfied customers. This suggests that, although the parameters of the model are relatively the same across the two samples, differences in word-of-mouth behavior make understanding the underlying nature of such differences worth exploring.

TABLE 6
Comparing the Customer Satisfaction and
Word of Mouth Relationship in the United States and Sweden

	<i>Dependent Variables</i>							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	<i>Average SAT</i>	<i>Average WOM</i>	$\hat{\alpha}$	$\hat{\beta}_{SAT}$	$\hat{\beta}_{SAT^2}$	<i>Predicted WOM₁₀ (SAT = 10)</i>	<i>Predicted WOM₁ (SAT = 1)</i>	<i>Predicted WOM₁₀ - WOM₁</i>
Constant	7.49* (0.07)	9.55* (0.26)	4.90* (1.25)	-1.86* (0.39)	0.16* (0.03)	2.37* (0.60)	3.21* (0.93)	-0.84 (1.04)
Country of origin (1 = United States, 0 = Sweden)	0.90* (0.09)	-1.87* (0.33)	4.38* (1.56)	-0.39 (0.49)	-0.02 (0.03)	-1.68* (0.75)	3.97* (1.17)	-5.65* (1.30)
R ²	0.38	0.17	0.04	0.00	0.00	0.03	0.07	0.10

NOTE: Standard deviations are in parentheses. WOM = word-of-mouth activity; SAT = level of customer satisfaction.

* $p = .10$.

DISCUSSION

The existence of contradictory findings and viewpoints regarding the relationship between customer satisfaction and word of mouth underscores the importance of investigation aimed at understanding and resolving these differences. To move toward this goal, this article offers a new perspective. Rather than taking as given the common or traditional conception of word of mouth as a monotonically decreasing (or increasing) function of customer satisfaction, a utility-based model of word of mouth is developed predicting that word-of-mouth activity should increase as either satisfaction and/or dissatisfaction increases. The empirical findings reject the traditional linear model in favor of the proposed asymmetric U-shape for the CS-WOM relationship.

In addition, it is found that extremely dissatisfied customers engage in greater word of mouth than high-satisfaction customers. The observed difference suggests that widespread belief in a high degree of word of mouth by dissatisfied customers may be unwarranted. In fact, in a sizable proportion of cases, the difference between the two is probably not significant. However, as negative communications are likely to have a greater impact than positive information (Lutz 1975), this less dramatic asymmetry by no means implies that reputations are not at stake when dissatisfaction does occur. Moreover, negative communications may be delivered with greater force than positive ones.

In terms of generalizability, although levels of customer satisfaction and word of mouth are significantly different in the United States and Sweden, the null hypothesis that the general shape of the CS-WOM relationship is the same cannot be rejected. This is a promising indicator that the identified relationship is a robust one and will provide a good starting point for future research replicating the findings and extending the model to provide richer descriptions and predictions of word-of-mouth behavior.

The generalization of the Swedish findings is also encouraging because previous research based on the SCSB has been subject to occasional criticism that Sweden is not a representative economy. In general, the preliminary results of the ACSI are very similar to those found in the SCSB. For the future, these projects and others should provide an interesting basis for cross-national comparisons and testing whether the models generalize.

With regard to future research, an important next step might be to understand how the CS-WOM relationship varies across different goods and service categories, as well as across firms within each category. Category characteristics no doubt play an important role in determining the CS-WOM relationship. Researchers may also wish to replicate the findings using measures of observed word of mouth rather than the self-reported approach used here. Others may wish to consider more flexible approaches to estimate the CS-WOM relationship, such as stochastic spline regression or hierarchical Bayes techniques. In addition, unresolved issues pertain to the relationship between word of mouth and the other consequences of customer satisfaction. For example, how are complaining and word-of-mouth behavior related? How does the quality of complaint handling affect word of mouth? There remain many opportunities to improve our understanding of the relationships among the various attitudinal, behavioral, and economic consequences of customer satisfaction—repurchase likelihood, price sensitivity, word of mouth, complaining behavior—as well as their ultimate impact on a firm's economic performance.

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Eugene W. Anderson is an associate professor of marketing at the University of Michigan Business School. He holds a Ph.D. in marketing and statistics from the University of Chicago's Graduate School of Business, as well as B.Sc. and M.B.A. degrees from the University of Illinois at Urbana-Champaign. His research interest is in how individuals evaluate consumption experience, the behavioral consequences of such evaluations, and the economic and strategic consequences for the firm. His publications appear in the *Journal of Consumer Research*, *Journal of Marketing*, *Journal of Marketing Research*, *Management Science*, and *Marketing Science*. His professional service includes a term on the review board of the *Journal of Marketing* (1994-96) and an elected position as secretary-treasurer of the INFORMS College on Marketing (1996-97). When not operating in a "professional mode," he enjoys spending time with his family. He also enjoys cycling, running, softball, music, and writing, although he does not devote sufficient time to these latter activities and is not particularly good at them.