

The Economic Factors That Determine Students' Academic Performance In Ethiopian Higher Education: Dambi Dollo University In Focus

Kidane Alemu^{1*}, Mosisa Dechasa², Shemshedin Mohamed³, Eshetu Beyene

¹ College of Business and Economics, Dambi Dollo University, Ethiopia * kidanealmu@gmail.com

² College of Business and Economics, Dambi Dollo University, Ethiopia

³ College of Agriculture and Veterinary Medicine, Dambi Dollo University, Ethiopia

⁴ College of Business and Economics, Dambi Dollo University, Ethiopia

Abstract

Modern economic growth the direct and indirect relate of human capital which in turn comes from education, training, research and development. Therefore, Using cross-sectional data drawn from sampled students in undergraduate programs in Dambi Dollo University during second semester of 2019 academic year, the study assessed and identified the major economic determinants of students' academic performance and success. The regression results consistently found significant effect of student's parental income, student average pocket money and student financial constraint on students' academic performance measured in Cumulative Grade Point Average (CGPA). With regard to student academic success, the marginal effects of the Logit estimates revealed that higher parental income and higher students' average monthly income will increase the likelihood of student academic success. While the more financially constrained the student is, the higher will be the likelihood of the academic failures. The findings are reliable and dependable at 95% confidence interval and 5% level of significance; and thus should get appropriate policy action from the university. Further researches are required to look at the effects non-economic determinants (environmental, psychological, social, etc.) on students' academic performance and success.

Keywords: economic determinant, economic development, economic growth, human capital, student performance,

1. Introduction

The national policy of Ethiopia on education recognizes education as a pillar growth, development and a means to alleviate the wide spread poverty, famine and income inequality in the country. Thus, the Ethiopian government has been striving to achieve the expansion education of all levels thought the country to all citizens and to remove all the barriers standing out against the quality of the education (Ethiopian Government Review, 2015). The recent curriculum revisions and the built of eleven new generation

universities in the country confirm that higher education has get considerable attention in Ethiopia.

On the other hand, student drop outs in the public universities has been rising. The reports of registrars of different universities show that the attrition rate is up to 15 percent. Majority of the students drop out from the universities are observed leaving the campus at the year they join the universities. In Dambi Dollo University, the dropout rate in 2019 was 14%. And one should note that students are the wealth of any higher

education institution and thus the academic success of the students should matter. And evaluation of the performance of higher education of students can be one of the ways through which the society could build a civilized nation, and it can be done through investigating the factors that determine performance of students in higher education. And the performance of students can be influenced by economic, social, personal and even political factors in developing countries (Mudhin, 2016). For instance, the university infrastructure, individual and family background, parental income and educational levels, student's natural talent and personal behaviors, student's working (studying) hour, student's income and gender are among the factors identified in the contemporary literatures.

However, it is difficult to know what is the criteria of judging it when one focuses on analysis of educational performance. Consequently, analyzing the link between productivities and efficiency with that performance will provide answer to this basic challenge. Because it is clear that productivity denotes the trend of productiveness of the factors of production or a relationship between output and inputs over a period. And efficiency has a number of facets: the rate at which inputs generate output, the utilization of inputs to produce output and the potential output which may be obtained from specific inputs (Bailey and Hubert; 1980).

In analyzing efficiency of education, a combined factors like school environment, individual and family back ground, social classes, parental income and educational level, students ability and initial level of learning and a variety of peer group pressure can be considered as inputs of education and grade point averages (GPA) as output of education (Atkinson et al,1983) as cited in Kirubel(2009).In doing so we can measure the degree of success of students in achieving objectives(scoring good GPA which is output of higher education) there by the student's college performance which is influenced by some factors-inputs of education because efficient use of inputs will give competitive output, which is GPA in this case and then lead to good performance.

And according to different researchers (egg Ali et al, 2005), student performance is directly linked with social, political and economic development of a country. Academic success is a great influence on student's motivation, self-esteem, and perseverance in higher education. Low academic achievement or high failure rates may result in unacceptable levels of dropouts, reduced graduate throughput and increased cost of education. This also reduces admission opportunities for tertiary students seeking post-graduate programs or higher degrees. Hence, students' academic performance has always been a topic of interest for educators and researchers. Educators and researchers from various steams like economics, sociology and psychology have long been interested in identifying and understanding the factors that contribute to academic performance (Ali et al., 2013).

Although measuring the students' performance and identifying the determinants of students' performance has got considerations yet, it is still the challenging theme in educational and economic literature. Some researchers found different results depending on at what country, university, time and program the study is conducted. While some other researchers found similar results in investigating the same topic of study.

For instance ,a recent studies such as Kanagi et al.(2015),Islam(2014) and Ali et al.(2013) imply that the variables that affect student performance varies from place to place, time to time, program to program and country to country. Moreover, a number of studies conducted on similar topic in Ethiopian universities such as Mudhin(2016), Woldegergis and Awel(2013) and Bitew et al(2010) among others witness that such factors are varying even from university to university within the same county.

Moreover, the existing empirical literatures also indicate that the methodology followed is critical and thereby the results would depend on it. Therefore, this research is an attempt to: to focus on specific economic variables (by excluding non-economic ones), expand the choice of research approaches (that is, by adapting a mixed approach) and see outcome at different place (that is,Dambi Dollo University, one of the public

higher education institution in Ethiopia), time (that is, 2018) and on different students (that is, DaDU regular students).

1.1 Research Questions

- What are the important economic factors that affect students' academic performance in Dambi Dollo University?
- What are the important economic factors that more likely increase a probability of attrition or drop out (dismissal) of in Dambi Dollo University?
- Which factors or variables are more potent and statistically significant in determining the students' academic performance attrition rate?

1.3 Working Hypothesis

The study is based on the following null hypotheses:

Ho₁: There is no significant relationship between student's average monthly pocket money and students' CGPA.

Ho₂: There is no significant relationship between student's financial constraint and students' CGPA

Ho₃: There is no significant relationship between student's parental monthly income and students' CGPA

Ho₄: There is no significant relationship between student's smart phone ownership and students' CGPA.

Ho₅: Student dropout likelihood is not significant of the student economic variables.

1.4 Definition of Key Terms

- a. **Academic Performance:** Is the output of students on different courses that they took in specific field of study and it is usually measured by Grade Point Average (GPA) or Cumulative Grade Point Average (CGPA) interchangeably within a semester(s).
- b. **Academic Success:** As indicated in the new nationally harmonized academic policy of Ethiopian Higher institutions, Academic success can be operationally defined related to Graduation Requirement. Thus, it can be restated that academic success is the ability of a student to score No 'F', 'NG', or 'I' grade in any course taken and achieve

minimum Cumulative Grade Average Point (CGPA) of 2.00 in all courses.

2. Theoretical Review

2.1.1 The concept of Human Capital

According to Garry Becker, human capital refers to expenditure on education, training, medical care, etc which produce human not physical or financial resources. As to Peter (1998), human capital is the time, experience, knowledge and abilities of an individual household or a generation which can be used in the production process. Human capital investment is also an activity which increases the quality (productivity) of labor. It includes not only expenditures on formal education and job training but also expenditure on health, migration, job search and the pre-school nature of children.

Education is fundamental to enhancing the quality of human life and ensuring social and economic progress (Todaro and Smith, 2009). According to Todaro (2009), education is among the key factors contributing the greater share to human capital development and human capital is the underlying issue of economic progress. This suggestion implies that critical investigation on educational institutions and effective educational policies are crucial for the development of the society. Among these situations that need critical investigation, evaluating the performance of education at its different level is the important one.

Human capital activities involve not merely the transmission and embodiment of available knowledge in political people but also the production of new knowledge, which is the source of innovation and technological change. Without new knowledge it is doubtful that larger qualities of existing physical capital and more-wide spread education and health would create a continuous growth in sense that is of the growth of systematic scientific knowledge (Mincer, 1993).

The history of economic growth and development in education are strongly related. No country has achieved sound economic growth without development in its education. Education is a means for developing human resource. It is also

crucial for economic growth and strategy of poverty reduction. Widespread education and human resource is crucial for economic growth and strategy of poverty reduction. Widespread education and human resource development is believed to have played a key role in the rapid growth and development of newly emerging East Asian economies. The crucial human resource needed for bringing about sustainable economic growth and reduce the widespread poverty in the country can only be obtained through wide spread education (World Bank, 2004)

2.2 Empirical Review

The academic performance of students in universities is a concern not only to the parents, administrators and educators, but also to companies in the labor market. Determinants of students' performance have received considerable attention in the economics and education literature. Student performance is generally viewed as product of socio-economic, psychological and environmental factors. Hence, the factors are expected to vary from place to place (Ali et al, 2013). So far, such important factors that affect student performance have been investigated by several researchers in different parts of the globe.

As of Kanagi et al (2015) students' academic performance is strongly determined by Cumulative Grade Point Average (CGPA) of entry qualification in Malaya University, Malaysia. But the study outcome revealed that gender and place of origin are insignificant determinants of student's CGPA

According to Islam (2014);pre-admission qualification, level of attendance, probation status, time spend in study, father's education, parental support and involvement, major subjects of study, and gender of the students have been identified a significant determinants of academic success of students in Sultan Qaboos University (SQU), Oman.

Ali et al (2013) examined the factors affecting academic performance of graduate students of Islamia University of Bahawalpur Rahim, Pakistan. Using linear regression model, correlation analysis, and descriptive analysis, the result shows that age, father/guardian social

economic status and daily study hours significantly contribute the academic performance of graduate students. In the same country, Mushtaq and Khan (2012) identified that communication, learning facilities and proper guidance shows the positive impact on the student performance. However, the family stress shows the negative impact on the student performance but the significant level is high.

Al-Mutairi(2011) investigated the factors affecting student performance in Arab Open University, Kuwait. The data were analyzed by using Ordinary Least Square (OLS) and by adopting multiple regression .The result reveals that the Grade Point Average (GPA) of the student is affected by gender, age, marital status, score of the high school and nationality. In addition, the study outcome shows that younger students perform better than mature students and non-national students perform better than national student.

Cumhur(2007) by using ordered Probit model found that family variables ,interest ,number of sisters and week student variables are statically significant at one, five and ten percent significant level and positively related to the dependent variable. The variables gender, father's educational level, mother's educational level and family expectation are statically significant at one, five and ten percent significance levels and negatively related to the dependent variable. As he illustrated that the largest impact on probability of getting higher CGPA comes from the variable of fine voc, and marginal increase in this variable increases the probability of getting a higher CGPA by 27.89 percent

When we come to the case of Ethiopian Universities enormous studies have also been conducted by different scholars in different campuses and at different time. For instance, as cited in Muhdin (2016) ;(Weldegiorgis and Awel ,2013) revealed the significant effect of student's gender, national level entrance examination result and financial constraint on students' academic performance in Ethiopia. However, factors like parents' background, student behavior, study hours, student's department placement found to have varying effects by class year and program.

Mudhin(2016) in his part conducted on the determinants of Economics Students' academic

performance at Jimma University, Ethiopia. The independent t-tests, Pearson correlation and Tobit model were used to investigate factors affecting students' academic achievement in his study. The outcome of the study showed that university entrance exam score, family economic situation, sleep time and habit of study were the main determinants of students' academic performance. However, sex of the student, residential place, study time and recreation time were found insignificant.

Bitew et al (2010) also investigated the major factors that affect academic quality of Debre-Markos University, Ethiopia. The analysis categorized factors into student related, instructor related, administrative staff and student family related variables. Finally, the study outcome reveals that student related variables such as previous academic background, tension, and student motivation are major factors to influence the academic performance of the students. In the same way, administrative related variables (like placement, satisfaction and health) and instructors related factors (e.g., testing mechanism) factors are among major determinants affecting academic performance. However, family related factors are the least influencing factors to the academic achievement of the students as to the finding.

As have been discussed so far, it is difficult to draw a single conclusion regarding what determines the academic performance of students. Indeed, identifying factors affecting the academic achievements of students' is challenging and remains a topic of interest.

3. Research Design and Methodology

3.1 Research Design

This study is designed to be hypothesis testing research as the relationship among variables will be explained and the working hypothesis will be tested in this study.

3.2 Description of the study Area

Dambi Dollo University is one of the youngest universities established in Dambi Dollo, formerly Sayo market town and separate "woreda" in south western Ethiopia. And this town is the capital of "Qelam Wolega Zone of the Oromia Region, 651 kilo meters far from Addis Ababa. And "Dambi Dollo University" is found to the north east of the

town and is 6 kilo meters far from it. Like all other Public Universities; it is established with the mandate to address core academic activities such as teaching, research and to deliver services to the community.

Currently, the University has six colleges (College of Social Science and Humanities, College of Law and Governance, College of Natural Sciences, College of Business and Economics, College of Agriculture and Veterinary Medicine and College of Health Sciences) and three schools. The university has more than 35 and 7 programs in undergraduate and postgraduate studies, respectively (DaDU, 2019).

3.3 Data Source and Population of the Study

The universe of this study are the undergraduate regular students of DaDU in the first semester of the year 2019. Weekend, evening and post graduate students are excluded from the sample because most students in these programs are typically older and matured than regular undergraduate students. In addition, most of them earn sufficient income to support themselves and also they may have sufficient academic experience which may not be the case when it comes to undergraduate regular students. Therefore, excluding them from sample will enable us to examine things on similar grounds.

Data for this study are cross-sectional and were gathered mainly from primary source, that is, from the universe of the study described above. And during the study period the total regular undergraduate student population of the university constitutes 721 male and 541 female students which sums up to a total of 1262 students.

3.4 Sample size and Sampling Technique

The study adopted convenience type of non-random (non-probability) sampling technique. The rationale behind using non-random sampling method is for its simplicity and less time consumption. And the sample Size (n) was determined using the most simplified formula provided by Yamane (1967) that is widely used to determine the required sample size at 95%

confidence level and 5% level of precision as below:

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

$$n = \frac{1262}{(1 + 1262(0.05)^2)} = \frac{1262}{4.155} = 304$$

Where: n is the number students that will be selected from the total population and it equals to 304 observations. N is the total number of student population which is 1262. e is equal to 0.05 (i.e. 5% level of precision) and e square is equal to 0.0025.

3.5 Methods of Data Collection

A single instrument was used in the process of data gathering for this study. It was structured questionnaire, constructed in terms of both closed and open ended items. And no need for triangulation instrument as the nature of the data to be obtained does not require no more. Thus, only questionnaire is prepared and filled by the students with the supervision of the data collectors those who were trained by the researchers. It contains four parts designed to address the basic questions of the study. The first part of the questionnaire is designed to obtain general (background) information about the respondents. Items in the second part are designed to evaluate the overall service of the university provided for the students. The third part is designed to find out the major determinants of students' academic performance. The fourth part is designed to obtain information regarding major ways to manage those factors.

3.6 Procedures of Data Collection

At first, in order to make sure the suitability of the instruments, pilot test for 20 respondents is conducted for students who are not included in the sample of the study. Third, after improving the data gathering instruments on the basis of the results of the pilot test, administration of the instrument is carried out and eventually the final data is gathered by the help of data collectors those were trained by the principal researcher on how to do so and take care for ethical considerations while dealing with respondents.

3.7 Methods of Data Analysis

Data are cross sectional, data collected at specific point of time (egg. hour, day, week, month, year). And in order to achieve the proposed objectives of the study different qualitative and quantitative methods has been employed. In other words, the study used descriptive statistical measures such as frequencies, percentages, graphs, tables, averages and standard deviations. The inferential statistical analysis such as independent t-tests, Pearson Correlation, multivariate regression model and the Logit (binary) model were also employed to identify the factors affecting the academic performance of students.

And the data manipulation and analysis is facilitated using the **Stata12** statistical package.

3.8 Model Specification

The following equation (that is, equation 1) presents a multiple linear regression which describes CGPA as function of its determinants. Therefore CGPA is taken as dependent variable since most of the researchers around the world use Grade Point Average (GPA) as a measure of students' academic performance (for example see Mushtaq and Khan, 2012).

$$CGPA_i = \Omega + \beta_0SAMPM + \beta_1DI + \beta_2SPI + \beta_3SFC + \beta_3SSPO + \epsilon_i \dots \dots \dots [1]$$

Where $CGPA_i$ is the students measure of academic performance, Ω is intercept of the model and $\beta_0, \beta_1, \beta_2, \beta_3$ are parameters estimated, and ϵ is the usual error term and i indicates the sequence of observation (that is, $i=1,2,3,\dots$).

Second, the following probit model is estimated to identify factors that affect the chance students' being academically successful (higher academic performance) (Equation 2).

$$Pr(y_i = 1 | X) = \theta(X' \beta) + \epsilon_i \dots \dots \dots [2]$$

Where Pr is the probability, $Y_i=1$ is an indicator if the student scores above 2.00 and he/she has no F_x, NG and or F and $y_i=0$ is otherwise. Θ is the normal cumulative density function (CDF), X is vector of the several factors that determine student academic success and β denotes vector of parameters to be estimated, and ϵ_i is the usual error term.

Table1- Definitions and Measurements of variables

The dependent variable is CGPA and its value lies between 0 and 4 points(OLS case)			
Label Name	Variable Name	Category	Measurement
Parental Income	SPI	quantitative	Ethiopian Birr(ETB)
Financial Constraint	SFC(D1)	dummy	D1=1,for Yes & D1=0, for otherwise
Smart Phone Ownership	SSPO(D2)	dummy	D1=2,for Yes D2=0 ,for otherwise
Average Monthly Pocket Money	SAMPM	quantitative	ETB

Note: D_i indicates dummy variable when i=1, 2, , ...4. Thus,D1 means Dummy one ,D2 represents dummy two ,etc.

Source: Constructed by the researchers (2019)

3.8 Econometric Estimation Issues or the Test procedures for basic OLS assumptions

Model Specification Tests Performed

Model specification errors can substantially affect estimate of regression coefficients (Madala, 2008).Linktest command performs a model specification link test for single equation – models and that the above model be tested according to it. And correctly specified model should provide a statistically significant hat(its p-value should be less than alpha) and insignificant hatsquare(its p-value should exceed alpha)

Normality Test

Shapiro-Wilk test for normal data will be conducted to test the normality assumption of the Ordinary Least Squares. The null hypothesis assumes normality(zero mean and homoscedasticity of the error term) and the alternative assumes hetroscedacity. The decision rule for normality is whether prob>z should be

$$rX_1 + r_2X_2 + r_3X_3 + \dots + rkX_k = 0 \dots \dots \dots [3]$$

Today, however the term Multicollinearity is used in a broader sense to include the case of Multicollinearity, as shown in equation(1) as well

$$rX_1 + r_2X_2 + r_3X_3 + \dots + rkX_k + e_i = 0 \dots \dots \dots [4]$$

Where, e_i is error term

The Variance Inflation Factor(VIF) test for Multicollinearity will be conducted to test the no-multicolleniaritiy assumption of the OLS.

greater than 5%(i.e. the level of precision also called alpa)

Hetrockedasticity Test

Hetrockedasticity is detected when a distribution of the error term is not the same for variance observations (i.e. if the variance of the error term varies. Var (ε_s) ≠Var (ε_t) the error term is said to be subject to heteroskedasticity (Madalla, 2008).The Breusch-Pagan/Cook-Weisberg test for hetroskedasticity is conducted to check the homoskedacity assumption of the OLS.The test should not reject the null hyphothesis of constant variance at 95% confidence level(Madala,2008).

Multicollinearity Test

The term Multicollinearity is due to the existence of a perfect or exact linear relationship among or all explanatory variables of a regression model. For the K-variable regression involving explanatory variable X₁, X₂.....X_k (where X_i=1 for all observation to allow for the intercept term) an exact linear relationship is said to exist if the following condition is satisfied and the remedial measure is avoiding variables which are highly correlated(Gujarati,1991)

as the case where X variables are inter correlated but not perfect as follows in [3]:

Multicolleniaritiy problem is said to exist if the value of mean VIF> 10 individually or jointly. In other words ,this problem is not inexistent if the

mean VIF values of each variable are less than ten and the joint value of mean VIF is less than ten. Thus, we say the model failed to reject the null hypothesis (i.e. the problem of Multicollinearity does not exist in the model).

Correlation –covariance.

Correlation measures the linear relationship between the variables. This relationship can be positive or negative; strong or weak. The correlation coefficient ranges between -1 and +1. Thus, if the correlation coefficient approaches either -1 or +1 it indicates weak and strong relationship between the variables, respectively. This will be done also by using Stata15 software to obtain the correlation-covariance for the data set

4 Results and Discussions

This section provides results and discussions. Both descriptive and econometrics results for the given survey data are presented and discussed precisely as bellows.

4.1 Descriptive Analysis Results

From the total of 1262 DaDU students who were active at the second semester of 2019 academic year, three hundred four (304) of them are participated in the study through probability sampling. However, from this total sample size 294 structured questionnaires were returned implying a number of non-respondents to be ten(10).And the following Table-2 Summarizes the background information about the respondents and their evaluation results of the overall service delivered to by Dambi Dollo University to student.

4.1.1 Summary on Qualitative Variables

Table-2 Proportion Estimation

Variable	Category	Proportion	St.Err	95% Conf. Interval	
Sex	Female	0.47(47%)	0.29167	0.4153857	0.5301925
	Male	0.53(53%)	0.029167	0.4698075	0.5846143
Student financial constraint	No	0.77(77%)	0.29167	0.4698075	0.5846143
	Yes	0.23(23%)	0.290578	0.391791	0.5061681
SPCO	No	0.78(78%)	0.0288506	0.3649881	0.4785493
	Yes	0.22(22%)	0.0288506	0.6350119	0.635011
Student Evaluation of the university services	Excellent	0.078(7.8%)	0.0156688	0.473559	0.1091067
	very good	0.13(13%)	0.0195989	0.0906793	0.1678241
	Satisfactory	0.64(64%)	0.0279327	0.5912844	0.7012326
	Poor	0.15(15%)	0.0206438	0.1056295	0.1868875
Academic seccuss	Academic Success	0.795(79.5%)	0.0288506	0.3616501	0.4750846
	Academic failure (if have fx,Ng and or F grade(s))	0.205(20.5%)	0.288184	0.5249154	0.6383499
Religion	Orthodox-christian	0.38(38%)	0.0284648	0.3317338	0.44377764
	Protestant-christian	0.397(39.7%)	0.0285955	0.34166805	0.4542379
	Chatolic	0.23(23%)	0.0089065	0.0062806	0.0413384
	Muslim	0.095(9.5%)	0.017149	0.614873	0.1289889
	Other	0.095(9.5%)	0.017149	0.0614873	0.128989

Source: Authors' Computation from own survey data, 2019

As it can be seen from Table-2, the participation of female and male respondents in the research process is almost equal, that is, 47 % of female and 53% of male students have got access to inform about the economic factors that determine their academic performance. There is almost equal gender composition may also imply that DaDU has given emphasis on promoting gender equality by providing equal access to both sex groups to higher education as directed by National Educational Policy of Ethiopia.

When we consider the Student financial constraint (SFC), 77% of the sampled students are financially unconstrained and the remaining 23% of them face financial constraint to support their education. This indicates that significant portion of DaDU students come from the families who have low income and therefore are facing lack of finance to support education. This might be a good evidence for the university to implement different programs to support financially constrained students as the per the higher education regulation.

Twenty two percent (22%) of the sampled students do own personal computers and the remaining 78% of them do not have personal computers. Although the impact of personal computer on CGPA is to be predicted in the econometric analysis session, this result implies that the majority of DaDU students are far away from personal computers which are most common in contemporary world and thereby far away associated benefits that would be obtained from owning and using personal computers (if any).

The other important thing here is that student's evaluation of DaDU' over all services (i.e boarding, cafe, education, infrastructure, etc). It is encouraging that DaDU overall services are evaluated as satisfactory by the majority of its students (that is, by 64% of its students), as excellent by 7.8% and by 13% as very good . However, the votes of the remaining 15% of the respondents who responded it as if the general service of DaDU was poor should get emphasize as it may require the service providers to work efficiently to provide "the right service at the right time and condition" so as to satisfy their number one customers, the students.

When we look at academic status of the respondents 79.5% of the students are academically successful and the remaining 20.5 % are academically unsuccessful (that mean they have Fx, NG and or F grade(s) since their entrance to DaDU). This indicates that these unnecessary grades of FX, NG and F will may prohibit the students who scored them from being graduated at last years of study as "no student with one or more of such grades is not allowed to graduate" as to nationally the harmonized higher educational curriculum ;or it may force to withdraw or even dismiss from the university.

The result on students' religious background confirms that the DaDU students are followers of Christianity, Islam and other religions as usual and this imply the existence of social diversity in DaDu.

4.1.2 Summary on Quantitative Variables

Table-3 Summary of age, SPI, SAPM and CGPA

Variable	Obs.	Mean	Std. Dev.	Min.	Max.
Age	294	22	1.593502	18	26
SPI	294	2341.837	1623.227	200	9000
SAPM	294	619.8299	678.9318	150	3000
CGPA	294	2.406527	0.5512627	1.89	4

Source: Authors' Computation from own survey data, 2018 /19

As reported in Table-3, student age, student parental income (SPI), student average pocket money (SAPM) and student CGPA are quantitative variables used in the econometric models of the study.

It can be concluded that the mean age of DaDU students is 22 years with minimum value of 18 years and maximum of 26 years. This indicates that they are in the same age group, that is, they are youth.

The average Parental income of DaDU students is 2341.837(two thousand three hundred forty one birr and 837/100 cents) with standard deviation of 1623.227 and range of 8800 birr. DaDU students receive birr 619.8299(six hundred nineteen) as a pocket money each month. The lowest student pocket money is 150 birr per

month and the maximum is birr 3000 per month. And this may indicate that some of DaDU students are facing financial constraints as 150 birr (minimum value) per month is insufficient to support their education given the tremendous increase in the cost coffee-tea, photocopy, internet fee, soap, cosmetics and others in the community.

At citrus paribus, the average CGPA of DaDU students during the study period is 2.4065, on average, with the minimum value of 1.89 and maximum of 4.00 points. This implies as if the majority of students are low performers which will in turn require intervention.

4.2 Econometric Analysis

4.2.1 Model Specification Test

Table-4 Model Specification Link Test Results

Variable	Coefficient	Std.Err.	t	P> t
Hat	0.8527439	0.108456	8.15	0.000
Hatsquare	1.24e-07	1.29e-07	0.98	0.329
Constant	3.1123	17477.58	0.99	0.376

Source: Authors' Computation from own survey data, 2019

From the above result, the linktest has failed to reject the assumption that the model is specified correctly. Thus, there is no specification problem as p-value for linktest is greater than 0.05 which is 0.329. This implies that the no-irrelevant

variable is included to model and relevant variable is excluded from the model.

4.2.2 Normality Test

Shapiro-wilk test for normality has been conducted and the result is presented as below:

Table-5 the Result for Normality Test

Variable	Observation	W	V	z	Prob>z
R	294	0.9582	1.344	0.680	0.24822

Source: Authors' Computation from own survey data, 2019

The decision rule for normality is whether Prob>z should be greater than 0.05. Thus, the distribution of the data is found to be normal as the null hypothesis for normal data cannot be rejected at default significance level.

4.2.3 Heteroskedasticity Test Result

Breush-Pagan/Cook-Weisberg test for heteroskedasticity has been conducted and the following is the result:

Table-6 Result for Constant Variance

estat hottest
Breash –Pagan/Cock-Meisherg test for hetroskedasticity

Ho: Constant Variance
 Variables: fitted values of CGPA
 Chi²(1)=25.28
 Prob>Chi²=0.3142

Source: Authors' Computation from own survey data, 2019

The decision rule for heteroskedasticity is that, if $Prob>ch^2$ is greater than the default significance level. Hence, the model failed to reject the null hypothesis and that the error term of the regression model exhibits constant variance conditional on explanatory variables as homoskedasticity exists in the model.

4.2.4 Multicolleniarity Test Results

Variance Inflation factor test for multicolleniarity is used and the result is as presented in Table 7 below

Table-7 Multicolleniarity Test Result

Variable	VIF	1/VIF
Sexdummy2	1.24	0.803609
SFCdummy2	1.39	0.718801
SPCOdummy2	5.47	0.182847
SAPM	1.39	0.718801
SPI	1.24	0.803609

Mean VIF

5.2

Source: Authors' Computation from survey data, 2018 /19

4.2.5 Correlation Analysis

Correlation measures the linear relationship between the variables. This relationships can be

positive or negative; strong or weak. The correlation coefficient ranges between -1 and +1. Thus, if the correlation coefficient approaches either -1 or +1 it indicates weak or strong relationship between the variables, respectively.

Table-8 Correlation- Covariance Results

	age	SAPM	SPI	sexdum-2	SFCdum2	SPCOdum1	asdummy
CGPA							
age	1.0000						
SAPM	0.0932	1.0000					
SPI	0.0760	0.3412	1.0000				
sexdum-2	0.1413	0.5255	0.4739	1.0000			

SFCdUm2	-0.1247	-0.4984	-0.4500	-0.9532	1.0000		
SPCOdum1	-0.1299	-0.4649	-0.4649	-0.9019	0.8492	1.0000	
asdumy	0.1608	0.4067	0.3176	0.6893	-0.6347	-0.7833	1.0000
CGPA	0.0740	0.3140	0.8191	0.5970	-0.571	-0.5868	0.4093
1.0000							

Source: Authors' Computation from own survey data, 2019

The results reveal that there is positive correlation between; academic success and CGPA, sexdummy2 (being male) and CGPA, sexdummy2 (being male) and academic success, CGPA and parental income; and CGPA and student monthly average money while there is negative correlation between SPCOdumy2 (personal computer ownership) and CGPA.

4.2.6 OLS Estimates of Determinants of Students' Academic Performance

This section presents OLS results of the model in [1]. Table 4.7 reports the OLS results for the whole sample.

The study found that student financial constraint negatively affects student academic performance (CGPA). That is, financially constrained students performed less CGPA as compared to those who are financially unconstrained. This may be due to the assumption that students with financial constraint for basic educational goods like stationary and other expenses may feel unfocused and/or are not be able to prepare very well since they do not have the required academic materials that impact their performance.

The average monthly pocket money of students also positively influences students CGPA, other things remaining constant and on average. That is, the higher monthly pocket money of the DaDU students earned means that they scored higher CGPA. This may indicate the students spent their additional income on supportive activities of their education.

The student parental income is another significant variable in positively explaining student CGPA. That is, CGPA of students would increase for increase in parental income. This occurs due to the assumption that higher parental income means that the father and mother have ability to support the student education sufficiently and this will increase the CGPA of the student if appropriately used.

However, there is no significant CGPA differential among Students who own Personal Computer and their counter-parts. This may indicate that there is access of computers for those who do not own Personal computers, and or those who own personal computers are not significantly using it for supportive purposes. These would make both groups to score similar CGPA.

Table-9 Estimates for Determinants of Students Performance

Dependent Variable: Cumulative Point Grade Average(CGPA)						
Variable	Coefficient	t-value	St.Er	P> t	[95% Conf.Interval]	
SPI	0.0002361	17.30***	0.0000342	0.000	0.0002092	0.00178
SAPM	0.001106	3.23***	0.000342	0.001	0.0000133	0.000263
SFCdummy1	-0.092796	4.21***	-0.125516	0.032	-0.5365078	0.424324
SPCOdummy1	-0.2894701	-1.53	0.2168305	0.550	-0.0089232	-0.844716
Constant(Bo)	2.326613	10.89	0.213722	0.000	1.90597	2.747256
Number of Obs.=294		F(3,291)=6.54		Prob >F=0.0000		

R-Squared=0.8441**Root MSE=0.5949**

*** indicates statistical significance at 1 % level of significance

Source: Authors' Computation from own survey data, 2019

4.2.7 The Logit Estimates of Students Academic Success

In line to prior expectation, we found that students who are financially constrained have lower probability of succeeding academically (get graduated). This is due to the fact that these

students are subject to lower grades associated with the measures of academic failure like Fx,NG and or F grade which in turn will to force withdrawal and or dismissal(attrition).

The results found that parental income will increase the likelihood of student academic success. And also, for an increase in student average pocket money, the log of odds ratio will increase.

Table -10 the Logit Estimates (Marginal Effects) of Students Academic Success

Dependent Variable: Cumulative Point Grade Average(CGPA)		
Variable	Coefficient	z-value
SPI	0.000862***	2.59
SAPM	0.000187***	2.43
SFCdummy1	-0.30006079**	-2.34
SPOdummy1	-0.041267	1.14
Constant(Bo)	0.1130416***	2.66
Number of obs = 294		Pseudo R ² = 0.5533
Log likelihood :Wald chi2(14) = 89.267323		Prob > chi2 = 0.0000
Number of obs.=294		

*** & ** indicate statistical significance at 1%, 5%, respectively.

Source: Authors' Computation from own survey data, 2019

5 Conclusion and Recommendations

5.1 Conclusions

Using cross-sectional data drawn from sampled students in undergraduate programs in Dambi Dollo University during second semester of 2011 E.C academic year, the study assessed and identified the major economic determinants of students' academic performance and success.

The regression results consistently found significant effect of student's parental income, student average pocket money and student financial constraint on students' academic performance measured in Cumulative Grade Point Average (CGPA).

With regard to student academic success, the marginal effects of the Logit estimates revealed that higher parental income and higher students' average monthly money will increase the likelihood of student academic success. While the

more financially constrained the student is, the higher will be likelihood of the academic failures. The findings are reliable and dependable at 95% confidence interval and 5% level of significance ,and further researches are required to look at the effects non-economic(environmental, psychological and the like) determinants on students academic performance and success.

5.2 Recommendations

The implication of our study is that DaDU undergraduate students' performance and academic success is mainly determined by student's parental income, student average monthly pocket money and student financial constraint, on average, and other things remaining constant. Therefore, the researchers extremely recommend the following consequential actions on these major economic factors that determine academic performance and success:

- ✓ Provision of some facilities like free or cheaper photocopy services and stationeries could help financially constrained students. Besides, the university should provide financial scholarships and part time work (for instance: serving at student café, campus sanitation, etc.) to encourage the economically marginalized students. The university may also invite non-governmental organizations for further economic supports. The importance of tutorials and remedial to support financially constrained students along with other groups should also not be underestimated.
- ✓ Parents of the students should also provide sufficient financial and moral supports.
- ✓ Government itself has to design policies to increase the income households who educate their children at the university and has provide financial scholarships for financially constrained students
- ✓ Finally, Students themselves should also be informed of these factors and thereby must try to manage their time and limited recourses towards higher CGPA and academic Success.

References

1. Ali,S.,Haider, Z., Munir, F., Han, H., and Ahmed,A.(2013). Factors contributing to the Students Academic Performance:A Case Study of Islamia University Sub-Campus.Science and Education Publishing. American Journal of Educational Research, Vol. 1, No. 8, 283-289.
2. AL-Mutairi,A. (2011).Factors Affecting Business Students' Performance in Arab Open University:The Case of Kuwait. International Journal of Business and Management Vol. 6, No. 5;ISSN 1833-3850 E-ISSN 18338119.
3. Anderson and M.J. Bowman (19680): The role of education in development, ADLINE publishing, New York.
4. Babalola J.B. (2003). Budget preparation and expenditure control in Education.Basic Text in Education planning. Ibadan Awe mark industrial printers.
5. Barkely,A.P.(2001).“The future teaching undergraduate agricultural Economics; Lifelong learning in an Era of Rapid Technological change.Journal of Agricultural and Resource Economics .
6. Becker (1993).Human Capital:A Theoretical and Empirical Analysis with Special reference to Education.Chicago:the University of Chicago press.
7. Belsely, D., E.Kuh, and R.E.Welch(1980).Regression Diagnostics New York: Wiley
8. Betts, J.R and D. Morel(1998). The determinants of undergraduate grade point average: The relative importance of family background, high school resources, and peer effects, the journal of Human resources, 34,268-293
9. Bitew,T.,Asres, S.,and Wolie,D.(2010). The Major Factors That Affect Academic Achievement of DMU Students: A Mechanism to Balance Academic Quality and Quantity. Proceedings of the First National Research Symposium on Sustainable Development:A Great Concern in Africa, page 36-69.
10. Bluag,M.(1970):introduction to Economics of Education.Harmonds worth, London.Proceedings of the National Symposium on “Establishing, Enhancing & Sustaining Quality Practices in Education”
11. Buzunesh A.(2009). Quality constraints in higher education of Ethiopia economic growth, A thesis, Addis Ababa University, Addis Ababa University, Addis Ababa,2009

12. DaDU(2017).Annual Report.Senate Legislation.
13. Dessie H.(2013): The determinants of students' performance; senior essay .AAU: Addis Ababa
14. Islam,M.(2014). Factors Influencing the Academic Performance of Undergraduate Students in Sultan Qaboos University in Oman.Journal of Emerging Trends in Educational Research and Policy Studies (JETERAPS)5(4): 396-40
15. Kanagi, R., Hee, T.C., Kanawarthy, S., Soon, L.K., Kamaludin,H. and Khezrimotlagh,D.(2015). Factors Affecting First Year Undergraduate Students Academic Performance. SAS Publishers. Scholars Journal of Economics, Business and Management. 2(1A):54-60. e-ISSN 2348-5302.
16. Kirubel A.(2009): The effects of students' income level on their college performance; senior essay .AAU: Addis Ababa
17. Mankiw,G.(2009).Principle of Macroeconomics,Harvard University, Harvard University press
18. Martha, K (2005). Factors Affecting Academic Performance of Undergraduate Students at Uganda Christian University. Dissertation Submitted to Graduate School in Partial Fulfillment of the Requirements for the Award of the Degree of Master of Arts in Educational Management of
19. Mincer (1993): Studies in Human Capital, Vermont Gregg Revivals November
20. Muhdin M.(2016). Determinants of Economics Students' Academic Performance: Case Study of Jimma University, Ethiopia. International Journal of Scientific and Research Publications,6, Issue 1, January 2016 566 ISSN 2250-3153
21. Mushtaq, I.and Khan,S(2012). Factors Affecting Students' Academic Performance.Global Journals Inc. (USA). Global Journal of Management and Business Research.Volume 12 Issue 9 Version 1.0 June 2012. Online ISSN: 2249-4588 & Print ISSN: 0975-5853
22. Romer,P.(1990) Human Capital and Growth: theory and evidence, Carnegie-Rochester Conferences series.
23. Schultz T,W (1981) investing in people; the economies of population quality: University of California press, Backeley California
24. Smith, A. (1976): An Enquiry into the Nature and causes of Wealth of Nations: Chicago University of Chicago Press.
25. Students Academic Performance: A Case Study of Islamia University Sub-Campus. Science and Education Publishing. American Journal of Educational Research, Vol. 1, No. 8, 283-289.
26. Tesfaye and Teshome(ND): Higher Education: Quality, Quality Assurance, the Concept and its Elements and HERQA's Focus Areas. Director General, HERQA, Addis Ababa, Ethiopia www.moe.gov.et > MOE > English > [Information](#)>
27. Todaro, M.P. and S.C Smith (2009): Economic Development (Tenth Edition).ADDISON WESLEY, England, Edinburg Gate, Harlow, Essex CM202JE