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The Impact of Mobile Money Services on the Financial Transactions of Tertiary Students

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Abstract:

The study examined the impact of mobile money services on the financial transactions of tertiary students. The study employed quantitative, descriptive and correlational research approaches. The population for the study is made up of students of Koforidua Technical University as at 30th April, 2016. The study used a self-administered questionnaire to collect data from the respondents. Ordinary Least Square (OLS) regression model was used to estimate the level of impact of mobile money services on the financial transactions (savings, disposable income and expenses) of the students in Koforidua Technical University. The empirical evidence obtained indicated that mobile money services had positive and significant impact on students' savings. Additionally, the level of impact of mobile money services on the disposable income of students was positive and insignificant. In addition, the study revealed that mobile money services had a negative and insignificant impact on the level of expenses of students. Overall, the study provides evidence that there is a positive and significant impact of mobile money services on both savings and disposable income of students of Koforidua Technical University.

Keywords: Mobile money, disposable income, savings, expenses, Ghana

1. Introduction

The use of technology in the world is rising exponentially. Businesses and individuals are now exploring new and easier ways of doing things. Firms which are able to cope with this new development survive the market and those that fail collapse. Al-Jabir (2012) contends that the recent development in information technology has changed the way firms operate over a couple of years now. One of the industries that have experienced a consistent introduction and use of technology is the telecommunication industry. Mobile phones were initially used to make calls and send text messages. However, the scope of the use of mobile phones is unlimited. This has made it easier to get connected to business partners where millions of dollars of transactions are executed through mobile phones. One of the technological breakthrough from the telecommunication industry is the introduction of the mobile money transfer system. Technological advances, like the transfer of money through the mobile phone have empowered the electronic conveyance of cash exchanges. By and by, the utilization of mobile phone payment platforms to provide money transfers is widespread.

The mobile money system allows the transfer of money from one person to another with ease. Today money transactions are done via wireless all over the world. Even, the commercial banks and other financial institutions have made mobile money transfer a key product or service rendered to their customers. Majority of the ATM even have a system where an individual can withdraw cash from his/her mobile money wallet. Africa is not developing economically as compared with the rest of the world. One of the reasons is that, some Africans are not concerned much about having a bank account. With the increase rate of the adoption of cell phone on the continent, some economic researches did a research to find the easiest way of making people own an account. The end result was the introduction of mobile money. This began in 2002 when one of the departments for International Development UK, supported researchers at Commonwealth Telecommunications Organization, realized that citizens of Ghana, Botswana and Uganda were at the same time using airtime as a way of money transfer. The development went through different stages with the help of Vodafone until in 2008 when MTN launched its own mobile money in South Africa. After two years of operation, it launched another one in Cameroon. The global community sees mobile money as a great benefit to the entire African continent. Policymakers and international organizations in the developing countries now consider the mobile money development as a promising avenue for handling financial exclusion among low-income and helpless segments of the populace (Onsongo and Schot, 2017). Some of the benefits of mobile

money transfers includes; convenient way of saving money, bringing people without bank accounts to virtual banking, ease to use and transforming the economy. Mobile money can assist to do away with poverty and non-development in rural areas (Kikulwe, Fischer and Qaim, 2014). The rate of increase in mobile money transaction is overwhelming in African countries such as Kenya, Tanzania, South Africa and Ghana just to mention a few.

Dissimilar to other financial transactions, Murendo and Wollni (2016) argue that mobile money transfer system empowers users by facilitating flexibility in spending, at the same time enhancing privacy and security during withdrawal. Particularly, students are group of individuals who use mobile money widely. A lot of students are using this service in Ghana and yet still a lot more are registering onto the service. Because of this infinite and convincing evidence, there have been calls for a study into how mobile money transfers services affect the financial transactions and disposable income of users. While there is a well-established proof that mobile money transfer is generally more effective than other forms of cash transfers, evidence in regards to the effect of mobile money on financial transactions of users are scant. As a result, this study aimed to fill the gap by assessing the impact of the use of the mobile money service by the students of Koforidua Technical University on the savings, expenses and disposable income of students.

1.1. Objectives of the Study

The main objective of the study is to examine the impact of mobile money service on the financial transactions of students of Koforidua Technical University. The specific objectives are:

1. To assess the impact of mobile money service on the savings of students.
2. To examine the impact of mobile money on the disposable income of students.
3. To evaluate the impact of mobile money on the expenses of students.

1.2. Research Questions

The following are the questions put forward to guide the study.

1. What is the impact of mobile money service on the savings of students?
2. What is the impact of mobile money service on the disposable income of students?
3. What is the impact of mobile money service on the expenses of students?

2. Literature Review

2.1. The Mobile Money System

Mobile money transfer is the utilization of mobile phones to perform financial and banking activities (Saliu, 2015). The mobile money industry, as measured by the quantity of organizations around the globe has developed quickly. Ali (2013) asserts that the mobile money sector is progressively developing around the world. Davidson and Leishman (2012) also assert that based on the global study, toward the start of 2009, there were 17 mobile money administrations for the unbanked around the globe and as of April 2012, there were 123, with another 93 that were being scheduled for launching.

According to Kikulwe et al. (2014), mobile money offers different advantages, which are particularly helpful in developing economies where access to finance is limited. Kikulwe et al. (2014) further argue that one key advantage is enhancing access to financial transactions for poor people and those with no formal financial relationships with banks. It is also asserted that mobile money service encourages financial transactions through moderate payment frameworks, which is of specific significance in developing countries where families depend on payments from relatives (Tobbin & Kuwornu, 2011). The reasonableness of mobile money likewise comes from the cheap withdrawal charges, which are typically not an impediment to poor families that transact in little sums. Other advantages associated with the mobile money transfer system is the lessened security risk of moving around with money and speedier transfer of money to rural areas (Kikulwe et al., 2014). According to Onsongo and Schot (2017), savings and insurance services are additionally now being offered through mobile money. This is especially significant for poor families as it offers the likelihood for protection against vulnerabilities like disease and accidents.

Mobile money transfer system, though new has had a very huge influence on money transactions across the world. According to Paul and Henry (2013), mobile money has gotten more influence on Africa than any other continent in the world. This is because majority of the people in Africa do not have bank accounts as compared to the other continents. Many empirical evidences exist that suggest that the mobile money service has greatly impacted on the living standards of the poor. Gikunju (2009) examined the effect of mobile money (M-Pessa) on other financial institutions in Kenya. The study revealed that just before the introduction of mobile money in Africa, only those who were literates with better understanding of bank operations, the rich and those capable of paying higher bank charges were those who were involved in dealing with banking products and services. The introduction of mobile money in Kenya in the year 2007 had a negative effect on Posta Pay which is a local money transfer institution, thus their revenue dropped. Not only Posta Pay had a declined in the income but also Western Union and Money Gram faced the same challenges. In the end Gikunju (2009) reported that, mobile money may have not changed the value of money that are transferred from one person to the other but it has been a substitute for the other financial institutions that existed before its invention. These financial institutions are finding ways and means to deal with this issue by cutting down their charges.

Bernard, Mary and Simon (2014) assessed the effect of mobile money transactions on financial performance of small and medium enterprises in Nakuru central business district, Kenya. It was revealed that 75.8% of the entire SMEs used mobile money in Nakuru town. This indicates that 3 out of 4 SMEs used mobile money for their business and financial transactions. The results indicated that mobile money was highly used for financial transactions by SMEs. It was also revealed in the study that SMEs in Nakuru frequently

used mobile money for financial transactions and savings. The study also established that majority of the SMEs did not use mobile money to borrow. The study in addition established that the revenue of SMEs was increased with the adoption of mobile money. The findings of Bernard et al. (2014) were in line with the findings of Mbiti and Weil (2011), who argued that the affordable prices of mobile phones and user friendliness of the system has made it possible for many SMEs to widely adopt the system.

2.2. Adoption of Mobile Money in Ghana

Mobile money system is relatively new in Ghana, comparable to other countries in Africa like Kenya and South Africa. According to Coibla, Osei-Assibey, and Asante (2015), mobile Telecommunication Network (MTN) was the first telecommunication company that introduced the mobile money system in Ghana in July 2009. In March, 2010, Airtel Ghana Limited (formerly Zain) also rolled out the mobile money service. In October 2010, Tigo also introduced the mobile money services. Among the biggest mobile telecommunication firms in Ghana, Vodafone Ghana Limited was the last to introduce the mobile money service in July 2015 (Saliu, 2015).

Despite the fact that mobile money service is generally new in Ghana, the use of mobile money service is increasing substantially. It is estimated that, the value of mobile money transaction has increased astronomically from GH¢ 2.4 billion in 2013 to GH¢ 11.6 billion as at December 2014 (Saliu, 2015). Coibla, Osei-Assibey, and Asante (2015) also reported that the mobile money services further witnessed a substantial growth in 2015, with an estimated transaction of GH¢ 171 billion. The telecommunication networks are driving Ghana to a cashless economy by the introduction of the mobile money technology to the millions of subscribers who have no bank account. Mobile money operators have devised a way whereby subscribers can pay for bills such as school fees, DSTV bill, utility bill, receive salaries among others through the service. Mobile money serves as a form of financial security that people without cash can fall on in terms of emergency, thus mobile money is used for precautionary motive of keeping money.

3. Research Methodology

The study employed survey research design to assess the effect of mobile money on students' financial transactions. Survey is used in studies which directly generalize understanding instead of a comprehensive understanding of a single, individual case. In addition, survey study is mostly used to evaluate practices, opinions, thoughts and feelings. Many research studies have underscored the advantages of a survey method. First, surveys are an excellent way to assemble many data from wide diversity of people (Yin, 2013). This makes surveys relatively cost effective. Related to the benefit of cost effectiveness of survey, is that survey has the prospects of generalizability.

In addition, the study adopted a descriptive research approach. Descriptive research studies are designed to ascertain information, which relates to the current status of development. The descriptive research approach was used because variables are not manipulated by the researcher, instead, the study describes the phenomenon that existed at the time of the study.

The population was the students of Koforidua Technical University (KTU). Convenience sampling technique was used to select 500 students. Out of this number, three hundred (300) students were subscribers and active users of mobile money services whilst two hundred (200) students were not subscribers of mobile money services. These group of students were chosen to enable statistical analysis on the effect of mobile money transaction on the financial transactions of students.

A self-administered questionnaire was used to collect data from the respondents. The questionnaires had both open and closed ended questions to allow for varied responses. The questionnaires were mostly made up of Likert-scale questions. Five categories were used, for example: Strongly Agree (SA), Agree (A), Neutral (N), Disagree (D), and Strongly Disagree (SD). During the design of the questionnaire, certain principles were observed. The questions were concise, short, simple, straight forward and clear. Five hundred (500) questionnaires were distributed to the respondents. The researchers allowed a period of thirty minutes for the respondents to respond to the questions.

Descriptive statistical analysis method was used to analyze the quantitative data. The various answers provided in the Likert scale questions were assigned numbers and were analyzed. The analyses were done in percentages and were also reduced to mean or average values. Data obtained were organized in relevant tables with the help of computer data analyses software such as the use of Statistical Package for Social Sciences (SPSS), version 21.

3.1. Regression Model

The study employed a regression analysis model called multiple regression analysis to test the effects of mobile money services on the financial transactions of students. The dependent variable is financial transactions of students. Three measurements, namely monthly savings (SAV), monthly disposal income (DI) and monthly expenses (EXP) were considered in this study as proxies for financial transactions. The independent variables are the use of mobile money service (MMS). Dummy variable, one (1) was used to represent students that used mobile money services and zero (0) represented students that did not use mobile money services. Two other variables, course level (LEV) or year of study and gender (GEN) of students were introduced as control variables. Disposable income was also introduced as a control variable to estimate the impact of mobile money services on savings and expenses. The study therefore used the following three multiple regression models to analyze the effect of the mobile money service on the financial transaction of students.

$$SAV = \beta_0 + \beta_1 MMS + \beta_2 LEV + \beta_3 GEN + \epsilon$$

$$DI = \beta_0 + \beta_1 MMS + \beta_2 LEV + \beta_3 GEN + \epsilon$$

$$EXP = \beta_0 + \beta_1 MMS + \beta_2 LEV + \beta_3 GEN + \epsilon$$

The definition of the variables in the regression models are explained in Table 1.

Variables	Variable explanation
SAV	The monthly savings or balance of income of students: Dependent Variables
DI	Total monthly income of students: Independent Variable
EXP	Total monthly expenses of students: Independent Variable
MMS	Mobile Money Service: Independent Variable
LEV	The course level or year of study of students: Control Variable
GEN	The gender of students: Control Variable
β_0	Constant
β_1, β_2 , and β_3	Coefficient of slope of the regression line
ϵ	The Random Error Term

Table 1: Variable Explanations

4. Data Analysis and Discussion

4.1. Background of Respondents

This section presents the demographic information of the student respondents that could possibly affect their responses. Table 2 presents the demographic information of the respondents with respect to gender, course level, age and the type of mobile money operators used. The result in Table 2 shows that 292 (58.4%) of the students were males whilst 208 (41.6%) were females. In addition, 132 (44.0%) of the mobile money users were males and 168 (56.0%) of the mobile money users were females. The result shows that more female students were subscribers of mobile money than males in the Koforidua Technical University. This shows that more female is willing to have mobile money on their phones than males. A further study showed that some of students without mobile money services still transacted money through their friends.

The course levels of the students were further ascertained. This would help to ascertain the number of years the respondents had spent in the institution. Table 2 shows that the respondents who were in level 100 were 148 (29.6%), 170 (34.0%) were in level 200 and 182 (36.4%) were in level 300. The result shows that majority of the respondents who took part in this exercise were in level 300. With regards to the students who were mobile money users, majority (36.3%) were in level 300 and another 98 (32.7%) were in level 200 whilst 93 (31.0%) were in level 100. The result shows that majority of mobile money users were in the final year (level 300). The result in Table 2 shows that majority of the respondents were from the ages of 20 to 25, representing 35.2% of the respondents. In addition, 143 (28.6%) of the respondents were below 20 years whilst 124 (24.8%) were between the ages of 25 and 30.

Table 2 further shows that 57 (11.4%) of the respondents were more than 30 years. With regards to the mobile money users, majority (32.7%) of the respondents were between the ages of 25 and 30 and another 84 (28.0%) were between 20 and 25 years of age. Similarly, 25.3% of the mobile money users were below 20 years and 14.0% were more than 30 years. This stands to reason that those above 30 years were not using mobile money service because they might not expect money transfer from other people. The result further shows that majority (65.3%) of the respondents were using MTN Mobile Money. Additionally, 138 (46.0%) of the respondents were Airtel Mobile Money users whilst 124 (41.3%) used Tigo Cash. Vodafone Cash users were the least with 112 (37.3%) users. The result shows that some of the respondents were using more than one service provider.

	Total Respondents (n = 500)		Mobile money users (n = 300)	
	Frequency	Percentage (%)	Frequency	Percentage (%)
Gender				
Males	292	58.4	132	44.0
Females	208	41.6	168	56.0
Course Level				
Level 100 (1 st year)	148	29.6	93	31.0
Level 200 (2 nd year)	170	34.0	98	32.7
Level 300 (3 rd year)	182	36.4	109	36.3
Age of respondents				
Less than 20 years	143	28.6	76	25.3
20 to 25 years	176	35.2	84	28.0
25 to 30 years	124	24.8	98	32.7
More than 30 years	57	11.4	42	14.0
MM Network Operator				
MTN	-	-	196	65.3
Tigo	-	-	124	41.3
Airtel	-	-	138	46.0
Vodafone	-	-	112	37.3

Table 2: Demographic Characteristics of Student Respondents

4.2. Descriptive Statistics

Table 3 presents the summary of the descriptive statistics of the students and their average monthly financial transactions. From Table 3, it can be obtained that the average income balance or savings at the end of the month was GHS 136.34 and the minimum and maximum net income or savings were GHS 1.00 and GHS 450.00 respectively. In addition, the average monthly expenses of the students were GHS 289.45 with minimum and maximum monthly expenses being GHS 120.00 and GHS 1150.00 respectively. Table 3 further shows that the average disposable income of the students was GHS 368.06. Similarly, the minimum disposable income of the students was GHS 140.00 whilst the maximum disposable income of the students was GHS 1200.00. It was further ascertained that the average number of mobile money transactions within a month by the students was six (6). From Table 3, it can further be realized that the maximum number of mobile money transactions within a month was 31 and the minimum number of mobile money transactions within a month was one (1).

	Observations	Average	SD	Minimum	Maximum
Monthly Net Income	500	136.34	95.68	1.00	450.00
Monthly Expenses	500	289.45	152.62	120.00	1150.00
Monthly Disposable income	500	368.06	141.54	140.00	1200.00
Transactions in a month	300	6	5.68	1	21

Table 3: Descriptive Statistics

4.3. Collinearity Test

Prior to the estimation of the coefficients of the variables in the multiple regression models, a test for multicollinearity among the variables was done through a Pearson correlation analysis. From Table 4, it can be obtained that the correlation coefficient (r) among majority of the variables are small. However, few variables had positive and relatively strong relationships. For instance, disposal income (DI) and savings (SAV) are positively and strongly correlated. In addition, there are other significant correlation among the variables. For example, the relationships between savings (SAV) and expenses ($r = -0.295$) and mobile money service (MMS) and expenses ($r = -0.138$) were negative and the former is significant at 5%. On the other hand, a positive significant relationship was observed between mobile money service and savings ($r = 0.172$). In addition, a weak and positive relationships were observed between mobile money service and disposable income. Nonetheless, majority of the cross-correlational coefficients for the independent variables are relatively small and insignificant thus posing no multicollinearity problem.

Variables	SAV	DI	EXP	MMS	LEV	GEN
SAV	1					
DI	0.328**	1				
EXP	-0.295*	0.094	1			
MMS	0.172**	0.217	-0.138	1		
LEV	0.075	0.195	0.0142*	0.081	1	
GEN	0.114*	0.072**	0.098*	0.248	0.004	1

Table 4: Correlation Analysis

* = Significant at 0.01 and ** = Significant at 0.05

4.4. The impact of Mobile Money Savings of Students

Table 5 presents the results from the regression analysis on the impact of mobile money service on the savings of students. The result obtained showed that mobile money (MM) service had a positive impact on the savings of students. The evidence presented in Table 5, shows that the coefficient of mobile money (MM) service is 0.284. This means that the mobile money services have 28.4 percent impact on students' savings, holding other variables constant. In addition, it can be observed that the level of impact of mobile money service on savings of students was significant ($p = 0.471$). Indeed, it is expected that, money on a mobile money wallet cannot be easily spent like cash in one's pocket. This is because, generally, one needs to withdraw cash from his/her mobile money wallet before such cash can be spent. This therefore restrains the mobile money users from using all their cash, thus boosting their savings. This result is consistent with the findings of Bernard, Mary and Simon (2014) who found that businesses in the Nukuru town of Kenya used mobile money services for savings.

The result further shows that the disposable income of the students had a positive and significant ($p = 0.0389$) impact on their savings. This result is conceivable because it is generally expected that one's ability to save depends on his/her level of disposable income. Thus, the higher the disposable income, the higher the savings of the individuals. It can further be observed from Table 5 that the course level (LEVEL) of students had a negative and insignificant ($p = 0.0654$) impact on students' savings, suggesting that as students spent more years in school, they tend to reduce their savings. Similarly, the study found that the gender of students (GENDER) has a positive and insignificant impact on their savings. Table 5 further shows that the R^2 and Adjusted R^2 of the model were 0.783 and 0.724. The R^2 of 0.783 indicates that the variables define the dependent variable (savings) in the model up to 78.3 percent.

Variables	Coefficient	Std. Error	t-statistics	Probability
Constant	24.68	3.0421	9.855	0.0314
MM	0.284	0.0146	3.456	0.0471
DI	0.372	0.0059	2.894	0.0389
LEVEL	-0.046	0.0954	1.045	0.0654
GENDER	0.141	0.0072	0.986	0.0578

Table 5: The impact of Mobile Money Service on Students' Savings
 $\alpha = 0.05$; $R^2 = 0.783$; Adjusted $R^2 = 0.724$; F-Statistics = 131.40; prob. of F-statistic = 0.001

4.5. The impact of Mobile Money Service on Disposable Income of Students

Table 6 also presents the results on the impact of mobile money service on disposable income of students. The result shows a positive and insignificant impact of mobile money on the disposable income of students. From the table, it can be ascertained that mobile money (MM) service has a coefficient of 0.142 which means that the mobile money (MM) service has a 14.2 percent impact on the disposable income of students. Specifically, the result suggests that, when all variables are held constant, the use of mobile money results to a 14.2 percent increase in the disposable income of students. The level of impact of mobile money on the disposable income of students is however statistically insignificant ($t = 2.461$ and $p = 0.0503$). The study reveals that mobile money has improved the disposable income of the respondents. This shows that students of Koforidua Technical University are likely to enhance their disposable income through the use of mobile money.

In addition, the evidence shows that the gender of the respondents has a positive but insignificant ($p = 0.0595$) impact on the disposable income of students. The evidence presented in Table 5 further shows that the course level of the students has a positive but insignificant ($p = 0.0652$) impact on the disposable income of the students. The result shows that the course level of students has a coefficient of 0.061, which suggests that the course level of the students can result to a 6.1 percent increase in the disposable income of the students. It can further be ascertained that the R^2 and Adjusted R^2 of the model are 0.524 and 0.475 respectively. The R^2 of 0.524 means that about 52.4 percent of the variations in the dependent variable (disposable income) is explained by the independent variables. Further, the probability of the F-statistic is 0.002, which is less than the ' α ' of 0.05, suggesting that the model is a good fit.

Variables	Coefficient	Std. Error	t-statistics	Probability
Constant	21.85	2.8215	8.426	0.0274
MM	0.142	0.0214	2.461	0.0503
LEVEL	0.061	0.0462	1.104	0.0652
GENDER	0.107	0.145	1.007	0.0595

Table 6: The impact of Mobile Money Service on Disposable Income of Students
 $\alpha = 0.05$; $R^2 = 0.524$; Adjusted $R^2 = 0.475$; F-Statistics = 140.12; prob. of F-statistic = 0.002

4.6. The impact of Mobile Money Service on Students' Expenses

Table 7 also presents the regression result on the impact of mobile money on the level of expenses of students. The study found that the mobile money service had an insignificant positive impact on the level of expenses of the students. The result in Table 7 shows that the mobile money service had a -0.067 percent impact on students' expenses, which suggests that mobile money had 6.7% inverse impact on students' expenses. Additionally, the evidence shows that the disposable income of the students had a positive and significant impact on students' expenses. With a coefficient of 0.438, it means that the disposable income of the students has a 43.8 percent impact on their expenses when all the other variables are held constant. Similarly, the course level of the students has a positive impact on their expenses, however not significant. A further positive and insignificant impact of gender of students on their expenses was observed. The R^2 and Adjusted R^2 of the model were 0.737 and 0.695 respectively. The R^2 of 0.737 indicates that the variables define the dependent variable in the model up to 73.7%.

Variables	Coefficient	Std. Error	t-statistics	Probability
Constant	27.21	1.9751	11.85	0.0436
MM	-0.067	0.0311	1.931	0.0552
DI	0.438	0.0068	2.152	0.0447
LEVEL	0.185	0.0073	1.122	0.0591
GENDER	0.127	0.0574	1.043	0.0574

Table 7: The impact of Mobile Money Service on Students' Expenses
 $\alpha = 0.05$; $R^2 = 0.737$; Adjusted $R^2 = 0.695$; F-Statistics = 137.65; prob. of F-statistic = 0.001

5. Conclusion

The study examined the impact of mobile money services on the financial transactions of tertiary students. Ordinary Least Square (OLS) regression model was used to estimate the level of impact of mobile money services on the financial transactions (savings, disposable income and expenses) of the students in Koforidua Technical University. The empirical evidence obtained indicated that

mobile money services had positive and significant impact on students' savings. Additionally, the level of impact of mobile money services on the disposable income of students was positive and insignificant. In addition, the study revealed that mobile money services had a negative and insignificant impact on the level of expenses of students. Overall, the study provides evidence that there is a positive and significant impact of mobile money services on both savings and disposable income of tertiary students of Koforidua Technical University.

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