The effects of loyalty programs on markets

Bachelorscriptie

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Abstract

In this research paper the interaction between loyalty programs and switching costs will be analyzed. Furthermore the effects that loyalty programs have on switching costs, market prices and consumers will be researched. This will be done by setting up three different models, where two firms offer differentiated products to consumers which can be either high or low demand consumers. In this model the firms will introduce a ten plus one free loyalty program, where the high demand consumers are able to claim the reward. It is very likely that the loyalty programs induce switching costs. The results of the models show that the introduction of loyalty programs will raise market prices. Low demand consumers will always be worse off, while it might be possible that the benefits for the high demand consumers outweigh the increase in prices.

Contents

INTRODUCTION 3

THEORETICAL FRAMEWORK 5

MODELS AND RESULTS 8

1. MODEL WITHOUT SWITCHING COSTS 8
2. MODEL WITH SWITCHING COSTS 9
3. MODEL WITH SWITCHING COSTS DEPENDENT ON PREVIOUS PERIOD 11

ANALYSIS 13

DISCUSSION 16

CONCLUSION AND FUTURE RESEARCH 18

REFERENCES 20

Introduction

Nowadays consumers are offered loyalty programs by all kind of companies and businesses. These differ from the local coffee place on the corner, which gives away a free drink after ten stamps, to the air miles rewards programs offered by major airlines like Air France-KLM and American Airlines. Since these loyalty programs are so popular it is clear that companies value the retention of their consumers.

For consumer it seems like the increase of the presence of these loyalty programs is a very welcome development, since they are better off by getting discounts or even free things if they stay at the same company. This is indeed the case if the consumers were planning to keep buying from the same firm anyway, but it may not be beneficial for consumers who would like to switch between companies. These loyalty programs can discourage these consumers to switch, for example if they are already halfway to claiming their reward on the loyalty program. If this is the case, then the loyalty programs cause these consumers to experience increased 'switching costs'.

Switching costs occur when a person decides to switch from his current product or firm to another one. In this case the switching costs that consumers experience may be increased because the consumer loses his or her saved points for the loyalty program if they switch to another firm. A famous example of this is the use of QWERTY keyboards. Since most of the people are already used to this keyboard layout, it will cost them a lot of time and effort to relearn typing with another keyboard layout. The switching costs for most people will be too high to switch to another keyboard. Even though more efficient keyboards may already be designed, it will be very hard to introduce because of the high switching costs people experience.

As seen in the example, switching costs can lead to inefficiencies. Since the loyalty programs not only offer discounts or free deals to consumers, but also raise the switching costs, it is certainly a possibility that consumers may be worse off in the end. Firms can change their strategy according to the switching costs that consumers experience. For instance, if many consumers experience switching costs, firms can choose to charge a higher price to increase their profits, if they know that the experienced switching costs by consumers is too high for the consumer to decide to change firms.

Besides the research on respectively loyalty programs and switching costs, there has barely been any research linking one subject to the other one. This research will study how loyalty programs affect the switching costs of consumers, and how loyalty programs affect consumers. This is also useful for both authorities and firms. For firms it is useful to know which aspects are most important for consumers, and which aspects they can easily focus on to make their loyalty programs as good as possible. Authorities can decide to prohibit loyalty programs in markets if it is clear that loyalty programs cause

inefficiencies in the market, since the introduction of a loyalty program does not directly cause a firm to become more efficient or innovative.

As stated before, in this paper the link and interaction between loyalty programs and the switching costs of consumers will be further analyzed. The paper will mainly focus on the consequences of the introduction of a loyalty program. This will be done by answering the research question: "*In what way does the introduction of loyalty programs in an existing market affect switching costs, market prices and consumers?"*

We will answer the research question with the help of three different hypothesizes:

1. *Loyalty programs induces extra switching costs*
2. *Loyalty programs causes market prices to rise*
3. *Even though loyalty programs offer benefits, consumers will be worse off*

Firstly, a theoretical framework will be introduced regarding switching costs and loyalty programs. Subsequently this paper will set up the models based on this theoretical framework. The results of the models will then be analyzed and discussed. Finally we will draw our final conclusions and make recommendations for future research.

Theoretical Framework

In this paper the main focus is on connecting loyalty programs to switching costs and their effects. As stated earlier, there has already been some research on both switching costs and loyalty programs. It is very likely that switching costs and loyalty programs are related, since one of the main reasons for firms to set up loyalty programs is to retain customers. This can be achieved by raising the switching costs of consumers so that they will stay at their current firm.

The switching costs of consumers can indeed cause consumers to be 'locked in' (Klemperer, 1987). In this paper Klemperer describes a model with two periods. In the first period, the consumers will buy at a firm, which causes them to have switching costs in the second period. Because of the present switching costs in the second period, some consumers will not switch even if the other firm has a slightly better deal, because the consumer experiences switching costs. This costs makes it not worth to switch to the other firm, which causes consumers to be 'locked in'. In this model, the firms will also raise their prices in the second period, because they can exploit the costs the consumers face if they decide to switch.

Klemperer has also further researched the effect of switching costs. According to this research, the presence of switching costs can cause consumers to be locked in, which in turn can possibly lead to negative outcomes like higher prices, less new entries by other firms, less competition and less total welfare (Klemperer, 1995). Furthermore the paper suggests that activities that cause switching costs to increase should be discouraged by public policy. Klemperer also names loyalty programs as one of the reasons that switching costs increase in the market.

The outcomes of the presence of switching costs in markets has been well studied, but what these switching costs exactly consist of is less clear. These characteristics of switching costs and the different factors that influence these costs have been analyzed in different papers, but these studies slightly differ in the way they categorize the causes of switching costs. In this study, the models will be based on how switching costs work. By knowing the different aspects of switching costs, we can see which of these are affected by loyalty programs and set up models accordingly.

A way to separate switching costs is to categorize them in three main categories: procedural, financial and relational costs (Burnham, Frels, & Vijay, 2003). Procedural costs are costs that occur in the sense of effort and time. This includes things like learning costs and setup costs. Financial costs include the loss of benefits or monetary loss. Relational costs are present if consumers experience psychological or emotional discomfort when switching because of breaking bonds with the firm or due to a loss of identity. They deducted these costs through an empirical research with the help of interviews to find out which switching costs consumers face, and how much each of these categories influence the total

switching costs that consumers experience. Besides these things, the market characteristics, consumer investments and domain expertise also effect the costs that consumers experience.

Jones et al. (2002) states that the switching costs that consumers experience consist of 6 different things: Lost performance costs, uncertainty costs, pre- and post-switching and evaluation costs, setup costs and sunk costs. The factors that influence switching costs that are defined by this empirical paper are not exactly the same as in the other paper, but the main points about what switching costs consist of show many similarities.

Both these papers from Burnham and Jones describe how switching costs work and tried to find the underlying aspects of these switching costs to categorize them. The models and results that are found by these studies only regard switching costs on its own however. In this paper we will add a loyalty program to these existing models, so in addition to having the switching costs, the loyalty program and its effects will be added.

On the aspect of loyalty programs there have been a few studies on the effects of loyalty programs on the behavior of consumers. According to Dowling & Uncles (1997), the effectiveness of loyalty programs to strengthen relationship with consumers is uncertain. The paper argues that these loyalty programs may only be worthwhile if certain conditions are met. The loyalty program has to either directly improve the product or improve the value of the product, increase the availability or counteract a loyalty program of a competitor. Even if a loyalty program meets these requirements, this research states that it is still possible that the introduction of a loyalty program can cause more competition in the market which affects the profit of the firm negatively. The conclusion of this paper is quite surprising, since it states that loyalty programs are rarely a good idea for the profit of businesses. In practice however loyalty programs are widespread and commonly used, so it seems like real world practices do not match the outcomes of this research.

Sharp & Sharp (1997) studied the effect of loyalty programs on repeated purchases of consumers. By empirically studying six different kinds of loyalty programs in different markets, they found that it is very difficult to alter the repeat-purchasing behavior of consumers, but that it is certainly possible, albeit to a small degree. According to this paper members who participate in loyalty programs should show different behavior than consumers who do not participate in terms of things like repeat-purchase rates, frequency of use and decreased switching to non-program brands.

That loyalty programs have an effect on retaining customers is also found in the research of Liu (2007). In this empirical study, data was analyzed from a franchise of a convenience store over a period of two years. The study found that while heavy buyers often claimed their rewards of the loyalty program, their actual purchase behavior did not change. Moderate and light buyers however, showed an

increase in transaction sizes, purchase frequency and loyalty to the store. This is contrary to the common belief that light buyers see little value in these loyalty programs. So according to this study, it is definitely possible to increase the loyalty of your customers with the use of a loyalty program.

These three papers all researched the effects of the loyalty programs on the behavior of consumers and how companies try to affect and change this behavior. This paper will use these findings to connect these loyalty programs to the already existing knowledge about switching costs. However, the effects of the loyalty programs on the market like prices is not thoroughly discussed or modeled in these papers. This paper will resolve some of the possible outcomes of the effects that loyalty programs have and their interaction with switching costs.

By connecting these studies, it also appears that the presence of loyalty programs are indeed connected to certain switching costs that the consumer experience. Aside from the existing switching costs that already exist within a market, it is seems likely that the presence of the loyalty program itself can induce switching costs. The loyalty programs are related to the underlying characteristics of switching costs that the studies describe, and try to affect these characteristics to alter the behavior from their consumers.

Models and Results

To find out the effects of a loyalty program in a market, three different simplistic models will be set up and compared to each other. The first model will model a basic situation of a market where no switching costs are present. In the second and third model, loyalty programs and the switching costs they cause will be added to the model. Afterwards these results will be compared to each other and the effects of the introduction of loyalty programs will be analyzed.

1. Model without switching costs

In this model there are two competing firms, firm A and firm B. Both firms offer their own product, product A and product B which are differentiated. Both firms have constant marginal costs, offer only one deal and sell it for a price P. For the demand curves a standard residual linear downward sloping line will be used, where demand depends on the firm's own price and the rival firm's price. Next to this there are two different types of consumers, those with a high demand D_H and consumers with a low demand D_L:

$$D_L^{res}: q_i(P_i, P_{j)} = a - bP_i + \beta P_j$$

$$D_H^{res}: q_i(P_i, P_{j)} = a - \frac{1}{2}bP_i + \frac{1}{2}\beta P_j$$

The low demand consumers have low demand for both products, while the high demand consumers have a high demand for both products. In these demand curves, 'a' is a constant, 'b' is the price sensitivity of consumers for the firm and 'β' is the price sensitivity of consumers regarding the rival firm. Next to this we will assume that β>0, meaning that an increase in price of the rival firm causes an increase in the demand of the other firm.

The total residual demand Q in the market will be $D_L^{res} + D_H^{res}$, which results in the following:

$$D_{Total}^{res}: Q_i(P_i, P_{j)} = 2a - \frac{3}{2}bP_i + \frac{3}{2}\beta P_j$$

The profit for each firm will be the price subtracted by the costs, multiplied by the quantity sold:

$$\pi(P_i, P_{j)} = (P_i - c)(\, 2a - \frac{3}{2}bP_i + \frac{3}{2}\beta P_j)$$

Each firm will choose their price to maximize their profits, which will result in the optimal pricing strategy for each firm when solved. Assuming symmetry between the firms, since they have the same costs, then the price for firm A will be the same as the price for firm B.

$$\frac{\partial \pi}{\partial P_i} = 2a - 3bP_i + \frac{3}{2}\beta P_j + \frac{3}{2}bc = 0$$

$$P_i = \frac{2a + \frac{3}{2}\beta P_j + \frac{3}{2}bc}{3b}$$

This will result in the following equilibrium price:

$$P_A = P_B = \frac{2a + 1\frac{1}{2}bc}{3b - 1\frac{1}{2}\beta}$$

Finally, we will add the assumption $2b > \beta$ to prevent equilibrium prices being infinitely high and negative prices.

2. Model with switching costs

In the second model, the first model will be extended to a two-period model, which includes switching costs and loyalty programs. The same situation will be used as in the model described in the previous section, again there will be two competing firms which both offer one deal, two differentiated products and constant marginal costs for both firms. In the first period consumers will not experience any switching costs yet since they are not locked in yet. Consumers also do not gain any benefits yet from the loyalty program. For the first period, the prices will thus be the same as in the first model. This is the case assuming that the firms do not anticipate on introducing the loyalty programs in the second period, with the associated switching costs. For this model we will also keep the assumptions about the variables b and β to keep the models constant.

For the second period, a loyalty program will be introduced. Again the consumers will be split in two different segments, the high demand customers D_H and the low demand customers D_L. The high demand customers will purchase enough to be able to trigger these rewards in the second period, while the low demand customers will not be able to get the benefits of the loyalty programs. In this model we will go with a simple loyalty program that offers a free item after a certain amount of purchases, which is often used at places like coffee bars. A common used loyalty program in these places is that customers can earn stamps or credits after every purchase. After the tenth purchase, the customer can get a free item or drink. Therefore the benefit of this loyalty program will be modeled

here as a ten percent discount for the high demand customers, provided that the consumer stays at the same firm. For the low demand customer this is not the case, since they do not buy enough to be able to claim the reward. Following this, the demand curves will be:

$$D_L^{res}: q_i(P_i, P_{j)} = a - bP_i + \beta P_j$$

$$D_H^{res}: q_i(P_i, P_{j)} = a - \frac{1}{2}b * \frac{9}{10}P_i + \frac{1}{2}\beta P_j$$

$$D_L^{res} + D_H^{res}: Q_i(P_i, P_{j)} = 2a - \frac{29}{20}bP_i + \frac{3}{2}\beta P_j$$

In addition to the benefits of the loyalty program, switching costs will also be incorporated into the model as a result of the addition of loyalty programs. Customers who switch to the other company will experience an additional switching cost of *S*, so the total price switching customers have to pay is *P+S*. These switching costs may be the result of things like learning costs for example, since they have to get accustomed to the new products until they are familiar with it. These costs however will only apply to the consumers who switch firms, so we will assume that after period one that one firm will have a market share of *μ*, which leaves the other firm with a market share of *1-μ*. So the total residual demand curve will look as follows for firm A:

$$D_{Total}^{res}: Q_i(P_i, P_{j)} = \mu_i\left(2a - \frac{29}{20}bP_i + \frac{3}{2}\beta[P_j + S]\right) + (1 - \mu_i)\left(2a - \frac{29}{20}b[P_i + \mathrm{S}] + \frac{3}{2}\beta P_j\right)$$

$$D_{Total}^{res}: Q_i(P_i, P_{j)} = 2a - \frac{29}{20}bP_i - \frac{29}{20}bS + \frac{3}{2}\beta P_j + \frac{3}{2}\mu_i\beta S + \frac{29}{20}\mu_i bS$$

The profit function will be:

$$\pi(P_i, P_{j)} = (P_i - c)\,(2a - \frac{29}{20}bP_i - \frac{29}{20}bS + \frac{3}{2}\beta P_j + \frac{3}{2}\mu_i\beta S + \frac{29}{20}\mu_i bS)$$

$$\frac{\partial\pi}{\partial P_i} = 2a - \frac{29}{10}bP_i - \frac{29}{20}\mathrm{bS} + \frac{3}{2}\beta P_j + \frac{3}{2}\mu_i\beta S + \frac{29}{20}\mu_i bS + \frac{29}{20}bc = 0$$

$$P_i = \frac{20a + 15\beta P_j + 15\mu_i\beta S + \frac{29}{2}bc + \frac{29}{2}\mu_i bS - \frac{29}{2}bS}{29b}$$

Since we are mostly interested in the effect of the switching costs here, we will assume that each firm has a market share of fifty percent and apply symmetry again. This will end up in the following equilibrium prices for an equal market share:

$$P_A = P_B = \frac{20a + 14\frac{1}{2}bc + S(7\frac{1}{2}\beta - 7\frac{1}{4}b)}{29b - 15\beta}$$

There may be more price equilibria at different proportions of market shares, however these are not found or discussed in his paper.

3. Model with switching costs dependent on previous period

In the third model we have a situation that is similar to the second model, only the switching costs are now also dependent on the amount the consumer bought in the previous period. The more products the consumer bought in the previous period, the higher the switching costs will be that he experiences. This in contrast to model 2, where the switching costs were independent on the amount bought in the first period. In the case of the 'ten plus one free' loyalty program that is used in this paper, variable switching costs can be explained by relational costs or emotional costs. If someone already bought nine products in the previous period, it would not be odd to think that his switching costs are higher than someone who only bought one product the previous period. The first consumer can feel he 'loses' the nine credits he saved up when he switches, while the second person might not feel as burdened to switch because he only has one credit saved up anyway.

As stated earlier, the third model will be very similar to the second model, with the only difference being the way the switching costs are set up. Again there will be two competing firms, which both produce a differentiated product. They both offer one deal and they both have constant marginal costs. In the first period switching costs and loyalty programs will not play any role, so the first period will be the same as the first model without switching costs. Since only the way the switching costs work will be changed in this model, the same demand curves for the high and low demand consumers will be used.

$$D_L^{res} + D_H^{res}: Q_i(P_i, P_{j)} = 2a - \frac{29}{20}bP_i + \frac{3}{2}\beta P_j$$

To this the variable switching costs will be added, as small letter 's', dependent on the quantity the consumer bought at the other firm in the first period, q_o:

$$D_{Total}^{res}: Q_i(P_i, P_{j)} = \mu_i\left(2a - \frac{29}{20}bP_i + \frac{3}{2}\beta[P_j + q_0 s\right) + (1 - \mu_i)\left(2a - \frac{29}{20}b[P_i + q_0 s] + \frac{3}{2}\beta P_j\right)$$

$$D_{Total}^{res}: Q_i(P_i, P_{j)} = 2a - \frac{29}{20}bP_i - \frac{29}{20}bq_0 s + \frac{3}{2}\beta P_j + \frac{3}{2}\mu_i\beta S + \frac{29}{20}\mu_i bq_0 s$$

The profit function will be:

$$\pi(P_i, P_{j)} \;=\; (P_i - c)\;\left(2a - \frac{29}{20}bP_i - \frac{29}{20}bq_0\mathrm{s} + \frac{3}{2}\beta P_j + \frac{3}{2}\mu_i\beta q_0\mathrm{s} + \frac{29}{20}\mu_i bq_0\mathrm{s}\right)$$

$$\frac{\partial\pi}{\partial P_i} = 2a - \frac{29}{10}bP_i - \frac{29}{20}\mathrm{b}q_0\mathrm{s} + \frac{3}{2}\beta P_j + \frac{3}{2}\mu_i\beta q_0\mathrm{s} + \frac{29}{20}\mu_i bq_0\mathrm{s} + \frac{29}{20}bc = 0 = 0$$

$$P_i = \frac{10\;(2a + \frac{3}{2}\beta P_j + \frac{29}{20}bc + \frac{29}{20}\mu_i bq_0 s)}{29b}$$

In the same way as done in model 2, the equilibrium prices will result in:

$$P_A = P_B = \frac{20a + 14\frac{1}{2}bc + q_0\mathrm{s}(7\frac{1}{2}\beta - 7\frac{1}{4}b)}{29b - 15\beta}$$

Analysis

From the models it can be seen that the three different situations result in three different outcomes. Firstly we will analyze the different price levels:

$$Price\ of\ model\ 1: P = \frac{2a + 1\frac{1}{2}bc}{3b - 1\frac{1}{2}\beta}$$

$$Price\ of\ model\ 2: P = \frac{20a + 14\frac{1}{2}bc + S(7\frac{1}{2}\beta - 7\frac{1}{4}b)}{29b - 15\beta}$$

$$Price\ of\ model\ 3: P = \frac{20a + 14\frac{1}{2}bc + q_0 s(7\frac{1}{2}\beta - 7\frac{1}{4}b)}{29b - 15\beta}$$

How the price of model 1 is constructed is quite straightforward. Firstly there is the factor β. If the β rises, the market price rises as well. As seen in the best response function, this β is related to the price of the rival firm. The reason for this is that the products of the firm are differentiated to a certain extent. Even though the demand increases for your product if the rival firm raises its price, it is still beneficial for the firm to raise its price too due to the differentiation, which causes the demand to be less elastic. The level of β is likely dependent on how similar or how differentiated the product is. If the products are more differentiated, the β will be higher since then the rival firm's increase in pricing leads to a higher incentive to raise your own price. Since a higher β will cause higher prices, it is also the case that in this market, the more differentiated the products are, the higher the prices are. This also makes sense logically, because there are only two firms in the market. If the products would be more similar, consumers would be more sensitive to an increase in prices, since then the products would be mostly the same anyway. Next to this an increase in production costs '*c*' also increases the price.

In the second and third model it can be seen that the optimal price is now also affected by the switching costs. We can see that whether the switching costs affect the prices positively or negatively is dependent on the variables b and β. With the earlier made assumptions that $2b > \beta$ and $\beta > 0$ it can be calculated that the switching costs cause an increase in price if $2b > \beta > \frac{30b}{29}$. The switching costs lower the market prices when $0 < \beta < \frac{30b}{29}$. This however is not possible in this case, as we have stated that $2b$ should be higher than β, so the presence of switching costs will cause the market prices to rise. This finding is also in line with the previous studies about switching costs, that the existence of switching costs in a market causes the market prices to rise.

In model three it is of course the case that the more consumers have bought in the first period at the other firm, the higher the switching costs are for them to switch from the rival firm. This increase in switching costs raises or decreases the optimal price, just like in model 2. To what extent this influences the price also depends on the variable switching cost. If consumers attach a lot of value to each point that they saved, the switching costs will be higher for every purchase they did in the first period.

Commented [MB1]:

By comparing the price of model 1 to the price of model 2, a few things can be seen. If the fixed switching costs will be set to zero, and all variables are kept constant, then the price of model 1 will always be lower than the price in model 2:

$$Price\ of\ model\ 1: P_1 = \frac{2a + 1\frac{1}{2}bc}{3b - 1\frac{1}{2}\beta} = \frac{20a + 15bc}{30b - 15\beta}$$

$$Price\ of\ model\ 2: P_2 = \frac{20a + 14\frac{1}{2}bc + 0(7\frac{1}{2}\beta - 7\frac{1}{4}b)}{29b - 15\beta}$$

$$\frac{20a + 15bc}{30b - 15\beta} < \frac{20a + 14\frac{1}{2}bc}{29b - 15\beta}$$

Since the variables are kept constant and are the same at both sides of the equation, they cancel each other out, and can be removed from the equation:

$$\frac{20 + 15}{30 - 15} < \frac{20 + 14\frac{1}{2}}{29 - 15}$$

$$\frac{35}{15} < \frac{34\frac{1}{2}}{14}$$

$$P_1 < P_2$$

The cause for this can be traced back to the increased demand from the high demand customers. Since they get a reward thanks to the loyalty program, they pay a lower price in the end per product bought, so their demand increases. By accounting for this, the firms can raise their prices and increase their profit by targeting these high demand customers, even though they may lose some of their low demand customers.

As stated earlier in the paper however, it seems the case that the loyalty programs also cause switching costs to be present. If we take the switching costs into account, the price that the firms will charge will rise even further, as explained before. The higher the switching costs are, the more the firms will increase their price. This can be explained by the fact that higher switching costs cause a higher barrier

for customers to switch to the other firm. These higher switching costs can then be exploited by the firms to charge a higher price.

The price level in the third model works mostly the same as in the second model again. The difference in the price that the firms charge, lies in that model three takes the amount bought in the first period into account. As stated earlier, it also depends on how high the consumers value the different switching costs, in this case the saved points. If this value is high for consumers, then it is of course more likely that the price in this model will be higher than in the second model. Also as stated earlier, the higher the quantity that the rival firm sold in the first period, the higher the price level will be. This is also in some way related to the market share, since if the quantity sold by the rival firm rises, then the market share of the rival firm is also higher. A higher market share for the rival firm decreases the price again for this firm.

Discussion

By analyzing the results, it can be seen that the presence of loyalty programs definitely affects consumers and markets in several ways. Firstly, the introduction of loyalty programs causes the prices in a market to rise. In this case, this results in the low demand customers always being worse off, even if switching costs equal zero. This is due to the increase in price resulting from the increase in switching costs and the increase in demand for high demand consumers. Besides this, they do not benefit from the loyalty program in any way. Logically this also makes sense. Even if the price of a product rises a little, consumers would still be likely to keep buying from the same company if buying from the other firm would cost them even more.

The high demand customers do benefit from the loyalty program, in the sense that they basically get a discount. It is possible for the high demand customers to be better off in some scenarios. This will be the case if the switching costs are low enough and also depends on how much they benefit from the loyalty program. As long as ninety percent of the new price is less than the price the firms would charge without the presence of loyalty programs for the same amount, the high demand customers profit.

Also in a real world scenario, it could also be possible for high demand consumers to benefit from the loyalty programs, even if switching costs were to be relatively high. This can be the case if the firms offer a larger discount, or for example if there is a loyalty programs with levels of benefits in place, like airline companies use. Consumers with a very large demand then also gain many rewards. The firms however only introduce a loyalty program if this increases their profits. So if high demand consumers profit from loyalty programs, they do so at the expense of the low demand consumers. The other scenario is that the high demand consumers are also worse off, even though they get benefits. This would be undesirable, since this raise in market prices hurts all consumers, while increasing the profits of the firms without the companies innovating or becoming more efficient.

As seen in the models and best response functions, the prices are also affected by the market share. For our equilibrium prices, we have put the market share at fifty percent, but this is of course not always the case in reality. The market share affects the optimal price that firms charge in a few ways. The lower the market share of the firm is, the lower the price will be that they charge to win over consumers. When the firm has a large market share after the first period, then a lot of its customers are already locked in due to the switching costs. Because of this, the firm can then charge a higher price to earn larger profits. However, it is also the case that when the firm has a very large market share, the rival firm will put his prices low, which in turn lowers the optimal price again. Intuitively, if the firm has a very low market share, then it can be more profitable to undercut the rival firm and steal a lot of its customers, even though the profit margin is smaller with a lower price.

An uneven divided market share can also be the case if a new firm enters the market. The new entrant can decide to set a low price to attract consumers, which in turn lowers the price of the incumbent firms again. This also means that the firms will act less competitive once the consumers are locked in. Besides this, it also benefits the firms to not be too competitive in the first period, since this will result in the rival firm undercutting them in the second period if the difference in market share is too big.

These results are quite in line with the papers that were discussed earlier. The firms use the loyalty prices to retain customers and increase the switching costs that consumers face. The consequence is that the firms are able to charge higher prices, which then ultimately results in higher profits for the firms. Even though it may be beneficial for some customers, consumers in total will have to spend more money for the same amount. Besides this, Klemperer also already came to the same conclusion concerning the firms competing regarding their market share.

Conclusion and Future Research

In this paper the presence of loyalty programs were analyzed by setting up a few different models to answer the main research question: "*In what way does the introduction of loyalty programs in an existing market affect switching costs, market prices and consumers?*"

In these models two firms each offered a differentiated product to two types of consumers. The first model without the loyalty program and switching costs was then compared to the other two models, where these things were present. By analyzing the results of these models, the research question can be answered with the help of testing the three hypothesizes. Firstly, by linking previous studies on the separate fields of loyalty programs and switching costs, it is very likely that loyalty programs indeed induce or raise switching costs by influencing the underlying aspects of these costs. Secondly, in the models that were set up in this paper, the market prices will indeed rise due to the introduction of loyalty programs and the switching costs that they induce. Finally, due to the rise of these prices, we can conclude that consumers who do not gain the rewards from the consumers are always worse off in our case. For the consumers who do benefit from the rewards however, there is still the possibility that they end up better off. This can be the case if the benefits of the loyalty program are large enough for example. If this is not the case however, loyalty programs may only give the consumers an illusion that they gain benefits or rewards, while in reality they are being offered a worse deal in the end. If this is the case then it might be wise for authorities to prohibit loyalty programs in this market.

The results that were found are still subject to the limitations of this paper, since the models that were set up are quite simplistic. Firstly, this paper assumes symmetry in the various models, and uses an evenly divided market share between the two firms. In reality however, the costs that firms have are rarely ever the same, and the same counts for the market share of firms. Secondly, these models are made with a specific loyalty program in mind. A different kind of loyalty program may affect consumers and firms in a different way, which can result in different outcomes. Besides these things, in the models that were used there are only two competing firms, without the possibility of a new firm entering the market. If there is a threat of new firms entering the market, it is possible that this threat lowers the optimal price of the incumbent firms to keep the other firms out. Next to this, the models only cover a time span of two periods. There may be different outcomes if more periods are taken into account, since consumers also have more periods to save up for the rewards of the program. There is also the possibility that switching costs increase with every consecutive period the consumer stays at one firm, for example due to relational costs. Also there are only two types of consumers taken into account in the models, while in practice consumers vary in all kind of ways. Finally, the results may differ if firms decide to make use of loyalty programs from the beginning. If this is the case then their strategy in the

first period will be different, since they will try to get a bigger market share in the first period to lock in consumers, even if it might result in lower profits during the first period. For future research these are topics that can still be covered, like how the prices change with a variable market share, the effect of different kinds of loyalty programs, how the results would change with more firms and what the effect is of longer periods of time.

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