Determinants of Consumer Switching Behavior in Mobile Telephony Industry in Kenya

Dominic Ooko

Communications Commission of Kenya

P.O Box 14448 - 00800

Nairobi

ooko@cck.go.ke

Joseph Nzomoi & Rogers Mumo

Kilimo Trust

Princess Anne Drive, Bugolobi

P.O. Box 71782, Kampala Uganda

nnzomoi@yahoo.co.uk

jnzomoi@kilimotrust.org

Rmunywoki@kilimotrust.org

rogersmumo@gmail.com

Abstract

Mobile number portability allows mobile phone subscribers to switch operators without changing their telephone numbers. Subscribers are allowed to choose their preferred network based on such aspects as customer care, quality of service, value added services and the cost of communicating on the network while retaining their telephone number. Kenya implemented this service in April 2011 with the first month of implementation recording the highest number of ports. This paper seeks to establish the factors that influence consumer switching behavior; that compel subscribers to port their cell phone numbers as they migrate to new service providers. Regression results show a strong relationship between the consumer intention to switch and the "Push Determinants" i.e. the duration and the cost of porting. Other determinants identified are the "Swayer Determinants" which include the period of usage, age, and the average amount spent on airtime. These were found to have a minimal influence on the intention to switch. Furthermore, results indicate that 68% of the respondents had intention of switching but the existing legal framework was found to be ineffective in facilitating an increase in the porting rate. We recommend further regulatory measures to address the dominance or non cooperation of the main players who frustrate the porting process leading to lengthy and cumbersome switching procedures that make it difficult for desiring subscribers to switch. Finally, Mobile Number Portability awareness should be transparent and non manipulative.

***Key words:** Number portability, porting behavior,*

JEL Classification: O31

1. Introduction

1.1 Background Information

The Kenyan telecommunication sector was liberalized in 1999. In 2000, some 180,000 Kenyans had access to a mobile phone and by June 2013 that figure had grown to more than 30.5 million mobile phone subscribers up from 29.8 million recorded at the end of June 2012. The fixed line subscriptions, however, have continued to experience a downward trend decreasing to 216,469 from 221,287, representing a decline of 2.22% over the same period. The total mobile telephone penetration during the period April to June 2013 increased to 77.3% up from 75.6% recorded in the period ending June 2012. These statistics highlight the major role played by the mobile communication in the telecommunication industry. Safaricom Limited controlled 65.9 per cent of the market share; Airtel Networks Kenya Limited had 17.1per cent while Essar telecom and Telkom Kenya Limited had 10.0 and 7.0 per cent respectively.

Buerhler et al, (2005) noted that special numbers are unlikely to be changed since they are unique and inseparable from the mobile users (owner). In Kenya 0722xxxxxx and 0733xxxxxx are considered prestigious and normally associated with early adopters who acquired the mobile lines when they were a status symbol hence such subscribers tend to retain their mobile numbers even when the market offers more competitive products and tariffs. These consumers only relief is Mobile Number Portability (MNP) which allows transferring basic Mobile call and SMS services from one operator to another while retaining their original numbers and as a personal identifier.

Globally, most dominant operators have been reluctant to adopt portability on the basis that providing these services results in considerable overheads, and prevents them from recouping investments incurred in getting the subscribers. However, the smaller operators have argued that lack of porting is a hindrance to competition and subscribers obtain value in price and service due to increased competition. These divergences in perceived benefits of MNP are common in many countries. Successful number portability implementation typically demands cooperation between industry players and regulatory authorities.

According to ITU statistics, Singapore mobile subscribers were amongst the earliest adopters of number portability launched in 1997. Hong Kong, UK, and Holland followed in 1999 and now over 63 countries around the world have implemented mobile number portability. The introduction of MNP in Japan resulted in competitive pressure in the market and forced operators to provide their services with lower prices and to develop stronger and more proactive acquisition and retention strategies. The impact of MNP on the Japan market was not immediate but it intensified the competition resulting in higher subscriber growth in the market. In Finland Mobile Number Portability was implemented in July 2003. Since then, the amount of ported numbers has been exceptionally high when compared to any other country in the world (Figure 1). The porting activity in each country is measured as the change of total ported numbers in a given year as a proportion of total subscribers in the same year.

1.2 The Porting Process in Kenya

MNP was introduced in Kenya in April 2011 becoming the 63rd nation globally to introduce the service. The system is operated by Ms. Porting Access, a local franchise of Access BV of Netherlands. The company invested over Ksh 350 million to provide the MNP infrastructure. The reception was not smooth, marred by legal actions against the service providers and tussle between the accuracy of information to the users on the services that could be ported. Equally the cost of Ksh 200 per port was considered a deterrent by the consumers notwithstanding the fact that the subscriber was expected to

settle all dues to the current service provider before porting. Number Porting is a key facilitator of consumer choice and offers effective competition in the industry. The service providers have to be innovative to initiate products that can retain customers because only the basic services of call and SMS are transferable; while the customer retainers like M-PESA and other data bundles are not transferable.

The MNP process is initiated by the subscriber. Subscribers are required to clear all outstanding bills before making an application for MNP. The porting fee is paid to the recipient operator. No fee is charged by the current operator. During the porting process, the subscriber will be off air. The regulations state that this porting duration should be accomplished within three days. According to CCK statistics only 54,616 subscribers had successfully switched from one operator to another between April 2011 and June 2013. The number of successful porting started at 15,569 in April 2011 but had reduced significantly to only 387 by June 2013.

2. Literature Review

2.1 Benefits of Mobile Number Portability

Durukan, et al (2009) observed that since number portability allows consumers to change operators without the necessity of changing the mobile phone number it gives consumers the chance of getting service from whichever operator they want. This not only increases competition level in mobile communication market but it also increases consumer welfare. Number portability removes the hurdles that consumers face in changing their telephone numbers. They no longer require calling their contacts incurring extra costs in notifying them of the change in the mobile number. This effectively levels the playing field among the service providers. Number Portability service has been implemented in more than 63 countries around the world and all of the European Union.

Shakouri, et al (2009) state that the delay in implementation of MNP in Austria was occasioned by disagreement between the smaller operators like Tele Ring and Tele 2 who were willing to implement but the larger operators like MobilKom and TMobile were uncertain of the outcome and frustrated the implementation. They also noted that MNP has improved the attractiveness of the Iranian market, and increased the penetration level of the product in the corresponding societies. Successful implementation of MNP is associated with high porting rates which signify that the facility is being utilized and confirms that mobile subscribers are in demand of the service. The adoption of MNP in Finland and other Nordic countries has been touted as among the most successful implementation of the facility, mainly because these countries have achieved high porting rates, and have reaped significant economic returns. Spain and Sweden have also been equally successful.

Kangangi (2011) investigated the effects of introduction of mobile number portability on the Kenyan mobile telephony industry. He identified the usage factors as customer base, intensity of competition, market maturity, marketing campaigns and speed of porting.

2.2 What Do Consumers Consider When Switching?

Literature review posits that a number of factors influence a consumer's decision to switch from one service provider to another. These factors originate either from the consumer himself, the current service provider, or the level of economic development in which the consumer finds himself in. These include the following:

2.2.1 Innovative Services, Promotional Discounts and Multiple SIM Cards

Most developing countries are considered to be low consumers of mobile phone services. According to the CCK quarter 3 of 2011/2012 report, the Average Revenue per User (ARPU) in Kenya as at March 2012 was approximately US Dollars 11.73 per month representing a decrease from US Dollars 13.60 recorded same period at March 2011. This could be explained by the continuous reduction in mobile telephone charges due to increased competition amongst the operators. Comparatively, the GSMA report (2013) states that the Africa Average Revenue per User (ARPU) in the year 2012 was US Dollar 7.9 per month compared to US Dollar 23.2 in Europe and US Dollar 49.8 in North America. These statistics suggest that the basic aim of subscriber in developing countries is to communicate in the most inexpensive manner, and as such, these subscribers adopt a variety of cost-minimizing strategies. One such strategy is the use of multiple mobile SIM cards from different operators, in order to take advantage of on-net call tariffs and benefits. Oftel (2001) found that United Kingdom mobile consumers operated more than one SIM card to optimize their use of different networks. This negatively impacted the uptake of the number portability service.

2.2.2 Porting Charges

Padilla et al (2003) defines porting costs as real or perceived expenditure that is incurred when altering supplier but which are not incurred by remaining with the current supplier. Switching costs fundamentally change the way in which firms behave and markets operate. The existence of such costs leads to economies of scale in repeat purchasing, because a customer who has previously bought from one firm incurs extra cost in purchasing an otherwise identical product from a new firm, even if that product is sold at the same unit price. Consequently, in markets with consumer switching costs demand is less elastic and consumers have limited incentives to migrate to cheaper options which reduce competition. Buehler et al (2005) observe that most EU states regulate porting charges so that they don't exceed actual cost. However, this poses a challenging task since operators have different basis for arriving at their costs. Similarly, most porting charges are based on the expected number of future ports; where this number is substantially low; it leads to above average charges. In Finland, Spain and UK, porting is free of charge as a result of competitive pressure while in Germany it is most expensive at between €22.50 and €29.95.

Kollmann (2000) also states that prices play a vital role in telecommunication market especially for the mobile telecommunication service providers. Therefore, service affordability and porting speed ("Push determinants") is one of the main factors influencing mobile subscriber's intention for switching the service provider. The results suggest there's a significant relationship between "Push determinants" and switching intention.

However, Dewenter and Haucap (2005) concluded that free porting leads to economic inefficiency and an over-use of the resource resulting in the "tragedy of commons." This is because number portability is not purely a public good and it leads to both private and public benefits. Individuals will tend to misuse the resource if it is provided free of charge. It is further feared that when operators are allowed to set the charges they are likely to choose a technology with low fixed cost and high variable cost. In most jurisdictions, the regulatory authorities prescribe the technology and may determine porting charges. Therefore, regulating MNP charges may appear desirable in the short term to ensure that cost of MNP is most efficient and the technology does not disadvantage the subscribers who may wish to switch.

2.2.3 Demographic Characteristics

Mobile Number Portability is also deemed to be affected by the demographic composition of the population. The population of a country is an important factor in deciding whether or not to introduce MNP. This observation was noted in Malta whereby with a population of only 4 million subscribers it was deemed to be too low to facilitate successful MNP. However, due to restrictions posed by the EU the Maltese government had no choice but to comply, albeit with a unique system in which the 2 operators were urged to comply and facilitate the process. It is further noted, that the younger, urban population are more likely to port as compared to the rural folk. This arises from the difference in the level of exposure to offerings by the mobile operators. Switching intentions are higher for the younger low income groups.

 2.2.4 Level of Satisfaction with Current Service Provider

Farrell & Klemperer (2004) note that the leading service providers are often market leaders in terms of quality of services, network availability and coverage, customer service, and packaging and pricing. Therefore, they are able to retain their high-value mobile users, who contribute to the significant bulk of their overall mobile revenue. These high-value mobile users are often postpaid subscribers, business users, or heavy consumer users who value the ability to retain their numbers. With Mobile Number Portability, markets could easily attract other postpaid or business users from other lower performing service providers, who otherwise would be reluctant to switch due to the inconvenience of being disconnected while the porting is being implemented. Therefore, if the customers are satisfied they are less likely to switch and the relationship with switching intention would depend on the ability of the market leaders to continuously satisfy their customers.

2.2.5 Regulatory Framework

Mobile Number Portability service is implemented in most of the mobile markets by regulators in collaboration with active operators of the market. The most important aim of a regulator in provision of MNP is increasing facilitation of customer's selection and portability of subscribers from one operator to another which promote competition between market players in retaining their subscribers with taking advantage of strategies such as improving quality of service. As a result, Sutherland (2007) revealed that regulators have found it necessary to launch Mobile Number Portability services, as they reduce switching fee and "facilitate consumer choice and ensure effective competition". Studies have indicated that strong regulator participation and stringent legal framework have worked in favor of increased Mobile Number Portability.

2.2.6 Market Concentration and Competition

Horrocks (2007) states that regulators should determine minimum market size below which the costs benefit analysis of portability process can be evaluated. The minimum computed number is 10 million subscribers such that implementation of MNP in smaller populations is more costly than the benefits the subscribers would derive. Haucap (2003) stresses the importance of the level of competition and maturity of the market when deciding on introducing MNP. According to his article, the more competition there is, the lower the need for the MNP service, because operators are likely to provide subscribers with the best tariffs and service quality possible. The importance of competition is evident from the failure of Ireland's MNP implementation. The market comprised of three operators (two incumbents and a weak and young competitor) meant that competition in the market was lacking. As a result, subscribers saw no benefit from switching from one operator to another, even with the availability of the MNP service, leading to poor porting rates.

Gans, et al (2001) also discussed the importance of having a dynamic market and as many willing operators as possible. This helps regulators to work with a group of determined individuals ideally pushing for the facility. The higher the level of fair competition and homogenous product offerings in the market, the impact of successful Mobile Number Portability is marginal.

2.2.7 Speed of Porting

Buerhler, et al (2005) observe that the speed of porting is crucial for fostering the use of Mobile Number Portability. Subscribers are equally faced with the challenge of being off air while porting is under implementation. Usually the donor operator has no incentive to speed up the process or quickly resolve technical problems in porting because they are losing a customer. Long porting periods negatively impact on the switching intentions because subscribers are greatly inconvenienced. Numerous reasons including incomplete customer details, pre-existing contracts with the donor operators and frustration of the porting process by operators resulted in long waits extending into weeks. The speed of porting is heterogeneous across countries. In the United States the porting duration is within 2.5 hours according to Federal Communication Commission. In the United Kingdom porting process are donor network led thus resulting in long porting periods since they have little incentive to speed up porting.

2.3 Conceptual Framework

This study adopted the Roos (2007) Critical Incident Technique framework which is an extension of Keaveney (1995) framework for analyzing switching. It identifies three different classes of switching determinants: pushing determinants, pulling determinants and swayers. This approach captures the underlying factors that lead to switching behavior of consumers. Roos (2007) defines the pushing determinant as the switching determinant that is clearly perceived by the customer as the reason for switching to another provider. These were *porting charges* and the *speed or duration for porting*. The swayer determinants do not cause the switching but they influence the mobile user to switch. These were *innovative services, existing contractual agreements (post paid) and product discounts, Demographic characteristics and level of satisfaction.* The pulling determinants were mainly actions from the recipient operator which are influenced by the *market concentration* and the *regulatory framework.*

3. Materials and Methods

3.1 Research Design and the Econometric Model

This study focuses on the factors that influence the consumers' decision to switch from their preferred service providers; it also enquires the services that retain the customers to their current network despite their intention to switch. The study adopts explanatory research design in which both qualitative and quantitative techniques are employed. We utilize stratified sampling technique to ensure a representative sample, in line with Louis, et al (1997) who emphasizes the representativeness of population as being of greater significance than a large sample. Descriptive statistics and inferential analysis was done to analyze the collected data. We used the SPSS software to test the switching behavior. The dependent variable is Y (switching rate) and independent variables are the factors that are postulated to influence consumer's decision to switch. Thus we set the functional form of the behavioral relationship as follows;

$$Y = f(x_1, x_2, x_3, x_4, x_5, x_6, x_7, x_8) \ldots\ldots\ldots\ 1$$

Equation 1 above is assumed to take the following linear form:

$$Y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 x_4 + \beta_5 x_5 + \beta_6 x_6 + \beta_7 x_7 + \beta_8 x_8 + \varepsilon_i \ldots\ldots\ldots\ldots\ldots\ldots 2$$

Where:

Y = Switching Rate (Intention to switch (port) from primary/preferred network to another)

β_0 = Constant

$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6, \beta_7, \beta_8$ = Coefficients of independent variables stated below;-

x_1 = Innovative services – represented by type of subscription, number of SIM cards, period of usage

x_2 = Porting charges (in Kenya shillings)

x_3 = Demographic characteristics, (age)

x_4 = Demographic characteristics – average amount spent on air time per month

x_5 = Level of satisfaction with the service

x_6 = Speed of porting

x_7 = Dummy variable for market concentration and competition, 1 – if market is concentrated & 0 if not

x_8 = Dummy variable for legal/regulatory framework 1 – if regulations are effective & 0 if it is not sufficient

ε_i = Error term

3.2 Expectations of Signs of Explanatory Variables

Before estimating the model, theoretical *apriori* expectations about the signs of coefficients predicting consumer switching behavior were made as shown in the appendix, Table 1. Hibbard (2008) states that if customers choose to keep more than one SIM card (x_1) to take advantage of different charges because of the different geographic coverage of networks or for security against network failure, then there is no benefit from Mobile number portability thus the relationship is negative.

Klemperer (1995) notes that consumers typically face switching costs which maybe real or psychological when changing suppliers. Introducing Mobile Number Portability eliminates some of these costs. However, consumers are more likely to take cognizance only of the actual charges that they incur to port. High porting costs (x_2) is therefore an obstacle in adoption of this solution and would negatively affect the porting rates.

Mittal and Kamakura (2001) find that different customer characteristics result in different thresholds (at the same level of rated satisfaction, purchasing power - average amount spend on airtime (x_4) are systematically different among different customer groups. Higher disposable amount available to the

consumer lead to negative incentive to switch. Homburg and Giering (2001) find that variety seeking, age (x_3) are important moderators of the satisfaction-loyalty relationship. Therefore the age has a negative relationship with porting rates. Bolton et al (1999) have in their study of telecommunications sector in United States found that the customer satisfaction mediates past and future usage of services. Aydin, et al (2005) show that customer satisfaction and customer trust in the mobile services provider have positive and direct effect on loyalty. Therefore, current satisfaction levels (x_5) have a negative relationship with the porting rates.

Podvysotskiy (2006) notes that consumers are often discouraged by the long duration it takes to implement porting. Consumers considered two (2) days time-to-port as too long. In fact, for some consumers porting their number within an hour or two is very important therefore reducing the time-to-port (x_6) will positively influence Mobile Number Portability uptake.

Durukan, et al (2009) describe oligopoly as a market structure that consists of only a few and big rival firms, and the changes in the production of each firm can affect the market price. The non-competitive environment is resulted from the prices that are determined with the informal gentlemanliness agreements, prevents the entry of new firms to the market and also the consumers are cheated with huge product and service prices. Gans, et al (2001) discussed the importance of having a dynamic market and as many willing operators as possible. Therefore market competition and heterogeneous product offerings (x_7) in the market, impact Mobile Number Portability either positively or negatively, with high concentration being negative and low concentration positive.

Sutherland (2007) revealed that regulators have found it necessary to reduce switching fee and "facilitate consumer choice and ensure effective competition". They indicated that strong regulator participation and stringent legal framework (x_8) have worked to positively influence Porting rates.

4. Results & Discussion

4.1 Empirical Results

Positive and strongly significant coefficient for the speed of porting (x_6) indicates that the faster the speed of porting the higher the intention of subscribers to switch service providers. This is because during the porting process the subscribers cannot receive or make calls. As predicted in the theory porting charges (x_2) is negative implying that high porting charges are a deterrent to switching intention.

The dummy for market concentration (x_7) is positive and significant. In the presence of switching costs, market shares of the incumbent and competitors are asymmetric. Introducing mobile number portability eliminates this asymmetry.

4.2 Quantitative Data Analyses of the Determinants

i) Porting Charges

A majority of the respondents (52%) preferred porting charges of Ksh 100 and below and only 32% were very satisfied with the statutory charges of Ksh 200. The analysis further revealed that most respondents considered the porting charges as expensive and thus a deterrent to porting. These findings are consistent

with Shakouri, et al (2009) who noted that high porting charges were an obstacle in the adoption of mobile number portability in the Iranian market. Klemperer (1995) also noted that customers are faced by both psychological and real costs in switching suppliers and have a negative effect on their switching intention.

ii) Current satisfaction, months of usage on preferred network & subscription type

Only 6% of the subscribers were very satisfied with their current service provider with 40% being least satisfied with the services of their primary service provider. More than 80% of the respondents indicated they had used their preferred service providers for between 0 and 72 months. This finding supports Roos (2007) proposition that although customers may express dissatisfaction they nevertheless infrequently seem to switch service providers.

iii) Duration of porting

The study revealed that only 12% of the respondents were satisfied with the statutory 3 days porting period. These results are similar to the findings of Podvysotskiy (2006) who concluded that consumers in Poland were discouraged by long porting duration implementations. During the porting process, the ported number cannot handle incoming or outgoing calls, hence the need to minimize the duration as much as possible.

iv) Market Concentration

The study revealed that the mobile market concentration level in Kenya was high with a Herfindahl Index (HHI) of 4,976. The market had only 4 participants with Safaricom being the most dominant player controlling 65.9% of the market share as at June 2013. In addition, the study showed that 4% of the respondents had a SIM card for each of the four mobile service providers. These results were consistent with Hibbard (2008) who noted that the high level of dual SIM usage reduced the demand for Mobile Number Portability in Bahrain. Customers chose to operate more than one SIM card to optimize their use of different networks.

v) Switching Intention

On switching intention the study showed that 68% of the respondents had the intention to switch from their current preferred network. Most of the respondents cited the reasons for switching as poor call quality (frequent dropped calls), non-transparent billing, expensive tariffs and unfriendly or unreachable customer service.

4.3 Correlation Analysis for Observed Variables

Diamantopoulos and Schlegelmich (1997) observe that relationship or associations play a vital role in data analysis, whenever it is necessary to determine the relationship between two variables. This study undertook correlation analysis to not only determine the direction but also to establish the magnitude of the relationship. Table 3 exhibits the correlation with a two tailed test of significance p<0.05 for some variables involved in the study. The result indicates that the speed of porting and switching intentions are positively correlated (r = .82, p<0.05) and corroborates Buerhler, et al (2005) research findings that the speed of porting is crucial for fostering the use of Mobile Number Portability. Speedy porting periods are positively correlated with switching intentions.

This study revealed that porting charges were negatively correlated with the switching intention at

(r = -0.02, p<0.05). These findings are consistent with Klemperer (1995) research which noted that consumers typically face switching costs which maybe real or psychological when changing suppliers and are more likely to take cognizance only of the actual charges that they incur to port and this negatively influences their intention to switch. The results of the study also indicate that the number of SIM cards was negatively correlated with the switching intention (r = -0.45, p<0.05), consistent with Hibbard (2008) findings that if customers choose to keep more than one SIM card they find little or no benefit from Mobile number portability. Thus the relationship is negative because subscribers identified specific services offered by competing service providers, that they could not enjoy in their current network and opted to own more than one SIM card to be on-net.

We also note that the number of SIM cards was negatively correlated with porting charges (r = -0.33, p<0.05) while positively correlated with the speed of porting (r = 0.41, p<0.05). These results were interpreted to mean that the main driver for multi SIM card was the discounted cost of on-net mobile service charged by the different operators and exclusivity (innovation) of specific services offered e.g. M-PESA. Regular Airtel, Telkom & Yu customers were more likely to also own Safaricom SIM cards for M-PESA services only. Therefore, the speed of porting was of a lesser influence to mobile users with multiple SIM cards. In essence, customers would still be willing to own more than one SIM card even if the porting speed was increased and the porting charges remained high.

The results in Table 4 indicate that porting charges and porting speed is able to explain a significant amount of the variance in service switching (R^2 =0.67). Additionally, the speed of porting significantly contributed to the prediction of service switching (β = 0.82, p<0.05). However, this reduces slightly to (β = 0.76, p<0.05) when all independent variables are included in the model suggesting that other factors may be considered by consumers in switching decision. On the other hand the influence of porting charges on switching intention was minimal at only (β = 0.01, p<0.05) and decreases further to (β = -0.15, p<0.05) when all determinants are factored into the model. During the porting process, the ported number cannot handle incoming or outgoing calls. Therefore, increasing the speed of porting is crucial for fostering the use of MNP. Porting time depends both on the technical porting systems and on the willingness of networks to speed up the porting process. Typically, the donor network had no incentive to quickly resolve technical problems in porting, as they were losing a customer.

The results in Table 4 indicate that independent variables (Model 2), the number of SIM cards, average amount spend on airtime and service usage is able to explain minimal amount of the variance in service switching (R^2 =0.24).

The number of SIM cards negatively contributed to the prediction of service switching (β = -0.45, p<0.05), consistent with Hibbard (2008) findings that customers find little or no benefit from mobile number portability when they use more than 1 (SIM) card, age (β = 0.23, p<0.05), average amount spent on airtime (β = 0.01, p<0.05), the average service usage was negatively correlated with intention to switch (β = -0.13, p<0.05) confirming Grönroos's (1994) proposition that completely satisfied customers seem often to have had a long-term relationship with a firm's representative.

4.4 Coefficient Of Determination

The coefficient of determination R^2 and the adjusted R^2 were 0.71 and 0.66 respectively. This shows that innovation (number of SIM cards), porting charges, demographic properties (average spend on airtime,

age); level of satisfaction with current service provider (period of usage), regulatory framework, market concentration and speed of porting explains 71% of variability in the switching behavior. The p-value of 0.0000 implies that the model of switching behavior is significant at 5 percent level of significance.

5. Conclusions and Recommendations

5.1 Conclusions

Mobile Number Portability holds great potential to correct market distortions, increase competition among service providers and offer consumers the ease of transfer from one operator to another without the inconvenience of losing one's number. We find that there exists a strong relationship between the consumer intention to switch and the Push Determinants (duration and the cost of porting). The period of usage, age, average amount spent on airtime (also known as Swayer Determinants) have a minimal influence on the intention to switch. Switching intention was also found to be dependent on the market concentration levels, with the existence of oligopolistic market of service providers in Kenya further fueling asymmetric information, especially in the absence of a strong regulatory framework that would enforce compliance with the laid down procedures. Subscribers reported the fear of being off air for long periods of time if they ported their numbers. This has frustrated the porting process considerably and many opted to ignore MNP.

The study revealed that service providers may retain their less-satisfied customers by offering innovative services. Most of Safaricom's subscribers with intention to switch identified MPESA as the main reason for retaining the service provider, despite their relatively lower score on quality of service as measured by the regulator. Similarly, Telkom preferred subscriber was mainly due to affordability of internet/data services, while clarity and quality of service experienced by AIRTEL subscribers maintained them in the network. For the YU service provider, it was the affordability of basic calls and text messages that was identified as the major pull factor and an inclination towards the youthful market. This highlights the key areas of comparative advantage that network providers should emphasize on and exploit their niche markets.

The study has reached three important results. First, globalization necessitates customer oriented practices. Mobile Number Portability leads to a more competitive environment with service providers seeking to offer higher quality services. It is important to ensure better understanding of consumer expectations which includes low porting charges and minimal duration of porting period. Mobile Number Portability awareness is equally important to ensure that consumers are aware of the actual services that they shall continue to have access to after they port their number.

Secondly, the study revealed that the existing regulatory framework for Mobile Number Portability and its actual implementation is critical for the success of MNP. Regulations that will shorten the duration of porting from 3 days to within hours as in many other countries and reduction of the porting costs will positively influence switching behavior because the subscribers perceive these two issues as the main barriers to switching intention.

Thirdly, the introduction of Mobile Number Portability is a new phenomenon that has created a highly competitive environment for the telecom companies and the attendant benefits for the consumers. The

telecom companies must seek to enhance and optimize their performance in terms of innovative services and niche products as these are the top most visual indicators for any potential customer. In particular, they need to review their cost structure in order to optimize returns. Procrastination, mistakes and laxity shall not be forgiven and shall come at a heavy price to the companies.

5.2 Recommendations

The regulator should keep an eye against predatory pricing mechanisms that force customers to stay with one network by binding them to long term contracts. Similarly, prolonged marketing programmes e.g. the Bonga point's promotion that was launched by Safaricom in January 2007 as a customer retention program is still running to date but should be limited to specific periods. This is because consumers lose acquired points whenever they port their numbers. These uncompetitive practices must be modified to ensure advantages of Mobile Number Portability are fully realized.

Finally, Mobile Number Portability awareness should be transparent and non-manipulative. Informative advertisements and other communication activities by the responsible government authorities and mobile service providers should be emphasized. This will enable consumers to make informed choices and reduce the effect of frequent switching that is likely to occur in the event that the industry regulator is able to reign in service providers that frustrate the switching process.

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7. Appendices:

Table 1: Expectations of signs of explanatory variables

Regressor		Expected Sign
Innovation, promotional discounts – No. of SIM cards	x_1	Negative
Porting charges	x_2	Negative
Demographic characteristics – age	x_3	Negative
Demographic characteristics – average spend on airtime	x_4	Negative
Level of satisfaction – service usage	x_5	Negative
Speed of porting	x_6	Positive
Market concentration and competition(Dummy variable)	x_7	Positive/Negative
Regulatory/Legal Framework (Dummy variable)	x_8	Positive/Negative

Table 2:   Current satisfaction Level & usage & subscription type

Variables			Frequency N=50	Percent
Satisfaction	Level 1	Least Satisfied	20	40%
Levels	Level 2	Satisfied	20	40%
	Level 3	Reasonably satisfied	7	14%
	Level 4	Very satisfied	3	6%
		Total	50	100%
Months of	0 – 24		3	6%
Usage	25 – 48		15	30%
	49 – 72		22	44%
	73+		10	20%
	Total		50	100%

Subscription	Pre-paid	34	68%
Type	Post-Paid	16	32%
	Total	50	100%

Table 3:   **Correlation Analysis for variables**

Variables	Switching Intention	No. of SIM cards	Porting charges	Age	Av. Airtime spend	Av. Months of usage	Speed of porting
Switching intention	1.00	**-0.45**	-0.02	-0.04	-0.08	-0.15	0.82
No. of SIM cards	-0.45	1.00	**-0.33**	**-0.40**	-0.24	-0.31	**0.41**
Porting charges	-0.02	-0.33	1.00	0.48	0.38	**0.60**	-0.04
Age	-0.04	-0.40	**0.48**	1.00	**0.49**	0.57	0.01
Av. Airtime spend	-0.08	-0.24	0.38	0.49	1.00	**0.66**	-0.02
Av. Months of use	-0.15	-0.31	0.60	**0.57**	0.66	1.00	-0.02
Speed of porting	**0.82**	0.41	-0.04	0.01	-0.02	-0.02	1.00

*Bold numbers emphasize significance of the variables

Table 4: Results of Regression Analysis and Coefficients of Determination

		Regression coefficients & Coefficients of Determination			
		Model 1 Push Determinants	Model 2 Swayer Determinants	Model 3 Pull Determinants	Model 4 All Determinants
Constant	β_0	0.51 (4.1443)	0.56 (1.4904)	0.00 (2.7825)	0.49 (3.2043)
Innovation, promotional discounts – No. of SIM cards	x_1		-0.45** (3.5214)		-0.14** (2.3614)
Porting charges	x_2	0.01 (0.0649)			-0.15** (-2.2849)
Demographic characteristics – age	x_3		0.23 (1.3925)		-0.05 (1.2544)
Demographic characteristics – average spend on airtime	x_4		0.01 (0.086)		-0.04 (0.0604)
Level of satisfaction – service usage	x_5		-0.13 (-0.7134)		-0.23 (0.05831)
Speed of porting	x_6	0.82** (2.5771)			0.76** (2.6861)

					1.00**	1.0**
Market concentration and competition(Dummy variable)	x_7				(3.2034)	(3.2034)
Regulatory/Legal Framework (Dummy variable)	x_8				0.00 (0.0000)	0.00 (0.0000)
R^2			0.67	0.24	1.00	0.71
R^2 Adjusted			0.66	0.19	1.00	0.66
Std. error			0.28	0.43		

*** means significant at 1%

** means significant at 5%

* means significant at 10%

Figure 1: Evolution of flow of ported/subscriber base in selected countries
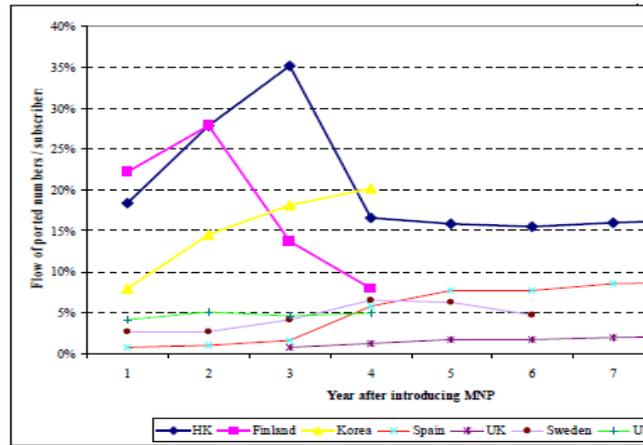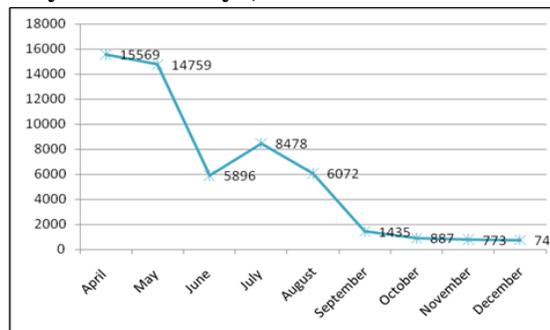

Figure 2: Number of portability rates in Kenya, 2011

Source: CCK quarter 2 returns of (2010/2011).