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CUSTOMER CHARACTERISTICS AND OVER-INDEBTEDNESS IN KENYA

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Abstract

The influence of an individual's characteristics on their financial decisions has always been an area of great interest to researchers. The use of customer characteristics to predict the decisions that a customer will make in regards to use of digital credit service, informed in part why this study was necessitated. Increased customer over-indebtedness has become a trend and a norm among the users of digital financing platforms. This study sought to ascertain the effect of customer characteristics on customer over-indebtedness. The survey research design was used. Stratified sampling was used to obtain a target sample size of 384 digital loan users in the informal sector of Nairobi City County. Pearson correlation coefficient (r) was used to determine the correlation between the two variables and in the hypothesis testing, binary logit was used for the analysis of results. From the findings, the null hypothesis that there was no significant effect of customer characteristics on customer over-indebtedness was rejected. The findings of the study, indicated that three factors of customer characteristics i.e., family status, academic achievement of a customer and the average monthly income all had a positive significant correlation with customer over-indebtedness. Family status i.e., whether a customer was married or not; was the strongest single factor that affected the model. The results showed that married people had a 2.57 times greater likelihood of being over-indebted compared to the single people. Other factors of characteristics like the gender of the customer, age group, and current occupation did not contribute significantly to the model though positively correlated to customer over-indebtedness.

Key Words: *Customer Characteristics, Customer Over-indebtedness, Behavioural Analysis, Financial Literacy, Demographics.*

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Introduction

Persson (2010) observes that customer characteristics refer to customer's demographics and personal characteristics that guide or stimulate the motivation of a consumer to act in a certain specified way. The culture of an individual informs his/her behaviours which eventually turn into a character. Other factors that have influenced personality include parental influence, home environment, school environment, culture, family treatment, mass media and social media (McAdams & Olson, 2010).

Kenya is known globally as a leader in mobile money technology and related innovation, digital credit and growth of mobile money infrastructure. There must be certain characteristics among Kenyans, that resonate well with mobile money transfers and digital credit, which may not necessarily be present among the citizens in other nations. It may be one characteristic or a combination of characteristics that make digital lending industry and mobile money transfer to thrive in Kenya more than in other peer countries.

The trend of virtualisation and online connectivity has fast tracked the assessment of accurate indicators of customer characteristics which can be utilised in the segmentation of consumers in terms of marketing strategies and deciding the goods and services to be offered (Phang et al., 2010). Consumer behaviour towards adoption of new services, goods and advanced technology is in many ways dependent on selected demographic characteristics. Demographic characteristics such as occupation, gender, age and even race can serve as indicators of how well or how badly a product is received within the market.

Lubis, Astrini and Rokhim (2022) highlight the significance of five personality traits on individual's financial decisions and

borrowing behaviour; these traits are: openness to experience, conscientiousness, extraversion, agreeableness and neuroticism. However, the researchers failed to indicate whether any of the personality traits would be influenced or enhanced by individual characteristics such as age, sex, marital status, religious beliefs among others. Financial economics indicate that the individual characteristics may have an impact on financial decisions that the individual undertakes (Nga & Yien, 2013). The social obligations as a result of personal characteristics such as marital status (married or not), gender (male or female), age among others, may have influence on financial decisions such as borrowing, and therefore would influence over-indebtedness. Financial literacy also plays a major role in enhancing over-indebtedness thus the gender gap for instance may impact the level of indebtedness of each gender in different capacities (Hasler & Lusardi, 2017).

The empirical research undertaken by (Omar et al., (2016), to ascertain the extent at which demographic factors influence purchasing decisions of organic food in Malaysia's Klan valley, found that demographic variables of gender, age, income level, literacy levels and the presence of children in the household had a significant bearing on the propensity of consumer in purchasing organic foods.

Anderloni and Vandone (2011) described specific behaviours that lead to over-indebtedness as social and psychological factors that greatly hamper an individual's ability to assess the outcomes of their consumption and borrowing commitments. They are irrational decisions that come as a result of underestimating the cost of the current consumption vis a vis the potential benefit. Their findings ascertained that individual behavioural patterns may sometime be deviant to the economic context even when individuals are well aware of the risks they face if they take loans that are above their economic capacities in terms of income.

Review of Objectives

The objectives that guided the study include:

a) To establish the common customer characteristics among digital credit users

b) To establish the effect of customer characteristics on customer over-indebtedness

Developments of Banking and Credit Offering

The term lending can take up many definitions, but the general consensus is the issuance of a loan with the hope of getting paid back with a certain pre-determined amount of interest or collateral. The amount and structure of interest rates may vary from one religious' group to another like in the case of Muslims verses Christians. The issuance of loans can be traced as far back as the era of ancient Greece and Rome that eventually evolved to pawn brokers who issued loans on the guarantee of a collateral so as to reduce the risk accrued to the lender (Jagtiani & Lemieux, 2016).

Building societies and savings group then came up and acted as the basis for the adoption of a modern lending systems with the adoption of technology and diversification of lending practices ushering in the modern lending system. The term "bank" has its derivations from the public loans issued and imposed on Italian cities by Germany in the Middle Ages which began as joint-stock funds (Conant, 1915). The modern system of credit creation has its roots in Venice, Italy with the first version of a bank being erected there in 1171 where the practices of lending on interest were slowly adopted into English culture and living. The act of lending thus increasingly gained traction especially with the adoption of

currency where the valuation of loans, interest and even risk of loss were now easily determined.

Modern banking practices such as the use of fractional reserve funds and the issuance of banknotes primarily emerged in the 17th century with the British goldsmiths, who began storing gold and promissory notes which in turn created an avenue for the goldsmiths to issue out loans on behalf of the individuals who stored goods. The deposited goods thus laid the foundation for the fractional reserve banking system where banks create credit based on the amount of funds they have at their disposal. Central Banks also emerged during this period as the rapid adoption of banking necessitated regulation with the formation of the Bank of England serving as the impetus upon which most Central Banks base their model upon to this day where credit is created and issued to banks as well (Conant, 1915).

The banking system thus evolved into an avenue for commercial and economic success with many countries adopting the banking system in their economic model. With advancements in technology and the need for funding for wars e.g., the World War II, banks grew into sources of government funding and economic giants in their respective economic climates. The rapid advancement in technology has ushered a new era of banking as services become diversified and can now be transacted online or through mobile technology.

The modern era of digital banking has enabled the streamlining of lending services with the access to loans being reduced to a tap of a button in your phone. This is a notable difference in credit creation as the process is thus easy and accessible to almost anyone who has a networked device whereas prior to technological advancements, the process of acquiring loans was much more taxing and followed a due process that entailed tedious undertaking. The adoption of technology conversely has its demerits as customers are thus presented with a complex range of credit and payment options, whose terms and regulations are occasionally difficult to understand. Therefore, financial decision-making becomes opaque and more complex as options for purchases and credit become more customized online (Carlsson et al., 2017). The vagueness of the application processes can lead to individuals making poor financial decisions especially in the context of taking up loan obligations without first taking into account how they will manage the debt in terms of their income.

The cause of over-indebtedness especially in the modern world can be accurately traced back to lack of financial literacy and even the tendency to imitate others which is a noted propension in the modern digital world (Gutiérrez-Nieto et al., 2017). According to a study conducted by Andreou and Anyfantaki (2021) in Cyprus, adults who were found to be financially illiterate were more likely to use digital banking services without the knowledge on the implication of poor financial decisions. The study recommended that increased levels of digital financial literacy was imperative so as to prevent individuals from making poor decisions such as accruing debt they are not able to pay off.

In Kenya, banking improved greatly in 2000's with the advancement of technology and specifically the advent of mobile money technology in 2007 (Totolo, E. (2018). The rise in mobile money technology gave rise to mobile lending technology. The remarkable rise of digitally delivered micro-credit is as a result of transformation within financial services sector that was fuelled by the mobile money revolution that started in 2007. Since the launch of the first mobile

loan product, M-Shwari, by Safaricom and NCBA Bank in 2012, the country has experienced a significant increase in the size of the mobile loans market, both in terms of providers and the total amounts of loans.

Methodology of Research

The study adopted a survey research design. The main objective was to establish the effect of customer characteristics on the level of customer over-indebtedness due to digital credit revolution within the informal economy of Nairobi City County Kenya. The use of a survey research design was adequate for purposes of this research as the study sought to investigate the attitudes, behaviours, opinions and characteristics of the population. The data was collected between August 2021 and October 2021 in Nairobi City County Kenya.

The respondents were the informal sector operators, and they were sampled from across the nine divisions of the said county through stratified sampling. Data was collected through Google Form questionnaires. A total of 384 respondents participated in the study. The population was adequate for undertaking inferences about the population. This is supported by Pandey (2015) who argues that where there are more than 10,000 possible respondents, the ideal sample size would be 384. The sample size was homogenised in nature, independent and a representative of the whole population.

Descriptive statistics were used in the analysis of the study variables. Pearson correlation coefficient (r) was used to determine the correlation between the two variables while Binary Logistic Model was used for the analysis of the results in the structured interview. The findings, conclusions and recommendations concerning the findings of the study were then inferred.

Results of the Research

The goal of the study was to identify the traits of the respondents and determine whether there was any correlation between particular customer traits and customer over-indebtedness. The customer characteristics that were assessed in the study include gender, age group, academic qualifications, family status, occupation, average income, and technological savviness of the customer

Customer over-indebtedness is defined as the accumulation of debts by a customer to a level that it becomes difficult for the customer to sustain the repayment of such debts (Schicks, 2011). The study used various indicators to portray the instance and the extent of customer over-indebtedness. Indicators that were used for the purposes of this study were: the number of loans that an individual was servicing, number of loans defaulted, increased uptake of digital loans after digital credit revolution, late repayments with reasons and how much they have borrowed to repay other loans. The implications of this indicators were measured through the use of theme coding, ratio and nominal scales.

The survey of the data collected established the following about customer over-indebtedness. The amount of over-indebtedness increased as the number of loans increased. The study therefore made the assumption that an individual's total loan amount would increase as they took on more loans, and vice versa. Another factor that increased customer over-indebtedness was the number of loans that were in default; the greater the number of defaulted loans, the greater the respondent's over-indebtedness. A respondent's increased use of digital loans is another indication of customer over-indebtedness. Other signs of increased customer over-indebtedness included late loan repayments, flimsy justifications for late

repayments, and borrowing to pay off other loans.

Table 1: Frequency Table of Customer Over-Indebtedness

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Over-indebted	193	49.6%	49.6%	49.6%
	Over-indebted	196	50.4%	50.4%	100.0%
	Total	389	100.0%	100.0%	

Source: Author, (2022)

The study sought to identify the characteristics of the respondents and sought to understand whether there would be any association between specific customer characteristics and customer over-indebtedness. 57.4% of the respondents were male, while 42.6% of the respondents were female. The age group of the respondents was also determined. The respondents were mainly young people below the age of 35 years. 44.7% of the respondents were between the age 24 to 30 years, while 86.9% of all the respondents were below 35 years of age. This could be explained by the fact that Nairobi is an urban city, where majority of the people living in the cities is comprised of young people who are looking for opportunities in the urban centres. It is a trend in Africa that majority of the city dwellers are comprised of young people as they consider cities to have more opportunities than the rural areas.

The education background of the respondents was also assessed and only 42.7% of the respondents had KCPE certification as the highest educational qualification while 13.4% of the respondents had bachelor degree certifications. The respondents who had attained at least KCSE certification were 57.4% while respondents who had attained KCSE certification as their highest formal education qualification were 44%. This indicates that most people in Nairobi City have attained at least KCSE certification and therefore literacy level is high. 65% of the respondents were single and only 35% of the respondents were married. This indicates that most of the people in Nairobi County are comprised of young unmarried people. The respondents were also asked to name their occupations, in which the jobs were classified either white collar jobs, blue collar jobs or manual jobs. There were only two respondents who had white-collar jobs (they were accountants), while 99.5% of the respondents had either blue-collar jobs or manual jobs. Majority of the respondents were *Jua Kali* (loosely translated as hot sun) operators, boda boda operators, hawkers, charcoal sellers, welders among others.

23.1% of the respondent's monthly income was Kshs 10,000 and below, 51.2% of the respondents had a monthly income of Kshs 10,001 and Kshs 25,000. Less than 1% of the respondents had monthly income of over Kshs 50,000. The findings that only less than 1% of the respondents were able to make a monthly income of at least Kshs. 50,000 indicates that majority of the residents in Nairobi County informal sector were not able to make decent income, and therefore struggle to make ends meet. They would therefore grab any opportunity that would

make them access more money notwithstanding the cost associated.

The study indicated that 87.9% of the respondents were using smartphones while only 12.1% of the respondents were using feature phones. 71.7% of the respondents did not find it challenging to go through the process of borrowing loan using their phones while only 28.3% of the respondents found some applications being tedious and confusing. This means that the access of smart phones within the population was quite high and majority (71.7%) where technology savvy hence the easiness of manoeuvring through the loan apps and its processes.

Hypothesis Testing

Customers' characteristics are demographics that stimulate and push a customer to behave in a certain manner. Customer characteristics that were assessed in the study include gender, age group, academic qualifications, family status, occupation, average income, and technological savviness of the customer. The relationship between these characteristics and customer over-indebtedness were assessed in this study, through the following null hypothesis.

Null Hypothesis: Customer characteristics have no significant effect on customer over-indebtedness

In order to test this hypothesis, binary logistic regression was undertaken, where customer over-indebtedness was the dependent variable, while the independent variables were comprised of the customer characteristics factors. The logit model that took the form Log*it (Pi)=β0+βiXi* was used in the study. The specific model took the form:

$$\text{Logit (Pi)} = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \beta_6X_6 + \beta_7X_7 + \mathcal{E}$$

Whereas X_1, X_2, X_3, X_4, X_5, X_6, and X_7 represent gender, age group, academic qualifications, family status, occupation, average income, and technological savviness of the customer respectively. B_1, β_2 .... B_7 represents their corresponding coefficients.

The Omnibus test of Model coefficients uses chi-square test to determine whether the model is significant. In table 2 below, the p-value of the Model is below 0.05 ($P<0.05$) and therefore the null hypothesis is rejected which is interpreted to mean that the model is significant in predicting customer over-indebtedness by the use of customer characteristics.

Table 2: Omnibus Test of Model Coefficients

		Chi-square
Step 1	Step	52.794
	Block	52.794
	Model	52.794

Source: Author (2022)

The coefficient of variation is determined by the model summary – Nagelkerke R-Squared (Pseudo R^2). It indicates the extent to which the model determines changes in customer over-indebtedness. In this case, 16.9% of the changes in customer over-indebtedness can be attributed to changes in customer characteristics, while the other changes in customer over-indebtedness could be attributed to other factors that are not in the model.

Table 3: Model Summary

	Model Summary	
Step	-2 Log likelihood	Cox & Sne
1	486.452[a]	

a. Estimation terminated at iteration number 4 because parameter estimates changed by less than .001.

Source: Author, (2022)

The classification table 4 indicates that the overall percentage is 68.6% and therefore the model is moderately accurate in predicting cases. From a total of 193 cases that were not over-indebted, the model could accurately predict 145 cases not to be over indebted, while it only predicted 48 cases that were not over-indebted as over-indebted. This is an accuracy rate of 75.1%. On the other hand, from a total of 196 cases that were over-indebted, the model accurately predicted 122 cases as being over-indebted while it classified 74 cases that were over-indebted as being not over-indebted. This is an accuracy level of 62.2%, and the overall accuracy of the model is 68.6% which is acceptable. (Field, 2005).

Table 4: Classification Table

Classification Table[a]				
Observed		Custo		
		No	Yes	Correct
Step 1	Customer over-indebtedness	No	145	48	75.1
		Yes	74	122	62.2
	Overall Percentage			68.6

a. The cut value is .500

Source: Author, (2022)

The variables in the Equation table 5 explains whether each variable is positively or negatively correlated to the dependent variable (Exp(B)<1 is negatively correlated and Exp (B) >= 1 is positively correlated). The significance of the model indicates whether the variable contributes significantly to the model (p<0.05 contributes significantly while p > 0.05 does not contribute significantly) (Field, 2005).

Table 5: Results of the Test – Binary Logit Model

		B	S.E.	Wald
Step 1[a]	Gender	.023	.224	.010
	Age group	.224	.156	2.054
	Academic Qualification	.293	.154	3.619
	Family Status	.943	.270	12.234
	Current Occupation	.123	.248	.247
	Average Monthly Income	.160	.192	.695
	Customer Tech Savviness	-1.372	.257	28.444
	Constant	-2.142	.856	6.265

a. Variable(s) entered on step 1: Gender, Age group, Academ Occupation Job, Average Monthly Income, Customer Tech S

Source: Author, (2022)

Gender, age group, academic qualification, current occupation, and average monthly income do not contribute significantly to the model (p > 0.05) though they are positively correlated (Exp(B)>1). However, family status contributes positively to the model (p < 0.05) and has a positive correlation with customer over-indebtedness (Exp(B) > 1). The findings indicate that people who are married are more likely to be over-indebted than those who are not married. This could be

explained by the fact that there is increased financial strain and pressure for married people than those who are not married.

The findings are consistent to findings by AFI (2017) who found that customer demographics did not have significant influence on technological adoption in mobile banking and internet banking. Hwang and Tellez (2010) also indicated that customer behaviour towards use and adoption of new technology depended on selected demographics and not all the demographics. The findings were inconsistent with findings by Litondo (2010) who found that age and education level had significant effect on adoption and use of technology.

In this study, not all factors had significant impact on the adoption of digital credit. The findings were inconsistent to findings by Santos et al. (2018) who found that financial literacy (note that it might not necessarily compare directly to the level of education) decreased the probability of using informal loans. Customer tech savviness had negative correlation on customer over-indebtedness (Exp(B) < 1), and the variable significantly contributed to the model ($p < 0.05$). This could be interpretated that the more tech savvy a person is, the less they were likely to be over-indebted. It follows that both family status and customer tech savviness contributed 12.7% to 16.9% in the model.

The findings were consistent with findings by AFI (2017) that the adoption of mobile and internet banking was significantly correlated with perceived ease of use. Hwang and Tellez (2010) also indicated that customer behaviour towards use and adoption of new technology depended on selected demographics and not all the demographics.

Table 6: Summary of Results from the Tests of Study Hypotheses

	Null Hypothesis	Results
H_1	There is no significant effect of customer characteristics on customer over-indebtedness	Omnibus Test Model significant ($p<0.05$)
H_i	There is no significant effect of gender on customer over-indebtedness.	The Wald test insignificant ($p > 0.05$).
H_{ii}	There is no significant effect of age group on customer over-indebtedness.	The Wald Test insignificant ($p>0.05$).
H_{iii}	There is no significant effect of family status on customer over-indebtedness.	Positive correlation a Wald test is significa ($p<0.05$).
H_{iv}	There is no significant effect of occupation on customer over-indebtedness	The Wald test insignificant ($p>0.05$)

H_v	There is no significant effect of a person's average income level on over-indebtedness	The Wald test is insignificant ($p>0.05$)
H_{vi}	There is no significant effect of a person's technological savviness on customer over-indebtedness	Negative correlation and Wald test is significant ($p<0.05$)

Source: Author, (2022)

Conclusions

The study looked at the relationship between customer characteristics and customer over-indebtedness. The factors of customer characteristics that were assessed in the study included gender, age group, academic qualifications, family status, occupation, average income, and technological savviness of the customer; while the indicators of customer over-indebtedness that were used in the study were: the number of loans that an individual was servicing, number of loans defaulted, increased uptake of digital loans after digital credit revolution, late repayments with reasons and how much they have borrowed to repay other loans.

Though there was a positive correlation between customer over-indebtedness and the factors of gender, age, occupation, and phone type; these factors were not significant in the model. This means that they had very little bearing on a customer's level of over-indebtedness. However, there was a significant and a positive correlation between family status, academic achievement and average monthly income to customer over-indebtedness. This meant that the more these traits (family status, academic achievement and average monthly income), were present in the borrowers, the greater the likelihood that they would be over-indebted.

Marital status as a factors of customer characteristic, was hugely a significant factor in the model with results showing that married people had a 2.57 times greater likelihood of being over-indebted than their single counterparts.

16.9% of the changes in customer over-indebtedness can be attributed to changes in customer characteristics, while the other changes in customer over-indebtedness could be attributed to other factors that are not in the model. The study therefore came to the conclusion that although there was a significant effect of customer characteristics on customer over-indebtedness at $P<0.05$, the factors of customer characteristics under this study (not all customer traits would have significant influence) would only explain in part why a customer can get over-indebted. More research would need to be done on the other significant factors, out of the scope of this paper, that are driving customer over-indebtedness.

Recommendations

The two main factors of customer characteristics that contributed significantly to the model were family status and customer tech savviness, contributing 16.9% and 12.7% respectively. This shows that there are many other hidden factors that are majorly contributing to customer over-indebtedness that have not been dealt with in this research hence it will require further research to un-earth it.

The study showed that married people within this population (informal economy) are the ones most affected. The results showed that married people had a 2.57 times greater likelihood of being over-indebted than their single counterparts This exposes a deeper problem of families in informal sector not being able to sustain their living off debt. There is need to review the government policy on how to support these group of people. High cost of living and low income

driving many of them to be over-indebted in an effort to fend for their families.

The researcher portends that there are many other macro factors that can drive a population to over-borrow. The state of the economy and the cost of living get to adversely affect the population especially those within the informal economy. The government needs to find mechanisms of shielding the population at the bottom of the pyramid. The government too need to do more in offering capacity building and training programs to the operators of informal economy especially on prudent finance management and on healthy borrowing habits. These training programs would ensure that the informal sector understands what kind of loans to undertake and the advantages of paying loans in time on a person's credit worthiness. This would entirely reduce the risk of default on digital lenders and therefore make it reasonable to charge lower interest rates for digital loans.

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