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Competing Loyalty Programs: Impact of Market Saturation, Market Share, and Category Expandability

Loyalty programs have become an important component of firms' relationship management strategies. There are now some industries in which numerous rival loyalty programs are offered, inducing intense competition among these programs. However, existing research on loyalty programs has often studied such programs in a noncompetitive setting and has often focused on a single program in isolation. Addressing this gap, this research examines the effect of a firm's competitive positioning and market saturation on the performance of the firm's loyalty program. Based on the analysis of firm- and individual-level data from the airline industry, the results indicate that larger firms tend to benefit more from their loyalty program offerings than smaller firms. Moreover, when the product category demand is rigid, the impact of an individual loyalty program decreases as the marketplace becomes more saturated with competing programs. However, when the product category is highly expandable, the saturation effect disappears. Under such situations, loyalty programs can help an industry gain competitive advantage over substitute offerings outside the industry, and multiple programs can effectively coexist even under a high level of market saturation.

Keywords: loyalty programs, market share, market saturation, category expandability, resource-based view

Although loyalty programs have been around for quite some time, consumer enthusiasm to embrace these programs has not abated but rather has rapidly grown over the recent years. From 2000 to 2006, total loyalty program enrollments in the United States increased 35.5% to 1.5 billion (Ferguson and Hlavinka 2007). In parallel to favorable responses from consumers, many firms have installed loyalty programs as a core component of their marketing strategy. This proliferation of loyalty programs reflects a changing market environment that is increasingly characterized by intense competition, more demanding and knowledgeable consumers, and a development toward relationship marketing and customer relationship management in marketing thinking and practice.

A consequence of this enthusiasm toward loyalty programs is the increasing competition among rival programs, especially in sectors such as airline, financial services, retail, hotel, and gaming (Ferguson and Hlavinka 2007). In the credit card industry, for example, half of general-purpose credit cards offer a reward program (Visa USA Research Services 2006). Similar high adoption rates have been observed in the retail sector across multiple countries (Van Heerde and Bijmolt 2005). This pervasiveness of loyalty programs has led some researchers to conclude that such programs may be a necessary cost of doing business in certain industries, especially for new entrants into those industries (Ferguson and Hlavinka 2007; Meyer-Waarden and Benavent 2006). Some also argue that membership in multiple loyalty programs may eventually cancel out the effects of each individual program (Mägi 2003). With a large number of competing loyalty programs, are firms merely giving away profits in a desperate struggle to win business, much like the airline price war in the early 1990s? Or are loyalty programs a viable strategy that can increase revenue potentials, even with competitive offerings in the same market?

Answers to such questions have accumulated in recent years, but the conclusion is still unclear. Not only does the impact of loyalty programs vary across different consumer segments within a firm (e.g., Lewis 2004; Liu 2007), but mixed results are also found for firm-level outcomes (e.g., Leenheer et al. 2007; Mägi 2003; Sharp and Sharp 1997). Consequently, serious doubts have been raised about the value of loyalty programs (Dowling and Uncles 1997; Shugan 2005). Part of the divergence in existing findings can be attributed to a lack of considering the market environment in which loyalty programs operate. Most studies have examined a single program in isolation, when in reality multiple loyalty programs are often offered by competing firms. It is unclear how these competitive forces shape the performance of a loyalty program. This has prompted calls from several marketing scholars for more research on loyalty program competition (Leenheer et al. 2007; Liu 2007; Verhoef 2003).

The current research responds to such calls and contributes to a better understanding of loyalty programs in

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several ways. First, it examines the interaction among rival loyalty programs and incorporates market- and firm-level factors to explain the varying performances of such programs. Although some research has attempted to explain loyalty program performance through program design factors, few studies have examined how external factors in the environment may affect the success of a program. In this study, we attempt to answer how loyalty program performance is affected by market saturation and the relative size of the offering firm. By considering these competitive factors, this research remedies the tendency to study loyalty program effects in a vacuum void of competitive influences and thus presents a more realistic assessment of such programs. Because loyalty program initiatives often require costly long-term investments, a more realistic assessment of their potential effects will help firms make more informed decisions and avoid costly mistakes.

Second, this research investigates an important contingency factor—category expandability—on the dynamics of competition among loyalty programs. Because individual product categories often do not stand alone in the market but rather compete with substitute products that satisfy similar needs, the expandability of the market boundary can affect the success of loyalty programs (Leenheer et al. 2007). Using a game-theoretic approach, Kopalle and Neslin (2003, p. 22) conclude that a "key factor determining the economic viability of frequency reward programs is the extent to which they can be used to expand the category." This research extends their work and empirically tests this proposition at the individual level.

Finally, because of self-selected enrollment and time trend effects, researchers have argued that neither cross-sectional nor longitudinal data alone can establish a clear causal relationship with regard to loyalty programs (Verhoef 2003). Addressing this concern, the current research combines cross-sectional and longitudinal data from the airline industry and thus controls for the confounding factors in either type of data. It also considers heterogeneity among firms, which allows for a more accurate assessment of loyalty program effects.

Conceptual Background

Defining the Scope of Loyalty Programs

We define loyalty programs as long-term-oriented programs that allow consumers to accumulate some form of program currency, which can be redeemed later for free rewards. An airline's frequent-flier program represents a typical loyalty program. By focusing on long-term programs, we exclude promotional programs that offer only one-shot, immediate benefits, such as instant-win scratch cards and grocery stores' discount card programs. In contrast to loyalty programs that are designed to create a future orientation and increase switching costs over the long run (Kim, Shi, and Srinivasan 2001; Lewis 2004), these short-term promotions are more likely to create sudden changes in sales without producing sustained customer loyalty or revenue potential for a firm. Research has shown different mechanisms underlying these one-shot, immediate reward programs compared with long-term loyalty programs that offer consumers delayed rewards (Yi and Jeon 2003; Zhang, Krishna, and Dhar 2000). Confirming this view, Leenheer and Bijmolt (2008) find that delayed rewards in a loyalty program have a significant impact on customer loyalty, whereas one-shot promotional features do not. Therefore, we consider it more appropriate to separate the two types of programs. Our decision is also supported by different financial implications of the programs, with one-shot programs incurring immediate costs and benefits and long-term loyalty programs creating long-term obligations and value for a firm.

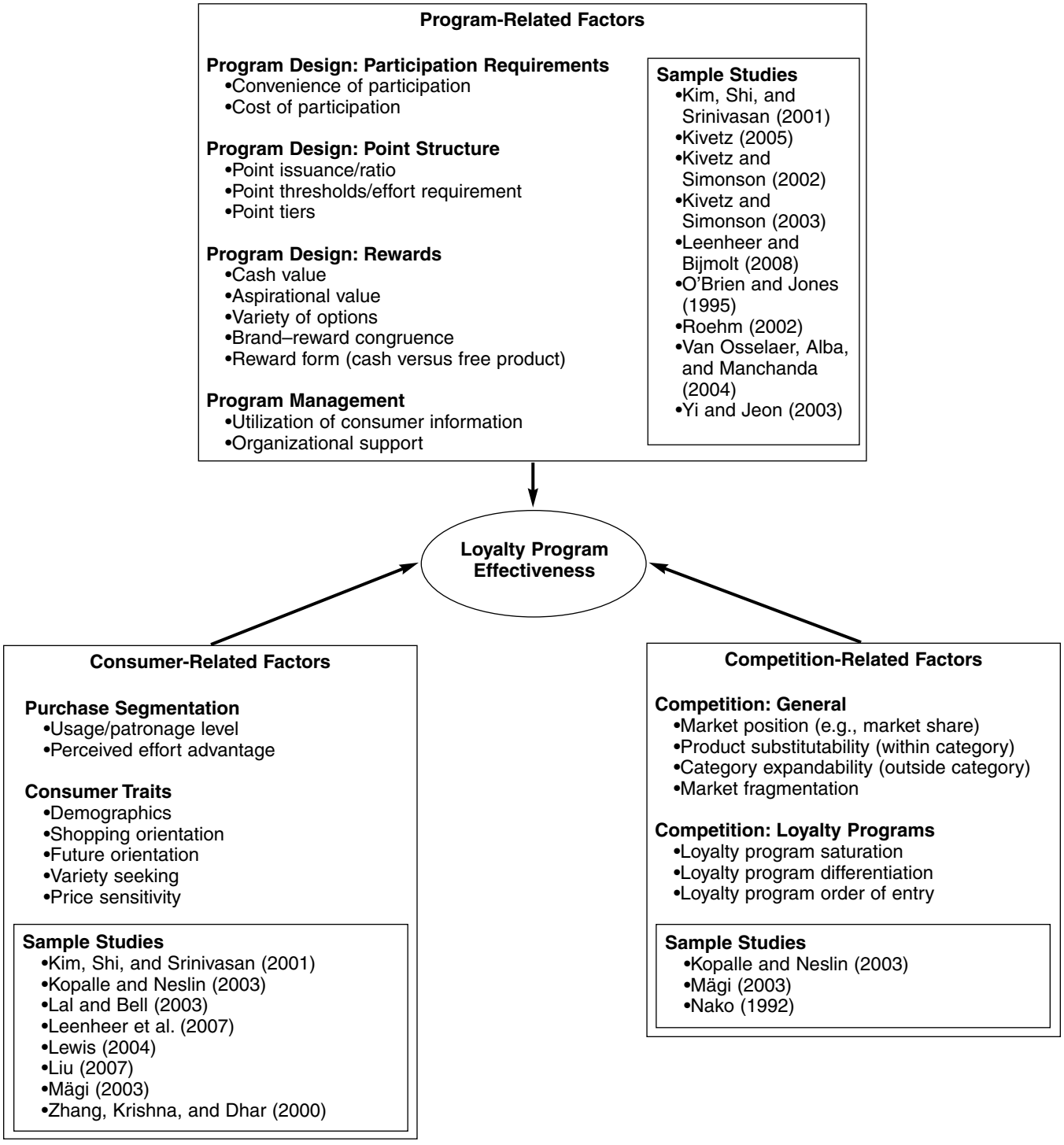
Diverse Performances of Loyalty Programs

Prior research has documented mixed outcomes of loyalty programs operating in the same markets. For example, Meyer-Waarden and Benavent (2006) compare a consumer panel's observed purchases at seven grocery stores with Dirichlet predictions and find excessive loyalty attributable to loyalty programs for only three stores. The loyalty programs that Leenheer and colleagues (2007) study also varied on their share-of-wallet impact and profitability. A natural question from these mixed findings is why loyalty programs exhibit diverse performance. Although this phenomenon may not be surprising, a systematic understanding of the factors contributing to diverse loyalty program performances is important because it can aid in managers' assessment of whether a loyalty program is appropriate in a certain context and can help identify ways of improving the effectiveness of such programs (Bolton, Kannan, and Bramlett 2000).

In studying loyalty program performance, it is important to recognize that loyalty programs do not operate as separate entities in an isolated environment. Their success depends not only on the programs themselves but also on other facilitating or inhibiting factors present in the environment. Specifically, we propose three sets of factors that represent the main market entities involved: the focal loyalty program, the consumers (i.e., target market), and rival programs and firms (i.e., competition). Figure 1 lists the factors and sample studies within each set. Of these, program-related factors explain a firm's internal strategies that can contribute to the success of a loyalty program, whereas consumer and competition factors represent things in the external environment that are equally important to loyalty program performance. We argue that it is the joint force of all these factors that determines the eventual outcome of a loyalty program. This line of thinking resembles other studies of marketing strategy, in which the initiation and outcomes of marketing strategies are affected by both the internal environment of the firm and external market and industry environments (Varadarajan and Jayachandran 1999).

In the following sections, we first review existing research that has examined some of the factors in our proposed framework. From the review, we note the relative void of studies on competition-related factors, and we focus on these factors in our two studies. Before we turn to the literature, however, it is important to note that loyalty program performance can be measured in multiple ways.

FIGURE 1
Factors Affecting Loyalty Program Effectiveness



Nunes and Drèze (2006) suggest that loyalty programs can serve different goals, such as retaining customers, increasing spending, and gaining customer insights. Therefore, each program should have its own unique set of success measures depending on its intended goals. For cross-comparison purposes, however, it is also useful to examine some standard measures. Prior research has used consumer-level outcomes, such as purchase frequency, transaction size, and share of wallet, as well as firm-level factors, such as store sales and traffic. Although all these measures are

useful, because each measure may be driven by different underlying mechanisms, caution should be taken before directly comparing some of the existing studies.

Existing Research on Loyalty Program Performance

Program-related factors. Program-related factors include both program design and management. From the design perspective, a loyalty program needs three key specifications: (1) participation requirements, (2) point structure, and (3) rewards. The first element pertains to the convenience and cost of participation. Participation modes can be differentiated by voluntary versus automatic enrollment and free versus fee-based membership. Programs also differ in terms of how convenient it is for consumers to participate (O'Brien and Jones 1995). For example, some programs automatically accumulate points, whereas others require more effort from consumers, such as manual code entry required by My Coke Rewards. O'Brien and Jones (1995) suggest that the convenience of participation can affect the appeal of a loyalty program. So far, however, the effects of participation requirements have not received much empirical examination.

The second aspect of a loyalty program, point structure, involves how reward points are issued, what the point thresholds are for redeeming rewards, and whether a tiered structure is used. Regarding the issuing of reward points, Van Osselaer, Alba, and Manchanda (2004) find that though point threshold stays the same, the way points are issued over each purchase (ascending points versus same points per purchase) affects consumers' choices. This suggests that point issuance is not a nuisance to consumers and should not be determined arbitrarily. Point threshold is another important aspect of point structure, and it has been tied in to program relevance (O'Brien and Jones 1995). If the point threshold for a free reward is too high, it will be considered unobtainable for the average consumers and thus will be dismissed as irrelevant. The final aspect of point structure involves tiered structures (e.g., gold and platinum memberships based on spending levels). Taking this tiered structure into account, Kopalle and colleagues (2007) find that program tiers create a point pressure effect on purchases by both price-conscious and service-oriented consumers, whereas the frequency reward itself creates such an effect only for price-conscious consumers.

The third design element, choice and availability of rewards, has received the most extensive attention in existing studies. This design element includes reward value and cost, actual rewards offered, and their compatibility with the focal brand. For example, O'Brien and Jones (1995) suggest reward ratio, variety of reward redemption options, and aspirational value of rewards as important considerations. Kivetz and Simonson (2002) test the aspirational value aspect in an experimental setting and find its effects to be moderated by effort requirement. A luxury reward is preferred when effort requirement is high, whereas a less aspirational necessity reward is preferred when effort requirement is low. A few studies have considered the congruence between rewards offered and the focal brand and find that, in general, brand-congruent rewards are more effective than incongruent rewards, though this effect is moderated by factors such as consumer involvement and promotional reactance (Kivetz 2005; Roehm, Pullins, and Roehm 2002; Yi and Jeon 2003). Focusing more from a firm strategy perspective, Kim, Shi, and Srinivasan (2001) use game theory to identify the optimal conditions for offering cash versus free products as rewards. They find that the former is better if there are few price-sensitive heavy buyers, whereas the latter is more effective when the heavy buyer group is large or not very price sensitive.

In addition to program design factors, research has shown the impact of program management on the success of a loyalty program. For example, from a survey of 180 retailers, Leenheer and Bijmolt (2008) conclude that the success of a loyalty program is affected by the effort spent on capturing and analyzing consumer intelligence derived from the program. It may be surmised that the success of a loyalty program also depends on organizational support of the program and the amount of resources dedicated to program management, but these organizational factors have not been subject to empirical testing.

Consumer characteristics. Although proper program design and management are critical, it is consumers' reactions to a loyalty program that ultimately determine program success. Fewer studies have examined the impact of consumer characteristics on loyalty program effects. Consumer characteristics can be crudely classified into firm-specific attitudinal and behavioral factors versus traits and characteristics that carry across firms. In the former category, Lal and Bell (2003) and Liu (2007) examine the moderating effect of consumers' usage levels. Contrary to traditional wisdom of loyalty programs as a defense mechanism mainly for heavy buyers, these studies find the biggest increase in spending and purchase frequency among light buyers. This is attributed to loyalty programs' ability to eliminate cherry-picking (Lal and Bell 2003) and to encourage cross-selling (Liu 2007). Within this category of studies, Kivetz and Simonson (2003) also examine the effect of perceived effort advantage. Rather than treating point threshold as a program design factor, as we discussed previously, Kivetz and Simonson find that it is not the effort required per se but the perceived effort advantage a consumer has over other consumers that affects his or her likelihood of joining a program. This perceived effort advantage again can be driven by consumers' usage levels. However, note that this effort advantage effect may drive program joining decisions but may not carry over to what consumers do after they have joined a program.

Additional studies have segmented consumers according to their generic traits or characteristics, such as sociodemographics (Leenheer et al. 2007), shopping orientation (Mägi 2003), future orientation (Kopalle and Neslin 2003), variety seeking (Zhang, Krishna, and Dhar 2000), and price sensitivity (Kim, Shi, and Srinivasan 2001; Kopalle et al. 2007). However, few of these factors have received empirical support. This may be attributed to the overgeneralized nature of these variables. So far, two factors, future orientation and price sensitivity, have received some support. Because loyalty programs reward consumers' current behavior at some point in the future, it is not surprising that

such programs are found to be more appealing to consumers who do not heavily discount future benefits (Kopalle and Neslin 2003). Corroborating this view, Lewis (2004) finds that treating consumers as dynamically oriented better explains their purchase decisions in the presence of a loyalty program. The second factor, price sensitivity, has been found to moderate consumers' reactions to program design elements (Kopalle et al. 2007).

Overall, existing studies of consumer-related factors appear to suggest that firm-specific behavior and attitudes are better predictors of consumer reaction to a loyalty program. However, further research is needed to identify and test other consumer traits before a final conclusion can be drawn. We also note that though consumer-related factors have been mainly used to explain differential responses to the same loyalty program, they can also contribute to the diverse performances across programs by considering the varying composition of program members. Examples of this approach can be found in two game-theoretic models related to loyalty programs (Kim, Shi, and Srinivasan 2001; Zhang, Krishna, and Dhar 2000), in which individual characteristics, such as variety seeking and price sensitivity, are translated into market characteristics.

Competition-related factors. One problem with considering only program- and consumer-related factors is that it puts the program-offering firm and consumers in an isolated setting. In reality, however, most loyalty programs face competition from rival programs that offer similar benefits, and enrollment in multiple programs is common. In the retail industry, for example, consumers hold an average of three loyalty program cards (Meyer-Waarden 2007). This has led to the suggestion that firms need to "take into account cardholders' 'card portfolios' when evaluating the effectiveness of loyalty programs" (Mägi 2003, p. 104). However, research on this type of influence is the scarcest, as is apparent in the shortest list of published studies in this set shown in Figure 1. A majority of existing studies have examined a single loyalty program in isolation. Among the few studies that have considered simultaneously the performances of multiple loyalty programs (e.g., Leenheer et al. 2007; Meyer-Waarden and Benavent 2006), most treat the programs as parallel strategies and do not explain the interaction among those programs.

Only four published studies have considered loyalty programs in a competitive setting. Two of these studies (Mägi 2003; Meyer-Waarden 2007) find that consumers' holding loyalty program cards from competing chains reduces the share of wallet and customer lifetime for the focal chain. However, they do not consider the direct effect of competition on program performance, nor do they identify the reasons for competitive influence. Two earlier studies offer more specific examination of loyalty program competition and study the effect of firm-level factors. Nako (1992) analyzes travel records from three firms in the Philadelphia and Baltimore metropolitan areas. The results show that the value of a frequent-flier program increases with the airline's share in a traveler's main airport, suggesting the influence of a firm's market position on the success of its loyalty program. Along similar lines, Kopalle and Neslin (2003) model loyalty program competition and demonstrate that free rewards offered by firms charging higher prices are valued more by consumers. However, this proposition is not empirically tested and is likely to be constrained by model assumptions about market conditions and consumer behavior.

Summary

With limited research on loyalty programs, it is still unclear to what extent loyalty programs are effective and, more important, what induces the success and failure of different programs. Although some studies have examined the moderating effects of program and consumer characteristics, existing research tends to put a loyalty program in a vacuum that is void of impact from rival firms and programs. This omission of competitive influence is undesirable; prior research has shown that myopic profit maximization without considering competition can lead to suboptimal firm decisions (e.g., Carpenter et al. 1988). It also counters the marketplace reality of loyalty program proliferation within many industries. Questions still remain as to whether competitive loyalty programs in such industries really cancel one another's effects out, creating a zero-sum game, or whether some firms may enjoy asymmetric advantages with their loyalty programs due to their competitive positioning. Answers to these questions are critical to a complete understanding of loyalty programs. Incorporating competition will also offer more useful decision support to loyalty program managers and to firms that are pondering the establishment of a new loyalty program in the presence of existing rival programs.

Research Hypotheses

This research aims to bridge the gap in the literature by examining how competitive forces affect the business impact of a loyalty program. Although there are multiple measures of loyalty program effectiveness, we focus on firm-level sales, which have been found to be a key driver in the establishment of loyalty programs (Baird 2007). To study loyalty program competition, we draw from the resource-based view of the firm (Wernerfelt 1984), which argues that each firm possesses a unique set of tangible and intangible resources that determine its relative position in competition. From this perspective, a loyalty program plays two roles. First, it represents a unique firm resource that encompasses elements such as program members, program currency, and program loyalty. The program currency component, for example, can be traded to other firms for revenue or can be used in pricing that has been shown to excel over purely monetary-based pricing (Drèze and Nunes 2004). Second, a loyalty program embodies a distinct capability that enables a firm to deliver superior value to its customers, as demonstrated by the consumer benefits we discussed previously. Moreover, because a loyalty program captures essential consumer information that may be difficult to trace otherwise, it also belongs to the market-sensing capability that is considered essential to market-driven firms (Day 1994). These capabilities can help a firm obtain other essential resources, such as new customers and brand loyalty.

Although loyalty programs are important firm resources, the resource-based view also suggests that not all resources result in competitive advantage (Day 1994; Wernerfelt 1984). Our study of loyalty program competition builds on two key constraints on the effectiveness of a resource: (1) the rarity of the resource in the market (Hunt and Morgan 1995; Wernerfelt 1984) and (2) the presence of other complementary resources and capabilities that help firms realize the full potential of the resource (e.g., Moorman and Slotegraaf 1999). Specifically, we argue that the effectiveness of a loyalty program depends on the prevalence of such programs and that some firms enjoy an undue advantage with their loyalty programs over their competitors because of other complementary resources they possess. By considering these market- and firm-related factors, we account for the dynamics among rival loyalty programs and thus put the programs in a more realistic setting. As we demonstrate subsequently, these factors can help explain the diverse findings in existing research.

Asymmetric Influences of Loyalty Programs: Market Share Effect

From our previous discussion of loyalty program benefits, we begin with the assumption that a loyalty program can increase firm revenue. However, we argue that such benefits do not manifest equally in all firms and that some firms gain more from their loyalty programs than others. Such asymmetric performances across firms are an important market phenomenon, and understanding such asymmetries is considered key to brand management (Sivakumar 2004).

Focusing on competitive factors, we argue that the disparity in loyalty program performance can be at least partially attributed to the different market positions of program-offering firms. Whereas market position encompasses many factors, here we examine the effect of market share. We choose to focus on market share because it is an important indicator of market structure and of a firm's market power (Wood 1999). Although market share has most often been treated as an outcome of rather than an input into competition, prior research has also shown unique resource advantages that can be attributed to having a larger market share, such as customer loyalty, lower costs, and channel benefits (Besanko, Dubé, and Gupta 2005; Boulding and Staelin 1993; Fader and Schmittlein 1993; Sethuraman 1995). Although we do not claim that high-share brands are always better off than low-share brands, existing research has shown that in certain situations, high-share brands enjoy more asymmetrical advantages than low-share brands.

Extending the literature, we argue that loyalty programs can also favor high-share brands over low-share brands. This is due to two crucial complementary resources that high-share brands enjoy: customer assets and product resources. From a customer assets perspective, high-share brands have more buyers, thus providing a larger customer base from which to draw loyalty program members. Furthermore, high-share brands tend to enjoy higher purchase frequency and higher repeat purchase rates from consumers (Ehrenberg, Goodhardt, and Barwise 1990; Fader and Schmittlein 1993). This increases the relevance of the loyalty program to consumers (O'Brien and Jones 1995) and, combined with a larger customer base, creates a critical mass of program participants. More customers also bring more potential publicity for the loyalty program.

From a product resources perspective, high-share brands are likely to have a more diverse product portfolio and wider distribution channels to which consumers have access. In the airline industry, for example, major airlines offer more routes to more destinations than their smaller opponents. This creates more opportunities for earning program currency and again increases the relevance of the program to consumers (Nako 1992; O'Brien and Jones 1995). Furthermore, high-share brands may have an advantage when program rewards are in the form of free or discounted products. With the exception of niche luxury brands, a free product from a larger brand is likely to be perceived as more valuable than that from a smaller brand (Kopalle and Neslin 2003). The diverse product portfolio likely to be offered by a high-share brand also increases the variety of redemption choices. Whereas the actual redemption choices available to consumers are limited by program design, a diverse product portfolio still gives high-share firms more options to consider when designating which products to offer as rewards. Finally, high-share firms also possess the critical mass to draw strategic program partners, as in the case of major airlines offering a wide range of rewards, from free hotel nights to magazines and retail gift certificates. This increases the appeal of the programs. With the help of all these complementary resources, we expect that the impact of a loyalty program is greater for a firm with a higher market share than for a firm with a lower market share. Thus:

> H_1: The impact of a loyalty program is affected by a firm's market share, such that a program offered by a high-share firm has a greater impact on the firm's sales than a program offered by a low-share firm.

Market Saturation Effect

We further argue that the impact of a loyalty program is limited by competitive offerings in the market. From a consumer utility perspective, a loyalty program offers additional return in the form of rewards and thus shifts the distribution of value among competing firms in favor of the loyalty program firm. If competing firms do not adjust their strategies accordingly, this can create a redistribution of consumers in the market. However, if the market offers many rival loyalty programs, the novelty and value advantage of a single program diminishes. Moreover, the accumulated points consumers have in other programs become barriers to switching because consumers must either forsake those points or delay their progress toward a reward because of divided efforts among multiple programs (Kim, Shi, and Srinivasan 2001). This is referred to as the lock-in effect of loyalty programs (Sharp and Sharp 1997). The lock-in effect makes it more difficult for a firm to excel over competition in its value proposition by offering a loyalty program. Although this may not affect loyalty programs as a viable strategy for an industry as a whole, at the firm level, the impact of a loyalty program is likely to decrease as a result of market saturation.

From a strategic resources perspective, a loyalty program loses its position as a unique resource when such programs become more commonplace in the market. This view is consistent with Day (1994), who emphasizes the importance of "distinctive" capabilities in securing a unique and superior market position. Scarcity of a capability is a necessary condition for the capability to become a source of competitive advantage and for the durability of such advantages. In line with this thinking, when many competitors offer loyalty programs, the distinct value the program provides to each firm should diminish. Thus:

H_2: The sales impact of an individual loyalty program diminishes with the level of saturation of loyalty programs in the marketplace.

Study 1

Data

We test our hypotheses using data from the airline industry. We selected this industry context for a few reasons. First, as the pioneer of modern loyalty programs, the airline industry is still the current market leader in terms of loyalty program enrollment, claiming a total membership of more than 254.4 million in 2006 (Ferguson and Hlavinka 2007). Many loyalty programs in other industries have been modeled after the airline industry, using similar program design and reward structures. Second, there is intense competition among airlines' loyalty programs as a result of the large number of programs offered, making it an ideal context for studying loyalty program competition. Furthermore, because frequent-flier programs are designed similarly across airlines, it helps control for program design factors and isolate the effect of competition. Finally, a longer loyalty program history and more publicly available statistics from the airline industry also offer rich data to study these programs. Because a majority of previous studies in this area have focused on the retail industry, our focus on the airline industry broadens the scope of loyalty program research.

Our analysis covers 22 publicly traded airlines in the United States over the course of 31 years (1975–2005). For each airline, we identified the availability and launch of its loyalty program from sources such as company Web sites, public release, annual reports, business news, and other public databases. Of the 22 airlines, 15 offered a loyalty program. The earliest one was American Airlines' AAdvantage program, which was launched in 1981, and the most recent one was Big Sky Airlines' MVP Club, which was established in 2004. In addition to loyalty program information, we obtained the airlines' financial data from COMPUSTAT; revenue passenger miles (RPMs), capacity, and segmentation data from the Bureau of Transportation Statistics; and airfare information from the Air Transport Association.

The Model

To test our hypotheses, we modeled the impact of loyalty programs and competitive factors on each airline's annual sales as in Equation 1:

$$(1)\quad Sales_{it} = \alpha_0 + \alpha_1 LP_{it} + \alpha_2 LP_{it} \times MS_{i(t-1)} + \alpha_3 LP_{it} \times Sat_t + \alpha_4 Adv_{it} + \alpha_5 Price_t + \alpha_6 Sales_{i(t-1)} + e_{it},$$

where

$Sales_{it}$ = firm i's annual inflation-adjusted sales in dollars at time t (t – 1),
LP_{it} = 1 if firm i has a loyalty program at time t and 0 if not,
$MS_{i(t-1)}$ = size of firm i as measured by its market share (ratio of its RPMs to industry RPM total) at the end of time t – 1 (i.e., at the beginning of t),
Sat_t = loyalty program saturation at time t as measured by the combined market share covered by all loyalty program–offering firms in the marketplace,
Adv_{it} = firm i's inflation-adjusted spendings on advertising and promotion in dollars during time t,
$Price_t$ = average inflation-adjusted airfare in dollars reported for time t, and
e_{it} = the residual term.

The first dummy variable, LP_{it}, represents the pure effects of firm i's own loyalty program without any competition, and its coefficient, α_1, should be positive if a loyalty program is indeed effective in boosting the offering firm's sales. We capture the size effect (H_1) by the $LP_{it} \times MS_{i(t-1)}$ interaction term. To reduce correlation with sales, we used the airlines' RPMs to derive market share. The Bureau of Transportation Statistics defines an RPM as "one revenue passenger transported one mile in revenue service" (http://www.transtats.bts.gov/Glossary.asp); this is a better indicator of an airline's weight in the passenger travel market. We calculated each airline's market share at time t by dividing its domestic RPMs at time t by industry total for that period. Because larger firms are expected to benefit more from their loyalty programs, the coefficient for this interaction term (α_2) should be positive. The $LP_{it} \times Sat_t$ interaction represents the moderating effect of market saturation (H_2). We operationalized saturation as the sum of market shares of all firms that had a loyalty program at time t. In other words, Sat_t represents the portion of the market that is covered by loyalty programs at time t. Thus, the interaction between LP_{it} and Sat_t indicates the dilution of firm i's program impact due to saturation of loyalty programs in the marketplace and is expected to have a negative effect on sales (i.e., $\alpha_3 < 0$).

In addition to loyalty program and competition-related variables, we included two control variables: Adv_{it} represents firm i's advertising and promotional spending, and $Price_t$ controls for the effect of price fluctuation. Because historical data on individual airlines' prices are not available, we used the inflation-adjusted average passenger airfare, as reported by the Aviation Transportation Association. Finally, the model also contained a lagged sales term to capture the effects of past sales on the current period.

Model Estimation

Because a firm's decision to launch a loyalty program may be affected by the firm's past sales and/or factors that simultaneously drive sales, the LP_{it} variable may be endogenous. This can lead to incorrect estimates. To address this issue, we followed Wooldridge's (2002) recommended approach and used instrumental variables, whose requirements are that they can explain LP_{it} but have minimal correlation with the original model residual. Specifically, we used two lagged instrumental variables: load factor and market concentration. The airline industry uses the first variable, load factor ($LoadFactor_{it-1}$), to indicate the extent to which an airline's available capacity is occupied by paid passengers. It is calculated as the ratio of the airline's RPMs to the airline's total available seat miles. Because an airline with a low load factor (i.e., more vacant capacity) is likely to have more room for reward travel and to be more eager to fill its seats, we expect that load factor affects loyalty program launch negatively.

The second instrumental variable, market concentration (HHI_{it-1}), measures the extent to which a market is dominated by a few large firms and is often calculated as the Hirschman–Herfindahl index (HHI) in the economics literature (Kwoka 1977). The HHI is the sum of squared market shares for all firms in the market and is bound between 0 and 1 in its normalized form. A high HHI indicates low competitive intensity, and a low HHI indicates high competitive intensity. Although an HHI could be calculated for the entire airline industry, this industry HHI would not be helpful to us, because it would be the same for all airlines and would not explain differences in firms' loyalty program launch decisions. Therefore, we calculated segment-level HHIs. The Bureau of Transportation Statistics segments airlines according to their sizes and operational regions. Using this segmentation, we identified all airlines operating in each segment, calculated the yearly segment share of each airline using RPMs, and then derived the normalized HHI for each segment in each year. Prior research has suggested that stronger competitive intensity is likely to induce the establishment of loyalty programs (Leenheer and Bijmolt 2008). Therefore, we expect that a low level of HHI (i.e., high competitive intensity) leads to more loyalty program launch.

Following Wooldridge's (2002) recommended two-stage least squares approach, we first regressed the two instrumental variables together with the other independent variables from the main model on LP_{it}. A unique nature of the LP_{it} variable is that it is only endogenous in some cases. This is because when a loyalty program is launched, it is likely to continue for the following years. Therefore, although the decision to launch a loyalty program may be endogenous, the LP_{it} following a program launch becomes a constant and thus is no longer endogenous (Wooldridge 2002). To accommodate this, we constrain LP_{it} to 1 if firm i had a loyalty program before time t and used the instrumental variables only for the cases in which a loyalty program did not already exist before time t, as shown in Equation 2:

$$(2)\quad LP_{it} = \begin{cases} \beta_0 + \beta_1 LoadFactor_{it-1} & \\ \quad + \beta_2 HHI_{it-1} + \beta_3 MS_{i(t-1)} & \\ \quad + \beta_4 Sat_t + \beta_5 Adv_{it} & \\ \quad + \beta_6 Price_t + \beta_7 Sales_{i(t-1)} & \text{if } LP_{i(t-1)} = 0 \\ 1 & \text{if } LP_{i(t-1)} = 1 \end{cases}.$$

In the second stage, we used the predicted values for LP_{it} in lieu of the original values to estimate the main model (Leenheer et al. 2007). Because our data were both cross-sectional and longitudinal in nature, we estimated our model using panel regression, which accounts for firm idiosyncrasies.[1] Two approaches are often used in panel regression: fixed-effects models and random-effects models (Wooldridge 2002). Fixed-effects models estimate a firm-specific constant to captures firm heterogeneity, whereas random-effects models assume that firm variations are randomly distributed across the population. In general, random-effects models are more efficient but can lead to biased estimates when firm-specific effects are correlated with other regressors in the model. In such cases, fixed-effects models are needed to obtain consistent results. We used the Hausman (1978) test to detect the appropriateness of fixed- versus random-effects specifications, which suggests that fixed-effects panel regression was more appropriate for our data ($\chi^2 = 23.57$, $p < .001$). Consequently, we fitted a fixed-effects model. Furthermore, to eliminate collinearity among the predictor variables in the model, we mean-centered all variables in the interaction terms (for the correlation matrix, see Table 1).

Results

Table 2 shows the results for both stages of regression. The R-square for the first-stage model was .82. Both instrumental variables had a low and insignificant correlation with the residuals from the original model (for load factor, r = .03, and for market concentration, r = .06; *p*s > .3), suggesting that they were appropriate choices as instrumental variables. As we expected, load factor had a significant, negative effect on loyalty program launch ($\beta_1 = -.42$, $p = .02$). Market concentration also had a negative effect on LP_{it} ($\beta_2 = -.09$, $p = .04$), suggesting that the decision to launch a loyalty program is more likely under more intensively competitive environments.

The R-square for the second-stage model was .97. The results showed an insignificant coefficient for LP_{it} ($\alpha_1 = .01$, $p = .69$). Because we mean-centered the interactions, this coefficient represents the main effect of loyalty program when the other interacting variables are at their mean

[1]Firms can also be affected simultaneously by events from a specific year, leading to correlated errors across firms. This could create biased estimates. To determine whether this was the case, we estimated a two-way fixed-effects model that takes into account both firm- and time-specific effects. The substantial findings remained the same. Here, we report the results from the one-way fixed-effects model, because the two-way model makes it impossible to estimate the effect of the firm-invariant price variable.

TABLE 1
Correlation Matrices

A: Study 1

	$Sales_{it}$	LP_{it}	$LP_{it} \times MS_{i(t-1)}$	$LP_{it} \times Sat_t$	Adv_{it}	$Price_t$	$Sales_{i(t-1)}$
$Sales_{it}$	1						
LP_{it}	.09$^{n.s.}$	1					
$LP_{it} \times MS_{i(t-1)}$	.13**	.19***	1				
$LP_{it} \times Sat_t$	.06$^{n.s.}$	.11*	–.24***	1			
Adv_{it}	.57***	.35***	.18***	.10$^{n.s.}$	1		
$Price_t$	.00$^{n.s.}$	.00$^{n.s.}$	.00$^{n.s.}$	.00$^{n.s.}$	.00	1	
$Sales_{i(t-1)}$	.76***	.15**	.33***	.10$^{n.s.}$	.83***	.00$^{n.s.}$	1

B: Study 2[a]

	$Frequency_{ij}$	LP_{ij}	$LP_{it} \times MS_j$	$LP_{it} \times Sat_i$	$LP_{ij} \times Sat_i \times Expandibility_i$	$Loyalty_{ij}$
$Frequency_{ij}$	1					
LP_{ij}	.20***	1				
$LP_{it} \times MS_j$	.11***	.07**	1			
$LP_{it} \times Sat_i$	.08***	.76***	.09***	1		
$LP_{ij} \times Sat_i \times Expandibility_i$	.11***	.56***	.04$^{n.s.}$	.75$^{n.s.}$	1	
$Loyalty_{ij}$	.28***	.55***	.18***	.13***	.12***	1

*$p \leq .05$.
**$p \leq .01$.
***$p \leq .001$.
[a]Some of the correlations reported here are relatively high. The mean-centering approach we used has been criticized for not necessarily solving multicollinearity. An often-used alternative approach is to orthogonalize the interaction terms by regressing each interaction term on its composing variables and using the residuals in the main regression (Burrill 1997). This orthogonalization approach yielded similar findings for our model. Here, we report the results from the mean-centering approach because it allows for simpler interpretation and testing of linear combinations of regression coefficients.
Notes: n.s = not statistically significant.

TABLE 2
Standardized Model Estimates

A: Study 1

First Stage		Second Stage	
Variables	**Coefficients (t-Values)**	**Variables**	**Coefficients (t-Values)**
$LoadFactor_{i(t-1)}$	–.42* (–2.39)	LP_{ij}	.01$^{n.s.}$ (.40)
$HHI_{i(t-1)}$	–.09* (–2.05)	$LP_{ij} \times MS_j$	.10*** (5.84)
$MS_{i(t-1)}$	–.71*** (–5.69)	$LP_{ij} \times Sat_i$	.03$^{n.s.}$ (1.37)
Sat_{it}	–.07$^{n.s.}$ (–1.05)	Adv_{it}	.22*** (6.85)
Adv_{it}	.74*** (6.93)	$Price_t$	–.24*** (–9.95)
$Price_t$	–.39* (2.42)	$Sales_{i(t-1)}$	.34*** (10.08)
$Sales_{i(t-1)}$	.03$^{n.s.}$ (.64)		
Adjusted R^2	.82	Adjusted R^2	.96

B: Study 2

First Stage		Second Stage	
Variables	**Coefficients (t-Values)**	**Variables**	**Coefficients (t-Values)**
$LoyaltyProne_i$	–.06** (–2.49)	LP_{ij}	.17*** (3.35)
MS_j	.02$^{n.s.}$ (.91)	$LP_{ij} \times MS_j$	.08*** (3.45)
Sat_i	.23*** (9.87)	$LP_{ij} \times Sat_i$	–.16** (–3.03)
$Expandability_i$	–.01$^{n.s.}$ (–.35)	$LP_{ij} \times Sat_i \times Expandability_i$	.11** (4.78)
$Loyalty_{ij}$	.15*** (6.28)	$Loyalty_{ij}$	.16*** (3.16)
Adjusted R^2	.08	Adjusted R^2	.12

*$p \leq .05$.
**$p \leq .01$.
***$p \leq .001$.
Notes: n.s. = not statistically significant.

levels. In other words, our finding means that loyalty programs had no significant effect on sales at an average market share (5.6% in our case) and with program saturation at the mean level (60.6% of market). It is possible to transform this coefficient into an absolute effect when the values of the moderator variables are zero. This also revealed an insignificant effect of LP_{it} ($F < 1$). Overall, loyalty programs by themselves did not create incremental sales for the airlines.

In contrast, the coefficient for $LP_{it} \times MS_i$ was significant and positive ($\alpha_2 = .10$, $p < .001$), in support of H_1. When we combine this finding with the insignificant main effect of LP_{it}, the results suggest that firms in a parity competitive position do not benefit significantly from their loyalty programs. Only when firms have a larger market share and, therefore, a superior combination of complementary resources do loyalty programs become a beneficial strategy, at least from an incremental sales perspective. To understand the size of this effect, we turn to the unstandardized regression coefficient, which shows that a 1% increase in market share from the average of 5.6% brings a loyalty program–induced annual sales lift of $309.57 million (in 2005 dollars). Although this magnitude of gain is impressive, it is necessary to consider it in the context of the airline industry, which typically reports large sales figures. For example, Continental Airlines, which had an 8.6% share in the passenger travel market in 2005, reported total sales of $11.21 billion. Using the results from our model, we can infer that $928.71 million (8.28%) of its sales may be attributed to its loyalty program. Table 3 lists the effect size for the top six airlines.

Although the gains from loyalty programs for high-share firms are large, H_2 predicted that the concurrent existence of other loyalty programs should lessen the impact of a firm's loyalty program as a result of market saturation. We captured this moderating effect of market saturation with the $LP_{it} \times Sat_t$ term. Contrary to prediction, however, our analysis revealed an insignificant coefficient of the interaction term ($\alpha_3 = .03$, $p = .17$). This is surprising. Despite much speculation that the prevalence of loyalty programs essentially creates a zero-sum game, our findings show that saturation of frequent-flier programs does not significantly mitigate the effects of such programs. We explore this anomaly further in Study 2.

For the control variables, we found the expected positive effect of advertising and promotion ($\alpha_4 = .22$, $p < .001$), consistent with the notion that a firm benefits from spending on advertising and promotional activities. As we also expected, the price variable had a significant, negative effect on sales ($\alpha_5 = -.24$, $p < .001$). The coefficient for the sales lag variable was significant and positive ($\alpha_6 = .34$, $p < .001$). Because the coefficient was lower than 1, it suggests that the impact of past sales diminishes over time, consistent with observed sales patterns in previous research (Hanssens, Parsons, and Schultz 2001).

Discussion

Study 1 found an insignificant main effect of loyalty programs on airline sales. Instead, the results suggest that a loyalty program has a positive impact only when the offering firm's market share is relatively high, consistent with our notion that firms need complementary resources to derive competitive advantage from their loyalty programs. A surprising finding from the study is that market saturation did not significantly reduce the effectiveness of loyalty programs. This may explain the proliferation of loyalty programs in the airline industry. Four of the airlines we studied launched their loyalty programs after 2000. Although this finding lends support to such practices, it is unclear why loyalty programs did not become a zero-sum game, as prior research has predicted. Does the rule of scarcity not apply to loyalty programs? Are there other variables that might have mitigated the negative effect of saturation? We answer these questions in Study 2. Study 2 also addresses a limitation in Study 1 that resulted from the use of firm-level aggregate data. Because airlines can derive revenues from other business areas, the sales figures may be affected by confounding factors from those areas.

Study 2

Overview

The goals of Study 2 were twofold: to test the robustness of the findings from Study 1 with a dependent variable other than firm-level sales and to identify the factors that might have mitigated the effect of market saturation. Specifically, we consider the contingency effect of category expandability (Kopalle and Neslin 2003), which refers to the presence of alternative product choices outside a category (e.g., other modes of travel). Using game-theoretic modeling, Kopalle and Neslin (2003) conclude that loyalty programs are more appealing in expandable markets because they can help the offering firms draw demand from outside the category.

TABLE 3
Effect Size of Loyalty Programs for Top Six Airlines in 2005

Airline	Sales (in Millions of Dollars)	Market Share (%)	Inferred Sales Gain from Loyalty Program (in Millions of Dollars)	% of Sales Gain
American	20,712	17.40	3,652.93	17.64
United	17,379	14.37	2,715.43	15.62
Delta	16,191	13.05	2,305.40	14.24
Northwest	12,286	9.55	1,222.26	9.95
Continental	11,208	8.60	928.20	8.28
Southwest	7,584	7.59	615.91	8.12

Applied to the saturation effect, if a product category is highly expandable, it can be surmised that saturation will be less of a threat because loyalty programs can still help firms compete effectively against alternative offerings from other industries. In other words, a highly expandable market opens up the boundary of competition, and as a result, prevalent resources within the narrow market can still lead to competitive advantage if the resources are scarce in other parts of the wider market.

Kopalle and Neslin (2003) test the category expandability effect at an industry-subgroup level using combined performances of all major airlines. They find continuing benefits of frequent-flier programs for the major airlines as a whole even when multiple programs were offered, which they attribute to the ability of these programs to defend major airlines against new low-cost entrants. In this research, we extend their study to examine the effect of category expandability on individual loyalty programs. We further argue that though category expandability was originally suggested as a market-level characteristic, its effect also exists at the individual level. Because of individual preferences (e.g., fear of flying) and purchase habits (e.g., traveling very little), the expandability of a product category may differ among consumers. For consumers with high category expandability, loyalty programs can draw demand from other categories. Consequently, enrolling in multiple programs may not necessarily erase the influence of an individual program on these consumers. In contrast, for consumers whose market boundaries are more rigid, the saturation effect should be more pronounced as multiple programs compete for a fixed demand. Thus:

> H_3: The market saturation effect specified in H_2 is more pronounced for consumers with low category expandability than for consumers with high category expandability.

Data

To collect the data for this study, we conducted an online survey of a convenience sample of 166 consumers. The sample comprised 48.8% men and 51.2% women. The age of the respondents varied between 19 and 54 years, with an average age of 24.35 years. The median household income was between $50,000 and $74,999. These consumers traveled an average of 3.32 times per year. For the mode of air travel, the average frequency was 1.36 times per year. A majority (82.6%) of the respondents said that they travel mainly for personal reasons. An equal number of the other consumers reported that they mainly travel either for business reasons or for a mixture of personal and business reasons. To avoid overwhelming consumers, our survey focused on the top 11 U.S. airlines, all of which offered a loyalty program. The respondents reported their frequency of flying with each of these airlines in the past year and their membership in the airlines' loyalty programs. For each airline, we also measured the consumers' attitudinal loyalty using Chauduri and Holbrook's (2001) two-item scale. The scale asked consumers how committed they are to an airline and the extent to which they are willing to pay more for flying with an airline over other airlines. We measured these responses on eight-point semantic differential scales and averaged the responses to the two items to form an overall attitudinal loyalty score ($\alpha = .75$).

We operationalized category expandability by measuring consumers' purchase frequency in the travel "supercategory" (including air and other modes of travel) in a typical year. The rationale is that consumers who have higher demand for a supercategory (i.e., travel) offer more room for the subcategories (i.e., air travel) within the supercategory to expand. In other words, for frequent travelers, there are more opportunities for airlines to expand into alternative travel options than for consumers who travel infrequently and thus have a more rigid demand for air travel. Our approach is consistent with prior research that shows increased portfolio size under higher category purchase rates (Colombo and Jiang 2002). We used a median split to convert each consumer's travel frequency into an expandability indicator.

The Model

To avoid the confounding influences on sales that we discussed previously, in this study, we used purchase frequency as the dependent variable. We show the model in Equation 3:

$$(3)\quad \text{Frequency}_{ij} = \alpha_0 + \alpha_1 LP_{ij} + \alpha_2 LP_{ij} \times MS_j + \alpha_3 LP_{ij} \times Sat_i + \alpha_4 LP_{ij} \times Sat_i \times \text{Expandability} + \alpha_5 \text{Loyalty}_{ij} + e_{ij},$$

where

Frequency_{ij} = the number of times consumer i flew with airline j in the past year,
LP_{ij} = 1 if consumer i belongs to airline j's loyalty program and 0 if not,
MS_j = airline j's market share during the reference period of the survey (taken from Study 1 data),
Sat_i = total number of frequent-flier programs consumer i is enrolled in (i.e., program saturation),
Expandability_i = 1 if category expandability is high for consumer i and 0 if low, and
Loyalty_{ij} = consumer i's self-reported attitudinal loyalty to airline j.

To accommodate systematic variations within consumers and within airlines, we adopted an approach similar to panel regression by specifying the residual structure as in Equation 4:

$$(4)\quad e_{ij} = v_i + u_j + \varpi_{ij},$$

where v_i represents the systematic effect for consumer i, u_j is the systematic effect associated with airline j, and ϖ_{ij} represents random error.

The coefficient for LP_{ij} shows the main effect of a loyalty program. Similar to Study 1, the $LP_{ij} \times MS_j$ interaction represents the size advantage we predicted in H_1, and we expect its coefficient to be positive. We capture the saturation effect by the interaction between LP_{ij} and Sat_i and the three-way interaction among LP_{ij}, Sat_i, and Expandability_i. The coefficient for the $LP_{ij} \times Sat_i$ term, β_3, symbolizes the saturation effect when category expandability is low (i.e.,

$\text{Expandability}_i = 0$). We expect it to be negative as a result of the market saturation effect (H_2). The three-way interaction represents the difference in saturation effects under high versus low category expandability (i.e., $\text{Expandability}_i = 1$). If high category expandability truly mitigates the saturation effect, as we predicted in H_3, the coefficient for this interaction should be positive.

Similar to Study 1, the model specified in Equation 3 may have an endogeneity problem because a consumer who travels more often with an airline may be more likely to join that airline's loyalty program. To address this self-selection issue, we again estimated the model using two-stage least squares, as in Study 1. Consumers' relationship proneness served as an instrumental variable, which we measured with two items: "I tend to buy things from the same companies," and "I prefer to buy from a company that knows me personally." We averaged these two items to form the relationship proneness score (RelationProne_i). In the first stage, we estimated Equation 5, which included the instrumental variable and all variables from the main model. We then used the predicted value for LP_{ij} in the second-stage regression:

$$(5)\quad LP_{ij} = \alpha_0 + \alpha_1 \text{RelationProne}_i + \alpha_2 MS_j + \alpha_3 Sat_i + \alpha_4 \text{Expandability}_i + \alpha_5 \text{Loyalty}_{ij} + \xi_{ij}.$$

Results

Table 2 provides the estimates from both stages of regression. The R-square for the first-stage model was .08. The results show a negative effect of relationship proneness on loyalty program membership ($\alpha_1 = -.06$, $p = .01$). We expected this finding because consumers who have the tendency to develop deeper relationships with firms are less likely to shop among many loyalty programs or to rely solely on loyalty programs as incentives for doing business with a firm. Further confirming the suitability of our choice of instrumental variable, relationship proneness had an insignificant correlation ($r = -.02$) with the residuals from the original model when we did not account for endogeneity (Wooldridge 2002). Not surprisingly, our data also showed a significant effect of attitudinal loyalty on loyalty program membership ($\alpha_5 = .15$, $p < .001$).

The second-stage model accounted for 12.17% of the variance in the dependent variable (for the correlation matrix, see Table 1, Panel B). The results showed that membership in an airline's loyalty program contributed positively to the frequency of flying with the airline ($\beta_1 = .17$, $p < .001$). Although this differs from the insignificant loyalty program main effect we found in Study 1, recall that this survey was based on the 11 largest airlines. Therefore, from the market share advantage perspective, this subset of airlines is more likely to benefit from loyalty programs. In support of this market share hypothesis (H_1), our analysis revealed a positive coefficient for the $LP_{ij} \times MS_j$ interaction term ($\beta_2 = .08$, $p < .001$).

Consistent with H_2, a significant, negative effect of the $LP_{ij} \times Sat_i$ interaction emerged ($\beta_3 = -.16$, $p = .002$), suggesting that market saturation dilutes the impact of individual loyalty programs when category expandability is low. Furthermore, the $LP_{ij} \times Sat_i \times \text{Expandability}_i$ term was significant and positive ($\beta_4 = .11$, $p = .002$). A test of the combined coefficients for the two interaction terms after we adjusted for mean centering revealed an insignificant overall effect ($F = 1.33$, $p = .25$) on high-category-expandability consumers. Combined with the insignificant effect of market saturation from Study 1, our results indicate that there may be a significant portion of consumers with high category expandability in the air travel market and that the demand for air travel is relatively flexible. Overall, H_3 was supported. Our results provide further proof to Kopalle and Neslin's (2003) proposition that loyalty programs are more viable in expandable markets. Beyond a possible "me-too" motivation, loyalty programs are appealing to airlines even under high saturation because they enable airlines to compete effectively with other substitutes (including other modes of transportation and the choice of not traveling at all).

As we would expect, the coefficient for the attitudinal loyalty variable was significant and positive ($\beta_5 = .16$, $p < .001$), suggesting a positive effect of brand loyalty on consumer patronage behavior. When we eliminated the loyalty variable from the model, the coefficient for the LP_{ij} variable increased, suggesting that the effects of a loyalty program are partially mediated by enhanced attitudinal loyalty toward the offering firm (Baron and Kenny 1986). However, that the presence of attitudinal loyalty in the model did not completely eliminate the effect of loyalty program membership suggests that a loyalty program also directly affects consumer behavior beyond attitudinal loyalty, possibly in the form of pure economic incentives.

Effect Size

To understand the magnitude of loyalty program effects, we used an approach similar to that of Leenheer and colleagues (2007), comparing a consumer's frequency of flying with an airline with a simulated situation in which the consumer does not belong to the airline's frequent-flier program. Across all consumers, the frequency lift as a result of membership in a loyalty program was 4.24%. The size of the frequency lift varied across airlines, from a negligible .03% for Frontier Airlines (the smallest in the group) to 11.57% for Southwest Airlines. Overall, the magnitude of frequency lift attributable to loyalty programs traced closely to the rankings of the airlines based on their market share. To observe how much saturation could dilute the frequency gain induced by an individual loyalty program, we simulated the scenario in which we increased each consumer's total loyalty program count by one. Across all consumers, this additional program reduced the average frequency lift from loyalty programs to 2.3%. When we split the sample by category expandability, the frequency lift for the low-expandability group reduced to only 1.08%, whereas the frequency lift for the high-expandability group remained almost unchanged at 3.80%.

Discussion

Conclusions

Loyalty programs are an important customer relationship management tool. However, the proliferation of such pro-

grams in the marketplace has spawned intense competition among rival programs. In contrast to this market reality, existing studies of loyalty programs have often considered a single program in isolation and have ignored the effects of competition on program performance. Addressing this gap in the literature, we draw from the resource-based view of the firm and identify competitive factors that affect the success of loyalty programs. We argue that as a competitive firm resource, a loyalty program needs other complementary resources to realize its value fully and to create competitive advantage. In support of this view, our two studies showed that loyalty programs did not always lead to beneficial outcomes for the offering firm and that only high-share firms experienced sales lifts from their loyalty programs. Because high-share firms tend to possess complementary product and customer resources, they are more likely to gain from their loyalty programs than firms with a smaller market share.

Our research also reveals that crowding the marketplace with loyalty programs can diminish the return of an individual program. Although this finding may not be particularly surprising, we also find that this saturation effect is contingent on the expandability of the product category. Market saturation has a negative effect under low category expandability, but its effect disappears under high category expandability. When the products from one industry can be extended to meet the demands in related industries, the competitive landscape shifts to include not only competitors within an industry but also firms in those related industries. From this broader perspective, although the imitation of loyalty programs among competitors makes it a common resource within the focal industry, such resources can still derive competitive advantage within the broader market if competitors in alternative categories do not yet possess such resources. Under this situation, saturation becomes less of a threat to the success of each individual program in the focal industry. Because of the airline industry's relatively high category expandability, the overall effect of market saturation becomes insignificant.

Our results can explain some of the mixed findings in the loyalty program literature. Although existing research does not offer enough information for us to assess market saturation, in general, the firm size and category expandability explanations we advanced in this study are consistent with prior findings. For example, the two firms (Kmart and Shell) found to have benefited from the Fly Buys program in Sharp and Sharp (1997) both had the leading share in their respective product category. As another example, in Leenheer and colleagues' (2007) study of seven loyalty programs in the grocery retail industry, in general, the more effective programs were offered by top firms in terms of market share. Although two low-share retailers also experienced a large increase from having a loyalty program, they offered either a significantly higher reward ratio (4%) or a higher discount rate (9%) than their rivals, thus possibly overcoming their disadvantageous positions caused by low market share. Similarly, in Meyer-Waarden and Benavent's (2006) study of six grocery stores, the three stores that benefited from their loyalty programs all belonged to the top two chains in the area.

Our category expandability finding also explains the success of some loyalty programs documented in prior research. For example, Drèze and Hoch (1998) examine a category-specific loyalty program within a supermarket chain. The program was targeted at health and beauty care products, which the researchers argued to be an underdeveloped area in the supermarket industry and on which the industry was losing market share to retailers outside the industry. This may have contributed to the tremendous success of the program by defending the supermarket and drawing demand from industry outsiders. In another study, Lewis (2004) finds that an online retailer's loyalty program increased consumers' transaction size. As a fast-growing medium, online retailing represents a highly expandable category that is quickly displacing traditional channels. Loyalty programs offered in this new channel make it even more appealing to consumers and encourage them to buy more from this channel rather than from traditional stores.

Managerial Implications

When a strategy is proved to be successful by some firms, it is easy for other firms to be tempted to follow the fad and copy the strategy in their own situation. Our study cautions against an urge to launch a loyalty program simply because every other competitor is doing so. Rather, a firm that is pondering the launch of such a program in an already-saturated market should carefully consider the flexibility of market demand and whether important resources exist to complement such a program. If market demand is flexible, either because demand can be stolen from related industries or because additional demand can be stimulated from consumers (Nunes and Drèze 2006), saturation will be less of an issue, and loyalty programs can still be a viable strategy for expanding the firm's business. In contrast, in a rigid market in which firms compete for a limited, fixed set of demand, offering more loyalty programs functions at best as a defense mechanism (Sharp and Sharp 1997), and their incremental contribution to the bottom line will be limited. The end result will be a zero-sum game for the industry.

For larger firms, such a defensive move can still be valid because it may be more important or realistic for such firms to maintain a dominant market share rather than trying to increase sales. However, when the focus is more on growth, such as in the case of a relatively new brand, rather than launching a loyalty program, the firm will be better off examining its existing resources or identifying other resources it can acquire at a relative cost advantage. This exercise may reveal resources and capabilities, such as superior customer service, that can add value to the firm's offerings and strengthen its relationship with customers. Because these resources may be less imitable than loyalty programs, they can offer the firm long-term competitive advantage. This strategic alternative is especially relevant to small players in the market because our analysis shows that these players lack the complementary resources to benefit truly from a loyalty program. Therefore, unless smaller players have a long lead time ahead of their larger rivals to gain a large program base (an unlikely scenario), such a program may not be a wise move.

A pragmatic matter in this strategic assessment of whether to launch a loyalty program is to determine how expandable the product category really is. In this research, we used consumers' overall travel frequency as a proxy for individual demand expandability. For industry-level assessments, however, this measure will have limited utility. Instead, firms can derive demand elasticity from consumer purchase data. Industry growth rate may also be helpful in this assessment. Alternatively, primary research can be conducted with consumers to understand the substitutability of various product categories.

For a firm that already operates a loyalty program, our research suggests that it is necessary to think beyond the design and management of the program itself. The success of a loyalty program depends on other aspects of the firm as well as market dynamics. Loyalty programs as a standalone mechanism do not necessarily bring competitive advantage but rather need a set of other resources to realize their value. To prevent a loyalty program from becoming a mundane resource, a firm should focus on building complementary resources (either internally or through external acquisition) to increase the appeal of its program. For example, technological and analytical capabilities can be combined with information gained from loyalty programs to enable one-to-one marketing to customers. The essential idea is to create a unique combination of resources that maximize the appeal of a loyalty program beyond economic incentives. When this occurs, although competitors can copy the loyalty program itself, they will lack the complementary resources to make the program equally competitive. For small firms that already have a loyalty program, their disadvantageous position means that they may need to try special tactics, such as increasing reward ratio and offering more reward redemption options, to remain competitive with their loyalty program offerings. Alternatively, they could seek less-size-sensitive resources (e.g., niche product positioning) that may enhance the value of their loyalty programs.

Limitations and Research Implications

We recognize a few limitations in our research that need to be addressed in future studies. First, our research covers only a small portion of the loyalty program framework we proposed. Many of the factors in the framework remain to be examined in further research. At the market level, for example, in addition to category expandability, factors such as the degree of market or customer wallet fragmentation and the presence of switching barriers (e.g., contractual versus noncontractual relationships) may influence the effectiveness of loyalty programs. Furthermore, the three sets of factors in Figure 1 are likely to interact with one another, which we did not consider in the current research. These questions are unlikely to be answered by a single study. Rather, a systematic research program is needed to identify the effects of these factors as well as their interactions, similar to the types of work described by Nunes and Drèze (2006).

Second, the context of our research may limit its generalizability to other industries. In particular, airlines' loyalty programs feature similar designs (e.g., no participation fee, similar reward requirements), and airlines themselves also offer similar services with low switching barriers. As a result, the market saturation effect we found in this study may be more applicable to industries with similar structures, such as hotel and credit card sectors. In an industry in which competitors and their loyalty programs are highly differentiated and switching barriers between programs are high, the saturation effect is likely to be lower than the current findings. The same applies to industries in which firm–customer relationships are usually contractual, such as in cell phone services. However, we expect category expandability to continue to play a role in moderating the effect of program saturation because it is a cross-category factor representing the flexibility in demand that enables firms from one product category to compete effectively with other product categories. The market share effect is also likely to hold because the need for complementary resources applies across industries. However, the magnitude of the effect may be smaller than our findings from Study 1. An important phenomenon in the airline industry is the sales of frequent-flier miles to third-party vendors, such as retailers, so that consumers can earn frequent-flier miles with their retail purchases (Nunes and Drèze 2006). Because those vendors are more likely to want to associate with a larger airline to attract customers, the market share advantage found in Study 1 may have been further boosted by these partnership choices. In an industry in which such partnerships do not exist, the market share advantage may be smaller. Further research using data from multiple industries will help generalize the effects studied here and understand how they may interact with industry structures.

Third, we examined the effects of loyalty programs without explicitly identifying the causes of some effects. The increases in airline sales and consumer purchase frequencies we found here could be attributed to various reasons. A classic explanation would be that the rewards motivated consumers to spend more because of the economic and psychological benefits we discussed previously. Alternatively, the increase may also be due to more effective marketing as a result of consumer intelligence gained through loyalty programs. Additional research is needed to examine how loyalty programs affect consumers' decision making as well as firms' business processes.

Finally, the aforementioned partnerships between firms from different industries in their loyalty program initiatives have gained popularity in recent years. In the airline industry, selling frequent-flier miles to such partners has even become a major revenue source for airlines (Ferguson and Hlavinka 2007). However, the effectiveness of this practice is still unestablished. Although the expansion of point accumulation and redemption choices through such partnerships may increase the appeal of a loyalty program and bring immediate financial gains, there may be negative consequences in the long run, such as diversion from the main purpose of the program (i.e., to increase consumer loyalty toward the focal firm) and contamination or dilution of brand images between the partnering firms. These need to be evaluated in further research.

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