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Do Satisfied Customers Always Buy More? The Roles of Satiation and Habituation in Customer Repurchase

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Report Summary

Companies across a wide range of industries focus on customer satisfaction to achieve their business objectives, such as increased revenue, profitability, and customer share. However, some evidence suggests that satisfaction has *no* effect on customer repurchasing in certain scenarios. For marketers the question is, What other factors influence repurchase levels, or moderate the relationship between satisfaction and repurchase? Marketing research offers little guidance on the topic.

In this study, authors Voss, Godfrey, and Seiders develop a framework for understanding the relationship between customer satisfaction, moderating variables, and repurchase levels. Their findings offer new theoretical insights and provide substantive guidance for managers to enable them to effectively allocate resources to initiatives that complement or substitute for customer satisfaction and thereby increase repurchase.

To begin, the authors posit that the links between customer satisfaction and repurchase levels are subject to complementary and substitution effects. The managerial implications of each are radically different. The presence of complementary effects suggests that repurchase rates can be maximized by investing in customer satisfaction *and* the complement simultaneously. The presence of substitution effects suggests that repurchase rates can be maximized by investing in *either* customer satisfaction or the substitute.

What determines the emergence of complementary or substitution effects? The authors suggest that satiation and habituation are the key underlying mechanisms. Specifically, complementary effects are more likely when the satiation effects are weak (when demand for the purchase category increases as income increases). Conversely, substitution effects are more likely when satiation effects are strong (when relative demand for the purchase category decreases as income increases) and when customers become habituated to the purchase behavior. They test their hypotheses using survey and longitudinal purchase data from two categories, fashion apparel and automobile services.

Their test provides strong support for their hypotheses. In the fashion apparel purchase category (where satiation effects are weak), six customer, relational, and marketplace characteristics exert complementary effects on repurchase. In the automobile service purchase category (where satiation effects are high and habituation occurs), involvement, income, relationship-building programs, and convenience exert substitution effects on the satisfaction–repurchase relationship.

Managerial implications
These findings offer managers a practical path to assessing whether investing in customer satisfaction initiatives will be more or less productive.

In weak-satiation purchase categories, such as fashion apparel, restaurants, entertainment, and other luxury goods categories, even the most satisfied customer can be induced to increase repurchase rates through marketing initiatives that *complement* customer satisfaction.

Simultaneously maximizing customer satisfaction and leveraging other types of initiatives (i.e., focused on customer, relational, or marketplace characteristics) and product complementary effects increase both the size and share of the customer's wallet.

Managers can take a broader, multifaceted approach to marketing investments and initiatives designed not only to target highly involved customers but also to increase involvement among all customers, since the positive effect of satisfaction increases with involvement.

In strong-satiation purchase categories—essential, utilitarian, and commodity product categories such as telecommunications, insurance, financial service, automobile services, and fuel—customer wants and needs are satisfied quickly. Repurchase rates can be maximized by allocating resources to either satisfaction or the substitute, but investing simultaneously in both might waste resources and lower customer profitability.

Further, managers might want to *avoid* increasing involvement in strong-satiation categories, since lack of involvement leads to customer habituation—and higher repurchase—among moderately satisfied customers.

Thus, the optimal strategy may be to generate moderate levels of satisfaction combined with a focused assortment of substitution initiatives to maximize customer repurchase and profitability. For example, many auto maintenance and dry cleaners offer moderate levels of customer satisfaction, target low-involvement and moderate- to high-income customers with personalized communications and rely on convenience (locational or delivery services) to drive repurchase.

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A broad literature stream draws conceptual links between customer satisfaction and repurchase (Oliver 2009), as well as empirical links between satisfaction and a variety of customer repurchase behaviors (e.g., Bolton, Lemon, and Bramlett 2006; Cooil et al. 2007; Mittal and Kamakura 2001; Tarasi and Bolton 2010). Oliver (1999) regards satisfaction as a necessary step in loyalty formation and argues that for many firms, it should be a primary goal. In practice, firms commonly emphasize satisfaction, assess their ability to deliver it, and unwaveringly believe it to be the best defense against customer defection.

Despite theoretical and empirical support for satisfaction as a key driver of repurchase intentions and behaviors, emerging evidence suggests that satisfaction has no effect on repurchase in certain circumstances (e.g., Agustin and Singh 2005; Seiders et al. 2005; Verhoef 2003). Although intriguing, these results produce unresolved questions, because our theoretical understanding of the phenomenon remains inadequate to explain when and why satisfaction may have no effect on repurchase.

The conceptual framework proposed by Seiders et al. (2005) provides a good starting point for a systematic examination of potential moderators of the satisfaction–repurchase relationship. These authors propose that three broad factors moderate the relationship: customer, relational, and marketplace characteristics. They conclude that satisfaction might have no effect on the repurchase behaviors of low-involvement or low-income customers, nor does it exert an impact when repurchase is not convenient (a marketplace characteristic). They fail to find any moderating effects for relational characteristics.

Other studies do find that relational characteristics can moderate the link between satisfaction and repurchase, however. For example, Agustin and Singh (2005) build on dual-factor motivation theories to propose that satisfaction becomes less important when customer

loyalty to a focal firm increases; that is, satisfaction has less impact on repurchase intentions among currently loyal customers but has a stronger impact among less loyal customers. Van Doorn and Verhoef's (2008) study indicates that critical exchange incidents can moderate the relationship between ongoing satisfaction and repurchase. The authors conclude that inertia is the key driver of repurchase. Thus, they hold that satisfaction has no effect on repurchase unless customers experience a service failure, at which point it becomes an important determinant.

Managerial practice is undermined by the prospect that satisfaction might have no effect on repurchase in some situations. In this case, the famous advertising truism would extend to satisfaction: "I know half my customer satisfaction efforts are worthless; I just don't know which half." If a firm's objective is to maximize repurchase rates, which we define as the magnitude or frequency of repurchase among current customers within a given period, the question becomes whether to focus efforts on increasing customer satisfaction or instead on initiatives that might increase repurchase rates, independent of satisfaction with the core offering. For example, managers might allocate their resources toward (1) more effective targeting of customers who are predisposed to higher repurchase rates, (2) executing relationship-building programs that encourage higher repurchase rates, or (3) eliminating barriers by increasing the convenience of repurchasing. Marketing research offers little guidance as there is an absence of theoretical explanation and insight.

We contribute to current understanding by proposing satiation and habituation as key determinants of the relationships between satisfaction, moderating variables, and repurchase. We theoretically explicate two types of moderating effects, and we thereby develop theoretical arguments to predict systematic differences in moderating effects across different purchase categories. When satiation effects are weak, the moderating variables can complement

satisfaction to increase repurchase. When satiation effects are strong, habituation can lead to substitution between satisfaction and the moderating effects. The resulting conceptualization thus provides theoretical insights into when and why satisfaction may have positive or insignificant effects on repurchase behavior.

We test our theory using large samples from two distinct purchase categories, automobile services and fashion apparel, with divergent different levels of satiation. Both data sets integrate customer survey data with longitudinal purchase data. These data allow us to explicitly test whether interactions between satisfaction and several customer, relational, and marketplace characteristics vary across purchase categories. The empirical results indicate that all six variables we examine complement satisfaction in the weak-satiation, fashion apparel category, and four of the six variables substitute for satisfaction in the strong-satiation, automobile service category. These results provide substantive guidance for effectively allocating resources to marketing initiatives that can leverage complementary or substitution effects.

In the following sections, we explicate the difference between substitution and complementary effects, then explain how satiation and habituation affect customer repurchase by producing complementary effects in weak-satiation purchase categories and substitution effects in strong-satiation purchase categories. We then describe our two data sets and empirical results. Finally, we close with a discussion of research and managerial implications.

Theoretical Development

We begin with the explicit assumption that customer satisfaction is the primary determinant of customer repurchase. Our goal is to understand why two customers with similar satisfaction levels repurchase at different levels, that is, why satisfaction is not a perfect predictor

of repurchase and why and how other factors may influence repurchase. Prior empirical research has examined a wide variety of moderating variables (see Table 1) but paid little attention to explicating the conceptual nature of the relationship between customer satisfaction and potential moderating variables.

In Figure 1, we depict two types of moderation that might alter the relationship between satisfaction and repurchase rates. Panel A in Figure 1 represents a substitution interaction between satisfaction and a moderating variable. When two variables interact as substitutes, the marginal benefit of each decreases as the level of the other variable increases (e.g., Siggelkow 2002). Given a positive baseline effect of satisfaction on repurchase rates (solid line in Panel A), a substitution interaction effect would reduce or even eliminate the positive effect of satisfaction (dotted line in Panel A). From a managerial perspective, substitution interaction effects suggest that repurchase rates can be maximized by allocating resources to either satisfaction or the substitute, whereas investing simultaneously in both of them would produce diminishing or null benefits. Several empirical studies report such substitution moderating effects in the satisfaction–repurchase relationship (see Table 1).

Two variables also can interact as complements, in which case the marginal benefit of each variable increases as the level of the other variable increases. A complementary interaction effect would enhance the positive effect of satisfaction on repurchase rates, as depicted by the dashed and dotted line in Figure 1, Panel B. From a managerial perspective, complementary interactions suggest that to increase the repurchase rates of the most satisfied customers, the firm should invest simultaneously in satisfaction and the complement. Several empirical studies report complementary moderating effects on the satisfaction–repurchase relationship (see Table 1).

Although both substitution and complementary effects tend to be conceptualized as interactions, complementary effects also can be independent. A complementary independent effect increases repurchase rates, independent of the effect of satisfaction, as represented by the dashed line in Figure 1, Panel B. From a managerial perspective, complementary independent effects suggest marketers can increase the repurchase rates of all customers. For example, Seiders et al. (2005) hypothesize that relational characteristics exert complementary moderating effects on the satisfaction–repurchase relationship, but their empirical results indicate complementary independent effects.

Prior empirical evidence suggests that the link between satisfaction and repurchase is subject to both complementary and substitution effects. Moreover, the managerial implications are radically different, depending on the presence of complementary versus substitution effects. With that effect in mind, we propose satiation and habituation as the underlying theoretical mechanisms to explain the emergence of complementary and substitution effects. Both concepts have attracted considerable research attention in various consumption and sensory contexts. We propose specifically that complementary effects are more likely when satiation effects are weak; substitution effects are more likely when satiation is strong and habituation occurs.

Weak satiation and complementary effects

Satiation is a temporary reduction or cessation of consumptive behavior (e.g., McSweeney 2004). The role of satiation in economic consumption originally was recognized more than a century ago, when initial observations focused on decreasing allocations of household spending for food as living standards increased. These observations evolved into Engel's law, which holds that "the consumption of any (basic category of) good cannot be expanded beyond its satiation level" (Andersen 2001, p. 147). Satiation implies that as

consumption in a purchase category increases, the marginal utility of additional consumption in that purchase category goes to zero. Examples of satiation include feeling full after consuming a large meal, not needing gasoline after filling an automobile's tank, and being content with one cell phone as opposed to several.

Different purchase categories are subject to weaker or stronger satiation effects. Weak satiation effects, which tend to be associated with discretionary, luxury, or hedonic products, imply that demand for the purchase category increases as income increases. For these categories, such as dining out in restaurants, search and purchase behavior emphasize variety and aesthetic or emotional benefits. Du and Kamakura (2008) report that spending on dining out increases from less than 4% of total expenditures for households that rank in the lowest income quintile to nearly 8% for households in the highest decile; other weak satiation categories include education, leisure travel, lodging, air transportation, recreation, jewelry, and apparel.

At the limit, customer desires in weak-satiation categories are insatiable, so the marginal utility of consumption remains positive even as consumption increases. Extreme manifestations of this type of behavior include compulsive shopping or shopping addictions. For marketers, insatiability implies that individual characteristics or effective marketing initiatives can encourage even the most satisfied customer, who currently allocates 100% of his or her wallet to the focal seller, to increase repurchase rates and overall size of wallet.

This type of behavior is consistent with the complementary effects depicted in Figure 1, Panel B. If satisfaction is a primary determinant of customer repurchase, such that customers with the highest satisfaction repurchase at the highest rates, complementary effects can emerge only if satiation effects are weak; that is, weak satiation effects are a necessary but not sufficient condition for complementary effects. Complementary effects can elicit higher repurchase only if

the marginal utility of additional consumption remains positive for the most satisfied customers, which by definition occurs only in weak-satiation purchase categories. Therefore,

P1:   Complementary effects on repurchase in combination with satisfaction are more likely in weak-satiation purchase categories.

Strong satiation, habituation, and substitution effects

Strong satiation effects imply that demand for the purchase category decreases as income increases. Strong satiation effects are associated with essential, utilitarian, and commodity product categories, for which product differentiation is limited and search and purchase behavior emphasizes functional benefits. Food consumed at home is frequently cited as a purchase category subject to strong satiation effects; Du and Kamakura (2008) report that spending on food consumed at home decreases from nearly 30% of the total expenditures for households in the lowest income decile to less than 15% for households in the highest decile. Other strong-satiation categories include consumer packaged goods, telecommunications, insurance, financial services, public transportation, automobile services, and fuel.

In these purchase categories, customer wants or needs are quickly sated, and the marginal utility of consumption goes to zero as consumption increases. This internal constraint creates a barrier or ceiling to the additional amount a customer is willing to spend, and the ceiling effects should be most pronounced for very satisfied customers who already allocate most or all of their wallet to a focal seller. Satiation thus precludes complementary effects if satisfied customers repurchase up to the point of satiation, at which point their marginal utility is zero, so additional purchase is unlikely in any circumstances. Therefore, satiation explains the upper repurchase limit in Panel A of Figure 1, but it does not explain why less satisfied customers might repurchase at the same rate as do more satisfied customers. For those substitution effects, we turn to habituation.

Habituation, one of the simplest and most ubiquitous learning processes (Thorpe 1966), refers to decreased responsiveness to a repeated stimulus (McSweeney 2004). It occurs most frequently and rapidly when a stimulus is repetitive and consistent in its intensity or amplitude. It can occur in response to sensory stimuli, such as sounds or sights, or consumption activities, such as eating or drinking; it also is implicated in many forms of addiction. Habituation thus implies that current consumption increases the marginal utility of future consumption. Brand loyalty can be viewed as a habituation response to consumption activities.

When customers become habituated to exchanges with a company, they continue their habitual behavior, without giving much thought to their satisfaction with the offering. Customers who have not become habituated instead evaluate their satisfaction with the offering more carefully, as we capture in Panel A in Figure 1. Habituated customers exhibit high rates of repurchase, regardless of their satisfaction level (dotted line in Panel A), whereas satisfaction increases repurchase among non-habituated customers (solid line in Panel A). Very satisfied, non-habituated customers approach the repurchase rates of habituated customers, which means managers could reduce their investments in satisfaction-oriented initiatives and focus instead on encouraging habitual repurchase patterns (Agustin and Singh 2005).

Habituation also might explain some previous findings. For example, Cooil et al.'s (2007) results imply that long-term customers become habituated to their primary bank, and Van Doorn and Verhoef's (2008) results suggest that business customers become habituated to "business as usual" unless a critical incident occurs. A service failure breaks the repetitive pattern of the exchange relationship and draws attention to the stimulus, at which time customers evaluate anew their satisfaction with the offering. Both studies' results imply that habituation and satisfaction substitute for each other.

Although habituation could occur in any purchase category, it is more likely when variety is limited and repurchase stimuli are repetitive and consistent. These conditions are most prevalent in strong-satiation, utilitarian, commodity purchase categories that emphasize functional benefits; they are much less prevalent in weak-satiation, hedonic purchase categories that emphasize variety and emotional benefits. Therefore, we propose:

P2:   Substitution effects on repurchase in combination with satisfaction are more likely in strong-satiation purchase categories.

Empirical Application

Extant theory predicts that complementary effects are more likely in weak-satiation categories, whereas substitution effects should be more likely in strong-satiation categories. To test these predictions, we examine whether customer, relational, and marketplace characteristics exert complementary or substitution effects in weak- and strong-satiation purchase categories. Our research design features customer survey data and longitudinal purchase activity in two purchase categories.

We used fashion apparel, a hedonic, discretionary purchase category, as the weak-satiation category. Our industry partner, a women's apparel specialty retailer, maintains stores in upscale malls and urban centers in major geographic regions of the United States. The sampling frame included 3117 randomly selected customers who had purchased at any of the company's stores within the previous year. These customers received a letter of introduction from the company's founder and an offer for a $20 store coupon upon completion of the survey. Non-respondents received one follow-up contact. This procedure produced 954 usable responses, for a 31% response rate. Respondents were primarily women (99%) between the ages of 35 and 54

years (66%) with at least some college education (96%), and an average household income exceeding $58,000.

For the essential, utilitarian purchase category, with strong satiation, we used automobile services. Our industry partner was a large auto dealership with a high-volume service department. The sampling frame included 3370 randomly selected customers who had visited the company's service department within the last year. We sent each customer a survey packet that included a letter from the owner of the dealership, a five-page survey, a postage-paid return envelope, and an offer for a $5 gift card (issued by a national donut and coffee chain) upon return of the completed questionnaire. We mailed follow-up surveys to all non-respondents four weeks after the initial mailing. These two mailings produced 1162 complete responses, for a 34% response rate. The majority of the respondents were men (57%) between the ages of 35 and 64 years (60%). Sixty-nine percent had some technical or university education, and 66% earned an average household income exceeding $63,000.

We estimated two hierarchical linear models to represent different dimensions of repurchase rates; one model specified repurchase visits as the dependent variable and the second specified repurchase spending as the dependent variable. Each model specified customer repurchase as a function of purchase category characteristics (weak and strong satiation), customer satisfaction, customer characteristics (involvement and income), relational characteristics (relationship age and relationship building program), and marketplace characteristics (convenience and competitive intensity). With the exception of the satiation measure, all variables were standardized within each purchase category.

To control for omitted variables, we included the lagged dependent variable as a predictor in each model. We also implemented Heckman's (1979) two-step procedure to control for two

levels of selection bias. We present the empirical model in the Appendix, along with measurement details, summary statistics, and correlation matrices for the variables of interest, which we describe in greater detail next.

Dependent variables

For each fashion apparel and automobile service customer, we matched the survey responses with corresponding objective data from the company's customer relationship marketing database. Both databases included one year of post-survey purchase visits and spending (dependent variables), as well as one year of pre-survey purchase visits and spending (lagged dependent variables). We log-transformed the repurchase measures to improve distribution normality. There is a potential confound in the automobile service context, due to warranty services for which customers do not pay, so we estimated the affected models twice, using either all service visits and spending or only service visits and spending for which the customer paid as the dependent variable. The inferences regarding the hypothesized relationships remained similar in both; we report the results for the service visits and spending that the customer paid.

Satiation index

We used Du and Kamakura's (2008) data to create a satiation index for each purchase category, according to the change in the percentage of household consumption allocated to the purchase category as a function of income[1]. We eliminated basic household utility categories such as household electricity, gas, and coal and considered 29 purchase categories. We then calculated the percentage change in household income allocations to each purchase category between the top decile and the seventh decile; we eliminated the bottom three deciles to avoid

distortions due to poverty effects (see Table A1 for the formula). Next, we standardized the satiation index values so that larger positive (negative) values indicate that households allocate a smaller (larger) percentage of their consumption budget to the purchase category as their income increases. Therefore, negative satiation index values indicate weak-satiation purchase categories, whereas positive values indicate strong-satiation purchase categories. The satiation index values accordingly were –.10 for the weak-satiation apparel category and .11 for the strong-satiation automobile service category.

Selection control factor

Our analyses suffer from two levels of bias. Potential bias at the purchase category level arises due to the nonrandom selection of fashion apparel and automobile services among numerous purchase categories (Du and Kamakura 2008). The satiation index measure enables us to examine explicitly the effects of satiation on customer repurchase, but it cannot rule out the possibility that omitted variables related to the purchase category selection might bias the results. Bias at the customer level arises due to systematic survey nonresponse. With our survey measures, we can explicitly examine the effects of customer characteristics on repurchase, but this capability does not rule out the possibility that omitted variables related to survey responses might bias the results. To control for both forms of bias, we implemented a multilevel, two-step, selection bias control procedure (Heckman 1979).

First, we estimated the probability of selecting the automobile service and apparel categories on the basis of the following information for all available purchase categories: (1) satiation index, (2) average size of the purchase category as a percentage of total consumption, and (3) whether the purchase category was a tangible product or a service. The first two measures come from Du and Kamakura's (2008) data; to obtain the last measure, we asked three

experts to categorize each purchase category as a tangible product or service (there was 100% agreement in the expert's categorizations).

Second, we estimated the probability of selecting the survey respondents in each purchase category according to the following information: (1) prior year's purchase spending, (2) prior year's purchase visits, and (3) geographic location for apparel or number of cars for the automobile service. We multiplied the probability of selecting each respondent within each purchase category by the corresponding probability of selecting that purchase category (apparel or auto services). We then created the inverse Mill's ratio for each respondent in each purchase category, which is a monotonic decreasing function of the probability that each observation from each purchase category is included in the sample (Heckman 1979). Including the selection control factor as an independent variable in the empirical model controls for the effect of unmeasured characteristics related to both selection processes.

Customer satisfaction

We conceptualize customer satisfaction as a cumulative, global evaluation based on experience with a firm over time (Homburg, Koschate, and Hoyer 2005). We expect satisfaction to have a positive main effect on repurchase, likely moderated by satiation and customer, relational, and marketplace characteristics. We measured satisfaction using three items reported by Voss, Parasuraman, and Grewal (1998); the scale exhibited excellent reliability in both purchase categories (α = .89 and .94).

Customer characteristics

Customer characteristics operate at the level of the individual customer and can be used to identify more or less valuable customers (i.e., with higher or lower repurchase rates). Our empirical model includes two such characteristics. Purchase category involvement is the importance or relevance of the purchase category, which depends on the consumer's inherent needs, values, and interests; it is an enduring rather than situational state (Celsi and Olson 1988). Household income is the combination of income earned by all workers in the household.

We measured involvement using three similarly worded items (Beatty and Talpade 1994). The scale exhibited satisfactory reliability in the fashion apparel context ($\alpha = .86$). However, a negatively valenced item in the automobile service context ("I don't have any interest in knowing about auto maintenance and repairs") exhibited low correlations with the other two items and therefore was dropped from the analysis. The reliability for the resulting two-item scale ($\alpha = .66$) was slightly below the desired level. Finally, we measured income as the median household income reported in the 2000 census for the respondent's zip code. Several studies have concluded that zip code–level household income data are more reliable than are self-report income data (e.g., Bricker and Engelhardt 2008; Kleck 1982)[2].

Relational characteristics

Relational characteristics capture the formal and informal bonds between a company and its customers that produce switching barriers that insulate firms from competitor actions. We examine two relational characteristics: relationship age, or the number of years a customer has maintained an exchange relationship with the focal firm, and relationship-building programs, which refer to the targeted communications designed to increase repurchase through promotions

or by enhancing customers' perceptions of the company's relationship investment (De Wulf, Odekerken-Schroder, and Iacobucci 2001; Rust, Lemon, and Zeithaml 2004).

We used the same self-report measure for relationship age in both samples (i.e., "How long have you been a ___ customer?"). In the fashion apparel context, we operationalized the relationship-building program as a dichotomous variable that indicated whether the customer had opted in to the company's e-mail program. For the automobile service, we instead used the number of outgoing marketing contacts directed toward each customer. Although these measures differ, they accurately capture the relationship-building programs actually implemented by the two companies. That is, the fashion apparel company used an opt-in email program to target customers on the e-mail list differently than customers not on the list, though all customers received the same messages at the same time. These messages reflected the fashion season, announcing seasonally new items and sale events when the season closed. The dichotomous measure therefore is appropriate for the fashion apparel context. The automobile service company instead implemented a more sophisticated relationship-building program that targeted customers with customized messages at different times, reminding them when their cars were due for service and following up with after-service thank you messages. Thus, a continuous measure is appropriate for relationship-building programs in the automobile service context[3].

Marketplace characteristics

Marketplace characteristics feature interactions among customers, the focal firm, and competing firms that may influence repurchase patterns. We examine two marketplace characteristics. Convenience is a multidimensional construct that refers to reduced time and effort costs for customers (Berry, Seiders, and Grewal 2002). Competitive intensity is the level of direct competition faced by the focal firm in its immediate business domain.

To measure convenience in both product contexts, we used a reduced, five-item convenience scale validated by Seiders et al. (2007). Using census data, we operationalized competitive intensity as the number of competitors in each respondent's zip code, classified as automobile dealerships and repair (NAIC codes 441110, 441120, and 811111-811198) or women's clothing and related items and accessories (NAIC codes 448120 and 442299).

Empirical Results

We provide the empirical results in Table 2. To assess the stability of the individual coefficients and overall model fit, we present three hierarchical models for both dependent variables. The largest variance inflation factor in all models is less than 3, which suggests multicollinearity is not a major concern. Model 1 includes the main effects, as well as the interaction effects between satisfaction and the satiation index and the customer, relational, and marketplace characteristics. Model 2 adds the interaction effects between satiation and the customer, relational, and marketplace characteristics. Model 3 then adds the three-way interactions. To assess the overall fit of the hypothesized models, we use the Bayesian Information Criterion (BIC).

----- Insert Table 2 about here -----

For both dependent variables, Model 3 demonstrates the best overall fit, which suggests that the three-way interactions are important. The lagged dependent variable has significant positive effects, and the selection control variable has significant negative effects in the baseline model that diminish between Models 2 and 3. Satisfaction has a significant positive effect on visits and a marginally positive effect on spending in Model 3. A comparison of results across

dependent variables indicates substantially similar results, especially for the three-way

interactions that are closely replicated in terms of their sign and significance levels.

As we have outlined, customer, relational, and marketplace characteristics should exert

complementary effects in the weak-satiation, fashion apparel category and substitution effects in

the strong-satiation, automobile service category. A negative three-way interaction between

satiation, satisfaction, and a characteristic would provide full support for complementary effects

in the weak-satiation category and substitution effects in the strong-satiation category. The

combination of a negative two-way interaction between satiation and a characteristic, along with

a positive two-way interaction between satisfaction and the characteristic, also might support

complementary effects in the weak-satiation category and substitution effects in the strong-

satiation category. Finally, a negative two-way interaction between satiation and a characteristic

without a positive two-way interaction between satisfaction and the characteristic implies a

complementary independent effect in the weak-satiation category.

In Model 3, with spending as the dependent variable, five of the six characteristics

demonstrate negative two-way interactions with satiation or negative three-way interactions. The

only characteristic that fails this preliminary test is the competitive intensity variable; however,

the satiation $\times$ competitive intensity interaction is significantly negative in the model in which

visits serves as the dependent variable. We examine this interaction effect more closely;

otherwise, the remaining investigations focus on the repurchase spending results from Model 3.

Complementary and substitution effects for customer characteristics

We first examine the results for the two customer characteristics, purchase category

involvement and household income. Consistent with the prediction of complementary effects in

the weak-satiation category, the satiation $\times$ involvement interaction is significantly negative (β =

-.70, $p < .01$). In addition, the satisfaction × involvement interaction is significantly positive ($\beta =$ .06, $p < .01$). Collectively, these significant interactions suggest that the relationship between satisfaction and repurchase spending differs significantly, depending on the purchase category and the customer's involvement.

To provide greater insight, we plot the relationship between satisfaction and repurchase spending for high- and low-involvement customers (± 1 standard deviation) in the weak- and strong-satiation categories in Figure 2 (Panel A). The graph covers satisfaction levels one standard deviation above and below the mean, which translates into levels just above 3 and approximately 5, respectively, on the five-point satisfaction scale (see Table A2). We follow Aiken and West (1991) and calculate simple slope coefficients, with the significant coefficients in the graph.

The graph in Panel A suggests complementary effects in the weak-satiation category. Low-involvement customers do not respond to satisfaction, nor do they appear to become habituated; instead, they demonstrate low levels of repurchase regardless of their satisfaction level. High-involvement customers respond positively when satisfied ($\beta = .10$, $p < .05$); compared with low-involvement customers, they repurchase more if moderately satisfied and much more if very satisfied.

The graph in Panel A instead suggests habituation and inverse substitution effects for involvement in the strong-satiation category; that is, the *lack* of involvement substitutes for satisfaction. Low-involvement customers in the strong-satiation category appear to become habituated, which results in relatively high repurchase rates and a nonsignificant relationship between satisfaction and repurchase. High-involvement customers respond positively when

satisfied ($\beta = .11$, $p < .01$); compared with low-involvement customers, they repurchase much less if moderately satisfied and slightly more if very satisfied.

The significantly negative ($\beta = -.56$, $p < .01$) satisfaction × satiation × income interaction is consistent with complementary effects in the weak-satiation category and substitution effects in the strong-satiation category. Panel B in Figure 2 reveals complementary effects in the weak-satiation category, such that the highest level of repurchase occurs when high-income customers are very satisfied ($\beta = .11$, $p < .05$). Satisfaction has no effect on repurchase by low-income customers, who exhibit moderate repurchase levels regardless of their satisfaction. This nonsignificant satisfaction effect suggests that low-income customers' response to satisfaction may be constrained by their (lack of) ability to repurchase. Panel B also suggests substitution effects in the strong-satiation category, such that habituated high-income customers repurchase at high levels regardless of their satisfaction. Satisfaction drives repurchase by low-income customers though ($\beta = .11$, $p < .05$). Compared with high-income customers, these low-income customers repurchase much less if moderately satisfied and about the same if very satisfied.

Complementary and substitution effects for relational characteristics

In terms of the results for the two relational characteristics, we find that the satiation × relationship age interaction is significantly negative ($\beta = -.44$, $p < .05$), which suggests complementary effects in the weak-satiation category. Panel C in Figure 2 supports this interpretation. Relationship age also has complementary, independent effects ($\beta = .07$, $p < .05$) on repurchase in the weak-satiation category but no effect in the strong-satiation category. The lack of effect for relationship age in the strong-satiation category suggests that customers become quickly habituated, so increasing relationship age has no effect on their repurchase. This

result is consistent with research indicating that relational variables have weaker moderating effects in contexts marked by discrete purchase events and low exit barriers (e.g., auto service) than in contexts involving contractual relationships (e.g., Bolton 1998; Reinartz and Kumar 2000; Verhoef 2003).

The significantly negative (β = -.40, $p < .05$) satisfaction $\times$ satiation $\times$ relationship-building program interaction is consistent with our expectations. As we show in Panel D of Figure 2, relationship-building programs have strong main effects on repurchase in both categories, but the interaction with satisfaction differs. In the weak-satiation category, customers who are receive relationship-building communications repurchase more than those who receive fewer such communications. These relationship-building targets repurchase even more when their satisfaction is very high (β = .10, $p < .10$). Low relationship-building targets in the weak-satiation category do not respond based on their satisfaction, perhaps due to their lack of awareness or interest.

In the strong-satiation category, customers receiving lots of relationship-building communications also repurchase much more than do customers who receive fewer communications. However, the high relationship-building program targets appear to be habituated with the auto service provider, and their satisfaction has no effect on repurchase. For low relationship-building targets in this category, satisfaction drives repurchase (β = .08, $p < .05$).

Complementary and substitution effects for marketplace characteristics

The results for the two marketplace characteristics, convenience and competitive intensity, also support our theory. The significantly negative (β = -.35, $p < .05$) satisfaction $\times$ satiation $\times$ convenience term suggests complementary effects in the weak-satiation category and

substitution effects in the strong-satiation category. As in Panel E in Figure 2, complementary effects occur for convenience in the weak-satiation category. Customers who perceive high convenience repurchase more as their satisfaction levels increase ($\beta = .09$, $p < .10$); those who perceive low convenience repurchase less, regardless of their satisfaction levels. These effects reverse in the strong-satiation category, where convenience substitutes for satisfaction. Customers perceiving high convenience also appear to become habituated; as a result, they repurchase more, but satisfaction has no marginal effect. Customers perceiving low convenience in the strong-satiation category repurchase less on average, but they repurchase more as their satisfaction increases ($\beta = .09$, $p < .05$).

Although competitive intensity does not interact with satisfaction or satiation in the spending model, the significantly negative ($\beta = -.32$ $p < .05$) satiation × competitive intensity interaction in the model in which visits is the dependent variable suggests complementary effects in the weak-satiation category, as supported by Panel F in Figure 3. Competitive intensity has a positive effect ($\beta = .05$, $p < .01$) on repurchase in the weak-satiation category and no effect in the strong-satiation category. This finding is consistent with the idea that competitive intensity creates synergies for comparison shopping and builds customer traffic in weak-satiation purchase categories (Miller, Reardon, and McCorkle 1999).

Discussion

Despite widespread recognition that customer behavior is subject to ongoing contingencies, limited conceptual or empirical research systematically addresses the moderating influences on repurchase behavior. Prior research has conceptualized moderating influences as generalizable relationships, and empirical analyses have sometimes uncovered minor differences

using different dependent variables (e.g., Magi 2003; Seiders et al. 2005; Verhoef 2003), but systematic examinations of differences across different purchase categories are rare. Yet a review of extant literature also indicates that systematic differences exist (see Table 1), which underscores the need to enrich existing conceptualizations of moderating influences to reveal when satisfaction exerts a more or less positive influence on repurchase.

Our study makes three concrete contributions in that direction. First, we clearly articulate two types of moderating influences. Whereas substitution interactions attenuate the positive effect of satisfaction on repurchase, complementary interactions enhance this positive effect. Complementary variables also can add to the positive effect of satisfaction by exerting independent effects on repurchase. These three types of effects suggest a means to categorize and explain prior empirical results, and they offer a promising foundation for understanding and predicting moderating influences in future research.

Second, we incorporate satiation and habituation theories to propose that complementary effects are more likely in weak-satiation purchase categories, whereas substitution effects are more likely in strong-satiation purchase categories. As we discuss in greater detail next, this theoretical lens could be applied to identify which measures are more likely to produce complementary or substitution effects. The resulting insights can help researchers understand and interpret moderating influences, as well as help managers understand which marketing initiatives will be most effective.

Third, our empirical results offer substantive insights that can deepen understanding of how customer, relational, and marketplace characteristics interact with satisfaction to affect repurchase across different purchase categories. The moderating influences complement satisfaction in weak-satiation purchase categories and substitute for satisfaction in strong-

satiation purchase categories. Our results therefore imply that managers in weak-satiation categories can benefit from making simultaneous investments in customer satisfaction and marketing initiatives that complement satisfaction; managers in strong-satiation categories likely benefit from investments in customer satisfaction or substitute initiatives, but not both.

Considering the difficulty of uncovering moderating effects (e.g., Aguinis 1995; Aiken and West 1991), the overall level of support for our propositions is quite remarkable. In the weak-satiation purchase category, the results support complementary effects for all six characteristics; in the strong-satiation purchase category, they support substitution interaction effects for four of them.

Research implications

Researchers frequently recommend investigating key relationships across different industry contexts to support the generalizability of findings or uncover important cross-context differences. The assumption underlying these recommendations is that such differences reflect factors such as consumer switching costs, purchase frequency, long-term contracts, industry competitiveness, functional versus utilitarian benefits, or the seller's expert power (Bolton and Lemon 1999; De Wulf, Odekerken-Schroder, and Iacobucci 2001; Inman 2001; Wakefield and Inman 2003). Although prior research identifies many such factors, a paucity of empirically validated frameworks conceptualize the differences across contexts. Our conceptual framework and empirical findings, which derive from two prominent but diverse purchase categories, provide a starting point for a systematic assessment of moderating influences on the relationship between satisfaction and repurchase. We therefore extend our framework and findings to propose implications for two related, potentially confounding factors: (1) B2B versus B2C context and (2) dependent variable measurement methods.

B2B versus B2C context. In an attempt to be complete, our review of prior empirical results in Table 1 includes studies in both business-to-business (B2B) and business-to-consumer (B2C) contexts. The review also indicates that complementary and substitution effects occur in both contexts, but it is not clear whether satiation is an appropriate theory to explain moderating effects in a B2B context. Does insatiability occur in a business context? If input quality is sufficient to drive additional demand for the firm's products, or even if the firm's managers *believe* that input quality drives additional demand, the answer is that it might. For example, insatiability could explain the complementary interaction effect for service quality in the decision to upgrade computing support service (Bolton, Lemon, and Verhoef 2008, Table 1).

However, insatiability cannot explain the prior finding that account management tenure exerts a complementary interaction effect on the share of customer's purchases (Bowman and Narayandas 2004). This finding suggests that noneconomic relational factors might enhance preference and purchase decisions beyond the main effect of satisfaction. It would be interesting to explore whether, in a B2B context, such relational factors operate at an interinstitutional or interpersonal level.

Habituation effects might explain the substitution results reported in B2B contexts in Table 1. For example, Bowman and Narayandas (2004) argue that larger firms with greater slack are less likely to search for alternative suppliers and more likely to habituate to current suppliers. They also find that the lack of a satisfactory competitor substitutes for satisfaction with the focal supplier and increases the likelihood of habituation. Van Doorn and Verhoef (2008) also find that the absence of a negative critical incident substitutes for satisfaction and leads to habituation.

In summary, though our theory is developed in a B2C context, it might be extended, with some modifications, to B2B contexts. Future B2B research might explore whether complementary or substitution effects are more likely depending on supplier or customer characteristics, such as importance or criticality for success.

Dependent variable measurement. Our theoretical development identifies insatiability as a facilitating condition for complementary effects and satiation as a facilitating condition for substitution effects. We extend these insights to propose that the measurement of repurchase also might influence the likelihood of detecting complementary or substitution effects. The potential effects of measurement on moderated regression results are well documented (e.g., Aguinis 1995). We focus on the effect of range restrictions.

Detecting complementary effects depends on capturing what might be termed excessive repurchase behavior by insatiable consumers. Repurchase visits and spending in the weak-satiation, fashion apparel context are positively skewed, much more so than in the strong-satiation, auto service context (see Table A2). The average fashion apparel customer spent approximately $327 per year; a customer at two standard deviations above the mean spent approximately $2,485. The positive skew in the repurchase measure enhances the likelihood of detecting complementary interaction and direct effects (see Figure 1, Panel B).

In contrast, measures of future repurchase or recommendation intentions, as reported in Table 1, have used five-point (Garbarino and Johnson 1999; Seiders et al. 2005) or ten-point (Agustin and Singh 2005; Jones, Mothersbaugh, and Beatty 2000; Mittal, Kumar, and Tsiros 1999) intention scales. In three studies that reported means and standard deviations, the dependent variable appears negatively skewed, such that the range of the dependent variable does not include a value two standard deviations above the mean. This range restriction

attenuates the likelihood of discovering complementary effects, even if they exist in the population of interest.

A range restriction on the dependent variable also enhances the likelihood of uncovering substitution effects, because the range restriction creates an artificial ceiling effect that is indistinguishable from the actual ceiling effect created by satiation (see Figure 1, Panel A). Thus, a range restriction in the dependent variable may explain why four of the five studies that used intention scales for their dependent variable find substitution effects—including Seiders et al. (2005), who report complementary effects for involvement when repurchase visits is the dependent variable but substitution effects when repurchase intentions is the dependent variable (see Table 1).

Agustin and Singh (2005) provide the only study that reveals complementary effects with intentions as the dependent variable. Three features of their study are worth noting. First, the two contexts examined (retail clothing and airlines) are both weak-satiation contexts, so complementary effects should be expected. Second, they use three items with 10-point scales to measure intentions, which create fewer range restrictions than does the use of three-item, five-point scales or a one-item, 10-point scale. Third, it appears that one of the intention items (spend more than 50% of budget with the focal provider) may have been designed to decrease maximum-point responses that often lead to negative skew. Collectively, using multiple items with more response categories that elicit strong behavioral intentions may mitigate concerns about range restrictions in the dependent variable.

Intention scales are not the only dependent measures subject to range restrictions. For example, many studies use as their dependent variable the repurchase likelihood or share of wallet, for which the upper range must be equal to 1. These measures cannot distinguish, for a

customer who spends lavishly at a single store versus one who spends smaller amounts, the behavioral differences that drive complementary effects. Thus, this type of range restriction can diminish the likelihood of uncovering complementary effects, or even increase the likelihood of finding substitution effects, in weak-satiation purchase categories.

Our goal is not to promote a single measurement approach over another; rather, we hope to offer a better understanding of how repurchase measures might influence findings about moderating influences. Researchers should recognize that any type of range restriction on the dependent measure decreases the likelihood of finding complementary effects and increases the likelihood of finding substitution effects. In turn, the use of range-restricted dependent measures provides a strong test for complementary effects but a weak test for substitution effects; unrestricted dependent measures provide an appropriate test for complementary effects and a strong test for substitution effects. This inference informs our results: Using unrestricted dependent measures, we find 100% support for the expected complementary effects but only 67% support (4 out of 6) for the expected substitution effects.

Managerial implications

Companies across a wide range of industries resolutely focus on customer satisfaction to achieve their various business objectives, such as increased revenue, profitability, and customer share. Despite this emphasis, some evidence suggests satisfaction has no effect on customer repurchasing in some scenarios. This phenomenon is of critical managerial importance because it has direct implications for resource allocations across initiatives to enhance customer satisfaction, those designed to increase repurchase without affecting satisfaction, or both simultaneously.

To date, marketers have not considered the role of satiation in determining repurchase or the implications for firm strategies or tactics. Our results demonstrate that satiation can constrain repurchase and that the success of a competitive strategy can be mitigated by satiation effects, as well as customer, relational, and marketplace characteristics. These findings offer managers a practical path to assessing when investing in customer satisfaction initiatives may be more or less productive. The first step is to identify the role of satiation across various purchase categories; the next is to understand its impact on relevant factors that moderate the effects of satisfaction.

In weak-satiation purchase categories, such as fashion apparel, restaurants, and entertainment, managers can take a broader, multifaceted approach to marketing investments and initiatives. Simultaneously maximizing customer satisfaction and leveraging other types of initiatives (i.e., focused on customer, relational, or marketplace characteristics) can produce complementary effects that increase both the size and share of the customer's wallet. A comprehensive strategy to increase repurchase rates might involve (1) delighting customers with hedonic benefits, (2) targeting high-involvement and high-income customers through innovation, (3) investing in multifaceted relationship-building programs, and (4) reducing barriers to repurchase through increased convenience.

Consider how fashion apparel retailers such as Brooks Brothers or J.Crew implement their broad-based strategies: They strive to delight customers by enhancing hedonic product attributes, such as merchandise styles and colors (Chitturi, Raghunathan, and Mahajan 2008). They engage in direct marketing campaigns aimed at affluent customers; train and motivate sales associates and tailors to deliver delightful in-store experiences; offer rewards in the form of gift cards to active members of their loyalty programs; and continuously seek to improve locational, multichannel, and product return convenience.

Many initiatives in hedonic categories are designed not only to target highly involved customers but also to increase involvement among all customers. These initiatives are effective because the positive effect of satisfaction increases with involvement (Figure 2, Panel A). For example, fashion designers enhance excitement and involvement through fashion week activities and celebrity models; boutique salespeople enhance involvement with personal phone calls to announce a perfect, latest arrival. These initiatives are especially effective when customers' desires and wallets are unconstrained.

But managers in strong-satiation purchase categories might want to avoid increasing customer involvement, because a lack of involvement leads to habituation and higher repurchase among moderately satisfied customers (Figure 2, Panel A). The prevalence of substitution effects in categories such as banking, utilities, and auto maintenance suggests that efforts to enhance satisfaction and initiatives that substitute for satisfaction may not be effective simultaneously. Such a combination of efforts instead might lower customer-level profitability, waste resources, and drive firm costs unnecessarily high.

Because of the prominence of substitution effects, managers in strong-satiation industries should focus tightly on the cost effectiveness of their marketing resource allocations. They should attempt to maximize the firm's share of their customers' wallets rather than increase the size of those wallets. For example, relational efforts might be designed to encourage current customers' habituation toward the focal firm, or promotional initiatives could attempt to break customers' habituation toward a competitor.

The optimal strategy in strong-satiation categories may be to generate moderate levels of satisfaction combined with an assortment of substitution initiatives to maximize customer repurchase and profitability. Casual observation suggests that many automobile maintenance and

dry cleaning service providers offer moderate levels of customer satisfaction, target low-involvement and moderate- to high-income customers with personalized or geographically segmented communications, and rely on locational convenience or pick-up and delivery services to drive repurchase. These approaches are more effective than further elevation of customer satisfaction through activities such as increasing service intensity.

In strong-satiation industries with economies of scale and scope, companies can concentrate on building market share at the expense of individual customer profitability and eventually build a cost advantage. This strategy invests in relatively high levels of customer satisfaction and an assortment of initiatives that lure customers away from competitors or maximize repurchase by current customers. For example, Target successfully implemented this strategy in a range of strong-satiation purchase categories, providing higher satisfaction than its competitors while also offering assortment convenience to drive repeat purchase behavior. Best Buy also invested in its Geek Squad installation and repair service, which offered convenience, value, and an established brand. The Geek Squad gained share at the expense of local vendors and built operating and marketing economies by leveraging its base in the Best Buy stores.

Limitations and conclusion

We recognize several limitations to our study. For example, our comparative assessment of weak- and strong-satiation purchase categories focuses on one example of each; further research should examine and compare additional purchase categories. Our research focuses on six customer, relational, and marketplace moderators, whereas other research has suggested additional moderators (see Table 1). Finally, because we focus on repurchase visits and spending by existing customers, we do not explicitly consider important outcomes such as customer retention or defection.

Despite these limitations, three important implications emerge. First, researchers must make theoretical and empirical distinctions between complementary and substitution effects. This common language would facilitate the comparison and reconciliation of findings across different contexts and offer direct managerial implications. Second, empirical replication across contexts helps us understand why different findings emerge in different contexts. Although precise replication across contexts is difficult, by controlling for ancillary factors such as timing, measurement, and sampling, we have isolated the role of context. It is possible to challenge our interpretation of the underlying theoretical mechanisms, but it would be difficult to question our empirical findings about systematic variations of the moderating influences of customer, relational, and marketplace characteristics across two purchase categories. Third, we highlight the role of measurement in influencing findings, because recognizing this effect can clarify and reconcile different findings from different studies. The ultimate goal is a better understanding of the moderating influences on repurchase to support actionable frameworks for researchers, students, and managers. We look forward to future research that helps us realize that goal.

Appendix
Empirical Model, Measurement Details and Summary Statistics

We used restricted maximum likelihood estimation to analyze the hierarchical linear model, which we specified as follows:

$$Y_{ij} = \alpha_0 + \alpha_1 \text{lag}Y_{ij} + \alpha_2\lambda_{ij} + \alpha_3 SI_j +$$

$$\beta_1 Sat_{ij} + \beta_2 Inv_{ij} + \beta_3 HI_{ij} + \beta_4 RA_{ij} + \beta_5 RBP_{ij} + \beta_6 Conv_{ij} + \beta_7 CI_{ij} +$$

$$\gamma_1 Sat_{ij}\times SI_j + \gamma_2 Sat_{ij}\times Inv_{ij} + \gamma_3 Sat_{ij}\times HI_{ij} + \gamma_4 Sat_{ij}\times RA_{ij} + \gamma_5 Sat_{ij}\times RBP_{ij} + \gamma_6 Sat_{ij}\times Conv_{ij} + \gamma_7 Sat_{ij}\times CI_{ij} +$$

$$\gamma_8 SI_j\times Inv_{ij} + \gamma_9 SI_j\times HI_{ij} + \gamma_{10} SI_j\times RA_{ij} + \gamma_{11} SI_j\times RBP_{ij} + \gamma_{12} SI_j\times Conv_{ij} + \gamma_{13} SI_j\times CI_{ij} +$$

$$\delta_1 Sat_{ij}\times SI_j\times Inv_{ij} + \delta_2 Sat_{ij}\times SI_j\times HI_{ij} + \delta_3 Sat_{ij}\times SI_j\times RA_{ij} + \delta_4 Sat_{ij}\times SI_j\times RBP_{ij} + \delta_5 Sat_{ij}\times SI_j\times Conv_{ij} + \delta_6 Sat_{ij}\times SI_j\times CI_{ij} + e_{ij}$$

where

Y_{ij}	=	Objective repurchase activity for customer i in purchase category j (represented by the partner firm).
$\text{lag}Y_{ij}$	=	Lagged dependent variable.
λ_{ij}	=	Selection control factor for customer i in purchase category j.
SI_j	=	Satiation index for purchase category j.
Sat_{ij}	=	Satisfaction for customer i in purchase category j.
Inv_{ij}	=	Involvement for customer i in purchase category j.
HI_{ij}	=	Median household income for customer i in purchase category j.
RA_{ij}	=	Relationship age for customer i in purchase category j.
RBP_{ij}	=	Relationship-building program for customer i in purchase category j.
$Conv_{ij}$	=	Convenience for customer i in purchase category j.
CI_{ij}	=	Competitive intensity for customer i in purchase category j.

We describe measurement of each variable in each purchase category in Table A1, and we provide reliability scores, summary

statistics, and correlation matrices in Table A2.

	Weak-Satiation Category (Fashion Apparel)	Strong-Satiation Category (Auto Service)
Dependent Variables		
Spending	Amount of repurchase spending during the year following the survey	Amount of repurchase spending during the year following the survey
Visits	Number of repurchase visits during the year following the survey	Number of repurchase visits during the year following the survey
Independent Variables		
Satiation Index	— (% of HI dedicated to purchase category j (Decile 7) – % of HI dedicated to purchase category j (Decile 1)) / % of HI dedicated to purchase category j (Decile 7)	
Satisfaction	Three survey items adapted from Voss, Parasuraman, and Grewal (1998): I am pleased with the overall service at SP*. Shopping at SP is a delightful experience. I am completely satisfied with the SP shopping experience.	Three survey items adapted from Voss, Parasuraman, and Grewal (1998): I am pleased with the overall service at SP Taking my car in for service at SP is a pleasant experience I am completely satisfied with the service SP provides.
Household Income (HI)	Median household income reported in the 2000 census for the respondent's zip code	Median household income reported in the 2000 census for the respondent's zip code
Involvement	Three survey items adapted from Beatty and Talpade (1994): I have a strong personal interest in stores like SP. The kinds of products SP sells are important to me. Stores like SP are very important to me.	Three survey items adapted from Beatty and Talpade (1994): I have a personal interest in auto maintenance and repairs. The types of auto services performed at SP are interesting to me. I don't have any interest in knowing about auto maintenance and repairs. (Reverse-scaled item dropped due to low correlations)
Relationship Age	Single survey item: How long have you been a ___ customer?	Single survey item: How long have you been a ___ customer?
Relationship-building Program	Dichotomous variable indicating customers who had opted in to receive marketing contacts through the e-mail program	Number of outgoing marketing contacts directed toward each customer
Convenience	Five survey items adapted from Seiders et al. (2007): I can easily determine prior to shopping whether SP will offer what I need. I am able to get to SP quickly and easily. The merchandise I want at SP can be located quickly. SP makes it easy for me to conclude my transaction. It is easy to take care of returns and exchanges at SP.	Five survey items adapted from Seiders et al. (2007): It is quick and easy to find out if SP provides the auto service I need. I am able to get to SP's location quickly and easily. From the time I take my car in to the time I pay, the service at SP is quick and easy. When the service on my car is finished, SP makes it simple and fast for me to pay. It is easy and quick to take care of any after-service issues at SP.
Competitive Intensity	Number of competitors in each respondent's zip code for women's clothing and related items and accessories (NAIC codes 448120 and 442299)	Number of competitors in each respondent's zip code for automobile dealerships and automobile repair (NAIC codes 441110, 441120, and 811111-811198)

* SP = Service provider

Table A2
Summary Statistics and Correlation Matrices

	Visits	Spending	Satisfaction	Involvement	Household income	Relationship age	Relationship-building program	Convenience	Competitive intensity	Mean	Standard deviation
Visits	NA	.69	.18	.02	.11	.06	.40	.18	-.01	5.33	5.15
Spending	.74	NA	.05	.00	.09	.04	.27	.08	-.01	366.80	560.36
Satisfaction	.07	.07	.89\.94	.23	-.04	.08	.11	.69	.00	4.29	0.87
Involvement	.10	.12	.27	.86\.66	-.05	.14	.04	.37	.01	3.74	0.83
Household income	.01	-.00	-.06	-.06	NA	-.01	.14	-.06	-.01	63016	18286
Relationship age	.03	.00	.01	.10	.06	NA	.07	.12	-.01	8.05	8.22
Relationship-building program	.28	.25	-.04	.10	-.09	-.16	NA	.10	-.01	13.45	6.69
Convenience	.14	.13	.59	.24	.06	.10	.01	NA	.02	4.35	0.62
Competitive intensity	-.01	-.03	-.01	-.03	.03	.02	-.02	.02	NA	4.38	3.87
Mean	4.12	326.81	4.34	4.03	58733	3.13	.29	3.99	7.42		
Standard deviation	9.59	1079.00	.72	.73	20195	2.43	.45	.62	10.35		

Notes: Correlations for the fashion apparel context appear below the diagonal; correlations for the automobile services context appear above the diagonal. Correlations greater than |.06| are significant at $p < .05$. Reliability estimates are presented on the diagonal for reflective scales.

Notes

1 We thank Du and Kamakura (2008) for providing the data for this comparative analysis and we note that the analysis understates the difference between our two empirical contexts because our context is fashion apparel whereas Du and Kamakura aggregate across all apparel.

2 We checked the robustness of the income results by estimating the empirical models using self-reported income for the automobile service category (we did not have self-reported income data for fashion apparel). The results did not change significantly.

3 We also estimated the empirical models with a dichotomous measure for the automobile service relationship-building program, using a mean split to specify low- and high-contact customers. This specification approximates the dichotomous measure in the fashion context and produces the same inferences for the hypothesized relationships.

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Table 1
Recent Studies of Moderating Effects on the Impact of Satisfaction on Repurchase Behavior

Moderators		Repurchase Behavior	Study Context & Design	Study
Customer Characteristics	**Effect Type**			
Heavy user	Substitution	Share of category requirements[RB]	Consumer package goods *Cross-sectional*	Bowman and Narayandas (2001)
Firm size	Substitution	Share of customer wallet[RB]	B2B Processed metal *Longitudinal*	Bowman and Narayandas (2004)
Age Education Expertise Income	No effect No effect No effect Substitution	Change in share of wallet[RB]	Banking *Longitudinal*	Cooil et. al. (2007)
Age Apathetic orientation Economic orientation Personalizing orientation Purchase volume	No effect No effect Complementary[INV] (a only) Substitution Complementary (a only)	a. Share of purchases[RB] b. Share of visits[RB]	Grocery stores *Longitudinal*	Magi (2003)
Age Children Education Gender Marital status	Substitution Substitution Substitution Substitution No effect	Repurchase percentage[OB]	Automobile manufacturer *Longitudinal*	Mittal and Kamakura (2001)*
Household income Product category involvement	Complementary (a & b only) Complementary (b only) Substitution (c only)	a. Repurchase visits[OB] b. Repurchase spending[OB] c. Repurchase intentions[IS]	Fashion apparel	Seiders et al. (2005)
Relational Characteristics				
Relational value	Complementary	Loyalty intentions[IS]	Retail clothing Airline travel *Cross-sectional*	Agustin and Singh (2005)
Length of experience	Complementary	Relationship duration[OB]	Telecommunications *Longitudinal*	Bolton (1998)
Loyalty	Complementary	Share of category requirements[RB]	Consumer package goods *Cross-sectional*	Bowman and Narayandas (2001)
Account management tenure	Complementary	Share of customer wallet[RB]	B2B Processed metal *Longitudinal*	Bowman and Narayandas (2004)
Relationship duration	Substitution	Change in share of wallet[RB]	Banking *Longitudinal*	Cooil et. al. (2007)
Relational orientation	Substitution	Future intentions[IS]	Professional theater *Cross-sectional*	Garbarino and Johnson (1999)
Interpersonal relationships	Substitution	Repurchase intentions[IS]	Banking and hair salon *Cross-sectional*	Jones, Mothersbaugh, and Beatty (2000)

Relationship duration	Substitution	Recommendation intentions[IS]	Automotive service *Longitudinal*	Mittal, Kumar, and Tsiros (1999)
Relationship age Relationship program	Complementary[IND] (a & b only) Complementary[IND] (a & b only)	a. Repurchase visits[OB] b. Repurchase spending[OB] c. Repurchase intentions[IS]	Fashion apparel	Seiders et al. (2005)
Negative critical incidents	Substitution	Customer share[RB]	B2B Logistics services *Longitudinal*	Van Doorn and Verhoef (2008)
Relationship age	Complementary (a only)	a. Customer retention[OB] b. Customer share development[OB]	Insurance *Longitudinal*	Verhoef (2003)
Marketplace Characteristics				
Service quality	Complementary	Contract upgrade likelihood[OB]	B2B Computing support *Longitudinal*	Bolton, Lemon, and Verhoef (2008)
Satisfaction with competitor	Substitution[INV]	Share of customer wallet[RB]	B2B Processed metal *Longitudinal*	Bowman and Narayandas (2004)
Attractiveness of alternatives Switching costs	Substitution[INV] Substitution	Repurchase intentions[IS]	Banking and hair salon *Cross-sectional*	Jones, Mothersbaugh, and Beatty (2000)
Urban versus suburban	No effect	Repurchase behavior[OB]	Automobile manufacturer *Longitudinal*	Mittal and Kamakura (2001)
Competition Convenience	Complementary[IND] (a only) Complementary (a & b) Complementary[IND] (c)	a. Repurchase visits[OB] b. Repurchase spending[OB] c. Repurchase intentions[IS]	Fashion apparel	Seiders et al. (2005)

Notes: IS = intentions survey measure; RB = reported behavior measure; OB = observed behavior measure. Unless otherwise noted, complementary and substitution indicate interaction effects. IND = complementary independent effects, and INV = interaction effect between satisfaction and negatively valenced moderating variable (e.g., *lack* of satisfaction with competitors, *lack* of attractive alternatives substitutes for satisfaction).
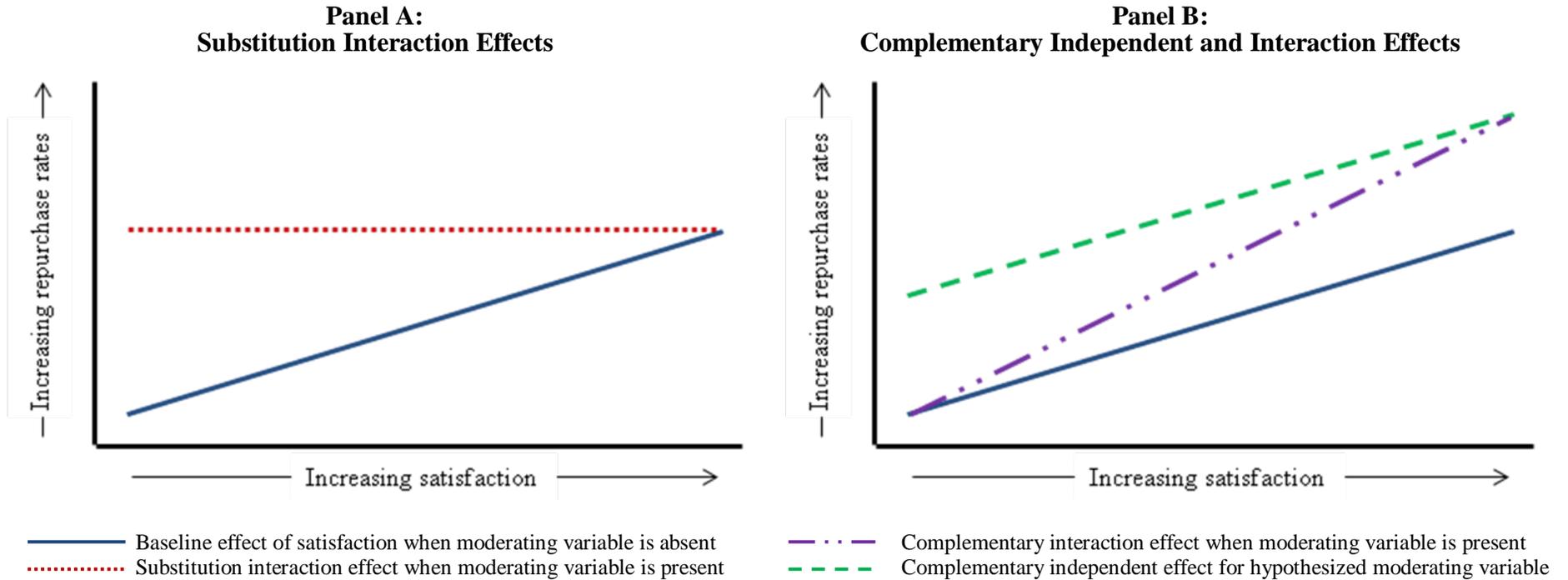
*We make inferences for some studies if the analyses are not easily amenable to interpretation of complementary or substitute effects. For example, Mittal and Kamakura (2001) examine threshold effects associated with demographic characteristics and different satisfaction levels. Our assignment of substitution effects is based on the graphs that appear in their Figure 3. In each case, the results for repurchase percentage tend to converge when satisfaction is highest, and the slopes are flatter or steeper depending on the demographic characteristics. These graphs are similar to the substitution graph in our Figure 1.

Table 2
Empirical Results with Repurchase Visits and Repurchase Spending as Dependent Variables

|	Repurchase Visits			Repurchase Spending		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Intercept	-.30[c]	-.39[b]	-.43[b]	-.18	-.28	-.33[c]
Lagged dependent variable	.53[a]	.52[a]	.52[a]	.14[a]	.14[a]	.14[a]
Selection control factor	-.54[b]	-.42[c]	-.37	-.65[b]	-.51[c]	-.45[c]
Satiation index	-.47[b]	-.51[b]	-.40[b]	.68[a]	.64[a]	.76[a]
Satisfaction	.08[a]	.07[a]	.09[a]	.04	.02	.05[c]
Involvement	.03[c]	.04[b]	.03[b]	.05[b]	.06[a]	.06[a]
Income	.02	.02	.02	.03[c]	.03	.03[c]
Relationship age	.01	.02	.02	.02	.02	.02
Relationship-building program	.19[a]	.19[a]	.19[a]	.22[a]	.22[a]	.22[a]
Convenience	.06[a]	.07[a]	.07[a]	.07[a]	.08[a]	.08[a]
Competitive intensity	.01	.01	.01	-.01	-.01	-.01
Satisfaction × Satiation	**.83[a]**	**.99[a]**	**.68[b]**	.25	**.44[c]**	.09
Satisfaction × Involvement	.02	**.03[c]**	**.03[c]**	**.05[b]**	**.05[a]**	**.06[a]**
Satisfaction × Income	.01	.01	**.03[c]**	-.00	-.00	.01
Satisfaction × Relationship age	-.00	-.00	.00	-.01	-.01	-.00
Satisfaction × Relationship program	**-.04[b]**	**-.03[b]**	-.01	-.01	-.01	.02
Satisfaction × Convenience	.01	.01	**.02[c]**	-.01	-.01	.01
Satisfaction × Competitive intensity	.00	.00	.01	.01	.01	.02
Satiation × Involvement		**-.58[a]**	**-.57[a]**		**-.71[a]**	**-.70[a]**
Satiation × Income		-.01	-.02		.18	.16
Satiation × Relationship age		**-.30[b]**	**-.31[b]**		**-.44[b]**	**-.44[b]**
Satiation × Relationship program		.00	-.01		.05	.02
Satiation × Convenience		.01	-.00		.04	.03
Satiation × Competitive intensity		**-.31[b]**	**-.32[b]**		-.07	-.08
Satisfaction × Satiation × Involvement			.16			.02
Satisfaction × Satiation × Income			**-.51[a]**			**-.56[a]**
Satisfaction × Satiation × Relationship age			-.06			-.14
Satisfaction × Satiation × Relationship program			**-.33[b]**			**-.40[b]**
Satisfaction × Satiation × Convenience			**-.35[a]**			**-.35[b]**
Satisfaction × Satiation × Competitive intensity			-.12			-.05
Bayesian information criterion (BIC)	5365.7	5357.6	5350.8	5710.4	5698.0	5689.6
Δ in BIC compared to Model 1		8.1	14.9		12.4	20.8

Notes: Coefficients are significant at [a] $p < .01$; [b] $p < .05$; [c] $p < .10$ (one-tailed tests). Significant interactions are bolded for visual clarity.

Figure 1
**Plotting the Functional Forms of Substitution and Complementary Effects**

Panel A:
Substitution Interaction Effects

Panel B:
Complementary Independent and Interaction Effects

——— Baseline effect of satisfaction when moderating variable is absent
·········· Substitution interaction effect when moderating variable is present

—··— Complementary interaction effect when moderating variable is present
– – – Complementary independent effect for hypothesized moderating variable

Figure 2
Plotting Significant Interactions*

Panel A:
Complementary & Substitution Effects for Involvement
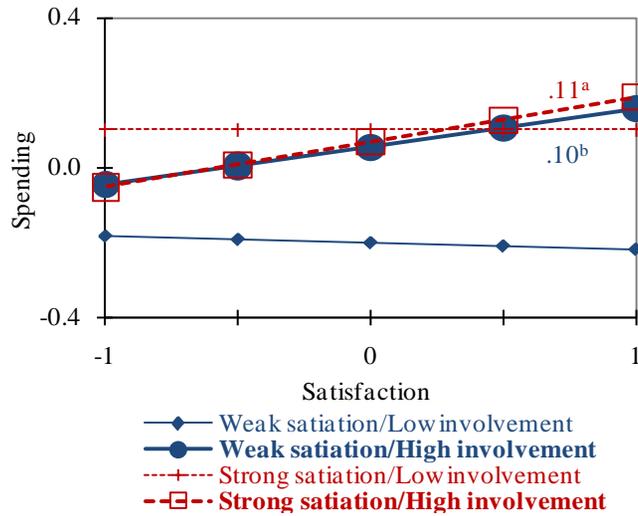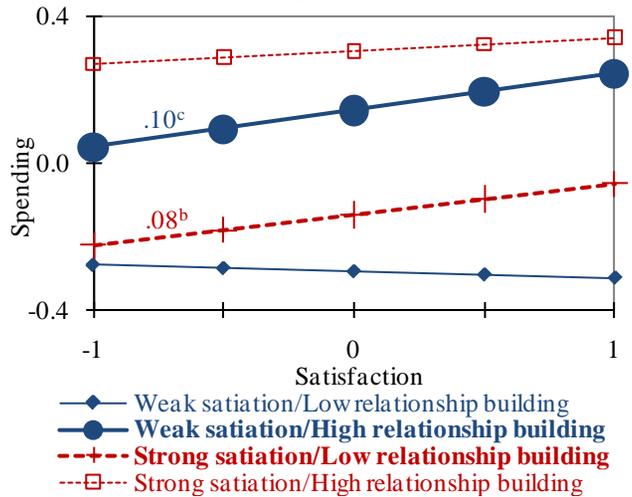
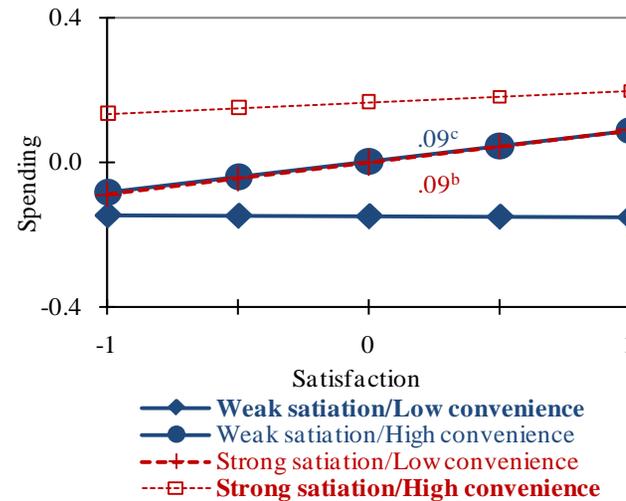**Panel B:**
Complementary & Substitution Effects for Income
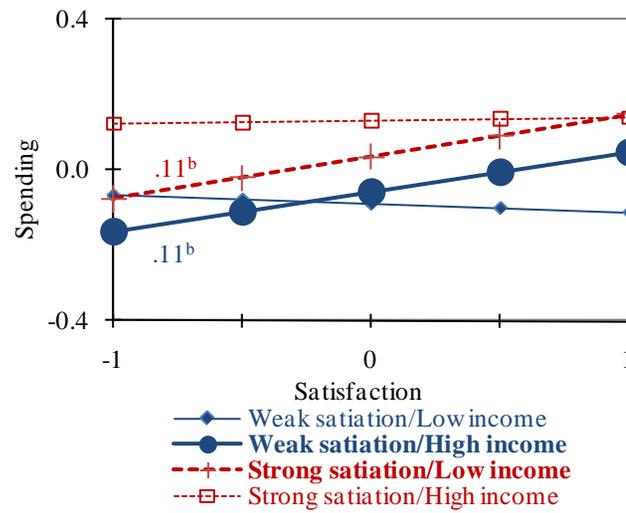
Panel C:
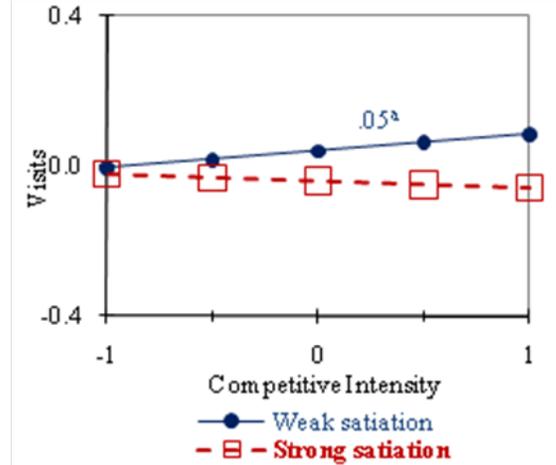**Complementary Effects for Relationship Age**
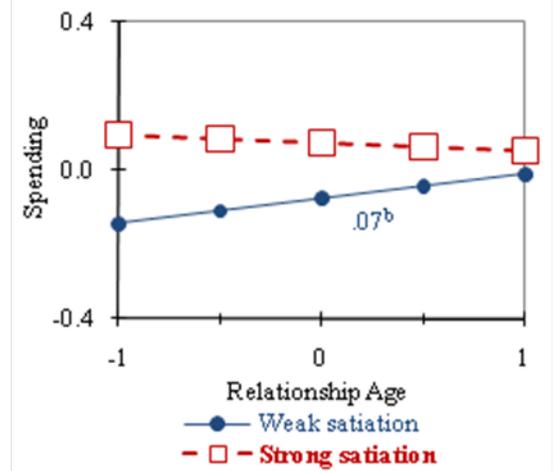
Panel D:
Complementary & Substitution Effects for Relationship Building Programs

Panel E:
Complementary & Substitution Effects for Convenience

Panel F:
Complementary Effects for Competitive Intensity

* We show simple slope coefficients (Aiken and West 1991) that are significant at [a] $p < .01$; [b] $p < .05$; [c] $p < .10$.