# The Relationship between Loyalty Point Redemption Strategy and Response to Promotional Campaigns

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**Abstract:**

This study uncovers the relationship between loyalty point redemption strategy and response to promotional campaigns on the basis of customer analytics of the leading Russian restaurant chain. We use data from three randomized field experiments, including more than 100,000 customers, designed as the promo campaigns, and introduce a special metric that characterizes the point redemption strategy. Logit modelling illustrates that customers who are inclined to spend points more often are more likely to respond to certain kinds of promotions. Moreover, for the studied promotional campaigns, it was found that using information about point redemption strategy would increase the response to, and efficiency of, promotional activity.

*Keywords: loyalty, experiments, point-pressure*

*Track: Relationship marketing*

## 1. Introduction

The customer-centric approach and CRM technological solutions allow for segmentation, which affords marketers the opportunity to take into account a wide range of customer metrics. Practitioners use information about reward redemption when evaluating the effectiveness of loyalty programs (Dorotic et al., 2012), though they rarely use the metrics of reward redemption to design promotional activities within the reward campaign. However, previous research has attempted to illustrate the heterogeneity of this metric with regard to consumer behavior (Kopalle et al., 2012; Stourm et al., 2015; Zhang & Breugelmans, 2012). While some loyalty program (LP) members may not use points at all, others can redeem points with different frequency based on their subjective perception of the value of the bonus points (Dorotic et al., 2012). This type of mental accounting activity (Thaler, 1985) has been studied less than other LP aspects (Drèze & Nunes, 2004). To our knowledge, very little research has explored customer relationship dynamics and loyalty point redemption behavior with regard to aspects of mental accounting (Breugelmans et al., 2015; Grewal et al., 2011).

This paper aims to examine the relationship between loyalty point redemption behavior and customer's responses to promotional campaigns. We consider that consumers' point management differences within the framework of a loyalty program can signal specific features of customer behavior, which could provide companies with additional information about customer responses to promotional activities within the LP. Our contribution to the topic is two-fold: We extend the understanding of promotional effectiveness by studying it with regard to redemption behavior, and we use data from field experiments, which uncovers the drivers of consumer behavior without biases that are common among other marketing research methods.

## 2. Literature Background

A combination of promotions within a reward program is currently studied by researchers worldwide (Breugelmans et al., 2014; Grewal et al., 2011). New technologies and LP data allow companies to not only offer traditional promotions but also targeted promotions designed for each segment of the LP's members. Furthermore, a company can track the results of the promotional campaign by comparing control and treatment groups in field experiments (Kumar & Shah, 2004). These experiments provide marketers with a huge number of customer characteristics, but they rarely use information about point redemption in points-based LPs (which are the most common type of LPs). However, monitoring

redemption patterns offer firms a way to gain insights into the nature of customer loyalty (Smith & Sparks, 2009).

LP point redemption may show customers' perception of this type of reward (Dorotic et al., 2012). According to the mental accounting theory (Shefrin & Thaler, 1988), people treat components of their wealth as nonfungible, evaluating various goods of the same value and money differently depending on the source of their receipt. In terms of LP and company promotional activity, customers maintain two separate accounts, namely cash and loyalty points (Drèze & Nunes, 2004), practicing mental accounting (Thaler, 1985); likewise, customers evaluate rewards received as part of LPs or promotional campaigns and make a decision about how to redeem or stockpile their points. In other words, differences in point management within the framework of the loyalty program can signal specific features of customer behavior, which means that companies can use this information when studying consumers and when developing other marketing campaigns. For instance, in a recent work, Minnema et al. (2017) found that the studied promotional campaigns were more effective among those customers who had stronger inclination to accumulate rewards (who had previously saved and redeemed bonuses).

As customers' motivation to redeem and stockpile points is mostly driven by non-observable factors (Stourm et al., 2015), it is important to properly look for the relationship between redemption behavior and response to short-term promotional activities within the LP. The relevant source of data, in this case, is a company LP database that could provide information on the redemption strategies of customers in relation to their reaction to the promotion and various behavioral metrics (Fader, 2012). This approach is widely used in the field of customer analytics, and we intend to apply it in order to unravel if, and how, customers' responses to the promotion and their point redemption strategy are intertwined.

**3. Methodology**

*3.1    Overview*

An evaluation of the impact of a point redemption strategy on the likelihood of participation in a promotional campaign is conducted in three steps. First, we describe the loyalty program being studied and the data of the study. Then, based on the data on the dynamics of stockpiling and redeeming LP points, a metric that characterizes the regularity of the use of LP points is determined and calculated. Finally, we build a model for each of the selected promotional campaigns, which allows for the assessment of the factors that influence the likelihood of a customer visit to the restaurant during the promotional period.

*3.2    Loyalty program and data description*

The data for this study are derived from a large Russian multibrand restaurant chain in casual dining. The company has been implementing a loyalty program since 2014, according to which each program member receives LP points in the amount of 10% of a delivery order and of a bill in the restaurant, and 15% in the case of an order "to go". LP points are valid for a year from the moment they are credited to the client and can be used to pay up to 50% of the check amount. The value of LP points is fixed: one LP point is equal to a ruble.

The company regularly conducts promotional campaigns for various segments of their customers. For this paper, we chose three promotional campaigns held by the company in 2018 (Table 1). All campaigns use the same marketing communication channels (e-mails and push notifications) and were executed as randomized field experiments, which means that customers in the target segment were randomly assigned to either treatment or control groups.

| Campaign | Target segment | Goal | Mechanics | Treatment group | Control group |
|---|---|---|---|---|---|
| Gift points (107,584 LP members) | Churning customers who have not made any transactions in company's restaurants for more than 155 days (the 0.9 quantile of the average time between transactions). | Return churning customers | Customers were awarded points in the amount of 250, 350, 450, and 1000 units for a period of 1-2 weeks. These bonuses could be spent in any restaurant of the chain according to the rules of the loyalty program (a customer can pay up to 50% of a bill using these points). | 62,382 pers. | 45,202 pers. |
| Choose a gift (37,113 LP members) | Customers with a medium and low frequency of checks (67% of customers visit restaurants with an interval between visits of 34 or more days). This segment includes only those customers who have 3 or more checks. | Increase visit frequency among customers with medium and low frequency of checks | Customers were offered a choice of a gift in the form of a glass of wine, lemonade, or a dessert. The gift could be picked up during the promotional period at any offline restaurant without additional purchases. The duration of the campaign was 1 month. | 26,002 pers. | 11,111 pers. |
| Win a discount (97,326 LP members) | Customers with a high PCV (past customer value). | Increase customer loyalty among clients with a high PCV | The campaign took place during the 2018 World Cup and was based on the 10% discount given to a client for a correctly guessed result of the match, which could be used within 48 hours after the match. | 68,716 pers. | 28,610 pers. |

Table 1. Promo campaigns description

All data refer to the period from 2014 to 2018. We limited our sample and selected only those customers who had made at least 5 transactions within the observation period. Since we

cannot draw a definite conclusion about the point redemption strategy of the clients who made a smaller number of transactions, this step was necessary to avoid misleading results.

The loyalty program reflects the accrual and withdrawal of LP points, aggregated across LP members per each check. It also provides information on a range of customer metrics, which are represented in Table 2 (all metrics were calculated at the customer level).

| Customer metric | Description |
|---|---|
| Point Share | a share of checks partially paid with LP points |
| Recency | a number of days from the last transaction of the customer |
| Frequency | an average interval between purchases |
| Monetary | an average check amount before redeeming LP points |
| Subscribed Email | e-mail subscription (1 - subscription is on, 0 - subscription is off) |
| Subscribed Push | push notifications (1 - push notifications are on, 0 - push notifications are off) |

Table 2. Customer metrics

The variable Point Share shows the frequency with which points were spent and demonstrates the customer's attitude to this type of reward. In order for this metric to be illustrative as a redemption strategy descriptor, we impose a condition and only take transactions for which the client could use points into account (the client has a non-zero balance of LP points available for deduction). The density distribution of this metric (Fig.1) gives us a reason to believe that customers do have different LP point redemption strategies. While some customers prefer to collect LP points and rarely redeem them, there is a segment of customers who often use their LP points. Moreover, we can distinguish the category of customers who redeem LP points in each transaction (their Point Share is equal to 1).

It is expected that a person with a high value of Point Share may be interested in other promotions offered by the company, so they are more likely to respond to marketing activities. This means that such a customer is more likely to visit the restaurant during the promotional period and make an additional transaction.
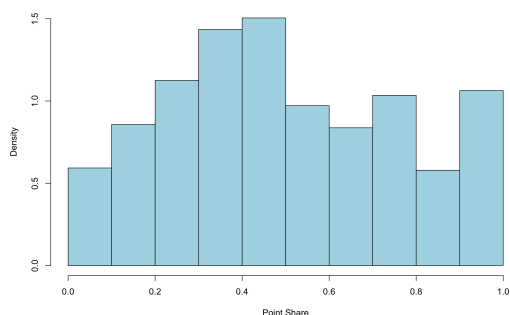


Figure 1. Density distribution of Point Share variable

*3.3 Model*

To present the main outputs of the modelling we exclude general descriptive statistics, though the extended result will be available at the presentation.

To test the posited relationship, logit models with the following specification were evaluated:

$$P(Exp\_Result_i = 1) = F(\beta_0 + \beta_1 Point\ Share_i + \beta_2 Treatment_i + \beta_3(Point\ Share_i * Treatment_i) + X_\gamma), \qquad (1)$$

where: $F(\cdot)$ is a function whose range of values lies within [0; 1],

$P(Exp\_Result_i = 1)$ is the likelihood that the i-th client will make a transaction in the restaurant chain during the promotional period;

$Point\ Share_i$ – a share of customer's checks partially paid with LP points;

$Treatment_i$ – dummy variable representing customer's belonging to the control or treatment group (wherein 1 – a treatment group, 0 - a control group);

$\{Point\ Share_i * Treatment_i\}$ – an interaction variable which allows us to take into account the effect of Point Share only for the treatment group;

X – a vector of customer behavioral characteristics (Recency, Frequency, Monetary, Subscribed Email, Subscribed Push).

According to "Difference-in-differences estimation" (Wooldridge, 2009), the variable Point Share captures the effect on the $P(Exp\_Result_i = 1)$ even in the absence of treatment (in the absence of the promotional campaign), while the dummy variable Treatment captures the possible differences between the treatment and control groups before the implementation of the campaign. In this research, we study the coefficient $\beta_3$ for the interaction variable {Point Share * Treatment}, which helps us to identify the effect of the Point Share provided that the customer participated in the promotion campaign. In the presence of the effect, we expect that the coefficient β3 is significant and positive.

Consider next the results of the study.

## 4. Analysis and Results

At the preliminary stage of the study, three promotional campaigns were analyzed in terms of the results in the control and treatment groups. A response to the promotion was defined as a dummy-variable representing whether a particular customer made at least one purchase during the promotional period or not. To interpret the results of the campaigns, we calculated the percentage of visitors to the company's restaurants during the promotional campaign for each group. This metric reflects a conversion to purchase rate. Table 3 shows the results obtained. A two-sample T-test shows a statistical significance at the 1% level for all promotional campaigns under study.

| Promotional campaign | Treatment group (pers.) | Conversion rate in treatment group | Control group (pers.) | Conversion rate in control group | Difference between groups |
|---|---|---|---|---|---|
| Gift points | 62,382 | 5.24% | 45,202 | 4.68% | 0.56% *** |
| Choose a gift | 26,002 | 44.36% | 11,111 | 42.89% | 1.46% *** |
| Win a discount | 68,716 | 24.65% | 28,610 | 23.26% | 1.39% *** |

Significance levels are * p < 0.05, ** p < 0.01, *** p < 0.001.

Table 3. The results of promo campaigns

From this point, we will consider the results of each campaign separately.

*4.1 Results of the promo campaign "Gift points"*

Table 4 represents estimated coefficients in the logit models for the campaign "Gift points." It was found that the coefficient of {Point Share * Treatment} is significant both in the model without control variables (Recency, Frequency, Monetary, Subscribed Email, Subscribed Push) and in the model with them. Moreover, this coefficient is positive.

| | Logit model 1 | Logit model 2 |
|---|---|---|
| Constant | -3.455*** | -2.491*** |
| | (0.049) | (0.069) |
| PointShare | 0.863*** | 0.397*** |
| | (0.080) | (0.082) |
| Treatment | -0.521*** | -0.078 |
| | (0.065) | (0.068) |
| Point Share * Treatment | 1.181*** | 0.982*** |
| | (0.103) | (0.105) |
| Controls | - | + |
| Observations | 107,584 | 107,584 |
| Parameters estimated | 4 | 9 |
| Log Likelihood | -20,814.53 | -19,977.29 |
| AIC | 41,637.07 | 39,972.58 |
| BIC | 41,675.41 | 40,058.85 |

Standard errors in parentheses. Significance levels are * p < 0.05, ** p < 0.01, *** p < 0.001.

Table 4. Model estimation results

Average partial effects (APE) were calculated to interpret the model (Wooldridge, 2012). For the interaction variable {Point Share * Treatment} equals 0.045. Given this, we can conclude that increasing the frequency of using LP points increases the likelihood of a response to a promotional campaign (the likelihood of an additional transaction during the promotional campaign for the customer from treatment group).

The next stage was the study of two other promotional campaigns, which are not based on actions with LP points. This is done in order to compare the results and determine whether the Point Share affects the response on the campaign with other types of rewards.

*4.2 Results of the promo campaigns "Choose a gift" and "Win a discount"*

For the campaigns "Choose a gift" and "Win a discount," the specification of an estimated logit models was the same as the model specification for the "Gift points" promotion. It was found that the coefficient representing the interaction effect of {Point Share * Treatment} is not significant (Table 5). That is, the frequency of LP point redemption does not have a significant impact on the likelihood of a customer's response to the campaign in question.

| | Choose a gift | Win a discount |
|---|---|---|
| Constant | 0.854*** | -0.420*** |
| | (0.066) | (0.048) |
| PointShare | 0.257*** | 0.009 |
| | (0.080) | (0.054) |
| Treatment | 0.139** | 0.107*** |
| | (0.058) | (0.040) |
| PointShare * Treatment | -0.120 | -0.052 |
| | (0.095) | (0.064) |
| Controls | + | + |
| Observations | 37,113 | 97,326 |
| Parameters estimated | 9 | 9 |
| Log Likelihood | -22,243.09 | -48,333.73 |
| AIC | 44,504.18 | 96,685.46 |

Standard errors in parentheses. Significance levels are * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table 5. Model estimation results

## 5. Conclusion

As a result of estimating the models, it was found that the coefficient of the interaction effect of {Point Share * Treatment} was significant and positive only for the "Gift points" promotional campaign. These results are consistent with existing research. Promotional campaigns based on actions with LP points imply that clients who want to use the accrued bonuses will be required to complete a transaction. Customers may use LP points instantly, and such LP points are collectable (Minnema et al., 2017). Furthermore, if consumers obtain some rewards, they are more likely to continue to collect them and react stronger to the

promotion which offers additional bonus promises (Gao et al., 2014). At the moment when customers receive LP points as a gift in the promotional campaign, they may already have some remaining LP points in their LP account. In the campaign "Choose a gift," a customer was given the opportunity to get one of the offered dishes for free without the obligation to buy anything. Nevertheless, a high conversion rate is not surprising - consumers tend to react to free offers (Shampanier et al., 2007). In terms of reward timing, free gifts can be received instantly; it is a non-collectible reward (Minnema et al., 2017). Also, a free gift is more likely to increase the perceived value of the brand (Palmeira & Srivastava, 2013).

The promo campaign "Win a discount" differs from other campaigns given that reward earning is based on a similar mechanic to a lottery (customers do not get a guaranteed reward; they may win it). In this case, customers were not primarily attracted by material rewards in the form of a discount, but rather by the excitement and the enjoyment of people in the process of guessing the outcome of a football match.

The key contribution of our study is that the information about the redemption of LP points can be used for segmentation for promotional campaigns within LP. Due to mental accounting, customers perceive their points differently, and the proposed variable Point Share can be an indicator of the value of LP points. Using Point Share as the characteristic of customer relationship dynamics, one can see its positive, statistically significant relationship with the customers' response to the company promo activity of a certain type.

To illustrate this, the promotion "Gift points" was considered in terms of segmentation and response. It was estimated how many people visited the chain's restaurants during the campaign for randomly selected customers and for the customer from the segment that had a fairly high frequency of LP points usage (the customer used bonuses in more than 75% of their transactions). As a result, the response on the campaign for the customers with high level of Point Share turned out to be about double than that for the random selection (Table 6). In addition, if we assume that the customer's transaction amount is equal to the average check, then an increase in the share of those who visited during the promotional period will result in a revenue increase of approximately 96%.

|  | Random sampling | High frequency of LP points usage | Difference in conversion rate | Gain in conversion rate | Gain in revenue |
|---|---|---|---|---|---|
| Treatment group (8,600 pers.) | 5.07% | 10.35% | 5.28% | 104.14% | 96.78% |
| Control group (8,282 pers.) | 4.62% | 6.45% | 1.83% | 39.61% | X |

Table 6. Results of the promo campaign "Gift points"

Our research illustrates that a deeper dive into loyalty analytics could provide a company with insights that can help it to increase the efficiency of their promo activities. Though it is limited to one industry (namely, the restaurant industry), it gives some promising insights on how to design LP and promo campaigns within it. One should take into account the idea that the nature of loyalty differs from field to field and from segment to segment. Thus, our results should not be blindly applied – however, our approach, based on the experimental analysis of data, could be helpful for companies that are able to A/B - test and experiment. Looking for the more complex approaches to segmentation and segment selection, additional customer metrics, and customer behavior modeling, we assess customer loyalty over time and further develop the theoretical foundations of customer loyalty in a highly competitive environment.

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