

# **Retail loyalty program effects: self-selection or purchase behavior change?**

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## **ABSTRACT:**

In the retailing sector, consumers typically patronize multiple outlets, which means these outlets confront an important issue: how to gain a greater share of consumer expenditures. One potential method increases repeat purchases through loyalty schemes. This research examines the impact of loyalty programs on repurchase behavior in grocery stores and determines that loyalty programs target consumers who already buy in the store; heavier, more frequent, more loyal buyers of the store enroll in the loyalty program earlier; very small changes in buying behavior occur after buyers have joined the program; and the small changes in loyalty appear to erode six to nine months after buyers join.

Keywords: CRM, Loyalty program, Scanner panel, Survival analysis, MANOVA with repeated measures.

## **Introduction**

During the 1990s, many American and European grocery retailers established loyalty programs. According to ACNielsen (2005), more than 60% of European and American consumers belonged to at least one grocery store loyalty program in 2005, with double-digit growth rates in memberships (+11% per year). Furthermore, 70% of retailers planned to accelerate their customer retention activities (Reinartz 2005). Yet despite this intensive use, some practitioners posit that loyalty programs may be ineffective (Verhoef 2003). The industry thus desperately needs rigorous empirical evidence of the effectiveness of loyalty programs (Grewal, Levy, and Lehmann 2004), as crucial questions—does former purchase behavior drive loyalty program adoption, and once members are enrolled in them, do schemes really affect buying behavior?—remain unanswered.

This study provides empirical insights into the effects of loyalty programs in the non-contractual, highly competitive grocery retailing context, which is characterized by low retailer margins, weak reward values, and limited opportunities to increase customer value. Thus, we undertake a literature review pertaining to loyalty programs, then develop our conceptual framework and describe the methodology. We present the results, followed by a discussion and managerial implications. Finally, we conclude with limitations and suggestions for further research.

With regard to this article's empirical contribution, we base our reasoning on widely accepted concepts (Reichheld 1996; Gupta, Lehmann, and Stuart 2004), especially among practitioners, that have not been empirically tested. We measure loyalty schemes' self-selection effects on consumers and compare purchase behavior before and

after loyalty card subscription to determine whether programs induce a positive and durable effect. The self-selection effect has been tested empirically (Leenheer, Bijmolt, van Heerde, and Smidts 2007), but no before-and-after loyalty card subscription behavior comparison appears in existing literature, due to data and methodology limitations. Moreover, we provide a means to cope with these limitations by using longitudinal, market-wide scanner panel data of competitive purchasing (rather than cross-sectional data), matched with internal store information about individual loyalty program enrollment dates.

## **1. Literature review**

Academic marketing literature increasingly concentrates on customer relationships, a focus that is also apparent in marketing practice and in firms' significant investments in customer relationship management (CRM) systems (Gupta, Lehmann, and Stuart 2004; Reinartz and Kumar 2002).

Currently popular marketing tools for developing relationships, stimulating product usage, and retaining customers, loyalty programs can take different forms, but one of the most common involves card-based programs that enable clients to become members of the program and requires them to self-identify at every purchase occasion. In line with previous research (Sharp and Sharp 1997), we define a loyalty card program as an integrated system of individualized marketing actions that aims to make customers more loyal by developing personalized relationships with them and reinforcing their behavior. Loyalty schemes offer various rewards with the overall objective of lengthening customer relationships and stimulating (re)purchase behavior. Therefore, they generally base the rewards on cumulative buying and thereby institute switching costs. Psychological,

sociological, and relational drivers also may enhance customers' trust in and affective commitment to the firm (Morgan and Hunt 1994), and loyalty programs may induce feelings of pride about having "won" something without having to pay a normal price (Kivetz and Simonson 2002). Finally, consumers may appreciate rewards that relate to their sense of being preferred customers.

Although loyalty programs have attained prominent positions, empirical evidence about the managerial question of interest, that is, the strength and direction of their effects on customer behavior, remains limited and contradictory. Both Nako (1997) and Bolton, Kannan, and Bramlett (2000) find that loyalty programs positively influence company choice and, in turn, transaction values and volumes, resistance to counterarguments, price sensitivity, and retention rates. However, their results require cautious interpretation, because exit barriers in the industries they study, banking and airlines, are relatively high. Lewis (2004) and Taylor and Neslin (2005) suggest that retailer loyalty programs increase purchasing among a substantial proportion of customers, and Kivetz, Urminsky, and Zheng (2006) find that progress toward a reward can accelerate purchases.

Yet other researchers contend that programs that rely on the type of reward systems prevalent today are expensive to establish and maintain and that little or no evidence indicates that changes in behavior justify these expenditures. Competitive parity prevails in many retail markets, which makes it difficult for any firm to increase its market share (Dowling and Uncles 1997; Sharp and Sharp 1997; Uncles, Dowling, and Hammond 2003; Meyer-Waarden and Benavent 2006). Thus, Mägi (2003) and Leenheer et al. (2007) indicate mixed support for the impact of loyalty cards on customer share of wallet (SOW), and Benavent, Crié, and Meyer-Waarden (2000) and Meyer-Waarden (2002)

show that reward programs have only weak effects on purchase behavior, causing these authors to question the profitability of schemes that engage in massive card diffusion. Reinartz (1999), Meyer-Waarden (2007), Meyer-Waarden and Benavent (2009) similarly provide mixed support for the impact of loyalty cards on lifetimes. Finally, Leenheer et al. (2007) highlight the primary role of selection, and Liu (2007) points out differentiated effects of different segments in terms of purchase size.

Ambiguity in the results of these studies relates, at least partly, to the data and methodology limitations that hinder proper assessments of the effects of loyalty programs. Existing investigations have been realized with either aggregated panel data (Nako 1997; Sharp and Sharp 1997), which fail to take into account customer heterogeneity, or internal store data (Benavent et al. 2000; Bolton et al. 2000; Kivetz et al. 2006; Lewis 2004; Reinartz 1999; Taylor and Neslin 2005), which make only limited use of competitive information about purchasing behavior. Declarative or experimental survey data, as used by Mägi (2003), suffer well-documented reliability problems. In addition, existing investigations compare purchase behavior only between loyalty cardholders and non-loyalty cardholders, ignoring the positive relationship between loyalty program self-selection and previously heavy purchasing behavior (Leenheer et al. 2007). Moreover, no comparison exists of behavior before and after loyalty card subscription. Finally, existing research fails to consider the impact of the sectors, which makes generalizations of the results difficult. Differences between sectors pertain to two aspects: strategic (e.g., level of competition, growth opportunities) and program-specific (e.g., nature and amount of rewards).

We focus on the grocery retailing sector, which is highly competitive at the customer level (i.e., no switching costs, high benefit opportunities created by sales promotions) and offers only program rewards with low value, because retailers' margins are low. Customer value in this segment remains generally steady, and growth opportunities are limited. Therefore, this context creates an interesting management problem: The need for customer loyalty is evident, but the means for loyalty enhancement are weak.

## **2. Conceptual framework**

To understand loyalty programs' effectiveness, we must consider a two-way relationship. First, such programs may be attractive only for particular segments of buyers or for all consumers and thus may be adopted less or more quickly. By identifying those consumers who are attracted first, we can determine if loyalty schemes attract the heaviest and most loyal customers anyway, which is a general target of CRM. Second, after purchasers enroll, we recognize that loyalty programs may either change or not change their behaviors and thereby create loyalty or not.

However, the strength and direction of these effects should depend on the rewards offered, in that loyalty programs differ by sectors, especially in terms of structural isomorphism (Powell and Di Maggio 1982). Frequent flyer programs consist of two-tier systems with convex rewards schemes, such that heavier customers receive greater rewards than do others through multiplier miles-earning devices and better services. In contrast, grocery retailing programs employ single-tier, linear devices that treat all shoppers equally and reward them in proportion to their total expenses, with few other services (Kumar and Shah 2004). The only difference between retailers' offers is the

value of the points consumers can earn. Some researchers (Uncles et al. 2003) therefore wonder whether such programs actually reward loyalty to the program (program loyalty) rather than loyalty to the store (store loyalty).

Before focusing on possible loyalty program effects, we define the key theoretical constructs of interest, as reflected in our loyalty measures.

### *2.1. Loyalty and measures*

The three popular conceptualizations of loyalty have unique implications for loyalty program effectiveness measures: an attitudinal one (Dick and Basu 1994), a behavioral conceptualization (Ehrenberg 1988), and a contingency approach (Blackwell, Miniard, and Engel 2005). We consider mainly the behavioral and contingency approaches, because most store loyalty schemes reward repeat purchase behavior, not attitudes.<sup>1</sup> Therefore, our measures of interest are as follows.

Grocery retailer purchase processes belong to the “always a share” category (Dwyer 1989; Jackson 1985), in which switching costs are low, and customers rarely are fully loyal but instead buy from several stores, depending on contingency variables (e.g., situation, promotions, loyalty programs). Most people maintain competitive store repertoires, or the mean number of outlets they will visit during an observation period. However, consumers generally have a primary or focal store (East, Hammond, Harris, and Lomax 2000) in which they spend the majority of their share of wallet (SOW). We define SOW as the ratio of a customer’s purchases from a store to his or her total purchases and thereby integrate store choice behavior, attraction, and transaction values

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<sup>1</sup>Regardless of the drivers of loyalty (e.g., attitudes, switching cost, habits, behavior reinforcement), we focus on outcomes (“does it work?”), but we acknowledge it would be helpful to have a better understanding of how it works too.

during a specific time period. Other measures of interest include the mean basket size in a given store, determined by the average of one household's purchases in the outlet over the observation period, and buying frequencies, which indicate purchase intensity and attraction. The total category purchases by the household reflects the sum of all purchases in the entire category of outlets over the observation period. Finally, the number of consecutive switches to competitors' stores equals the average proportion of changes between consecutive purchases during the observation period.

## 2.2. *Loyalty program's self-selection effect*

Loyalty scheme enrollment may be analyzed as the adoption of an innovation (Rogers 1983), such that the speed of adoption relates to expected benefits and the level of investment. Early adopters therefore may distinguish themselves from those who subscribe to the program later in the diffusion process. In turn, an essential question regarding expected gains and costs arises, because buyers who experience different motivations likely do not devote equal efforts to obtain the rewards (Thaler 1985). Purchasers weight the value they expect to receive from a program against their associated expenses and adopt a loyalty program only if they judge the perceived utilities (e.g., financial advantages, privileges, points, relationship) as more valuable than the associated costs (e.g., joining expenses, risk of providing personal data to the firm, effort required to collect points, switching costs). From this perspective, a loyalty scheme, with its long-term, cumulative rewards, should attract heavy store purchasers first, because they buy enough to expect immediate and substantial benefits (compared with costs). Resistant consumers who adopt the card later should display lower levels of purchase, because their expected program utilities are probably smaller and the associated costs



higher. This argument supposes that consumers value the absolute gain more than the relative one, as suggested by the framing theory (Kahneman and Tversky 1981). The frame that a decision maker adopts is controlled partly by the formulation of the problem but also by the norms, habits, and personal characteristics of that decision maker. We therefore suppose:

P1. Customers who have (a) larger mean basket sizes and (b) higher SOW in a store join its loyalty program more readily and quickly than others.

The expected gain also may be valued according to an experience effect that integrates the theory of mental accounting. When a customer visits an outlet frequently, the uncertainty associated with the amount of the reward decreases, which increases the value of expected gratifications. Store choice decisions seem consistent with this argument. That is, if location is a basic criterion (Kahn and Schmittlein 1989), customers living closer to a point of sale who already shop there may derive higher benefits from the loyalty program, without requiring any changes in their behavior (Allaway, Berkowitz, and De'Souza 2003). In turn, a positive association should exist between card adoption and purchase intensity in the focal store prior to program membership. We therefore suppose:

P1. Customers who (c) have higher purchase frequencies in a given store and (d) live closer to a given store join its loyalty program more readily and quickly.

Adopting a loyalty program creates costs, because it requires changes to customers' habits and behaviors if they want to take advantage of the expected rewards, which may be even more salient when customers have high switching costs or are locked in by their existing large purchases in the focal outlet. Inversely, disloyal, opportunistic buyers who

regularly shop in several stores and who are members of all loyalty schemes (on average, a European household possesses three grocery retailing loyalty cards; ACNielsen 2005) are more experienced and suffer fewer costs. We therefore suppose:

P1. Customers who (e) engage in more consecutive store switches, (f) have bigger repertoires of competitive stores, (g) make larger total category purchases, and (h) participate in multiple loyalty program memberships join loyalty programs more readily and quickly.

### 2.3. *Loyalty program's impact on purchase behavior*

After a customer has enrolled in a loyalty program, that adoption should favor repeat purchase behavior if the program provides an adequate level of usefulness. The behavioral conceptualization of loyalty further suggests that loyalty schemes should create behavioral reinforcement (Rothschild and Gaidis 1981) rather than influence persuasion or long-term changes in attitudes and commitment. That is, satisfaction with purchases associated with the program, and any consequential habit formation, explain most of a person's ongoing propensity to buy again in a store. The contingency approach also suggests that a loyalty program should gain greater loyalty by responding directly to contingent factors (i.e., rewards, promotions, points.). If purchase loyalty gets created, it should first occur through a short-term "points pressure" impact and subsequently through a long-term "rewarded behavior" effect that results from the behavioral learning reinforcement provided by the gratification (Taylor and Neslin 2005). To the extent that the program sufficiently rewards store loyalty (i.e., utilities are higher than costs), repatronage should persist, and the purchase level should move above a baseline. In

contrast, compared with program members, nonmembers should display a similar baseline purchase level over all periods. We therefore suppose:

P2. (a) Mean store basket values, (b) store purchase frequencies, and (c) SOW should increase, whereas (d) store switching behavior and (e) purchase repertoires should decrease, after loyalty program enrollment.

The “rewarded behavior” effect might be transitory if these behavioral changes are not sufficiently rewarded or the loyalty programs are strongly associated with promotional devices (Blattberg and Neslin 1990), because customers might switch from less promoted programs to those with greater promotional activity (i.e., points pressure effect).<sup>2</sup> In this case, extant literature on the long-term effects of sales promotions shows that any additional sales are simply “borrowed” from competitors, and long-term purchase behaviors return to their initial level after gratification, because the proportion of new buyers who become loyal later is small or nonexistent (Ailawadi and Neslin 1998; Mela, Gupta, and Lehmann 1997).<sup>3</sup>

This general and classic argument must accommodate the preceding hypotheses by distinguishing two groups of customers. Early program adopters, who expect more benefits than costs, should be more subject to the reinforcement process and show a long-term “rewarded behavior” effect. In contrast, later adopters, who suffer more costs than utilities, probably do not adopt the program for its direct advantages but rather are “pushed” by the retailer through repeated offers and communications or simply by the example of other customers, so their involvement is weak. These purchasers likely are

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<sup>2</sup> Retailer loyalty programs in France are based mainly on promotional features, and customers pay much lower prices when they use loyalty cards. Our supposition might not hold for programs in other sectors, such as the airline industry, which offer gratifications other than promotional devices and create more switching costs.

<sup>3</sup> Possible explanations include inertia or variety-seeking behavior, because most switching costs for retailing loyalty programs are low (“always a share”).

not subject to a reinforcement process and should not reveal any long-term rewarded behavior effect. We suppose:

P3. Loyalty programs' effects on purchase behavior (i.e., indicators in P2) are not durable for later program adopters.

### **3. Method**

#### *3.1. The sample*

We use the single-source BehaviorScan panel, based in Angers, a French town with approximately 165,000 inhabitants. Exhaustive recording of the purchasing behavior (95% of the fast-moving consumer goods sales in the area) of the panelist households, representative of the national population, is possible because of the use of scanning technology. We consider seven outlets (see Table 1): S1, S2, S3, S4, and S5 with surface areas of 5,000–9,000m<sup>2</sup>, or the bigger hypermarkets, and S6 and S7, or smaller supermarkets with surface areas of 1,400–2,000 m<sup>2</sup>. All retail outlets except S6 offer loyalty programs that were launched before our panel observation period (in the early 1990s), and we have information about customers' loyalty program memberships. In addition, S3 and S4 belong to a single company with a common, unique loyalty scheme, so consumers can accumulate rewards from both stores. The features of the programs are similar. Typically, they are free and provide price discounts, points exchangeable for gifts, or purchase vouchers for a varying set of items. The value or points earned increase linearly according to the amount customers spend. Beyond an accumulated level, the lack of incentive could induce strong switching costs. The vouchers are redeemable only during the next purchase trip. The average time to earn a reward from a catalog is six to

nine months (values correspond to 0.1–1% of the purchase amount). No programs provide better service to high-volume buyers.

- **Take in table 1: Description of stores**

From this panel, we extract 451,000 purchase acts by 2,150 consumers active in the panel over a 156-week period (week 2/1999 to week 2/2002), which means we can smooth the variations in stores' recruitment and marketing strategies. In this investigation, we focus on S1 and the individual information about its 546 customers' loyalty card subscription dates: 280 early adopters enrolled between the program launch in 1994 and 1998, and 266 late adopters enrolled between 1999 and 2002.

For all loyalty indicators and stores, we find that loyalty program members display higher repeat purchase behavior than do nonmembers (see Table 1). In particular, their total and average shopping baskets, purchase frequencies, and SOWs are higher, whereas their interpurchase times and switching rates are lower ( $p < 0.01$ ). In S1 over three years, the mean basket amounts for non- and cardholders are 60€ and 81€, respectively. In addition, the average number of store visits among cardholders, 89 visits, indicates that these households purchase from the store once every 12 days on average, whereas non-cardholders shop there only every 25 days. Both members and nonmembers shopped, on average, in 2.5 grocery stores. Only 1.1% were solely loyal to one store; 41% and 35%, respectively, visited two or three outlets. That is, S1 members buy one week in S1 and the next week in a competitive store. Finally, 90% of the households are members of at least one loyalty program, though the duplication rate of program memberships is substantial, such that 82% have two or more loyalty cards (see Table 2).

- **Take in table 2: Loyalty program membership duplication**

### 3.2. *Modeling methods*

At the individual level, we apply survival analyses to test our suppositions about self-selection effects (P1) and MANOVA with repeated measures (Kenward 1987) and thereby test simultaneously the impact of the S1 loyalty card on purchase behavior (P2).

#### 4.2.1 *Event history model for loyalty program adoption modeling*

We apply the proportional hazard model (Cox 1972) at the individual customer level, in line with DuWors and Haines's (1990) and Helsen and Schmittlein's (1993) finding that event history models handle duration and timing events effectively in terms of their stability, face validity of the estimates, and predictive accuracy.

We use a sample with 266 S1 loyalty scheme members who had adopted the program between 1999 and 2002 and 1,884 S1 buyers who had not adopted by the end of the observation period. The semiparametric model examines the hazard that an event (i.e., card adoption) will occur at a certain moment, describes the time distribution of that event, and estimates quantitatively the impact of various independent covariates (e.g., purchase behavior, distance) on this distribution. The model predicts duration, computed from the beginning of the observation period (week 2/1999) until date of adoption. We take into account the right-censored data pertaining to customers who had not adopted the loyalty program by the end of the observation period (week 2/2002).

We do not know when people became aware of S1's loyalty program, which may create a concern about left-censored data. However, S1 made extensive investments to communicate this scheme (both outside and inside the store) during 1994–1998, so we reasonably assume that most S1 customers are aware of the program around that time.

Instead, real bias might result from late panel enrollment, which would create truncated data and underestimate the duration between awareness of the program and adoption. However, because panel and program enrollment are clearly independent, the bias is distributed equally in the sample. We therefore underestimate duration but do so homogeneously, without loss of the estimation parameter.

The semiparametric estimation for the hazard model parameters relies on a partial likelihood regression procedure. We introduce the different explanatory covariates  $x_{is}$  into the model (i.e., mean basket S1, total category basket, SOW in S1, number of consecutive switches to competitors' stores, number of visited stores, number of loyalty program memberships, and distance from S1<sup>4</sup>), which we compute as averages before adoption:

$$(1) S(t) = [S_0(t)]^p, \text{ where } p = e^{b_1 x_1 + b_2 x_2 + \dots + b_n x_n}.$$

The survival function  $S(t)$  represents the probability that a customer will not adopt a loyalty card by time  $t$ . Negative estimated regression coefficients  $b$  of the covariate have a negative impact on S1 card adoption time, whereas positive coefficients have a positive impact (i.e., increase the likelihood of program adoption).

#### *4.2.2 MANOVA with repeated measures for loyalty program's impact on behavior*

To analyze whether S1 loyalty cards exercise a sustained effect on purchase behavior after subscription, we assess several variations in the repeated data measurements. We use the sample with 266 S1 loyalty scheme members who live in S1's primary trading area (households less than 4 km from S1; Allaway et al. 2003) and a control group of 930 S1 buyers who live in the same area but are not members of S1's

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<sup>4</sup> We compute this distance as the number of kilometres between the household and S1, as measured from the centroid of the store's zip code to the centroid of the household's zip code (Allaway et al., 2003).

loyalty scheme. These groups engaged in 21,344 and 74,623 purchasing acts during 1999–2002, respectively. Because the panelists located in this area are exposed to similar competitive and geographical situations, we can compare loyalty card members with nonmembers in an unbiased condition. We formulate a linear model (MANOVA with repeated measures) to display the developments in the S1 repeat purchase behavior of members and nonmembers on the basis of observed behavioral indicators during the three quarters prior to loyalty program enrollment ( $t - 3$ ,  $t - 2$ , and  $t - 1$ ) and four quarters after adoption ( $t_0$ ,  $t + 1$ ,  $t + 2$ , and  $t + 3$ ). During the first three quarters, the conditions for both groups are the same (no loyalty cards). As of the fourth quarter ( $t_0$ ), the purchasers in one group subscribe to S1 loyalty cards, so we may trace the evolution of the purchase behavior by both samples at two levels: an intergroup comparison of the average values of behavioral indicators  $\mu$  and an intragroup comparison of the evolution of mean behavioral variables  $\mu_l$  for each quarter, which indicates any changes in average values.  $H_0$  posits that card adoption has no effect and that variations in purchase behavior are systematic, in which case we should observe similar variations for both groups as a result of a systematic evolution over time rather than any effect of the loyalty cards. However,  $H_1$  claims variations in purchase behavior are not systematic but instead can be observed only among cardholders, which indicates that they are driven by loyalty scheme membership.

## **4. Results**

### *4.1. Loyalty program's self-selection effect*

Globally, the covariates improve the  $-2$  Log Likelihood by 449 in the Cox hazard model ( $p < 0.01$ ). Specifically, the heavier a customer's purchases from S1 (mean basket



S1, purchase frequency, and SOW, which has the strongest impact on adoption time,  $b = 1.209, p < 0.01$ ), the more quickly he or she adopts its loyalty card, in support of P1a–c. However, the total store category basket covariate is not significant, which indicates that loyalty programs do not attract heavy category purchasers who currently are light buyers. Therefore, we must reject P1g.

- **Take in Table 3: Results of the Cox hazard model**

The covariate of consecutive switches has a slightly significant ( $b = 0.01, p < 0.05$ ) positive impact, whereas the number of visited competitive stores is not significant ( $b = 0.02, p > 0.1$ ) and has no effect on the loyalty program's adoption time. We therefore find support for P1e but must reject P1f.

Regarding geographical location, we find support for P1d: Negative covariates increase the adoption time. Thus, the farther a customer is situated from the store, the less quickly he or she adopts the loyalty card.

Multiple loyalty card memberships decrease the adoption time for S1's program (1 card:  $b = -0.320, p < 0.01$ ; 2 cards:  $b = -0.224, p < 0.05$ ; 3 cards:  $b = -0.118, p > 0.1$ ), in support of P1h. This result also may indicate a certain degree of learning about the use of loyalty schemes, or it could mean that these programs attract a certain proportion of opportunists or "professional" loyalty scheme users.

Loyalty programs thus are endowed with the power of selection. After S1's loyalty scheme launched in 1994, early adopters who subscribed to it between 1994 and 1998 distinguished themselves from late adopters, who enrolled at the end of the diffusion process (1999–2002). In particular, early adopters possess more significant purchasing and loyalty behaviors (mean basket, purchase frequency, interpurchase time, SOW;  $p <$

0.01) than do resistant late adopters. Thus, the more a customer advances along the loyalty card diffusion curve, the less valuable and opportunistic he or she becomes (see Table 4).

- **Take in Table 4: Comparison purchasing behavior early and later adopters**

#### 4.2. *Loyalty program's impact on purchase behavior*

The impact of S1's loyalty program at the moment of enrollment  $t_0$  and after subscription ( $t + 1$  to  $t + 3$ ) on individual purchase behavior is weak and short-term, even in some statistically insignificant cases. Nevertheless, for the control group of non-cardholders, all purchase indicators remain virtually stable over the observation period. All Time  $\times$  Card interactions are statistically insignificant. Furthermore, the time factors are mostly statistically insignificant for both cardholders and non-cardholders, which shows that the indicators are stable over time.

The S1 mean baskets reveal increases of 5€ between quarter  $t - 1$  and quarter  $t_0$  and then 3€ between quarter  $t_0$  and quarter  $t + 1$  (note that baskets for non-cardholders remain stable). The Time  $\times$  Card interaction is statistically significant ( $F$  Time  $\times$  Card  $t_0 = 5.0, p < 0.05$ ;  $F$  Time  $\times$  Card  $t + 1 = 3.53, p < 0.05$ ). Unfortunately, after  $t + 2$ , the mean baskets drop again, and the time factors are statistically insignificant ( $F$  Time  $t_0 = 0.75, p > 0.1$ ;  $F$  Time  $t + 1 = 0.25, p > 0.1$ ).

The conclusions are similar with regard to purchase frequency, which slightly increases (from 12 to 14 purchases per quarter) when customers adopt the loyalty program ( $F$  Time  $\times$  Card  $t_0 = 998, p < 0.05$ ), stays stable at  $t + 1$  ( $F$  Time  $\times$  Card  $t_0 = 5.0, p < 0.05$ ;  $F$  Time  $\times$  Card  $t + 1 = 3.53, p < 0.05$ ), then continuously decreases after  $t + 2$ . The SOW also increases—from 59% at  $t - 1$  to 63% at  $t_0$  and then to 65% at  $t + 1$  ( $F$  Time  $\times$  Card  $t_0 = 6.8, p < 0.01$ ;  $F$  Time  $\times$  Card  $t + 1 = 3.5, p < 0.05$ ). Again, the time

factor is not significant, which indicates stability (F Time t0 = 7.4,  $p > 0.1$ ; F Time t+1 = 0.3,  $p > 0.1$ ). We therefore find support for P2a–c, which relate to the increased purchase intensity prompted by loyalty program adoption.

The total category basket is not affected; all differences are statistically insignificant at  $p > 0.1$  during the observation period. Both cardholders and non-cardholders display the same stable category mean baskets over the observation period (on average, 130€). Members thus seem to switch their purchases from competitors to S1, which implies a purchase concentration effect rather than an acceleration impact (i.e., increased SOW, baskets, frequencies; decreased switching behavior, number of stores visited). We demonstrate that loyalty programs fail to attract heavy category buyers; Table 5 confirms this suggestion by noting that though program members are heavier purchasers from focal store S1, they are simply normal shoppers in the category (neither heavier nor lighter buyers) before and after they join the program.

For store switching behavior and the number of stores visited, we find that both variables decrease at the moment of card subscription t0 and at t + 1 (significant differences for switching behavior: F Time × Card t0 = 9.0,  $p < 0.05$ ; F Time × Card t + 1 = 2.2,  $p > 0.1$ ; insignificant differences for number of stores visited: F Time × Card t0 = 7.6,  $p < 0.05$ ; F Time × Card t + 1 = 0.5,  $p > 0.1$ ). Therefore, we find support for P2d and P2e, which pertain to reduced purchase portfolios, and note that most customers are multiloyal.

However, these trends are not stable over time for any indicators; the values decrease six to nine months after buyers subscribe to the loyalty card program. Mean baskets decrease from t + 1 to t + 2 to t + 3 by 4€ and 3€, respectively (F Time × Card t +

$2 = 8.49, p < 0.05$ ;  $F \text{ Time} \times \text{Card } t + 3 = 4.6, p < 0.05$ ); purchase frequencies decrease from 14 in both  $t_0$  and  $t + 1$  to the initial value of 12; and SOW slightly decreases by 3% from  $t + 1$  to  $t + 3$ , though the difference is not significant. Switching behavior increases again from 58% at  $t + 1$  to 66% at  $t + 3$ , as does the number of visited stores, though neither difference is significant.

- **Take in Table 5: Behavior modification before/after S1 loyalty program subscription**

We confirm these results with the regression coefficients of the MANOVA, which show that all purchase indicators change positively after  $t_0$ . Again, they stay stable until  $t + 2$  and then return to their initial levels. The small changes in loyalty thus appear to erode six to nine months after a customer joins the program, which corroborates P3 regarding the transitory nature of the effects over time.

- **Take in Table 6: Coefficients *b* MANOVA before/after S1 program subscription**

Finally, we might suspect heterogeneity in the various measures of purchasing behavior and therefore develop a general linear model (GLM) with variance component estimations that includes random effects (see Table 7). The heterogeneity that is able to explain differences in the loyalty indicators is quite low (2.3–4.8%).

- **Take in Table 7: Variance Estimations (GLM random model)**

## 5. Discussion

This research shows that loyalty programs inspire self-selection by people who already make heavy purchases in the store, as proposed by Dowling and Uncles (1997) and Leenheer et al. (2007). Purchasers' subscriptions result from interpersonal

heterogeneity with respect to the program advantages, purchase behavior, and geographic and social conditions, because consumers do not obtain the same level of usefulness from their cards. Heavier, more frequent, more loyal buyers of the store, who tend to live closer to it, enroll in the loyalty program earlier and enjoy an immediate benefit, because the proportional reward systems enables them to earn benefits faster. Thus, in line with actualization theory, their perceived value is higher.

However, schemes seem to fail to attract the most desirable customers for a loyalty program, namely, heavy buyers of the category who are currently light buyers in the store. Rewards that accumulate over the long term are mainly of interest to store-loyal clients—88% of cardholders in our study already were clients before subscribing to the card, which is comparable with the results found by Ehrenberg (1988). Conversely, lighter buyers of the category or store might not regard the loyalty programs as attractive because of the switching costs involved. The main idea behind our investigation is thus that the value of a linear reward system comes not only from the relative face value, which is the same for everybody, but also from two additional sources. First, the absolute face value derives from a framing effect that differs among customers; second, the actualization effect makes immediate rewards seem more valuable than delayed ones. Heavy purchasers in the store thus value higher gratifications, conceive of higher expected rewards, and have lower switching costs. Furthermore, while it seems contradictory, they are actually more price-sensitive to products because they have more experience with, and knowledge about, the offering. For them, it pays to be price-sensitive and to look for deals because they buy so much.

Our investigation offers support to previous research (Benavent et al. 2000; Leenheer et al. 2007; Mägi 2003; Meyer-Waarden 2002, 2007; Reinartz 1999; Sharp and Sharp 1997; Verhoef 2003) that argues only weak changes in buying behavior occur after buyers join loyalty schemes. However, we can only test the behavior modification effect among sample members who joined the loyalty program later, and who therefore are not the heaviest customers, because the panel observation period begins after the launch date of S1's loyalty program. Nevertheless, the behavior modification results should not be very different among heavier early adopters, whose purchases likely cannot be expanded much (Ehrenberg 1988). Accordingly, lighter consumers should change their behavior more than heavy buyers (Liu 2007). Yet the loyalty program in our investigation has no positive effects on later adopters' purchase frequency or transaction size, nor does it make them more loyal to the store. Rather, the most visible change occurred in the six months after these members joined the program, and then stopped soon thereafter. Therefore, it does not appear that loyalty programs accelerate consumers' loyalty lifecycles or make them more profitable customers. Our results thus challenge the widespread idea that loyalty programs act like long-term promotions that stop consumers from reverting to their previous behavior patterns (Reichheld 1996).

Grocery loyalty programs apparently increase sales through only a short-term points pressure mechanism and only until consumers earn their gratification. Buyers stay temporarily because the rewards, not store features, become the principal motivation for their loyalty (i.e., short-term points pressure). To the extent that customers do not receive sufficient rewards for their store loyalty, there is no rewarded behavior effect (Taylor and Neslin 2005), and the small changes in repatronage do not persist, so purchase levels drop

back to the baseline point six to nine months after such consumers adopt the loyalty program. After they earn their gratification, their principal purchase motivation disappears, and they switch back to their habitual stores. Thus, it appears grocery loyalty schemes create short-term behavioral reinforcement rather than influence persuasion or long-term changes in attitudes and commitment (Rothschild and Gaidis 1981).

Furthermore, purchase decisions in a retailing context often rely on heuristics related to the customer's distance from the store, inertia, comfort, satisfaction, or contingency variables (i.e., sales promotions). Most supermarket loyalty schemes (in contrast to airline programs, for example) attract customers by giving members-only discounts on promotional items or automatic coupons. Because no stores charge for these membership privileges, shoppers quickly accumulate as many cards as there are local grocers (Kumar and Shah 2004). Thus, there is little reason for consumers to be loyal to one store over another. Some researchers (Nunes and Drèze 2006a; Uncles et al. 2003) therefore wonder whether these programs actually reward the unfaithful by pushing loyalty to the program rather than loyalty to the store. In this case, the outlet's equity depends on something that has little to do with its image and makes it vulnerable to competitive responses. Uncles et al. (2003) and Ehrenberg, Uncles, and Goodhardt (2004) further argue that competitive parity prevails in many retail markets, making it extremely difficult for one retailer to move ahead of the pack without growing its overall market share. Thus, the proliferation of loyalty schemes has destroyed a key reason for loyalty, namely, distinctiveness and differentiation, and the competitive market conditions remain unchanged (Meyer-Waarden and Benavent, 2006).

If loyalty schemes in the grocery retailing context are not especially effective in creating loyalty, frequent flyer programs should be more efficient as a result of some key strategic sector differences (e.g., level of competition, growth opportunities) and reward systems (e.g., nature, amount). Because airline and similar programs use multiple-tier systems with convex rewards schemes, the best customers receive better rewards and services (Nunes and Drèze 2006b; Kivetz et al. 2006). The airline industry is better suited to profit off these programs because it is offering seats and rooms that, in most cases, cost little or nothing to provide--as opposed to grocery retailers' hard inventory. In addition, airline programs are probably more successful because their rewards have higher perceived values as they are connected to travel.

## **6. Managerial implications**

The results of this study may help managers improve their decisions about loyalty programs. Enhancing the bond between consumers and stores and then expecting that this enhancement automatically will stimulate more demand and greater single-store loyalty simply is not reasonable, because most consumers buy only what they need and have good reasons for remaining multistore loyal. Moreover, the upside potential of heavy, loyal purchasers remains limited because the programs, which are not particularly motivating, cannot cause behavior changes. For heavy buyers especially, increasing the average amount purchased is rather difficult; that amount typically remains stable across stores (Uncles et al. 2003). The best customers often are heavy buyers of a firm's products already, so the possibility of additional revenues is low.

Loyalty schemes thus seem fully profitable only when applied to a small number of customers (Benavent et al. 2000) who are also the first to subscribe. The more a customer



advances on the loyalty card diffusion curve, the less valuable he or she is to the firm. Self-selection drives the behavioral differences between program members and nonmembers, yet loyalty programs allow self-selecting customers to profit without forcing them to become more loyal. Many existing programs fail because they lack precise customer segmentation and targeting.

The heterogeneity of these effects raises questions about the discriminative character of loyalty programs, in that certain segments of consumers are more likely to experience their influence (Chintagunta, Jain, and Vilcassim 1991; Vilcassim and Jain 1991). To increase participation rates and individual purchase behaviors, the store should consider the profile of consumers who are likely to sign up for a loyalty scheme, including consumer characteristics such as shopping orientations or attitudes that enhance the impact of loyalty programs. This suggestion demands a more thorough analysis of loyalty schemes' effects and determinants at the individual level, which in turn could help retailers select, identify, and segment customers and thereby obtain a better measure of consumers' sensitivity to loyalty-developing actions, stronger assessments of customers' potential value, and improved marketing budget allocations. With such information, retailers also could undertake tailored, hypertargeted strategies (e.g., promotions, communications, price discrimination) that appeal to different segments. In other words, loyalty schemes should become strategic CRM tools that provide more information about and better value to clients through more appropriate offers and more targeted marketing.

Retailers also should pay careful attention to their loyalty program's design, which has a significant impact on the likelihood customers will join, as well as on their subsequent purchase behavior. The eventual benefit of the program to the retailer

depends on the trade-off between the costs of giving the rewards (mostly to heavy buyers, who will enjoy the free rewards without changing their behavior) and the increased profits earned from moderate and light buyers who might purchase more and become more loyal over time. This trade-off requires both immediate and delayed rewards that create higher switching costs.

Loyalty programs need to be designed to offer differentiated products and services to customers based on their purchasing patterns and profitability. Our investigation suggests loyalty programs should go beyond just rewarding usage and reward customers. In general, an efficient loyalty scheme rewards ongoing or consistent use of the loyalty card rather than a given purchase occasion, and it should discriminate between more and less loyal customers when it comes to the size of the rewards. According to a multi-tiered system, customer loyalty should be managed at the first level by treating all shoppers equally and rewarding them in proportion to their total expenses to encourage more spending. At the second or third level, customer data indicate customer-level differences, so the retailer can determine whether a particular purchaser qualifies for additional and more qualitative second-level rewards (e.g., status, personalized relationships, privileged services). Indeed, existing research indicates that stratifying customers and endowing some with status makes them feel different and thus behave differently (Meyer-Waarden 2007).

## **7. Limitations and further research**

Many questions remain and offer potential means to develop this work further; studies of loyalty programs remain rare, incomplete, and often not empirically validated. The first limitation of this study relates to the sample, in that all stores with the exception

of S6 have a loyalty program, which suggests competitive parity. A better study design would include stores with and without schemes and investigate them using the stores without a scheme as a control. Unfortunately, we had little control over these design issues—perhaps part of the reason so few empirical studies have been published. With our sample, we also are limited to examining the impact on behavior, because the data only examine differences among individual customers if they join the loyalty program later. A more complete test of loyalty program effects should use longitudinal data from both early and late adopters.

The effectiveness of loyalty schemes likely depends on the product category; our results are specific to the grocery retailing context and thus may not generalize to other schemes in other sectors. In this sense, additional research should investigate why some loyalty programs achieve their goals while others fail. Existing literature proposes several factors, such as the reward systems (Kivetz and Simonson 2002; Smith and Sparks, 2009), partnerships (Lemon and von Wangenheim, 2009), involvement (Drèze, Hoch, and Purk 1994), or the competitive structure (Meyer-Waarden and Benavent 2006), and argues that programs in sectors with higher involvement (e.g., airlines, clothing) and less competition should be more effective. Convex reward systems and multitier programs, as in the airline industry, also should be more efficient (Nunes and Dreze 2006a). Further research in other business domains should test how these and other factors might affect a program's effectiveness, though this effort might be difficult in industries that lack market-wide scanner panel data on competitive purchasing, because without such data, researchers cannot control for competitive conditions or compare purchase behavior before and after loyalty card subscription.

Although previous experimental investigations indicate that the effectiveness of loyalty schemes depend on the program's design (Kivetz and Simonson 2002; Roehm, Pullings, and Roehm 2002; Yi and Jeon 2003), no supporting field data are available. More research therefore is necessary to investigate individualized reward systems, because certain segments of consumers are more likely to be influenced by loyalty schemes than others. An interesting research direction would be to integrate individual customer characteristics and purchase orientations that make different reward systems seem less or more sensible (Meyer-Waarden 2007). Furthermore, Nunes and Drèze (2004) explore how consumers respond to prices offered in multiple currencies (money and miles) and determines the conditions in which a combined-currency price can be superior to a price charged in a single currency.

Finally, we do not incorporate the costs related to loyalty programs. Additional modeling efforts should integrate customer profit streams and financial data (despite the difficulty of doing so without access to revenue and cost information) and thus measure efficiency according to financial contributions (Kopalle and Neslin 2003; Reinartz 2005).

**Professional biography:**

Lars Meyer-Waarden is a Professor at the EM Strasbourg Business School. His main research interests are Customer Relationship Management as well as Retailing Management. He is the author of a book about the efficiency of loyalty programs, and has published lots of articles about these issues in international journals as in New York Wall Street Journal, Journal of Retailing, Journal of the Academy of Marketing Science, Journal of Marketing Management, European Journal of Marketing and Recherches et Applications en Marketing. Before being a professor Dr Meyer-Waarden was marketing manager within the L'Oréal group in Germany.

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## Tables

**Table 1 Description of stores**

Store	S1	S2	S3	S4	S5	S6	S7
Surface (m2)	8,900	5,300	9,000	9,400	5,200	2,000	1,400
Loyalty program	Yes	Yes	Yes		Yes	-	Yes
Launch loyalty program	1994	1994	1995		1995		1996
External partners program	Yes	Yes	No		No	-	No
Loyalty cardholders	546	301	744		264	-	383
Loyalty program penetration	19%	11%	30%		10%	-	16%
Market share	20%	12%	40%		11%	11%	6%
Penetration	92%	62%	91%		68%	65%	45%
Mean basket focal store members	81€	61€	82€		66€	51€	59€
Mean basket focal store nonmembers	60€	47€	69€		54€	-	32€
SOW members	64%	58%	69%		55%	-	33%
SOW nonmembers	47%	21%	29%		20%	30%	10%
Store purchase frequency members	89	77	84		82	-	79
Store purchase frequency nonmembers	43	41	47		30	71	15
Number visited stores members	2.0	2	2		2	-	2
Number visited stores nonmembers	3.1	3	3		3	2	3
% consecutive switches members	64%	70%	61%		50%	-	69%
% consecutive switches nonmembers	62%	78%	81%		89%	78%	91%

Notes: All differences between nonmembers and members are highly significant ( $p < 0.01$ ). Behavioral measures are defined in text and reflect means over the whole 156-week observation period.

**Table 2 Loyalty program membership duplication**

	Program S1	Program S2	Program S3&4	Program S5	Program S7
Program S1	100%	56%	35%	5%	41%
Program S2	51%	100%	40%	7%	45%
Program S3&4	14%	12%	100%	11%	35%
Program S5	5%	2%	31%	100%	29%
Program S7	11%	50%	45%	9%	100%

**Table 3 Results of Cox hazard model**

	b	SE	Wald
Store distance S1	-0.704**	0.002	5.775
Purchase frequency S1	0.36**	0.002	11.53
SOW S1	1.21**	0.226	28.55
Mean basket S1	0.25**	0.001	9.02
Consecutive store switches S1	0.010*	0.002	30.2
Number of visited stores	0.020 ns	0.001	4.55
Mean basket (store category)	0.176 ns	0.001	10.55
0 competitive loyalty card	-0.749**	1.416	7.995
1 competitive loyalty card	-0.320**	1.008	5.123
2 competitive loyalty cards	-0.224*	1.007	4.954
3 competitive loyalty cards	-0.118 ns	1.010	1.334
-2 initial log-likelihood	4135.6		
-2 final log-likelihood	3686.6	$\chi^2$	246.35**

\*\*  $p < 0.01$ ; \*  $p < 0.05$ ; ns: non-significant.

**Table 4 Purchase behavior according to S1 loyalty program subscription date**

	Subscription 1994–1997	Subscription 1998–2002	
Number of panelists	280	266	
Mean basket S1 (in €)	76	66	**
Total basket S1 (in €)	5,385	3,846	**
SOW S1	71%	60%	**
Purchase frequency S1	104	55	**
Inter-purchase time S1 (in days)	13.6	21.2	**
% consecutive store switches S1	56%	76%	**
Number visited stores	2.3	2.3	ns
Mean category basket (in €)	54€	48€	**

\*\*  $p < 0.01$ ; ns: non-significant.

**Table 5 Behavior modification before/after S1 loyalty program subscription**

Quarter	-3	-2	-1	0	1	2	3
Mean basket cardholder (in €)	76	74	75	80	83	79	76
Mean basket S1 non-cardholder (in €)	59	62	60	60	61	59	61
F Time		0.24ns	0.02ns	0.75ns	0.25ns	0.05ns	1.55 ns
F Time × Card		4.52*	1.17ns	5.0*	3.53*	8.49*	4.60*
Purchase frequency S1 cardholder	12	12	12	14	14	13	12
Purchase frequency S1 non-cardholder	6	6	6	6	6	6	7
F Time		223.3**	1223.4**	1.6 ns	2.7 ns	2.7ns	345.2**
F Time × Card		111 ns	115ns	998*	120ns	113ns	106.4ns
SOW S1 cardholder	59%	57%	59%	63%	65%	63%	62%
SOW S1 non-cardholder	45%	48%	47%	47%	48%	44%	50%
F Time		11.5*	5.6*	7.4ns	0.3 ns	2.7 ns	0.0 ns
F Time × Card		14.6**	2.1 ns	6.8**	3.5 ns	0.2 ns	1.3 ns
Consecutive switches S1 cardholder	66%	70%	69%	58%	58%	68%	66%
Consecutive switches S1 non-cardholder	61%	62%	62%	62%	61%	63%	61%
F Time		15.7**	251.4**	9.0ns	2.2 ns	2.9 ns	14.5ns
F Time × Card		22.6*	3.6 ns	30.9*	3.6 ns	20.4**	6.0ns
Number visited stores cardholder	2.1	2.1	2.1	1.8	1.9	2.0	2.1
Number visited stores non-cardholder	3.1	3.1	3.0	3.1	3.0	2.9	3.8
F Time		3.0ns	1.2 ns	3.0*	3.2ns	1.5ns	2.5ns
F Time × Card		0.1ns	0.1ns	7.6*	0.5ns	0.2 ns	1.0 ns
Total category mean basket cardholder (in €)	129	130	128	127	127	125	122
Total category mean basket non-cardholder (in €)	130	129	128	129	128	127	123
F Time		0.3ns	0.31ns	0.41ns	0.23ns	0.25ns	0.26ns
F Time × Card		0.29ns	0.20ns	0.23ns	0.34ns	0.30ns	0.23ns

\*\*  $p < 0.01$ ; \*  $p < 0.05$ ; ns: non-significant (test of differences between quarters; i.e.,  $t-3$  vs.  $t-2$ ,  $t-2$  vs.  $t-1$ ).

**Table 6 Coefficients *b* MANOVA before/after S1 loyalty program subscription**

B regression scores	-3	-2	-1	0	1	2	3
Time	1.049	1.212ns	1.49ns	1.35 ns	1.977 ns	1.802 ns	1.94ns
Mean basket S1 × Time	1.07	3.26*	2.985ns	4.985*	5.602*	4.014**	3.996*
Time	1.897	2.797**	3.149**	3.452ns	3.441ns	3.795ns	1.897**
Purchase frequency S1 × Time	3.889	2.454ns	3.512ns	4.172*	4.137ns	3.109ns	3.889
Time	2.157	1.79*	0.213*	1.061**	1.583ns	0.125ns	0.14ns
SOW S1 × Time	1.186	3.47**	2.061ns	4.976**	5.941ns	4.433ns	3.186ns
Time	0.9	1.0ns	3.2 ns	2.1*	2.2ns	2.5ns	2.5ns
Number visited stores × Time	0.8	1.1*	3.1ns	-1.6**	-1.0*	0.2ns	1.0 ns
Time	0.881	1.24**	1.57**	1.6**	1.496	1.627	1.56
Consecutive switches S1 × Time	1.019	1.16*	0.976**	-0.918**	-0.908ns	0.664**	1.019ns
Time	1.737	1.11ns	-1.06ns	-2.49ns	-1.98ns	-2.89ns	-1.17ns
Total category mean basket × Time	-2.921ns	2.96ns	-2.126ns	-2.42 ns	-2.69 ns	-2.539ns	-2.29ns

\*\*  $p < 0.01$ ; \*  $p < 0.05$ ; ns: non-significant (test of differences between quarters; i.e.,  $t-3$  vs.  $t-2$ ,  $t-2$  vs.  $t-1$ ).

**Table 7 Variance estimations (GLM random model)**

Dependant Variables	Variance (Household) (1)	Variance (Household × Quarter) (2)	Variance (Error) (3)	% Variance (1)/(1+2+3)
Mean basket S1	4984.18	7435.68	103055.6	4.3%
Total basket S1	4472.69	2772.43	119313.7	3.5%
Purchase frequency S1	0.0056	0.005	0.107	4.8%
Interpurchase time S1	60.32	905.63	252.9	4.9%
SOW S1	28.58	99.82	547.7	4.2%
Number visited stores	0.003	0.0005	0.073	3.9%
% switches S1	0.0051	0.016	0.19	2.3%

Notes: The method is minimal quadratic estimation.