DETERMINANTS OF UNDERGRADUATE HELB LOAN DEFAULT: A CASE OF HIGHER EDUCATION LOANS BOARD

BY

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DECLARATION

This research paper is my original work and it has never been presented in any other university for award of a degree or any other award.

Sign:…………………………………………….. Date:……………………………………………

Phebian Achieng

X50/81050/2015

This research paper has been presented for examination with my approval as the University supervisor.

Sign:…………………………………………….. Date:……………………………………………

Prof. D. M. Kulundu

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DEDICATION

I dedicate this project to my wife *Joan* who has always been there during these difficult and trying moments and to my daughter *Ariana* for giving me a smile in life.

ACKNOWLEDGEMENT

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ACRONYMS AND ABREVIATIONS

CRB: Credit Reference Bureau

GoK: Government of Kenya

HELB: Higher Education Loans Board

HELF: Higher Education Loans Fund

Kshs: Kenya Shillings

OLS: Ordinary Least Square

SMS: Short Message Services

USA: United States of America

USLS: University Students Loans Scheme

ABSTRACT

There are many factors that influence undergraduate HELB loan default. In spite of the government's and other stakeholders' endeavor to improve and make university education accessible, undergraduate HELB loan default still remains a major challenge with significant proportion of undergraduate beneficiaries defaulting on their loans. The focus of this study is to investigate the determinants of undergraduate HELB loan default in Kenya and draw policy recommendation based on the study findings. The study utilized the probit model to analyze the determinants of undergraduate HELB loan default in Kenya using cross sectional data from HELB database as at December 2017. The dataset consisted of 152,482 undergraduate HELB beneficiaries across the country from both public and private universities. Number of years since completion of undergraduate study and gender though statistically significant, are negatively related to undergraduate HELB loan default. Outstanding loan, total penalty charged on principal loan, principle loan awarded to beneficiary for the period of undergraduate study, employment status and age of beneficiary significantly affect undergraduate HELB loan default as per the findings. Majority of undergraduate HELB loan defaulters are males at 60 percent with average age of the undergraduate HELB loan beneficiaries at 39 years. The average principal loan HELB award undergraduate beneficiary is Kshs 142,490. Based on the findings, it is therefore recommended that the government through HELB should review the policy on penalties levied on defaulters to control how and when penalties are charged to curb ever rising loan default. The study also recommends that going forward HELB should match the loan amounts with age so that the loan advanced to older beneficiaries be reduced compared to the loan advanced to the younger beneficiaries. Similarly, the study also recommends that HELB should introduce a reward scheme for those who finish paying their loan on record time, this will instil a positive approach towards repayment of HELB loan in Kenya.

CHAPTER 1: INTRODUCTION

1.1   Background of the study

Higher education is increasingly being viewed by governments as critical to the development and competitiveness of the economy and particularly the knowledge-based economy (Johnstone, 2008). The main way to increase human capital and move towards a knowledge based economy is by promoting and providing opportunities for higher education. To promote higher education, governments have to play an important role, one way is by establishing student loan schemes. Student loans can be defined as loans offered to students to cover for their education related expenses such as tuition, accommodation and textbooks. These loans are offered to students at low interest rates and repayment is done once students have completed their education. Many countries around the world offer student loans for the purpose of education. Governments are taking the initiative in implementing student loan schemes since they can no longer keep offering free higher education.

Higher Educational loans systems operate in around 70 states globally (Shen *et al.,* 2009; Ziderman, 2009). According to Ziderman (2004), loans programmes vary across countries based on the underlying purpose, organizational architecture, loan allotment policy as well as loan collection approach. However, the point of commonality is that loan programmes are heavily subsidized by the states (Ismail, 2011). The rise in reliance on student's loans across the world is a function of various factors such as increasing cost of attending university and growth in student enrollment which has put pressure on the student loan programe (Katz *et al.,* 2012; Hearn *et al.,* 2004).

Across developing economies including Africa, higher education has become progressively significant to citizenry for its ability to improve their economic well-being and enhancing good governance to the society at large (Ngali, 2013). Overally, countries have recognized that development can only take place if the competency and productivity of human capital are enhanced across the various economic sectors (Leseeto, 2010). However, university education in developed and developing countries has lagged behind as manifested by poor students' loan recovery despite being prominent and substantial capital claim on public wealth across the world (Hicks, 2013; Gaitho, 2013).

Student's loan history in Kenya dates backs to 1952 when the colonial administration would provide loans through the defunct Higher Education Loans Fund (HELF) to Kenyans seeking university education in institutions beyond East African countries specifically Union of Soviet Socialist Republic, Britain, the USA, South Africa and India. After independence, the GoK suspended the scheme and opted to directly meet the costs of higher education. However, in 1974 the number of students in search of university education grew coupled with the dismal economic performance occasioned by the oils shocks of 1970s, it therefore became increasingly difficult for the government to fully finance university education by provision of full scholarships and grants to university students (HELB, 2019).

To ensure access to university educational for the growing students population, GoK introduced the University Students Loans Scheme (USLS) under the Ministry of Education as the Loan Disbursement and Recovery Unit between 1970 and 1974. The functions of the unit at that time were to promote equal opportunity to qualified students regardless of their backgrounds and reduce

dropout rates by providing economic incentives to university students. Sadly, the GoK did not have clear - cut strategies to manage recovery of mature loans from beneficiaries.

Lack of clear cut strategy resulted from unplanned approach without taking precautionary measures in place, the programme drew its personnel from the Ministry of Education, instead of experienced and skilled staff in debt management such as those from commercial banks and beneficiaries were neither educated in their obligations nor the benefits resulting from loan repayment. The extent to which students rioted every time introduced changes to the scheme leading to poor performance. The unit therefore made no efforts at recovering the funds that it disbursed to rapidly increasing number of university students.

In the year 1995, GoK through an Act of Parliament created Higher Education Loans Board with the mandate to disburse loans, bursaries and scholarship as well as recovery funds loaned to students pursuing higher education in the institution accredited by Commission on University Education (CUE). The goal for creating HELB was to establishing a revolving fund from which funds can be drawn to loan needy Kenyan students pursuing higher education. Currently, over 75 per cent of the applicants are usually successful and get varying amounts of loans and bursaries from HELB (HELB, 2019).

HELB would not be in a position to assist the number of beneficiaries it currently supports without actively recovering of mature loans. The board took over a large portfolio of unsettled debts from USLS when it was established in 1995 with recovery rate as low at 3.3 percent (Otieno, 2010). Notwithstanding the large portfolio the board inherited, it has achieved 57 percent recovery rate in the 2012/13 academic year in comparison to 18 percent in 2000/01 academic year. Moreover, with

parallel students also benefiting from the fund, HELB's lending ability has risen to a tune of Kshs 4.5 billion in the fiscal year 2012/13 (Otieno, 2010; HELB, 2012).

Despite the successes HELB has achieved, it still continues to face challenges such as unemployment, heightened demand from surging student population and ballooning costs of university education in its venture to boost loan recoveries from past beneficiaries. Nonpayment of the mature loan by past beneficiaries result into reduced pace of setting up revolving fund, thus affecting the seamless disbursement of students loans by HELB to needy but qualified Kenyans. Identifying the causes of loan default in student loan programmes and developing pro-active solutions is central to HELB in achieving its core mandate as per HELB Act of 1995 (Kipkech, 2011; HELB, 2012).

The HELB budget is funded from three sources namely, the Exchequer, recoveries and other income generating sources. To boost recovery, HELB has been demanding penalty of Kshs 5,000 per month from beneficiaries who fail to make their monthly repayment since 2010. In the contrary, HELB also provide waivers on penalties for the beneficiaries who pay their loans in lump sum and to those beneficiaries who are consistent in their repayment plans. The two strategies have been employed by HELB as enticement for HELB loan beneficiaries to commence loan repayments so as to save on the projected interest on the loans (Ngali *ibid*)

1.2   Problem Statement

HELB has made commendable strides towards reducing overdependence on government funding through enhanced recoveries. More than 60 percent of funds disbursed to students come from recoveries, which, as of 2012, averaged Kshs 220 million per month up from 50 million per month

in 2002. Despite this accomplishment, the HELB is far from attaining full cost recovery which is a daunting task for many student loan schemes (Owino, 2003; Otieno, 2004). The defaulted loan at HELB amounts to Kshs 7.2 billion as at December 2017. In addition, 149,309 out of 436,832 mature accounts were performing which means that more than half of the mature accounts were non performing as at December 2017. This problem has necessitated HELB to adopt new strategies to mitigate the ever growing loan default and the knowledge of the determinants of loan default is central in coming up with the strategy. Despite this huge amount of loan defaulted, new loan applications come to HELB every year and funds HELB receive from exchequer remain constant (HELB, 2017).

Loan provided to beneficiaries has to be repaid for smooth operations, efficiency and provision of funds for future lending by HELB. Failure by beneficiaries to repay their HELB loan on time or to repay them at all is a serious problem facing HELB. This implies that the administrative cost of overdue loans increases the overall cost of lending without increasing the recovery by the same amount. Arrears also diminishes HELB's ability to generate resources internally as well as access to external sources of funds. Unrecovered loans cannot be recycled by HELB to assist new applicants and continuing beneficiaries, hence, applicants who might otherwise have had access to loan are denied access because of poor loan repayment. Furthermore, attempts to recover overdue loans consumes the time of senior management of HELB and drain their energy required for long term planning. Taking into account that good loan repayment is essential for sustenance and financial viability of the lending institution in the long run, a sound solution(s) to undergraduate loan default is necessary. To this end, knowledge of determinants of undergraduate HELB loan default in Kenya can be important in informing the solution(s) to this problem. This

research endeavored to fulfill this information gap through analysis of the determinants of undergraduate HELB loan default using probit regression model.

1.3 Research Questions

This study intends to respond to the following research questions:

a. What is the relationship between undergraduate HELB loan default and factors that determine HELB loan default in Kenya?
b. What are the relevant policy recommendations based on this study?

1.4 Objectives of the study

1.4.1 General objective

The general objective of this study was to examine the determinants of undergraduate HELB loan default in Kenya.

1.4.2 Specific objectives

The specific objectives of this study were:

a. To analyze the relationship between undergraduate HELB loan default and factors that determine HELB loan default in Kenya.
b. To suggest policy recommendations based on the study findings.

1.5 Significance of the study

HELB loan is considered as the most important factor for improving access to university education. It is also important because it enables undergraduate students to undertake university education

which they would otherwise be unable to undertake due to lack of tuition fees. However, poor loan repayment retards the success of most students' loan schemes. This study will provide vital information that will enable effective measures to be undertaken to improve undergraduate loan repayment and reduce undergraduate loan default at HELB of Kenya. The knowledge of the determinants of undergraduate HELB loan default will have a far reaching benefits to the economy e.g. it will inform in coming up with strategies to enhance loan repayment, achieve equitable disbursement of loan to undergraduate beneficiaries, inform targeted campaign and awareness on loan repayment and loan default.

Furthermore, poor loan repayment by undergraduate beneficiaries poses a big problem to HELB because the board incur high costs in trying to recover defaulted loans yet there has been little attempt to estimate and analyze the determinants of undergraduate HELB loan default. HELB and its policy makers therefore have little information as to where and how to channel efforts in order to minimize undergraduate HELB loan default. This study will help bridge this information gap by establishing the determinants of undergraduate HELB loan default. The empirical analysis to be carried out in this study will provide the rationale for better undergraduate HELB loan administration with possible pay off in reduced loan default.

1.6   Organization of the study

The research project consists of five chapters whereby chapter one is introduction, chapter two is literature review and chapter three is research methodology chapter four is data analysis, interpretation and results and chapter five is summary of findings, conclusion and recommendations.

CHAPTER 2: LITERATURE REVIEW

2.1 Theoretical Review of Literature

This section outlines the various theories of students' loan defaults. The theories that were discussed are human capital theory, ability to pay theory, agency theory and approach –avoidance theory.

2.1.1 Human capital theory

According to human capital theory, expenditure on higher education is managed as an investment and not as a consumer item. Individuals obtain human capital through education, post-school investment and on the job training. GoK has been committed in encouraging cost sharing and establishing students loan programmes with the aim of increasing the number of educated citizens since highly trained and skilled workforce is considered pivotal element for economic development. This approach has been adopted by GoK due to its belief in human capital theory (Ishengoma, 2004; Barr, 2009). As a proponent of human capital theory, Schultz (1963), argues that "…Increase investment in human capital increases individual productivity and income, and concurrently lays the technical base for the type of labour force necessary for economic growth in modern industrialized society".

According to Snooks (2008), there has been a rise in the awareness that human capital when put together with other factors of production is a very important factor in economic development of a given country. This research is also in agreement with human capital theory because people contribute the most necessary resource in any institution or organization. This is so because it is people who act on other resources such as materials, money and machines that make it possible

for institution or organization to operate. A lot of investments ought to be channeled to people to enable any organization to realize better results. Availability of students' loans programme will motivate more people to seek university education that will result into improved students' enrollment in universities. What this means for lending institutions is that maximum recovery of loans disbursed to past beneficiaries must be achieved to sustain the increasing number of students (Robbins, 2009).

2.1.2 Ability to pay theory

This theory has two components; the first components identify a lack of financial resource as a reason to borrow funds to finance higher education (Cabrera *et al.* 1998). If the anticipated financial benefits outweigh total cost of the program; the ability to pay theory states that, a person with limited financial resources will justify taking a loan(s) to achieve their educational goal. The second component of the ability to pay theory address the borrowers' resources to repay the funds borrowed. The theory suggests that individuals with sufficient income or with financial support from friends and family are capable of paying back borrowed funds if the total resources are in excess of monthly repayment requirement (Christaman, 2000).

2.1.3 Agency theory

Corporation is a legal entity that serves as a nexus for a complex set of explicit and implicit contracts among disparate individuals. They further note that organizations do not have preferences but consist of a complex system of agents and principals with an aim of maximization, with varied and opposing individual goals (Jensen *et al*., 1976). This necessitates the need to have a clear relationship between both the agents and the principles. Agency relation is a contractual

agreement that involves engagement between one or more individuals referred to as the principal and other persons (agents) to represent through delegating some decision making authority to the said agents. An agency problem emanates from conflict of interest among individuals and asymmetry of available information. In a bid to bridge the conflict between principals and agents some costs must be incurred which are referred to as 'agency costs'. Agency problems occur due to the fact that for contracts to be undertaken cost must be incurred.

Agency cost is total sum of the costs of formulation, administration and enforcement of contracts plus the residual loss. It includes all costs known as information cost, contracting, moral hazard and transaction costs. They further state that stakeholders of a contract can make themselves better off by anticipating future happenings and formulating their contracts using the anticipated activities while taking into consideration externalities which no party to the contract has any control over (Jensen *et al., ibid*).

Agency problems are guided by decision plans that distinguish the management and control of important decisions at every levels of an institution and organization. The mechanisms for distinguishing management and decision guidance include decision levels in which decision of junior levels are passed on to senior levels and boards of directors are appointed to ratify, monitor all major decisions especially those concerning senior management. Agency problems are important in the decision making process especially where managers are the initiators and implementers of very important decisions. They further state that without control management may take actions that are detrimental to the shareholders bringing about the need to separate ownership from control such that, no individual decision agent can exercise exclusive control and management rights over the same decision (Fama *et al.,* 1983).

2.1.4 Approach – avoidance theory

Approach - avoidance theory is applicable to loan repayment in that, students graduate and enter into repayment, the size of the monthly payment obligation, the timeframe to repay the amounts borrowed or uncertainty on how to repay on a limited income can trigger approach – avoidance behavior. The larger the amount borrowed, the number of lenders or lack of awareness of repayment option can cause borrows to either seek out resources (positive) or refuse (negative) repayment of their loan debt.

2.2 Empirical Literature Review

Study by Kipkech (2010) on the determinants of students' loan default in Kenya utilized probit model with beneficiaries having to choose from two alternatives which are; beneficiary defaulting or not defaulting HELB loan. He found that the likelihood that a loanee will default HELB loan was related to a complex web of factors and developing a default management programme may be the first step in reducing default. Specifically, the study found that age, dependents, course taken and obligation affect the students' loan default. However, the study has weakness in that it is not clear in the rational of selecting 20 companies as respondents. The study also did not include gender as one of the variables which this study will addressed.

Study by Kathure (2016) which examined the factors affecting the loan recovery performance from HELB beneficiaries in Kenya found that graduate employment status, follow up, government policy and loan characteristics influence the loan recovery performance. The study adopted qualitative and quantitative study design and analyzed data using content analysis technique. The study was fairly enlightening since the methodology used sought views from the respondents by

use of open ended questions. The responses were used in focus group discussion which enabled collection of first hand opinions from the interviewees without limitations by the questionnaire. The study has weaknesses in that it was conducted on HELB staff alone and did not include other HELB loan beneficiaries hence the results cannot be generalized to HELB beneficiaries.

Study by Lidoroh (2012) investigated the determinants of students' loan default rate in Kenya by use of OLS regression technique. The study found age, total amount of loan advanced, university type(public/private) and study period to be significant in determining students' loan default in Kenya. Nevertheless, Lidoro's study could have provided more insightful information if firstly, it used probit model to estimate the relationship since the dependent variable is binary; secondly, it included gender and employment category as explanatory variables in the model; thirdly, carried out any possible econometric tests before or after estimation on both the data and model. These weaknesses will be addressed by this study.

Study by Muthii (2015) utilized Fisher's discriminant analysis approach. The purpose of the study was to establish a student loan model that can predict if new loan applicant is likely to be a defaulter or non-defaulter. The study found out that employment status had the greatest discriminatory power in classifying the borrowers. This was followed by age, degree major and gender in that order. The outcome of the study was informative in addressing borrowers default behaviour. However, there exist gaps in that the study examined characteristics of the borrowers from HELB between 2009 and 2013. This study period was too short to provide reliable prediction. This weakness will be addressed by considering a cross section data as at December 2017.

Study by Warue *et al.,* (2016) explored the structural factors that affect students' loan recovery at HELB of Kenya and revealed that penalty waiver, government integrity compliance and loan

collection procedure are significantly related to loans recovery performance. The research revealed further that listing in CRB had a weak significance. The study employed both multiple regression and factor analysis to explore the dependent variable. Nevertheless, the study used a purposive sample of HELB staff only and failed to include other HELB beneficiaries who are not HELB employees. The findings therefore do reflect perception of all beneficiaries. Furthermore, the study failed to estimate the impact of the independent variable on students' loan recovery.

Sirma, Machogu, Nzioki (2017) conducted a study on empirical assessment of monthly default penalties as a deterrent measure of default on higher education loan recovery in Kenya. The study utilized primary and secondary data collected from all HELB beneficiaries from universities in Kenya. The study adopted OLS to estimate the model and found that monthly penalty default was a significant deterrent of HELB loan defaulters. The study recommended the establishment of a default management program as an extra step to reduce default rate and ensure that loanees are informed of their duty. The study provided good insight on monthly penalties as deterrent measure, however, it had gaps in that it used only one independent variable yet there are other critical factors which are also deterrent measures of loan default. Inclusion of more independent variables could have enriched the study and made the findings more reliable. This study is going to address some of these other variables including penalties.

Comparative studies have been conducted in relation to different country students' loan programmes. These comparative studies used similar methodology to research on the students' loans programme for a country under review. Johnstone (1986) established the concept of hidden grant by estimating quantity of the hidden grant in loans programme in Germany, Sweden and USA. Carlson (1992) conducted comparative analysis on loans programmes within Caribbean and

Latin America. Ziderman *et al.,* (2004); Ziderman (2008) reported the findings from a comparative analysis of nineteen loans programmes in South East Asia and forty-four loan schemes across the world.

However, all of these comparative studies have a narrow scope: Study by Johnstone focused on industrialized economies while study by Ziderman and Carlson focused on regions. The comparative studies by Ziderman *et al.,* (2004) and Ziderman (2008) are general and far-ranging compared to other studies cited above. Calculating the ratio for recovery and repayment for student loans programmes in nineteen and forty-four countries respectively, the studies covered many countries including both developing and industrialized and did consider the regional coverage.

Wandiga (1997) and Otieno (2004), examined the Kenyan students loan programme, and in Chung *et al.,* (2003) reported on the determinants of student loans in Hong Kong. These individual studies used different methodologies making it difficult to come up with any comparative conclusions. Studies by Wandiga (1997) and Otieno (2004) also avoided empirical evidence for inefficiencies in the loan programme in Kenya and provided theoretical issues.

According to Dell (2011), inability to repay due to unemployment is the major cause of default on repayment of HELB loan. This conclusion is anchored primarily on various empirical studies that have illustrated strong correlation between unemployment and undergraduate student loan default. Student loans are developed upon a model that depend on a beneficiary to earn a university degree which raises employment capability and as a consequence their ability to pay off student loan. Report by California Post-Secondary (2006) confirms that unemployment by university students who have completed their undergraduate studies and obtained undergraduate degree result into

increased likelihood of default in loan repayment while those who have secured employment are ready to start repayment of their loans without delay.

The relationship between gender and loan repayment is not very clearly outlined in the reviewed literature. However, some of the previous studies have established that gender influences loan repayments. (Woo, 2002; Steiner *et al.,* 2003; Herr *et al.,* 2005; Hillman, 2014) found out that men have higher probability of defaulting student loan as compared to women. A study by Choy *et al.,* (2006) submit that women take longer period of time to repay student loans compared to men. Correspondingly, Moran (1987) is his study submit that women have higher likelihood of default on students' loan. This is due to the fact that women are confronted by inconsistent aid practices, childcare, social and financial barriers males do not face. Nonetheless, Harrast (2004) did not find significant relationship between gender and students loan default.

There is diverse proof of the effect of age on student loan default. Some studies associate older students with default chances while other authors have found contradicting results**.** Herr *et al.,* (2005); Podgursky *et al.* (2002); Woo (2000) found age is to be positively related to loan default. That is to say, the older the loanee the higher the probability of defaulting on the students' loan. According to Hillman (2014), there is no significant association between age and default, while *Herr et al.,* (2005) justified his finding by arguing that older beneficiaries have greater likelihood due to family obligations that may pose hindrance to loan repayment. Findings of Meyer *et al.,* (2006) confirms that age of the loanee have a significant influence on loan default behaviour, and that the two exhibit inverse relationship. Comparatively, Seaks *et al.,* (1990) found no statistical significant relationship between age of the beneficiary and loan default.

According to Woo (2002), highly indebted beneficiaries are less likely to default compared to less indebted beneficiaries. Other researchers have reasoned that the higher the amount a student borrow the higher the likelihood of loan default (Choy *et al.,* 2006). Paired with these varied outcomes, Hillman (2014) revealed that the different findings from Woo (2002) and Choy *et al.,* (2006) resulted from a nonlinear association between debt and student loan default. Hillman argued that students who drop out of university before graduating have higher probability to accumulate debt. Similarly, those who graduate have likelihood of accumulating more debt due to their longer study duration.

If students cannot get employment after completion of study or lose their job at any point during loan repayment period, then they may have higher likelihood of defaulting. Borrowers who experienced unemployment showed an 83 percent increase in their chances of defaulting (Woo *ibid*). Likewise, Monteverde (1999) found similar result in is study and concluded that loss of job leads to low financial capability with which to settle the student's loan debts. Study by Hillman (2014) also found out that unemployed borrowers have approximately two times higher chances of defaulting on students' loan compared to employed borrowers.

2.3   Overview of the literature review

The reviewed literature gives an analysis of the theoretical underpinning on how different variables determine loan default behavior of university students. The reviewed literature reveals a wide range of factors affecting loan repayment by beneficiaries. The factors revealed are related to age, gender, employment status, outstanding loan, total penalty among others. Some studies such as Warue *et al.,* (2016); Muthii (2015) have limitations one of them is that they the studies used small samples to estimate the relationship between some of the factors and HELB loan default. Such a

small sample size may involve a large sampling error which may lead to inaccurate results and conclusion. Study by Lidoroh (2012) have limitation in that it used inappropriate econometric model which resulted in findings that cannot reliably inform policy. Reviewed literature that based their conclusions on statistical data are few and some of them arrive at contradictory results and conclusions concerning the relationship between loan repayment or default with some of the variables. Conclusions by Volkwein *et al.,* (1995) and Woo (2000) on the effect of age on students' loan defaults contradict each other. In addition, most of the reviewed literature omitted critical variables in their estimation models (Sirma *et al.,* 2017; Lidoroh, 2012) which have been included in this study to provide more reliable outcome that can inform policy. Thus, this study fills the gap by adopting the probit model to estimate the relationship between endogenous and exogenous variables. The inclusion of total penalty and principal loan in the model alongside focusing on undergraduate beneficiaries alone offered a clear and in depth understanding of the determinants for HELB loan default in Kenya.

CHAPTER 3: METHODOLOGY

3.1   Introduction

This chapter provides details on the methodology used in this study. It includes the conceptual framework, econometric model, the specific model that was used to drive the desired results, the definition of variables used in the analysis and the descriptions of the data sources utilized in the study.

3.2   Theoretical Model

The likelihood of HELB loan default was based on the theory of credit default. According to the theory, the hypothesis that beneficiary defaults HELB loan are affected by two random variables z_S for demographic factors and z_V for institutional related factors, it is possible to model HELB loan default as a random variable z_D which is some function f for the exogenous variable:

$$z_D = f(z_S, z_V, t) \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots (1)$$

Generally, the function f is explained by the result from a stochastic partial differential equation in the two stochastic variables, with assumption touching on the fundamental stochastic processes. The relevant outcomes for simple cases are well - known.

Let $\mathbb{D}$ stand for the set of default incidences at time t. The undergraduate HELB loan default incidences are controlled exclusively by demographic factors (age and gender) and institutional related factors (total penalty, employment status, outstanding loan, principal loan, number of years since completion of undergraduate beneficiary) represented here by the sets $\mathbb{S}$ and $\mathbb{V}$ in that order where:

$$\mathbb{S} = \{z | z < -z_S : t - t_g\} \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots (2)$$

$$\mathbb{V} = \{z | z < -z_V : t\} \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots (3)$$

Remember that $\mathbb{S}$ and $\mathbb{V}$ could be temporarily disconnected by a time gap t_g and the probability $P(\mathbb{D})$ for $\mathbb{D}$ is given by Baye's rule for conditioning:

$$P(\mathbb{D}) = P(\mathbb{D}|\mathbb{S}\cap\mathbb{V})P(\mathbb{S}\cap\mathbb{V}) \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots (4)$$

Our assumption that $\mathbb{S}\cap\mathbb{V}$ is necessary and sufficient for $\mathbb{D}$ means:

$$P(\mathbb{D}|\mathbb{S}\cap\mathbb{V}) = 1 \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots (5)$$

Hence the likelihood of default $P(\mathbb{D})$ is expressed as the joint probability $P(\mathbb{S}\cap\mathbb{V})$. Generally, the random variable z_S for demographic factors and z_V for institutional related factors could be correlated. Based on Gaussian assumption, the likelihood of defaulting undergraduate HELB loan default at time t is explained by a bivariate normal probability density function:

$$p(z, z', t) = \frac{Exp\left(-\frac{1}{2}Q\right)}{2\pi\sqrt{1 - \rho^2}} \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots (6)$$

Where ρ is the correlation coefficient between the two random variables (z_S and z_V) and Q is specified by:

$$Q \equiv \frac{z^2 - 2\rho zz' + z'^2}{1 - \rho^2} \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots (7)$$

The joint probability of undergraduate HELB loan default is then given by:

$$P_D \equiv P(\mathbb{D}) = \int_{-\infty}^{-z_S} \int_{-\infty}^{-z_V} p(z, z', t) dz dz' \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots (8)$$

In the unique instances where the determinants of undergraduate HELB loan default are independent and uncorrelated then $\rho = 0$ and equation (8) yield either

$$P(\mathbb{D}) = P(\mathbb{S} \cap \mathbb{V}) = P(\mathbb{S})\, P(\mathbb{V}) \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots (9)$$

or,

$$P_D = P_S P_V = N(-z_S)N(-z_V) \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots (10)$$

Where P_D is the probability of defaulting undergraduate HELB loan while z_S, and z_V are random variable as defined above. Therefore, this indicates that default on undergraduate HELB loan by a beneficiary is dependent on demographic factors (age and gender) and institutional related factors (total penalty, employment, principal loan, outstanding loan, number of years since completion of undergraduate study).

3.3 Econometric model

The study employed the probit model to analyze the determinants of undergraduate HELB loan default in Kenya since the dependent variable is binary. This type of regression is probabilistic and the dependent variable takes two values ranging between 0 and 1. According to Machio (2008) the binary models is based on the assumption that individuals have to choose between two alternatives and the choice of any of the two is dependent on certain factors. In this study case, the error term takes the standard normal distribution. We assumed that the probability of an undergraduate HELB

beneficiary defaulting HELB loan is determined by an underlying response variable. The probit model was expressed as:

$$Prob\left(Y = \frac{1}{X} = \Phi(X'\beta)\right)\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots(11)$$

Whereby **Prob** denotes probability, Φ designate the cumulative standard normal distribution function and β is a vector of the parameters for estimation. Let's observe some variable say **Y** which takes the values between 0 and 1 and define the latent variably $\mathbf{Y^*}$ as:

$$Y^* = X_i\beta + \varepsilon\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots(12)$$

Where $\mathbf{Y^*}$ is the dependent variable of defaulting or not defaulting undergraduate HELB loan, $\mathbf{X_i}$ are the independent variables that determine undergraduate HELB loan default such as age, gender, total penalty among others, β are the coefficients to be estimated and ε is the error term that is normally distributed with N(0,1). Here, the endogenous variable **Y** can be observed if **y>0** which signifies default and **y = 0** which signifies non default i.e.

$$Y_i = \begin{cases} 1, if\ undergraduate\ HELB\ beneficiary\ defoulted\ HELB\ loan \\ 0, otherwise \end{cases} \dots\dots\dots\dots\dots\dots(13)$$

Therefore, the probability that **Y=1** given **X** is estimated using the standard normal cumulative function which was illustrated by the equation below:

$$Prob\left(y_i = \frac{1}{X} = \Phi(S) = \int_{-\infty}^{-S}(2\pi)^{-1/2}e^{-S^2/2}ds\right)\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots(14)$$

Where S=X$_i$β

The standard normal transformation $\boldsymbol{\Phi(S)}$ constraints for the probability to lie between **0** and **1**. Equation 4 can be interpreted as probability expressed as conditional probability that undergraduate beneficiary defaulted HELB loan given certain identifiable factors $\mathbf{X_i}$. The above model was estimated using the likelihood function given as:

$$L = \prod_{i=1}^{n} \Phi\,(X_i\beta)^{y_i}[1 - (X_i\beta)\,]^{1-y_i} \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots (15)$$

Nevertheless, it is convenient using the log likelihood function given as:

$$ln = \sum_{i=1}^{n}\{y_i ln[(X_i\beta)] + (1 - y_i)ln[1 - \Phi(x_i'\beta)]\}\dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots (16)$$

Therefore, we look for $\widehat{\boldsymbol{\beta}}$ estimates that maximizes the log likelihood function.

Probit model facilitates in interpretation of the significant coefficients and the sign. It is appropriate therefore to estimate the marginal effects so as to interpret both the sign and magnitude. The marginal effects indicate the change in probability of **y = 1** per unit change in exogenous variable **X**. It is computed as:

$$\partial p/\partial xj = \Phi(X'\beta)\beta j\dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots (17)$$

The marginal effect is estimated in two ways; either for average person in the sample **x** or as average of individual marginal effects. In this study the average of individual effect estimated was presented as:

$$\partial p/\partial xj = \left[\left\{\sum F'\big(X'\beta'(X')\big)\right\}\right]\beta\beta j \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots (18)$$

3.4   Model specification

Undergraduate loan can either be defaulted or not defaulted hence the use of probit model since it is binary. Here, we assumed that the probability of undergraduate beneficiary defaulting or not defaulting HELB loan is determined by some identifiable factors (independent) as shown below:

$$D_h = \beta_0 + \beta_i X_i + \dots + \beta_n X_n + \varepsilon \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots (19)$$

Where

D_h represents undergraduate HELB loan default.

β_i are the coefficients to be estimated.

ε is the error term

$\mathbf{X_i}$ is a vector for independent variables which determine undergraduate HELB loan default. Therefore, the estimatable model was specified as:

$$Default = \beta_0 + \beta_1 outlon + \beta_2 nyears + \beta_3 tpen + \beta_4 prloan + \beta_4 age + \beta_5 emp + \beta_6 gend$$

$$+ \varepsilon \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots (20)$$

Where; **outloan** represents outstanding loan, **nyears** represents number of years since completion of undergraduate study**, tpen** represent total penalty, **prloan** represents principal loan, **age** represents age, **emp** represents employment and **gend** represents gender.

3.5   Definition and measurement of variables

The dependent variable for the study was undergraduate HELB loan default and several independent variables was used to estimate the model. Table 3.1 shows the variables that were used in data analysis.

Table 3.1: Variable, Definition and Expected Signs

Variable	Definition	Expected sign
Dependent variable		
Undergraduate HELB loan default	Dummy variable; 1 if beneficiary default, 0 otherwise	
Independent variable		
Outstanding loan	Loan amount undergraduate HELB beneficiary owes HELB as at December 2017.	Positive
Number of years since completion of undergraduate study	Time (in years) undergraduate HELB beneficiary took before commencing HELB loan repayment.	Positive
Total penalty	Amount of money that HELB charge on principal loan upon default by undergraduate beneficiary.	Positive
Principal loan	Loan amount awarded for duration of undergraduate study	Positive
Age	Current age of undergraduate HELB beneficiary	Negative
Employment status	Dummy variable; 1 if employed, 0 otherwise	Positive
Gender	Dummy variable; 1 if male, 0 otherwise	Negative

3.6 Data source

This study used cross-sectional data of undergraduate HELB loan beneficiaries as at December 2017. The secondary data was obtained on request from HELB. The study used 152,482 records of undergraduate HELB beneficiaries from public and private universities in Kenya for analysis. The meta data touching on the personality of beneficiaries for example identity number and name were not included in the dataset to protect the identity of beneficiaries.

3.7 Diagnostic tests

3.7.1 Multicollinearity

The study tested for the existence of multicollinearity. There exists multicollinearity problem when independent variables are highly related (Pallant, 2007). To detect multicollinearity problem, Hair *et al.* (2010) recommends variance inflation factor (VIF) which is part of regression process and suggest that VIF of less than 10 is acceptable to indicate the absence of multicollinearity.

3.7.2 Heteroscedasticity

Regression usually assumes that the variance of the error is constant across observations. Heteroscedasticity tests is essential as it tests the constant variance of the errors to avoid spurious results. It sometimes called heterogeneity of variance and was corrected by using of robust standard errors in the regression. It was essential to correct heteroscedasticity as it impacts on the standard errors that are used in hypotheses testing.

3.7.3 Correlation

The study employed calculation of correlation matrices to test for the relationship between endogenous and exogenous variables as well as among the exogenous variables. According to Mukras (1993), inclusion of highly correlated variables may result into inflated coefficients which affect the interpretation of results. Therefore, they have to be dropped so as to authenticate the results.

CHAPTER 4: DATA ANALYSIS, INTERPRETATION AND DISCUSSION

4.1   Introduction

This section highlights the descriptive and empirical findings of the study and compare these findings with other findings from the literature. The focus of the study is to examine the determinants of undergraduate HELB loan default in Kenya.

4.2   Descriptive statistics

Table 4.1: Summary statistics of the study variable

Variable	Observation	Mean	Std. Dev.	Min	Max
Undergraduate HELB loan default	152,482	0.5600	0.4964	0	1
Outstanding loan	152,482	331,058	170,674	100	1,824,849
Number of years since completion of undergraduate study	152,482	5.8021	2.8279	1	12
Total penalty	152,482	163,277	126,806	5,000	600,000
Principal loan	152,482	142,490	63,441	10,000	360,000
Age	152,482	38.8120	9.2823	24	63
Employment status	152,482	0.3543	0.4783	0	1
Gender	152,482	0.6000	0.4899	0	1

Source: Author's computation based on HELB data (2017)

The study targeted 152,482 undergraduate beneficiaries from public and private universities in Kenya. The descriptive statistics reveals that on average, HELB beneficiaries have outstanding loan of Kshs 331,058. Averagely, undergraduate beneficiaries take 6 years to start the repayment of HELB loan. While the total penalty stands at an average of Kshs 163,277, HELB awards undergraduate beneficiaries an average of Kshs 142,490 as principal loan to complete their undergraduate study. The ages of undergraduate beneficiaries ranges from 24 years to 63 years with average age of undergraduate beneficiaries being 39 years according to the study findings. The descriptive statistics of the study variables are represented in table 4.1.

4.3   Diagnostic test

4.3.1   Heteroskedasticity

The null hypothesis assumes homoscedasticity, that is, constant variance of the error term. From the test results, the p - value of the chi square is equal to 0.0001, which is less than the significance level. This implies that heteroscedasticity is a problem. To correct the problem of heteroscedasticity, probit regression model was run with robust standard errors. Table 4.2 shows the results for the test of heteroscedasticity.

Robust standard errors were included in the model

Table 4.2: Heteroscedasticity test

Heteroscedasticity test	
Chi2(1) = 38645.44	Prob>chi2 = 0.0001

Source: Author's computation from HELB data (2017)

4.3.2   Multicollinearity

The results of multicollinearity shows that all the independent variables had VIF values less than 10, which indicate that multicollinearity did not pose any problem in the study. Table 4.3 shows the results of multicollinearity.

Table 4.3 Multicollinearity test

Variable	VIF	1/VIF
Outstanding loan	3.29	0.304102
Number of years since completion of undergraduate study	3.83	0.261133
Total penalty	3.67	0.272374
Principal loan	1.85	0.541119
Age	1.07	0.938138
Employment status	1.42	0.704313
Gender	2.69	0.371505
Mean VIF	*2.55*	

4.3.3 Correlation

The result indicated that multicollinearity do not exist because all correlation coefficients were less than 0.6 (Mwami, 2016). Outstanding loan, total penalty, principal loan, employment and age were found to be positively correlated with undergraduate HELB loan default. All other variables were negatively correlated with the predicted variable. Table 4.3 shows the correlation coefficients.

Table 4.4: Correlation matrix

Variables	Undergraduate HELB loan default	Outstanding loan	Number of years since completion of undergraduate study	Total penalty	Principal loan	Age	Employment	Gender
Undergraduate HELB loan default	1.0000							
Outstanding loan	0.5325	1.0000						
Number of years since completion of undergraduate study	-0.2567	0.2952	1.0000					
Total penalty	0.4678	0.4984	0.4143	1.0000				
Principal loan	0.0258	0.0427	-0.5428	-0.3211	1.0000			
Age	0.2425	0.2561	0.549	0.5599	-0.5907	1.0000		
Employment	0.4133	-0.5067	-0.078	-0.2993	0.0319	-0.092	1.0000	
Gender	-0.5235	0.5398	0.3682	0.4931	-0.0082	0.336	-0.4088	1.0000

Source: Author's computation based on HELB data (2017)

4.4 Regression results and discussion

To estimate the determinants of undergraduate HELB loan default in Kenya, the study used probit model. Marginal effects of the probit model were estimated for interpretation purposes. The marginal effects are shown in table 4.4.

Table 4.5: Marginal effects

Undergraduate HELB loan default	Coefficients	Marginal effects	Robust Standard Errors	P>|z|
Outstanding loan	2.0064	0.1064	0.0129	0.0000
Number years since completion of undergraduate study	-0.5110	-0.1591	0.0005	0.0000
Total penalty	1.6017	0.2904	0.0064	0.0000
Principal loan	1.2012	0.2178	0.0069	0.0000
Age	0.0097	0.0018	0.0004	0.0000
Employment	-0.7042	-0.1277	0.0019	0.0000
Gender	-5.0973	-0.0924	0.0186	0.0000

Robust Probit Regression
Number of observations = 152,482
LR chi2(7)   = 111,502.69
Prob > chi2   = 0.0000
Log likelihood   = - 48,840.584
Pseudo R2   = 0.5333

Source: Author's computation from HELB data (2017)

The research obtained p-value of 0.0000 which is less than the significance level. This indicates that the variables used in the model are statistically significant. The pseudo R-squared of 0.5333 shows that the variables included in the model explain about 53.3 percent of the variations in undergraduate HELB loan default.

The study found out that all the independent variables significantly determine undergraduate HELB loan default. An increase in the outstanding loan of undergraduate beneficiary significantly increases the probability of undergraduate beneficiary defaulting HELB loan by 0.1064. This finding is in line with the findings of the study by Hillman (2014) which revealed that as outstanding loan increases, the likelihood of beneficiary defaulting HELB loan increases.

Similarly, the findings of the study also revealed that an additional year after completion of undergraduate study reduces the probability of defaulting HELB loan by 0.1591. The finding could be associated with increased chances of undergraduate beneficiary getting a job with additional year after completion of undergraduate study.

The study revealed that an additional penalty charged on principal loan significantly increases the probability of undergraduate beneficiary defaulting HELB loan by 0.2904. The finding could be attributed to the fact that monthly penalty increases the amount of outstanding loan hence some of the undergraduate beneficiaries are defaulters because they have not paid the accumulated penalties yet they have cleared the principal loan. This finding concurs with the findings of the study by Sirma *et al.,* (2017) on empirical assessment of monthly default penalties as a deterrent measure of default on Higher Education Loan Recovery in Kenya. They found out that monthly default penalty increases the likelihood of undergraduate beneficiaries defaulting HELB loan.

Higher principal loan significantly increases the probability of undergraduate beneficiary defaulting HELB loan by 0.2178 compared to beneficiaries with low principal loan. This finding could be attributed to the fact that higher principal loan increases the amount of loan the beneficiary is expected to repay at the end of the undergraduate study. The finding is in line with those of Woo (2002) on factors affecting the probability of default among student loans in California. He found

out that beneficiaries with higher principal loan are more likely to default than beneficiaries with low principal loans.

An additional year in the age of undergraduate HELB beneficiary significantly increases the probability of defaulting undergraduate HELB loan by 0.0018. This implies that, as the age of undergraduate beneficiary increases, their chances of defaulting HELB loan also goes up. This could further be explained by the fact that older beneficiaries bear greater financial responsibilities that come with aging, thereby constraining them from repaying their HELB loan. This finding is in line with the findings of Kipkech (2010) on the determinants of students' loan defaults in Kenya. He found out that age of the undergraduate HELB beneficiary positively and significantly influences the undergraduate HELB loan default.

Being employed significantly reduces the probability of undergraduate beneficiary defaulting HELB loan by 0.1277 compared to unemployed undergraduate beneficiaries as per the study findings. The findings could be attributed to the fact that undergraduate HELB beneficiaries who are employed have regular income to enable them repay HELB loan. In addition, adequate skills among undergraduate beneficiaries may earn them promotion and higher pay which result in to up-to-date repayment of HELB loan. This finding is in line with the findings of the study by Kathure (2016) on factors influencing loan recovery performance in Kenya, which found that being employed reduces the likelihood of defaulting undergraduate HELB loan.

Being male significantly reduces the probability of defaulting undergraduate HELB loan by 0.0924 compared to female undergraduate beneficiaries. This is in line with the findings of the study by Podgursky *et al.,* (2002) on student loan defaults and enrollment persistence in Columbia. Their

findings revealed that male undergraduate beneficiaries are more likely to default undergraduate

HELB loan compared to their female counterparts.

CHAPTER 5: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1   Introduction

This segment recapitulates the findings regarding the determinants of undergraduate HELB loan default in Kenya. The chapter provides decisive conclusions derived from the study findings, give policy recommendations and further areas of research to fill the gaps.

5.2   Summary of the study findings

The findings revealed that all the variables of the study significantly influenced undergraduate HELB loan default.

An increase in the outstanding loan of undergraduate beneficiary significantly increases the chances of an undergraduate beneficiary defaulting HELB loan by 0.1064; an additional year after completion of undergraduate studies reduces the probability of defaulting HELB loan by 0.1591. Further, it was established that an additional penalty charged on principal loan significantly increases the probability of undergraduate beneficiary defaulting HELB loan by 0.2904; while higher principal loan significantly increases the probability of undergraduate beneficiary defaulting HELB loan by 0.2178 as opposed to low principal loan.

Regarding age of the undergraduate HELB beneficiary, an additional year in the age of undergraduate HELB beneficiary increases the chances of defaulting HELB loan by 0.0018, this implies that the older the beneficiary, the higher the chances of defaulting. Being employed as opposed to not employed reduces the chances of defaulting undergraduate HELB loan by 0.1277. Finally, the study found that being male reduces the likelihood of defaulting undergraduate HELB loan by 0.0924.

5.3   Conclusions of the study findings

The study sought to examine the determinants of undergraduate HELB loan default in Kenya. In doing so, it sought to analyze the relationship between undergraduate HELB loan default and the factors that determines undergraduate HELB loan default. Conventionally, HELB loan default rate should be lower among the employed beneficiaries as opposed to those who are not employed.

The findings revealed that, undergraduate HELB loan default is lower among the employed undergraduate beneficiaries, male undergraduate beneficiaries as well as among the beneficiaries who have stayed longer after completion of the undergraduate studies. Moreover, undergraduate HELB loan default was higher among the beneficiaries who had higher outstanding loan, higher total penalties, those who had higher principal loan as well as older undergraduate beneficiaries.

Therefore, based on the study findings, it can be established that employment status, outstanding loan, total penalty, the amount of principal loan, age and gender of the beneficiary and the number of years since completion of undergraduate studies influenced undergraduate HELB loan default.

5.4   Recommendations

5.4.1   Policy Implications

Based on the study findings, a number of policy recommendations are suggested to deal with poor undergraduate HELB loan repayment by undergraduate beneficiaries.

The study findings revealed a positive and significant relationship between total penalties and the undergraduate loan default, the study therefore recommends that the government through HELB should review the policy on penalties levied on defaulters to control how and when penalties are

charged to curb ever rising loan default. The policy should provide framework to protect unemployed undergraduate beneficiaries from being charged penalties until when they secure employment. Currently, HELB do not care whether beneficiaries are employed or not. As long as a beneficiary is done with undergraduate course, the penalty starts if no monthly repayment is done. The study recommends that HELB allow one year before it start to penalize beneficiaries. This will provide sufficient period for the undergraduate beneficiaries to look for employment.

The study also recommends that going forward HELB should match the loan amounts with age so that the loan advanced to older beneficiaries be reduced compared to the loan advanced to the younger beneficiaries. This may, to an extent, serve to alleviate both the problem of increasing HELB default with age and increasing HELB loan default with higher HELB loan amounts.

Similarly, the study also recommends that HELB should introduce a reward scheme for those who finish paying their loan on record time; this will instil a positive approach towards repayment of HELB loan in Kenya. Friendly policies concerning vindication from repayment of HELB loans and penalties should be established. This will help minimize loan default and inspire beneficiaries to repay promptly. The study finally recommends prolonging the repayment period to help reduce HELB loan default. It is amiss to conclude that shorter pay back duration make recovery of HELB loan straightforward. Lengthened payback time enables HELB beneficiaries to be more financially capable of paying back their loans.

The study finding revealed that male undergraduate beneficiaries have higher likelihood of defaulting undergraduate HELB loan compare to their female counterparts. The study therefore recommends that HELB to review its campaign policy and guidelines to target male beneficiaries rather than targeting all undergraduate HELB beneficiaries. This targeted awareness or

sensitization should focus on benefits of early loan repayment and the consequences of debt accumulation.

The study also revealed that increase in outstanding loan significantly increases the probability of defaulting outstanding loan. This is based on the fact that the non-performing loans are growing at an alarming rate at HELB. Additionally, there has been increased students' admissions in public and private universities in Kenya, which has necessitated HELB to increase the undergraduate loan amounts disbursements. The study therefore recommends that government through HELB should review the budgetary allocation to HELB to help bridge the gap between amount of loan default and disbursements to continuing and first time beneficiaries.

5.4.2 Recommendation for further research

The study considered the determinants of undergraduate HELB loan default in Kenya. However, there is need for more studies in examining undergraduate HELB loan default in Kenya by category of university of study i.e. public or private. This will help in understanding the best strategies to be adopted for each university category to reduced HELB loan default. Further studies should focus on the impact of devolution and partnership between HELB and county governments in repayment of HELB loan. Further studies should also target module of study and year of graduation to provide more insight on determinants of undergraduate HELB loan default.

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