A Dynamic Structural Model of the Impact of Loyalty Programs on Customer Behavior

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We develop and estimate a dynamic structural model to determine the impact of frequency reward and customer tier components of a loyalty program on customer behavior. The contribution of this paper is that: (1) we provide an integrated analysis and measurement of the impact of two critical components of a loyalty program; (2) we develop a comprehensive model incorporating customers’ purchase and cash-in decisions, rewarded behavior, state dependence, heterogeneity, and forward-looking behavior; and (3) our research answers questions regarding the strength of response to frequency reward and customer tier programs, level of heterogeneity, and the corresponding policy implications.

[to cite]:


[url]:

http://www.acrwebsite.org/volumes/14870/volumes/ap08/AP-08

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EXTENDED ABSTRACT
In a business environment marked by an increase in firm knowledge about its customers, managers and researchers are as aware as ever of the importance of brand loyalty. Accordingly, “loyalty programs”, designed to maintain and enhance loyalty, have become “go-to” marketing programs for many companies. These programs have elicited mixed reviews. Advocates view them as mechanisms for softening price competition, building a database for customizing marketing efforts, and a dominant strategy for firms as long as the fixed cost of the program is not too high. In addition, they note that a minority of customers contribute to most of a firm’s profits, so it is logical to lavish attention on them. Finally is the belief that it is less costly to service and retain current customers than to acquire new ones. Critics, however, cite the high costs of loyalty programs, question whether they really increase loyalty, warn they become a profit-eroding prisoner’s dilemma, and question whether it is really cheaper to serve existing customers.

One factor that muddles this debate is that two distinct forms of loyalty programs have emerged: frequency reward and customer tier. Frequency reward programs are typically of the form, “Buy X times, get one free.” These are the original trading stamp and frequent flier programs. Customer tier programs are of the form, “Once you qualify for our gold tier, we will provide you with special services.” Both programs usually rely on accumulated customer sales to determine which customers get rewarded with what rewards. However, they differ in two crucial respects: First is the nature of the reward. With frequency reward programs, the reward is meaningful but ephemeral – a free flight, a rebate, etc. Customer tier programs offer, for an extended period of time, a bundle of enhanced services such as dedicated phone lines, faster check-in service, automatic upgrades etc. Second is the means to obtain the reward. Frequency reward programs typically require customers to proactively trade in their points in order to receive the reward. Customer tier programs dispense their reward automatically. Once customers qualify for a certain tier, they are notified and are treated according to their tier status. It can be argued that customer tier programs have more potential to build customer loyalty rather than frequency reward programs. In order to fully gauge the impact of “loyalty programs” on customer behavior, it is imperative to understand both frequency reward and customer tier components. This requires incorporation of the following phenomena:

- **Forward-Looking Customers:** Both forms of loyalty programs encourage customers to consider the future ramifications of their current choices, because these choices bring them closer to receiving a reward, be it the short-term free product or the chance to be a “Platinum” customer.
- **Value of the Reward:** Obviously, the degree to which customers value the reward influences their behavior.
- **Obtaining the Reward:** For the frequency reward program, this requires a deliberate decision to “cash-in.” The reward is automatically delivered for customer tier programs.
- **Points Pressure:** This is a direct outcome of forward-looking behavior; customers are expected to increase purchase frequency as they get closer to the reward.
- **Rewarded Behavior:** This is particularly relevant for frequency reward programs. The reward indeed is short-term, but customer affect created by the reward can translate into an increase in loyalty.
- **Customer Heterogeneity:** Customers are clearly heterogeneous with respect to the above phenomena. Some customers may feel a free flight is worth any amount of effort, while others may not stand the hassle. Some may not care about the perks provided to “Platinum” customers, while others crave the royal treatment.

In this paper, we develop a dynamic structural model to determine the impact of frequency reward and customer tier components of a loyalty program on customer behavior. We estimate our model using data from an airline’s loyalty program. Our findings are that a two-segment solution fits the data best both in estimation and validation samples, revealing a “customer-tier focused” segment that highly values the customer tier component but attaches a net negative value to the frequency reward, and a “loyalty program enthusiasts” segment that values both frequency reward and customer tier programs. We illustrate the points pressure and rewarded behavior effects and find that while both program components increase the number of paid flights, the paid no-cash-in flights decrease under the frequency reward program.

The contribution of this paper is threefold. First, we provide an integrated analysis and an examination of the differential impact of two critical components (frequency reward and customer tier) of a loyalty program on customer behavior. Second, we develop a comprehensive dynamic model that incorporates the key phenomena mentioned above: forward looking behavior, value of the reward, purchase as well as cash-in decisions, and heterogeneity. Third, we generate substantive results with respect to points pressure and rewarded behavior effects and develop corresponding policy implications, thus adding to our knowledge base of customer response to loyalty programs.

**Keywords:** Dynamic choice models, customer expectations, customer tier programs, loyalty program, frequency reward, database marketing, segmentation
REFERENCES


