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Determinants of choice of mobile money transfer service providers in Nairobi County, Kenya

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Abstract

In the developing world telecommunication sector has developed widely. Such development includes Mobile Money Transfer Service (MMTS), transfer of money using Information and Communications Technology (ICT) framework and Mobile Network Operators (MNO). Policy makers and cell phone organizations have all touted the capability of cell phones to eradicate poverty. Mobile innovation has kept on reforming banking and payment frameworks in Kenya, with arrangement of utilizations that empowers assorted mobile money transfer services (MMTS). In Kenya there are several mobile money transfer service provider. Various studies done reveals that users choose different mobile money transfer service provider. The objective of this study was to determine the factors that determine the choice of mobile money transfer service provider. The study adopted Multinomial Logit regression. The marginal effects results revealed that variables; ease of access, cost of transaction and convenience were significant in all the three models estimated representing the three service providers with one dominant service provider being the reference category. However, variables age, number of mobile phones and gender were not significant all along in determining the choice of MMTS service provider across the different service providers. Based on key findings, this study recommends increase in the number of money agents outlets by each service provider with smaller market shares to ease access, aggressive advertising to raise awareness of the existence of specific providers and to take high consideration before making any transaction costs reviews as households were found to be highly responsive to transaction costs.

Keywords: Mobile Money Transfer Service Provider; Mobile Network Operators; Cell Phones; Mpesa, Equitel; Orange Money; Mobi-Cash, Yu Cash; Information; Communications Technology

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1. Introduction

Mobile Money Transfer Service (MMTS) and transfer of money utilizing Mobile Network Operators (MNO) have developed widely. People use these services to transfer finances from one client to another. The clients can be using one mobile network operator or different mobile network operators. MMTS refers to the use of a mobile phone in order to transfer funds between banks or accounts, deposit or withdraw funds, or pay bills. This term is additionally utilized for the more extensive domain of electronic trade; it can allude to the utilization of a cell phone to buy things, regardless of whether physical or electronic (Kihara, 2010). Instead of paying with cash, cheque, or credit cards, a consumer can use a mobile to pay for a wide range of services and physical goods. According to Kihara (2010) these definitions may not be as intensive but rather as demonstrative because of the dynamism of MMTS.

1.1. Mobile money transfer services

All inclusive, all areas of the world are accessing the internet and cell phones, with cell phones driving a lot of gains. In sub-Saharan Africa, over 60% of people currently use cell phones (Tobbin, 2013). Mobile phones are cheap, easy to use, provide many benefits, and do not require much literacy or numeracy for basic use. They can be shared, prepaid, billed in prices per second, depending on the needs and abilities of the owners (Jack and Suri, 2011; Mbiti and Weil, 2011). In Kenya communication authority are reporting that mobile penetration in the country has hit 95%. Between January and March of 2018, the number of mobile subscriptions grew by 3% from 42.8 million to 44.1%, where as a result, the mobile penetration is now at 95.1%, up from 94.3%. Safaricom has 67% market share of the mobile subscriptions, Airtel is next with 19.7% (grew by 2.5%) and Telkom is now at 8.6%, down 0.4%. This high mobile phone penetration has brought about new innovation such as Mobile Money Transfer Services (Suri, 2010).

Mobile Money Transfer Services started in Philippines after the dispatch of SMART money. In Kenya Mobile Money Transfer Services was introduced by Safaricom after launching M-Pesa in March 2007. From 2007 M-pesa had just picked up 9 million clients in three years which represents 40% of the Kenyan population. Mobile money transfer services in Kenya kept on improving at a rate of 73 percent. This growth in Mobile Money Transfer Services promotes financial inclusion to previously excluded population.

Exponential development of mobile money services in numerous nations is ascribed to numerous essentials factors one of the factors being favorable regulatory policies set up by the particular governments (Asongu, 2015). These policies are adapted to advance money related incorporation and reach the 'unbanked' in the general public. Positive strategies in the Telecommunications businesses in numerous African nations have brought about rivalry among MNOs offering the services (Asongu, 2015). Availability of the cell phone and also the ability to access them has increased the use of mobile money services.

1.2. Kenyan Mobile Money Market

M-Pesa which belongs to Safaricom has dominated the mobile money market in Kenya. Other mobile money providers included Tangaza money, Yu Cash which was launched by Essar, Orange money launched by Telkom

Kenya, Airtel money which is owned by Airtel and finally Finserve Africa launched Equitel in July 2015. Equitel money entered the market with similar products and offered them at extremely lower costs than other old providers and as a result in a period of one year it had acquired 5.26 % mobile money market share.

Table 1. Mobile money Transfer Service providers in Kenya

		As at November 2011		As at December 2016	
Service Providers	Launch Date	No. of Subscribers	Market Share (%)	Mobile Money Subscribers	Market Share (%)
Safaricom (M-Pesa)	March 2007	15,381,309	82.37	21,574,006	67.43
Airtel (Airtel Money)	November 2010	2,950,000.	15.80	6,711,829	20.97
Orange(Orange Money)	November, 2010	141,000	0.67	194,322	0.61
Finserve (Equitel Money)	July, 2015	-	-	1,240,503	3.88
MobiKash*	July 2011	89,900	0.48	1,772,696	5.54
Tangaza*	January,2011	110,800	0.58	503,556	1.57
TOTAL		**18,673,009**	**100.00**	**31,996,912**	**100.00**

Source: Communications Authority of Kenya, CA

1.3. Service providers' transaction costs.

Accessible information from the provider's site demonstrates that the transaction charge varies from one provider to the next relying upon different factors, for example, the amount sent or received, regardless of whether one is registered to a particular provider or not. On one hand Safaricom Mpesa least cost of sending and withdrawing cash go from Ksh 11-Kshs 110 and Kshs 50-Kshs 330 for estimations of Kshs 101-Kshs 70,000 and Kshs 50-Kshs 70,000 respectively. Then again, it is free to transfer money by means of Airtel cash while withdrawal charges differ from Kshs 10-Kshs 330 for measure of Kshs 50-Kshs 70,000. So also, a similar pattern of different expenses is displayed by other organizations as appeared in Appendix I.

1.4. Problem Statement

The rapid reception of mobile phones has produced a lot of confidence with respect to its impact on economic improvement in Africa. Policy makers and cell phone organizations have all touted the capability of cell phones to eradicate poverty (Corbett, 2008). All things considered, mobile innovation has kept improving and as a result it has brought about mobile money transfer services (MMTS). MMTS involves paying bills and facilitating transactions like withdrawing and sending money across different bank accounts using mobile phones. According to Asongu (2015) the growth in MMTS has benefited households by giving them variety of choices, further increase in the number of MMTS has led to improvement in financial inclusivity especially to rural households thereby reducing poverty.

Kenya MMTS has been on an upward trend and currently has 6 service providers making her global leader in mobile money transfer services. The 6 service providers are always competing to dominate the market. Various studies done such as: Corbett (2008); Sadana (2011); Jack and Suri (2011) and Asongu (2015) have found that the transaction cost, usability, advantageous, safety, convenience among different elements are thought to hypothetically explain why individuals choose different service providers. However, these studies have left out some of the main determinants of choice of mobile money transfer service providers. In addition, the effect of different variables on decision for the service provider has not been experimentally settled. This study has therefore filled the gap by establishing the factors that influence the choice of MMTS providers in Nairobi County.

1.5. Research objective

The objective of the study was to establish the choice of mobile money transfer service provider. Specifically, the study investigated the factors that influence the choice MMTS providers in Nairobi County.

1.6. limitations of the study

The research was limited to Nairobi County attributable to the way that there is a good and sufficient statistic portrayal and reflection of the various social-economic profiles in the county. Nairobi County is additionally blessed with rich scope of mobile network operators (MNOs) signals.

2. Literature review

2.1. Theoretical literature review

2.1.1. The theory of technology acceptance model (TAM)

This theory was first developed by Davis in 1986. The theory is built on two important parameters that is apparent usefulness and perceived ease of use. This theory is viewed as a compelling augmentation of the theory of reasoned action (TRA). This theory explains why a user acknowledges or rejects information innovation by adjusting TRA. TAM gives a premise with which one follows how external variables impact conviction, state of mind, and intention to utilize. Two variables are the essential determinants for embracing and utilizing new innovation. These variables are perceived usefulness and perceived ease of use. However, these two variables are affected by other factors such as price tag or cost, convenience, safety and satisfaction. Perceived ease of use specifically influences apparent convenience and the two variables decide the user's state of mind towards the adoption of the new innovation. This model excludes gender which is thought to be an important variable in deciding whether an individual will acknowledge innovation or not.

2.1.2. Modified technology acceptance model (TAM 2)

This theory was an improvement of the technology acceptance model. TAM2 incorporates use expectations such as social impact, intellectual instrumental procedures and experience in to the first model. According to TAM2 subjective standard; one of the social impact factors alludes to the apparent social strain to use or avoid a certain technology (Ajzen, 1991). It appears to be critical to decide how social impacts influence the dedication of the client toward utilization of the information framework for comprehension, clarifying, and foreseeing framework usage and acceptance behavior.

2.1.3. The unified theory of acceptance and use of technology (UTAUT)

In this model, performance expectancy, exertion anticipation, and social variables directly affects the behaviour intention, which alongside encouraging conditions affects user conduct. This theory is built on seven other models among them the Theory of Reasoned Activity. The theory also incorporates social variables such as age and gender in to the model as the main determinants of adopting new technology. The major weakness of UTAUT and TAM is that they excluded perceived risk and trust which are major factors that can influence individuals or households from adopting mobile money (Tossy, 2014). This has been the major limitation of these models. Lee, (2013) found that perceived trust to directly affect technology adoption in the UTAUT. Perceived trust was confirmed as an indirect antecedent through performance expectancy, perceived risk and effort expectancy in the model.

Perceived risk also known as seen hazard is another vital variable that was excluded in all previous models evaluated before. Perceived risk can be characterized as seen vulnerability of the result of utilizing mobile payment system. Diverse researchers have connected perceived risk distinctively in different models.

2.2. Empirical literature

Jack and Suri (2008) conducted a study on the appropriation of M-pesa on the welfare of the individual families by use of panel data in Kenya. The study used a sample of 3000 households. The results revealed that that around 44 percent of the families had to some degree one part who had utilized M-pesa at any rate once. The outcomes demonstrated that in spite of the fact that there was no articulated distinctive between clients as far as gender was concerned early users of the M-pesa were observed to be more extravagant regarding riches and more proficient than later users. A huge dominant part of respondents, 92 percent, trusted that without M-pesa their lives would be more awful off.

Wesolowski et al., (2012) used multilevel logistic regression to analyze the Heterogeneous cell phone proprietorship and use. The study was done in Kenya by using Cell phone ownership as the dependent variable. The variables used in the study were gender, age, level of education and income per month of the house hold head. The study specified the model as:

$$ownership_i = \beta_1 Age + \beta_2 Gender + \beta_3 Educ + \beta_4 Lit + \beta_5 Income + control_i + \varepsilon_i \ldots . (1)$$

Extra regressions were performed evacuating either literacy/proficiency or education since these are emphatically related; however, this had little impact on the coefficients. Age had small influence cell phone

possession since the tails of the age appropriation had bring down telephone proprietorship. Curiously, education and income both had a little prescient capacity to decide cell phone proprietorship once the other statistic factors were considered (county-level contrasts in appropriation were controlled by the fixed effects).

Marumbwa (2013) examined the components affecting buyer's appropriation of Mobile Money Transfer Services in Zimbabwe. The study used a sample of 300 people. The study adopted Diffusion Innovation theory (DIT). Users' acknowledgment and at times social aim was viewed as the dependent factors while the others were respected autonomous.

Kikulwe et al., (2014) conducted a study on Mobile money, Smallholder Farmers, and Household Welfare in Kenya. The study concentrated on the effects of mobile money use among the farm family units. Since in their suppositions not all family units utilize versatile cash with the goal that their first inquiry and a noteworthy one of their advantage was; what factors impact the appropriation of this advancement. They utilized cross-section from family units in Kenya to gauge impacts on horticultural income. Probit model was used in the analysis:

$$MM_{it} = \propto + \beta X_{it} + \delta T_t + \varepsilon_{it} \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots . . (2)$$

Where by MM_{it} is a dummy variable taking value of 1 if household i has used the Mobile Money Services in year t, and if the household has not used it takes value of 0.$X_{it}$is a vector of other variables that influences the decision to use mobile; $T_t$is a year dummy to control for the time fixed effects, and ε_{it} is a random error term. The study used panel model as shown in equation 3 to analyze impacts.

$$Y_{it} = \eta + \gamma MM_{it} + \kappa Z_{it} + \rho T_t + \mu_{it} \dots\dots\dots\dots\dots\dots\dots\dots\dots . . (3)$$

Where Y_{it} is the continuous outcome variable of interest (e.g. income, convenience). $\gamma$is the treatment effect of mobile money use on the outcome variable. The vector of relevant covariates was captured in the model byZ_{it}. T_t was included in the specified model as a dummy variable to control time fixed effects while $\mu_{it}$is a random error.

2.3. Overview of the literature

Despite the fact that various examinations have been completed on mobile money transfer service, a noteworthy shortcoming of past research is the utilization of TAM. These models were summed up with experimental information from the economically developed nations, which might be superfluous in the developing world context (Donner, 2009). Further, little consideration has additionally been given past the technology acceptance and utilization. It is additionally noted that no exact investigation has been completed in Nairobi County to the extent the decision for choice of Mobile Money Transfer Services providers by households is concerned. Moreover, no exact proof exists on the inclination of one or certain particular mobile money transfer service provider(s).

3. Methodology

3.1. Theoretical framework

Multinomial model which depicts the conduct of customers when they are faced with a variety of goods with a common utilization objective was utilized to dissect discrete multinomial choice decisions. MMTS choice was assumed to be a multinomial discrete choice variable and not binary discrete choice variable. Since consumers are assumed to be rational they choose a provider that maximizes their utility. The utility of an individual$i$relies upon the characteristics of the MMTS, the attributes of the individual i,X_i and the service provider j, (Z_{ij}).

The utility of the individual i , looked with settling on discrete decision amongst J MMTS of the 4 Mobile Network Operators (MNO), can be given as:

$$U_{ij} = U_{ij}\left(X_{ij}, Z_{ij}, \varepsilon_{ij}\right) \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (4)$$

MMTS k is preferred to MMTS m;the consumer then derives less utility from m than the utility derived from k.

This is expressed as:

$$U_{ik}(X_i, Z_{ik}, \varepsilon_{ik}) > U_{im}(X_i, Z_{im}, \varepsilon_{im}) \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (5)$$

The event that $U_i(X_i, Z_{ij}, \varepsilon_{ij})$ holds is not given but it will occur with some probability because the utility values are stochastic. Introducing the probability yields equation 6.

$$P_{ik} = prob\{(U_{ik}(X_i, Z_{ik}, \varepsilon_{ik}) > U_{im}(X_i, Z_{im}, \varepsilon_{im})\} \ldots\ldots\ldots\ldots\ldots\ldots (6)$$

The stochastic probability in equation 3.3 given as $U_{ij}(X_i, Z_{im}, \varepsilon_{ij})$ can be divided further into two main components as shown:

$$U\left(X_i, Z_{ij}, \varepsilon_{ij}\right) = V\left(X_i, Z_{ij}\right) + \Omega\left(X_i, Z_{ij}\right) \ldots\ldots\ldots\ldots (7)$$

Where by $V\left(X_i, Z_{ij}\right)$ represents the Non − stochastic and

$\Omega\left(X_i, Z_{ij}\right)$ Represents the Stochastic

The random part of the utility function determines the possibilities of selecting different MMTS varieties.

From the set J+1 the consumer chooses MMTS range preference j which is given as:

$$P(Y_i = j|x) = P\left(U_{ij} > U_{ik}\middle|x\right) = P\left(X_i\beta_j + \varepsilon_{ij} > X_i\beta_k + \varepsilon_{ik}\right), for\ all\ k \neq j \ldots (8)$$

Transforming equation (8) yields equation 9.

$$P(Y_i = j|x) = P\left(\varepsilon_{ij} - \varepsilon_{ik} > X_i\beta_k - X_i\beta_j\middle|x\right)\ for\ all\ k \neq j \ldots\ldots\ldots\ldots\ldots (9)$$

In this manner, the likelihood that a specific MMTS or mix of MMTS is picked relies upon the joint conveyance of the distinction between the two error terms. When all is said in done, diverse decision models are produced in view of the presumptions of the dispersion for the error terms in the utility capacities. In view of equation (9) the functional form of the MNLM probabilistic reaction can be written as:

$$P_{ij}(Y_i = j|X) = \frac{e^{X_i\beta_j}}{\sum_{j=0}^{4} e^{X_i\beta_j}} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (10).$$

3.2. Empirical model

Multinomial logit regression model was adopted. The dependent variable had multiple MMTS choices with Mpesa being the base category and taking the value 1 and Equitel money, Airtel money and Orange Money taking the values 2, 3 and 4 respectively.

A Multinomial model of the function was estimated and expressed as;

$$MultiLogit(MMTSCh) = \beta_0 + \beta_1 \mathrm{Y} + \beta_2 E_L + \beta_3 \mathrm{S} + \beta_4 A_g + \beta_5 N_p + \beta_6 P_1 + \beta_7 P_2 + \beta_8 C_v + \beta_9 D_{Ag} + \varepsilon_i \ldots\ldots\ldots\ldots\ldots\ldots\ldots (11)$$

Where:

ε_i = error term of the model

Y = is the monthly income of the family head.

E_L= is the level of education of the family head.

S = is Gender of the individual (male or female)

A_g= is the number of years the household has lived

N_p= number of the phones an individual owns

P_1=Transaction cost of sending or withdrawing money per MMTS

P_2=is the transaction cost of the alternative to the use of MMTS. Example courier services

C_V= the Convenience of use

D_{Ag}= The distance to mobile money agent

3.3. Data collection

The study used Probability sampling method. In this study primary data was used. The data was collected by use of questionnaires from the individual living in Nairobi County. The nature of the data was both quantitative and qualitative. Questionnaires and interview were used.

4. Empirical findings

4.1. Usage of mobile money transfer services providers

Table 2 presents usage of MMTS among the respondents interviewed. It shows that 96.6 percent of all respondents used Mpesa, 26.5 percent of all respondents used Airtel money, 21.1 percent used Equitel money, 5.4 percent used orange money, 4.4 percent used Mobi-kash and 1 percent used Yu Cash. This showed that in Nairobi County the most commonly used MMTS provider was Mpesa with the usage of 96.6%.

Table 2. Usage of Mobile Money Transfer Services Providers

Service Provider		Responses	Percent of Cases
		N	
Usage	Mpesa	197	96.6%
	Airtel Money	54	26.5%
	Yu Cash	2	1.0%
	Orange Money	11	5.4%
	Mobi-Kash	9	4.3%
	Equitel	43	21.1%

Source: Survey Data

4.2. Frequency of usage in a week per MMTS service provider

To reveal the importance of specific MMTS service provider to the households of Nairobi County, the respondents were asked on frequency of usage of specific service provider. Table 3 below presents frequency of usage of specific MMTS among the respondents interviewed.

Table 3. Frequency of Usage of Mobile Money Transfer Services per Provider

Usage of MMTS							
		Mpesa	Airtel Money	Yu Cash	Orange Money	Mobi-kash	Equitel
Frequency of usage	Daily	52.6%	40.7%	0.0%	27.3%	44.4%	46.5%
	1 day	11.7%	20.4%	50.0%	45.4%	22.2%	18.6%
	2 days	13.2%	14.8%	0.0%	18.2%	11.2%	16.3%
	3 days	4.1%	3.7%	0.0%	0.0%	0.0%	2.3%
	4 days	2.6%	5.6%	0.0%	0.0%	0.0%	0.0%
	5 days	6.6%	7.4%	50.0%	9.1%	0.0%	9.3%
	6 days	9.2%	7.4%	0.0%	0.0%	22.2%	7.0%
	Total	100%	100%	100%	100%	100%	100%

Source: Survey data

The results as in table 3 shows that the highest percentage of 52.6 percent of Mpesa services users use the MMTS daily while 40.7 percent of Airtel money services users use the services daily. Most of Yu cash services users use the services after every one day and 5 days as shown by the 50 percent frequency.

4.3. Usage of mobile money transfer services per provider

To identify various ways of using MMTS by households, respondents were asked to indicate which ways they utilized their service providers of choice.

Table 4. Usage by MMTS service provider

		Mobile Money Transfer Service Providers						Total
		Mpesa	Airtel Money	Yu Cash	Orange Money	Mobi-kash	Equitel	
Paying bills	Count	149	44	2	9	8	37	153
	%	75.6%	81.5%	100.0%	81.8%	88.9%	86.0%	
Sending money	Count	174	49	2	11	8	40	180
	%	88.3%	90.7%	100.0%	100.0%	88.9%	93.0%	
Receiving Money	Count	162	49	2	11	7	41	168
	%	82.2%	90.7%	100.0%	100.0%	77.8%	95.3%	
Saving	Count	105	31	2	8	7	28	108
	%	53.3%	57.4%	100.0%	72.7%	77.8%	65.1%	
Borrowing	Count	71	18	1	6	4	19	73
	%	36.0%	33.3%	50.0%	54.5%	44.4%	44.2%	
Total	Count	197	54	2	11	9	43	204

Percentages and totals are based on respondents

4.4. Multinomial logit regression model for the factors that influence the choice of mobile money transfer service (MMTS) providers in Nairobi county

The dependent variable was the different choices of MMTS providers with Mpesa being the base category. The results of the multinomial logit model are shown in table 5.

Table 5. Multinomial Logit

Choice of MMTS[a]		B	Std. Error	Z statistics	Sig.	95% Confidence Interval for Exp(B)	
						Lower	Upper
Airtel	Intercept	-4.243	.417	-10.168	.000		
	Age	.283	.180	1.572	.159	.939	1.874
	Earning	-.158	.259	-.608	.562	-.574	1.270
	Cost of transaction	-.488	.206	-2.374	.049	-.876	3.031
	Ease of access	-.330	.124	2.659	.032	-.627	3.087
	Convenience	-.017	.001	2.005	.085	-.621	1.666
	Number of mobile phones	.485	.115	0.222	.590	1.023	2.580
	Education	.005	.002	-2.501	.041	.561	1.765
	Gender	-.724	.456	-1.587	.156	-.201	1.171
Orange Money	Intercept	-6.973	.771	-9.038	.000		
	Age	.238	.270	.880	.408	.771	2.089
	Earning	-.204	.400	-.510	.625	-.466	1.427
	Cost of transaction	-1.118	.301	-3.709	.007	-.980	9.542
	Ease of access	-.353	.149	-2.365	.050	-.452	4.482
	Convenience	-.221	.064	-3.456	.011	-.871	1.785
	Number of mobile phones	.545	.110	0.971	.782	1.068	2.787
	Education	-.292	.627	-.466	.655	-.323	1.725

Equitel	Gender	-.264	1.443	-.183	.860	-.230	2.570
	Intercept	-5.538	.711	-7.781	.000		
	Age	-.249	.202	-1.233	.257	-.503	1.210
	Earning	.321	.134	2.388	.048	.917	2.073
	Cost of transaction	-.216	.063	-3.423	.011	-.647	2.384
	Ease of access	-1.584	.343	-4.615	.002	-1.149	20.666
	Convenience	-.722	.308	-2.344	.050	-.143	1.646
	Number of mobile phones	.627	2.287	0.434	.700	1.193	2.938
	Education	.272	.074	3.658	.008	.394	1.471
	Gender	.220	.957	.230	.825	.507	3.067

Source: Survey Data

The results in table 5 show the results of the multinomial logit model for the different MMTS choices. The results show that generally Age, number of mobile phones and gender were not significant all along in determining the choice of MMTS service provider across the different service providers. These results show that the coefficient of income was a significant factor only for the case of Equitel money but was insignificant for both Airtel and orange Money at 5 percent level. More specifically, the variable income had a positive value which meant that an increase in the income of the individual would lead to an increase in the probability of the individual preferring Equitel money transfer services over Mpesa mobile money services. This can be explained by the fact that Equity is one of the most popular banks in Kenya and most people with money tend to store up their cash in the bank and therefore would prefer transacting most of their transactions using Equitel mobile money.

The findings revealed that the coefficient of cost of transaction was a significant factor in all MMTS choices at 5 percent level of significance. The coefficient of this variable was negative for all the three models. This implied that an increase in the cost of transaction in MMTS service would have led to an increase in the probability that individuals will shift to the alternative MMTS choices. This is quite reasonable considering that individuals are discouraged by high costs of transaction and will therefore opt to seek a different MMTS choice if at all the transaction costs is increased.

The results indicated that the coefficient for ease of access was significant in all the three models at 5 percent significance level. The coefficients also assumed a negative value in all the models. This implied that an increase in the ease of access of an MMTS service would lead to a decrease in the probability of an individual choosing that specific MMTS service. This therefore meant that ease of access was a major factor in having a competitive advantage among MMTS service providers.

The findings also disclosed that the coefficient for convenience was significant in all the three models at 5 percent significance level. The coefficients also assumed a negative value in all the models. This implied that an increase in the convenience in the Mpesa service would lead to a decrease in the probability of an individual choosing Airtel money, Orange money and Equitel. Various researchers found out that convenience of technological innovation such as mobile money transfer services determined perceived usefulness and hence adoption of technology.

The results indicated that the coefficients for education was significant for the case of Airtel money and Equitel but was insignificant for orange money at 5 percent significant level. The coefficients had a positive sign which implied that an increase in the education level of an individual would lead to the increase in the probability that an individual will choose Airtel money or Equitel over Mpesa.

5. Summary, conclusion and policy recommendations

5.1. Summary

This study conducted a multinomial regression analysis to access the factors that influence the choice of MMTS providers in Nairobi County with Mpesa being the reference category. The findings showed that age, number of mobile phones owned by a household and gender were not significant factors in determining the choice of MMTS service providers in the three models. However, the results showed that income was a significant factor with in the case of Equitel money but was insignificant for the case of Airtel money and orange money. The findings also further showed the importance of transaction costs among the different MMTS providers as the results showed that an increase in the transaction costs of any the MMTS providers would discourage consumers from using them. This was shown by the significance of the transaction costs coefficient in all the three models.

This study recommends that the MMTS providers should take high consideration before making any transaction costs reviews. This is because the findings showed that the respondents are highly influenced by transaction cost reviews and will most likely change their choice of MMTS service if the reviews made displease them. MMTS service providers should therefore try to always give valid reasons to their customers as to why any transaction cost is necessary otherwise they face a risk of losing many customers. MMTS providers should consider their transaction costs comparatively to their competitors. These competitors are in two fold; first one being the alternatives to MMTS and the second one being other MMTS service providers. This is because the findings showed that any increase in the transaction costs of any of the MMTS service providers discourages the individuals from choosing the MMTS provider in favor of their competitor.

References

Asongu, R. (2015),"The impact of mobile phone penetration on African inequality", *International Journal of Social Economics*, Vol. 42 No.8, pp. 706-716.

Ajzen, I. (1991), "The theory of planned behavior. Organizational Behavior and Human Decision Processes", *Journal of Consumer marketing,* Vol. 22 No. 50, pp. 179–211.

Corbett, S. (2008), *Can the Cell Phone Help End Global Poverty*, New York Times, NY.

Davis, F.D. (1986), Technology acceptance model for empirically testing new end-user information systems: Theory and results, Cambridge, MA: MIT Sloan School of Management.

Donner, J. (2009), "Blurring livelihoods and lives: The social uses of mobile phones and socioeconomic development", *International Journal of Social Economics*, Vol. 4 No. 1, pp. 91–101.

Jack, W. and Suri, T. (2011), "Mobile money: the economics of M-PESA, National Bureau of Economic Research", available at: http://www.nber.org/papers/w16721

Kihara, P. (2010), "Determinants Of Demand For The Choice Of Mobile Telephone Service Providers In Kiambu District" Unpublished Masters Thesis, University of Nairobi.

Kikulwe, E.M, Fischer, E. and Qaim, M. (2014), "Mobile Money, Smallholder Farmers, and Household Welfare in Kenya", *International Journal Of Information Technology And Business Management,* Vol 6 No.3, pp.71-102

Lee L.F (1983), "Generalized Econometric Models with Selectivity", *Econometrica*, Vol. 51 No.7, pp. 507-512.

Marumbwa, M. (2013), "An Analysis of the Factors Influencing Consumers' Adoption of Mobile Money Transfer Services (MMTs) in Masvingo Urban, Zimbabwe", *British Journal of Economics, Management & Trade,* Vol 3 No. 4, pp. 498-512.

Mbiti, I. and Weil, D. N. (2011), "The Impact of M-Pesa in Kenya", NBER Working Paper No. 17129, University of Nairobi, Kenya.

Sadana, G. (2011), 'The Determinants of Mobile Phone Technology Adoption in Kenya', Unpublished Master's Thesis, Kenyatta University.

Suri, P. (2010), "Prototype Design for Enhancing Customer Trust in Online Payments', Journal of Computer Science, Vol. 5 No. 12, pp. 10-34

Tobbin, P.E. (2013), Adoption and Use of Mobile Data Services: A Consumer Behavior Analysis, 1st Ed, New York

Tossy, G.H. (2014), "Modelling The Adoption Of Mobile Payment System For Primary And Secondary School Student Examination Fees In Developing Countries: Tanzanian Experience", *International Journal Of Information Technology And Business Management,* Vol. 7 No. 16, pp. 20-44

Wesolowski, A., Eagle N., Noor A.M, Snow, R.W. and Buckee, C.O. (2012), "Heterogeneous Mobile Phone Ownership and Usage Patterns in Kenya", retrieved from: http://www.nber.org/papers/w7251.

Appendix I

Service Providers' Transaction Costs

Table A.1. M-PESA (Safaricom)

		Withdrawal	Transfer to Unregistered Users	Transfer to other M-PESA Users
Min(KSHs.)	Max(KSHs.)			
1	49	N/A	N/A	**Free**
50	100	10	N/A	**Free**
101	500	27	44	11
501	1,000	27	48	15

		Withdrawal	Transfer to Unregistered Users	Transfer to other M-PESA Users
Min(KSHs.)	Max(KSHs.)			
1,001	1,500	27	58	25
1,501	2,500	27	73	40
2,501	3,500	49	110	55
3,501	5,000	66	132	60
5,001	7,500	82	163	75
7,501	10,000	110	201	85
10,001	15,000	159	260	95
15,001	20,000	176	282	100
20,001	25,000	187	303	110
25,001	30,000	187	303	110
30,001	35,000	187	303	110
35,001	40,000	275	N/A	110
40,001	45,000	275	N/A	110
45,001	50,000	275	N/A	110
50,001	70,000	330	N/A	110

Table A.2. Equitel Money Tariffs

		Send To Airtel Money /Mpesa	
Transaction Range (Kshs)	Send To Equitel/Orange Money (Kshs)	Charges by Equitel (Tax Incl.)(Kshs)	Charges by other Networks (Kshs)
50 – 100	0	1.1	33
101 – 500	0	5.5	33
501 – 1000	0	11	33
1,001 - 1,500	0	16.5	33
1,501 - 35,000	0	27.5	33

Table A.3. Airtel Money Tariffs

Min(Ksh)	Max(Ksh)	To other Airtel users	To Unregistered users	Withdrawal charges
50	100	0	0	10
101	2,500	0	0	27
2,501	3,500	0	0	49
3,501	5,000	0	0	66
5,001	7,500	0	0	82
7,501	10,000	0	0	110

10,001	15,000	0	0	159
15,001	20,000	0	0	176
20,001	35,000	0	0	187
35,001	50,000	0	0	275
50,001	70,000	0	0	330