

ANTECEDENTS OF LOAN RECOVERY OF HIGHER EDUCATION LOANS IN KENYA

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Abstract

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Purpose: The primary source of funding for higher education in Kenya is the Higher Education Loans Board (HELB). Failure to repay loans by university graduates poses a significant challenge, hindering the availability of financial resources for other deserving students. This lack of loan recovery undermines the sustainability of the education fund, consequently preventing many loan applicants from obtaining the financial support intended to cover their educational expenses. The default rate for student loans in Kenya stands at 40%. The main aim of this research was to examine the factors influencing the recovery of higher education loans in Kenya. Specifically, the study aimed to identify the demographic, economic, and loan repayment factors that impact the recovery of these loans.

Methodology: The investigation centered on quarterly data spanning a decade (2012 to 2022) obtained from the Higher Education Loans Board. The data collection encompassed loan repayment factors, economic indicators, demographic characteristics, and loan recovery statistics for higher education loans. The study was based on secondary data sourced from quarterly reports of the Higher Education Loans Board spanning the same ten-year period (2012 to 2022). The data was analyzed by use of descriptive and inferential statistics since the secondary data is a time series in nature. A 0.05 significance level (95% confidence interval) was the error variance used. Results were then presented in tables, diagrams and charts.

Results: Given the economic factors, the findings revealed that inflation rate has a negative (-0.117) and statistically insignificant ($p > 0.05$) relationship with loan recovery of higher education loans in Kenya. The correlation between the unemployment rate and loan recovery for higher education loans in Kenya was observed to be negative (-0.012) and found to be statistically insignificant ($p > 0.05$). Similarly, the relationship between economic growth and loan recovery for higher education loans in Kenya exhibited a negative trend (-0.114), which was also statistically insignificant ($p > 0.05$). Examining demographic factors, the study revealed that income level demonstrated a positive association (1.181) that was statistically significant ($p < 0.05$) in connection to the recovery of higher education loans in Kenya. On the other hand, the relationship between Educational Level and loan recovery for higher education loans in Kenya was positive (0.482), it was deemed statistically insignificant ($p > 0.05$). Turning attention to the loan repayment factors, it was uncovered that the lending interest rate displayed a significant negative correlation (-2.761) with the amount of unrecovered loans, which was statistically significant ($p < 0.05$). In contrast, penalty exhibited a beta coefficient of -0.016, indicating a negative relationship, although this relationship was found to be statistically insignificant ($p > 0.05$) in terms of its impact on the loan recovery of higher education loans in Kenya.

Unique contribution to theory, policy and practice: To enhance the effectiveness of loan repayments, the study proposes that HELB should adopt more stringent policies and regulations, aiming to ensure prompt and efficient loan recovery processes. The study recommends HELB alongside the Ministry of Finance and Ministry of Education to develop and promote financial literacy programs that target borrowers to improve their understanding of loan repayment obligations, interest rates, and financial management. The study recommends the strengthening of Financial Aid Programs which can include increasing the availability of grants and scholarships specifically tailored to support students with lower income levels or from marginalized communities..

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1.0 INTRODUCTION

1.1 Background of the Study

Students' loans are loans given to higher education students to help them pay for educational expenditures such as tuition and research (Jackson, 2002). Students' loans are becoming increasingly essential because of the government's failure to maintain simultaneous increases in financing for students' financial help. As the higher education industry develops and expenses rise, both emerging and developed countries are becoming more reliant on student loans to fund higher education (Marginson, 2016; Boatman et al, 2022). Due to the rising significance of higher education in Kenya, there is a surge in the expansion of student loan programs to fund higher education. Individuals and society as a whole benefit from higher education in terms of prestige and earning capacity as a result of economic success, democratic development, and social fairness (Boatman et al, 2022).

The student loan programs are intended to allow potential students from low-income households to invest in their future by providing them with financial assistance when necessary and enabling them to pay back when they complete their studies. Notwithstanding significant financial loads, student loans enable students who might be unable to do to invest in higher education, therefore eliminating socioeconomic inequities in access. Thus, the government loans encourage the development of higher education and give wider access while moving the responsibility of growing expenses away from the government and onto students and their families (Callender & Mason, 2017). However, the recovery of these loans is a barrier to the implementation of these programs, notwithstanding the government's investment. The students' loans must be paid back to establish a revolving loan fund to assist other needy students. Students' loan repayment has been impacted by poor loan recovery connected with defaulters' loan beneficiaries, which is influenced by their age, gender, and attitude toward loan repayment (Mueller & Yannelis, 2019).

By accelerating their repayment, less interest can accrue on your loans, saving them money on the overall cost of the loan. They are able to reduce their financial stress: Paying off students' loans can give one an incredible sense of achievement — and it can lower your financial stress (Kwang'a, 2020). To the higher education loans board (HELB), the repayment of loans increases its lending capacity to maintain and sustain its revolving fund and offer more loans to the successive students. The rise in non-performing loans has left HELB battling a huge deficit, made worse by falling government subsidies and an inability to attract new funding (Onang'o & Orodho, 2016). Student loan default suggests that the student/beneficiary is not able to make payments following the terms of the student loan contract. Even if one does not graduate or has difficulty finding work after graduation, they are liable for repaying their student debts.

Given the importance of student loans in financing higher education, the ongoing growth in student loan default rates is alarmingly high (Callender & Mason, 2017; Ng'ang'a, 2016). It has significant implications not just for the government budget (more than 92 per cent of all student loans are state loans), but also for the borrowers who have defaulted on their student loans. Student loans, unlike other forms of debts, are not dischargeable in bankruptcy, and income can be garnished for the remainder of a borrower's life. Thus, in addition to the usual stigma associated with loan defaults (such as tainted credit scores and restricted access to credit markets), the expectation of wage garnishment may affect student loan borrowers' job search and incentives to work, while the fact that loan defaults can be observed by employers may affect their chances of finding a job in the first place (Mueller & Yannelis, 2019).

While the HELB Act of 1995 in Kenya, does not peg loan repayment to employment, HELB appreciates the fact that owing to the prevailing economic situation including the unemployment and underemployment challenges, the loan beneficiaries' repayment ability may take some time to stabilize. Further, HELB has previously offered 100% Penalty Waiver Campaigns in 2013 where 10,110 beneficiaries paid off their loans valued at Kshs 1.3B and in 2018 where 9,998 beneficiaries paid off their loans valued at Kshs 870M. Likewise, as at July 14 2022, HELB announced that the number of

former university students defaulting on HELB dropped 14 percent following a four-month penalty waiver that ended June 30 (Igadwah, 2022). This has significantly shown the efforts of the board to ensure improve loan repayment by the student beneficiaries. There are, however, many student alumni who believe they may be in a position to repay their loans but may have chosen to ignore numerous letters, short messages (SMS) and calls to comply or to come and engage on a flexible repayment plan (HELB, 2020). Thus, this current study seeks to shed light on the problem of student loan recovery and the factors that affect student default rates.

1.2 Statement of the Problem

Around the world, students loan schemes are concerned about sustainability of their revolving funds. According to Ngali and Warue (2016), the sustainability of the Higher Education Loans Board (HELB) fund is pegged to recovery of mature loans which are then ploughed back and disbursed to subsequent generations. However, loan recovery has faced major drawbacks since 1980s when the portfolio at risk was 99%. Owing to the ongoing recovery efforts, the quality of loan book has since slightly reduced to 62% as reported in 2015 (HELB, 2015) with a corresponding portfolio at risk of 38% which is still low. Although HELB is not comparable to banks with portfolio at risk of 14%, it operates in the same economic environment. The problem has been escalated by the unemployment of loan beneficiaries, retrenchment and downsizing by employers, underemployment of loan beneficiaries, changing employment trends from long term to short term contracts, slow economic growth and escalating cost of living and migration of loanees to other countries (HELB, 2021). The board has used various strategies in the past to recover the student loans including use of strategic partnerships, credit information sharing to obtain information on defaulters, negative listing of defaulters to credit reference bureaus and obtaining information from professional bodies. The above instances of escalating loan non-recovery from the beneficiaries indicate that the institution lacks the ability to maintain its revolving fund and undermining its ability to disburse student loans on time and sufficiently. Despite the cited antecedents of loan recovery of higher education loans in Kenya very few have been done in Kenya especially up to the year 2022. For instance, Kiplimo et al. (2017) assessed the effect of monthly default penalties on default on higher education loan recovery in Kenya. Engede (2015) looked into the strategies used by Higher Education Loans Board in loan recovery from beneficiaries in Kenya. Ng'ang'a (2016) looked at the factors affecting the repayment of education loans among university students in Kenya. To the best of our knowledge, the studies have not focused exhaustively on the variables of loan recovery (conceptual gap) and fail methodologically to capture up to 2022 data on loan recovery. Zamro (2016) looked into the antecedents of the educational loan repayment among the POLIMAS students in Malaysia, but the findings are not generalizable to the case of Kenyan students. Therefore, the current study finds it worthwhile to investigate the antecedents of loan recovery of higher education loans in Kenya using data from 2012 to 2021.

1.3 Research Objective

The main objective of the study was to investigate the antecedents of loan recovery of higher education loans in Kenya

1.3.1 Specific Objectives

- i. To determine the effect of demographic factors affecting loan recovery of Higher education loans in Kenya
- ii. To assess the economic factors affecting loan recovery of Higher education loans in Kenya.
- iii. To evaluate the loan repayment factors affecting loan recovery of Higher education loans in Kenya.

1.4 Research Hypotheses

H₀₁: There is no statistically significant relationship between demographic factors and loan recovery of Higher education loans in Kenya.

H₀₂: There is no statistically significant relationship between economic factors and loan recovery of Higher education loans in Kenya.

H₀₃: There is no statistically significant relationship between loan repayment factors and loan recovery of Higher education loans in Kenya.

2.0 LITERATURE REVIEW

2.1 Theoretical Review

A good study aligns its objectives to a theoretical background, an approach that helps researchers to challenge and expound on existing forms of knowledge (Alavi et al., 2018; Kivunja, 2018). The study was informed by the life-cycle model, Neoclassical development theory and ability-to-pay theory.

2.1.1 The Life-Cycle Model

The Life-Cycle Model, developed by Browning and Crossley (2001), focuses on an individual's lifetime spending and saving habits, considering borrowing before entering the labor force, wealth building throughout working life, and retirement dissaving. The model assumes that individuals make consumption and saving decisions based on their lifetime income, aiming for consumption smoothing (Apps & Rees, 2001). However, critiques of the Life-Cycle Model highlight its simplifying assumptions, including perfect foresight and certainty about future income, which do not align with real-world complexities. Dynan (2012) emphasizes the impact of income volatility and uncertainty on consumption and saving behavior, challenging the model's assumptions. Furthermore, the model abstracts from income and wealth inequality, a significant factor influencing individuals' financial decisions (Piketty, 2014). Despite these critiques, the Life-Cycle Model still serves as a valuable framework for understanding general consumption and saving patterns.

2.1.2 The Neoclassical Development Theory

The Neoclassical Development Theory, rooted in classical economics with proponents like Smith (1776) and Ricardo (1951), emphasizes capital accumulation, specialization, and comparative advantage as drivers of economic growth. However, critics argue that the theory overlooks the role of institutions in economic development. Acemoglu and Robinson (2012) emphasize the importance of inclusive institutions, challenging the Neoclassical Development Theory's narrow focus. Additionally, critics highlight the theory's neglect of income inequality and advocate for more inclusive development policies (Stiglitz, 2012; Chang, 2017). Despite these critiques, the Neoclassical Development Theory remains relevant, explaining economic growth through the interplay of labor, capital, and technology. The Solow-Swan Growth Model, developed by Solow (1956) and supplemented by the theory of production by Cobb and Douglas (1928), exemplifies this approach and is used in various studies to explain economic factors influencing specific contexts, such as loan recovery in Kenya.

2.1.3 The Ability-to-Pay Theory

The Ability-to-Pay Theory, coined by Kendrick (1939) and supported by Adam Smith (1776), argues that taxes should be based on individuals' ability to pay. However, critics question its effectiveness in achieving equity. Saez and Stantcheva (2016) discuss the limitations of this theory, particularly concerning distributional issues and tax evasion. The theory assumes accurate income reporting, which critics argue is unrealistic, given real-world behaviors such as tax avoidance (Zucman, 2014). Despite these challenges, the Ability-to-Pay Theory plays a crucial role in discussions about taxation and loan repayment incentives. In the context of the study on loan recovery in Kenya, this theory encourages incentives for individuals and businesses with low-income earnings. In summary, while these economic theories provide foundational frameworks, their limitations underscore the need for ongoing research

and refinement to address real-world complexities, ensuring a more comprehensive understanding of economic behaviors and policies (Apps & Rees, 2001; Dynan, 2012; Acemoglu & Robinson, 2012; Saez & Stantcheva, 2016).

2.2 Conceptual Framework

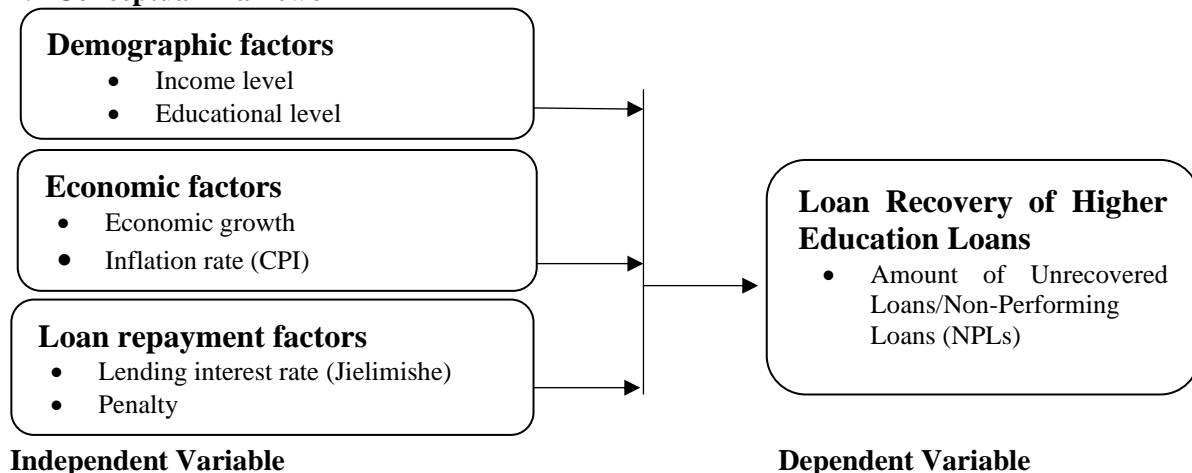


Figure 2.1: Conceptual Framework

2.3 Summary of Reviewed Literature

At theoretical level, the recoverability of students' loans both globally and specifically in developing countries like Kenya is informed by the Life Cycle Model, Neoclassical Development, and Ability to Pay theories. Prior research has demonstrated that the retrieval of higher education loan funds is influenced by numerous factors, including demographic, economic, and loan repayment considerations. The literature review has revealed that certain factors positively impact the retrieval of higher education loans, some have a negative effect, while others yield both positive and negative consequences on loan recovery. Furthermore, these studies have indicated that the rate of student loan recovery varies based on the economic capacity of the country, being notably lower in developing economies such as Tanzania and Kenya. Despite the wealth of research on the factors influencing loan recovery in higher education, much of the focus has been on their effects within different contexts. For example, Boatman et al. (2022) and Hales (2021) conducted studies in the United States, while Makimu (2017), Rajabu (2020), and Johansson and Lundborg Ander (2021) conducted research in Tanzania. Bandyopadhyay (2016) focused on India, Dary and James (2018) on Ghana, Nkisi (2021) on Lesotho, and Zhang et al. (2021) on China. Although Zamro (2016) investigated the antecedents of educational loan repayment among POLIMAS students in Malaysia, the findings cannot be generalized to the context of Kenyan students due to contextual and economic differences.

In the Kenyan context, only a limited number of studies, particularly within the scope of HELB, have been undertaken on this subject. Kiplimo et al. (2017) analyzed the impact of monthly default penalties on higher education loan recovery in Kenya, while Engede (2015) explored the recovery strategies employed by the Higher Education Loans Board. Ng'ang'a (2016) investigated the factors influencing education loan repayment among university students in Kenya. However, these studies have not fully examined the variables related to loan recovery (conceptual gap) and methodologically fall short of capturing loan recovery data up to 2022. This gap in knowledge prompted the current study to fill this void by investigating the antecedents of loan recovery of higher education loans in Kenya over the past two decades (from 2002 to 2021).

2.4 Research Gap

The goal of the review of literature is to justify the proposed research. This involves the review of past published literature to identify and summarize relevant theories and empirical research related to the research concept; to identify arguments for and against theories and the studies; to assess and identify

the value of research claims; to identify gaps in literature and; to provide a rationale, background/context for proposed research and guide selection for an appropriate design and methodology. Based on the empirical studies reviewed, the current study provides a critique to give a basis for knowledge gaps.

For instance, Kiplimo et al. (2017) assessed the effect of monthly default penalties on default on higher education loan recovery in Kenya. Engede (2015) looked into the strategies used by Higher Education Loans Board in loan recovery from beneficiaries in Kenya. Ng'ang'a (2016) looked at the factors affecting the repayment of education loans among university students in Kenya. To the best of our knowledge, the studies have not focused exhaustively on the variables of loan recovery (conceptual gap) and fail methodologically to capture up to 2022 data on loan recovery. Zamro (2016) looked into the antecedents of the educational loan repayment among the POLIMAS students in Malaysia but the findings are not generalizable to the case of Kenyan students. Therefore, the current study found it worthwhile to investigate the antecedents of loan recovery of higher education loans in Kenya using data from 2012 to 2021.

3.0 RESEARCH METHODOLOGY

The current study used a descriptive research design (Burlig et al., 2020; Cook & Ware, 1983) which was used to track loan recovery of higher education in Kenya for the last 10 years. The study focused on the Higher Education Loans Board as the subject of investigation over the past decade. The research concentrated on quarterly data obtained from the Higher Education Loans Board spanning the last ten years (from 2012 to 2022). The data collection process encompassed various elements, encompassing quarterly information on factors influencing loan repayment, economic indicators, demographic characteristics, and the recovery of higher education loan amounts. The Higher education Loans Board was the unit of analysis of the study; therefore, no sampling was done. Thus, a census survey was adopted to assess all the data under observation. Fowler (2013) stated that when the population is small, sampling is not possible, and a census is advised to provide accurate and reliable findings. Census allows for 100% representation (Parker & Gallivan, 2011; Nirel & Glickman, 2009; Thrusfield & Brown, 2017). The study used secondary data which was collected using a secondary time series data template. The secondary data was extracted from the Higher education Loans Board quarterly data reports for 10 years. Secondary quarterly data on demographic factors, loan repayment factors, economic factors and loan recovery of higher education loans was collected using a secondary data template (to collect data from 2012/13 to 2021/2022).

Before data collection, the researcher sought for approval from the relevant institutions/stakeholders. That is the introduction letter, consent form, NACOSTI letter, permission from the graduate school. Items to be collected included: quarterly data on income level & educational level (demographic factors); quarterly data on economic growth, employment rate, & inflation rate (CPI) (economic factors); quarterly data on lending interest rate (jelimishe) & penalty (loan repayment factors); and the quarterly data on (Amount of Unrecovered Loans – NPLs). To make the quantitative data ready for coding, data editing was done by checking the completeness, consistency, and authenticity of the information provided. The data was also sorted and corded according to the variables and the objectives of the study in order to process it. Coding involved assignment of numerical scores to the already edited data to give meaning the coded data was analyzed using STATA v 14.0.

The quantitative secondary data was analyzed by use of descriptive and inferential statistics. The analysis was done with a time series approach. The analysis of the data involved both descriptive and inferential statistical methods, including correlation and regression analysis. Descriptive statistics were employed to offer a concise overview of the quantitative data, presenting counts, percentages, means, and other relevant measures. Correlation analysis was utilized to assess the degree of association between variables. Regression analysis, conducted through multivariate linear regression models, aimed to establish the connection between independent predictors and the dependent variable. That is the causal effect the independent variables have on the dependent variable. A 0.05 significance level (95%

confidence interval) was the error variance used. Data was coded and analyzed using EViews v14.0. Results were then presented in tables, diagrams and charts. To test for causal relationship between the dependent and independent variables, the following multiple regression model was used as presented below:

$$Y_t = \beta_0 + \beta_1 X_{1t} + \beta_2 X_{2t} + \beta_3 X_{3t} + \epsilon_t \dots \dots \dots \text{Equation 1}$$

Whereby: -

Y_{it} Represents Loan recovery of Higher education loans

B_n Represents Change in Y with respect to a unit change in X_n

X_{1t} Represents demographic factors

X_{2t} Represents economic factors

X_{3t} Represents loan repayment factors

ϵ_t Represents Error term

t Represents time periods under study

4.0 FINDINGS AND PRESENTATIONS

4.1 Introduction

This chapter presents the findings from the field, and which are presented in tables and figures. The chapter entails the descriptive statistics, correlation analysis and regression analysis.

4.2 Descriptive Statistics

The summary of descriptive statistics provides a concise overview of the main characteristics and trends observed in a dataset. It presents key numerical measures that describe the central tendency, variability, and range of the variables under analysis. This summary serves as a foundation for understanding the data and provides important insights into the distribution and behavior of the variables. By presenting measures such as mean, standard deviation, minimum, and maximum values, the summary of descriptive statistics helps to identify patterns, assess variability, and gain a general understanding of the data's characteristics. It acts as a preliminary exploration of the dataset, providing a snapshot of its key statistical properties before further analysis and interpretation. The findings are as presented in Table 1.

Table 1: Summary of the Descriptive Statistics of the Variables

Variable	Obs	Mean	Std. Dev	Min	Max
Amount of Unrecovered Loans (in Billions)	37	6.91E+09	3.88E+09	2.48E+09	1.54E+10
Economic growth (GDP growth)	37	4.367912	1.240434	0.250156	7.517355
Educational Level	37	4.908072	0.117881	4.7173	5.10762
Income level	37	642687.9	132746.1	415148.8	827441.2
Inflation Rate	37	6.324459	1.027847	4.69	9.38
Penalty	37	2.76E+08	1.55E+08	9.92E+07	6.17E+08
Lending Interest Rate (Jielimishe)	37	0.114324	0.008753	0.1	0.12
Unemployment Rate	37	3.79527	1.154499	2.78	5.74

Table 1 presents the summary of the outcomes of the variables under investigation. The dependent variable was represented by the amount of unrecovered loans in billions of currency KES. The mean value indicates that, on average, there are approximately 6.91 billion KES of unrecovered loans. The standard deviation suggests that the values tend to vary by around 3.88 billion KES. The minimum and maximum values show the range of unrecovered loans observed in the data. Annual economic growth

rate as a percentage presented a mean value indicating that, on average, the economy is growing at a rate of approximately 4.37% per year. The standard deviation suggests that the growth rates tend to vary by around 1.24%. The minimum and maximum values show the range of economic growth rates observed in the data.

Given the average educational level, the mean value indicates that, on average, the educational level is approximately 4.91. The standard deviation suggests that the educational levels tend to vary by around 0.12. The minimum and maximum values show the range of educational levels observed in the data. Average income level shows the mean value indicating that, on average, the income level is approximately 642,687.9 units. The standard deviation suggests that the income levels tend to vary by around 132,746.1 units. The minimum and maximum values show the range of income levels observed in the data.

Inflation Rate presents a mean value indicating that, on average, the inflation rate is approximately 6.32% per year. The standard deviation suggests that the inflation rates tend to vary by around 1.03%. The minimum and maximum values show the range of inflation rates observed in the data. The amount of penalty was represented in units of KES. The mean value indicates that, on average, the penalty is approximately 276 million KES. The standard deviation suggests that the interest penalties tend to vary by around 155 million KES. The minimum and maximum values show the range of interest penalties observed in the data.

Lending Interest Rate (Jielimise)'s mean value indicates that, on average, the lending interest rate is approximately 11.43%. The standard deviation suggests that the lending interest rates tend to vary by around 0.88%. The minimum and maximum values show the range of lending interest rates observed in the data. Unemployment rate represents the unemployment rate as a percentage. The mean value indicates that, on average, the unemployment rate is approximately 3.80%. The standard deviation suggests that the unemployment rates tend to vary by around 1.15%. The minimum and maximum values show the range of unemployment rates observed in the data.

4.3 Trend Analysis

Trend analysis is a method used to examine and understand the patterns and tendencies present in time series data. Time series data refers to observations collected over regular intervals of time, such as daily, monthly, or yearly data points. The goal of trend analysis is to identify the underlying long-term movement or direction of the data over time. The following section presents the trend patterns of the study variables surveyed across the 10-year period on a quarterly basis.

4.3.1 Trend Analysis for Income Level

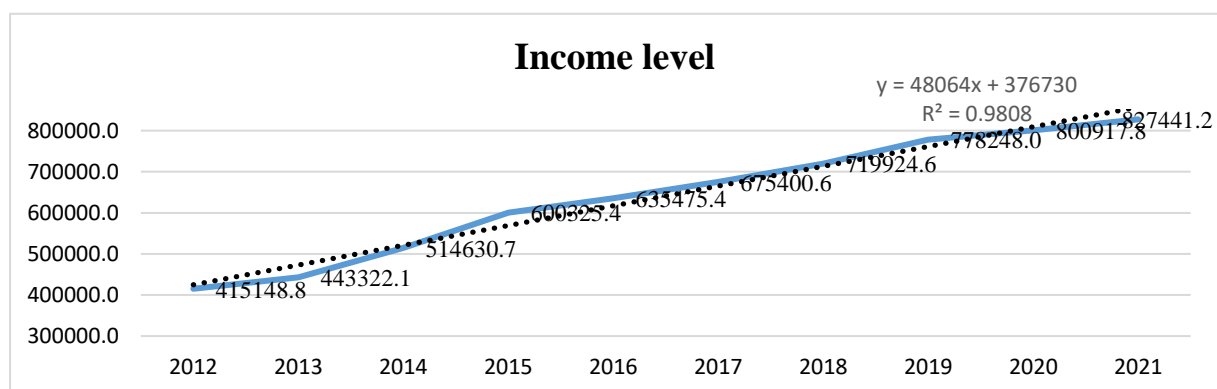


Figure 2: Trend Analysis for Income Level

Figure 2 indicates an increasing trend in the quarterly income level from the year 2012 to 2022 as evidenced by the positive beta coefficient of 48064.

4.3.2 Trend Analysis for Educational Level

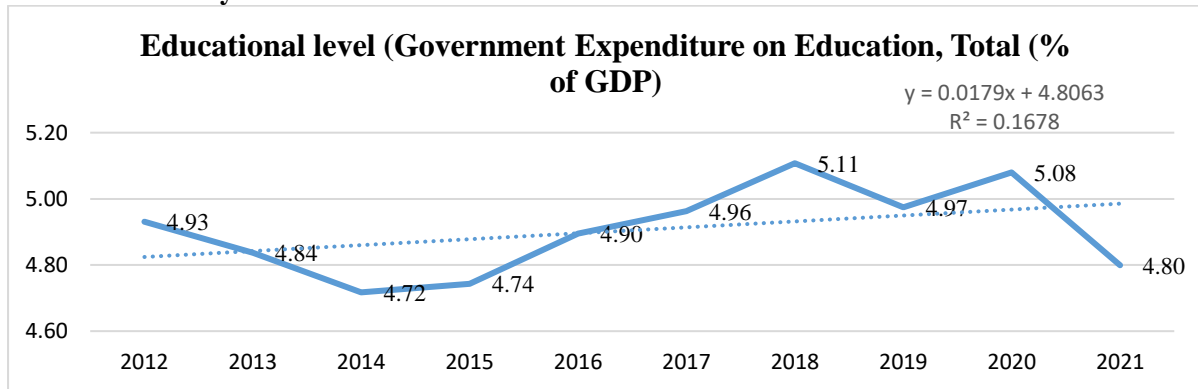


Figure 3: Trend Analysis for Educational Level

Figure 3 indicates an increasing trend in the quarterly educational level from the year 2012 to 2022 as evidenced by the positive beta coefficient of 0.0179.

4.3.3 Trend Analysis for Economic Growth (GDP Growth)

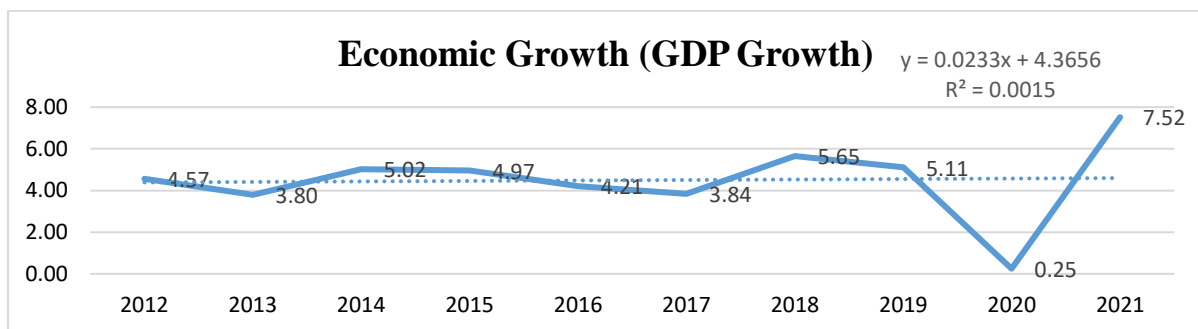


Figure 4: Trend Analysis for Economic Growth (GDP growth)

Figure 4 indicates a slight increasing trend in the quarterly economic growth (GDP growth) from the year 2012 to 2022 as evidenced by the positive beta coefficient of 0.0233.

4.3.4 Trend Analysis for Unemployment Rate

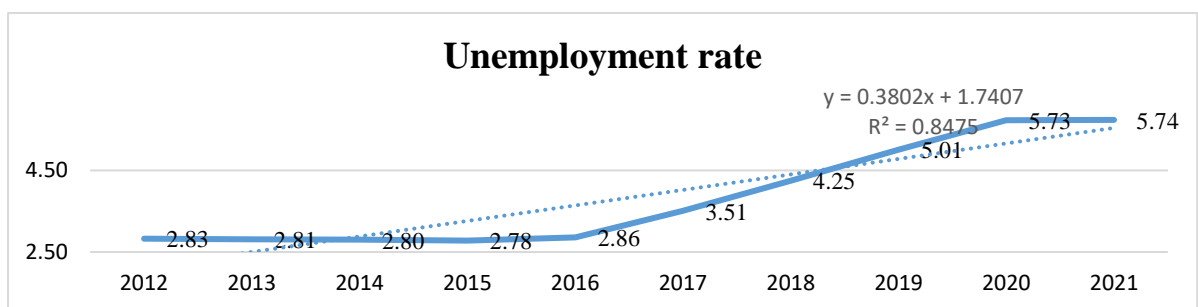


Figure 5: Trend Analysis for Unemployment Rate

Figure 5 indicates an increasing trend in the quarterly unemployment rate from the year 2012 to 2022 as evidenced by the positive beta coefficient of 0.3802.

4.3.5 Trend Analysis for Inflation Rate

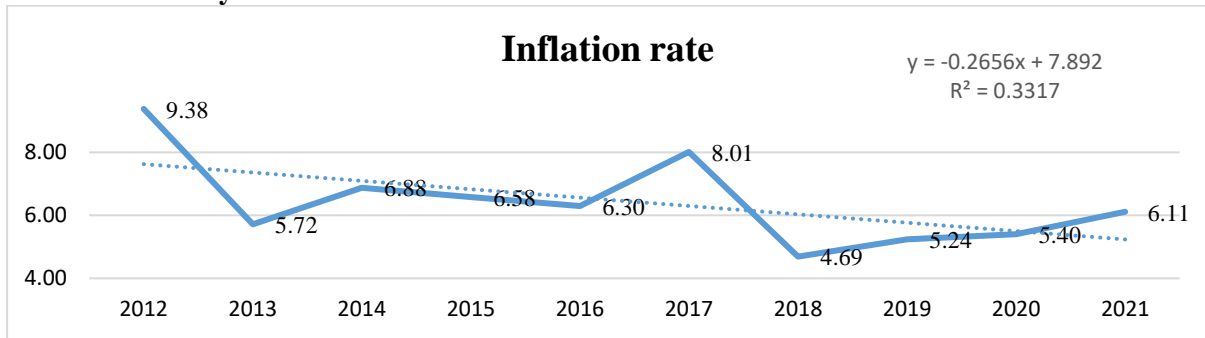


Figure 6: Trend Analysis for Inflation Rate

Figure 6 indicates a decreasing trend in the quarterly inflation rate from the year 2012 to 2022 as evidenced by the negative beta coefficient of -0.2656.

4.3.6 Trend Analysis for Lending Interest Rate (Jielimische)

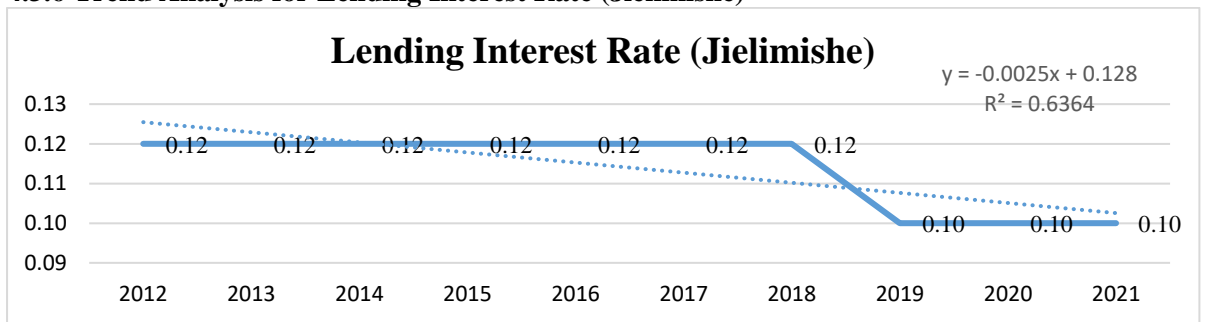


Figure 7: Trend Analysis for Lending Interest Rate (Jielimische)

Figure 7 indicates a decreasing trend in the quarterly lending interest rate (Jielimische) from the year 2012 to 2022 as evidenced by the negative beta coefficient of -0.0025.

4.3.7 Trend Analysis for Penalty

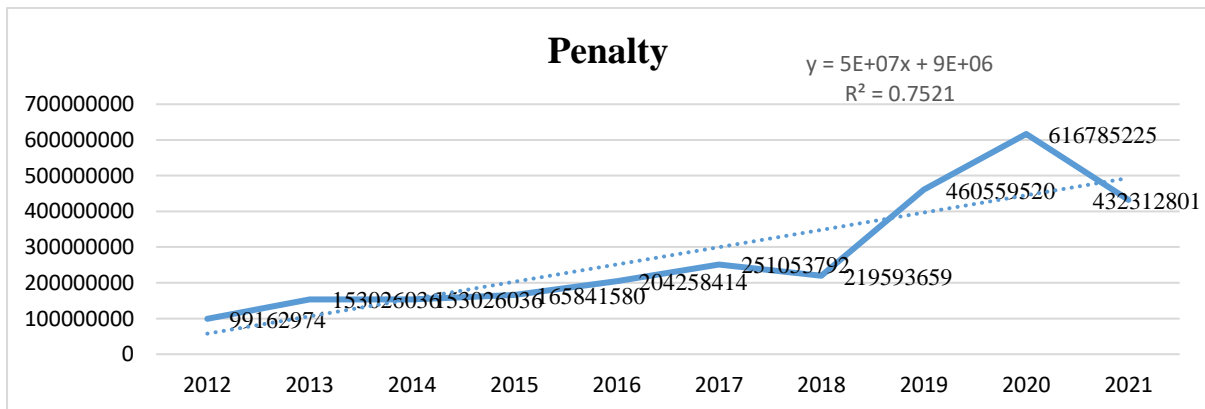


Figure 8: Trend Analysis for Penalty

Figure 8 indicates an increasing trend in the quarterly penalty from the year 2012 to 2022 as evidenced by the positive beta coefficient of 50,000,000.00.

4.3.8 Trend Analysis for Amount of Unrecovered Loans (in Billions)

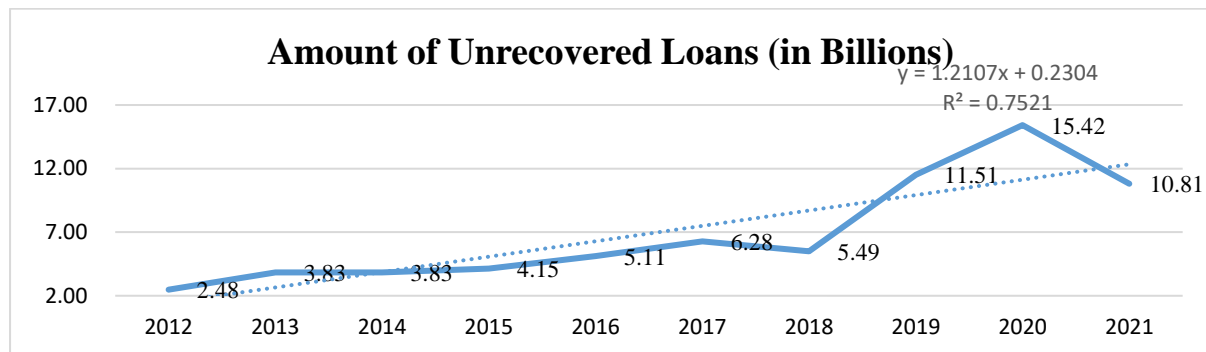


Figure 9: Trend Analysis for Amount of Unrecovered Loans (in Billions)

Figure 9 indicates an increasing trend in the quarterly amount of unrecovered loans (in Billions) from the year 2012 to 2022 as evidenced by the positive beta coefficient of 1.2107.

4.4 Examining the Correlation Between Economic Factors and Loan Recovery of Higher Education Loans in Kenya

The outcomes of the correlation analysis reveal the intensity and direction of associations among the variables. The evaluation of association between the variables was accomplished using the Pearson correlation coefficient, denoted as "r" (Gogtay & Thatte, 2017). The range of values extends from -1 to 1, where -1 signifies a strong negative correlation, 1 signifies a strong positive correlation, and 0 signifies no correlation (refer to Table 4.3).

Table 2: Correlation Matrix

Variables	Amount of Unrecovered Loans (in Billions)	Income level	Educational level	Economic growth	Inflation rate (CPI)	Lending interest rate	Penalty
Amount of Unrecovered Loans (in Billions)	1						
Income level	0.907*	1					
Educational level	0.569*	0.574*	1				
Economic growth	-0.628*	-0.380*	-0.406*	1			
Inflation rate (CPI)	-0.638*	-0.620*	-0.473*	0.266	1		
Lending interest rate	-0.911*	-0.713*	-0.410*	0.610*	0.553*	1	
Penalty	-0.884*	-0.988*	-0.551*	0.319	0.613*	-0.919*	1

*Correlation is significant at the 0.05 level (2-tailed)

Table 2 shows that there is a strong positive and significant correlation ($r = 0.907^*$) between income level and the amount of unrecovered loans (NPLs). This indicates that as the income level increases, the amount of unrecovered loans tends to increase. There is a weak positive and significant correlation ($r = 0.569^*$) between educational level (government expenditure on education) and the amount of unrecovered loans (NPLs). This indicates that as the educational level increases, the amount of unrecovered loans tends to increase. There is a moderate negative and significant correlation ($r = -0.628^*$) between economic growth (GDP growth) and the amount of unrecovered loans (NPLs). This implies that as the economic growth rate increases, the amount of unrecovered loans tends to decrease.

There is a moderate negative and significant correlation ($r = -0.638^*$) between inflation rate (CPI) and the amount of unrecovered loans (NPLs). This implies that as the inflation rate increases, the amount of unrecovered loans tends to decrease.

There is a strong negative and significant correlation ($r = -0.911^*$) between lending interest rate (Jielimishe) and the amount of unrecovered loans (NPLs). This suggests that as the lending interest rate increases, the amount of unrecovered loans tends to decrease. There is a strong a strong negative and significant correlation ($r = -0.884^*$) between penalty and the amount of unrecovered loans (NPLs). This suggests that as the amount of unrecovered loans increases, the penalty tends to decrease. These correlation results provide insights into the relationships between the variables. For example, correlations associated with a higher amount of unrecovered loans. On the other hand, lower interest penalties and economic growth rates tend to be linked to a higher amount of unrecovered loans. These findings can guide further analysis and decision-making in understanding and managing the factors influencing the amount of unrecovered loans.

4.5 Regression Analysis of Antecedents of Loan Recovery of Higher Education Loans in Kenya

This section reveals the results of the regression analysis conducted to evaluate the extent and magnitude of the influence of the sub variable constructs of demographic, economic, and loan repayment factors on the recovery of higher education loans in Kenya. The outcomes are displayed in Table 3.

Table 3: Multivariate Regression Model of the Sub Variables

Amount of Unrecovered Loans (in Billions)	Coef.	Std. Err.	t	P>t	[95% Conf. Interval]	
Income level (Demographic factor)	1.181	0.424	2.78	0.009	0.314	2.049
Educational Level (Demographic factor)	0.482	1.001	0.48	0.634	-1.566	2.53
Economic growth ((Economic factor)	-0.114	0.025	-4.51	0.000	-0.166	-0.063
Inflation Rate (Economic factor)	-0.117	0.109	-1.08	0.288	-0.34	0.105
Lending Interest Rate (Loan repayment factor)	-2.761	0.591	-4.67	0.000	-3.969	-1.552
Penalty (Loan repayment factor)	-0.016	0.188	-0.08	0.933	-0.399	0.368
_cons	0.651	9.196	0.07	0.944	-18.157	19.458
Number of obs, N	=	37				
F (7, 29)	=	241.81				
Prob > F	=	0.000				
R-squared	=	0.9832				
Adj R-squared	=	0.9791				
Root MSE	=	0.0751				

In Table 3, the model R-squared was 0.9832, implying that the goodness of fit of the model explains 98.32% of the variation in loan recovery of Higher education loans in Kenya. This is further supported by a significant F statistic [$F(4, 75) = 241.81$] at 0.05 significance level where the Prob (F-statistic), $Prob > F = 0.000$. This implies the time series linear model is statistically significant.

Given the economic factors, the findings revealed that inflation rate has a negative relationship with the amount of unrecovered loans. The beta coefficient (-0.117) suggests that a one-unit increase in the inflation rate is associated with a decrease of 0.117 billion in the amount of unrecovered loans. Nonetheless, much like the penalty, the coefficient lacks statistical significance ($p > 0.05$), implying an insignificance in the connection between the inflation rate and the unrecovered loan amount. The Unemployment Rate exhibited a beta coefficient of -0.012, indicating that a one-unit rise in the unemployment rate corresponds to a reduction of 0.012 billion in the unrecovered loan amount. Nevertheless, the coefficient does not hold statistical significance ($p > 0.05$), suggesting that the relationship between the unemployment rate and the unrecovered loan amount is not substantial. The economic growth's beta coefficient of -0.114 signifies that a one-unit growth in economic factors leads

to a 0.114 billion decrease in the unrecovered loan amount. This coefficient holds statistical significance ($p < 0.05$), underscoring a meaningful negative correlation between economic growth and the unrecovered loan amount.

These findings are consistent with Koech (2021) who showed that inflation rate has statistically insignificant negative correlation associated with NPL. However, loan growth and GDP growth have a positive correlation with NPLs at HELB, however, the influence was not statistically significant. Rajabu (2020) however, showed that there is a positive relationship between willing to re-pay back loan and employment, income level, parent, awareness and penalty. The finding also discovers that income difference among beneficiaries and unemployment rate to beneficiaries affect repayment of higher education loans.

Considering the demographic factors, the beta coefficient for Income Level reflects 1.181, implying that a unitary rise in income level corresponds to a 1.181 billion increase in the unrecovered loan amount. This coefficient holds statistical significance ($p < 0.05$), affirming a notable positive correlation between income level and the unrecovered loan amount. Furthermore, Educational Level exhibits a positive association with the unrecovered loan amount. The beta coefficient (0.482) implies that a unitary elevation in educational level is linked to a 0.482 billion upsurge in the unrecovered loan amount. However, the coefficient lacks statistical significance ($p > 0.05$), indicating the absence of a significant relationship between educational level and the unrecovered loan amount.

These findings are consistent with Kassegn and Endris (2022) who indicated that education level was found to determine loan repayment rate of borrowers positively and significantly, while age and family size were found to determine loan repayment rate negatively and significantly in the study area. Makimu (2017) showed that demographic variables such as age, gender, geographical settings, high school academic achievement, and socio-economic status were not statistically significant predictors of perceived likelihood of student loan repayment. Nonetheless, less than two third of participants indicated that they are willing to pay their loans after graduation. Baidoo, Ofori-Abrebrese & Yusuf (2020) also noted that financially literate individuals are more likely to demand loan whereas private sector employees are less likely to demand loan. Yet, Mitei (2017) demonstrated that social-demographic elements, encompassing gender, education, and age of members, lack a substantial correlation with loan repayment. Similarly, Makimu (2017) augmented this viewpoint by asserting that demographic attributes like age, gender, geographical location, high school academic performance, and socio-economic status do not serve as indicators of the anticipated likelihood of repaying student loans.

In the context of loan repayment factors, the results disclosed that the lending interest rate exhibits a detrimental link with the unrecovered loan amount. The beta coefficient of -2.761 signifies that a unitary escalation in the lending interest rate corresponds to a reduction of 2.761 billion in the unrecovered loan amount. This coefficient holds statistical significance ($p < 0.05$), underscoring a noteworthy unfavorable relationship between the lending interest rate and the unrecovered loan amount. Conversely, the Penalty yielded a beta coefficient of -0.016, denoting that an incremental unit in the penalty translates to a decrease of 0.016 billion in the unrecovered loan amount. However, this coefficient does not carry statistical significance ($p > 0.05$), indicating an absence of substantial evidence to support a significant relationship between the penalty and the unrecovered loan amount.

These findings diverge from Kwang'a (2020), who established a significant connection between loan sizes, loan tenure, and the repayment performance of loans disbursed by the Higher Education Loans Board. In contrast, Kiplimo et al. (2017) disclosed significant negative correspondence between monthly default penalty and loan recovery. Furthermore, their study illuminated that the monthly default penalty served as a noteworthy deterrent for HELB loan defaulters. Zhang et al. (2021) indicated that students without state-subsidized loans were found to have stronger campus loan consumption intention and higher loan amounts, and recreational consumption was the main loan purpose. The factors affecting campus loan consumption included students' family structure, parents' education level, peer students' consumption status, grade level, relationship status, and ability to assess loan risk.

4.6 Regression Analysis Between the Antecedents of Loan Recovery of Higher Education Loans in Kenya

This section reveals the results of the regression analysis conducted to evaluate the extent and magnitude of the influence of main variables that is the demographic, economic, and loan repayment factors on the recovery of higher education loans in Kenya. The outcomes are displayed in Table 4.

Table 4: Multivariate Regression Model of the Main Variables

Amount of Unrecovered Loans (in Billions)	Coef.	Std. Err.	T	P>t	[95% Conf. Interval]	
Economic Factors	-0.494	0.105	-4.720	0.000	-0.706	-0.282
Demographic Factors	2.583	0.054	47.650	0.000	2.473	2.692
Loan Repayment Factors	3.100	0.091	34.220	0.000	2.916	3.283
_cons	4.092	0.392	10.430	0.000	3.298	4.887
Number of obs, N	40					
F (2, 37)	6731.01					
Prob > F	0.000					
R-squared	0.9973					
Adj R-squared	0.9971					
Root MSE	0.0286					

In Table 4, the model R- squared was 0.9973, implying that the goodness of fit of the model explains 99.73% of the variation in loan recovery of Higher education loans in Kenya. This is further supported by a significant F statistic [$F(2, 37) = 6731.01$] at 0.05 significance level where the Prob (F-statistic), Prob > F= 0.000. This implies the time series linear model is statistically significant. The constant coefficient represents the intercept of the regression equation when all other predictors are zero. In this context, it suggests that even in the absence of economic, demographic, and loan repayment factors, there is still an estimated 4.092 billion units of unrecovered loans. The coefficient is statistically significant (p-value = 0.000).

The findings revealed that economic factors have a negative relationship with the amount of unrecovered loans. The beta coefficient (-0.494) suggests that a one-unit increase in the economic factors is associated with a decrease of 0.494 billion in the amount of unrecovered loans. The coefficient is statistically significant (p-value = 0.000), indicating that economic factors have a significant negative effect on loan recovery. These findings are consistent with Koech (2021) who showed that economic factors like inflation rate have statistically insignificant negative correlation associated with NPL.

The findings revealed that demographic factors have a positive relationship with the amount of unrecovered loans. The beta coefficient (2.583) suggests that a one-unit increase in the demographic factors is associated with a decrease of 2.583 billion in the amount of unrecovered loans. The coefficient is statistically significant (p-value = 0.000), indicating that demographic factors have a significant negative effect on loan recovery. These findings agree with Kassegn and Endris (2022) who indicated that education level was found to determine loan repayment rate of borrowers positively and significantly, while age and family size were found to determine loan repayment rate negatively and significantly in the study area. Makimu (2017) also showed that demographic variables such as age, gender, geographical settings, high school academic achievement, and socio-economic status were not statistically significant predictors of perceived likelihood of student loan repayment.

The findings also revealed that loan repayment factors have a positive relationship with the amount of unrecovered loans. The beta coefficient (3.100) suggests that a one-unit increase in the loan repayment factors is associated with a decrease of 3.100 billion in the amount of unrecovered loans. The coefficient is statistically significant (p-value = 0.000), indicating that loan repayment factors have a significant negative effect on loan recovery. These findings agree with Kwang'a (2020) who determined that there

is a significant relationship between loan sizes, loan tenure, and repayment performance of loans disbursed by the Higher Education Loans Board. Kiplimo et al. (2017) also found that monthly default penalty on defaulters was a significant deterrent of HELB loan defaulters. Zhang et al. (2021) indicated that students without state-subsidized loans were found to have stronger campus loan consumption intention and higher loan amounts, and recreational consumption was the main loan purpose.

Thus, the final multiple regression model was used as presented below:

$$Y_t = 4.092 - 0.494X_{1t} + 2.583X_{2t} + 3.100X_{3t} + \varepsilon$$

Whereby:

Y_{it} Represents Loan recovery of Higher education loans

X_{1t} Represents economic factors

X_{2t} Represents demographic factors

X_{3t} Represents loan repayment factors

ε_t Represents Error term

t Represents time periods under study

4.7 Hypothesis Test Results

Table 5: Final conclusion about hypothesized relationships

Hypothesized relationship	Concluded relationship
H₀₁: There is no statistically significant relationship between demographic factors and loan recovery of Higher education loans in Kenya.	H₀₁: There is a statistically significant relationship between demographic factors and loan recovery of Higher education loans in Kenya.
H₀₂: There is no statistically significant relationship between economic factors and loan recovery of Higher education loans in Kenya.	H₀₂: There is a statistically significant relationship between economic factors and loan recovery of Higher education loans in Kenya.
H₀₃: There is no statistically significant relationship between loan repayment factors and loan recovery of Higher education loans in Kenya.	H₀₃: There is a statistically significant relationship between loan repayment factors and loan recovery of Higher education loans in Kenya.

There was an assumption that demographic factors, such as age, gender, or location, wouldn't significantly impact loan recovery in the context of higher education loans in Kenya. The research findings suggest that contrary to the initial hypothesis, demographic factors do play a statistically significant role in loan recovery. This implies that aspects like age, gender, or location indeed influence how efficiently higher education loans are recovered. Understanding these demographic nuances is crucial for policymakers and lending institutions to tailor their strategies effectively. The hypothesis presumed that economic factors, such as income levels or employment rates, wouldn't have a significant impact on the recovery of higher education loans in Kenya. The study findings refute this hypothesis, indicating that economic factors do, in fact, significantly influence loan recovery. This implies that the economic stability of borrowers plays a substantial role in their ability to repay higher education loans. Lending institutions might need to consider economic indicators when designing loan structures and repayment plans. The hypothesis proposed that factors directly related to loan repayment, such as interest rates or repayment schedules, wouldn't be significantly related to loan recovery for higher education loans in Kenya. The research results challenge this hypothesis, establishing that loan repayment factors indeed have a statistically significant relationship with loan recovery. This highlights the importance of the terms and conditions of the loans. Lending institutions need to carefully structure repayment plans, making them feasible and accommodating for borrowers, to ensure higher rates of loan recovery.

5.0 DISCUSSIONS, CONCLUSIONS AND RECOMMENDATIONS

This section presents the discussion, conclusions and the recommendations on the research findings done in line with the study objectives. The discussion was done to answer the research questions of the study.

5.1 Discussions

5.1.1 The Effect of Demographic Factors on Loan Recovery of Higher Education Loans in Kenya

Regarding the economic factors, the outcomes disclosed that the inflation rate bears an adverse correlation with the quantity of unrecovered loans. This indicates that a one-unit escalation in the inflation rate corresponds to a reduction in the unrecovered loan amount. Nevertheless, akin to the penalty, the coefficient lacks statistical significance, underscoring the absence of a noteworthy relationship between the inflation rate and the unrecovered loan amount. The unemployment rate also demonstrated an unfavorable link with the unrecovered loan amount, signifying that an incremental unit in the unemployment rate is linked to a reduction in the unrecovered loan amount.

5.1.2 The Effect of Economic Factors on Loan Recovery of Higher Education Loans in Kenya

Regarding the demographic factors, the results concerning income level propose that an augmentation of one unit in income level corresponds to a rise in the unrecovered loan amount. This coefficient holds statistical significance, signifying the presence of a noteworthy and positive correlation between income level and the unrecovered loan amount. The level of education similarly displays a favorable connection with the unrecovered loan amount, implying that an increase of one unit in educational level corresponds to an elevation in the unrecovered loan amount.

5.1.3 The Effect of Loan Repayment Factors on Loan Recovery of Higher Education Loans in Kenya

Considering the factors influencing loan repayment, the outcomes unveiled that the lending interest rate exhibits an adverse connection with the unrecovered loan amount. The results propose that an increment of one unit in the lending interest rate corresponds to a reduction in the unrecovered loan amount. This coefficient bears statistical significance, underscoring a notable and negative correlation between the lending interest rate and the unrecovered loan amount. In relation to the penalty, the findings suggest that an increase of one unit in the penalty is linked to a decline in the unrecovered loan amount.

5.2 Conclusions of the Study

Regarding the economic factors, the results unveiled that the inflation rate exhibits a negative and statistically insignificant correlation with the recovery of higher education loans in Kenya. Similarly, the unemployment rate showcases a negative and statistically insignificant association with the loan recovery of higher education loans in Kenya. Additionally, economic growth demonstrates a negative and statistically insignificant relationship with the recovery of higher education loans in Kenya. Thus, the study concludes that economic factors exert a negative impact on the loan recovery of higher education loans in the Kenyan context.

In relation to the demographic factors, the findings indicate that income level displays a positive and statistically significant relationship with the recovery of higher education loans in Kenya. Conversely, the educational level showcases a positive but statistically insignificant relationship with the recovery of higher education loans in Kenya. Consequently, the study concludes that demographic factors exert a positive influence on the loan recovery of higher education loans in Kenya. Considering the loan repayment factors, the results reveal that the lending interest rate demonstrates a negative and statistically significant correlation with the amount of unrecovered loans. On the other hand, the penalty exhibits a negative and statistically insignificant relationship with the loan recovery of higher education loans in Kenya. Hence, the study concludes that loan repayment factors contribute negatively to the loan recovery of higher education loans in Kenya.

Thus, the findings suggest that economic factors have a detrimental effect on loan recovery, whereas demographic factors and loan repayment factors exert a favorable influence. The comprehensive model proves to be highly significant and elucidates a considerable portion of the variance in unrecovered loans. These outcomes imply that addressing economic challenges, considering demographic attributes, and focusing on effective loan repayment strategies could potentially enhance the recovery of higher education loans in Kenya. However, a more in-depth analysis and contextual comprehension are essential for a comprehensive interpretation and practical application of these findings in policy and practice.

5.3 Recommendations of the Study

The study recommends HELB to implement stricter policies and regulations to ensure timely and effective loan repayments. This could include penalties for late payments, stricter enforcement mechanisms, and improved tracking systems to monitor repayment progress. The study recommends HELB alongside the Ministry of Finance and Ministry of Education to develop and promote financial literacy programs that target borrowers to improve their understanding of loan repayment obligations, interest rates, and financial management. This can help borrowers make informed decisions and increase their likelihood of timely loan repayments. The study recommends HELB alongside the Ministry of Finance and Ministry of Education to establish partnerships with employers to facilitate loan repayments through direct deductions from salaries. This can ensure a more reliable and consistent repayment process, as well as reduce the burden on individual borrowers to make manual repayments.

The study recommends the strengthening of Financial Aid Programs which can include increasing the availability of grants and scholarships specifically tailored to support students with lower income levels or from marginalized communities. There is need to implement policies and initiatives that promote equal access to quality education for all demographic groups. This can involve addressing barriers such as geographic location, gender inequality, and socioeconomic disparities to ensure that students from diverse backgrounds have the opportunity to pursue higher education. HELB is recommended to develop policies that provide favorable loan repayment terms and conditions for borrowers from disadvantaged demographic groups. This may include income-based repayment plans, loan forgiveness programs, or flexible repayment options that consider the financial circumstances of borrowers.

Likewise, there is need for HELB to offer comprehensive financial counseling and education programs to borrowers, focusing on budgeting, financial management, and responsible loan repayment practices. This can empower borrowers from diverse demographic backgrounds with the necessary knowledge and skills to effectively manage their loans and make timely repayments. The study also recommends to improve outreach efforts to reach borrowers from various demographic groups, particularly those who may face language barriers, limited access to information, or cultural differences. Utilize targeted communication strategies and multilingual resources to ensure effective and inclusive communication about loan repayment options and responsibilities.

5.4 Suggested Areas for Further Studies

The study underscores that further studies could be carried out with the inclusion of more study predictors to improve the findings. There is need for further research to explore the underlying factors contributing to the negative effect of loan repayment and economic factors on loan recovery. This can help gain a deeper understanding of the mechanisms at play and identify additional interventions or strategies to improve loan recovery rates. Further studies could also improve the significance of the results by increasing the unit of observation. The findings would offer a comparative point of view to the current study and provide a more robust approach to the findings.

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