

K-Norman financing model for financial sustainability in the Zambian Public Universities

Norman Kamanga¹, Dick Jonsson², William Phiri³

¹ Binary University of Management and Entrepreneurship of Malaysia & the University of Zambia, Zambia

² Binary University of Management and Entrepreneurship of Malaysia, Malaysia

³ Chalimbana University, Chalimbana, Zambia

Abstract

The study investigated financing model for financial Sustainability amongst selected Public Universities in Zambia. The three public universities which participated in the study were The University of Zambia (UNZA), Copper belt University (CBU) and Mulungushi University (MU). The study employed a convergent parallel research design to facilitate comparison of findings from qualitative and quantitative data sources. The choice of the design enabled collection of both types of data at the same time, assessing information using parallel constructs and comparing results through procedures such as a side-by-side comparison, transforming qualitative data into quantitative scores, or jointly displaying both forms of data. Stakeholders from the three public universities provided responses that had high reliability and validity levels. Homogeneous purposive and simple random sampling were used to select key informants and other participants respectively. Multivariate regression analysis and Pearson product correlational model were employed in the analysis of quantitative data, while thematic analysis was conducted on qualitative data. Findings indicated that all the predictors had positive correlations between type of financing model and financial sustainability in public universities. While government was making efforts to resolving perennial problems of inadequate public university financing, the study findings indicated a discrepancy between government's pronouncements and actual funding disbursements. Further, the findings also showed that public universities are capable of diversifying financing sources. This was evidenced by the universities' ability to mobilize internally generated revenue supported by a multi-sectoral financing approach which was indicative of sustainability in financing public universities. Thus, it was recommended that in addition to government's commitment to financing HE, public universities should diversify sources of income as well as overhaul their current cost structure in order to achieve financial sustainability. Thus, a descriptive model has been proposed for implementation in order to optimize sustainable financing of Public universities.

Keywords: financial sustainability, financing model, public universities

Introduction

The education system in Zambia is historically the primary responsibility of the Government. Over the years the education system has been growing primarily due to growth of education at lower levels. For example, between the years 2008 and 2013, enrolments at High school level increased by 20%. However, Government's primary responsibility goes further to providing education at all levels, namely at primary, secondary (High School), tertiary and/or university levels. The Government owns, manages and finances almost all the schools at primary and secondary levels. Particularly, the Public education system has been financed using public funding, with the government committing up to between 3.7% and 4.4% of GDP in the period between the years 2006 and 2013. According to the World Bank (2016) ^[49], this translated to 15% and 21% of total public expenditure. Further, expenditure on public education in the years 2014 and 2015 exceeded 5% of GDP as well as 20% of total public expenditure (World Bank, 2016) ^[49]. Despite this, there is equally a significantly high number of primary and secondary schools that are privately managed, financed and owned. Equally, there are also a number of non-governmental organisations that supplement government effort by taking up the role of financing some primary and secondary schools. Over the years Zambia has seen many such schools being run and/or supported by missionary or

church bodies, notwithstanding the fact that a greater part of the development and operating funds originates from government (Kelly *et al*, 1991) ^[23]. Further, government has also been responsible for the provision of HE in Zambia. HE had also seen a fair share of growth in the Country largely due to increases in demand for post - secondary school education. For example, between the years 2009 and 2013, enrolments increased by 48% (World Bank, 2015) ^[48]. The HE system in Zambia comprises technical institutes, colleges and universities. Like primary and secondary education, the HE system is equally almost managed, financed, and owned by the Government. It is worth noting that not only does the Government provide financial support for operating costs as well as capital and infrastructure costs, it also provides other non-financial support (Kelly, 1991) ^[23]. Despite recording gains economically, Zambia's HE system has still lagged behind mainly due to inadequate funding to the sector. There hasn't been significant growth in the country's HE sector. Financing for HE has not been adequate and sustainable thereby negatively affecting the quality of education being offered (Mulamfu, 1998) ^[31]. According to the World Bank (2010) ^[43], the challenge most African countries are facing is providing sustainable financing for HE. This problem was manifest because of the rapid growing demand for HE resulting in exponential increase in the number of students. Over a period of fifteen

years preceding the year 2010, the total number of students pursuing higher education tripled by 6.6million from a growth of 2.7million in the year 1991 to 9.3million in the year 2006 representing an annual average rate of 16% (World Bank, 2010) ^[44]. From inception, all higher education in Zambia was fully financed by the government in form of capital (infrastructure development) and revenue grants to meet operational obligations (Mulamfu, 1998) ^[31]. The premise on which public universities in the country were established was to offer university education at an affordable cost to the majority of the Zambian citizenry. Public universities in Zambia have been financed by public funds in excess of 90% of their requirements in form of grants for operations as well as infrastructure development, and students' bursary (Kelly, 1991) ^[23]. Notwithstanding public finance support, government has been experiencing challenges in sustaining operations of the universities due to inadequate financial resources, and competing demands of other sectors for the "national cake." This, coupled with growing student numbers over the years including other factors, the cost of higher education significantly increased amidst government diminishing financial support (Mulamfu, 1998) ^[31].

Over the years, government financial support to public universities has been increasing. However, increases in financing has not been proportionate to the level of expenditure. The rate of growth of the cost structure in the universities has not been equal to the rate of growth in income. Inadequate financial support has resulted into serious ramifications in the higher education system in Zambia as this has negatively affected the quality of education in the country (Kelly, 1991) ^[23]. There are a number of financing models in use which are determined by the levels of resources, financial and otherwise, allocated to universities to meet the cost of operations as well as investment expenditure. In most Africa, universities are financed using annual operational budgets which are prepared on an incremental basis adjusted primarily for inflation, among other factors. Some countries like Zambia had in recent years adopted alternative types of budgeting for higher education such as 'Activity Based Budgeting,' as well as 'Output Based Budgeting.'

Statement of the problem

Higher Education (HE) across the World is considered as a public 'good,' thus it is the responsibility of government regardless of whether Higher Education Institutions (HEIs) are publicly or privately financed and/or owned. However, investment in both HE in most countries in the world has still lagged behind with most countries committing fewer resources as a percentage of the GDP per capita. Total investment in HE in Europe for instance accounted for 1.3% of the GDP on average, compared to 1.5% in Japan, and 2.7% in the USA (World Bank, 2013) ^[45]. According to the World Bank (2013) ^[46], the challenge most African countries are facing is providing sustainable financing model for HE. To avert the above situation, other financing models that have been suggested such as the Cost sharing model (Masaiti, 2018) ^[26]. Nevertheless, the implementation of these models has been a challenge (Chisenga, 2016; Masaiti, 2018) ^[8]. Despite such efforts, public universities have continued experiencing serious inadequacies in being self-financed institutions (Chisenga, 2016) ^[8]. However, questions can still be asked: Is there a sustainable financing

model that could be adopted by public universities? How efficient and effective can these financing models be implemented? These and many more questions motivated this study to embark on an evaluation.

Specific objectives

1. To identify financing models currently being used in public universities.
2. To ascertain the extent to which existing financing models are being implemented in public universities.
3. To develop sustainable financing model in public universities in Zambia.

Hypothesis

H₀: There is no association between the type of financing model used by public universities and sustainability of financing HE.

Literature review

Cheung (2003) ^[12] analysed and identified factors that make governments and HE systems keep searching for financing alternatives. In his study, Bryan showed the relationship among funding sources and paths, as well as discussed funding mechanisms and models adopted by some Asian and Western countries. Further, a discussion was undertaken of the effects of funding policy on student access, institute autonomy, competition, stability of institutes, quality and performance of education, responsiveness to market demands, and fiscal burden.

According to Johnstone (1998) ^[18], history of the development of HE worldwide suggests that there has been a consistent reforms agenda for financing mechanisms for HE across the sector. He further identified five themes in which consistent financial reforms could be grouped. These were ascendance of market orientation, and the search for non-governmental revenue; demand for greater quality and efficiency; demand for greater accountability; expansion of student enrolments, and diversification of types of institutes; and fiscal pressure.

According to Jongbloed (2004; 2008; 2010) ^[20, 21], overall effectiveness of financing mechanisms for HE systems largely determine how the respective universities are governed and organized. In fact, it could also be said that overall effectiveness of all such universities is largely influenced by the way the institutions are organized, governed and funded. HE systems in the world are dependent on the level of finance to respective universities. Therefore, the underlying principle is that the funding mechanism is a key component of the institutional framework that define any HE system – and any education system for that matter. It may be difficult to find, or even prescribe an ideal financing mechanism, except to find a financing mechanism that is "fit-for-purpose." In fact, Johnstone (1986) ^[18], argued that such financing mechanisms are seldom transplantable from one jurisdiction to another. This is largely because such financing mechanisms may not necessarily be adaptable due to differences in HE traditions and structures.

In Europe, there was a realization of the challenge of a lack of financial sustainability in most public HEIs. Financial sustainability in this context was centered on establishing the full costs of universities' activities, and/or operations, and matching the cost with revenue. Therefore, the European Universities Diversifying Income Streams, 'the

EUDIS,' made full costing of public universities a priority of their first study. It was envisaged that at the heart of studies for diversifying income streams was the need to build capacity for cost analysis in European universities. The EUDIS sort to build an understanding in the Management staff in European universities of the cost structure in their respective HEIs, while balancing it with the income structure. An appropriate balance between the income and cost structures in the public universities suggests a possible of financial sustainability (European University Association, 2008: 2011) ^[13].

In Germany, the Länder (Land authorities) and Federation are responsible for financing for HE system. Financing of HE has been through the Ministry of Science and Research, or the Ministry of Education and Cultural Affairs. Sector financing usually comprises several stages including budgeting which are subsequently discussed and adopted by Parliament. In financing the HE system, consideration will be given to the responsibilities and services provided in the field of research and teaching; equality of opportunity for women in science; and promotion of up-coming academics by the respective institutions of HE. Most of the funds provided by the Länder from budgets are used for capital expenses on buildings, equipment, property, material and staff costs (Eurydice, 2019) ^[14].

In the Netherlands, public universities are financed by way of block funding from the government. Government gives public universities the freedom to manage the funding in meeting costs for purchase of equipment, accommodation, and personal emoluments. Government also provides funding for research to public universities on the basis of the number of degrees granted. In addition to government subventions, universities receive students' fees such as tuition fees. Public universities also receive funding from individuals, not-for-profit research institutions, and private businesses.

Asia presents a unique picture of the development of HE compared to many countries in the world. By and large, many HE systems in Asia have had a fair share of challenges of financing for public HE. Many countries have been trying out financing models which could best be adaptable in their circumstances in a bid to attain sustainability in the management of HEIs. Of particular interest of the purpose of this research, we considered the cases of Malaysia, China, and Japan.

Most countries in Asia have struggled to run HE sustainably, for some even in the wake of implementation of HE reforms in their respective countries. For example, due to budget constraints, Thailand struggled to implement HE reforms for the purpose of achieving financial sustainability. On the other hand, public HEIs in Malaysia experienced operational challenges mainly due to the high cost of managing operations of the HEIs, - which were not fully supported by government due to budgetary cuts. Notwithstanding these challenges HEIs were still expected to maintain and deliver quality education and to achieve high levels of enrolment.

Ahmad *et al.* (2019) ^[2] undertook a study on financial sustainability of Malaysia's public universities' to find out perceptions of the officers therein. The purpose of the study was to look at financial sustainability practices of public universities as well as cost management practices. The findings were that respondents were receptive of the financial sustainability challenges faced by their institutions.

Respondents agreed that increasing tuition fees may not be a feasible revenue enhancement strategy for public universities. And that respondents also agreed that full utilization of resources was to be a key strategy that public universities could apply.

According to MOHE (2015) ^[29], public universities in Malaysia were faced with substantial financial reforms and budgetary constraints. These were in addition to new policies that the Government introduced to ensure that public universities are winged off government dependence for funding. In a quest to attain financial sustainability for its HEIs, Malaysia experienced considerable reforms in HE through the launch of the so called 'Malaysia Higher Education Blue print for the 2015 to 2025.' The Government had the sole responsibility for financing public HE in Malaysia, as a result due to budgetary constraints, there were financial challenges that HE experienced for decades (Lim, *et al.*, 2016) ^[25]

In Japan, the HE system draws experiences from before the Second World War where universities were classified into three sectors which were based on their founders. These founders were those who were restricted by Chapter two of the Japanese School Education Act. The Sectors included three, namely School Judicial Persons, National, and Local Authorities.

The National University Corporations (NUCs) was the first of the sectors that was founded by Central Government. Local Public Universities (LPU) were the second sector to be established primarily for the purpose of enhancing HE of women and copying with the shortage of medical doctors in Japan's rural areas. However, the third sector which was founded by non-profit School Judicial Persons authorised by Central government is the private universities. During the post-World War II period, Private universities were pivotal in the fast expansion of the HE system in Japan (Mizuta K, 2008) ^[28]. Further, according to Mizuta (2008) ^[28], the HE sector saw major reforms over a period of time until the 1990s when these reforms were accelerated by issuance of a series of policy proposals by the University Council. These reforms had a focus on market orientation, otherwise called marketization measures, as well as a focus to deregulate the HE system. Alongside the HE reforms, the Ministry of Education, Culture, Sports and Technology, and the Finance Ministry issued a policy directive to change public funding schemes for universities as a fiscal policy. Universities in Japan were funded by government using various mechanisms. Central government had a budget for personal emoluments, operating expenses, and capital expenditure. A formula- based allocation was adopted specifically for operational expenses. The unit price per student and per teacher were the variables that were used in the formula based funding system, and these were multiplied by the number of teachers and students (Huang, F, 2018) ^[17].

Historically, China's HE system was financed wholly by government using the national budget framework. Any funds that remained unused at the period end was returned to government. The Government put in place various HE reforms that later resulted in the gradual establishment of the market economic system. These reforms which were prominently adopted in the 1970s and 1990s resulted in vital transformation in character of the HE system in China.

New financing mechanisms, resource mobilisation, and decentralisation were a result of introduction of significant reforms in financing of the HE system in China (World

Bank, 1997) ^[41]. When government decentralised financing, budgeting by 'line items' was replaced by a block grant giving local universities a say on how to utilise financial resources allocated to respective universities. With the new financing mechanisms, the universities will not have to return to government any unused funds at the end of the period under review (World Bank, 1998) ^[42]. The hallmark of the Chinese reformation of HE system was the introduction of a variety of financing sources including private sources, government subventions, as well as other sources of finance and donations. This was a significant move from a situation where the HE finance system was wholly supported by government.

Further, the HE reforms ushered in a whole system of cost sharing where families and students alike took on the burden of HE costs. Other players also got involved in the cost sharing system where finances and donations & charities are provided for HE. Even though the cost sharing system has been successfully implemented for decades now, it has had its fair share of criticisms as well as general resistance from members of the public. Effectively, the system of cost sharing in China became a prerequisite to attaining positive achievements in the HE system in the country. It is worth noting that sources of finances in the cost sharing system included sponsors for various research projects, renting university property, and resource mobilisation through alumni, government revenue, tuition fees, social services, other revenue and income etc. (Wang, X., 2020, *et al*) ^[40].

The study conducted using a cross-national comparative case study method to find out how public HEIs in three Sub-Saharan African countries were dealing with the quest for financial sustainability. The subject of financial sustainability in public HEIs has been one of the vital challenges for Sub-Saharan Africa's countries in the last three decades. According to Gebreyes F.M., (2015) ^[15], public HEIs in Sub-Sahara can enhance their financial sustainability through diversification of income streams in the midst of growing demand for HE. Strategies for diversified revenue streams should embrace the rapid growth in demand for HE in a way that such revenues are able adequately cover operating costs of the HEIs. Gebreyes F.M (2015) ^[15] undertook research of financial sustainability in public HEIs in countries in Sub-Saharan Africa where the demand for HE is rapidly growing, and where commitment by governments to public financing HE is strong. However, strong commitment to public financing for HE was being countered by perennial financial challenges which was a consequence of a declining trend in public expenditure as measured per student (World Bank, 2010) ^[44].

According to the World Bank (2010) the capacity for investment in public HEIs in Sub-Saharan African countries ranged from 33% to 40% of the total requirements for public HE. The challenge had been the need to balance the need to raise participation in HE system and cost management. Notwithstanding, one of the solutions the study proposed was that Government should give autonomy to public HEIs to be able to diversify revenue streams for reduced dependence on public financing.

In a study conducted by Abdullahi S, (2021) ^[1] entitled 'financial sustainability in Nigeria's public tertiary institutions: challenges and way forward,' the general conclusion was that public HEIs have a specific role to play in the social-economic development of countries. However, it was identified that financial sustainability is a must for

public HEIs to ensure value for money in the academic value chain as a driver of economic development. Further, Abdullahi asserted that for financial sustainability to be attained, certain imperatives must be put in place by the Management team in HEIs, including formulating of business development strategies, and development of investment portfolios.

In Egypt, Alshamy (2011) ^[3], also examined the financing mechanisms and quality assurance systems in HE taking a comparative perspective. The study examined the concepts of autonomy, accountability, efficiency and equity as analytical and evaluative tools; chosen because of their central place in the analysis of the governance and finance of HE. The study identified several fundamental systemic problems that needed to be addressed, it was argued that these could best be resolved through evolutionary pilot projects such as evolving a funding formula; cost-sharing; staffing; student representation systems and capacity building and training.

According to HESLD (2011) ^[16], finance for HE by the Government of Rwanda has been challenging to the extent that the Government had been contemplating divesting from the sector. Government plans were to stop funding for tuition fees for government sponsored students, living allowances for students, and the recurrent budget for higher institutions of education. Rwanda has contemplated leaving HE to the private sector to run as this, it was thought, could be cheaper for government because individuals and students will take financial responsibility for their university education. The HESLD observed that as much as the government of Rwanda desires an expanded tertiary sector in order to attain sustainable socio-economic development, funding for HE has been reducing in preference to financing basic education. This is because basic education in Rwanda is seen as a fundamental right for all citizens. Therefore, most funding to the education sector is concentrated to the basic education sub-sector to the extent that education in this sub-sector is free (MINEDUC, 2011) ^[27]. This decision has the probable result of Rwanda ending up with an inadequate HE system that will fail to absorb graduates from the secondary education system, therefore, deficiencies in skills for economic development.

The HE system in South Africa is composed mainly of public institutions in comparison to privately owned institutions. The HE system in the country built very strong capacity for research in the universities, and a high proportion of post graduate faculty. Other aspects of the HE system in South Africa are institutions that offer vocational qualifications and teaching programmes. The legal framework for the HE system in the country is the report for the Council on Higher Education policy (CHE), report of the National Working Group, the Restructuring of HE system in South Africa of 2000, and the new institutional landscape for HE in South Africa of 2001. HE in South Africa comes from a rather troubled background which was characterised with general fragmentation on racial grounds. The Association for the Development of Education in Africa described South Africa's HE system then as containing 'gross distortions and inequalities' to the extent that the system presented with inequitable distribution of resources to institutions of learning; tremendous disparities between historically white and black institutions, and skewed distribution of student population in the various fields of

study. There were few non-white students in such disciplines as business & commerce, science & technology, and engineering (National Working Group, 2001) ^[33].

In Malawi, Shawa (2014) ^[37], indicated that public universities were wholly funded by the Government. Despite falling under the authority of government, the budget for universities is separate and independent of the Ministry of Education and Vocational Training. Under this arrangement, funding proved to be unpredictable and without proper mechanisms. Thereafter, a cost-sharing mechanism for universities was introduced in the year 2001, but it received a lot of resistance from the university students' unions. The Loan scheme is now administered through the bank system, but there are numerous systemic challenges to follow up on who owe the government. Although a cost-sharing mechanism was generally welcome as an alternative financing mechanism, its implementation experienced flaws. The first flaw was that students were offered loans to enable them meet the cost of their fees, but there was no clear mechanism for paying back. The second flaw was that the university and government had failed to determine who were supposed to be awarded government sponsorship, and who is not eligible.

In Zambia, the two traditional public universities i.e. UNZA, and CBU were largely dependent on government for finances in form of grants (Masaiti *et al.*, 2018) ^[26]. However, Mulamfu (1998) ^[31], indicated in his study that other than government grants the two public universities also utilised two other methods of funding. The second financing mechanism was own or internally generated funds. These funds were generated through business ventures that the two public universities had embarked on. The third financing mechanism according to Mulamfu was through solicited and unsolicited donations from well-wishers from within the country as well as from outside the country. But still Mulamfu emphasised that business ventures and donations could not by themselves sustain the universities without the government grant.

According to the University World News (2010) ^[39], Education Minister, Dora Siliya said: 'It is very clear, especially at HE level that we cannot continue on this path if we are to sustain paying for university education.' She made this statement in her address in Zambia's Parliament in March 2010. She briefed members of parliament on the new developments in the HE system in Zambia. In answering questions from parliamentarians, she reiterated: 'Unless a long-term solution is found to make it sustainable, it will become very difficult for the university to operate effectively every year.' She said this in reference to public universities, specifically, the UNZA.

Research methodology

This study employed the parallel convergent mixed research design, which enabled collecting, analyzing, and mixing both quantitative and qualitative methods in a single study or a series of studies to understand a research problem' (Creswell and Clark, 2011) ^[10].

Data collection methods

Three data collection methods were used in collecting data. They included: focus group discussion, semi structured interviews, and documentary review.

Target population

Population is defined as 'the universe of units from which a sample is to be selected,' (Bryman, 2016: 694) ^[7]. The target population involved various stakeholders from the three public universities. These included the Management staff, Support staff, Lecturers, Trade unions, Students' unions of the three universities. In addition, some Management staff at the Ministry of Higher Education as well as Ministry of Finance were also involved.

Sample population

A sample refers to a segment of the population that is selected for research. Bryman (2016:695) ^[7] refers to it as a 'subset of the population.' The sample comprised 177 respondents who were identified from the three public universities as well as other stakeholders. From the three public universities, there were thirty (30) Management staff, eighty (80) Lecturers, thirty (30) support staff, twenty (20) Trade Union members, and twelve (12) University Students' Union members. From other stakeholders, there were three (3) Management staff from the Ministry of Higher Education; and two (2) Management staff from the Ministry of Finance.

The formula which was proposed by Bartlett, *et al.* (2001) ^[5] and Cooper and Schindler (2007) ^[9] was used to come up with the magnitude of the sample as follows:

$$n = \frac{N Z^2 p (1 - p)}{Z^2 p (1 - p) + N E^2}$$

$$\begin{aligned} n &= \text{Sample Size} \\ Z &= \text{Confidence Level@95\%} = Z \text{ score} = 1.96 \\ N &= \text{Population of Academic + Support staff (3 Public Universities)} = 2,176 \\ P &= \text{Population Proportion} = 50\% (0.5) \\ E &= \text{Margin of error in the proportion 5 \%} = (0.05) \text{ from 2 tailed under the curve} \\ &= \frac{2,176 * 1.96^2 * 0.5(1-0.5)}{1.96^2 * 0.5(1-0.5) + 2,176 * 0.05^2} \\ &= \frac{2,176 * 2.72 * 0.25}{0.9604 + 10.84655141} \\ &= \frac{2,089.8304}{11.80695141} \end{aligned}$$

$$\text{Sample Size} = 177 (\pm 10)$$

Sampling techniques

The study employed stratified and purposive sampling techniques to select the sample so as to ensure non-biasness of the outcomes as a result of the respondents' sentiments. Selection of participants in non-probability sampling is not random, rather subjects are usually selected based on accessibility or the purpose of personal judgement of the Researcher. Unlike non-probability sampling, probability sampling techniques allow for the randomization in the selection of participants or subjects (Bryman, 2016; Msabila and Naila, 2013) ^[30].

Ethical Considerations

Blaxter (2010) ^[6] emphasizes the need for a researcher to aim at having an ethically enlightened study and relate research that exhibits a higher level of ethical standards to qualitative research. He highlights common ethical issues as being in the aspects of confidentiality, anonymity, legality, professionalism and participation. Johnson and Christensen (2008) ^[19] consider ethics as being principles and these offer instructions that assist one to sustain items that are of relevance to us

Research Findings and Discussion

The findings of the study were exposed to hypothetical testing so as to derive generalisations from the population.

Table 1: statistical summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.883 ^a	.780	.777	.632

a. Predictors: (Constant), Cost sharing, PPPs, Full government participation, Business ventures and Investments and Alumni/Endowments/Research funds

The R, R-squared, Set R and the standard error are shown in Table above. R is the association between the values of the dependent variable observed and predicted. The R values vary between -1 and 1. The R sign shows the orientation (positive or negative) of the relationship. The absolute value of R shows the strength, with greater absolute values suggesting stronger connections. In this analysis, a strong positive correlation is shown in $R=0.883$. R Squared is the measure of the goodness of fit of the regression model. It measures how much of the independent variables explains the dependent variable. The R squared values vary between 0 and 1. The R squared test tends to calculate how well the model fits the data. Adjusted squared attempts at R correction represent the fitness of the model in the data more closely. In the above model R squared = 0.780 shows that independent variables account for 78% of variations in sustainability of financing public universities with regard to the independent variables. Therefore, the other variables that do not include the regression model described in 22% of the variance.

Table 2: ANOVA

Model	Sum of Squares	Df	Mean Square	F	Sig.
1 Regression	549.955	5	109.991	275.643	.000 ^a
Residual	155.225	389	.399		
Total	705.180	167			

a. Predictors: (Constant), Cost sharing, PPPs, full government participation, Business ventures and Investments and Alumni/Endowments/Research funds

b. Dependent variable: Sustainability of financing HE

In addition to R-squared, the analysis can use ANOVA (Analysis of Variance) to verify that the model fits into results. The F equation is the Middle Square Regression (MSR), separated by the MSR. The independent variable describes the changes in the dependent variable when the meaning value of the F statistics is small (under 0.05). The independent variables do not explain the variance in dependently but differ if the value F is greater than that of 0.05 and the null hypothesis is agreed that the population values for the regression coefficients are zero (0). In the case of this study, the regression model is significant to explaining factors influencing sustainability of financing since p-value (0.000) is less than significance level value (0.05), thereby failing to accept the null hypothesis. The conclusion is that the independent variables (Cost sharing, PPPs, full government participation, Business ventures, and Investments and Alumni/Endowments/Research funds) are statistically significant to explain the variations in the dependent variable (sustainability of financing HE) at the three public universities. Therefore, it can be said that, Cost sharing, PPPs, full government participation, Business ventures and Investments, and Alumni/Endowments/Research funds have a significant positive impact on sustainability of financing HE. The study further sought to confirm the coefficient correlations findings.

Regression Analysis Model

The following summary of regression equation was obtained:

$Y = 0.109 + 0.271X_1 - 0.056X_2 - 0.210X_3 - 0.457X_4 + 1.264X_5 + E$
Where: X_1 = Cost sharing; X_2 = PPPs; X_3 = full government participation; X_4 = Business ventures and Investment and X_5 = Alumni/Endowments/Research fund.

The regression coefficient results indicate a positive significant effect between type of financing model and sustainability in financing public universities.

The results of the regression coefficients are shown in Table 4.23 above. There is an observed significant correlation, as shown by the beta value (0.271) with a significance value of 0.000 that is less than 0.05 and thus significant, cost sharing financing model and sustainability in financing public universities. The findings further show that the beta value (-0.457) with a significance value (0.000 which is less than 0.05) was significantly correlated with business ventures & investments and sustainability in financing public universities. The results also suggest that the alpha (0.1264) with a significance value 0.00, which is less than 0.05, showing.

the significant positive association between alumni/endowments/research fund, and sustainability in financing public universities, hence significant. Alumni/endowments/research fund has the greatest impact of all as evidenced by a standardised beta coefficient of 1.349.

Overall summary of correlations between type of financing model and sustainability of financing public universities shows correlation of 0.764 for cost sharing; 0.700 for PPP; 0.727 for full government participation; 0.737 for business ventures/investment; and 0.849 for alumni/endowments/research funds. Cost sharing, PPP, full government participation, business ventures/investment and alumni/endowment/research fund were found to be significant at 99% level of significance using a two tailed test. However, alumni/endowment/research fund was found to have had the greatest impact of all as evidenced by the beta coefficient of 1.349.

Table 4.21 offers a description of the hypothesis findings tested and the determination of the p-values and decision-making function associated with each experimental method. The results show that all five null hypotheses were dismissed and, therefore, the study variables are closely related, and thus suggest that: type of financing model has a significant positive effect on sustainability of financing public universities.

Conclusion

It is clear from this study that the financing model currently in use in Zambia's public universities include government grants and internally generated funding. Although it can be said that government grants are guaranteed, however, this research has clearly revealed that as much as government may be obligated by law to provide grants to public universities, these grants have simply been inadequate to cover the universities' operational costs. This was evidenced by 72.4% of the respondents who disagreed with the assertion that government grants to public universities were adequate, and predictable. A further 76% of the respondents even disagreed that government funding for grants and GRZ sponsored students to their respective universities was timely. In fact, findings on this research suggests that not

only are these grants inadequate, but they do not also come on time making them not to be predictable. Consequently, this puts pressure on public universities to mobilize financial resources in form of internally generated income to supplement government grants. Internally generated income would assist public universities in meeting their financial obligations as and when they fall due. This fact was confirmed by 74.8% of respondents on this research who agreed with the assertion that public universities have the ability to raise significant internally generated income. According to NCES (1997) ^[34], it has been acknowledged that in the light of inadequate and unpredictable government subventions, public universities have tended to look inwards to identify some initiatives for internal income generating sources.

K Norman descriptive model for financing public universities

The K_Norman model was conceptualised, actualised, and designed based on the findings, conclusion and recommendations of this study. Primarily, K_Norman model will contribute to the body of knowledge especially in financing Public universities in Zambia. However, private universities at different levels can equally adopt the K_Norman model. For the future, the model may be useful by observing how variables in the model are interacting and are being applied. Further, it is hoped that the K_Norman model would bring about certainty in sustainable financing of HE. The model is summarised below and thereafter detailed explanation is given

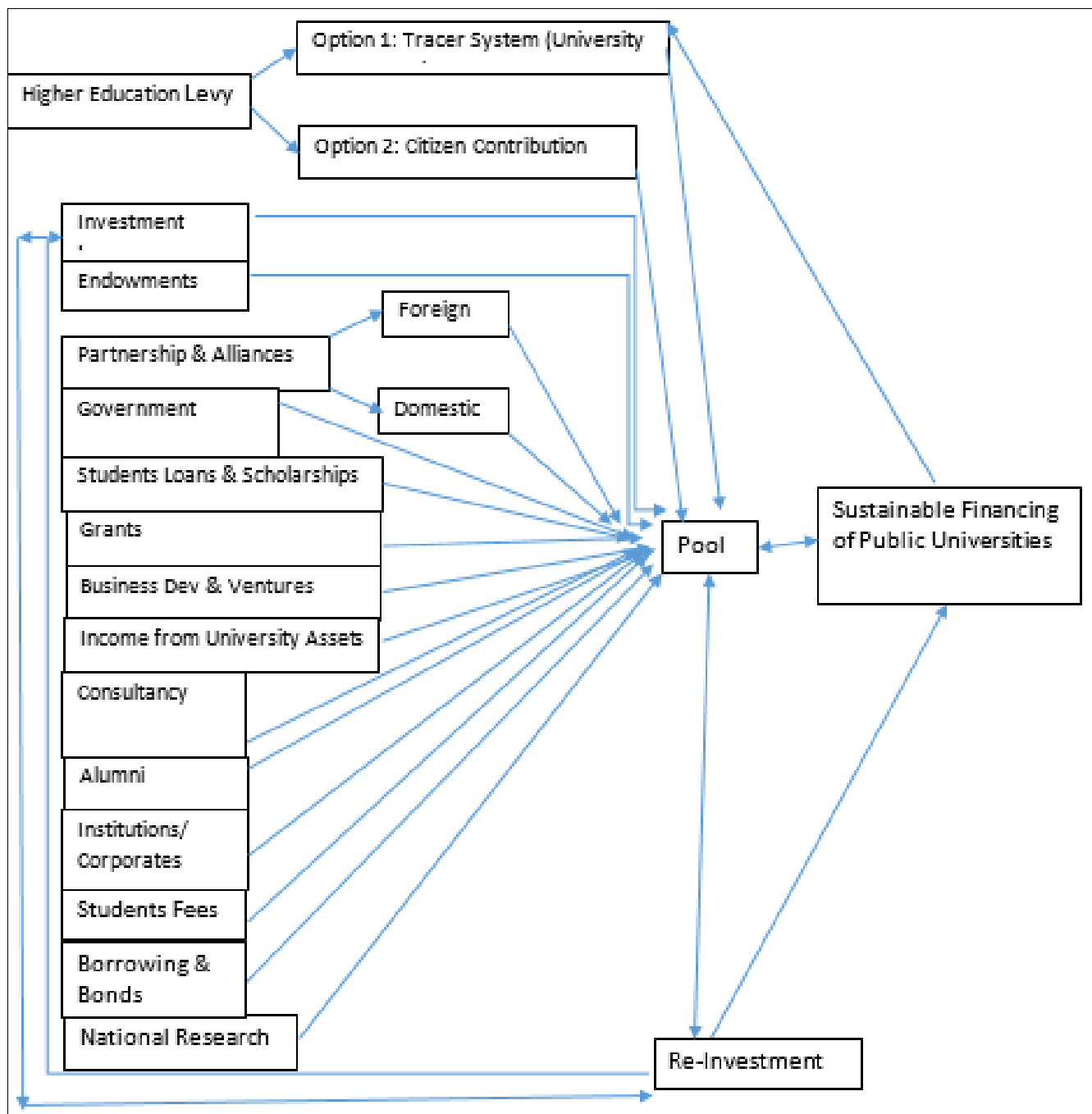


Fig 1: Knorman model of financing public universities

K Norman model detailed

Higher Education Fund (HEF) should be established to give financial support the HE system. This will be achieved by providing financial support for operations of public universities. HEF financial support will include provision of funding for academic research projects; procurement of movable assets and equipment; award of grants; funding for construction of lecture theatres, and other facilities; provide loans; financial aid; grant scholarships; provide funding for universities' teaching and academic staff; as well as other financial support for students, and students' related activities.

In essence, establishment of HEF will facilitate and ensure pooling of funding for public universities using various sources. The HEF will be established as an autonomous body that will ensure adequate financing of public universities. Allocation of funding to universities will be based on funding policies prescribed by the HEF. Similar bodies to the HEF have been known to draw experiences from other jurisdictions that funded public universities based on historical or political basis. A more empirical approach to funding public universities is by use of formula-based financing, performance-based funding; categorical and competitive funds; and policy driven funding. A notable source of fund for the Federal Universities is the Education Tax Fund (ETF), established under Act No 7 of 1993. The objective is to improve the quality of education in Nigeria.

Higher education levy

Government should pass comprehensive legislation to introduce a HE Levy applicable to both the formal and informal sectors. Studies have shown that if well implemented such a levy has the propensity to generate tremendous amount of revenue for the higher education system. Zambia's current higher education levy is the 'Skills Development Levy' whose aim is to ensure that individuals who attended university using government sponsorship pay back to the state monies used for their university education sponsorship. It was envisaged that the Skills Development Levy will provide funding to meet the cost of running public universities. It is expected that the proposed Higher education levy will capture a larger population of payers than the Country's current Skills development levy.

Finances raised using the Higher Education levy funding mechanism will constitute a significant contribution to the proposed Higher Education Fund. Two approaches could be used for implementation in this regard:

Option 1.

Government should establish a comprehensive "tracer system" that will ensure all persons who graduated from public universities under the sponsorship of government pay a prescribed levy. This funding mechanism could first target individuals that benefited through awards of education loans from government in both formal and informal sectors. The Levy could be effected by way of levying employers a percentage of the payroll cost, or of turnover for the affected individuals. The Levy will remain effective to the extent that the affected persons have not yet repaid loans that were awarded for their university education, and that they remain employees, or active in business. Individuals that manage to repay their education loans in full in any case, will then transfer to "Option 2" payers' category.

Secondly, there is a relatively large population of individuals who benefited from public university education under the sponsorship of the Government through "bursaries." It is a known fact that since inception of public universities, government has not received any repayment for sponsorship, but rather bursary awards were given to high performers graduating from Secondary/High school as a "grant" in order to grow a cadre of university graduates for the Country's economy. All individuals who benefited from the "Bursary system" should be traced and categorized under an appropriate option of payers.

Option 2.

This option will seek to ensure that the rest of Zambia's population contributes to financing the Country's Higher education system. Typically, this category will consist of individuals who have not gone through university education, or did not attain university education, therefore have not benefited from government sponsorship for university education. Under this funding mechanism, payers will pay a prescribed levy that could be collected using public utility/good infrastructure that is widely consumed by the general population. The Levy could be implemented in a manner akin to the country's current Television (TV) Levy that the general citizenry is paying.

The Option 2 financing mechanism will ensure that all individuals resident in Zambia give financial support to the Country's Higher education system. In fact, Option 2 presents huge an opportunity and scope for a financing mechanism that could give financial support to both public and private universities in the Country. The amount of the levy shall be prescribed from time to time.

Endowments

This is another financing mechanism that will contribute financial resources to the Higher Education Fund. In the advent of reducing funding for most public HE systems across the global, endowments have become an ever more important source of revenue for financial sustainability of public universities (Association of Public and Land-Grant Universities, 2019) ^[4].

Endowments comprises donations to universities or colleges in form of money and other financial assets which are invested to realize income that can be used to meet investment requirements as well as operating costs. The funds invested under an endowment fund is structured in a way that the principal amount remains intact, while providing additional income for universities. Typically, management of endowment funds follow rigorous investment protocols to ensure attainment of a target return on investment. Endowments to public universities could be made by corporate bodies as well as individuals.

Philanthropy is one area that public universities could explore to try and raise additional revenue from individuals within Zambia, and across Africa. In the United States of America, philanthropy accounts for an average of 7.5% of the core institutional budgets to public research universities. According to Kigotho (2016) ^[24], at a meeting of higher education experts recently held in Nairobi, Kenya, the financing dilemma in Africa's universities was extensively discussed. Consequently, one of the proposals made at the meeting was that Africa's universities should explore the possibility of procuring funding from Africa's growing number of billionaires: "Some of Africa's billionaires have

been funding projects in several leading universities in North America and Western Europe, but we have not approached them for assistance.” Wachira Kigotho observed that financial support from philanthropists could go a long way in alleviating the declining public financing of public universities.

In Zambia, philanthropy, trust funds and external donation is not very common in university education (Simukanga, 2009) ^[36]. Zambia should establish appropriate mechanism and structures of identifying potential philanthropists locally, and from within Africa to finance aspects of higher education. Financial resources raised from this financing mechanism will add to the pool of the HEF.

Investment income

Some public research universities in the United States of America receive revenue from investment returns on institutional cash balances and endowment income, but these are usually restricted and often minimal when compared to their private universities. Public research universities seldom benefit from investments.

Partnerships and alliances (foreign grants, donations etc

This comprises Gifts and grants from non-profit foundations and other private organizations. Although this funding mechanism provides financing of varies sizes, it constitutes a significant component of fundraising for public universities. Funding from partners is seldom open-ended, but rather they are very often restricted to particular purposes prescribed by the partners. The partners could choose to make a contribution to higher education in form of foreign grants, infrastructure development, donations, specified research, scholarships etc.

Partnerships and/or alliances to the Higher education system in Zambia could contribute significantly to financing public universities. Ideally, foreign partners and alliances could make their contributions to the HEF which in turn will redistribute to public universities. Therefore, government should put in place deliberate mechanism to ensure that partnerships and alliances are established.

National research fund

Higher education systems in many jurisdictions are strongly supported by establishment of a National Research Fund. Governments establish a Research Fund which enables primarily research activities in public universities that cannot otherwise be financed by mainstream sources of funding to be catered for. The Research Fund in most countries is meant to provide a high scientific or societal impact for socio-economic development. One of the ways by which governments raise funding for research is by hosting research and development symposiums or expositions where scientists, inventors, scholars from all walks of life meet to share ideas.

For instance, in the United States of America, researchers at University of California are regularly invited to symposiums for an on-campus “meet-and-greets” with potential corporate funders to discuss possible funding or sponsorship opportunities. It is common place for support for research and development to be procured from individuals, foundations, and corporations through an exchange of “handshakes and business cards,” including the so called “non-disclosure agreements.”

With regards to Donor funding, foundations, individuals etc. usually provide funding to specific areas of research.

Financier can target a specific area of research to include providing funding for senior researchers to perhaps move their research project to a high level, e.g. human trials etc. young researcher could be another target of potential financiers of research to enable pilot research funds to be available for innovative new projects. Donor funding has also provided collaborative research grants to facilitate interaction among researchers from research institutions to broaden their perspectives, and to accelerate progress.

An example of a Research Fund in Africa is the National Research Foundation (NRF) of South Africa. The NRF was established in 1998 as an independent government Agency through an Act of parliament – Act number 23 of 1998 to support and promote research activities. Support includes provision of necessary funding for development of research infrastructure and equipment, human capital, and innovations in order to facilitate the creation of new knowledge in science and technology, as well as indigenous knowledge for socio-economic development.

Government

Across many jurisdictions, Government is the primary source of funding for public universities. This is because education offered in public universities is seen as a public good, and as such is government responsibility. The State owns public universities, as such governments pretty much determines the level of funding to the universities, and how these universities are financed. Government finances public universities by giving students’ loans, scholarships, and grants.

Students loans and scholarships

The Zambian government shifted from a system of awarding bursaries to prospective students to that of availing students’ loans through establishment of HELSB. The Students’ loans system presents an opportunity for an effective and sustainable funding mechanism for public universities compared to the bursary system (Serpell, 2013) ^[35]. Scholarships is another way government finances higher education. Scholarships are given to outstanding students in public universities. Using this funding mechanism Government can continue to provide for student’s loans and scholarships in its budget as has been the case.

Grants

Government grants are the main source of funding in public universities in Zambia. Under this financing mechanism, revenue grants are used to meet mainly operational costs, including paying for personal emoluments for staff in the universities. In some cases, government gives public universities capital grants for purchase of equipment and infrastructure development. Using this funding mechanism Government can continue to provide for student’s loans and scholarships in its budget as has been the case.

Business development and ventures

Public universities should engage in viable business ventures in order to increase their revenue base. Use of “special purpose vehicles” (SPVs) is one way that universities in most countries run business ventures away from universities’ core business of teaching and knowledge generation etc. Through establishment of a dedicated and innovative directorate for Business development, public universities can potentially develop a strong business side to

their operations by investing in income generating units or companies. All such units and companies should be run on a commercial basis to ensure maximization of increase revenue of public universities.

Universities can invest in a number of sectors including hospitality, real estate, agriculture industries using various models.

Income from land and university property

Most universities globally own vast tracks of land as well as property. Public universities are not an exception. Most public universities already own huge tracks of land which should be put to use to generate additional funding. Such pieces of land could either be leased out, or be developed for various purposes. Many public universities use outsourcing of various services to ensure efficient delivery support activities, while they focus of their core business of teaching and research. The principle of outsourcing can be adopted for public universities in Zambia for the land and property they own. Public universities should ensure acquisition of land for expansion as well as investment purposes. Most public universities own property which by and large, is under-utilized. Such property has the propensity to generate considerable revenue that can supplement traditional sources of income in public universities.

Consultancy

Provision of consultancy services using academic and expert knowledge of staff and other stakeholders is one way public universities generate revenue. Consultancy services are provided to various sectors in the economy.

Alumni associations

Alumni has contributed millions in financing most universities' activities through various fundraising initiatives, donations, as well as direct contributions in cash. Public universities should seek to develop and expand the alumni to ensure that this financing mechanism generates sufficient financial resources to contribute to operations of public universities.

Alumni associations could be established in public universities to facilitate Alumni structures that will ensure coordinated Alumni activities. One way financial resources can be mobilized is through a contract system. A contract system can be set up to enable graduates or former students of public universities who have a certain income level from both informal and formal sectors of the economy contribute to financing the universities. These contracts could stipulate a fixed percentage of an individual's income as a contribution over a set period of time. Other Alumni funding options could include Alumni grants which come by way of hundreds and thousands of Alumni (including "friends" of the universities) making donations to ensure enhanced learning and student experience. Further, according to the NAPA Group and PEG, LTD. (2010) ^[38], funding can also come from traditional options such as annual support, affinity relationships, gifts/donations, dues, foundation or university funding, events, conference centre income, services fees etc.

Increasingly, Alumni associations and relations have become critical across many nationals. In terms of organization and relationship with universities, typical Alumni associations' organization structure will fall in three broad categories: 1) independent, 2) dependent, and 3) interdependent (NAPA Group and PEG, LTD., 2010) ^[38].

Local community and institutions

Local community

In 1965, the Republic of Zambia established the country's first University, the University of Zambia. Construction of the University was financed on the basis of contribution from communities around the Countries in form of cash and material handouts, including livestock! Communities gave handouts in form of livestock and agricultural products to finance construction.

It is expected that public universities could finance certain aspects of university operations through community engagement. Some academic and research activities could be undertaken in collaboration of with communities on a cost sharing basis in some cases, as well as full sponsorship by institutions. The University could undertake joint ventures/projects that will support and benefit academic activities, and communities. Through community outreach and collaboration certain aspects of academic and research activities could be sponsored outside public universities' budgets.

Public universities should aspire to offer a product or a service, and achieve their aspirations by connecting with the community in some way. This is premised on the understanding that communities are the ultimate beneficiaries of all social and economic activity outputs. Public universities should put in place a deliberate programme for community outreach interventions.

Institutions/corporate bodies

Universities collaborate with industry to establish beneficial partnerships that will bring together academic and /or research resources on the one hand, and industrial resources or commercial perspectives on the other hand. Such collaborations go a long way to foster industrialization through commercialization of academic and/or research outputs from universities. Institutions from various sectors partner with universities to sponsor a wide range of academic activities. Such sponsorships may include industrial experience for students through students' attachments. For example, engineering students could spend some time at the factory floor, or in a mining company to get hands-on experience in the field of engineering. Companies could also opt to sponsor rehabilitation of laboratories, including financing purchase of laboratory machines and equipment. Depending on the interest of the Institutions, they can also offer scholarships for outstanding students, or sponsor an entire faculty, including compensation for faculty staff.

It could be argued that schools or faculty in the University represents the various sectors of Zambia's economy.

Student's fees

One of the main sources of financing for public universities is student fees which are charged according to the programme of study, and sometimes, mode of study. Universities usually have different fees for local and foreign students. Students' fees usually constitute a large portion of income for public universities. It is desirable that students' fees are cost reflective in the manner they are structured. Cost reflective fees should be informed by a comprehensive cost analysis to ensure cost recovery.

Borrowings (debt finance, bonds etc.)

In most countries, governments may be unwilling to finance construction projects for infrastructure development in public universities. As a consequence, universities are increasingly looking to finance such construction projects and maintenance works using debt finance.

It has been argued that Higher Education is now the new frontier for the Bond market. There is now an increasing number of universities that issue bonds to finance debt or investment. For example, in the United States of America, issuance of debt in form of bonds started with private universities. Stanford, Harvard, Princeton Yale and MIT are now some of the universities in the United States of America are among the top borrowers. According to Katsomitros A., (2018) ^[22], in his publication in the 'World Finance,' a financial data provider, indications are that worldwide the number and value of bonds issued by institutions of higher education almost tripled from USD2.2billion in 2007 to USD6.4billion in 2017.

An example of a public university that was able to issue a debt instrument to finance construction project is Ohio State University. The University was of the view that debt issuance is one of the financing mechanisms available to public universities for infrastructure development. Ohio State University became the first public university to issue debt in form of a 100-year bond of \$500 million apart from a few private universities.

Public universities in Zambia could utilize bonds as a source of funding for rehabilitating their dilapidated infrastructure which by and large has remained unattended for decades. Further, owing to the ever increasing demand for higher education in the country, universities could use debt to finance construction of its infrastructure which currently is far from being adequate.

References

1. Abdullahi S. 'Financial Sustainability in Nigerian Public Tertiary Institutions: Challenges and Way Forward' Ahmadu Bello University, Zaria, Nigeria, 2021.
2. Ahmad NNN, Ismail S, Siraj SA. 'Financial Sustainability of Malaysian Public Universities: Officers' Perceptions,' International Journal of Educational Management, 2019:333, 17-334, DOI: 10.1108/IJEM-06-2017-0140.
3. Alshamy ASA, 'Funding mechanisms and quality assurance systems in higher education in Egypt in comparative perspective,' University of Birmingham, United Kingdom, 2011.
4. Association of Public and Land-Grant Universities, 'Public university endowments: an essential tool to advance education, research, and engagement,' 1307 New York Avenue, NW, Suite 400, Washington, DC 20005-4722. 202.478.6040. Fax 202.478.6046. www.aplu.org (accessed on 24 April, 2019: 9:02PM).
5. Bartlett JE, Kotrlik JW, Higgins CC. 'Organizational Research: Determining Appropriate Sample Size in Survey Research'. Information Technology, Learning, and Performance Journal, 2001:19:43-50.
6. Blaxter L, Hughes C, Tight M. 'How to Research (4th ed.)'. Open University Press, 2010.
7. Bryman A. 'Social Research Methods (5th edition)'. Oxford, 2016, 373-374.
8. Chisenga AK. 'Self-Financing of Public Universities In Developing Countries: A Case of The University of Zambia'. The University of Zambia, 2016.
9. Cooper D, Schindler P. 'Business research methods (10th ed.)'. New York, McGraw-Hill/Irwin, 2008.
10. Creswell JW, Clark VL. 'Designing and Conducting Mixed Methods and Research: 2nd Edition.' Sage Publication, Los Angeles United States of America, 2011.
11. Creswell JW. 'Educational Research: Planning, Conducting and Evaluation Quantitative and Qualitative Research 4th Edition'. Pearson: Boston, MA, 2012.
12. Cheung B. 'Higher education financing policy: Mechanism and Effects,' working paper, University of South Australia, 2003.
13. European University Association. An introduction to the European University Association's work on financial sustainability, Rectors' Conference of the Swiss Universities, Beiträge zur Hochschulforschung, 33, Jahrgang, 2011.
14. Eurydice, 'Higher education funding in Germany,' Thursday, 26 December, 2019:11:44.
15. Gebreyes FM. 'Revenue Generation Strategies in Sub-Saharan African Universities'. University of Twente, Enschede, 2015.
16. HESLD, 'Higher education proposed funding models, REB Ingo L (2003) Rwanda. Funding, resource allocation, and performance in higher education Systems,' Higher Educ, 2011:46(4):469-489, ebscohost (Online). Available from: <http://ehis.ebscohost.com.ezproxy.liv.ac.uk/eds/pdfviewer/pdfviewer?vid=3&hid=124&sid=9a48245d-1b42-4573-8745-5fb06410cb36%40sessionmgr111> (Accessed 6 March, 2020).
17. Huang F. 'Higher education financing in Japan: Trends and challenges,' International Journal of Educational Development, 2018:58:106-115, Elsevier Ltd.
18. Johnstone D. 'The financing and management of higher education: A status report on worldwide reforms' The World Bank Washington, D.C, 1998.
19. Johnson RB, Christensen L.B. 'Educational Research: Quantitative, Qualitative, and Mixed Approaches. 3rd Edition', Sage Publications, Inc., Los Angeles, 2008.
20. Jongbloed B. 'Funding higher education: options, trade-offs and dilemmas,' University of Twente, Netherlands, 2004.
21. Jongbloed B. ('Funding Higher Education: A view across Europe,' Center for Higher Education Policy Studies University of Twente, ESMU, Netherlands, 2010.
22. Katsomitros A. 'The emerging university bonds market.' WORLD FINANCE: The Voice of the Market (Accessed 31/12/20), 2018.
23. Kelly MJ. 'The financing of education in Zambia,' International institute for educational planning, IIEP research report No. 91 Paris, 1991.
24. Kigotho W. 'Are African universities ready for diaspora academics?' University World News, 2016.
25. Lim HE, Fauziah MT, Abdullah NAH, Yen SH. "How efficient are Malaysian public universities? A comparative analysis using data envelopment analysis",

- Asian Academy of Management Journal, 2016:21, 275-97, available at: <http://dx.doi.org/10.21315/aamj2016.21.2.4> (accessed 24 April 2022).
26. Masaiti G. 'Education in Zambia- at Fifty Years of Independence and Beyond: History, Current Status and Contemporary Issues,' UNZA Press, Lusaka, Zambia, 2018.
 27. Ministry of Education (MINEDUC) Integrated Early Childhood Development Strategic Plan 2011/12-2015/16, 2011.
 28. Mizuta K. 'Public funding schemes for the Higher education sector in Japan,' Centre for National University Finance and Management, 2008.
 29. MOHE. "Malaysia Education Blueprint 2015-2025 Higher Education", Ministry of Higher Education Malaysia, 2015.
[www.moe.gov.my/cms/upload_files/files/3_%20Malaysia%20Education%20Blueprint%2020152025%20\(Higher%20Education\).pdf](http://www.moe.gov.my/cms/upload_files/files/3_%20Malaysia%20Education%20Blueprint%2020152025%20(Higher%20Education).pdf) (accessed 26 May 2022).
 30. Msabila DT, Nalaila SG. 'Research Proposal and Dissertation Writing: Principles and Practice'. Nyambari Nyangwine Publishers, Dar es salaam, 2013.
 31. Mulamfu J. 'Empirical Evaluation of financing university education in Zambia,' Copperbelt University, Kitwe, 1998.
 32. Murray N, Beglar D. 'Writing Dissertations and Theses,' Pearson Education Limited Edinburgh Gate Harlow Essex CM20 2JE England, 2009.
 33. National Working Group. 'The restructuring of the Higher education system in South Africa,' Report of the National working group to the Minister of Education, Pretoria, 2001.
 34. NCES. 'National center for education statistics: Finance FY97 survey, integrated postsecondary education data system,' U.S. Department of Education, 1997.
 35. Serpell B. 'Offer Students Loans As Opposed to Bursaries', The Times of Zambia, Zambia, 2013.
 36. Simukanga S. 'ZAMBIA: University to charge 'economic' fees,' University World News, Africa Edition. 2009.
 37. Shawa LB. 'The Quest for a Quality Delivery of University Education in Malawi, 2014:5(20):1176. University of KwaZulu Natal, South Africa.
 38. The NAPA Group and PEG, LTD. 'Alumni Association Funding Models: Summary Findings from 20 universities.' Final Report of Findings, USA, 2010.
 39. University World News. 'ZAMBIA: Higher Education levy, student loan, law' UWN's free weekly e-newsletters, 2010.
 40. Wang X. 'Diversifying Funding Sources for Public Higher Education in China during Massification,' Educ. as change, 2020, 24(1). Pretoria, South Africa.
 41. World Bank. 'China higher education reform,' The World Bank, Washington, D.C, 1997.
 42. World Bank. 'China higher education reform project,' Project ID: NPE46051, The World Bank, Washington, D.C, 1998.
 43. World Bank. 'Financing Higher Education in Africa: Directions in Development.' World Bank, Washington DC, 2010.
 44. World Bank. 'The education system in Malawi,' World Bank working paper no. 182 Washington, D.C. USA. 2010
 45. World Bank. 'Expenditure on education, Public (% of GDP),' United Nations Development Programme: Wikipedia, last edited on 28th November, 2018, at 10:03 (UTC): Retrieved 18th December, 2018, at 10:11 hours, 2013.
 46. World Bank, Zambia Economic Brief, Lusaka, Zambia, 2013.
 47. World Bank, Zambia Economic Brief, Lusaka, Zambia, 2015.
 48. World Bank, Education PETS –QSDS in Zambia, Washington, DC: World Bank, 2015.
 49. World Bank, "Education Public Expenditure Review in Zambia: December, 2015," 1818 H Street NW, Washington, DC 20433, 2016.