2 Theoretical Literature

The first theoretical model on switching cost was developed by Von Weizsäcker (1984). He considers a market functioning as a duopoly where the companies have differentiated products a la hostelling. The switching cost and the exogenous is paid by all the consumers that desire to consume from another company. There is a assumption that the prices remain constants, which many times is a hypothesis a rather strong to this model type. And is exactly this hypothesis that the later models will modify. As a conclusion, the author considers that if the preferences of the consumers vary with the time, the major switching costs can change the preference and end up choosing for a cheaper product instead the preferred one in the first period. So, the author concludes that switching cost intensifies the competition.

Klemperer (1987 a) considers a model with two companies, two periods and product differentiation occurring only through the exogenous switching cost. Unlike Von Weizsäcker, Klemperer enables with his model the opportunity to changing prices among the periods. He observes that the companies have an incentive to concur more aggressively to the market share in the first period, while in the second one the companies tend to take advantage of the market share charging more expensive prices. But, there is no result that the prices in the first period are lower than the markets without switching cost and also it is not obvious that the companies will be better with the existence of the switching cost. He concludes also that the existence of the switching cost makes that the rational consumers have preferences more inelastic than in markets without switching cost, thus because they anticipate that they will be "attached" to a company in a second moment. He realizes that in the second period, due to the fact that the companies act almost as monopolistic in the non cooperative equilibrium, becoming easier the formation of a cartel among them, once that deviate from the agreed is unprofitable.

In Klemperer (1987 b), he considers, as Von Weizsäcker, a duopoly scenario, with two periods, two companies and the switching cost charged in the second period. The consumers in this market also have differentiated tastes. This differentiation of tastes on the side of the consumers is demarcated in the model through the allocation of the companies in the extremes of the economy and the allocated consumers, in a uniform way along of the line segment [0, t]. Existing, then, cost of transportation by the consumers. A part of them keep their preferences unaltered and the other part have independent tastes in relation to the first period and the last part leaves the market and is replaced by the same number of new consumers. Another relevant information is that all the consumers present in the economy consume one of the goods. The companies in this model maximize the weighted sum of the profits from the two periods, being that there is a same discount rate charged in the second period. The switching cost in this model makes that the companies compete more aggressively in the first period aiming the market share, although in the second period they look for the improvement of this market share competing less. The consumers, because of this, will have a more inelastic demand in the two periods if compared to the market without switching cost. In despite of the firms compete more in the first period than in the second one is not the result that they compete more if compared to the market without switching cost. This is due to the fact that the consumers anticipate the movement of the prices reduction in the first period and did not answer so strongly to this reduction.

Klemperer (1987 c) examines how the switching cost affects the entry of a company in a market where this is only an incumbent company and a possible incoming. He considers the market functioning in two periods with perfect and complete information. There is an incumbent company that plays in the two periods and a coming company that observes the product of the incumbent company and decides to come in bearing the fixed cost F. The products are functionally identical, only differentiated by the switching cost. The aimed equilibrium is the equilibrium of Cournot. As the first conclusion, the author gets that the incumbent company choosing in the first period a larger quantity that it would choose in case simply would maximize the profit in the two periods. This is to invest in its future market share and to prevent that the coming company enters

in the market. Other conclusion, less intuitive of the author shows that the opposite of the above result can be gotten when the market is growing or the cost of the incumbent company differs among the periods. The incumbent company can signalize that there will be a more aggressive completion in the second period when it charges a higher price in the first period. It becomes profitable to this company to fight for new clients in the second period when this has a base of minor clients, keeping away from the market the coming company. The same would not occur in the region where would charge intermediary price to these two cases. In this region, the incumbent company does not have so many incentives to fight for new clients because it already has satisfactory clients base. For these reasons, the switching costs can affect so positively as negatively the entry of new companies. On the one hand, the incumbent company can behave in way to keep aside of the market the coming company and on the other can only worry with the consumers that it conquered in the first period leaving the others consumers to the coming company, becoming easier, then, the entry of the other company.

In Klemperer (1989) , the author analyzes a model of four periods with complete information and switching cost in which the entry of a new company occurs after the first period. Klemperer shows that the occurrence of a new comer results in equilibrium in a price war. Being this defined as a price reduction, followed, in the next period, by an increase of price. The author separates the price wars in two types, one occurring when the switching cost is low and the other when the opposite occurs. When the switching cost is low, Klemperer shows that the companies that are coming have the incentive to charge lower price to attract new clients encouraging the incumbent company to do the same for not losing its clients. What occurs in the next period is that the coming companies are encouraged to raise the prices to get advantage from the conquered clients, being the same effect by the incumbent company. The other price war occur when the switching costs are high, being this motivated by another way. The incumbent company reduces the price before the entry moment of other companies to raise its client base. The movement after the entry of the others companies is the price rising, being the utilization of old clients in this period the focus of the companies.

It is relevant to cite another work of Klemperer and of Beggs. In Klemperer and Beggs (1992), the authors appraise the price evolution and the

market shares in a duopolistic market in an infinite horizon with the switching cost. In every period new consumers come in and leave the market. The author looks for the Markovian perfect equilibrium in steady state and shows that the prices are higher than in markets without switching cost, being this result dependent on the used hypothesis. He also shows that although the coming companies have to compensate the disadvantage they have in this market type on the side of the consumers are already committed with the incumbent company, the entry in this market is more attractive than in others. He also analyzes the effect in the market growing showing that the prices are decreasing in the market growing, although this prices is always higher than in the market without switching cost.

In summary, the literature shows that there is a certain ambiguity in regard to the switching cost. The maturity of the industry and the occurrence of possible entrants are some of the reasons of the possible distinction of effects.