

CHAPTER 2 LITERATURE REVIEWS

2.1 Introduction

The analysis of switching cost has received attention in both economics and marketing literature. However, there were very few empirical works that examined the importance of churn and the factors influencing churning, especially in the mobile telecommunications industry. We acknowledge that earlier literature on switching cost and customer loyalty contributes much to our understanding in this paper. In some papers, 'churning and 'switching costs' are used interchangeable.

Previous literature suggested that switching cost is important. A brief glance will lead one to believe that a high switching cost will discourage churning, and a low switching cost will indirectly encourage subscribers to switch to other service providers. Is there any proven record on how the churning and switching cost are related? What are the findings of the relationship between churning and switching costs by other researchers? What are the determinants of switching costs and churning?

Due to the fact that we cannot find any empirical studies of churning in the mobile telecommunications industry, the closest literature that we can relate to is the studies of churning in the online brokerage industry. Thus, in this chapter, we will first summarize the findings of churning in the online brokerage industry. Then, we examine the literature on churn prediction model. Finally, we review the empirical and theoretical studies of switching costs from all spheres.

2.2 Empirical Study on Churning

2.2.1 Online Brokerage Industry

Madden, Savage and Coble-Neal (1999) developed a binomial probit model which relates the probability of subscriber churn to various service attributes and subscriber characteristics to the Internet Service Providers (ISPs). The internet subscribers profile was obtained from October 13 to November 3 1997, in Australia. They found that churn probability is positively associated with monthly ISP expenditure, but inversely related to household income. Moreover, the churn probability is higher for males and households where ISP account has multiple users. Younger subscribers are more willing to seek alternative ISPs. For those subscribers who choose their ISP on the basis of reliability, churn is less likely. Pricing is of concern to subscribers because they prefer ISPs that offer flat-rate pricing arrangements. Furthermore, minimizing churn leads to an increased in subscriber base and a declined in retention cost; since cost is reduced in terms of advertising, product differentiation and special offers with a bigger pool of subscribers.

Chen (2001) developed and implemented an approach for measuring the magnitude of switching costs and their determinants for online service providers based on the random utility modeling framework. She mentioned customers experience some form of 'lock-in' or switching costs that prevents them from defecting or churning to another provider. Switching costs arise from a variety of factors, which include the nature of the product, the characteristics of customers that firms attract, or deliberate strategies and investment of the service providers. In her paper, she used the term 'switching' instead of 'churning'. She found that customer demographic characteristics have a little effect on switching, but that systems usage measures and

systems quality are inversely related to switching. She argued that firm characteristics such as product line breadth and quality, may reduce switching and customer attrition.

2.3 Churn Prediction Model

Wei and Chiu (2002) used contractual information and call pattern changes extracted from call details to build a churn prediction model, based on data mining approach. It aimed to identify potential churners at the contract level, for a specific time period. When mobile service provider is able to predict which of their existing subscribers are at risk of changing services, it can then make those subscribers the focus of its customer retention efforts. Others use the hazard model or classification analysis (which includes decision trees, decision rule and neural network) to construct the “churn predicting” application.

2.4 Literature on Switching Cost

2.4.1 Empirical Literature on Switching Cost

(a) Non-Telecommunications Sector

The marketing literatures have been focusing on customer satisfaction and loyalty in evaluating the impacts of switching cost (Fornell 1992) and customer retention (Reichheld, 1990). Fornell (1992) was one of the first writers to consider switching cost in marketing. Stigler(1961) asserted that advertising be it price information or not, spreads information in the market and lowers search costs. Thus, advertising strengthens loyalty of consumers and reduces the price elasticity.

Jones, Mothersbaugh and Beatty (2002) proposed six dimensions of switching costs: lost performance costs, uncertainty costs, pre-switching search and evaluation costs, post-switching behavioral and cognitive costs, setup costs and sunk costs; across two studies in two service industries, namely banks and hairstylists. As mentioned in their paper, switching costs is the perceived economic and psychological costs associated with changing from one alternative to another. It can be thought of as barriers that hold customers in service relationships. They found that perceptions of setup costs and pre-switching search and evaluation costs were higher for hairstylists than banks, and also strongly associated with repurchase intentions for hairstylists.

(b) Telecommunications Sector

Rothschild (1974) showed that instead of searching every firm, consumers should engage in sequential decisions of which the successive search should depend on whether the expected gain from another search is greater than the cost of the search.

"Search costs are also a function of ease of collecting rates and market information on firms. If each phone company were to provide consumers with a monthly rates book, search costs would be diminished. (assume reading time involves zero search costs)." (Knittel, 1997, p527)

Knittel (1997) defined search cost as a function of the availability of market information and the opportunity cost of time. He used panel data of rates for the three largest long distance carriers in the United States, from 1984 to 1993, to find out the influence of search and switching cost on price cost margin. He concluded that the presence of both costs amplifies market power, thus, supporting the finding of

Stiglitz(1989).¹ He argued that long distance rates have failed to fall due to the importance of search and switching costs in the industry. As such, there was a greater push toward direct price advertisement that aims to reduce switching cost, when firms continue to compete for customers.

Switching cost is crucial when the market is competitive and is occupied by few providers. Lee, Lee and Feick (2001) studied the moderating role of switching costs based on mobile phone service market in France. They defined switching costs as costs that the consumer incurs by changing providers and which they would not incur if they stayed with their current provider. It includes transaction costs (the costs in time and efforts in filling out forms when switched to a different provider) and search costs (the cost in seeking information on prices, benefits, service, etc). Switching cost moderates the link between customer satisfaction and loyalty, because some 'seemingly loyal customers' may be actually dissatisfied with the services provided but do not defect in the presence of high switching costs. Thus, relatively high switching costs make consumers less likely to switch providers. They agreed that customer satisfaction programs could be used to increase customer retention rates.

2.4.2 Theoretical Literature on Switching Cost

The theoretical literature on switching mainly focus on market wide issues; arising from price, product compatibility and network externalities (Klemperer, 1987, 1995). Moreover, much of these have been theoretical (Fudenberg and Tirole, 1999; Shy, 2002).

¹ Stiglitz (1989) used two Bertrand competing firms with identical marginal costs to illustrate how the existence of search cost can support market power and monopoly price.

Klemperer (1987) examined the implications of switching costs to the competitiveness of markets. He found that switching costs makes individual firm's demand more inelastic and it reduces rivalry. As stated by Klemperer, "*Ex-ante homogenous products may, after the purchase of one of them, be ex-post differentiated by switching cost*". These switching costs give firms a degree of market power over their existing consumers, thus, result in an opportunity to create monopoly profit. (Klemperer, 1995)

Later, Galbi (2001) worked out a theoretical model of price for shifting between service providers to find out the welfare implications, using the characteristic of customer demand in the US long distance telephone services. He supported the finding of Klemperer (1995) and Chen (1997), and argued that switching costs tend to create market power, soften price competition, resulting in higher prices, less product differentiation and thus create potential for monopoly profit. Besides, the price for changing service providers (switching cost) has a much larger effect on the distribution of surplus between consumers and service providers. Thus, switching cost is an important determinant of firm's future profit.

Gans(2000) conducted a competitive analysis of the determination of connection and churn charges in a context of network competition, in telecommunications industry. The churn charges are imposed on customers who disconnect to a network. He found that churn charges (switching cost) did not play a role in encouraging efficient churn as incentive offered by the rival network precisely offsets the benefit of the churn. Moreover, carriers do recover the cost of recruiting due to the hold up effects caused

by the existence of the consumer connection. Thus, churn charges do not perform a useful role in encouraging consumers to switch.

Fudenberg and Tirole (1999) analyzed duopoly poaching, using a simple Hotelling model with horizontal differentiation. Poaching is the inducing of customers from the rival firms to switch by offering them special offers or discounts. Then, Gehrig and Stenbacka(2003) generated an equilibrium configuration with maximal differentiation and showed that the presence of sufficiently significant switching cost increases the degree of product differentiation. Shy (2002) developed and tested a method for calculation of consumer switching costs in the Israeli cellular phone market and the Finnish market for bank deposits.

2.5 Conclusion

Although churning has been recognized as an equally important phenomenon as subscribers' acquisition. Most studies are centered on the development of software and models to predict the time when a particular customer will churn. The earlier literature that we have reviewed contributes much to our understanding in this area. In the online brokerage industry, the monthly bill amount is positively associated to churn probability. However, income is negatively correlated the probability of churning. System usage and system quality are inversely related to switching. Search and switching costs reduce price elasticity, amplify firms' market power and increase customer retention rates.