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RESEARCH ARTICLE

HIGHER EDUCATION ACCESSIBILITY AND FINANCIAL SUSTAINABILITY IN GHANA: THE ROLE OF THE STUDENT LOAN SCHEME.

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Abstract

Higher education has been recognized as the process leading to the development of human capital which determines the path of economic development. As a result, the financing of higher education has been a national priority in Ghana. For both efficiency and equity reasons, the Student Loan Trust Fund (SLTF) has been introduced as a way of financing higher education in Ghana. In the University for Development studies, it is common to find students unable to register for their academic programmes because of the challenge of meeting their education expenditure. This raises doubt on how students finance their higher education in the presence of SLTF, and hence the need to identify the factors influencing student access to the SLTF. Primary data was gathered from 380 students selected from the three faculties of the Wa Campus of the University for Development Studies. The data was gathered using questionnaire and the results analyzed using Stata version 12. Descriptive statistics were used to analyze the sources of financing higher education and the relative contribution of the SLTF in financing higher education. Besides, predictors of students' access to the SLTF were identified using a probit regression model. The results indicate that 66.8% of the students use their own earnings for financing their education, 91.6% rely on their parents/guardians, 4.7% have access to scholarships and 39.2% use the SLTF in financing their education. This suggests that students use multiple sources of finance in meeting their education expenditures. Besides, the SLTF is often used in financing expenditures on study materials, accommodation and user fees. It was also discovered that 36% of the students rely mainly on SLTF for financing their education, 28% rely mainly on their parents/guardians, 31% rely mainly on their own earnings, and 5% rely mainly on scholarships. The variables with significant influence on access to the SLTF include age, employment, income from own employment, availability of a guarantor, and adequate knowledge in the SLTF. In conclusion, the SLTF has been considered as a sustainable source of financing higher education for those who benefit from it. It is recommended that efforts towards the development of the SLTF should consider the factors influencing students' access to it.

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Introduction:-

There has been recognition of the powerful evidence that higher education develops human capital which determines the path of economic development (Oketch, 2016). Specific benefits include traction for foreign direct investment, research and development, and adaptation of new knowledge. Moreover, higher education represents a transformative process of globalization in which national competitiveness in the global arena has become significant (Blom*et al*., 2006, Kivati, 2017). This occurs through the role played by higher education in training qualified individuals who will be able to implement new technologies and use innovative methods to establish cost-efficient and effective enterprises and institutions (World Bank, 2010). However, the necessary condition for the promising potential of higher education in economic transformation is the mechanism of scaring financing to provide quality training and sound professional prospects to students.

At the time of sweeping socio-political changes, higher institutions of many countries are under keen scrutiny (Institute of Higher Education Policy, 2009). This is partly due to the growth in demand for higher education and the simultaneous lack of resources to fund expansion. Moreover, higher education matters for cultural reasons and as a determinant of national economic performance (Johnston and Barr, 2013). Policymakers pursue three main set of objectives in this regard: improving the quality of higher education system, increasing its size, and widening participation. As result, the existence of high-quality, accessible, and affordable post-secondary institutions is a key indicator of national development for both developed and developing economies (Institute of Higher Education Policy, 2009).

Higher-level institutions in sub-Saharan Africa face the formidable policy challenge of balancing the need to raise educational quality with increasing social demand for accession one side (World Bank, 2010), and the high and increasing cost-per-student on the other side (Johnston, 2003). Countries respond to this dilemma of higher education accessibility and financial sustainability in different ways. Many are creating legislations and strategies to address the financial challenges of higher education, including government and research grants, students/family personal income, loans, tax incentives, corporate investment strategies, and philanthropic gifts, (Institute of Higher Education Policy, 2009). In many countries, public subsidies to higher education take the form of direct grants from the government to high education institutions, allowing these institutions to accept students with fees that are substantially below economic costs (Asian Development Bank, 2009).

The expansion in the higher educational sector with competition between higher education and other government functions in a context of limited budget, has called for the need for additional and alternative resources (Dente and Piraino, 2014).Tuition rates have continued to rise, leading to concerns that access to college and university is being affected, especially for those from middle and low-income families (Finnie, 2010). The government of Ghana created the Ghana Education Trust Fund (GETFund) in responding to specific problems with respect to higher education (Kwasi-Agyeman, 2015). This cost-sharing approach has not been rejected but appeared not sufficient in response to the financial challenges associated with higher education. Some opinions including empirical studies (e.g Oketch, 2016) advocate government provision of free higher education as an appropriate intervention. While this proposal remains a matter of debate among researchers, politicians and civil society organizations in most developing countries, the only realistic way of meeting higher education cost is through a degree of funding that exceeds the allocation provided by states revenue (Husein and Franklin, 2011). For both efficiency and equity reasons, students loan schemes have been introduced as a way of increasing access to higher education (Husein and Franklin, 2011; Dente and Piraino, 2014; Dynarski, 2014). Recently, Ghana's approach to financing higher education is the introduction of a new student loan fund; the Student Loan Trust Fund (SLTF) as an alternative to support students financially (Okae-Adjei, 2012). Okae-Adjei (2012) therefore, considered the SLTF as an improvement over the previous fund with the potential of becoming financially sustainable.

The importance of the student loan programmes as a cost-sharing mechanism is incontestable but on the other hand is one of the controversial phenomena in higher education financing in Ghana (Atuahence, 2008). For example, under the current scheme (SLTF), some students find it difficult to get guarantors because of fear of non-payment by beneficiaries (Okae-Adjei, 2012). This suggests that the challenges associated with the scheme have threatened its future sustainability. In the University for Development Studies, many students still have challenges meeting their user fee requirements in order to enroll despite the existence of the SLTF. In the Wa campus in particular, about 23% of students do not register on time due to financial challenges they encounter. This has raised questions about the accessibility and financial sustainability of higher education in the presence of the SLTF as the current programme under the student loan scheme. This study therefore, seeks to:

1. Identify the sources from which students in higher education institutions finance their education;
2. Examine the contribution of the SLTF towards students' cost of higher education;
3. Analyse the factors influencing students access to the SLTF.

A. 2.0 Review of related literature

This section presents a review of both theoretical and empirical studies. First a review of the theoretical framework presenting the philosophy on which the study is based is presented. The other section presents findings of empirical studies on financing higher education with implications on their sustainability.

1) 2.1 Theoretical framework

The main theory used in formulating the theoretical framework for this study is the human capital theory. In Todaro and Smith (2009), human capital refers to any capability of labor when the increase will have a corresponding increase in productivity. Within this framework education is often considered as human capital and the cost associated with it is therefore, considered as a form of investment which can lead to increase in the value of labor productivity. Education is treated as an economic good because it offers the consumers of education with utilities and also serves as an input in the production of other goods and services (Olaniyan and Okemakinde 2008). As a capital good, education can be used as a tool to enhance human resources which are necessary for economic and social modernizations.

The development of human capital theory can be traced back to the work of Adam Smith on "The Wealth of Nations (1776)" who acknowledged education as an investment in human capital and economic development. The basic idea behind the human capital theory is that, an educated population will be more productive and contribute to the economic development of a country. According to Olaniyan and Okemakinde (2008), the human capital theory is based on the assumption that education is highly instrumental and is a vital factor which is necessary to improve the production capacity of a population. Barr (2009) argues that, according to the Human Capital Theory, expenditure on education is treated as an investment and not as a consumer item. An individual acquires this human capital in schooling and post-school investment and on-the-job training. The human capital theory further proposed that higher education is one way of investment in an individual, by incurring a cost for future benefits for both the individual and society at large. These private and social benefits introduce a corresponding private and social cost which forms the basis of cost sharing in higher education in many countries (Johnstone, 2008).Cost sharing is generally thought of as the introduction of, or especially sharp increase in tuition fees to cover part of the costs of instruction, or of user charges to cover more of the costs of lodging, food and other expenses of student living that may have hitherto been born substantially by governments (Johnstone, 2003). On the other hand, countries that put more value on the benefits of higher education will often put a priority on its social benefits and hence implement programmes to finance education fully from state resources.

Although, there is a common agreement to develop human capital for the purpose of economic modernization of countries, student loan schemes in many developing countries resulted in high defaults and abandonment of such loan schemes. Hence a student loan scheme in a poor developing country can lead to further deterioration of the economy due to loss of public revenues. This brings to the fore the need to assess the financial sustainability of the Student Loan Scheme used in facilitating access to higher education in Ghana.

2) 2.2 Empirical literature

The empirical literature presented in this section dwells on related studies on financing higher education in different places all over the world. Moreover, the literature is presented on main themes including the sources of financing higher education, the contribution of the student loan scheme in higher education accessibility and the challenges associated with student loan schemes.

a) 2.2.1 Sources from which students finance their higher education

All over the world, governments are concerned with how to finance their educational systems in the mist of scarce resources. As put forward by World Bank (2010), tertiary education has spelled out the case for knowledge-intensive growth and funding these institutions will become increasingly difficult in the years ahead as school enrolment continues to rise. Each country therefore, devised a unique approach to higher education development that enables it to meet their existing and expected challenges. The Institute for Higher Education Policy (2009) identifies a combination of the different strategies. The key among them cited include government and research grants, student/family personal income, loans, tax incentives, corporate investment strategies, and philanthropic gifts. In

many countries, student loan programmes are an appropriate option for cost sharing (Asian Development Bank, 2009).

In advanced countries such as Germany, two main possibilities used nationally, are the mortgage-type and income contingent loans (Chapman and Mathias, 2011). Further analysis by Chapman and Mathias (2011) revealed that tuition fees at German universities could increase considerably with the use of an income contingent loan system. Hosein and Franklin (2011) explain that student's loan of any sort is deferred payment which includes income contingent loans and graduate taxes along with any conversational form of lending. This suggests that the term "student loan" collectively refers to diverse funding process in higher education. In the view of Dente and Piraino (2014), the expansion of higher educational institutions requires that governments discover alternative funding sources for universities. They articulated that universities might involve the students in meeting the higher education costs by increasing universities fund and reduction of public expenditure on universities. This suggests that one of the ways of funding higher education is cost reduction.

In Mozambique, a new higher education project financed by the World Bank included scholarship fund which was administered on provincial basis (Woodhall, 2004). Woodhall (2004) further pointed out that student loans were considered as an option but was not yet fully implemented because of lack of a definite strategy on re-payment. In Ghana, the state is responsible for tuition fees while other sources such as the student loan scheme have been made available for needed students (Okae-Adjei, 2012). State intervention has been through the establishment of GETFund to finance specific problems including the provision of physical infrastructure (Kwasi-Agyman, 2015). Okae-Adjei(2012) further narrated the transformation in funding through student loan scheme from the Social Security and National Insurance Trust (SSNIT) to the Student Loan Trust Fund (SLTF). The modification of the student loan scheme from SSNIT to SLTF suggests the importance attached to the student loan scheme in financing higher education in Ghana. In Tanzania, the government established Higher Education Student Loan Board (HESLB) through an art of parliament to finance financial facilitation in terms of loans to eligible and needy students as a form of financing higher education (Ally, 2015). This makes student loan in Tanzania a successful mechanism for proving access to higher learning institutions (Nyahende, 2013).

Empirical evidence from Kenya as reported by Gudo (2014) point out the main sources of financing higher education. They include grants from the government in the form of student loans and bursaries. Masaiti's and Shen's (2013) empirical evidence from Zambia support a system of using a student loan to finance the cost of higher education for needy students while allowing others to pay as in the case at Mulungushi University. Furthermore, some developing countries such as Ghana also rely on donor support in financing their education. Thompson and Casely-Hayford (2008) indicate that, donors such as the World Bank, European Union, United States of America, and the United Kingdom became increasingly involved in the provision of financial assistance in support of Ghana's education.

The review of the sources of financing higher education suggests that many countries rely on the use of multiple strategies. In the developing world, cost-sharing strategies; usually through student loan programmes have been adopted. State contribution in such countries normally take the form of tuition fee waiver for students. Specifically, in Ghana, the Student Loan Trust Fund has been adopted under the student loan scheme as an appropriate strategy for financing higher education. However, its contributions to solving students' financial challenges lack proper attention by empirical studies.

Moreover, the review has identified the funding strategies by different institutions. The motivation for student choice of a particular source of finance in order to access higher education services has not been discovered. This means that the empirical literature pays little attention to discovering the factors influencing student choice of financing higher education. This study will fill this void by identifying the determinants of choice of financing source of students in higher institutions.

b) 2.2.2 Contribution of student loans towards students' cost of higher education

For equity and social efficiency reasons, Dente and Piraino (2014) believe that, access to higher education should be independent of students' socio-economic background, but without financial aid, a student from a disadvantaged family might find it difficult to enjoy this basic right. A student loan policy is capable of solving the problem and avoids the regressive effect associated with free access to university at the same time. This suggests that student loan scheme is a strategy of uplifting the financially poor student by granting them access to quality education at the

tertiary level. As a result, governments across the world provide student loans, allowing students to borrow against the lifetime welfare gains created by higher education institutions (Dynarski, 2014). According to Nyahende (2013) and more recently Ally (2015), the success of student loan scheme is noted through its relative advantage of increasing enrolment; thus granting many people access to higher education in Tanzania. This was effective since 2005 after the government has established a body for student loan regulation.

In Romania, student loans policy has facilitated the objectives of higher education objectives in terms of enrolment expansion, income generation, and programme choice (World Bank, 2008). This means that some students could not have been able to fund their tertiary education without accessing the student loans. In Ghana, students use the loans to purchase books, food, make photocopies and even pay their fees (Okai-Adjei, 2012). This implies that most basic needs of students are financed through the student loan scheme in Ghana. In agreement with this view point, Atuahene (2008) added that the new student loan policy in Ghana is very much welcomed by students due to its anticipated impact on making education more accessible to students from disadvantaged socio-economic backgrounds. Samuel *et al* (2012) empirical evidence from Sunyani Polytechnic (Ghana) suggests that beneficiaries of student loans spend the amount mostly on course of study and living expenses. This confirms the general notion that student loan schemes represent a significant intervention in financing higher education in Ghana.

However, Ally (2015) experience from Tanzania suggests that student loan scheme has failed to support eligible students and needy poor students, and also failed to recover educational costs as expected. This suggests that some factors influence student access to student loan schemes but has not been discovered. This invariably will affect the extent to which the loan scheme can contribute to students successful financing of their cost of education at the highest level.

c) 2.2.3 Challenges students face in accessing the student loans

Despite the significant role played by student loan schemes in financing higher education in different parts of the world, empirical studies have identified some associated weakness that threatens its sustainability. In Ghana, participants, particularly parents, students, and administrators were dissatisfied with the late disbursement of the loan (Okae-Adjei, 2012). Monitoring of loans sometimes becomes difficult for Management of student loans. Ally's (2015) empirical investigation supports this submission. He maintains that hasty and inadequate planning and designing of student loan schemes in their preliminary stages put management in an awkward position in tracing beneficiaries of loans. This means that extremely generous loan repayment conditions prohibit it from being a cost-effective policy alternative for higher education financing. Drawing his empirical evidence from Tanzania, Ally (2012) further discovered that loan disbursement decisions do not ensure a fair share in practice because the loan budget allocation for priority courses always ignores the scheme's central objective. These challenges suggest that loan schemes in some countries, especially, in developing countries are likely not to be financially sustainable.

Besides, for most higher education institutions, there is an increasing competition with other sectors of the economy for government funding leading to a resultant drop in state funding for higher institutions. This compels universities to intensify their search for non-state funding (Hosein and Franklin, 2011). The argument put forward by World Bank agrees with empirical studies on the challenges confronting student loan schemes. The World Bank (2010) points out that, tertiary education development that relies on only state funding is unsustainable resulting in a decline in quality of education. This means that student loan schemes management by public institutions are characterized by a high probability of failure. One other challenge facing the student loan schemes in financing higher education is the lack of data for management decision. Dynarski (2014) found out that a well-structured repayment programme would ensure borrowers against shocks; but designing such a programme requires detail data on individual earnings which are currently unavailable to researchers.

Other factors such as historical and political challenges also affect the efficient administration of student loan schemes. Kwasi-Agyman (2015) maintains that due to historical, political and economic challenges facing the government of Ghana, public sector reforms are not at the same pace with reforms undertaken in Western countries. Nyahene (2013) also added his experience from Tanzania. He argues that some political, economic and family influence can affect the loan scheme such that proper implementation alone is not sufficient. He concluded that the administration of student loan should incorporate these external forces in planning. Atuahene (2008) has noticed that the loan collection grows at a slower pace compared to payout loan, and this suggests that the rate of defaulters will increase. Atuahene submission therefore, implies that the student loan scheme in Ghana is most likely not to be sustainable.

The literature suggests that the student loan scheme programmes that have been adopted by many countries as a cost-sharing strategy are very useful in granting access to higher education. The literature also implies that the contribution of such schemes to financing higher education has been acknowledged by stakeholders. However, the challenges associated with the scheme in different countries suggest that its sustainability is threatened in the absence of effective control measures. The case of Ghana is not different. Students today have been able to partly meet their educational cost through the SLTF. Despite this, the sustainability measures arguments put forward by empirical studies suggest that the future sustainability is still under threat. This brings to light the need for assessing the role of the student loan scheme in accessing higher education with implications on its sustainability with empirical evidence from the university for Development Studies, Wa Campus.

B. 3.0 Methodology

1) 3.1 Study Area

The University for Development Studies was established by the Provisional National Defense Council (PNDC) Law 279 of the 1992 Constitution of Ghana. The Wa campus of the University for Development Studies was established on 14th September 2002 with a single faculty called Faculty of Integrated Development Studies with very few students at Wa; the regional capital of the Upper West Region of Ghana. This however grew to have other faculties such as; Faculty of Planning and Land Management (FPLM), and the School of Business and Law (SBL). The campus serves over 12,000 students who maybe full time or part time students reading Diploma, undergraduate and graduate programmes.

2) 3.2 Study Design

A survey was conducted to collect primary data from students of Wa Campus, University for Development Studies. Survey design usually produces a 'snapshot' of a population at a particular point in time. A survey has several characteristics and several claimed attractions. Typically, it is used to scan a wide field of issues, populations, programmes etc. in order to measure or describe any generalized features (Cohen *et al*., 2007). The survey method can be used for descriptive, exploratory, or explanatory research. This method is best suited for studies that have individual people as the unit of analysis (Bhattacherjee, 2012). The relative strength of the survey method informs the choice of it for this study.

3) 3.3 Population and sampling

The population of the study consists of students of the University for Development Studies, Wa-Campus that are currently enrolled in various undergraduate programmes. The current population of students of the Wa Campus is 7,409. This consists of 2,098 students from the Faculty of Integrated Development Studies (FIDS), 1,811 students from the Faculty of Planning and Land Management (FPLM), and 3500 students from the School of Business and Law (SBL).

The sample size was estimated using statistical procedure proposed by Miller and Browser (2003). The formula is given as:

$$n = \frac{N}{1+N(e)^2}$$

Where n = sample size; N= sample frame and e = error or significance level. According to Ahuja (2001), an acceptable error level traditionally is up to ± 0.05 or ± 0.10 (i.e., 5 or 10 percentage point). In this study, N = 7409, e = 10%.

Hence the estimated sample size for the study is

$$n = \frac{7409}{1+N(0.1)^2} = \mathbf{380}$$

Probability sampling; specifically, multi-stage sampling procedure was used in the selection of respondents. The first stage of selection used a simple random sampling technique to select one department from each of the faculties. The second stage again used simple random sampling to select students from the departments selected at the first stage.

The sampling distribution according to faculties and departments is shown in Table 1.

Table 1:- Sampling Distribution of Respondents.

Faculty	Population of students	Proportion	Sample size
FIDS	2098	0.283	108
FPLM	1811	0.244	93
SBL	3500	0.472	179
Total	**7409**	**1**	**380**

Source: Author's Construct (2017)

The respondents were identified using their Index Numbers. Microsoft Excel was used to generate random numbers which were then used to identify the specific respondents. The data were collected using a questionnaire. The respondents were all literates and hence could read and administer the questionnaire themselves. The questionnaires were therefore, distributed to the respondents and retrieved.

4) 3.4 Methods of data analysis

The retrieved questionnaires were edited and given codes. The data were entered into the SPSS spreadsheet for further transformation of the variables. Both descriptive and inferential statistics were used in the analysis of the data. Specifically, the sources of financing for students were identified and presented using descriptive statistics. Measures of central tendency and variations were the main descriptive statistics used. Besides, the contribution of student loans to financing their higher education was also analyzed using proportions and means while the challenges confronting students in accessing the Student Loan Trust Fund were identified and presented using frequencies tables. The factors influencing students' choice of accessing student loans were identified using probit regression model. The analytical framework of the probit model is presented as follows:

Analytical framework:-

Student decision to utilize Student Loan Trust Fund in financing higher education

The individual's decision to utilize the SLTF is dichotomous, involving two mutually exclusive alternatives. The individual either accesses and uses the SLTF or does not. Models for estimating such phenomena in which the dependent variable is binary have been propounded (Green, 2005; Cameron and Trivedi, 2005; Wooldridge, 2006). The framework for such analysis has its root in the threshold theory of decision making in which a reaction occurs only after the strength of a stimulus increases beyond the individual's reaction threshold (Hill and Kau, 1981). This implies that, every individual when faced with a choice has a reaction threshold influenced by several factors.

In this study, the dependent variable of interest is access to the SLTF generated through the *Bernoulli process*. A student decision to access the SLTF assumes a value of 1 and 0 if otherwise. The framework for this analysis was the probit regression model. The probit model takes the form:

$$y_i = \begin{cases} 1 & y_1^* > 0 \\ 0 & otherwise \end{cases}$$

y_1^* is the latent variable that cannot be observed while y_i takes the value of 1 if the event occurs and 0 if otherwise. The probability (P_i) of an *i*thstudent to access SLTF or not depends on an unobservable latent variable y_i determined by the prevailing socioeconomic and institutional factors **X**. Guided by related literature (e.gCameron and Trivedi (2005), the probit model specifies the conditional probability as:

$$P_i = \Pr\left[y_i = {}^1/_X\right] = \emptyset(\boldsymbol{X}'\beta) \qquad (1)$$

Where **X** is a "**K by 1"** vector of socioeconomic and institutional factors and $\boldsymbol{\beta}$ is "**1** by **k"** vector of slope parameters. Cumulative density function is used to restrict the probability values to 0 and 1. The probit regression is a non-linear model hence parameter estimates are often obtained by maximum likelihood estimation method specified as follows:

$$\emptyset(X'\beta) = \int_{-\infty}^{X'\beta} \emptyset(Z)dZ \qquad (2)$$

Where $X'\beta$ is the index function and

$$\emptyset(Z) = \frac{1}{\sqrt{2\pi}} e^{-\frac{1}{2}Z^2} \qquad (3)$$

Substituting equation (3) into equation (2) and rearranging yields

$$\emptyset(X'\beta) = \frac{1}{\sqrt{2\pi}} \int_{-\infty}^{X'\beta} e^{-\frac{1}{2}Z^2} dZ \qquad (4)$$

Taking the inverse of the cumulative normal function in equation (4) gives estimates of the index *Z*. For symmetric distribution,

$$y_i = \emptyset^{-1}(P_i) = X'\beta + \mu_i \quad (5)$$

The marginal effect is the change in the *j*thregressor on the conditional probability that an individual student accesses SLTF is derived as

$$\frac{\partial P_i}{\partial x_{ij}} = \emptyset(X'\beta)\beta_j = \emptyset[\emptyset^{-1}(P_i)]\beta_j \quad (6)$$

The empirical probit model is specified as:

$$Probit(SLTF) = \beta_0 + \beta_1 \text{GEN} + \beta_2 AGE + \beta_3 \text{EMPLY} + \beta_4 \text{EMP\_INCM} + \beta_5 \text{GDN\_ICM} + \beta_6 \text{EXPNS} + \beta_7 \text{GRT} + \beta_8 \text{KNWGE} + \mu_i$$

The variables definitions, unit of measurement and hypothesized relationships are presented in Table 2.

Table 2:- Variables Definition, Units of Measurement and Hypothesized Relationships

Variable	Definition	Unit of measurement	Sign
Dependent			
SLTF	Access to SLTF	Dummy (Yes=1, 0=otherwise)	
Independent			
GEN	Gender	Dummy (Yes=1, 0=otherwise)	+/-
AGE	Age of Respondent	Years	+/-
EMPLY	Employment	Dummy (employed = 1, 0 =otherwise)	-
EMP_INCM	Income from employment	Ghana Cedis	-
GDN_ICM	Guardian income	Ghana Cedis	-
EXPNS	Annual expenses	Ghana Cedis	+
GRT	Availability of a guarantor	Dummy (Yes = 1, 0 = otherwise)	+
KNWGE	Knowledge on SLTF	Dummy (Adequate = 1, 0 = otherwise)	+

C. 4.0 Results

This section presents the results and discussion of the study. The first analysis of the results is done on the background characteristics of the respondents. Other main issues discussed include the sources of financing higher education, the relative contribution of the SLTF to financing higher education, and the factors influencing students' access to the SLTF.

1) 4.1 Background Information on Respondents

The results of the study provided evidence of the background characteristics of the respondents. As shown in Table 3, the majority (61.6%) of them were male students with a smaller proportion (38.4) being females students. The respondents are students but have different categories of employment status. It was discovered that 37.4% were employed on part-time bases, 3.2% on full-time bases while 59.5% were unemployed. The employment status suggests that some of the students can contribute in their own way towards meeting the cost of their higher education. On the other hand, those who are not employed will rely on their parents or some funding schemes in financing their higher education. Further analysis revealed that the respondents have a minimum age of 19 years, a maximum of 42 years and a mean age of 24.54 years. This suggests that all the undergraduate students fall within the youthful population.

Table 3:- Background Information on Respondents

Gender	**Frequency**	**Percent**
Male	234	61.6
Female	146	38.4
Total	**380**	**100.0**
Employment status	**Frequency**	**Percent**
Part-time employment	142	37.4
Full-time employment	12	3.2
Unemployed	226	59.5
Total	**380**	**100.0**

Variable	**N**	**Minimum**	**Maximum**	**Mean**	**Std. Deviation**
Respondent's age	380	19	42	24.54	5.780

Source: Field Survey (2017)

2) 4.2 Students' Sources of Financing Higher Education

Multiple sources on which students rely in financing their education were identified. From Table 4, the sources identified include students own earnings, parent/guardian income, scholarships, and the Student Loan Trust Fund (SLTF). It was discovered that 66.8% of the students use their own earnings in financing their education, 91.6% rely on their parents/guardians, 4.7% have access to scholarships and 39.2% use the SLTF in financing their education.

Table 4:- Sources Financing Higher Education

Sources use in financing the cost of education	Frequency	Percent
Own earnings	254	66.8
Parents/Guardian income	348	91.6
Scholarship	18	4.7
SLTF	149	39.2

Source: Field Survey (2017)

The results suggest that parents/guardian income is the most common source of financing student higher education. Besides, many people do not have access to scholarships as sources of financing higher education. The sources of financing higher education as identified in this study consist of the empirical literature. For example, the argument put forward by the Asian Development Bank (2009) that a student loan scheme is an appropriate option for cost sharing has empirical evidence in the University for Development Studies, Ghana. However, other important sources such as tax incentives, corporate investment strategies, and philanthropic gifts identified by the Institute for Higher Education Policy (2009) has no evidence in the case of the University for Development Studies.

Further analysis of the amount of earning from the various sources was done and the results presented in Table 5. The results indicate that students' own earning is up to a maximum of GH₵1540.00 and a mean of GH₵744.21. This is the source with relatively smaller average earnings among the students. The results also indicate that parents/guardian income on average is GH₵111.00 while that of a scholarship is GH₵1594.74. This indicates that parents earning is also less than that of the average value of a scholarship. Finally, the value of the SLTF varies between GH₵1500.00 and GH₵3000.00.

Table 5:- Earning From Specific Sources (in Ghana Cedis)

Sources of Earnings	N	Min	Max	Mean	Std. Dev.
Own earnings	380	0.00	1540.00	744.21	588.58
Parents/Guardian monthly income	380	0.00	4700.00	1110.00	1366.69
Scholarship	380	0.00	2000.00	1594.74	425.41
SLTF	149	1500	3000.00	1861.84	716.55

Source: Field Survey (2017)

The results do not just mean that the value of the SLTF is higher than the other sources of earning since that was obtained for the whole academic year. Parents/guardian income and Students own earnings were recorded on monthly basis. However, the SLTF can have a relatively larger contribution towards meeting the expenditure of the student since it has been designed for that purpose. This assertion holds on grounds that parents' income will be used in meeting other household expenditures besides financing students' higher education.

The results of the survey include an analysis of the expenditures of students in an academic year. The main expenditure streams identified include payment of user fees, living expenses, accommodation expenses and cost of purchasing study materials. The descriptive statistics in Table 6 indicate that students pay an average of GH₵4420.59 in an academic year with a minimum of GH₵2900.00 and a maximum of GH₵6300.00. Among the various expenditure streams, living expenses constitute a relatively larger proportion with an average expenditure of GH₵2184.84. The standard deviation for living expenses is wide (1698.46) and this suggests wider variation in expenditure among students. On the other hand, the standard deviation for user fees, accommodation and cost of study materials are relatively smaller and this means smaller variations in these expenditures.

Table 6:- Student Expenditure (in Ghana Cedis)

Expenditures	N	Minimum	Maximum	Mean	Std. Deviation
Payment of user fees	380	1000.00	1500.00	1311.32	230.52
Living expenses	380	800.00	5800.00	2184.84	1698.46
Accommodation	380	400.00	1600.00	490.00	230.04
Study material (e.g. books)	380	100.00	600.00	342.37	154.34
Total Expenditure	**380**	**2900.00**	**6300.00**	**4420.59**	**745.48**

Source: Field Survey (2017)

The results suggest that students incur more living expenses than the other aspects of their expenditure. The next higher expenditure is payment of user fees, followed by accommodation expenditure and then study materials.

3) 4.3 Relative Contribution of Different sources to Financing Higher Education

The students rely on different sources for financing their various expenditures. The survey results revealed as indicated in Table 7 that, in terms of user fees, a greater proportion of them (47.9%) use parents/guardian income for payment, 30.8% pay with the SLTF, 16.6% use their own earnings to pay while the remaining 4.7% use scholarships fund to pay. this means that many parents are responsible for payment of their wards user fees.

In terms of living expenses, 42.4% of the students rely on their own earnings, 40.5% rely on their parents/guardians support, and 16.8% use SLTF for meeting their living expenses. Only 0.3% of the respondents use scholarship funds for living expenses. The findings suggest that many of the students straggle on their own; combing studies and employment whether on full-time or part-time basis to meet their living expenses.

It was also revealed that financing of student accommodation is done through the use of varied income sources. From Table 7, 41.3% of the respondents use their own earnings, 30.55 rely on their parents/guardians support, while 28.2% use funds from the SLTF. The distribution does not show a wider disparity in terms of the proportion of different source contribution to financing accommodation expenditures. Moreover, analysis of student financing of their acquisition of study materials shows in Table 7 that 38.2% of the students use their own earnings, 29.7% rely on their parents/guardians support while 32.1% use the SLTF. The distribution suggests little variation in terms of the proportion students using different sources in financing their cost of acquiring study materials.

Table 7:- Financing Expenditures

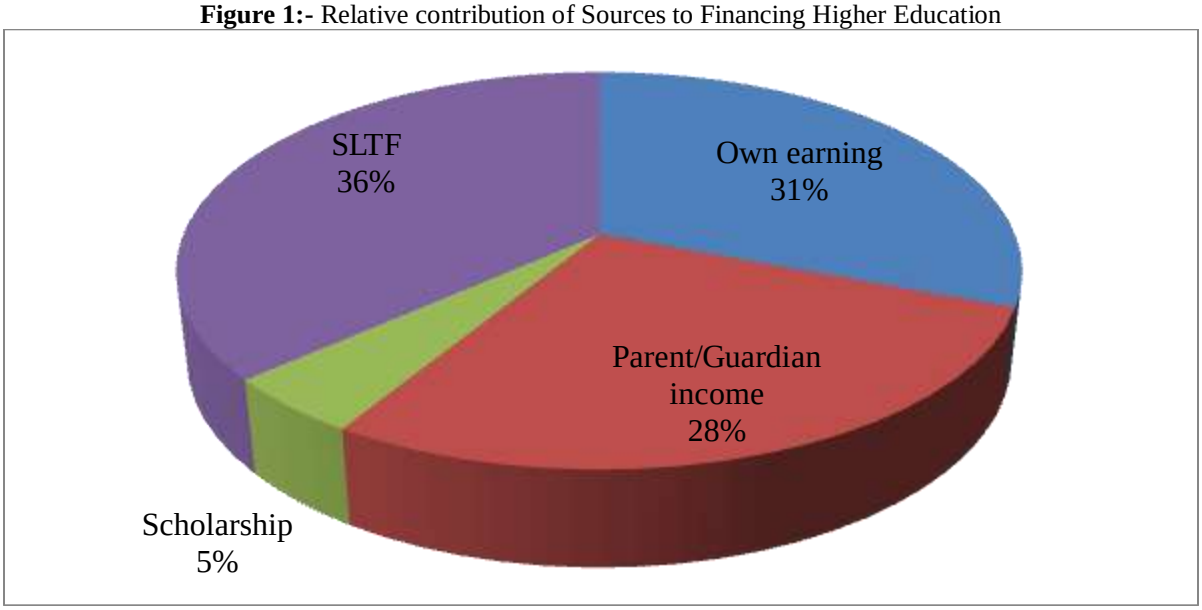
Variable	Frequency	Percent
Payment of user fees		
Own earnings	63	16.6
Parent/guardian	182	47.9
Scholarship	18	4.7
SLTF	117	30.8
Total	**380**	**100.0**
Living expenses		
Own earnings	161	42.4
Parent/guardian	154	40.5
Scholarship	1	0.3
SLTF	64	16.8
Total	**380**	**100.0**
Accommodation		
Own earnings	157	41.3
Parent/guardian	116	30.5
SLTF	107	28.2
Total	**380**	**100.0**
Study materials		
Own earnings	145	38.2
Parent/guardian	113	29.7
SLTF	122	32.1
Total	**380**	**100.0**

Source: Field Survey (2017)

The results on the financing of expenditures of students revealed that SLTF is often used in financing the expenditures on study materials, accommodation and user fees. This is consistent with the finding of Okai-Adjei (2012) and Samuel *et al* (2012) who unanimously maintain that students in Ghana use student loans to purchase books, food, make photocopies and even pay their fees. Other sources of students' earnings are used in financing the other expenditures shown in Table 4.6.

The respondents were asked to indicate which of their sources of finance contribute most to the financing of their education and the results are shown in Figure 1. From the figure 36% indicate that the SLTF contribute much to financing their education, 28% maintain that their education is much financed by their parents/guardians, 31% indicate their own earnings is used in financing greater part of their education, while only 5% maintain that scholarship funds contribute much to meeting their expenditures in education.

Figure 1:- Relative contribution of Sources to Financing Higher Education



Source: Field Survey (2017)

A review of the findings in Table 2, compare with Figure 1 suggests that the SLTF contributes much to financing students' higher education among the various sources of finance. This means that those who have access to SLTF rely mainly on it for meeting the cost of their higher education. Among the 39.2% who have access to the SLT, 36% rely on it much in financing their education. Hence the empirical observation of Ally (2015) from Tanzania that student loan schemes have failed to recover the educational cost of students has not been confirmed by this study. This suggests that the SLTF programmes in Ghana can be better than those in other countries especially, Tanzania. On the other hand, among the 91.6% that has access to parents/guardians support, only 28% rely on it much in meeting the cost of their education. Besides, for the 66.8% of the respondents that earn income on their own, only 31% rely on it much for financing their education. The same proportion of students with access to scholarship also rely on it much for meeting the cost of their education. All these evidences suggest that the SLTF can be a sustainable source of financing higher education in Ghana.

The results therefore, imply that the SLTF is an important source of financing higher education among students of the University for Development Studies. However, only a few students have access to the SLTF as a source of financing their education. Several of the students who are financing their education with personal earnings or rely on their parents/guardians income could be redeemed by the SLTF if they have had the relative access.

4) 4.4 Factors Influencing Access to SLTF

The survey results include an analysis of the factors influencing students' access to the SLTF. Access to SLTF; measured by whether the student is currently benefiting from the SLTF or not was considered as a binary response variable which indicates the value of 1 if a student accesses it and 0 if otherwise. The student's decision to access

SLTF was regressed (using probit model) on eight (8) predictors which consist of demographic variables of students, economic variables and variables relating to the SLTF. Table 8 shows the probit regression estimates of the coefficients (coef.), standard errors (Std. Err.), Z-values (Z), significance level (probability greater than Z[P>Z]), the confidence interval and marginal effects. The results were generated using Stata version 12. The summary statistics of the regression model reveled a Likelihood Ratio Chi-square value of 184.16 which is significant at 1%. This means that the independent variables jointly explain access to the SLTF.

Out of the eight explanatory variables used in the model, five were found to have a significant influence on access to the SLTF. From Table 8, the variables with significant influence on access to the SLTF include age (AGE), employment status (EMPLY), income from own employment (EMP_INCOME), availability of a guarantor as a proxy for ease of accessing the SLTF (EASY_GRT), and adequate knowledge in the SLTF (KNWGE). However, gender, (GEN), parent/guardian income (GDN_ICM), and student annual expenditure (EXPNS) were found not to have a significant influence on access to the SLTF.

Table 8:- Probit Regression Estimates of the Factors Influencing Access to SLTF

Variables	**Coef.**	**Std. Err.**	**Z**	**P>Z**	**[95% Conf. Interval]**		**Marginal Effects (%)**
					Lower	**Upper**	
GEN	-0.263	0.1710	-1.54	0.124	-0.5982	0.0720	-9.62
AGE***	-0.096	0.0184	-5.23	0.000	-0.1321	-0.0601	-3.55
EMPLY**	0.460	0.1918	2.4	0.017	-0.0837	0.8355	17.06
EMP_INCOME***	-0.001	0.0002	-3.82	0.000	-0.0010	-0.0003	-0.02
GDN_ICM	-0.000	0.0002	-1.56	0.119	-0.0008	0.0001	-0.01
EXPNS	0.000	0.0002	0.73	0.468	-0.0003	0.0006	0.01
EASY_GRT***	1.204	0.1852	6.5	0.000	0.8406	1.5665	39.36
KNWGE***	0.905	0.1653	5.48	0.000	0.5813	1.2294	32.40
Constant	2.516	0.9088	2.77	0.006	0.7343	4.297	
Number of observation = 380, LR chi^2(8) = 184.16, Prob > chi2 = 0.00, Pseudo R^2 = 0.3618, Log likelihood = -162.4							

Source: Field Survey (2017) *** = significance at 1%, ** = Significance at 5%

The results in Table 8 have shown that the coefficient of student age is negative and significant at 1%. This means that the age of a student has a significant negative relationship with access to the SLTF. Relatively younger students have a high probability of accessing the SLTF than the old students. The marginal effect of age was estimated at 3.55% and this means that additional year of age decreases one probability of accessing SLTF by 3.55%. One possible explanation for this observation is that, very young students often transit from high school directly into the University and have limited opportunities for financing their education themselves. Such category of students may rely on government intervention such as the SLTF.

It was expected that students with employment would have enough financial security and hence will be complacent with their earning and will not need the SLTF. However, the results are otherwise. From Table 8, the coefficient of employment was significant at 5% but positive which means that students employment has a positive influence on access to SLTF. Further interpretation of this is that students with employment have access to the SLTF more than those that are unemployed. The marginal effect of 3.55% means that students with employment have 3.55% of probability of accessing the SLTF than those without employment. It was expected that students with employment opportunities would not have had difficulties financing their education and hence are more likely to access SLTF. However, the fact that employed students can easily pay back their loans after graduation will give people/institutions the confidence to offer their support as guarantors.

Income from student employment was also included in the model of access to the SLTF. From Table 8, the coefficient of EMP_INCOME is negative and significant at 1%. This means that more income from employment has a negative influence on access to the SLTF. This means that students with more income from employment are more likely not to access the SLTF than those with low incomes. The marginal effect is 0.02% which means that additional 1 GH₵1.0 to employment income will reduce the probability of accessing the SLTF by 0.02%. From the forgoing discussion, employment has a positive influence on access to the SLTF but this means that as income from the employment opportunity increases, there is the tendency for the student not to access the SLTF.

Ease of accessing the SLTF measure by the relative availability of guarantor was also included in the model of access. The results point out that the coefficient of EASY_GRT is positive and significant at 1%. This means that students who find it easy getting a guarantor are more likely to access SLTF than their counterparts who find it difficult getting a guarantor. The marginal effects suggest that, having it easy getting a guarantor is associated with 39.36% likelihood of accessing the SLTF than those who find it difficult getting a guarantor. Students who cannot find guarantors have to resort to corporate institutions, Metropolitan/Municipal/District Assemblies, and other religious bodies to guarantee them which in most cases is also very difficult.

Finally, the results revealed that knowledge on the mode of operation of the SLTF also influences student probability of accessing the fund. It was discovered that the coefficient of this variable (KNWGE) is positive and significant at 1%. This means that students with adequate knowledge of the operation of the SLTF are more likely to access the fund than those with little or no knowledge. The marginal effect is 32.4% and this means that having adequate knowledge of the operations of the programme is associated with 32.4% of accessing the fund than those who have no knowledge. The possible reason may be that people with knowledge of the operation of the scheme will be satisfied with the conditions and hence have no fear of the consequences of the fund. Such students will therefore have the confidence to access the fund than those without knowledge of the programme.

Conclusion:-

The results of the study imply that different sources of financing higher education are available for students of the University for Development Studies. It is rare to find students financing their higher education from a single source. However, the intensity of use of the sources in financing education depends on several factors including having an employment opportunity while in school, having parents/guardians with sustainable income to cater for one's education, and having access to a scholarship or the SLTF. Many students rely on their parents support to finance their education but SLTF is very effected among those who benefit from it. The sustainability of the SLTF is only relevant if its coverage is universal such that all students who are willing can benefit from it. The SLTF has been considered as a sustainable source of financing higher education for those who benefit from it. Access to the SLTF has the potential of relieving students from the financial burden of higher education. However, demographic variables, economic variables and variables relating to the operations of the SLTF significantly influence the probability of students to access it.

Recommendations:-

The study has revealed that students rely on multiple sources for financing their education. However, those benefiting from the SLTF consider it useful because it contributes to a greater proportion of their educational expenditure. The government of Ghana is therefore, advised to find ways of motivating all students to apply for it and hence benefit. This is necessary because the students who combine employment with academic work can be relief from the pressure of their employers while having maximum time for their studies. It is also recommended that efforts to facilitate students' access to the SLTF should consider increasing sensitization on the operation of the programme. This is necessary because, knowledge of the operation of the scheme will significantly influence access. Other strategies should include ways of identifying beneficiaries after graduation to pay their loans. The use of guarantors still restrict some people from getting access.

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