St. Mary's University

Committed to Excellence!

Proceedings of The 13th National Student Research Forum

Research and Knowledge Management Office

(RaKMO)

August 23, 2019

St.Mary's University

Addis Ababa, Ethiopia

St. Mary's University

Committed to Excellence!

Proceedings of the 13th National Student Research Forum

Research and Knowledge Management Office(RaKMO)

August 23, 2019
St. Mary's University
Addis Ababa, Ethiopia

Printed by SMU's Printing Press, Addis Ababa Ethiopia
First Published August 2019

Address all communications to:
St. Mary's University
Research and Knowledge Management Office (RaKMO)
P.O. Box 18490/1211, Addis Ababa, Ethiopia
Tel: +251 11-548 0616
Email: rakmo@smuc.edu.et, rakmo.smu@gmail.com
Website: www.smuc.edu.et

Preface

The Research and Knowledge Management Office of St. Mary's University (RaKMO SMU) has been organizing Annual National Students' Research Forum (NSRF) since 2007. The purpose of NSRF is to create opportunities for undergraduate students to present their senior essay research findings and share their experiences with their peers and academic staff so as to enhance their academic dialogue exposure and experience.

At this 13th National Student Research Forum, 10 papers were presented by students who came from St. Mary's University, Ambo University and Debre Markos University. At the forum, students shared how they identified their research problems, the methodologies they have employed, findings they have come up with and the research ethics they have pursued while conducting their research.

Towards this effect, SMU publishes every year papers presented at the NSRF in proceedings for wider dissemination and use. Consequently, this proceeding is a compilation of 10 papers presented on the 23rd of August 2019 The University would like to note that the ideas reflected in the papers are those of the authors and do not represent the position of the Research and Knowledge Management Office of St Mary's University.

Finally, the Research and Knowledge Management Office of St. Mary's University would like to thank all participants who contributed to the realization of the event.

Table of Contents

Assessment of Factors Affecting Inflation in Ethiopia, Winta Ekubay, Eden Belay and Hannan Haireden, St. Mary's University

Abstract

The main objective of this study was to identify the major factors affecting inflation in Ethiopia, considering 25 years sample data (1994 to 2018). This study employed Eviews-9 software and used ordinary least square method to analyze the secondary time series data obtained from National Bank of Ethiopia (NBE) and International Monetary Fund (IMF) annual report. Descriptive and trend analysis of the dependent variable consumer price index and the independent variables broad money supply growth (M2), growth of Gross National Savings (GNS), Real Gross Domestic Products growth Rate(RGDP), lending rate (LR) and Unemployment Rate (UR) was made. Diagnostic analysis was carried out to confirm these variables fit the basic assumptions of classical linear regression model. The explanatory variables accounted for 92.8 per cent of the variation of inflation during the study period with regression result showing lending rate and money supply have a significant and positive relationship with inflation unemployment rate has a negative and significant relationship with inflation, gross national savings has a negative but insignificant relationship and real gross domestic product has a positive yet insignificant relationship. This study suggested encouraging investment by reducing lending rate, controlling broad money supply, focusing on increasing production output to meet the supplied money and to promote gross national saving to reduce inflation in the country.

Keywords: inflation, lending rate, money supply, Ethiopia

1. Introduction

1.1 Background of the Study

World Bank (2007) defines inflation as an annual increase in the price of a basket of goods and services that are purchased by consumers in an economy, whereas, London Oxford Economic Dictionary (2009) defines it as the consistent tendency for nominal price to increase which leads to a decline in the purchasing power of a country's currency. As to Romer (2012), inflation is defined as a continuous rise in price levels of goods and services leading to a fall in the currency's purchasing power. The definition of inflation doesn't concern a rise in the price of a particular commodity (good/service) or a particular time. In order to say inflation has happened, the rise in the general price of goods and services should be sustained.

Inflation takes a crucial role in the healthy functioning of a country's economic performance. It is commonly recognized that an unpredictable fluctuation in the rate of inflation is considered a major indicator of the instability of economic activity of a country (Mishkin, 2009). A country is said to be under pressure of inflation when the prices of most goods and services continue to scale upward for long duration of time. Inflation reduces savings, pushes up nominal interest rates, dampens investment, and leads to depreciation of currency and in the extreme cases it can lead to the breakdown of a nation's monetary system (Biresaw T., 2013).

There are different hypotheses as to the cause of inflation. According to the structuralisms, inflation is attributed to the structure of the developing countries' economy. According to monetarist, the expansion of money supply beyond the growth of real output is the cause of inflation (Kahssay. T, 2017) but generally inflation may result when demand exceeds supply. When the supply of commodities fails to meet the demand for it, the price of the commodities will rise and in return decreases the purchasing power of money or loss of real value because each unit of currency can't buy the same goods and services.

Inflation has been low in Ethiopia in the past due to various reasons. The government was controlling the price and also rationing goods at fixed prices to the public which in turn has contributed to the lower inflation attained. In addition, the lower and pegged exchange rate has also helped to lower the impact of international price hikes on Ethiopia; of course, it also made imports cheaper (Menji S., 2008). However, in recent years inflation has been very high in Ethiopia. This may be due to the stable production level of the country couldn't provide enough supply to the increasing number of demands i.e. population growth.

1.2. Statement of the Problem

According to the study done by Prakash L. and Philip S. (2001), sources of inflation in developing countries, i.e., oil price growth, non-oil commodity price growth, the output gap, money growth, inflation and exchange rate changes were the expected variables to be a determining factor for inflation. Their results showed that inflation is mainly fiscal phenomenon, represented by money growth and exchange rate movements. But, past realization of inflation, the so-called inflation inertia, also accounts for 10 to 20 per cent of the inflation caused.

Kirrimi W. (2014) on the other hand uses money supply, central bank rate, exchange rate, Gross domestic products (GDP) growth rate, wages, food price, oil price, political instability and corruption as an independent variable that cause inflation. Among these variables, central bank rates and money supply (M2) were found to be statistically significant in causing the variation in inflation rate, while GDP growth rate and corruption perception were found to have a negative relationship with inflation.

Egwaikhide, *et al* (2006), showed that the major determinants of inflation are output, money supply and exchange rate in their respective country. While Maliszewski (2003), found that the major determinants of inflation are money supply, exchange rate and output, but gives more emphasis for exchange rate fluctuation.

Rabiul, *et al*. (2017) identified money supply, unemployment rate, and exchange rate as an independent variable that affect inflation. Like many other studies, this study showed that the major factor affecting inflation was money supply, and their relationship were found to be a positive. Moreover, unemployment rate was found to have a negative relationship with inflation proving the Phillips curve in Malaysia.

Another study in Asia, by Mogsin and Schimmelpfenning (2006), found out that output level exchange rate, and wheat support price were the main variables causing inflation. However, in the long run, monetary variables are the major factors affecting inflation in Pakistan.

Looking at the experience in our country, Menji S.(2008) identified Gross domestic products, money supply, commercial bank lending rate, overall budget deficit, oil price, exchange rate and inflation inertia as a determining factors for inflation in Ethiopia. The finding also showed that money supply, overall budget deficit, inflation inertia and interest rate have inflationary impact. However, GDP, exchange rate, oil price had a negative relationship with inflation. Among these variables, overall budget deficit, exchange rate and oil price relationship were statistically insignificant.

Determinant and impacts of dynamic inflation in Ethiopia-Granger causality approach Biresaw T., (2013), expected a causality running from money supply, currency devaluation and oil price to inflation. The findings showed a strong bi-directional relationship between money supply and inflation and a strong unidirectional causality running from currency devaluation and oil price to inflation.

According to the most recent study done in Ethiopia (as far as the researchers' knowledge is concerned) by Kahssay T. (2014), the expected variables to have inflationary effect were money supply, credit facility, imports of goods and service, exports, Gross National Savings (GNS) and GDP. The results showed broad money supply and GDP to have a positive relationship, Gross National Saving to have a negative and significant relationship with inflation and credit facility and exports of goods and services to have insignificant impact on inflation.

This study adds some value to the existing studies taking into account the most recent data available. This study also took and combined variables found in different studies which are crucial to determine Inflation in Ethiopia more accurately. Furthermore, the unemployment rate, a determining factor that hasn't been incorporated in other studies reviewed that are done in Ethiopia, was included in this study.

1.3 Literature Driven Research Hypothesis

Money Supply: All foreign and local literature reviewed indicated that inflation is a monetary phenomenon mainly caused by an increase in money supply.(Rabiul I *et al*.(2017); Kirrimi W.,(2014); Egwaikhide, *et al* (2006); Maliszewski (2003); Kahssay T.(2014); Menji S.(2008); Altasseb H.(2013), Biresaw T.(2013). Based on these results, the first hypothesis was set.

Hypothesis 1: There is a positive and significant relationship between broad money supply and inflation rate in Ethiopia.

Lending rate: As indicated by the findings of Menji S. (2008)'s and Kirrimi W.(2013), average lending rate of commercial banks have a significant positive impact on inflation in Ethiopia. Based on this, the second hypothesis was forwarded.

Hypothesis 2: There is a positive and significant relationship between lending rate and inflation rate in Ethiopia.

RGDP growth rate: In the study of KirrimiW.(2014) and Menji S.(2008), GDP growth rate appear to have a significant and negative effect on inflation. In contrast, the result of Teamrat K. (2014) showed GDP to have significant and positive effect while the study by Biresaw T. (2013) showed an insignificant but positive relationship. From the literature reviewed regarding lending rate, the studies found a significant and negative result outnumbered significant and positive. Therefore, the following hypothesis was proposed.

Hypothesis 3: There is a negative and significant relationship between Gross Domestic Product growth rate and inflation in Ethiopia.

Gross national saving (**GNS):** GNS is not considered as a major determining factor in many studies reviewed. However, the findings of the study by Kahssay T. (2014) demonstrates, an increase in the gross national saving by ceteris paribus, results in a reduction in the consumer price index because it leads to a corresponding decrease in the total disposable or spendable income of consumers. In line with this result, the following hypothesis was placed.

Hypothesis 4: There is a negative and significant relationship between Gross National Savings and inflation in Ethiopia.

Unemployment rate: As indiated by Rabiul*et et.al*. (2017); unemployment rate has a significant and negative relationship with inflation. There fore, if unemployment rate increases, inflation rate drops and vice versa. Based on this, the next hypothesis was set.

Hypothesis 5: There is a negative and significant relationship between unemployment rate and inflation in Ethiopia.

Exchange Rate: The findings of the studies by Egwaikhide, *et al (*2006); Maliszewki (2003); Habtamu. G (2013); Teamrat K.(2017) and Temesgen.T.B (2013) showed that exchange rate has a positive and significant influence on inflation whereas the study by Kirrimi W.,(2014) showed a positive but insignificant influence. On the other hand, according to Rabiul *et al.* (2017) and Menji S. (2008), exchange rates have a significant and negative influence on inflation. Since the local studies regarding exchange rate showed a positive and significant relationship, the subsequent hypothesis was placed.

Hypothesis 6: There is a positive and significant relationship between exchange rate and inflation in Ethiopia.

1.4 Objectives of the Study

1.4.1 General Objectives

The main objective of this research was to identify the major factors affecting inflation in Ethiopia.

1.4.2 Specific Objective

The specific objectives of this study were to:

- Verify if there is a significant causality running from money supply to inflation in Ethiopia;
- Identify the role of interest rate on inflation in Ethiopia;
- Identify if Real gross Domestic Product (RGDP) growth rate influence inflation negatively;
- Verify if there is a significant and negative relationship between Gross National savings (GNS) growth rate and inflation in Ethiopia; and
- Verify the role of unemployment rate on inflation in Ethiopia.

1.5 Significance of the Study

This study significant in enhancing knowledge about inflation and its determinants. Additionally. it is helpful in converting our theoretical knowledge into practice. Moreover, it may serve as a source of literature for other scholars who intend to carry out further research on inflation. Besides, it provides information for policy makers to address the root causes of the recent inflation thereby enable to make well informed decision.

1.6 Delimitation of the Study

This study focused on a 25 years annual data from 1994-2018. It did not consider the effects of non-economic and political dimensions. In addition, it did not carry out a thorough examination of each macro-economic indicator; perhaps principally focused on exploring the relationship between the independent variables which are money supply, interest rates, Gross Domestic Product Growth rate, Gross National Savings growth rate, exchange rate and unemployment rate. The dependent variable of Inflation is measured via consumer price index.

2. Research Design and Methodology

2.1 Research Design

The research design used in this study was explanatory to identify the major causes of inflation in Ethiopia because Explanatory research is conducted in order to identify the extent and nature of cause and effect relationships. (M. Lewis P. & Thorn Hill, A (2012).

2.2 Population and Sampling Techniques

The population of this study was the annual record of Consumer Price Index (CPI) in Ethiopia and its sample size was 25 years starting from the period 1994 to 2018 to examine the factors

affecting inflation in Ethiopia. The main reason for choosing the sample size was difficulty to find information on variables before 25 years. Besides, the researchers believe that 25 years data was enough to identify factors that affect inflation in Ethiopia.

2.3 Data Type and Source

This study used quantitative time series secondary data in order to examine the factors affecting inflation. Data on CPI, GDP, GNS, money supply, commercial bank lending rate, were taken from the National Bank of Ethiopia (NBE) and data on unemployment rate and other missing data were obtained from the World Bank and IMF annual reports.

2.4 Method of data Analysis and Presentation

This study made use of linear regression model to determine the relationship between the dependent variable, inflation and the independent variables money supply, interest rate, GDP, GNS, unemployment rate, as this study used one method of measurement to measure inflation, that is, CPI. This measurement was chosen because unlike GDP deflator, CPI accounts for imported goods and services which are widely used to measure inflation in Ethiopia. The model used to examine the factors affecting inflation was as follows:

$$CPI = \beta_0 + \beta_{1*} M2 + \beta_{2*} IR + \beta_{3*} RGDP + \beta_{4*} GNS + \beta_{5*} UR$$

Diagnostic Analysis was carried out to confirm that the data fit the basic assumptions of the classical linear regression model. These Are tests for serial correlation, Normality, Heteroscedasticity, multi-co-linearity, unit root test and cointegration test. The study employed Eviews9 (Econometric views) software to analyze the data, which is a statistical package for windows used mainly for time series oriented econometric analysis. The analyzed data were presented using tables, graphs and figures.

Table 1: Variables and their Expected Result

Variable	Explanation	Measurement	Expected result
Dependent variable Inflation	It is a general increase in price & a fall in the purchasing value of money.	It is measured using customer price index (CPI)	Sig & +ve
Independent variable Money supply	It is the total amount of money in existence in a country.	The percentage growth of money supply of the current year compared with the previous year.	Sig & +ve

Interest rate	Is the amount a lender charges for the use of asset expressed as a percentage of the principal?	Nominal simple average lending rate.	Sig & +ve
GDP	Monetary measure of the market value of all final goods & services produced in a period of time, often annually.	Percentage growth of current year RGDP compared to previous year RGDP.	Sig & -ve
GNS	Is derived by deducting final consumption expenditure from gross national disposable income & consist of personal saving, plus business saving, plus government saving, but excludes foreign saving.	Percentage Growth of current year GNS compared to previous year GNS.	Sig & -ve
Unemployment rate	The number or proportion of unemployed people.	The percentage of share of jobless labor force from the overall labor force	Sig & -ve
Exchange rate	The value of one nation's currency versus the currency of another nation or economic zone.	The value of Ethiopian birr against US dollar	Sig & +ve

Source: Researcher's own compilation

2.5. Limitation of the Study

The major limitation of this study was numerous variables, that were incorporated in the proposal like imports of goods and services, oil price, exchange rate, inflation inertia; were not included in the regression analysis. This was because high correlation among these variables was found to exist, hence, couldn't pass the diagnostic test. Due to this, these variables were dropped. Another limitation was inconsistency of data obtained from various sources like Ministry of Finance and Economic Development (MoFED), Ethiopian Statistical Agency, National Bank of Ethiopia (NBE) and IMF annual reports of countries.

3. Data Analysis, Presentation and Interpretation

3.1 Descriptive Analysis

This section presents the outcomes of the descriptive analysis for main variables involved in the regression model. Key figures, including mean, median, standard deviation, minimum and maximum value were reported. This was generated to give overall description about data used in the model and served as data screening tool to spot unreasonable figure.

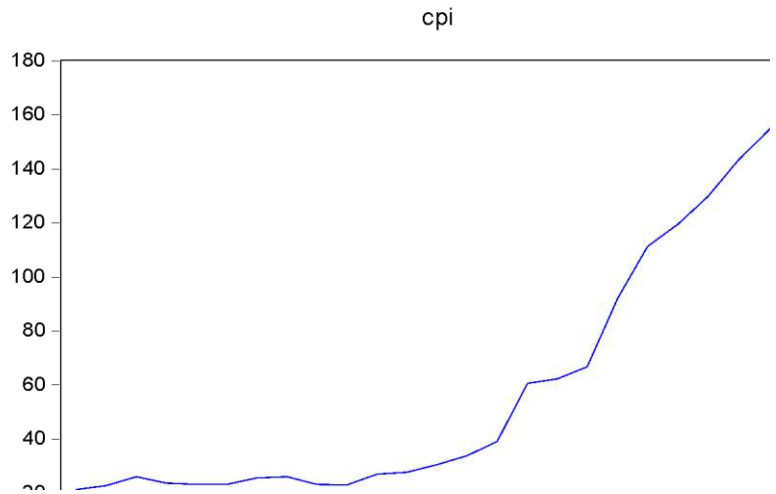
Table 2: descriptive statistics of dependent and independent variable

	CPI	GNS	IR	M2	RGDP	UR	ER
Mean	60.12169	15.17	12.21620	19.03588	11.83	19.71600	12.01987
Maximum	167.6000	112.00	15.50000	39.20676	109.38	26.40000	26.10820
Minimum	21.34733	-38.49	10.50000	4.055612	-2.098	3.100000	5.774400
Observations	25	25	25	25	25	25	25

The above table shows the descriptive statistics such as mean, maximum and minimum of the variables CPI, GNS, IR, M2, RGDP,UR and ER from 1994-2018 where CPI is the Consumer Price Index which is usually calculated by Lapsers formula, GNS is measured by the growth rate of Gross National Savings in Ethiopia, IR is the lending rate of commercial banks annually, M2 is the growth rate of total amount of annual broad money supply in Ethiopia, RGDP is the growth rate of Real GDP and UR is annual unemployment rate.

A. Descriptive Analysis of CPI

As it is shown in table 3,1 inflation in Ethiopia measured in CPI (consumer price index) for the total 25 observations showed up on average value of 60.12169 during the study period (1994-2018), with a maximum value of Br 167 in 2018 and a minimum value of 21.3 in 1994. This variation is a reflection of the changes in the cost to the average consumer of acquiring a basket of goods and services.

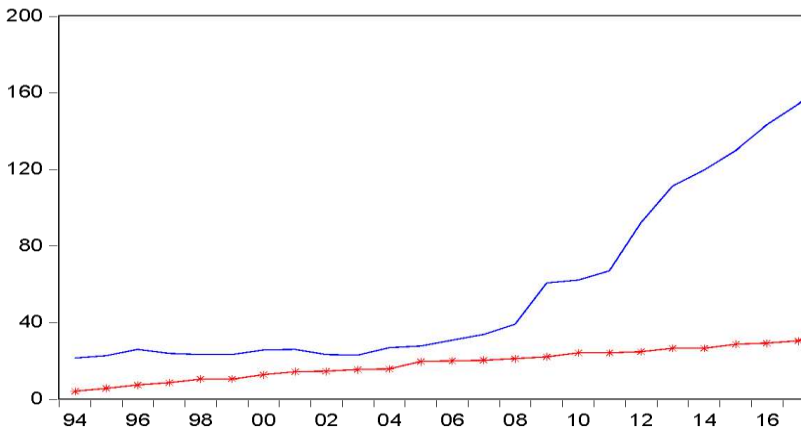


Graph 1: Trend of CPI

The trend of CPI shows that from 1994 to 2004 annual CPI shows more or less stable trend with a slight ups and downs, but after 2005 it started to increase in an increasing rate until 2018 as it's shown in the above graph 1.

B. Descriptive Analysis of CPI and M2

Broad Money supply (M2) measures the growth of stock of money circulating in a country compared to previous time (year). It has the lowest level of 4.5 in 1994 implying 4.5% growth of broad money supply from 1993. The maximum value showed 39.5 in 2018 which implies the maximum growth of broad money supply from the study period is 39.5% from 2017. The mean level of broad money supply growth rate shows 19.03 meaning, on average money supply grows by 19.03% each year.

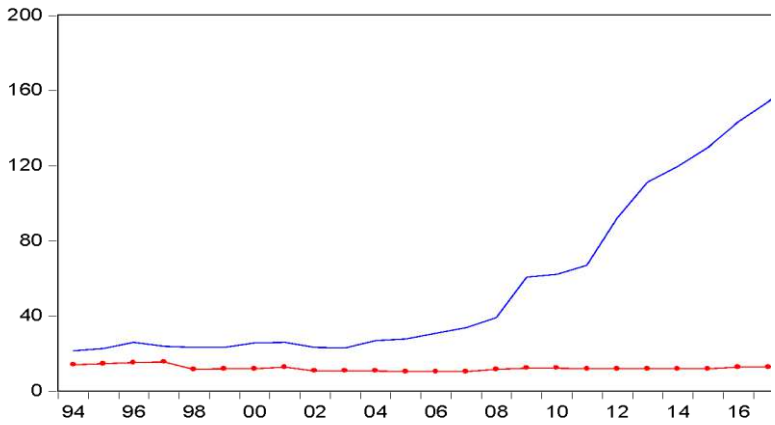


Graph 2: Trends of CPI and M2

The trend of M2 on graph 2 shows an increasing movement but it is increasing in a stable manner. Looking at the trend of broad money supply, M2, growth rate and inflation reveal that both variables were moving in the same direction during the period under study. From this trend, M2 can be expected to have a positive relationship with inflation.

C. Descriptive Analysis of CPI and IR

Interest rate (IR) shows the nominal simple average lending rate of commercial banks annually and it had the lowest value of 10.5% from 2005-2007 indicating for every Br.1 of liability from commercial banks in these years, there was Br. 0.105 annual interest. The maximum value of IR was15.5 in 1997, which means for every Br.1 of liability from commercial banks in 1997, there was Br. 0.155 annual interest. Mean of IR was 12.21, which shows the average nominal simple lending rate of commercial banks from 1994-2018 in Ethiopia was 12.21.

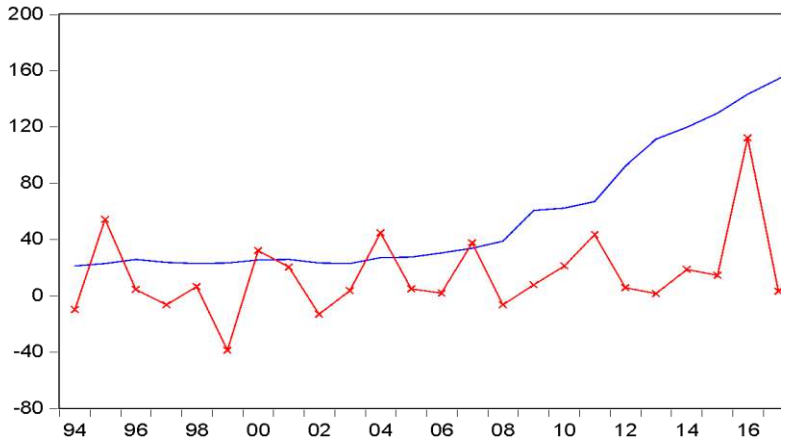


Graph 3: Trend of IR and CPI

As shown in the graph 3 above, the trend of nominal annual lending rate was more or less stable during all years with a very slight fluctuation but inflation showed mostly incremental trend. Since lending rate was so stable throughout the sample period, it was difficult to predict the relationship it had with inflation just by looking at the trends.

D. Descriptive Analysis of CPI and GNS

Table 3.1 shows that GNS had minimum value of -38.49 in 1999 inferring there was a decrease in Gross National Saving by 38.49% from 1998. The maximum value of GNS, which was in 2016 was 112 showing an increase in Gross National Savings of Ethiopia by 112% compared to the 2015. The mean of GNS showed 15.17% which shows that on average GNS of Ethiopia grew by 15.17% each year.

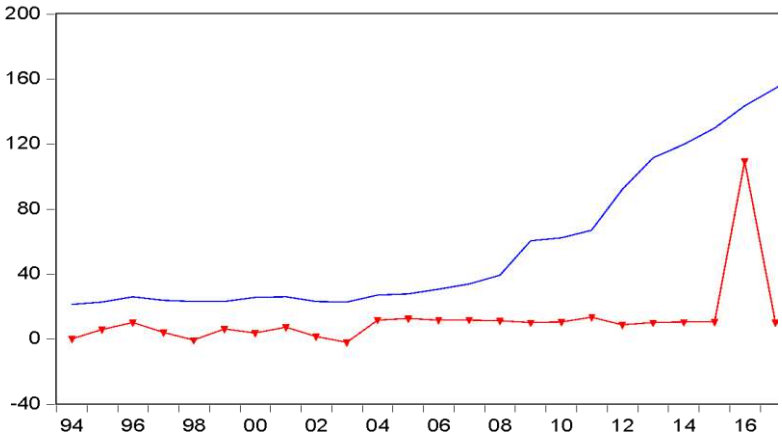


Graph 4: Trends of GNS and CPI

As shown in Graph 4, trend of GNS in Ethiopia during 1994 to 2018 showed a fluctuating behavior characterized by successive ups and downs. While CPI showed a stable trend in the beginning of the sample period and an increasing trend when approaching the end of the sample period. Looking at the trend of both variables, GNS and CPI were exceeding one another but after 2008 CPI was exceeding GNS. From this trend, it is not clear whether these variables are positively or negatively related.

E. Descriptive Analysis of CPI and RGDP

Real GDP growth rate (RGDP) shows the growth rate of monetary value of all the finished goods and services produced within a country's borders in a specific time period at a fixed price. RGDP showed a minimum value of -2.098 in 2003 indicating the country's recession by -2.098% in 2003 and the maximum value of 109.38 in 2016 which was the highest growth rate recorded in Ethiopia from1994-2018. The mean of RGDP as shown in table 3.1 is 11.83 which shows on average, Ethiopian economic growth each year was 11.83% throughout the sample period.

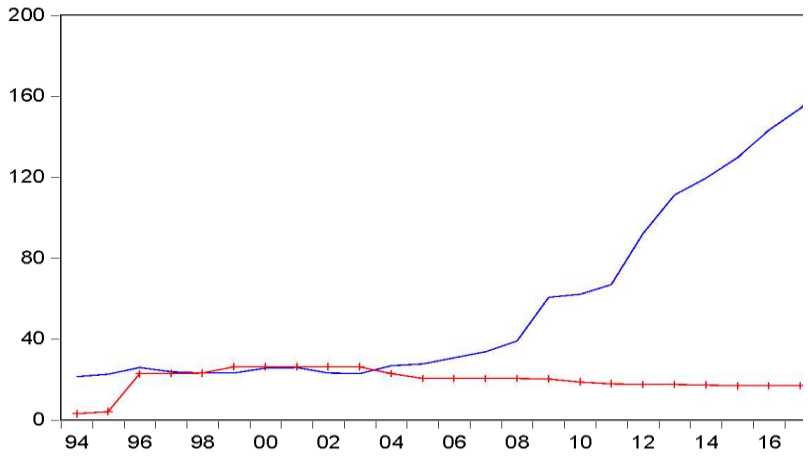


Graph 5: Trends of RGDP and CPI

RGDP growth rate in Graph 5 showed more or less stable trend with a slight increase and decrease until the year 2016 which showed drastic increase in RGDP growth. However, in 2017 the Real GDP growth rate was back to the previous state. Looking at the trend of the two variables, real GDP growth rate and CPI, both variables were moving in the stable manner until 2004, then CPI started to increase but RGDP was even more stable in the subsequent years except in 2016. From this trend it can be predicted that there may be a significant relationship between RGDP and inflation. But, it is difficult to predict whether the relationship was positive or negative.

F. Descriptive Analysis of CPI and UR

Unemployment Rate (UR) measures the percentage of share of the labor force that is jobless from the overall labor force. In table 1, UR shows a minimum value of 3.1 in 1994, meaning only 3.1% of the labor force was unemployed in 1994 and maximum value of 26.4 from 1999 to 2003 denoting the highest records of unemployed labor force was 26.4% compared to the total labor force for five consecutive years. The mean value of UR is 19.71 which means that on average in Ethiopia the unemployed (jobless) labor force was 19.71% of the total labor force from 1194 to 2018.



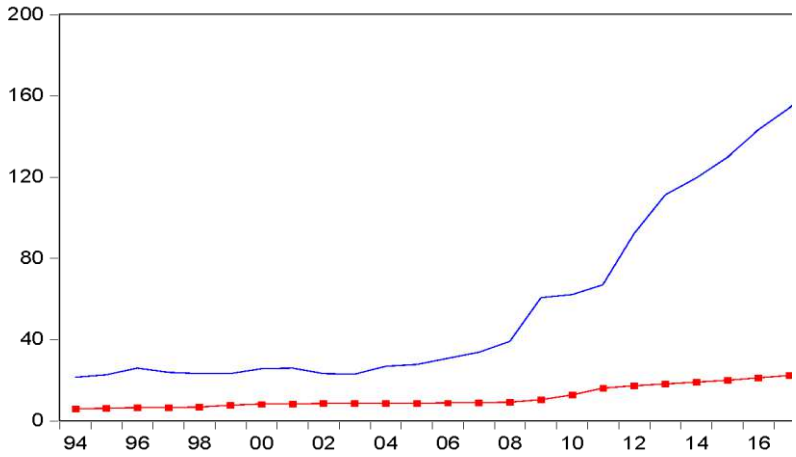
Graph 6: Trends of UR and CPI

As it was shown in the Graph 6 UR showed an increase in 1995 and a gradual increase and decrease during the course of the remaining period. From 1996 on, CPI and UR showed an overlapping trend exceeding one another until 2004. Then when the CPI started to increase the unemployment started to decrease. From this trend, UR can be expected to have a negative relationship with inflation.

G. Descriptive Analysis of CPI and Exchange rate

As displayed in the table 1, exchange rate which is the value of birr against US Dollar, throughout the study period showed a mean value of 12.02 which means the value of 1 US

dollar in average was 12.02 birr from 1994 to 2018. The maximum record showed 26.12 in 2018 implying 1 US dollar was worth 26.12 in 2018. The minimum record showed 5.77 in 1994. implying 1 US dollar was worth 5.77 birr in 1994.



Graph 7: Trend of CPI and ER

As it can be seen from the graph, the trend of ER showed a stable trend but after 2008 exchange rate showed an increasing trend. And when we look at the trend of both CPI and Exchange rate, we can see that both started increasing in similar period. From this trend analysis, it can be expected that there might be a significant and positive relationship between CPI and ER because both variables were showing similar flow.

Even though the Exchange rate is considered as a major variable affecting inflation through many studies, (Egwaikhide, et.al(2006); Maliszewki (2003); .Altasseb H(2013); Kahssay T.(2017); Temesgen.T.B (2013); Rabiul, *et al.*(2017); and Sisay M., 2008) and is expected to have a significant influence on inflation, we couldn't include it in our regression analysis.

Because in our multicollinearity test, Exchange rate was found to have a close correlation with other variables like money supply, real GDP, and interest rate. And in order to avoid this multicollinearity problem, we excluded the variables which were correlated with most variables.

3.3. Diagnostic Analysis

Diagnostic checking will be used to test whether the sample is consistent with these assumptions

- The data sets are stationary (no unit root).
- There is no relationship between independent variables (No multico-linearity).
- There is no relationship among the error term at the period t and the error term at period before t (No autocorrelation problem)
- The error term is constant across the number of observations (Homoscedasticity).

- The error term is normally distributed (normality)

If all of the above assumptions are not violated, accordingly the regression will be conducted as we are sure of accuracy and reliability of our estimates.

A. Stationary Test (Unit Root Test)

According to time series econometrics, a given regression can explain the long-run relationship among the variables either if all the variables are stationary at level, i.e., I (o), or if they are co integrated. A regression based on non-stationary time series explains the relationship during the study period only. This means that it is impossible to infer about the long run relationship of the variables and leads to spurious regression, very high R square but with no meaningful relationship among the variables. (Gugarati, D., (2003)

Decision Rule: variables are stationary if their p-value is less than significance level Or If T statistics is less than 5% critical values.

In this study, Unit Root Test is done using Augmented Dickey Fuller (ADF) because it accounts for correlation. The result below reveals that Gross National Savings, unemployment rate and real GDP growth rate are integrated of order zero. That means they are stationary. Whereas Interest rate (IR), money supply growth(M2), and CPI were established to be non-stationary. CPI and IR were integrated of order one and were therefore differenced once to become stationary. On the other hand, M2 was integrated of order two and therefore second differenced to become stationary. The result is presented in table below.

Table 3: Unit Root Test (Stationary Test)

Variable	T statistics	5% critical value	P value	Result at level
CPI	3.835816	-2.991878	1.0000	Non stationary
IR	1.95603	-2.991878	0.3028	Non stationary
M2	0.798164	-2.991878	0.9918	Non stationary
RGDP	-4.614320	-2.991878	0.0013	Stationary
UR	-4.799412	-2.991878	0.0009	Stationary
GNS	-5.720031	-2.991878	0.0001	Stationary

Source: Researcher's own compilation

B. Co-integration Test

A regression based on unit roots (non-stationary) has meaning only if the variables are co integrated, i.e., have long run relationship. Since the unit root test revealed, M2, IR, and CPI are found to have a unit root, we test for a long run relationship between all variables.

According to time series econometrics, if the residuals from a regression of unit roots are stationary, then the variables are said to be co integrated. This is because even if the variables are individually non stationary their linear combination is stationary which is depicted by the stationary of the residuals (Gujarati, D., 2009).

Decision rule: accept if the p-value of co-integration is less than 0.05 on at least 1 co integrating equation.

Our result from the Johansson co-integration analysis asserted that there could have a total of six co-integrating equations in the entire system. In this respect, we can firmly conclude that the Ethiopian inflation scenario can be explained through the independent variables. The test is presented in the figure below.

Table 4: Unrestricted Co-integration Rank Test (Trace)

Hypothesized			**Trace**	**0.05**	
No. of CE(s)		Eigenvalue	Statistic	Critical Value	Prob.**
None *		0.984099	224.2237	95.75366	0.0000
At most 1 *		0.816045	128.9719	69.81889	0.0000
At most 2 *		0.780728	90.03137	47.85613	0.0000
At most 3 *		0.737257	55.13022	29.79707	0.0000
At most 4 *		0.493322	24.38887	15.49471	0.0018
At most 5 *		0.316485	8.751640	3.841466	0.0031
	Trace test indicates 6 co-integrating eqn(s) at the 0.05 level				
	* denotes rejection of the hypothesis at the 0.05 level				
	**MacKinnon-Haug-Michelis (1999) p-values				

C. Multi Collinearity

An implicit assumption that is made when using the panel LS estimation method is that the explanatory variables (independent variable) are not correlated with one another. If there is no relationship between the explanatory variables (independent variable), they would be said to be orthogonal to one another. If the explanatory variables were orthogonal to one another, adding or removing a variable from a regression equation would not cause the values of the coefficients on the other variables to change (Brooks, 2008). And according to Chris (2008), Multico-linearity will occur when some or all of the independent variables are highly correlated with one another. If the multico-linearity occurs, the regression model is unable to tell which independent variables are influencing the dependent variable.

Decision rule: According to Gujarati, (2004) multicollinearity could only be a problem if the pair-wise correlation coefficient among variables is above 0.90 (Hailer et al, 2006).

In this case, this study chose to use high pairwise correlation coefficients method because it can see the correlation of independent variables between each other one by one. And no multicollinearity problem was found. The test results are shown below.

Table 5: Correlations- Multicollinearity test

	GNS	IR	M2	RGDP	UR
GNS	1.000000				
IR	0.051385	1.000000			
M2	0.245265	-0.275762	1.000000		
RGDP	0.734765	0.039206	0.343672	1.000000	
UR	-0.241706	-0.400014	0.003914	-0.108064	1.000000

D. Autocorrelation (serial correlation)

Serial correlation occurs when there is a relationship between a variable and its lag value i.e., the error for the period 'Y' is correlated with the error for the period 'X'. For the ordinary least squares to work, there must be no serial correlation that is the current error term must not be correlated with the previous error term.

If there is serial correlation problem, the estimated parameters can still remain unbiased and consistent, but it is inefficient. The result of T-test, F-test or the confidence interval will become invalid due to the variances of estimators tend to be underestimated or overestimated. Due to the invalid hypothesis testing, it may lead to misleading results on the significance of parameters in the model.

Decision Rule: Accept if p-value is greater than 5% significance level.

The study used The Lagrange multiplier (LM test) for higher order serial correlation. To identify determinants of inflation in Ethiopia 125 (5*25) observations were used in the model. To test this, the student researcher used Breusch-Godfrey Serial Correlation LM Test. As shown in the table below, here was no serial correlation because the p value is 0.156 which is greater than the significant level (>0.05).

Table 6: Breusch-Godfrey Serial Correlation LM Test

F-statistic	1.410514	Prob. F(3,16)	0.2762
Obs*R-squared	5.228892	Prob. Chi-Square(3)	0.1558

E. Hetero Skedasticity

One of the CLRM assumptions says that the variance of the errors is constant. This is known as the assumption of homoscedasticity. If the errors do not have a constant variance, they are said to be hetero sciatic (Brooks, 2008, p 132). According to Chris (2008), Hetero scedasticity means that error terms do not have a constant variance. If hetero scedasticity occurs, the estimators of the ordinary least square method are inefficient and hypothesis testing is no longer reliable or valid as it will underestimate the variances and standard errors.

Decision Rule: Accept if p-value is greater than 5% significance level.

This study chose to use White test to detect hetero scedasticity. And as shown in the table below, both the F-statistic and Chi-Square versions of the test statistic gave the same conclusion that there is no evidence for the presence of hetero scedasticity, since the p values were in excess of 0.05.

Table 7: Hetero skedasticity Test: White

F-statistic	1.742514	Prob. F(5,19)	0.1733
Obs*R-squared	7.859764	Prob. Chi-Square(5)	0.1641
Scaled explained SS	2.632038	Prob. Chi-Square(5)	0.7565

F. Normality

Normality tests are used to determine if a data set is well-modeled by a normal distribution. If the residuals are normally distributed, the histogram should be bell-shaped and the Bera-Jarque statistics. With the normality assumption, ordinary least square estimation can be easily derived and would be much more valid and straight forward. (Brooks C., (2008).

Decision Rule: Accept if p-value of JB test is greater than significance level.

This study used Jarque-Bera Test (JB test) to find out whether the error term is normally distributed or not. As shown in the figure below, coefficient of kurtosis was 2.16, and the Bera-Jarque statistic has a P-value of 0.615 implies that the p-value for the Jarque-Bera test for models is greater than 0.05 which indicates that the errors are normally distributed.

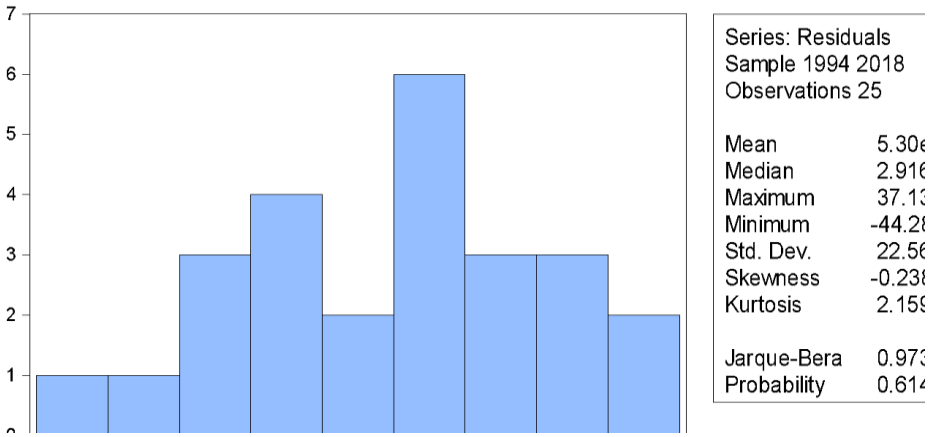


Figure 1: Histogram-Normality

3.4. Regression Analysis

Table 8: Regression output

Dependent Variable: CPI				
Method: Least Squares				
Sample: 1994 2018				
Included observations: 25				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-203.6001	67.48217	-3.017095	0.0071
GNS	-0.308960	0.274925	-1.123798	0.2751
IR	14.03799	4.256254	3.298203	0.0038
M2	9.072756	0.663240	13.67944	0.0000
RGDP	0.521959	0.383874	1.359715	0.1898
UR	-2.509082	1.001517	-2.505283	0.0215
R-squared	0.928131	Mean dependent var		92.60995
Adjusted R-squared	0.909218	S.D. dependent var		84.18036
S.E. of regression	25.36357	Akaike info criterion		9.510068
Sum squared resid	12222.90	Schwarz criterion		9.802598
Log likelihood	-112.8758	Hannan-Quinn criter.		9.591203
F-statistic	49.07398	Durbin-Watson stat		1.184583
Prob(F-statistic)	0.000000			

3.4.1. Discussion of the Result

From the above table, the regression equation is given as: **CPI= -203.6 - 0.31GNS + 14.038 IR + 9.073 M2 + 0.522 RGDP - 2.51 UR.**

Regression result in the table indicates R-squared of 0.928, implying that 92.8% of the total variation in inflation level is attributed to the changes in the independent variables used in this model meaning the variables included in this model explain only 92.8% of the changes of inflation in Ethiopia and the model is fit. The remaining 0.072 shows that there were other variables that determine inflation which were not captured in the study model which accounted for 7.2%. Prob (F-statistic) value was 0.000 which indicates strong statistical significance, which enhanced the reliability and validity of the model. Each variable is described in detail in the following sections.

A. Lending Rate (IR)

Lending rates is the major variable that affects inflation with a coefficient of 14.03799, which implies a 1% change in lending rate, other things kept constant, will cause CPI to change by 14.03799 units, positively. In addition, in the level of significance, Lending rate is statistically significant at the 5% level of significance in causing the variation in inflation rate (t=3.298203,

p=0.0038, p<0.05). Kirrimi W. (2013) in his study done in Kenya and Menji S.(2008) in his study in Ethiopia found a result supporting this result regarding IR.

B. Broad Money Supply Growth (M2)

Broad money supply growth (M2) is the second most influential variable on inflation with coefficient of 9.072 which indicates a 1% change in money supply will result to change CPI by 9.072756 unit positively, ceteris paribus. This positive relationship of M2 with inflation was statistically significant at the 5% and even at 1% level (t=13.6794, p=0.000, p<0.05, 0.01). Various studies done in Ethiopia and other countries regarding inflation support this positive and highly significant relationship between M2 and Inflation. Foreign studies done by Prakash L. and Philip S. (2001) in developing countries; Kirrimi W.(2013) in Kenya; Rabiul, *et al.*(2017) in Malaysia, and local studies done by Menji S.(2008), Kahssay T.(2017) and Biresaw T.(2013) in Ethiopia results are in agreement with this finding.

C. Unemployment Rate (UR)

Unemployment rate (UR) is the third most influential variable of this model. The coefficient of UR showed -2.5091, which indicates a negative relationship between UR and inflation, which means a 1% increase in UR will cause inflation to decrease by 2.5091 units. It was also statistically significant at the 5% level in causing inflation in Ethiopia, where (t=-2.505283, p=0.0215, P<0.05). The results of a study done in Malaysia by Rabiul, *et al.*(2017) showed a negative and significant relationship between UR and inflation supporting the outcome of this model which proves the Phillips curve.

D. Gross National Savings (GNS)

The other variable which has a negative relationship with inflation is Gross national savings. The regression coefficient of GNS showed -0.308960. This means that keeping other variables constant, when the GNS increased by a 1%, CPI also decreased by 0.309 units and when GNS decreased by 1% inflation increased by 0.309 units. However, at 5% level of significance, GNS was established to be statistically insignificant (t=-1.12, p=0.275, p>0.05) in causing a variation in inflation. The study done in Ethiopia by Kahssay T. (2017) showed GNS to have a negative relationship with inflation which is similar to this study's result.

E. Real Gross Domestic Products Growth Rate (RGDP)

The fourth most influential variable of this model is RGDjP. The coefficient of RGDP showed 0.521959 which implies a 1% change in RGDP growth rate will cause inflation to change by 0.521959 units, positively. However, RGDP was not statistically significant at 5% level of significance (t=1.36, p=0.1898, p>0.05) in causing a change in inflation. This study's result regarding RGDP was supported by the results found in the study done by Kahssay T. (2017) and Biresaw T. (2013) of a positive relationship but was contrary to the findings of Menji S.(2008) and Winfred N.K (2014) of a negative relationship.

4. Summary of Major Findings, Conclusion and Recommendation

This chapter present summary of the major findings; conclusions and recommendations for government and other researchers based on the presentation, analysis and interpretation of the data obtained.

4.1. Summary of Major Findings

- The study was done on Unit root test, co integration, multicore linearity, hetero skedasticity, and serial correlation and normality tests in order to check the reliability of the results and it was found to have no problem in the tests done.
- The descriptive statistics of the variables throughout the sample period (1994-2018) showed that, Consumer Price Index (CPI) had an average value of 60.12169, maximum of 167.6 in 2018 and minimum of 21.347 in 1994.
- Mean value of Lending rate (IR) was 12.21620, and the minimum and maximum values were 15.5 in 1997 and 10.5 in 2005-2007 respectively.
- Broad money supply growth (M2) showed average of 19.03, maximum of 39.2 in 2018 and minimum of 4.05 in 1994.
- UR showed maximum of 26.2 from 1999 to 2003 and minimum of 3.1 in 1994 and average of 19.716.
- Gross National Savings (GNS) showed maximum of 112 in 2016, minimum of -38.49 in 1999 and average of 15.17.
- Real Gross Domestic Product growth rate (RGDP) showed average of 11.83 and maximum of 109.38 in 2016 and minimum of -2.098 in 2003.
- The regression model fitness of this study showed R squared of 0.928 which means the variables used in this model explained 92.8% of the changes of inflation in Ethiopia.
- GNS had a negative and insignificant relationship with inflation, while the highest and lowest value recorded in 1999 and 2016 respectively.
- Broad money supply had a positive and significant relationship with inflation, with the maximum record in 2018 and minimum record in1994.
- Real GDP was found to have a positive and insignificant relationship with inflation, minimum and maximum values of real GDP were recorded in 2003 and 2016 respectively.
- Unemployment rate was found to have a negative and significant relationship with inflation and the highest unemployment rate was experienced from 1994 to 2003 while the lowest was in 1994.

4.2. Conclusions

The main objective of this research was to identify the major determinants of inflation in Ethiopia. The dependent variable of the study was inflation measured by CPI, and the independent variables were broad money supply growth (M2), growth of Gross national savings (GNS), growth of real gross domestic product (RGDP), commercial bank lending rate (IR) and unemployment rate (UR).Based on the regression results, the following conclusions were forwarded.

Lending rate was found to have the leading coefficient. Its impact was significant and positive. So, it can be concluded that lending rate was the major factor that affects Ethiopia's inflation. This may be due to following the increase in lending rate; producers or merchandisers increase the price of goods/services to the final consumer to compensate the cost of borrowing. The other possibility was increase in lending rate discourages investments, which in turn decreases production leading to a decrease in supply and if the supply cannot meet the demand, inflation is created. So, from this, it can be concluded that inflation in Ethiopia was mainly cost-push. Following that, according to Hypothesis 2 a significant and positive relationship between commercial banks' lending rate and inflation is accepted.

The second factor that mainly affected inflation is money supply growth rate; as seen from the results, increase in M2 played a major role in increasing inflation in Ethiopia. It was also the most significant variable of this model. The rationale behind this was if excess money is supplied to the economy compared to the production level of the country, inflation is created. Therefore, it can be concluded that inflation in Ethiopia is also monetary phenomenon, attributable to the expansionary monetary policy followed by the country. Therefore, our Hypothesis 1, which says 'there is a positive and significant relationship between money supply growth and inflation', is accepted.

According to the Phillips curve, there is an inverse relationship between unemployment rate and inflation. And this study proved Phillips curve in Ethiopia because unemployment rate was found to have a negative and significant relationship with inflation. This inverse relationship may be due to demands for labor like the Phillips curve suggested. Thus, Hypothesis 5, which says 'There is a negative and significant relationship between unemployment rate and inflation', is accepted.

Real GDP growth rate and inflation had positive relationship. And this relationship was statistically insignificant. This may be due to an increase in demand following the economic growth of a country as a result some portion of inflation in Ethiopia may also be a demand pull. However, we rejected our Hypothesis 3 which says, 'there is a negative and significant relationship between Real Gross Domestic product growth rate and inflation' in Ethiopia.

According to the findings of the study, the relationship between growth of Gross National Savings and inflation was found to be negative but it was statistically insignificant. This negative impact of Gross National Savings on inflation may be because an increase in national savings which includes private, business and government saving will lessen the amount of money circulating in the economy. Additionally, it provided potential investors with adequate investible funds thereby increasing production. Nevertheless, our Hypothesis 4, There is a negative and significant relationship between Gross national savings and inflation in Ethiopia, was not accepted because this relationship was found to be insignificant.

4.3. Recommendations

Based on the findings of the study, the following recommendations were forwarded to help reduce inflation"

Since lending rate was found to be the main factor that affects inflation, Policy makers should adopt policies that cushion a decrease in lending rate to encourage investments. These investments will increase production which will raise supply to meet the demands, lessening inflation in return.

Money supply was also a major variable in causing inflation so the Government should reduce the money that is supplied to the economy and should focus on increasing the production output to match the money supplied.

Since increase in gross national savings resulted a reduction in inflation, the government has to take various measures to increase public saving while encouraging business firms and households to raise the private saving.

It is strongly recommended to carry out further study using other major non-economic, political and socio-cultural variables like corruption and political instability. Moreover, it is advised to make observation of more than 25 year sample data to avoid a correlation problem and make in-depth analysis of Inflation in Ethiopia (if such data are available). In addition, other studies should be done in other methods of measurement of inflation like the GDP Deflator or Producer Price Index. Other mathematical model to detect the factors affecting inflation in Ethiopia can also be used for additional analysis.

References

Altasseb, H. G. (2013), *An Investigation into the Causes and Dynamics of Price Inflation in Ethiopia*, a Macro-Econometric Approach, The Hague, Netherlands: Journal of Economics and Sustainable Development.

Andrew B. Abel, Ben S. Bernanke, Robert McNabb. (1998). *Macroeconomics*: Addison Wesley Longman, New York.

Biresaw, T.T. (2013), *Determinant and impacts of dynamic inflation in Ethiopia (A Granger Causality model approach)*, Norwegian university of life science, ÅS, Norway.

Brooks, C. (2008), Introductory Econometrics for Finance, 2nd edition, Cambridge University.

Press United Kingdom. Campbell, R., David M. & Brue, L. S. (2016), *Contemporary Labor Economics*, 11th edition, McGraw-Hill Education, Pennsylvania Plaza New York City.

Christopher C. (2006), *Inflation, Inequality and Social Conflict*, IMF: Issues 2006-2158

Diulio E. (1998), *Macroeconomics,* Third edition, Tata McGraw-Hill publishing, New-Delhi

Dr. Mithani D. M. **Macroeconomics**, Himalaya Publishing, Mumbai.

Gujarati D, and Porter D. (2009), *Basic econometrics,* Douglas Reiner Publisher, New York

IMF (2018), '*Federal Democratic Republic of Ethiopia: Key Issues*: *IMF Country Report No.13/308',* Washington, D.C: International Monetary Fund.

Jhingan, M.L. (1997), Monetary Economics, 4th edition, Virinda Publication, India.

Kahssay, T. (2017), '*Determinants of Inflation in Ethiopia: A Time-Series Analysis (*1975-2014), Addis Ababa, Ethiopia. Journal of economics and sustainable development.

Khan, M. S. & Schimmelpfenning (2006), A., *Inflation in Pakistan: Money or Wheat?* IMFWP/06/160.

Kibritçioğlu, A. (2002), "*Causes of Inflation in Turkey: A literature survey with special Reference to theories of inflation*," in Inflation and Disinflation in Turkey, ed.

Kirimi, W.N. (2014), *The Determinants of Inflation in Kenya (1970 – 2013),* University of Nairobi, Kenya.

Kotwal, O.P.(1974), *Indian Economy in soviet perspective*, sterling, New Delhi.

Menji, S. (2008), *Determinants of Recent Inflation in Ethiopia*, Unity University, Addis Ababa, Ethiopia.

Prakash, L. & Philip, S. (2001), *Source of Inflation in Developing Countries*, IMFWP.

Rabiul, I., Ahmad, B.A., Emil, M., & Narmatha, M., *(2017), Determinants of factors affecting Inflation in Malaysia (1980-2014)*, International Journal of Economics and Financial Issues ISSN: 2146-4138.

Jackman R., Mulvey C. and Trevithick J. (1981). *The economics of inflation.* Oxford

World Bank report (2018), *'Economic Overview of Ethiopia'* available at http://www.worldbank.org/en/country/ethiopia/overview

The Effect of Workforce Diversity on Organizational Performance, Bethelhem Asgelelew, St. Mary's University

Abstract

The general purpose of the study was to determine the impact of workforce diversity on organizational performance at Nile Insurance S.C. The study sought to realize two specific objectives, namely; to investigate how age diversity influences the performance of Nile Insurance and to examine how gender diversity affects the performance of Nile Insurance. The statement of the problem of the study primarily focused on the impact of demographic diversity on organizational performance, and the impacts on non-financial aspects of organizational growth. The methodological framework to collect data was a combination of primary and secondary data collection. The study adopted a descriptive research design. The total population for this study comprised 385 employees of Nile Insurance S.C. The sample size comprised of 72 individuals from all departments of the organization who are considered to possess the relevant information that the researcher needed for the study. The study found out that the respondents' age was diverse, aged between 20 and 40 years. The majority of the respondents were Bachelor's degree holders followed by holders of diploma and certificates. The study established further that "Educational Diversity" had the highest in terms of ranking by percentage mean rating, followed by "Age Diversity" and "Gender Diversity". The study concluded that, age diversity was a very crucial resource for firms that intend to have sustainable workforce. It argued that gender diversity is a vital factor for organizational performance. This is because it has both internal and external values that facilitate organizational performance. It was recommended that managers should perceive age diversity as a source of competitive advantage within the firm. They should also embrace age diversity for the potential impact that it has for creativity and innovativeness in the firm. It also suggested that the management of organizations that want to remain successful in the contemporary gendered world must appreciate gender diversity and integrate it within their corporate strategy.

Keywords: diversity, workforce, age diversity, gender diversity

1. Introduction

1.1 Background of the Study

Diversity can generally be defined as recognizing, understanding and accepting individual differences irrespective of their race, gender, age, class, ethnicity, physical ability, Sexual orientation, spiritual practice and so on. Grobler (2002) also supports this view by adding that each individual is unique but also shares any number of environmental or biological characteristics.

Diversity can be classified into three dimensions. The primary dimensions such as age, gender, sexual orientation and so on, exhibit the main differences between various individuals. This primary dimensions also have the most impact on initial encounters and can be easily noticed

and serve as filters through which people view the world. The secondary dimensions such as religion, education, geographical location, income, work experience etc., are those qualities that are not noticeable in the first encounter and can even change throughout different encounters. These qualities are only noticed after some interactions occur between individuals. The third dimensions such as belief, assumption, perception, attitude, belief, value, etc., are individual level variables are personal characteristics that affect degree to which individuals yield to group pressures.

Age diversity refers to generational differences among individuals or employees in a corporation and the values and perspectives attached to each (Backes-Gellner &Veen, 2009). Gender diversity implies psychological disparities and experience that socially or culturally attached to being a male or a female within the organization (Ali, Kulik & Metz, 2011). During the 1960s and 1970s, the United States for the first time saw the need to promote workforce diversity. President John F. Kennedy in 1961 recognized a President's Committee on Equal Employment Prospect with the goal of ending discrimination in employment by the government (Christian, Porter & Moffit, 2006). The Civil Rights Act of 1964 went further, avoiding discrimination in any activity (Kamonjoh, 2015). The promotion of workforce diversity continued to go further, setting a policy to promote equal employment chances by creating the possibility for the program to continue for a long period of time in any department. It turned out to be a turning point, because it succeeded in avoiding the deliberation of diverse characteristics such as "nationality, human race, skin color etc." to believing in the principle that to be fair to all, one needs to be committed to treating everyone equally.

In contemporary organizations, diversity is perceptible in the cultural, religious, language, gender, ethnic, educational and personality orientations of the workforce and is a matter of great global concern. In 2003, Norway enacted a law that mandated a 40% inclusion of women in the publicly listed companies and the European Commission (EC) has proposed that the member states ensure women's presentation in the public listed companies to 30% and 40% by 2015 and 2016 respectively (Christiansen et al., 2016). Africa has also witnessed transformation in the diversity of the workforce and embrace of the same. According to Mwikali and Kyalo (2015), Nigeria has realized a precedent change in the heterogeneity of organizations' workforce. In Ethiopia and particularly in Addis Ababa, diversity is being experienced in all the demographic aspects including race, ethnicity, gender, age, religion, work experience and level of education.

1.2 The Case of the Company of the Study

Nile Insurance Company (S.C) is one of the pioneer private insurers established on April, 1995 with a capital of birr 12.5 million. The company has a legal entity registered with the licensing and supervisory body of the National Bank of Ethiopia in accordance with proclamation No-86/1994 and license No-006/95. Over the past years, the company has grown from birr 12.5 million to 200 million-birr capital, from 26 to 124 shareholders, from 4 to 41 branches both in the capital and regional cities and has more than 38,500 customers across the country. Nile

provides both general and long-term insurance solutions along with engaging in promising investments across the country. Currently, Nile has reached 385 in terms of workforce squad. It has the most qualified, experienced and competent employees in the industry. These include: 218 male and 167 female (Nile Insurance Annual Report, 2018).

1.3 Statement of the Problem

Deloitte (2014) observes that workforce diversity has become a topic of great importance in organizations. Countless studies have been conducted on workforce diversity. This study will provoke by the gap left unfilled by a substantial number of researches that have been conducted on workforce diversity and its significance on the corporate culture.

In recent years, diversity management and workforce diversity have been substantial and as such have forced companies to embrace these concepts in their companies with the aim of increasing productivity and profit. This forced integration has created divergence and uncertainty in the workforce, as management is not skilled enough to control the concept of diversity management and its ethics, and so managers are finding it difficult to effectively practice diversity management, which in turn has become an albatross on their neck. Managers find it difficult in knowing the factors that contribute to effective diversity management or the exact leadership tasks that can be achieved to effectively and efficiently deal with issues related to workforce diversity.

Despite the existence of a lot of literature on the relationship between diversity and organizational performance, not much studies have been done on how demographic diversity affects organizational performance. Furthermore, the few studies that have focused on the impact of demographic diversity on organizational performance, have not examined their impacts on non-financial aspects of organizational growth. Consequently, understanding how diversity affects such performance attributes which are still problematic. However, despite the above consequences the issues raised attract the attention of the researcher in Ethiopia. Thus, while searching on internet, browsing through the books and journals, the researcher didn't find resources directly related to research topics carried out in Addis Ababa.

Therefore, the researcher believed that, the problem is almost untouched and there is a knowledge gap on the area. Hence, lack of proper study in the area caused Ethiopian company managers to have limited awareness in relation to workforce diversity management that would increase firms' performance. All of these constitute the problem of the investigation, hence, the need to study the impact of workforce diversity on the performance of Nile Insurance S.C. in Addis Ababa.

1.4 Basic Question of the Study

The basic questions of the study are:

1. What is the relationship between gender diversity and organizational performance at Nile Insurance S.C?
2. What is the relationship between age diversity and organizational performance at Nile Insurance S.C?
3. What are the factors that affect organizational performance related to age and gender diversity?

1.5. Objective of the Study

The objective of this research was to examine the different ways of dealing with workforce diversity as well as to provide management with the necessary guidelines for effective diversity management in small and big companies in order to show how to build effective workforce diversity by applying different diversity management tools.

1.5.1 General Objective

The general objective of the study was to determine the effect of workforce diversity on organizational performance at Nile Insurance S.C.

1.5.2 Specific Objective

The specific objectives of the study were:

- To investigate how age diversity influences the performance of Nile Insurance S.C;
- To examine how gender diversity affects the performance of Nile Insurance S.C; and
- To assess the factors that affect organizational performance related to age and gender diversity.

1.6. Significance of the Study

The findings of the study may be important to any interested organization that seeks to understand the effect that age and gender has on their overall performance.

Particularly, the Management of Nile Insurance stands to be a principal beneficiary of the study. The study will help the management recognize and appreciate the importance of workforce diversity in the attainment of the competitive advantage and organizational performance. The study will accord Nile Insurance management on how deriving value inherent in employee's different perspectives can enhance specific attributes of performance such as problem solving, decision making, employee satisfaction and morale among others.

Apart from being of vital importance to Nile Insurance management, the study will also be of significant importance to the employees. It will provide employees with information regarding the importance of their age and gender diversity to the enhancement of organizational performance. As such, it may help the employees embrace diversity and appreciate the importance of the multiple perspectives, ideas, experiences and knowledge that comes with

diversity. It could also help the employees appreciate diversity and exploit their differences to attain the organization's goals.

Other organizations will also find the study very important. The findings of the study may help other firms to assess or evaluate the effectiveness of their diversity in the attainment of organizational performance. On the other hand, the information provided in the study will contribute to the current body of literature focusing on the impact of diversity on organizational performance, form an importance source of information for future studies. By focusing on the internal dimensions of diversity, specifically the demographic aspects, the study will inspire and facilitate future research on the subject.

1.7. Scope of the Study

The study primarily centers on the impact of workforce diversity on organizational performance of Nile Insurance S.C. in Addis Ababa. It specifically examines how age and gender diversity affects organizational performance of Nile Insurance. The study focused on the non-functional diversity that has an impact on organizational performance such as creativity and innovation, decision-making, the quality of services and products, intra-organizational communication and flow of information, management and leadership and job satisfaction as well as competitive advantage. The data were collected from among employees of all departments of Nile Insurance at head office. In addition, the study covered the data which are available from 2015 G.C till now.

2. Research Design and Methodology

This section highlights the research design used in the study, identifies, and describes the population of the study. It presents the sampling design used to determine the sample size of the study, the data collection instrument employed, and the data analysis methods that were used.

2.1. The Research Design

The study used a descriptive research design that describes characteristics of objects, people, groups, organizations, or environments. The research was conducted on the variables that lead to quality management in Nile Insurance. A good research design ensures that the information collected is relevant and useful to conduct research project more effectively and efficiently Blance, *et al.*, (2006). Therefore, a descriptive research design permits collecting of information regarding what the situation is and describe the relationship between organizational performance and the age diversity and gender diversity which are the main focus of the study.

2.2. Population and Sampling Technique

2.2.1 Population of the Study

The total number of employees in the company was 385 (218 male and 167 female) (Nile Insurance Annual Report 2018). The population for this study comprised employees in all departments of Nile Insurance at head office.

2.2.2 Sample Technique and Sample Size

The sample size refers to the proportion of individuals that are actually chosen to participate in the study. The total employees in the company were 385, but the study focused on 72 employees in all department at the head office. The number of employees at head office was small and manageable so the researcher used census sampling technique. A questionnaire was distributed to each of the selected employee to fill out and return the required information about age and gender diversity in their organization which is relevant for this study to see the impact of workforce diversity.

2.3. Data Collection Methods

The researcher used both primary and secondary data collection methods. To collect primary data, quantitative (based on a questionnaire) method was adapted. Secondary data were collected from various sources such as books, internet, business journals, articles, etc. The questionnaire was categorized into three key parts each dealing with a particular set of questions aimed at obtaining relevant responses. The questionnaire comprised of 24 questions, with the first part comprised of 4 questions aimed at obtaining the biographical data or background information of the respondents. The second part comprised 10 questions aimed at obtaining information concerning the impact of age diversity on organizational performance. The third part of the instrument comprised 10 questions, which sought to obtain information concerning the effect of gender diversity on organizational performance.

2.4. Data Analysis Method

The study used quantitative method of data analysis. To ensure easy analysis, the questionnaires were coded accordingly. The quantitative analysis comprised of descriptive analysis. The analysis involved the process of transforming a mass of raw data into tables, charts, with frequency distribution and percentages to provide key answers to the research questions.

2.5. Limitation of the Study

It is important to consider the limitations in order to account for discrepancies among the information provided and the conclusions that are made, and to be aware of them when using the results to make generalizations. One of the limitations of the study was that the participants responded to the questions from the specific context of their position rather than from a holistic perspective. In addition, the study did not involve a large number of participants from various

organizations across the public and private sector, which was attributed to factors such as it time and budget constraints. The limitations should be taken into account when considering the conclusions and recommendations of the study.

3. Findings of the study

This Chapter provides the study results as per every item of the questionnaire. It used of descriptive statistics including bar graphs, pie charts and frequency tables. The response rate of the study was 79.17% (having obtained 57 responses from a possible 72).

3.1. Background Information

This part of the report presents the results of the study regarding the respondents' background.

3.1.1. Respondents by Age

Table 3.1 shows the age of the respondents. Accordingly, 31 respondents (54.4%) were between the age range of 20 to 30 years, 21 respondents (36.8%) were between the age range of 30 to 40 years, 3 respondents (5.3%) were between the age range of 40 to 50 years, and 2 respondents (3.5%) were over the of 50 years, denoting a fairly young generation of employees.

Table 1: Respondents by Age

Responses	Frequency (n)	Percentage (%)
20 - 30 Years	31	54.4
30 - 40 Years	21	36.8
40 - 50 Years	3	5.3
Over 50 Years	2	3.5
Total	**57**	**100**

3.1.2 Respondents by Sex

Figure 1 is a representation of the classification of respondents by sex. 23 respondents (40.4%) were female and 34 respondents (59.6%) were males.

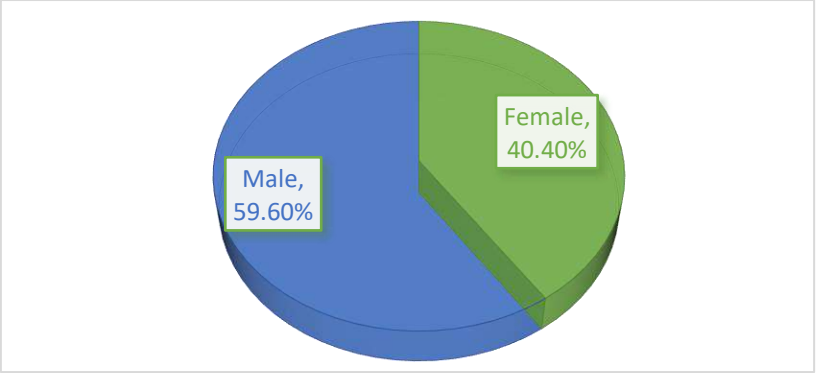


Figure 1: Categorization of Respondents by Sex

3.1.3. Respondents by Educational Qualification

As shown in Table 2 below, 13 respondents (22.8%) held a "certificate or a diploma", 32 respondents (56.1%) had a "Bachelor's Degree", 7 respondents (12.3%) held a "Master's Degree" and 5 respondents had a "PhD". This show that most employees were Bachelor degree holders.

Table 2: Respondents by Educational Qualification

Responses	Frequency (n)	Percentage (%)
Certificate/Diploma	13	22.8
Bachelor's Degree	32	56.1
Master's Degree	7	12.3
PhD	5	8.8
Total	**57**	**100**

3.2. Most Important Diversity Affecting Organizational Performance

The respondents were asked to rank a given set of diversity from 1 to 5 with one being the least important and 5 being the most important. As shown in figure 3.2 below, "Educational Diversity" had the highest ranking with a percentage mean rating of 89.5, followed by "Age Diversity" with mean rating 68.4% and "Gender Diversity" with mean ratings of 63.4%. From this, it can be deduced that education was important as it has a direct relationship on the overall performance of the organization and on achieving its objectives.

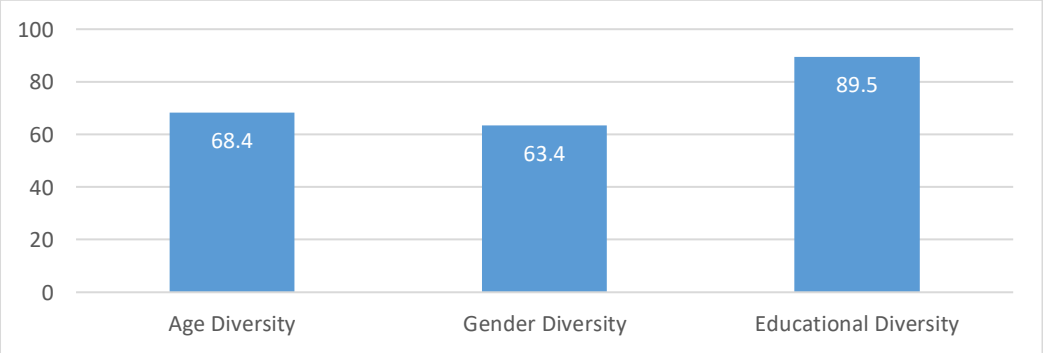


Figure 2: Most Important Diversity Affecting Organizational Performance

3.2.1. Effect of Age Diversity on Organizational Performance

The researcher sought to study the effect of age diversity on organizational performance as per the second research objective and the results are presented as follows.

3.2.1.1. Most Important Aspect of Performance Affected by Age Diversity

The researcher asked the respondents to rank from least important to most important from 1 to 5 (with 1 being the least important and 5 being the most important), aspects of organizational performance affected by age diversity.

As shown in Figure 3, "Creativity and Innovation" had the highest ranking with a percentage mean rating of 82.5%, followed by "Decision-Making" with percentage mean ratings of 80.7%. "Product and Service Quality" and "Intra-Organization Communication" were ranked as the second least important and the least important with percentage mean ratings of 71.9% and 63.2% respectively.

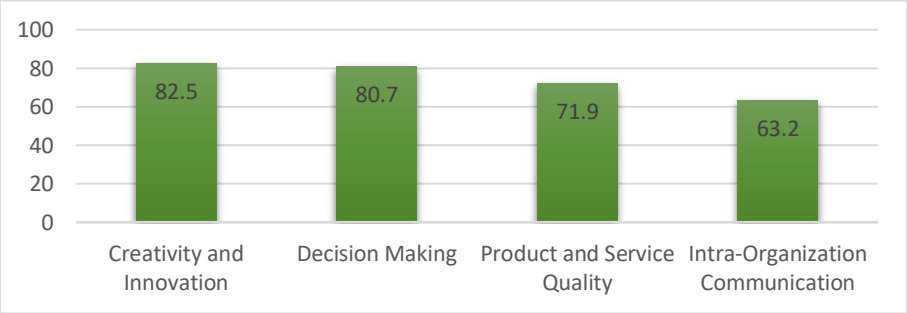


Figure 3: Most Important Aspect of Performance Affected by Age Diversity

3.3.2. Perception of Level of Creativity and Innovativeness in the Firm

The respondents were asked to indicate their opinion on creativeness and innovativeness of their firm. To this end, one respondent (1.8%) was "Not Sure", 10 (17.5%) thought their firm was "somewhat innovative", 32 (56.1%) responded that their firm was "quite creative and innovative", 14 (24.6%) thought that their firm was "very creative and innovative." The results are shown in Table 3 below.

Table 3: Perception of Level of Creativity and Innovativeness in the Firm

Responses	Frequency (n)	Percentage (%)
Not Sure	1	1.8
Somewhat Creative and Innovative	10	17.5
Quite Creative and Innovative	32	56.1
Very Creative and Innovative	14	24.6
Total	**57**	**100**

3.3.3. Effect of Age Diversity on Creativity and Innovativeness in the Firm

The respondents were asked whether age diversity had an effect on creativity and innovativeness in their firm. As shown in Figure 4, 7% of the respondents said it had "No Effect", 3.5% thought the effect was "Mostly Negative", 66.7% thought it was "Positive" and 22.8% indicated that the effect was "Mostly positive".

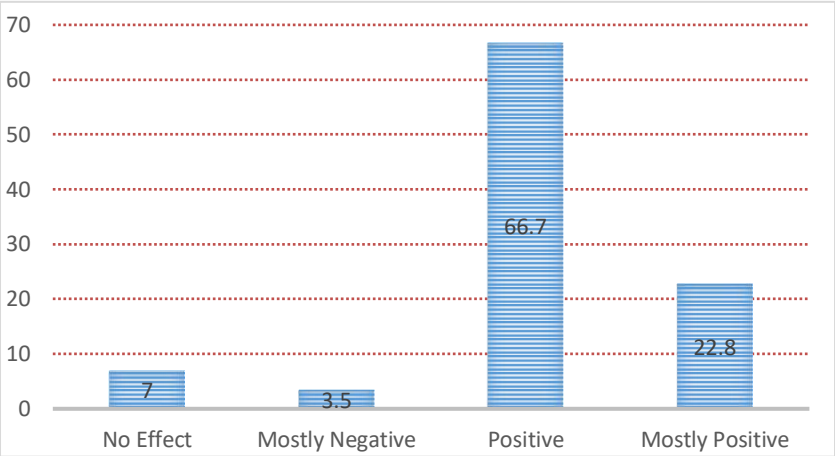


Figure 4: Effect of Age Diversity on Creativity and Innovativeness in the Firm

3.3.4 Ease of Decision-Making within the Firm

Table 4 indicates the results obtained when the respondents were asked how easy decision making was in their firm. 2 respondents (3.5%) indicated they were "Not Sure", 3 respondents (5.3%) answered that it was "Very Hard", 13 (22.8%) said it was "Hard", 33 (57.9%)replied it was "Easy" and 6 respondents (10.5%) said it was "Very Easy" to make decisions.

Table 4: Ease of Decision-Making within the Firm

Responses	Frequency (n)	Percentage (%)
Not sure	2	3.5
Very hard	3	5.3
Hard	13	22.8
Easy	33	57.9
Very easy	6	10.5
Total	**57**	**100**

3.3.5. Effect of Age Diversity on Decision-Making Process

Table 5 indicates the results obtained when the respondents whether age diversity had made decision-making easier or hard within the firm. As indicated in the figure, 20 respondents (35.1%) thought it had "No Effect", 1 respondent (1.8%) thought it made it "Very hard", 10

(17.5%) thought it made it "hard", 25 (43.9%) thought that it made it "Easy" while another respondent (1.8%) answered that age diversity made decision making "very easy".

Table 5: Impact of Age Diversity on Decision-Making Process

	Frequency (n)	**Percentage (%)**
No Effect	20	35.1
Makes it Very Hard	1	1.8
Makes it Hard	10	17.5
Makes it Easy	25	43.9
Makes it Very Easy	1	1.8
Total	57	100

3.3.6. Perception of Quality of Firm's Products and Services

The researcher asked the respondents to comment about the quality of their firm's products and services. As shown in Figure 5, 3.5% of the respondents answered they were "Not Sure", 1.8% "somewhat quality products and services", 57.9% "good or quality products and services" and 36.8% thought their firms had "very high-quality products and services.

Figure 5: Perception of Quality of Firm's Products and Services

3.3.7 Perception of Effect of Age Diversity on Product and Service Quality

The respondents were asked to indicate their opinion about whether age diversity in their firm had an effect on product and service quality. As shown in Table 6 below, 4 respondents (7.0%) were "Not Sure", 33 (57.9%) thought it had a "Positive effect", and 20 (35.1%) thought that the effect was "Mostly positive".

Table 6: Perception of Impact of Age Diversity on Product and Service Quality

Responses	Frequency (n)	Percentage (%)
No Effect	4	7
Positive Effect	33	57.9
Mostly Positive Effect	20	35.1
Total	**57**	**100**

3.3.8. Perception of Ease of Communication within the Organization

When asked to indicate their opinion on whether communication within their firm was easy, 18 respondents (31.6%) "Strongly" agreed, 35 (61.4%) "Agreed", while 4 (7.0%) said they "Disagreed". The results are shown in Figure 6 below.

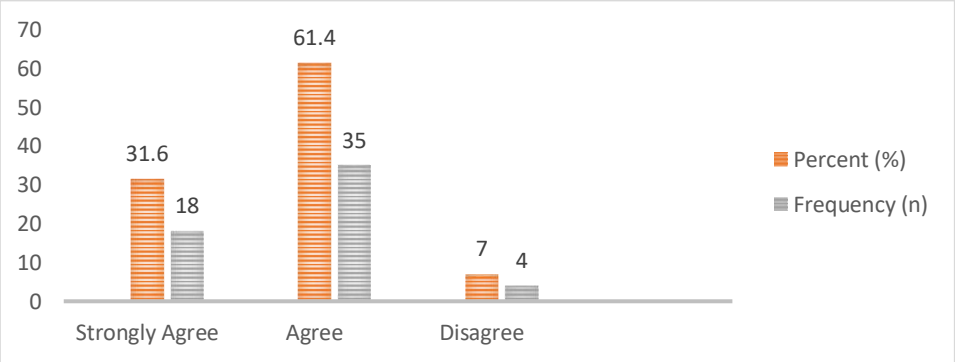


Figure 6: Perception of Ease of Communication within the Organization

3.3.9. Effect of Age Diversity on Communication within the Firm

Table 7 shows the results of the respondents' responses when asked whether the impact of age diversity on communication within the firm was positive or negative. To this end, 13 respondents (22.8%) thought it had "No Effect", 6 (10.5%) replied that the effect was "Negative", 24 (42.1%) "Positive" and 14 (24.6%) "Mostly positive".

Table 7: Effect of Age Diversity on Communication within the Firm

Responses	Frequency (n)	Percentage (%)
No Effect	13	22.8
Negative	6	10.5
Positive	24	42.1
Mostly Positive	14	24.6
Total	**57**	**100**

3.3.10. Effect of Age Diversity on Problem Solving within the Firm

The researcher asked the respondents to indicate their opinion about the effect of age diversity on problem solving within the firm. Accordingly, ten respondents (17.5%) said it had "No Effect", one respondent (1.8%) replied that it made it "Very hard", 7 (12.3%) said it made it "Hard", 33 (57.9%) said "Easy" and 6 (10.5%) it made problem solving process "Very easy", as shown on Figure 7 below.

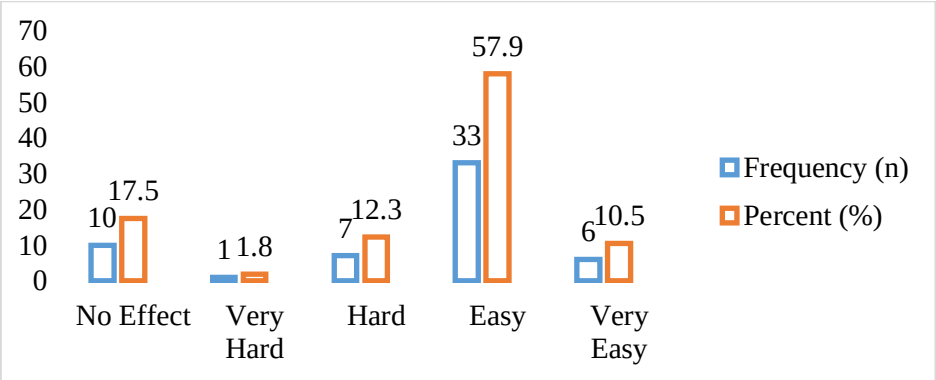


Figure 7: Effect of Diversity on Problem Solving within the Firm

3.4 Effect of Gender Diversity on Organizational Performance

In line with the second specific research objective, the researcher asked the respondents questions regarding the impact of gender diversity on organizational performance. The findings are presented as follows.

3.4.1 The Most Important Aspects of Performance Affected by Gender Diversity

The respondents were asked to rank from least important to most important from 1 to 5 (with 1 being the least important and 5 being the most important), aspects of organizational performance affected by gender diversity. As shown in Figure 3.8, "competitive advantage" had the highest ranking with a percentage mean rating of 63.2%, followed by "Management and Leadership Quality" with percentage mean ratings of 57.9%. "Organizational culture" and "job satisfaction" were ranked as the second least important and the least important with percentage mean ratings of 54.4% and 50.9% respectively.

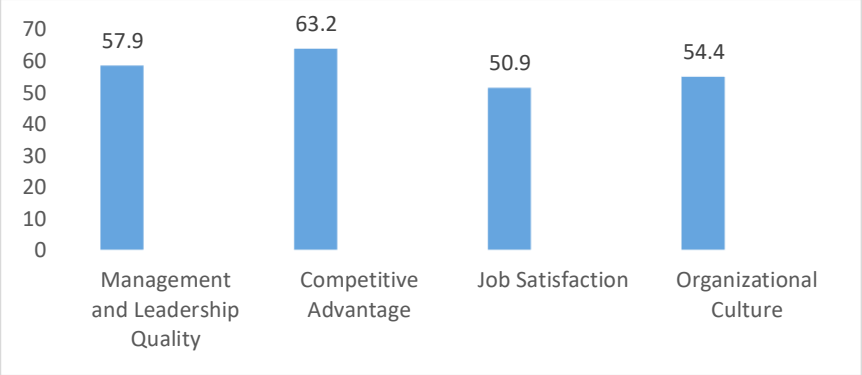


Figure 8: Most Important Aspects of Performance Affected by Gender Diversity

3.4.2 Perception of Quality of Management and Leadership in the Firm

Table 8 shows the findings about respondents' perception of the quality of management and leadership in their firm. As shown in table 8, 2 respondents (3.5%) thought it was "Poor", 38 (66.7%) said "Good" and 17 (29.8%) thought it was "Very Good".

Table 8: Perception of Quality of Management in the Firm

Responses	Frequency (n)	Percent (%)
Poor	2	3.5
Good	38	66.7
Very good	17	29.8
Total	**57**	**100**

3.4.3 Effect of Gender Diversity on Quality of Management in the Firm

The respondents were asked to indicate their opinion on the effect of gender diversity on quality of management in the firm. As shown in Figure 3.9, 17.5% of the respondents indicated they were "Not Sure", 1.8% responded that it was "very poor", 5.3% said it was "poor", 57.9% replied that it was "high" and another 17.5% thought that it was "Very high".

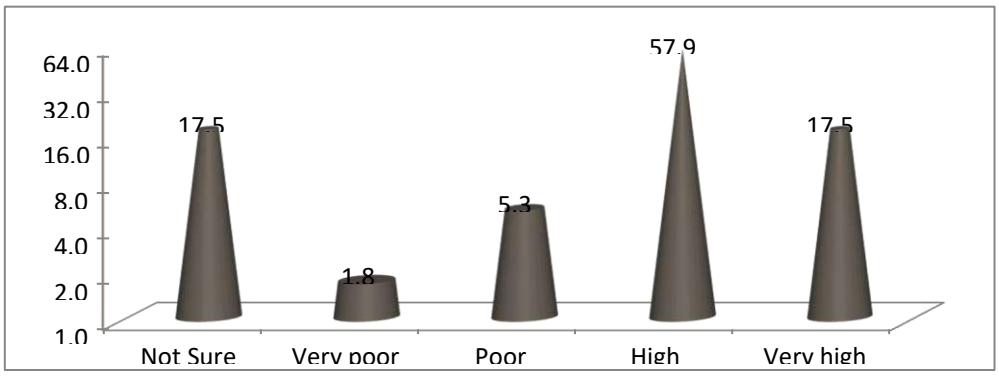


Figure 9: Effect of Gender Diversity on Quality of Management in the Firm

3.4.4. Perception about Firm's Competitiveness

Table 9 shows the results when the respondents were asked whether they agreed or disagreed on their firm being competitive. Two respondents (3.5%) said "Strongly Disagreed", 3 (5.3%) replied they "Disagreed", 24 (42.1%) responded that they "Agreed" and 28 (49.1%) said they "Strongly Agreed" that their firm was competitive.

Table 9: Perception about Firm's Competitiveness

Response	Frequency (n)	Percent (%)
Strongly Disagree	2	3.5
Disagree	3	5.3
Agree	24	42.1
Strongly Agree	28	49.1
Total	**57**	**100**

3.4.5. Effect of Gender Diversity on Firm's Competitiveness

The researcher asked the respondents to indicate their thought on the effect of gender diversity on their firm's competitiveness. As shown in Figure 10, 14 respondents (24.6%) thought the effect was "Mostly Positive", 34 (59.6%) indicated the effect was "Positive", 3 (5.3%) replied the effect was "Negative" and 6 (10.5%) thought that gender diversity had "No Effect" on their firm's competitiveness.

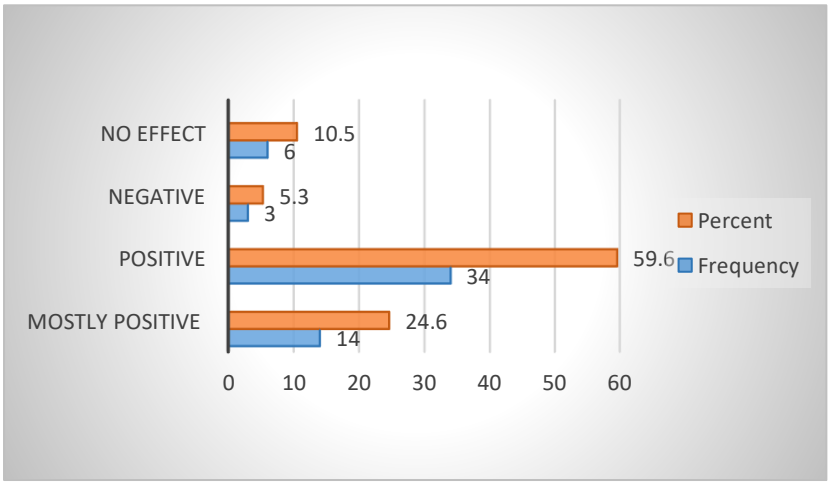


Figure 10: Effect of Gender Diversity on Firm's Competitiveness

3.4.6 Perception on Satisfaction with Job

Table 10 shows respondents' perception regarding their satisfaction with their job. One respondent (1.8%) was "Not Sure" whether he/she was satisfied with his or her job, another respondent (1.8%) said "Strongly Disagreed", 5 (8.8%) indicated they "Disagreed", 37 (64.9%) replied they "Agreed" and 13 (22.8%) "Strongly Agreed" that they were satisfied with their job.

Table 10: Perception Satisfaction with Job

Responses	Frequency (n)	Percent (%)
Not Sure	1	1.8
Strongly Disagree	1	1.8
Disagree	5	8.8
Agree	37	64.9
Strongly Agree	13	22.8
Total	**57**	**100**

3.4.7. Effect of Gender Diversity on Job Satisfaction

The researcher asked the respondents to indicate their perception of the effect of gender diversity on job satisfaction. As indicated in Figure 11, 7 respondents (12.3%) were "Not sure", 2 (3.5%) said they "Strongly Disagreed", 25 (43.9%) responded that they "Disagreed", 19 respondents (33.3%) said "Agreed" and 4 (7.0%) replied they "Strongly Agreed" respectively.

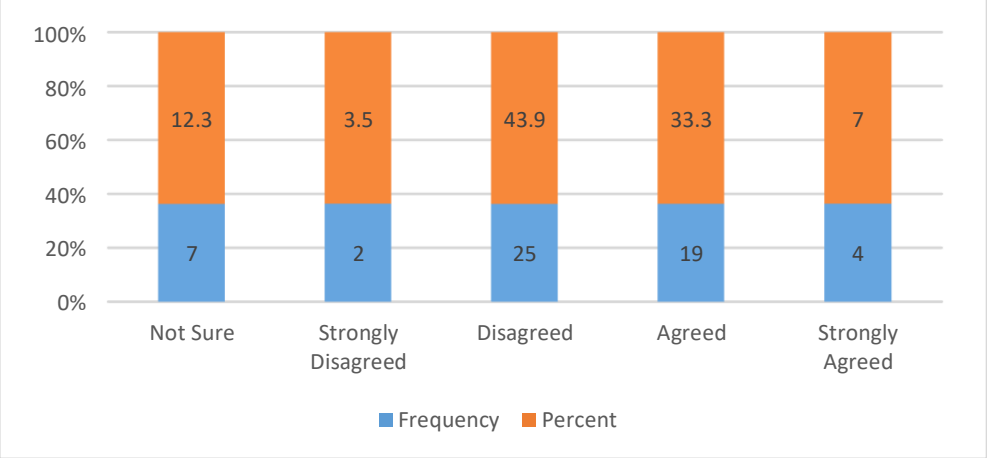


Figure 11: Impact of Gender Diversity on Job Satisfaction

3.4.8. Perception of Firm as Having a Distinctive Culture

Table 11 shows the results when respondents were asked whether they thought their firm had a distinctive organizational culture. Two respondents (3.5%) were "Not Sure", one respondent (1.8%) said "Strongly Disagreed", 7 (12.3%) replied that they "Disagreed", 37 (64.9%) said they "Agreed" and 10 (17.5%) responded they "Strongly Agreed."

Table 11: Perception of Firm as Having a Distinctive Culture

Responses	Frequency (n)	Percent (%)
Not Sure	2	3.5
Strongly Disagree	1	1.8
Disagree	7	12.3
Agree	37	64.9
Strongly Agree	10	17.5
Total	**57**	**100**

3.4.9. Effect of Gender Diversity on Organizational Culture

Table 12 summarizes the responses of the respondents on the effect of gender diversity on organizational culture. As shown in table 12, 2 respondents (3.5%) were "Not Sure", 10 (17.5%) thought it was "To a Little Extent", 5 (8.8%) said "Not at All", 29 (50.9%) replied " To Some Extent" and 11 (19.3%) though that the impact of gender diversity on organizational culture was "To a Great Extent".

Table 12: Effect of Gender Diversity on Organizational Culture

Responses	Frequency (n)	Percent (%)
Not Sure	2	3.5
To a minimal extent	10	17.5
Not at all	5	8.8
To some extent	29	50.9
To a great extent	11	19.3
Total	**57**	**100**

3.4.10. Effect of Gender Diversity on Organizational Performance

The respondents were asked to indicate their opinion about the overall effect of gender diversity on organizational performance. To this end, 11 respondents (19.3%) thought it had "No Effect", 2 (3.5) thought the effect was "Negative", 31 (54.4%) respondents thought it was "Positive" and 13 (22.8%) thought that it was "Mostly Positive". The findings are presented in Figure 12 below.

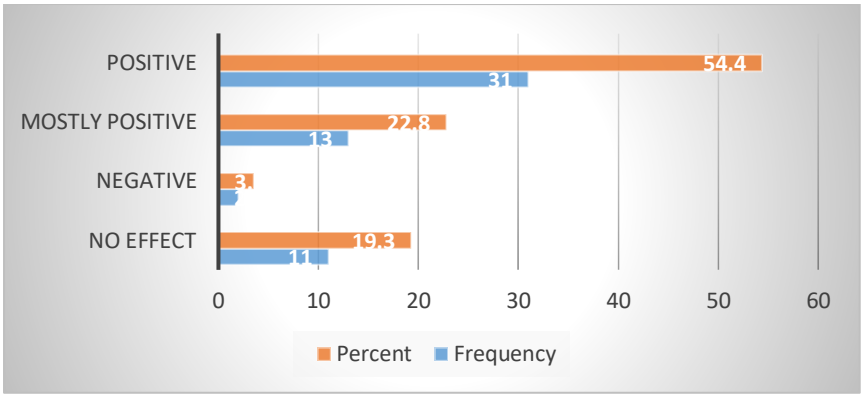


Figure 12: Effect of Gender Diversity on Organizational Performance

3.5. Discussions

3.5.1 Effect of Age Diversity on Organizational Performance

The study established further that level of education had the highest in terms of ranking by percentage mean rating, followed by "Age Diversity" and "Gender Diversity". This finding is close to suggestion made by Darwin (2014) when he found that both educational diversity and age were important influencers of organizational performance. Age diversity is considered to bring value to the firm and increases a firm's overall performance is by facilitating creativity and innovativeness as well as decision-making.

Other studies have associated age diversity with more performance in creative tasks. Simons and Rowland (2011) found that diversity produces different perspectives, knowledge and skills that enhance creativity and innovativeness and less conformity with past and existing norms. However, according to study findings, majority of the respondents, 68.4%, thought that decision-making within the firm was easy and 19.3% thought that age diversity had made the decision-making process hard.

The finding is therefore in confirmation of a previous finding by Tolbize (2008), which suggested that consensus building in response to a problem or conflict is also hard within a heterogeneous workgroup. It follows also that the potential of communication problems within a group that is more diverse in age is very real, as the values, perspectives, experiences and possibly skills become the flashpoint for intergroup communication (Darwin, 2014; Tolbize, 2008). Consequently, these issues could in fact undercut the potential of age diversity to contribute, positively to decision-making and problem solving leading to persistent conflict and slow or poor decision making instead. Zaidi, *et al*, (2010, p.5) have boldly stated "Quality problem solving is the result of heterogeneous environment within organizations." The study found that the majority of the respondents 93% thought communication within the firm was easy and 66.7% though age diversity had a positive impact on communication.

The study findings regarding effect of age diversity on decision-making however, contravenes the assertion by Gupta (2013) that values that people of different age group possess do

complement each other and that this increases the innovativeness and creativity of age-heterogeneous workforces as compared to a more homogeneous one. It also refutes Zaidi, *et al.,* (2010) observation that owing to their intuition and experience, older employees bring a vital set of experiences and intuition that help in decision making. Dezo and Ross (2013) note that age diversity may not always lead to informed decision-making or ease problem solving. They point to the potential of such disparities and the stereotypes that underscore them as a real source of conflict if not effectively managed.

The study also established that the majority of the respondents, 94.7% thought their firm had quality products and services. In so doing the study confirms Mutunga and Gachunga (2013) suggestion that contend that workforce age diversity in a firm facilitates the upward (reverse mentoring) and downward (mentoring) exchange of information and ideas across the generational groups. According to Darwin and Palanisamy (2015), age diversity leads to greater product and service quality due to the various perspectives, knowledge and experiences that people from different age groups bring to the product or service development may lead to important improvement in the quality of the product or service that the firm eventually produces.

3.5.2 Effect of Gender Diversity on Organizational Performance

Regarding the impact of gender diversity on aspects of performance, the study found that competitive advantage was ranked the highest among aspects of performance affected by gender diversity, followed by "Management and Leadership Quality". "Organizational culture" and "job satisfaction" were ranked as the second least important and the least important respectively. This finding agrees with the assertion made by Darwin and Palanisamy (2015) when they argue that a diverse workgroup brings different experiences, skills set and insights that enhance overall team performance which promote the performance of the organization. In fact, when asked to indicate the nature of impact of gender diversity on competitive advantage 64.9% indicated that they thought it had a positive effect.

Furthermore, Raza, *et al.,* (2013) found that gender, education, cultural and age diversities has a positive influence on the organizational competitive advantage. Ali, *et al.,* (2007), while examining the association between gender diversity and decision-making found that the former also positively affected competitive advantage by facilitating the making of quality decisions. They argued that a more gender diverse workforce brings to the firms a spectrum of perspectives, skills and knowledge that an organization can tap into and base its strategic goals up (Ali, *et al.,* 2013).

The study finds that 75.4% of the respondents thought that gender diversity a high contribution to quality of leadership and management. This finding confirms previous assertions made by Van Knippenberg, *et al.,* (2014) who found that gender diversity improves the quality of organizational leadership and management by stating that gender diversity enhances managerial information processing and decision making of the managerial team resulting in effective strategy formulation and decision-making key processes. It further confirms that by

Nakagwa (2015) who established that gender diversity in addition to other kinds of diversities in the workforce provided more innovative and higher-quality solutions, due to a combination of gender-based perspective presented by both males and females in the managerial teams. However, the findings are disconfirmed by some scholars such as Tolbize (2008) who suggested that gender diversity hampered the quality for management and leadership since firms whose boardroom are male dominated more often than not, ignored the opinions of their female counterparts.

The study found that 47.4% of the respondents disagreed that gender diversity contributed to their job satisfaction. This finding is in disagreement with the finding Zaid *et al,* (2010) who found that workforce diversity, especially gender diversity was positively linked with job satisfaction. It also refutes Sania, *et al.,* (2015) argument that diversity in the workplace transforms the nature of the relationship among the staff members, changes which can lead to increased job satisfaction and employee morale. As well as the assertion made by Raza, *et al.,* (2013) that workforce gender diversity can facilitate information, skills and experiences exchanges and lead to the creation of cohesion and attachments among employees of different genders and positively influence their overall perceptions of the job.

However, it confirms Nakagwa's (2015) study of Japanese firms, which found that gender diversity led to reduced job satisfaction for women as it created a feeling job insecurity among the female workforce than the males leading to higher job dissatisfaction among the women. Mwikali and Kyalo (2015) contend that diversity may result in less satisfaction with the job for the members of the minority group. Thus, less gender diversity may lead to a feeling of discontent with the job for women or men if they are the ones in the minority.

4. Summary of the Findings, Conclusions and Recommendations

4.1 Summary of the Findings

The general objective of the study was to determine the impact of workforce diversity on organizational performance at Nile Insurance S.C. The study sought to realize two specific objectives, namely; to assess how age diversity influences the performance of Nile Insurance S.C and to examine how gender diversity affects the performance of Nile Insurance S.C.

The study adopted a descriptive research design, which was deemed appropriate, as it permitted the researcher to describe the relationship between organizational performance and the two types of diversities that the study focused on. The population of the study comprised of employees of Nile Insurance S.C. It used census sampling technique and selected 72 respondents from all departments working at the head office who were considered to possess the relevant information that the researcher needed for the study. The response rate of the study was 79.17% (57 responses from a possible 72).

- The study made several significant findings in line with research objectives. Majority of the responses (91.2%) were between the age range of 20 to 40 years while (8.8%) were over 40 years. Majority of the respondents were males (59.6%).
- In terms of educational qualification, majority of the respondents were Bachelor's degree holders (56.1%) followed by diploma certificates holders (22.8%).
- The study established further that "Educational Diversity" had the highest ranking with a percentage mean rating of 89.5, followed by "Age Diversity" with mean rating 68.4% and "Gender Diversity" with mean ratings of 63.4%.
- The findings of the study showed that 80.7% of the respondents thought their firm was creative and innovative and 89.5% thought that the impact of age diversity on creativity and innovativeness of the firm was positive.
- Majority (68.4%) of the respondents thought that decision-making within the firm was easy and 19.3% thought that age diversity had made the decision making process hard.
- Majority (94.7%) of the respondents thought that their firm had quality products and services with 93% of them indicating that age diversity had a positive effect on the quality of their firm's products and services.
- The findings of the study also indicted that majority of the respondents (93%) thought communication within the firm was easy and 66.7% though age diversity had positive impact on communication.
- The study found out that 14.1% of the respondents thought that problem solving within their firm was hard.
- The study established that 96.5% of the respondents though their firm had a good quality of management and 75.4% thought that gender diversity had a high impact on the quality of the management.
- Regarding competitiveness, 91.2% of the respondents thought that their firm was competitive. The findings of the study showed that 84.2% of the respondents thought that the effect of age diversity on competitive advantage was positive.
- The study found out that gender diversity had some effect on job satisfaction, with 40.3% of the respondent thought so, while 82.4% thought that gender diversity had an impact on organizational culture.

4.2. Conclusions

4.2.1. Effect of Age Diversity on Organizational Performance

According to the research question, the relationship between age diversity and organizational performance and factors affecting organizational performance related to age diversity the researcher concluded that age diversity is a very crucial resource for firms that intend to sustain a sustainable work force. For most organizations, age diversity facilitates the development of a leadership pipeline within the firm as younger employees are available for training by the aged employees on organizational processes. By allowing the establishment of a leadership pipeline, age diversity not only facilitates the creation of a pool of competent employees but allows the firm to sustain its way of doing business include "best practices". Moreover, age

diversity within the firms allows the technologically savvy younger employees to share their technical competencies with the older generation within the firm. The older workforce on the other hand bequeaths the younger workforce with the business standard and operation procedures that add to the sustenance of productivity and performance within the firm. Additionally, for firms that either want to achieve or retain a competitive advantage, age diversity allows for opportunities for creativity and innovation that precipitate product and service enhancements.

4.2.2. Effect of Gender Diversity on Organizational Performance

According to the research question which was stated the relationship between gender diversity and organizational performance and factors affecting organizational performance related to gender diversity the researcher concluded as follows:

Gender diversity is a vital factor for organizational performance. This is because it has both internal and external values that facilitate organizational performance. Achieving gender diversity is not only important because it is the right thing to do in society in which gender equality is a major issue, but it also has the potential to facilitate the attainment of internal and external corporate objectives. The value of gender diversity for intra-organizational decision-making and problem solving has been determined by several studies. The value of boardroom gender diversity in the corporate decision-making and the determination of a sustainable corporate strategy has also been found to be true. Additionally, the value of workforce gender diversity for creativity and innovativeness, quality of management, services and products has also been established in some studies. The inclusion of both women and men in the boardroom and management of the firm has also been found to add to corporate reputation and job satisfaction, all of which are crucial for their value to overall corporate performance.

4.3. Recommendations

The study showed that there were some gaps in the selected diversity dimensions in Nile Insurance S.C. although most respondents agreed that age and gender diversities are important although some elements were not being fully implemented. The study, therefore, make the following recommendations for the management of Nile Insurance S.C. based on the findings of the study.

- The company is required to make continuous systematic efforts to communicate diversity goals to employees to ensure the positive receptivity of employees to diversity and diversity management. Open communication should be prevailed between top management and other employees. This will help to minimize confusions and misunderstandings occurring due to age diversity.
- A philosophy should be established on diversity in most of the human resources activities with regard to the differences as existing among its employees, to enhance job satisfaction of the existing diversity. To enhance proper management of diversity, the company must move from its current position, and include diversity in its strategic plan, resources for organizational effectiveness.

- Organizational leaders should formulate laws and policies on equal employment, that ensure the most qualified employees are recruited irrespective of their educational background, age and gender diversity in order to encourage creativity and innovation, quality management and leadership, organizational culture and decision making in the organization.

Further Research

There is a need for scholars to conduct more research to determine the impact of the various aspects of diversity on organizational performance. There is a need for more research to examine the why in theory it is suggested that diversity results in greater performance but research, such as this one find the association to be relatively weak. Future research should aim at focusing on the study of the nature of association between a single aspect of organizational performance and a single form of diversity to provide a comprehensive understanding of the nature of the relationship. More research should be conducted to examine whether the various diversities singularly affect performance or their impact on performance is joint and mutually reinforcing. Future research should also be attempted at creating a model for managers to use to exploit the advantages offered by diversity for organizational productivity.

References

Abu-Jarad, I. Y., Yusof, N. A. & Ninkin, D. (2010). '*A Review Paper on Organizational Culture and Organizational Performance'.* International Journal of Business and Social Sciences, Vol. 1, No. 3, pp. 26 – 46.

Achua, C. F. Lussier, R. N. (2013). *Effective Leadership. Fourth Edition. London, UK: Thompson South Western Publishing.*

Adeosun, L. P. K. &Ganiyu, R. A. (2013). 'Corporate *Reputation as a Strategic Asset',* International Journal of Business and Social Science. Vol. 4, No. 2, pp. 220 – 225.

Alesina, A. La Ferrara, E. (2005). '*Who Trusts Others*?', Journal of Public Economics, Vol. 85, pp. 207 – 234.

Ali, M., Kulik, C. T. & Metz, I. (2011). '*The Gender Diversity-Performance Relationship in Services and Manufacturing Organizations',* The International Journal of Human Resource Management, Vol. 22, No. 7, pp. 1464 -0 1484. DOI: 10.1080/09585192.2011.561961.

Ali, M., Kulik, C. T. & Metz, I. (2007*).'Workforce Gender Diversity: Is It a Source of Competitive Advantage?',* Paper Presented at 21st ANZAM Conference, Sydney, Australia. [Online], available at: http://eprints.qut.edu.au/40898/1/40898.pdf. [Accessed: 13/02/2017]

Allen R, Dawson G, Wheatley K, White,CS (2004). '*Diversity Practices: Learning Responses for Modern Organization, Development and Learning in Organizations:* An International Journal,18 (6):pp.13-1 5.

Armstrong C., Flood P, Guthirie P, Liu W, Maccurtain S, & Mkamwa T, (2010). *'The Impact of Diversity and Equality Management On Firm Performance:* Beyond High Performance Systems', Human Resource Management Journal, Vol. 49, No. 6, pp 977-998

Backes-Gellner, U. &Veen, S. (2009). '*The Impact of Aging and Age Diversity on Company Performance*', ISU Working Paper 78, University of Zurich.

Barney J. & Clark D, (2007). '*Resource Based Theory: Creating and Sustaining Complete Advantages',* New York, NY: Oxford University Press.

Black & Enterprise, (2001). *'Managing a multicultural workforce*', Black Enterprise Magazine (July). Canada, Equal Opportunities International, 15(5), pp1 -27.

Byrnes D., (1971). The Attraction Paradigm. New York: Academic Press

Carter, D. A.,D'Souza, F., Simkins,B. J., & Simpson W. G.(2008). '*The Gender and Ethnic Diversity of US Boards and Board Committees and Firm Financial Performance*', Corporate Governance: An International Review, Vol.18, No. 5, pp.396–414 65

Caruana, A. &Chircop, S., (2000). '*Measuring corporate reputation*: *A Case Example*', Corporate Reputation Review, Vol. 3, No. 1, pp .43-57.

Cardelle-Elawar, M., *et al.,* (2007). '*Factors that Affect Decision Making: Gender and Age Differences',* International Journal of Psychology and Psychological Therapy, Vol. 7, No. 3, pp. 381 – 391.

Chin, J. L. (2013). '*Diversity Leadership: Influences of Ethnicity, Gender and Minority Status',* Open Journal of Leadership, Vol. 2, No. 1, pp. 1-10.

Childs. J. (2005). *'Managing Workforce Diversity At IBM; A global HR Topic That Has Arrive'"*. Human Resource Management Journal, 44(1), pp 73-74

Christian, J., Porter, L. W. & Moffitt, G. (2006). *'Workplace Diversity and Group Relation: An Overview',* Group Processes & Intergroup Relations, Vol. 9, No. 4, pp. 459 - 466.

Christiansen, L., Lin, H., Perreira, J., Topalova, P. & Turk, R. (2016). *Gender Diversity in Senior Positions and Firms Performance: Evidence from Europe.* IMF Working Paper. WP/16/50[Online], available at: https://www.imf.org/external/pubs/ft/wp/2016/wp1650.pdf. [Accessed: 24/02/2017].

Clarke & Iles,(2000**).** *'Climate for Diversity And Its Effects On Career And Organizational Attitudes And Perceptions',* Personnel Review, 29, pp 324- 345

Darwin, J. R. &Palanisamy, C. S. (2015). '*The Effects of Workforce Diversity on Employee Performance In Singapore Organizations*', International Journal of Business Administration, Vol. 6, No. 2, pp. 17 – 29.

Darwin, J. R. (2014). '*Age Diversity and Its Impact on Employee Performance in Singapore',* International Journal of Research and Development in Technology &Management Science – Kailash, Vol. 21, Is. 5, pp. 79 – 98.

Deloitte (2014). Global Human Capital Trends 2014: Engaging the 21st – Century workforce. New York: Deloitte University Press.

Dezo, C. L. & Ross, D. (2012*). 'Does Female Representation in Top Management Improve Firm Performance?' A Panel Data Investigation. Strategic Management Journal, Vol 33, No. 1, pp. 1 – 46.*

Daft R, Kendrick & Natalia, (2010). *Management,* 8th Edition: South Western Higher Education.

Dessler G. (2011). Human Resource Management, 12th edition. Harlow: Pearson Education

Dutton J, & Duncan, R (1987**).** *'The Creation of Momentum for Change through the Process of Strategic Issue Diagnosis',* Strategic Management Journal. pp 278-296

Ebsham, U. M., Muhammad, T. M. & Muhammad, S. A. (2011*). Relationship between Organizational Culture and Performance Management Practices:* A Case of University of Pakistan. *Journal of Competitiveness.* Is. 4, pp. 78 – 86.

Elsaid. M. (2012). *"The Effects Of Cross Cultural Diversity on Employee Performance In Egyptian Pharmaceutical Organizations",* Business & Management Research Journal Vol 1. No. 4 pp 162-179

Fatima, N., Iqbal, S., Akwand, S. Y., Suleiman, M. &Ibrahjim, M. (2015). *Effect of Gender Differences on Job Satisfaction of the Female in Pakistan*. *International Journal of Economics, Finance and Management Science,* Vol. 3, No. 1, pp. 27 – 33. DOI: 10.1164/J.icjfm.2015031.14.

Finkelstein S &Hambrick D, (1996). "*Strategic Leadership: Top Executives and Their Effects on Organizations*". St Paul, MN: West

Gavrea, Ilies&Stegerean, (2011). *"Determinants Of Organizational Performance*: The Case of Romania", *Management and Marketing Challenges Of Knowledge Society*, Vol 6, No.2, pp 285-300

Glass A (2007). *Understanding Generational Differences for Competitive Success. Industrial. Communication and Training*, Vol. 39, No. 2, pp. 98-103. 66 Gupta, R. (2013). Workforce Diversity and Organizational Performance. *International Journal of Business and Management Innovation,* Vol. 2, Is. 6, pp. 36 – 41.

Hofstede, G. A. (1980). *Culture's Consequences: International Differences in Work Related Values.* Belmont, C.A: Sage Publication

Hogg M. & Terry J, (2000). *"Social Identity & Self Categorization Processes In Organizational Contexts", Academy of Management Review,* Issue 25 pp 121 -140

Jones G. & George J. (2011*). "Essentials of Contemporary Management", 4th edition*. New York:McGraw – Hill

Kamonjoh, E, (2015). *Boardroom Refreshment: A Review of Trends at U.S Firms*. [Online], available at: *https://www.issgovernance.com/file/publications/2015-issus-board-refreshment.pdf*. . [Accessed: 24/02/2017].

Kaplan R. & Norton P,(1996). *"Linking The Balanced Score Card To strategy"*, California Management Review,Vol 39, No.1, pp 53-79

Kochan T, Ely R, Joshi A, & Thomas D, (2002**).** *"The Effects Of Diversity On Business Performance: Report of Diversity Research Work",* Journal of Human Resource Management, 42: pp 3-21.

Knippenberg G., Kleef V. & De Dreu, (2007*). "Bridging Fault lines By Valuing Diversity: The Effects of Diversity Belifs on Information Elaboration and Performance in Diverse Work Groups."*, Journal ofApplied Psychology; Issue 92; pp 1189-1199.

Kunze, F, Boehm S & Bruch H, (2011). *"Age, Age Diversity Discrimination Climate and Performance Consequences-A Cross Organizational Study,"* Journal of Organizational Behaviour; Issue 32, pp264- 290

Kurtulus, F.A, (2012**).** *"What Types Of Diversity Benefit Workers?: Empirical Evidence On Effects Of CoWorker Dissimilarity On Performance Of Employees",* Industrial Relations Journal, Vol. 50, No. 4, pp678-712

Mugenda, O. M., &Mugenda, A. G. (2003). *Research Methods: Quantitative and Qualitative Approaches*. Nairobi: Acts Press.

Mulken, D, (2008). *"How Can The HR Team Improve Internal Communication?"* Strategic HR Review, Vol. 7,No. 2 pp 42

Mutunga, F. &Gachunga, H. (2013). *Factors Affecting Succession Planning in Small and Medium Enterprises in Kenya. International Journal of Academic Research in Business and Social Sciences.* Vol. 3, No. 8, pp. 285 – 300.

Mwikali, J. &Kyalo, K. (2015*). Effects of Diversity in Workplace on Employee Performance in the Banking Industry in Kenya. The Strategic Journal of Business and Change Management,* Vol. 2, No. 53, pp. 145 – 181.

Nakagawa, Y. (2015). *The Gender Diversity: Firm Performance Relationship by Industry, Type, Working Hours, and Inclusiveness: An Empirical Study of Japanese Firms.* Journal of Diversity Management, Vol. 10, No. 1, pp. 61 – 78.

Ng, T. W. H., & Feldman, D. C. (2013). A *Meta-Analysis of the Relationships of Age and Tenure with Innovation-Related Behavior. Journal of Occupational and Organizational Psychology,* Vol. 86, pp. 585–616.

Okoro, E. A. & Washington, M.C. (2012). *Workforce diversity and organizational communication: Analysis of human capital performance and productivity.* Journal of Diversity Management, *7(1): 57-62.*

Otike W, Messah B, &Mwaleka K, (2010). *"Effects of Workforce Diversity on Organizational Effectiveness: A Case Study On Kenya Commercial Bank Ltd".* Journal of Business and Management. www.iiste.org

Parrotta, P., Pozzoli, D. &Pytlikova, M. (2011*). Does Labor Diversity Affect Firm Productivity?* NORFACE Migration. Discussion Paper No. 2011 -22. [Online], available at:http://www.norface-migration.org/publ_uploads/NDP_22_11.pdf.[Accessed: 17/02/2017].

Raza, S. M. M., Ishtiaqi, M., Kanwal, N., Butt, M. U. & Nawaz, S. (2013**).** *Impact of Gender Diversity on Team Performance: The Moderating Role of Organizational Culture in Telecom Sector in Pakistan. Asia Journal of Social Science & Humanities,* Vol. 2, No. 4, pp. 1 – 8.

Research Institute. (2012). *Gender Diversity and Corporate Performance.* London, UK:

Credit Suisse.Ricardo R, (2001). "*Corporate Performance Management: How to Build A Better Organization Through Measurement Driven Strategies Alignment"*. Butterworth Heinemann

Richard O, Barnet K, Dwyer S &Chandwick K, (2007). *"Exploring The Performance Effects Of VisibleAttributes Of Diversity: The Moderating Role Of Span Of Control And Organizational Life Cycle",* International Journal of Human Resource Management, 17; pp 2091 -2109.

Roberson M.Q & Park H. J, (2007*) "Examining The Link Between Diversity And Firm Performance: The Effects of Diversity Reputation and Leader Racial Diversity",* Group & Organizational Management Vol.32 No.5 pp 548-568 http://digitalcommons.ilr.cornell.edu/cahrswp

Robson, C. (2002). *Real World Research. 2nd ed*. Oxford, UK: Blackwell Publishing.

Sania, U., Kalpina, K. &Javed, H. (2015). *Diversity, Employee Morale and Customer Satisfaction: The Three Musketeers. Journal of Economics, Business and Management,* Vol. 3, No. 1, pp. 11 – 18.

Simons, S. M. & Rowland, K. N. (2011). *Diversity and Its Impact on Organizational Performance: The Influence of Diversity Constructions on Expectations and Outcomes*. *Journal of Technology, Management and Innovation,* Vol. 6, Is. 3, pp. 172 – 183

Tolbize, A. (2008). *Generational Differences in the Workplace*. [Online], available at: http://rtc.umn.edu/docs/2_18_Gen_diff_workplace.pdf. [Accessed: 17/02/2017].

Triana C, Garcia F, &Colella A, (2010). *Managing Diversity: How Organizational Efforts to Support Diversity Moderate The Effects Of Perceived Racial Discrimination On Effective Commitment",* Personnel Psychology, Vol. 63 pp 817-843

Turner J. (1987*). "Rediscovering The Social Group: A Self Categorization Theory",* Oxford: Blackwell

Van Knippenberg, D., De Dreu, C. K. W, Homan, A. C. (2014). *Work Group Diversity and Group Performance: An Integrative Model and Research Agenda*. *Journal of Applied Psychology* Vol. 89, No. 6, pp.1008-1022.

Wentling, R.M & Palma-Rivas, (2000). *"Current Status of diversity initiatives in selected multinational corporations",* Human Resources Development Quarterly Journal, Vol11(1), pp 35-60.

Wiersema, M. F., &Bantel, K. A. (1992). *"Top Management Demography and Corporate Strategic Change"*. Academy of Management Journal, 35(1), 91 -121.

Yang Y. &Konrad A, (2013). *"The Impact Of Racial Diversity On Innovation: The Moderating Effect of Organizational Context",* Group and Organizational Management, pp 1 -22.

Zaidi, S. M. A., Saif, M. I. &Zaheer, A. (2010). *The Effect of Workgroup Heterogeneity on Decision Making: An Empirical Decision Making. African Journal of Business Management,* Vol. 41, No. 10, pp. 2132 – 2139.

Zikusooka, M. &Kyomuhangi, R. (2007). *Private Medical Pre-Payment and Insurance Schemes Uganda: What can the Proposed SHI Policy Learn from Them? Equinet Discussion Paper Series,* 53. Harare, ZIM: Equinet.

Educational Practices of Physical Education for Students with Hearing Impairment in Ambo Lazarist Catholic School for the Deaf, Mohammed Endris, Abera Haile, Agerie Yazie, Birhane Gewe, Tseganesh Tesfaye and Yanet Yohannes, Ambo University

Abstract

The study focused on the educational practice of physical education for student with hearing impairment in Ambo Lazarist School for the Deaf. The main objective of this research was to investigate about the educational practice of Physical Education (PE) for Students with hearing impairment (SWHI) in that particular school. To fulfill the objective, mixed method was used. From mixed method, researchers used embedded design. From the populations of the study which were 58 SWHI, one PE teacher and two school principals 24 SWHI, 1 PE teacher and 1 school principal were selected using comprehensive and purposive sampling techniques. The data gathering instruments were questionnaire, structured interview and observation checklist. The findings of the study indicated that the level of identification, teaching strategies and opportunities of Ambo Lazarist Catholic School for the Deaf to students with hearing impairment was low. For example, as the finding of the study revealed, there was no personnel (audiologist) who have knowledge about identifying the magnitude of hearing in SWHI and also the teaching methodologies of the school had some hindrances like rigidity of teaching method. Based on the findings of the study, it was concluded that, although there was a commitment in developing the educational practice of PE for student with hearing impairment in this particular school, there were still a lots of work needed to be done in the future: the school's practice of identifying student with hearing impairment needs further attention among all the stakeholders and also awareness creation strategies should be designed to the families and other stakeholders so that they could support and encourage the practice of PE for SWHI.

Keywords: practice, physical education, student with hearing impairment.

1. Introduction

1.1. Background of the Study

Adapted Physical Education (APE) is an individualized program of developmental activities, exercises, games and sport designed to meet the unique physical education needs of individuals (Luo, 2000). And also, as suggested by the School Board of Brevard County (2006), the Adaptive Physical Education domain applies to all populations with special disabilities. Objectives will be consistent with those of regular physical education and sports. Movement, skills, and sports should be learned, but equipment, rules, and environmental structure may need to be modified to allow for maximum participation and benefit.

According to Luo (2000), the following main events about evolution of Adapted Physical Education (APE) which have occurred about 3000 years ago in China, depicting therapeutic use of gymnastics for individuals with disabilities were highlighted. And after that in 1879, corrective physical education established at Harvard for correcting certain pathological conditions. Then, between WWI and II, development of physical therapy and adapted sports

were emerged. In 1940s, fundamental changes were initiated in physical education in some universities, public schools, and special schools. Calisthenics, gymnastics, and corrective physical education supplanted in the course contents by game, sports, and rhythmic activities modified to meet the individual needs of the students.

After the above series of events have been occurred, the knowledge base for including children with disabilities (CWDs) in adapted physical education, where CWDs are educated within regular or separate classes utilizing adapted frameworks of curriculum development and teachers' practice has evolved in the 1950s, mostly in the United States. Based on the experience gained among teachers and scholars, theoretical and practical recommendations have been developed and practiced in many schools across the United States and Canada, leading to the establishments of the International Federation of Adapted Physical Activity (IFAPA) in the mid-1970s (Lidor and Hutzler, 2019). The individuals with disabilities education improvement act continue to include the curriculum content area of physical education. It states that, "all students with disabilities are required to participate in physical education instruction." (Lidor and Hutzler, 2019).

In Africa, According to Onyewadume (2007), there is severe scarcity of information, in international journals and the World Wide Web, on the status and practice of adapted physical activity in the various African countries. However, the infusion of the field adapted physical activity into the curriculum of the broader physical education in some higher institutions in Africa comes in the early 1980s (Onyewadume, 2007).

Prior to 1980s, professionals in the field of physical education and recreation were trained to teach physical education and coach the various sport skills to only individuals without disabilities. Before 1980s, people with disabilities were not in the focus at all. They were largely meant to remain at home (Onyewadume, 2007). And other literature also suggested that the majority of African countries have either no or minimal provision for physical education for students with disabilities (Gizachew, 2012). The above two suggested ideas of scholars indicated that in Africa there is a serious shortage of facilities and concern for shaping the educational practice of physical education for students with disabilities including those with hearing impairment.

Moreover, when scenarios in APE from advanced countries of the world are compared with the state of affair in most African countries, one can categorically say that a lot need to be done in Africa to enhance the status of the content and practice of APE (Onyewadume, 2007).

The Ethiopian Constitution accepts the international declarations and conventions, and states education as a human right. And as a country, Ethiopia aims at an education system that is open to all learners, regardless of poverty, gender, ethnic backgrounds, language, learning difficulties and impairments. The principle behind this policy is that all children and students are included. The Government also wants to ensure that there is equity and fairness in the Ethiopia education system (MoE, 2016).

In Ethiopia, similar to other countries of the world, physical education is given as one type of school subject like biology, chemistry, math's and etc. The physical education school curriculum is serving students from KG – university level (Gizachew, 2012). The Growth and Transformation Plan (GTP- II 2015/16 - 2020/21 gives special attention and assistance to children with special needs to help them start and continue schooling.The idea that one can infer from the above paragraphs about Ethiopia is that; despite the fact that there is a strong commitment in adopting international policies, conventions and declarations regarding students with disabilities, there is almost a weak side in implementation of those policies, conventions and declarations.

This research aims to investigate/assess the educational practice of physical education for Students with Hearing Impairment (SWHI) in special school. The research discusses about things that need to be considered as the essential elements of teaching physical education for SWHI. Ambo Lazarist Catholic School for the Deaf was founded on 2005 E.C. by catholic religious organization called Ethiopian Deaf Project. When first established, it was teaching students with hearing impairment from Grade 5-8 until it started teaching students with hearing impairment from Grade 1-4 in 2008 E.C.

1.2. Statement of the Problem

This research was focused on the educational practice of physical education (PE) for students with hearing impairment (SWHI) in Ambo Lazarist Catholic School for the Deaf. According to the Maryland State's National Association of Sport and Physical Education (NASPE), "Physical education can serve as a vehicle for helping students to develop the knowledge, attitudes, motor skills, behavioral skills, and confidence needed to adopt and maintain physically active lifestyle (Mason, 2009).

When an individual see the benefits of physical education, he/she can recognize that all persons that exist in this world should share these benefits equally. The main thing that the researchers wanted to reflect is that all individuals including those with disabilities should get equal opportunities to participate in physical education activities. In our society no longer must a person be forced to live in isolation due to lack of physical and motor abilities prerequisite to independent domestic and recreational physical activities (Fekede, 2012).

Furthermore, SWHI need special considerations in the planning and implementation of PE programs provided to them. But if not, they will not be able to participate safely and successfully, thus not gain the physical, social, and psychological benefits that the quality PE program can offer (Fekede, 2012).

Additionally, the researchers were curious about the issues that interrelates the identification, teaching strategies, opportunities and challenges of Ambo Lazarist Catholic School for the Deaf with the educational practice of physical education to students with hearing impairment.

The following were the leading questions that guided the research in order to know the educational practice of physical education to students with hearing impairment in Ambo Lazarist Catholic School for the Deaf.

- What identification mechanisms did the school use to identify students with Hearing Impairment?
- What teaching strategies did the school use to teach Physical Education for students with Hearing Impairment?
- What kind of opportunities did the school have for students with Hearing Impairment in teaching them Physical Education?
- What kind of challenges did students with Hearing Impairment face in learning Physical Education?

1.3. Objectives of the Research

1.3.1. General Objective

The general objective of the research was to examine about the educational practice of Physical Education for students with hearing impairment in Ambo Lazarist Catholic School for the Deaf.

1.3.2. Specific Objectives

The specific objectives of the study ere to:

- determine the identification mechanisms of students with hearing impairment in the school.
- find out Physical Education teaching strategies for students with hearing impairment.
- identify the opportunity students with hearing impairment get in the teaching process of Physical Education.
- explore challenges that students with hearing impairment face in learning Physical Education.

1.4. Significance of the Study

This research was believed to help students with hearing impairment to recognize their rights towards Physical Education and it can be used to increase awareness of the concerned bodies about extent to which physical education is crucial for students with disabilities including those with hearing impairment. This research will hopefully guide other researchers to conduct further study in the same area.

In addition, the researchers want to encourage the reader to ‘think out of the box’, be open to change, have open minds, and have high expectations for SWHI and what they can achieve in physical education, school sport and lifelong learning and participation in physical activity. Whilst there is no one correct way of teaching or set of skills, techniques or protocols to follow, this research as intended to set out to establish what can be considered as core elements of good practice.

1.5. Delimitations of the Study

Although there are many variables that can be examined such as the school enrollment of SWHI, educational challenges of SWHI, the practice of regular teachers to teach SWHI, this research examined only about the educational practice of physical education for students with hearing impairment in Ambo Lazarist Catholic School for the Deaf.

1.6 Operational/Conceptual Definitions

Adapted physical education: is an individualized program of developmental activities, exercises, games and sport designed to meet the unique physical education needs of individuals (Luo, 2000).

Challenges: are situations that are difficult to be attempted easily.
Identification: is the process of detecting the identity or problem of someone.
Modification: are some kinds of changes in order to make things suitable for individuals.
Opportunities: are accesses or possibilities that are appropriate and suitable conditions to easily participate in a desired activity.
Physical education: physical education is a planned instructional program that is aimed at increasing the physical competence, health related fitness, self-responsibility of an individual.
Educational Practice: is any kind of activity that is done for the purpose of achieving objectives such as: identifying, strategies of teaching, opportunities and challenges in teaching physical education for children with hearing impairment.
Teaching Strategies: a plan or action intended to accomplish an understanding or knowledge on the part of the learner.
Students with Hearing Impairment: are students who have some kind of difficulty in hearing capacity, either deaf or hard of hearing and because of those difficulties they need some support in order to fully participate.

1.7 Limitation of the study

The study could have included more than one school, however it was limited to only one school due to lack of time. Other major limitations of the study were shortage of experience to conduct a research, finance, reluctance of some respondents to give full information that the researchers need. Moreover, because of the inaccessibility of another school which serves students with hearing impairment in Ambo town, the researchers couldn't deploy a pilot study to ensure the reliability of the study.

In addition, due to absence of sufficient and relevant materials related to the study in the Ethiopian context, the researchers were forced to rely mainly on foreign sources. In spite of these, the researchers have attempted to make this study as complete as possible.

2. Research Methods

2.1. Research Design

A mixed approach was used to conduct this study, as the basic assumption of mixed approach is that it uses both quantitative and qualitative methods in combination and provides a better understanding of the research problem and question than either method by itself (Creswell, 2012).

From the mixed approach, the researchers selected embedded design. Because embedded design enables the researchers to collect quantitative and qualitative data concurrently. The researchers had questions that required different data and used embedded design as it is appropriate when a researcher has different questions that require different types of data (Creswell, 2012).

2.2. Population, Sampling Techniques and Sample

2.2.1 Population

The researchers have conducted this research on the school of Ambo Lazarist catholic school for the deaf. The population of the study included the school principal, physical education teachers and students with hearing impairment.
The population of the study is presented in the table below.

Table 1: the number of participant and Grade level of students with hearing impairment

Participants	Male	Female	Total
Physical education teacher	1	-	1
Students with hearing impairment	36	22	58
Principal	2	-	2
Total	**39**	**22**	**61**
Grade level of students with hearing impairment.			
1st	8	11	19
2nd	7	8	15
3rd	7	6	14
4th	4	7	10
Total	**26**	**32**	**58**

2.2.2. Sampling Techniques

The participants of the study were selected using non-probability sampling. From non-probability sampling techniques, the researchers used purposive and comprehensive sampling. The researchers chose purposive sampling because it allows researcher for specifying the characteristics of the population of interest and the tries to locate individuals who have those characteristics or who have more information (Creswell, 2012). Comprehensive sampling was

used because some of the number of som participants was small, so a comprehensive sampling was the best when the number of the population is small (Creswell, 2012).

The populations of the study were the school principal, physical education teachers and students with hearing impairment. Purposive sampling was used to identify the students with more information i.e., students who enrolled in higher class. The number of the students with hearing impairment who enrolled in higher class (Grade 3&4) was less than that of the lower classes (Grade 1&2), and after this, using a comprehensive sampling all of the students with hearing impairment who enrolled in higher class were selected. Physical education teachers and the school principal were selected using a comprehensive sampling.

2.2.3. Sample

The sample of participants that have been included in the study is illustrated as follows:

Table 2: Sample of participants

Participants	Male	Female	Total
Principal	1	-	1
Physical Education Teacher	1	-	1
Students with Hearing Impairment	11	13	24
Total	**13**	**13**	**26**

2.3. Instruments

The data gathering instruments that the researchers used to conduct the research were questionnaire, structured interview and observation checklist.

2.3.1. Questionnaire

The first instrument used to collect data was questionnaire. A questionnaire can let us gain more information with a short period of time (Creswell, 2012). The questionnaires were distributed students with hearing impairment and the physical education teacher to know the opportunities as well as teaching strategies of Physical Education that were tailored for students with hearing impairment. The questionnaire that prepared for SWHI consisted 10 close ended questions and those for the teacher consisted 3 closed-ended and 2 open ended questions. The researchers have also translated the Questionnaire for SWHI into Afaan oromoo and informed about the procedures using Sign Language. The reason behind the translation of the language is that most of the SWHI could not read English words. (See, Appendix A & B).

2.3.2. Semi Structured Interview

The semi structured interview was used for the school principal to know the practice of the school in detail. An interview can usually yield richest data, details, new insights; and it can also provide opportunities to explore topics in depth (Creswell, 2012). The semi structured interview included 6 open ended questions (See, Appendix C).

2.3.3 Observation Checklist

An observation checklist was used to determine practical class activities and relationship between students and teachers. Moreover, the researchers can also depend on the outcomes of observation because the process of observation mainly relies on researchers seeing and hearing things and recording these observation rather than relying on subjects, self-report responses to questions or statements (Creswell, 2012). The observation checklist included 6 variables which needed to be verified and it was to administered in 2 sessions of physical education practical classes (See, Appendix D).

The researchers have checked the validity of the research by content validity and researchers' role, because content validity is reachable and it can be managed by seeing if the questions are representative of the contents covered (Creswell, 2012). The content validity of the research was checked by our advisor in the process of commenting, reviewing the relationship between the questions and the study's objectives.

Additionally, the researchers' role in this study was flexible and opened to any suggestions that are encountered. The researchers allowed participants to express their ideas freely and gave more concern about the positions and beliefs in relation to the whole process of the research.

The reliability of the research was checked through methodological coherence i.e., the appropriateness and thorough collection, analysis and interpretation of data, and audit trials i.e. the transparent description of all procedures and issues relative to the research project (Creswell, 2012).

2.4. Data Collection Procedures

The data collection procedures took seven days. During this time, the questionnaires, the structured interview and observation checklist were administered after having the consent of the school. After having the approval of the advisor, the researchers went to the school and administered questionnaire for PE teacher and SWHI, the semi structured interview for the school principal, and the observation checklist for the practical class. Generally, the researchers selected 24 students with hearing impairment out of grade 3 and 4 as a sample, and collected full information from 20 students.

2.5 Data Analysis

The data collected were analyzed quantitatively and qualitatively because the approach of the research was a mixed approach. Percentages was used to analyze the quantitative data, as it can let the researchers to analyze complex data in a more specific and understandable way. The data gathered through open-ended questionnaire, structured interview, and observation checklist were analyzed qualitatively. First, the data were organized, then explored and coded.. After exploring and coding the organized data, the researchers described the findings and also formed themes. And discussion and interpretation of the findings were made, as illustrated in chapter four.

2.6. Ethical Issues

The ethical considerations of a research were respected in the whole process of the research. Firstly, the researchers took consent from the department and went to Ambo Lazarist Catholic School for the Deaf. Then the researchers requested the permission of Ambo Lazarist School for the Deaf to start the data collection process, informed the participants about the process of the research, and also the participants' confidentiality, anonymity and privacy was guaranteed.

3. Results and Discussion

This section presents, analyzes and interprets the collected data. The results of the study were illustrated without losing their meanings and then discussion was made by comparing the results with review of literatures. The data collected through questionnaire, structured interview and observation checklist were analyzed, presented and discussed with the critical view of the obtained results. In the process of analyzing, the researchers identified around 5 themes namely characteristics of respondents, identification of SWHI in the school, teaching strategies employed to teach SWHI in the school, opportunities to teach physical education for SWHI in the school and challenges related to teaching physical education for SWHI in the school.

3.1. Characteristics of Respondents

In this section the researchers determine the characteristics of the respondents which included gender, and their academic positions.

Table 3: Characteristics of the respondents

No	Participants	Male	%	Female	%	Total	%
1	Principal	1	100%	-	0	1	100%
2	Physical Education Teacher	1	100%	-	0	1	100%
3	Students with Hearing Impairment	11	45.83%	13	54.17%	24	100%

As presented in the table 3, there were 1 male school principal, 1 male physical education teacher, 11(45.83%) male students with hearing impairment and 13(54,17%) female students with hearing impairment.

3.2. Identification of SWHI in the school

The researchers asked about identification mechanism of the school and found out that before SWHI join the school, the school's principal in collaboration with other government offices identifies SWHI by communicating with the Education Office, the Social Affairs Office and by travelling to country sides to raise awareness. Following that, the school identifies and brings SWHI in one room. Then the school, the school goes into in-depth identification of

SWHI i.e. the magnitude of hearing of SWHI. However, most of the time the school faces challenges to manage the identification of SWHIs because of the inaccessibility of audiologist.

Identification of SWHI minimally requires: observing student's interactions with parents, teachers, and peers; interviewing the student and significant others in his/her life; examining school records and past evaluations results; evaluating developmental and medical histories; using information from checklists completed by parents, teachers, or the students; evaluating curriculum requirements and options; and evaluating the student's type and rate of learning during trial teaching periods (Salvia, 2010). Conversely, the principal's reply regarding the identification of SWHI was in disagreement with the procedures that have to be taken.

3.3. Teaching strategies employed to teach SWHI in the school

Except the questions in structured interview for the school principal, all of the instruments asked about the teaching strategies of the school. Table 4 below summarizes the results obtained from Questionnaires for SWHI.

Table 4: Respondent's answer about the teaching strategies of physical education for SWHI

No	Conditions of the school	Frequency	Percentage
1	My teacher motivates me to participate in physical education practical class.	Agree – 20	100%
		Undecided - 0	0%
		Disagree – 0	0%
		Total – 20	
2	When I learn in field the teacher supports me in areas where I face some difficulties.	Agree – 16	80%
		Undecided - 4	20%
		Disagree – 0	0%
		Total – 20	
3	My physical education teacher considers individual difference.	Agree 17	85%
		Undecided 2	10%
		Disagree 1	5%
		Total – 20	
4	My teacher shows the desired activities in practical class by using sign language.	Agree – 20	100%
		Undecided - 0	0%
		Disagree – 0	0%
		Total – 20	
5	My teacher utilizes different teaching methods that are appropriate to my ability like: demonstration and lecturing method	Agree – 15	75%
		Undecided – 3	15%
		Disagree – 2	10%

As presented in Table 4 above, for Question 1, about all of the students (100%) witnessed that their physical education teacher motivates them in the teaching process of physical education.

In responding to Question 2, 16(80%) of SWHI agreed that on the support that their physical education teacher gives them in their difficulty areas, and 4(20%) SWHI could not decide on whether there was a support or not. For Question 3, 17(85%) of SWHI acknowledged that their PE teacher considered individual difference, and 2(10%) of SWHI could not be decided whether their teacher considers their difference or not, and 1(5%) SWHI didn't agree. In responding to Question number 4, all of the respondents 20(100%) revealed that the school is successfully teaching PE by using sign language. To Question number 5, 15(75%) of SWHI agreed that their teacher utilized different teaching methods for teaching them PE, and 3(15%) of SWHI could not decide on the same issue, and 2(10%) of SWHI replied that their teacher did not utilize any kind of teaching method to teach them PE.

Except question number 2 of the questionnaire that was prepared for PE education teacher, all of the 4 questions were targeted towards knowing the teaching strategies of the school. The first question was about preparation of lesson plan, and the teacher replied "Yes" to the question. For Question number 3, researchers found out that the teacher didn't allow students to participate in activities other than the prescribed ones.

The rest of the two questions were open-ended questions that ask about teaching strategies and modification mechanism of the teacher. For the question regarding teaching strategy, the researchers found out that the teacher uses a teaching strategy that are mainly used by other regular physical education teachers such as teacher-centered method, demonstration and lecturing.

Similarly, the answer that the researchers obtained regarding the last question i.e., modification mechanism was that the teacher uses only sign language to modify the teaching process of physical education to SWHI.

All of the questions in the observation checklist were aimed to know the teaching strategy of the teacher towards teaching physical education for student with hearing impairment. The observation checklist had 6 variables which are stated and presented as follows.

As the researchers observed during the practical class, the teacher's ability in motivating and allowing the students with hearing impairment to practice seemed good. The Teacher has a good manner of conduct and willingness to listen to students' problems. Then the issue of identifying and considering individual differences of students with hearing impairment in the practical session of the lesson also seemed good.

Moreover, the researchers witnessed the teacher's use of teaching aids as there were ropes, balls, pads. And also, the teacher's ability to modify instructions for students with hearing impairment focused on giving the preferred activities by using only sign language as a modification basis. The teacher also gave attention to safety rules.

Most of the above results about teaching strategies were inconsistent with many literatures. As (Vize, 2019) stated, teachers can modify the classroom by establishing a 'stop and look' strategy which is based on a visual signal, teaching the class using a predictable patterns of

activities, and establishing an emergency signal, using key signs for the activities that will be done in each term. Torreno (2019), suggested that arranging the environment with easy access to supplies can prevent accidents and improve participation in activities. And also working with paraprofessionals and individual encouragement can promote the teaching practice of physical education and ease frustration over physical difficulties. Moreover, teachers can significantly improve educational outcomes of SWDs by implementing specific strategies. For example, teacher's creativity can open new opportunities to learn (Torreno, 2019).

3.4. Opportunities to teach physical education for SWHI in the school

In order to find reliable data about the opportunity of the school regarding teaching PE for SWHI, the researchers asked many questions using questionnaire and structured interview. The findings are presented as follows.

Table 5 Respondent's answer about the opportunities of the school in percentage

No	Conditions of the school	Frequency	Percentage
6	My school administrators help me to participate in sport activities.	Agree – 10	50%
		Undecided -10	50%
		Disagree – 0	0%
		Total – 20	
7	My school have enough teaching material that helps me in learning physical education	Agree – 13	65%
		Undecided – 7	35%
		Disagree – 0	0%
		Total – 20	
8	My school's Physical structure is suitable for the teaching and learning process of physical education.	Agree – 20	100%
		Undecided - 0	0%
		Disagree – 0	0%
		Total – 20	
9	My families support me with the necessary materials I need in order to participate?	Agree – 2	10%
		Undecided - 1	5%
		Disagree - 17	85%
		Total – 20	
10	My families encourage me to participate in physical education class.	Agree – 8	40%
		Undecided - 3	15%
		Disagree – 9	45%
		Total – 20	

As summarized in table 5 above, in responding to Question no. 6, 10(50%) of SWHI agreed that there was a commitment on the side of school administrator to help them to participate in the sport activities and the rest 10(50%) SWHI said vice versa (Table 5). To Question 7, 13(65%) SWHI agreed on the material provision that their school offers regarding physical education, and other 7(35%) SWHI did not agree to the provision. As to Question 8, all

20(100%) SWHI agreed that the physical structure of their school is suitable for them to do exercises. This question was asked because of the predictability of having a multiple disability like hearing impairment with physical disability. To Question 9, which was about the family support, 2(10%) SWHI agreed that their parents give them the necessary support they need in participating in the physical education class, 1(5%) SWHI could not decided and the rest 17(85%) SWHI disagreed on the question. This shows that most of the families of SWHI did not acknowledge the benefits of physical education for their children. The responses to Question 10 revealed that there was low rate of family encouragement for SWHI regarding the physical education practices, because 10(50%) SWHI disagreed to this specific question and 7(35%) of SWHI agreed and the rest 3(15%) SWHI could not decide.

To one question in the questionnaire administered to PE teacher which tried to find out about the time allotment for the period of physical education, the answer was a negative, which indicated that the time allotment for the physical education period was not enough.

In the structured interview there were 4 questions (questions no. 1, 2, 5 and 6) on opportunities of the school towards teaching PE for SWHI. For question number 1, it was found out that, "the parents of SWHI come to the school once a month during which the school and parents negotiate about the overall welfare of SWHI including PE". The second question was about the collaboration of school with other organizations and he answer was that "regarding the issue of PE, the school did not have any kind of contact with other organizations." In the 5th question, was asking the principal what opportunity the school possessed in the area of PE, to which he replied that, "we have acquired some sport materials such as shoes, balls, and cloths from Ireland which also has made a promise to support the school in relation to PE. The last question was about what the school was doing to maximize the participation of SWHI in PE, to which the researchers were informed that the school had a plan to extend the time allotment of PE periods from only Tuesday and Friday to all the five working days of the week. And also, the researchers were that the school had hired one individual with hearing impairment who was active in sport activities to train SWHI in the afternoon sessions, and also the school notified that it was going to get support on PE from the City Administrator.

According to many literatures including (Torreon, 2019), it was stated that "to make the practice of teaching physical education for students with hearing impairment work, general classroom teachers, specialists, parents and students themselves must work together to create the best educational environment". This means that many stakeholders including family must involve in the creation process of best educational environment. In addition, (Gizachew, 2012) stated that, "Scheduling" or time allotment is regarded as a challengeable issue which contradicted with the results obtained through the Questionnaire for PE teacher. So, the issue of time must be given due attention as well as other aspects. Furthermore, according to many literatures the notion of "familial involvement" is mandatory in order to cultivate the practice of physical education for SWHI into its peak level.

3.5. Challenges related to teaching physical education for SWHI in the school

What challenge the school was facing in teaching PE for SWHI, was he question forwarded only to the principal of the school via structured interview. To this he replied that, "The district governor gives less attention to the issue of physical education to SWHI. And also there is a limited knowledge about how the SWHI would be successful in areas of PE and also the families of SWHI do not collaborate with the school in maximizing the participation of their children in PE sessions".

As stated in many literatures, there are many other challenges that can hinder the development of practice of teaching physical education which include finance, shortage of equipment, facilities, qualified teaching personnel, class size, scheduling, training for physical education teachers (Gizachew, 2012).

4. Summary, Conclusion and Recommendation

4.1 Summary

The main objective of this research was to investigate the educational practice of physical education for student with hearing impairment. The research method employed was embedded design. Data gathering instruments were questionnaire, structured interview and observation checklist. The participants were students with hearing impairment, the physical education teacher and the school principal.

The data were analyzed qualitatively and quantitatively through percentage. The major findings of the study revealed that there was poor identification mechanism in the School due to shortage of Audiologist, and also the teaching practice of PE for SWHI was mainly focused on teacher centered method which is not an indicator of a good practice. The researchers observed the opportunities of that specific school regarding teaching physical education in terms of familial involvement, time allotment, collaboration with other organizations and the school's commitment which were found to low. The challenges of the school were low attention to physical education to SWHI from the district governor, limited knowledge about how the SWHI can be a successful in the area of PE, and lack of collaboration from families of SWHI in maximizing the participation of their children in PE sessions.

4.2. Conclusions

From the above reviewed literatures one can conclude that physical education is the integral part of the total educational activities which is beneficial for mental, physical, social and psychological aspects of an individual's life through planned and selected physical activities. Therefore, an individual has to understand that physical education plays a great role in the society, if efficiently and effectively practiced, especially for student with disability including student with hearing impairment (Fekede, 2012). Hence, based on the findings of the study, the following conclusions are made:

- The school's practice of identifying student with hearing impairment was to be less than expected and there was a challenge of finding an Audiologist.
- The study showed that the teaching practice of physical education of the school have some challenges such as rigidity of the teaching method. However, there was also some commitment on part of the school in teaching the SWHI using Sign Language.
- The respondents indicated that there was a low level of family encouragement for SWHI regarding the physical education practices.
- Despite the fact that there were some opportunities like commitment among the school in reforming the time schedule regarding teaching physical education, there was still many opportunities that the school, teachers, parents and other stakeholders could have offered.
- The low attention by the District Governor to the issue of physical education to SWHI, limited knowledge about how to accommodate the practice of teaching PE for SWHI, and collaboration of parents with the school in maximizing the participation of their children in PE sessions were all regarded as challenges Ambo Lazarist Catholic School for the Deaf was facing in providing physical education to SWHI.

4.3. Recommendation/implication for future research

Based on the findings of the study and the conclusions, the following recommendations are suggested.

i) Measures to be taken at school level:

- (Muga, 2003) stated that the current state of routine identification practice needs intensive training of screeners before more rigorous techniques are implemented. Therefore, the school's practice of identifying student with hearing impairment needs further attention among all the stakeholders.
- Awareness creation strategies should be designed to the families and other stakeholders so that they could support and encourage the practice of PE for SWHI.
- The school should make and build communication about the benefits of PE with all the concerned bodies.
- SWHI have to participate in and outside the school environment in sport activities like other students without hearing impairment. Therefore, the school has to facilitate such opportunities to enhance the social interaction skills of SWHI.
- The school has to support and encourage teachers to produce and use relevant teaching strategies to promote the teaching learning process of PE for SWHI.

ii) Measures to be taken by teachers:

- The learning environment of physical education needs some sort of modification. Thus, PE teachers should workout the necessary modification of educational materials, methodology, facilities, equipment and environmental conditions in order to address specific educational needs of students with hearing impairment.

- Training in the area of adapted physical education is a crucial issue in order to equip the physical education teachers with the necessary knowledge.

Furthermore, the researchers want to reflect what the school principal had said, while researchers were conducting the research, "Dyspraxia is the major problem of students with hearing impairment. And as the term indicates it is one kind of learning difficulties that is stated under the types of learning disorder that manifests its effect on the development of motor skills, difficulty in pronouncing words, problems with physical capabilities and coordination." From the above statement one can easily understand that the problem of students with hearing impairment did not end with hearing only but extends its effect as time goes and when the level of support is decreased. And also because of Dyspraxia, students with hearing impairment encounter a problem in physical coordination which is highly related to learning physical education. Therefore, one practitioner must be alert of these issues in teaching physical education for student with hearing impairment. Furthermore, there are lots of works that need to be done in the Ambo Lazarist Catholic School for the Deaf to enhance the status of the content and practice of APE.

References

Audicus. (Oct 8, 2014). *The Deaflympics: Deaf and Hearing impaired Culture.* Retrieved from https://www.audicus.com/the-deaflympics-deaf-and-hearing-impaired-culture/

Auxter, D., Pyfer J., Zittel, L., Roth, K., and Huettig, C. (2010). *Principles and Methods of Adapted Physical Education and Recreation* (11th Edition). New York: McGraw-Hill.

Brevard County, (2006). *Adapted Physical Education Resource Guide*.

Creswell, W. J. (2012). *Educational Research: Planning, Conducting, and Evaluating Quantitative and Qualitative Research* (4th Edition). Edwards's brothers.

Fekede, E. (2012). *Physically Disabled Students and Education: Challenges and Opportunities; The Case of Selected School in Addis Ababa* (Master's Thesis). Addis Ababa University, Ethiopia.

Fiorini, M. L. S., and Manzini, E. J. (2017). *Strategies of Physical Education Teachers to Promote the Participation of Students with Hearing Impairment in Classrooms.* Retrieved from www.scielo.br/scielo.php?pid=S1413-65382018000200183&script=sci_arttext&tlng=en

Gizachew, T. (2012). *The Challenges and the Current Prospects of Teaching Physical Education in Arba Minch Secondary Shools* (Master's Thesis). Addis Ababa, Ethiopia.

Greguol, Marson, and Carraro, (2018). *Inclusion of Students with Disabilities in Physical Education Classes: Teachers attitude in regular schools.* Retrieved from www.scielo.br/scielo.php?pid?pid=S141365382018000100033&script=sciartext&tlng=n

Kirk, Gallagher, Coleman and Anastasiow.(2009).*Educating Exceptional Children*(12th Edition). Houghton Mifflin.

Lidor, R. And Hutzler, Y. (March 19th 2019). *Including Sstudents with Disabilities in a Physical Education Tteacher Preparation Program.* Retrieved from http://www.intechopen.com/online-first/including-students-with-disabilities-in-a-physical-education-teacher-preparation-program-an-institut

Luo, P. (2000). Adapted Physical Education (PHED) Student Handbook, California State University Stanislaus, Retrieved From www.csustan.edu/kinesiology/faculty/ping luo/data.

Mason, M. (Feb 2009). *A Guideline for Serving Students with Disabilities in the Physical Education.*

Ministry of education, (Oct 2016). *A Master Plan for Special Education/Inclusive Education in Ethiopia: 2016-2025.*

Muga, E. (April 2003). *Screening for disability in a community.*Retrieved from http://www.ncbi.nlm.nih.gov/pmc/articles/pmc2141587/

Philip, V. (2007). *Teaching Physical Education to Children with Special Educational Needs.* Taylor & Francis e-Library.

Salvia J, Ysseldyke E. James, and Bolt sara. (2010). *Assessments in Special and Inclusive Education (*11th Edition).

Torreno, S. (n.d.). '*A guide to inclusion and teaching strategies for students with physical disabilities.'* Retrieved from https://www.brighthubeducation,com/special-ed physicaldisabilities/124486-inclusion-and-teaching-students-with-physical-disabilities/

Vize, A. (2019). '*Helping hearing impaired students in physical education*.' Retrieved from https://www.brighthubeducation.com/special-ed-hearing-impairments/4494-instructing-hearing-impaired-students-in-physical-education-class/

Determinants of Urban Household Poverty: The Case of Nejo Town, Adimasu Demise, Ambo University

Abstract

Poverty is the state of being unable to get the minimum requirement for survive or it is the condition where people's basic needs for foods, clothing and shelter are not being met, implying that any individual who does not get enough food security, house and a right cloth are living under poverty line. In Ethiopia, urban poverty is long lasting problem and significantly affects some people in the Urban. The objective of this study was to examine the determinant of urban household poverty in case of Nejo town. The sources used in the study came from primary data. Data were collected through closed-ended questionnaires: the household head of randomly selected household and descriptive statistics and econometrics modeling were employed to analyze the data. A Logistic regression model was employed and estimated based on the primary data. Poverty status of a household was used as a dependent variable and a set of demographic and socioeconomic variables were used as the explanatory parameters. The explanatory variable such as sex and age of household head, employment status of household, family size, house tenure, education level and access to credit were used to determine household poverty of the study areas. This research provides important information about poverty in the urban and serves as a future reference for researchers who wish to study the poverty status in Nejo town. So, this study is significant and can be considered a basis for future research study in the urban areas.

Keywords: poverty, logit, Nejo town

1. Introduction

1.1 Background of the Study

Poverty is a multidimensional problem that affects society in different ways. It is characterized by reducing the welfare of households in public through lacking quality of life. Poverty is the inability of getting choice and opportunities, violation of human dignity and lack of capacity to participate effectively in a society. It means not having enough to feed, and basic need, not having access to social service and low rate of capital formation. Not having capabilities to get necessary materials for their lives (Todaro, 2011).

Poverty is not only lacking financial resources or income. It is indicated by inadequate social s ervices like poor health, education quality, and provision of infrastructure and availability of clean water. Poverty is also associated with low levels of capital formation, inability or unwillingness to work, high rate of disruptive or disorderly behavior and improvidence. While these attributes have often been found to exist with poverty, their inclusions in definition of poverty would tend to be obscure the relationship between them and inability to provide for one's basic needs. Therefore, it is true that the effects of poverty are harmful to both individual and society (UNDP, 2013).

According to the United Nation Development Program, Ethiopia is one of the world's poorest countries. Its population is affected by many problems. As the reports of human development stated, out of the Ethiopian population, more than 80% gets less than two US dollar per day (UNDP, 2012). Thus, the poverty in Ethiopia is not reflected by a single phenomenon. The poverty experienced in Ethiopia is multidimensional and reflected in, among other things, low life expectancy at birth, high adult illiterate rate, lack of adequate access to water source and suitable sanitation. Urban poverty in Ethiopia is also a known and long-lasting problem due to the fact that it affects significant portion of urban population. Based on the national poverty line of the 2013, about 26% of the urban population is at absolutely poor level (NPLoE, 2013).

The poverty level among the household is also differ in the rural and urban. Although it is more difficult in rural areas, in urban also there is income inequality. It implies, the distributio n of income in household may be quite unequal in urban. Urban poor are quite diverse in the problem they face. In almost condition item of low personal income, poor personal consu mption, lack of portable water and sanitation house, transportation, infrastructure and commu nication are also some related with poverty. Robinson (2011) stated that a strategy in eradicati ng poverty among the urban households in business sector does not only aim at increasing the income level, but also at increasing overall number of entrepreneurs in a country. Robinso n also revealed that urban poor households must be aided not only in terms of business capital, but also in terms of motivational and skill-oriented training that inculcates entreprene urship values to be utilized in commencing socio-economic developments that illustrates the importance of entrepreneurship oriented human development. In addition to household difference, income earned by female and male may not be equal.

According to Nejo town Finance and Economic Development Office report 2009, in the town, the income of the households of the town indicates the poverty level in the town. This report shows that many of the peoples of the town earned less than two US dollar per day similar to the overall population of Ethiopia. Even for many population (more than 60,000 live in this town, there are only one hospital, one govern ment health station, ten private clinics and few provisions of infrastructure in the town. So, th e study was intended to know the determinants of poverty in the study area.

1.2. Statement of the Problem

Ethiopia is one of the under developed countries in which much of its population are lived in absolute poverty and from its population that reach over 87 million, 33 million peoples are living in absolute poverty (WPP, 2012). This refers to poverty as one of the serious problems that affect human being in Ethiopia. Thus, it needs much attention in order to eradicate and overcome the problem of poverty in both urban and rural areas of Ethiopia. Previous research ers considered consumption as a measure of welfare (Tesfaye, 2013). But consumption only is not an indicator of poverty level since there are many other factors. Some selected non-mon etary indicators are also examined. Because of consumption as a monetary measure of welfare , it may not appropriately reflect deprivation on non-monetary dimension of life. The

non-monetary indicators of welfare considered household subjective perceptions of welfare, s elected household characteristics and level of education.

Urban poor are quite diverse in the problem they face. Indicating that based on the level of income earned, they faced almost condition like poor personal consumption, lack of clean wat er and sanitation house, transportation infrastructure and communication those related with poverty. The Urban poor are suffered from the problem arises because of vicious poverty and results the wealth of people not isolated from the negative effect of poverty; they are more likely to suffer from serious consequences. Poverty also affects peoples of different characteri stics in different ways as they play different roles and face different constraints in the society. It is most likely that household in extreme poverty is different from the average and rich household in many distinct ways, such as in demographic behaviors and socioeconomic conditions. A proper understanding of these associated factors is a key to policies and practica l steps that government can take into alleviate poverty and promote sustainable growth in the country (Todaro, 2011).

Studies some years back were concentrated in rural areas, but this study focuses on urban area s particularly Nejo town. Some of previous researchers (Esabulew, 2006 and (Keneni, 2017) focused on determinants of urban poverty by considering variables such as education, employ ment, age and family size of household. But in this study, two other factors that determine poverty, i.e., access to credit and household head sex, were also included. In addition, no research was conducted more specifically on Nejo town on similar title and that is why the researcher was interested to examine the determinants of urban household poverty by incorpo rating the above variables.

In Nejo town, urban peoples were affected by different socio-economic problems such as lack of good health center, access to clean water, asphalt road and generally face low quality and quantity of services in the town.

Based on the above mentioned problems, this study addressed the following research questions:

- What is poverty status of urban household in Nejo town?
- How do the education level, age, sex and household access to credit household size, marital status, occupational status of households, and household tenure affect likelihood of being poor in urban?

1.3. Objectives of the Study

1.3.1. General Objective of the Study

The general objective of the study was to assess the determinants of urban household poverty in Ethiopian, particularly the case of Nejo town.

1.3.2. Specific Objectives of the Study

- To examine the poverty status of urban household in study area.

- To identify the effect of socio-economic factors on the poverty status of urban household in the town.

1.4. Scope of the Study

Since it requires allocating sufficient budget and time to conduct the study on the overall effect of poverty, the study focused on determinants of poverty in urban household specifically in Nejo town to conduct manageable and feasible study.

1.5. Limitation of the Study

The researcher encountered different problems while conducting the research. Some of the challenges included lack of knowledge or experience in conducting research and its process and limitation of time since it needs much time to get details information on poverty status.

1.6. Significance of the Study

The study is significant to provide vital information about poverty in the urban and serves as future reference for the other researchers who wish to study the poverty status in Nejo town. Since the characteristics of poverty in least developed countries are multidimensional, reduction effort requires multi faced intervention raises from deep knowledge and awareness. So, this study is significant and can be considered as a basis for future research study in the urban areas.

2. Research Methodology

2.1. Description of the Study Area

Nejo town was established in 1893 E.C. in West Wollega Zone, Oromia Region. Specifically, it has a latitude and longitude of $9^0$30 N$35^0$30E with an elevation of 1821 meters above sea level and about 497 km far from Addis Ababa. Nejo is bordered on the south east by Boji, on the west by Jarso, on the northwest by Lata Sibu, and on the north and east by Benishangul Gumuz Region. According to the CSA 2007 population and housing census, the total population of Nejo was 165,759 where 103,305 or 62.3% were rural and 62,454 or 37.7% were urban. Moreover, out of total estimated 62,454 peoples of Nejo town, 26,540 or 42.5% were male and 35,914 or 57.5 % were female. Peoples living in the town perform different economic activities such as trade, agriculture, public servants and employed in non-government offices. Majority of the peoples live in the town are Oromo and some ethnic groups like Amhara and Gurhage also live in the town.

2.2. Data Type and Source

The study used both primary and secondary sources. To get the primary data, the researcher prepared a sample survey on socio-economic information from sample population in Nejo town. Secondary data were collected from key officials, Central Statistical Agency and report and documents of Nejo town.

2.3. Sampling Techniques and Sample Size

The research used a multiple-sampling procedure with a random sampling to identify the sample units. Two stages sampling techniques were employed for the study. First, 2 kebeles were selected using judgmental sampling from 4 urban kebeles which bordered with rural kebeles. Then, from the 2 kebeles, households for the study were determined based on the following formula developed by Yamane (1967).

According to CSA 2007 Population and House Census of Nejo town, the total households in the two kebeles were 3,396. Among these, the total households of 03 kebele were 1,687 and that of 04 kebele were 1709. Equal chance was given to be selected as sample from each of the two kebele based on Yamane formula of 1967, and the level of sample size was computed as per the following formula, at the precision level of 5 percent.

$\mathrm{n} = \frac{N}{1+N(e)2}$ Where, n = sample size

N= target population

e = level of precision at 5%

The researcher used this formula to get the required sample size as follows

$$\mathrm{n} = 3396/1 + 3396(5\%)2 = 358$$

Due to time and budget constraints, the researcher reduced there sample size from 358 to 118. The researcher allocated the sample size proportionally between the two selected kebeles as p er the following formula.

$$\text{From 03 kebele, n1} = \left(\frac{\mathrm{N3}}{\mathrm{N}}\right)\mathrm{n} = \left(\frac{1687}{3396}\right)118 = 58.6 = 59$$

$$\text{From 02 kebele, n2} = \left(\frac{\mathrm{N4}}{\mathrm{N}}\right)\mathrm{n} = \left(\frac{1709}{3396}\right)118 = 59.38 = 59$$

A total sample size of $n_1 + n_2$ where, $n = 59 + 59 = 118$ was selected using rand om sampling technique.

2.4. Method of data Collection

To study determinant of urban household poverty in Nejo town, the study used primary data. The primary data were collected using open-ended and close-ended questionnaires which was prepared and translated into Afan Oromo in order to easily understandable by respondents.

2.5. Method of Data Analysis

The study used both descriptive and econometric methods of data analysis. Descriptive method was used to examine the socio-economic and demographic characteristics of the respo ndents. Moreover, the econometrics method was used to examine determinants of poverty.

For this study, the researcher used logistic regression so as to examine the determinants of poverty in urban and also used simple descriptive statistics and table to identify the level of poverty in the study area.

Descriptive statistics used to summarize the data on household demographic and socio-economic characteristics. It was also possible to show poverty by looking at the percent age of sample respondents who were below the poverty line. Households were classified as poor or non-poor in relations to their level of income and expenditure. But not only income and expenditure were sufficient information to investigate the poverty status of the study area, it was multidimensional. To do this, a software package of STATA, SPSS and MS/EXCEL w ere used to carry out the computation.

2.6. Model Specification

The Foster–Greer–Thorbecke (FGT) index is one of the widely used measures of poverty in many empirical works which enables to calculate three indexes; poverty head count index, poverty gap index and poverty severity index (squared poverty gap index). The index categorizes the poor into better poor, medium poor and the poorest of the poor. Accordingly, it indicates how sensitive the index is when there is transfer of income from one category to another category. As of (MOFED, 2012; Makoka and Kaplan, 2005; Greeley, 1994), FGT - Foster–Greer–Thorbecke (1984) class of poverty measures can be computed by using the following expression;

$$P_\alpha = \frac{1}{N}\sum_{i=1}^{q}\left(\frac{z-y_i}{z}\right)^\alpha \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots(4)$$

Where α equals 0, 1, and 2
P equals head-count ratio, poverty-gap ratio, and poverty severity measure respectively.
Z= poverty line
N= total number of households
q= total number of poor households
yi= total expenditure of household
Pα= measure of poverty

On the basis of the weight attached to the severity of poverty α (poverty aversion parameter) - FGT index can be decomposed into the three indexes in which the index is built on (MoFED, 2012). In this regard, the condition of poverty depends on the weight attached to α in FGT index:

1) Assuming that α = 0, no weight is given to the severity of poverty. In this case, the formula will be reduced to $P_0 = \frac{q}{N}$, percentage of poor households (Head Count Ratio).

2) Assuming α = 1, which means that equal weight is given to the severity of poverty among all poor households. Summing the numerator gives the poverty gap and dividing this by Z expresses the figure as a ratio/index and results in the Poverty Gap Index.

3) Giving more weight to the severity of poverty among the poorest households is equivalent to assuming α> 1. A common in the poverty index is to set α = 2, yielding the severely poor groups among the poor groups.

By this index, the incidence, depth and severity of poverty can be identified. Logistic regression is an approach to predicting the probability that an individual/household will be poor. In this study, it is employed to predicting a dichotomous outcome. For analysis of the poverty, the researcher employed status of households based on the income they earned per day. According to World Bank 2008, a person who earns less than 1.25 dollar per day is considered as poor and non-poor otherwise. It takes a value one (1) if a household is poor or zero otherwise. This probability is given as;

$$SES_i = f(sex, mrst, \text{hh}size, empst, age, accrhhh) \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (5)$$

Where,

SESi=Socioeconomic Status of household i.

Sex = Sex of the household head

mrst = Marital status of the household head

hhsize=household family size

empst = Employment status of the household head

Age = Age of the household head

Accr=access to credit of household

The explanatory variables that affect the socio-economic status of the respondents were expressed both qualitatively and quantitatively. Where the dependent variable is dichotomous, many studies show that Probit and Logit model are appropriate. Since the Logit model is simpler in estimation than probit model (Aldrich and Nelson, 1984), Logit model is preferred to the probit model for this study. Therefore, Following Gujarati (1992), the Logit distributional function is specified as:

$$P_i = 1/(1 + e^{-Z_i}) \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (6)$$

Where,

$$\text{Zi}= \beta_0 + \beta_1 sex_{1i} + \beta_2 mrst_{2i} + \beta_3 hhsize_{3i} + \beta_4 empst_{4i} + \beta_5 age_{5i} + \beta 6accr + \beta 7hht7i\ \varepsilon. \ldots\ldots\ldots\ldots\ldots\ldots (7)$$

$$P_i = \frac{1}{1+ e^{-(\beta_0 + \beta_1 sex_{1i} + \beta_2 mrts_{2i} + \beta_3 hhsize_{3i} + \beta_4 empst_{4i} + \beta_5 age_{5i} + \beta 6arrc6i + \beta 7hht7i + \varepsilon)}} \ldots\ldots\ldots (8)$$

Where,

P_i = Probability of improvement in SES in relation with the explanatory variables

E^{Zi}= Irrational number to the power of Z_i

Z_i= A function of n explanatory variables

β's = Parameters

ε = Error/Stochastic term

i = Individuals/Respondents in the study in which i =1, 2, 3. . . = 118

Now if we obtain the natural log we get:

Li =ln[(Pi/(1− Pi)]= Zi

$$=\beta_0 + \beta_1 sex_{1i} + \beta_2 mrst_{2i} + \beta_3 hhsize_{3i} + \beta_4 empst_{4i} + \beta_5 age_{5i} \ldots\ldots (9)$$

Table 1: Description of variable and expected sign in the model

Name of the variable	**Type of the variable**	**Description**	**Expect relationship with dependent variable**
The probability of being poor (Dependent variable)	Probability	Poor if poverty status is 1 and not if poverty status is 0	
Sex of household head	Dummy	1 for male and 0 for female	Female headed household are relatively more expose to poverty than male headed households
Education level of household head	Continuous	Years of education were considered	As the level of education increases the probability of being poor reduces
Family size	Continuous	Continuous	As family size increase, the probability of being poor increase
Employment Status	Discrete	1 for unemployed and 0 otherwise	As the employment status increase, the probability of being poor reduces
Age of household head	Continuous	Continuous	Age was positively related with income. Hence, as the age of household head increases the probability of being poor reduces
Marital status	Discrete	1 for single, widowed, divorced and 0 otherwise	As the widowed and divorced increases, the probability of being poor increases
Access to credit	Dummy	1 for those who have access and 0 for not having access	Access to credit is expected to reduce the probability of being poor
Housing tenure	Dummy	1 for those who have house and 0 otherwise	Increasing in having of house results reduction the probability of being poor

3. Results and Discussion

In order to analyze the collected data, the researcher used both descriptive and econometrics method to identify the determinant and level of significance of household poverty in Nejo town. In this research, descriptive analysis was used to identify the main features of household in the town administration and helped us to measure the prevalence rate of poverty in the town. But the econometrics analysis helped us to measure the significance level of household's

characteristics in determining the likelihood of being poor in the town and logistic regression result to determine the poverty status of the town.

Accordingly, the researcher used Foster Greer Thorbecke (FGT) for measuring magnitude of poverty in the study area which enables to calculate three indexes: head count ratio index (P_0), Poverty Gap Index (p_1) and poverty severity index (squared poverty gap index) ($p_{2)}$ and logit model was employed in order to estimate the probability of the household being poor. The researcher used income of the household in order to classify the respondents into poor and non-poor. To identify the poor households in Nejo town, the following steps were used:

Step1: Dividing household income to the numbers of household family size which is income per month/ household family size.

Step 2: since each month has 30 days, the results of the above division again divided to 30 days. Then, the actual income of each members of family earned per day was identified from this calculation. Accordingly, a person who earned less than 1.25 dollar per day was considered as poor and takes value 1 and who earned more than 1.25 dollar was non-poor with taking value 0.

3.1. Results of Descriptive Statistics

3.1.1 Demographic Characteristics of Respondents

The demographic factors included age, family size, marital status and sex. Table 2 and 3 below visualizes the summary statistics results of these factors in the study area.

Table 2: Features of respondent by sex and Age

Gender of the household head	Frequency	Percentage
Female	47	39.83%
Male	71	60.17%
Total	118	100%
Household Age		
Age group	Frequency	Percentage
Below 14	0	0%
15-25	28	23.73%
26-35	40	33.90%
36-45	26	22.03%
46-55	16	13.56%
56-65	4	3.39%
Above 65	4	3.39%
Total	118	100%

Source: Own Survey, 2019

From the table above, 60.17% of the respondents were male headed households and 39.83% were female headed households. This indicates that more household in the town were male headed households. This table also showed that, most of the respondents (33.90%), were between the age range of 26-35 years; 23.73% were between the age range of 15-26 year, and 22.03%. were between the age range of 36-45 years. This implies that majority of the households were at the working age or economically active.

Table 3: Characteristics of respondent by marital status and family size

Marital status of the household head	Frequency	Percentage
Married	77	65.25%
Widowed	9	7.63%
Divorced	2	1.69%
Single	30	25.43%
Total	118	100%
Family size (number)	Frequency	percentage
1-3	53	44.92%
4-6	50	42.37%
7 and above	15	12.71%
Total	118	100%

Source: Own Survey, Questionnaire, 2019

From the table 3 above, it can be seen that most of the households in the town (65.25%) were married as compared to widowed, divorced and single. Most of the households (44.92%) had 1-3 family size, those having 3-6 family size constituted 42.37% of the total respondents and 12.71% of the respondents had seven and more family size. Generally, majority of the households had large family size.

3.1.2. Institutional Factors.

Institutional factors basically include access to credit and Educational level.

3.1.2.1 Household Head access to Credit

Table 4: Features of respondent by access to credit

Household head access to credit	Frequency	Percentage
Yes	39	33.05
No	79	66.95
Total	118	100

Source: Own survey Questionnaire 2019

On Table 4 above, more of household head in the town had not access to credit. The percentage of household heads who had access to credit in the town was only 33.05%, while the percentage of household who did not have access to credit was 66.95%. This implies that most of the household heads in the study area had no access to credit.

3.1.2.2 Educational Level of household Heads

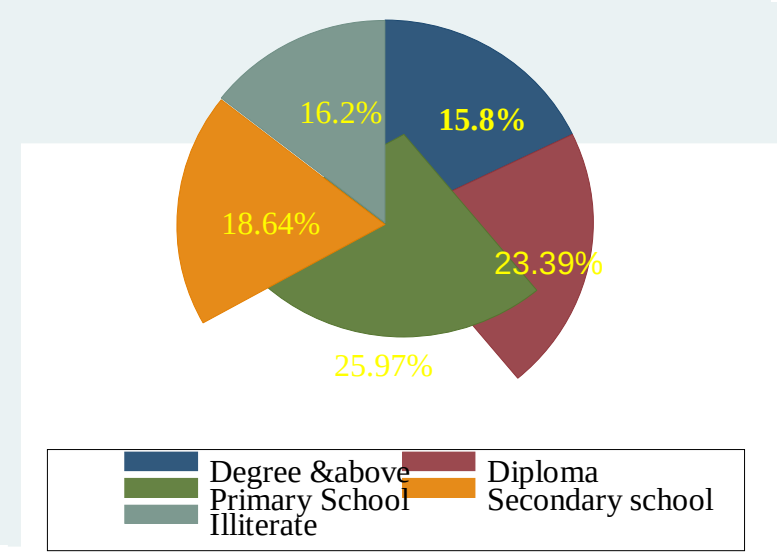


Figure 1: Educational status of Household by pie chart

Source: Own survey, Questionnaire 2019

As Indicated in the above figure, most of household heads in the town (25.97%) had attended primary school, while 23.39%. were diploma holders. This shows that there were some improvements in relation to the level of education in the town although still 16.2% of the household heads were illiterate.

3.1.3. Occupational Status of Employees

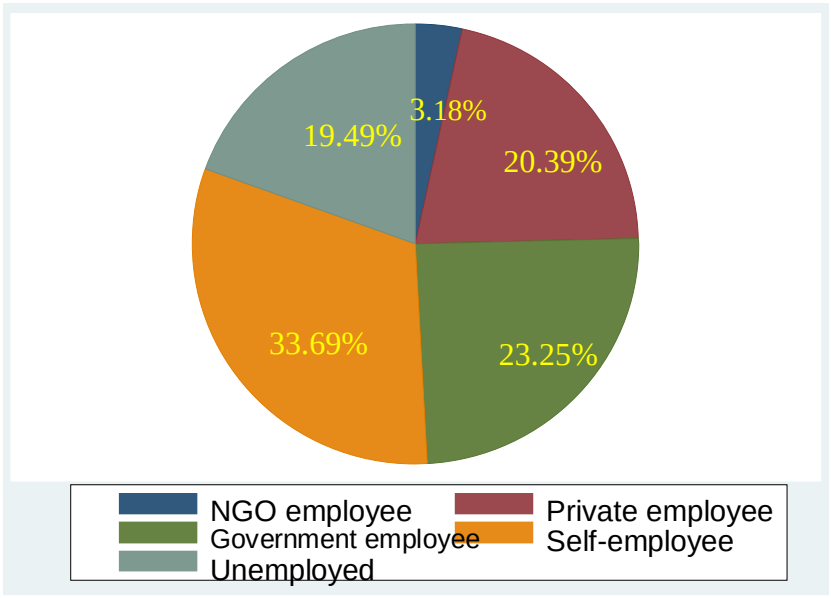


Figure 2: Occupational status of respondent by Pie chart

As indicated in the above figure, most of the households (33.69%) were self-employee, government employees constituted 23.25%, 19.49% were unemployed, and 3.18% of households were employees of NGOs. .

3.1.4 Characteristics of respondents by some indicators of living

Table 5: Features of households by access to clean water, electricity and good sanitation

Access to clean water	Frequency	Percentage
Yes	72	61.02%
No	46	38.98%
Total	118	100%
Getting enough electricity	Frequency	Percentage
Yes	38	32.20%
No	80	67.80%
Total	118	100%
Having good sanitation toilet	Frequency	Percentage
Yes	102	86.44%
No	16	13.56%
Total	**118**	**100%**

Source: Own Survey, Questionnaire 2019

As can be seen from table 5 above, majority of the population had access to clean water, although it did not meet the water demand of all households in the town. In percentage, around 61.02% had clean water and it implies improvement of water supply even though, 38.98% of respondents are not getting clean water which needs improvement in this town.

When asked about the availability of enough electricity, most of the households (67.80%) replied that they did not get enough electricity, which indicated shortage of electric power in the town. With regards to sanitation facilities/toilets, majority of the households (86.44%) responded that they had good sanitation facilities/toilets, and only 13.56% of the households said that they did not have good sanitation facilities/toilets, which shows availability of good sanitation facilities in the town.

3.1.5 Characteristics of Respondents by Asset They Own

Table 6: Features of respondents by durable asset they own

Having a TV	Frequency	Percentage
Yes	83	70.34%
No	35	29.66%
Total	118	100%
Having a Refrigerator	Frequency	Percentage
Yes	14	11.86%
No	104	88.14%
Total	118	100%
Having a car	Frequency	Percentage
Yes	9	7.63%
No	109	92.37%
Total	118	100%
Having a motor bike	Frequency	Percentage
Yes	15r	12.71%
No	103	87.29%
Total	118	100%
Having a Bicycle	Frequency	Percentage
Yes	26	22.03
No	92	77.97
Total	**118**	**100%**

Source: Own Survey Questionnaire, 2019

As summarized in table 6, greater number (70.34%) of the households had TV so that they had access to information. On the other hand, majority of the respondents (88.14%0 did not have a refrigerator . The table also shows that, majority of the respondents did not have a car, a motor bike or a bicycle as indicated by 92.37%, 87.29%, and 77.97% respectively.

Table 7: Housing Tenure of the Respondents

Having house	Frequency	Percentage
Yes	51	43.22%
No	67	56.78%
Total	**118**	**100%**

Source: Own Survey Questionnaire 2019

Table 7 showed that, most of the households did not have a house as indicated by 56.78% of the respondents, while 43.22% replied that they did not have a house of their town and lived either in a rented or government house.

3.1.6 Characteristics of Respondents by dependent and independent Family.

Table 8: Features of respondents by independent family

Independent family	Frequency	Percentage
0	10	8.47%
1	42	35.59%
2	30	25.42%
3	20	16.95%
4	7	5.93%
5	5	4.25%
6	4	3.39%
Total	**118**	**100%**

Source: Own survey, Questionnaire 2019

As shown in the above table, majority of the households had only one independent family and the remaining had dependent family members. In percentage, 35.59% of the respondents had one independent family, followed by two independent family members with 25.42%. This indicates that most of the households' family members were non-productive.

Table 9: Characteristics of respondents with number of dependent family

Dependent family	Frequency	Percentage
0-1	46	38.98%
2-3	54	45.76%
3-5	15	12.71%
6	3	2.55%
Total	118	100%

Source: Own survey Questionnaire 2019

The table 9 above shows that, 45.76% of the households had 2-3 dependent family members, and 38.98% of the respondents had 0-1 dependent family members . Generally, majority of the households were characterized by having greater number of dependent family members, which showed increase of poverty in this town.

3.1.7 Expenditures of Respondents

Table 10: Expenditures of household

Expenditure of household per month(in Birr)	Frequency	Percentage
Below 1000	39	33.05%
1001-2000	41	34.75%
2001-3000	20	16.25%
3001-4000	7	7%
Above 4000	11	9%
Total	**118**	**100%**

Source: Own Survey Questionnaire 2019

Information in the above table shows, out of 118 respondents, 33.05% spent less than one thousand birr per month and 34.75% of households spent between 1001-2000 birr per month. This indicates that household consumption, which is one indicator of living, was very low in this town.

3.2. Poverty in the City

Table 11: Poverty and household head gender in the city

Poverty Line	Gender of household head		Total
	Male%	Female%	
APL	31.740	9.017	40.751%
BPL	26.73	32.508	59.238%
Total	**58.47**	**41.53**	**100%**

Source: Own Survey, 2019

According to the above table 11, about 59.238% of the households in the town were below poverty line, out of which 26.73% were male headed households and 32.508% were female headed households. Therefore, most of the female headed households were poorer than male headed households. This implies that female headed households were more affected by poverty than male headed households. It also indicates that the prevalence of poverty was skewed toward female headed households than male headed ones.

3.2.1 Poverty and Age of Household Head

Table 12: Poverty and age of the household heads

Age group	Poverty line		Total
	APL%	BPL%	
Below 14	0	0	0
15-25	14.71	14.71	29.42
25-35	15.796	12.407	28.203
36-45	8.474	11.86	20.339
46-55	5.084	10.16	15.25
56-65	0	2.54	2.54
Above 65	1.69	2.54	4.23
Total	**45.763**	**54.237**	**100**

Source: Own Survey, 2019

As observed from table 12 above, households whose age was between 15-25, 26-35, 35-46 were 14.71%, 15.796%, and 8.474% were above poverty line respectively. Especially, households whose age was between 25-35 years were crucial in reducing poverty in the town as compared to others. Therefore, households who were found to be in middle age group were better off in the sense that they have abilities to escape poverty.

3.2.2. Poverty and Marital Status of Household Head

Table 13: Poverty and Marital status of household heads

Poverty line	Marital Status of Household Heads				Total %
	Married %	Widowed %	Divorced %	Single %	
APL	**34.7**	**3**	**0**	**7**	**45.763**
BPL	28	5.9	1.6	20	54.237
Total	**62.7**	**8.9**	**1.6**	**27**	**100**

Source: Own Survey, 2019

As indicated in table 13, 45.763% of households were above poverty line. This implies that, most of households in the town were above poverty line although 54.237% of households were below poverty line. It also indicated that married households had lesser probability of being poor than single, widowed and divorced. Therefore, the marital status characteristics of the household heads determined the probability of being poor of the households in the town.

3.2.3. Poverty and Occupational Status of Household Heads

Table 14: Poverty and occupational status of household head

Poverty line	Occupational status					Total
	Gov't Employee %	Self Employee%	Private Employee %	NGO Employee %	Unemployed %	
APL	18.64	15.25	6.779	1.69	3.389	45.7
BPL	5.93	16	14.4068	1.69	16	54.3
Total	**24.57**	**31.25**	**21.186**	**3.38**	**19.389**	**100**

Source: Own Survey, 2019

As shown in table 14 above, most of government employees in the town were above poverty line when compared to unemployed households. This means that among government employees, 18.64% of households were above poverty line while only 3.389% of the unemployed households were above poverty line. Generally, among all the households, 45.7% were above poverty line compared to the unemployed households among which only 3.389 were above poverty line and 16% were below poverty line.

3.2.4. Poverty and Household Heads Access to Credit

Table 15: Poverty and household heads access to credit

Poverty line	Household heads' access to credit		Total
	Access to Credit %	No access to Credit %	
APL	28.8135	16.949	45.7
BPL	6.7797	47.458	54.3
Total	**35.593**	**64.407**	**100**

Source: Own Survey, 2019

As seen in table 15 above, most of households (28.8135%), who had access to credit in the town, were above poverty line while only 16.949% of the household heads who did not have access to credit were above poverty line. But, among the households who had access to credit and who did not have access to credit, 6.7797% and 47.458% live below poverty line respectively. So, households who had access to credit had better off and had less probability of being poor.

3.2.5. Poverty and Educational Attainment Household Heads

Table 16: Poverty and educational attainment of household heads

Educational level of the heads	Poverty line		Total
	APL %	BPL %	
Illiterate	0.85	13.559	14.4
Primary	7.62	20.339	27.966
Secondary	10.16	8.475	18.644
Diploma	13.56	7.627	21.187
Degree and above	**13.56**	**4.237**	**17.797**
Total	**45.7**	**54.3**	**100**

Source: Own Survey, 2019

As indicated in table 16 above, the prevalence of poverty varied according to the educational attainment of the household heads. Household heads whose educational level was only primary were more likely to live below poverty line than those attained secondary, diploma, degree and above. On the other hand, most of the illiterate households (13.559%) were below poverty line due to their low participation in decision making. Therefore, households who acquired higher education had observed to play a crucial role in alleviating the poverty status of the household heads in the town. This implies that, as educational level of household heads increases, household decision making ability also increases and the probability of being poor decreases.

3.3 Subjective poverty in the city

Table 17: Subjective poverty

Do you believe you are poor?	Frequency	Percentage
Yes	79	66.95%
No	39	33.05%
Total	**118**	**100%**

Source: Own survey, 2019

Information provided in the above table summarizes, subjective poverty in the town which was based on the perception of individuals considering themselves as poor or not. Accordingly, 66.95% of the households believed they were poor and 33.05% of the respondents considered themselves as non-poor. This implies that majority of the households in the town considered themselves as poor.

3.4 Income Poverty of Households in the Town

Table 18: Income Poverty

Based on the income level	Frequency	Percentage
Poor	75	63.56%
Not poor	43	36.44%
Total	**118**	**100%**

Source: Own survey questionnaire 2019

Information in the above table summarizes, in the Nejo town 63.5% of the households earned less than 1.25 dollar per day and 36.44% of them earned greater than 1.25 dollar per day. As a person who earns less than 1.25 dollar per day is considered as poor and who earns more than 1.25 dollar is non-poor, depending on the income level earned per day, 63.55% of the households were poor and 36.44% were not poor.

3.5 Descriptive statistics of Continuous variables of the model

Table 19: Descriptive statistics of continuous variables of the model

Variable	Observation	Mean	Std. Dev.	Min	Max
family size	118	3.855932	2.299295	1	10
Household age	118	35.86441	13.04687	16	75
Education level	118	9.237288	5.913447	0	21
Monthly expenditure	118	1966.441	1431.625	100	7000

Source: Own survey, 2019

Parameter alpha: 0.00

Group	Estimate	STE	LB	UB	Poverty line
Female	0.398148	0.080875	0.237979	0.558318	1412.56
Male	0.288732	0.056651	0.176537	0.400928	1412.56
Average	0.336000	0.045700	0.245494	0.426506	1412.56

Source: Own estimation, survey 2019

The above table shows that without considering severity of poverty, 39.8% of females were incident to poverty while 28.87% of males were also incident to poverty. But compared to the male headed households, female headed households were more affected by poverty as the above results indicated. Generally, 33.6% of respondents were poor.

3.5.1 Poverty Gap indexes (P_1)

Poverty index: FGT index
Household size: Education
Group variable: Household sex

Parameter alpha: 1.00

Group	Estimate	STE	LB	UB	Poverty line
Female	0.141915	0.034374	0.073839	0.209991	1412.56
Male	0.115787	0.027919	0.060495	0.171079	1412.56
Average	0.127074	0.022882	0.081757	0.172392	1412.56

Source: own estimation, survey 2019

As summarized in the above table, giving equal weight to the severity of poverty among poor household, poverty gap of the study area was 12.7%. This implies that female headed households were more exposed to poverty than male headed households.

3.5.2 Poverty Severity Indexes (P_2)

Poverty index: FGT index
Household size: Education
Group variable: Household sex

Parameter alpha: 2.00

Group	Estimate	STE	LB	UB	Poverty line
Female	0.063454	0.021934	0.020015	0.106892	1412.56
Male	0.053575	0.018136	0.017657	0.089492	1412.56
Average	0.057842	0.015650	0.026848	0.088837	1412.56

Source: own estimation, survey 2019

Information in the above table shows that, the severity of poverty in the town was 5.7% which indicates severely poor among the poorest groups and again, indicates female headed households were severely affected by poverty in the town with 6.3%.

3.6 Econometric Analysis

3.6.1 Results of Logit Model

In addition to the above qualitative and quantitative investigation of identifying the determinant of urban household poverty, binary choice econometric regression model, specifically logit regression model, was employed. In this model, dummy variable of economic status (poor and non-poor) was taken as a dependent variable (where poor = 1 and non-poor = 0). The major determinant variable factors which were expected to influence the living condition of the people in the study area were taken as predictors of the model.

Results of the logit regression is presented in the below table that shows the total number of observations used for this analysis, that is, 118 households. As presented in the table, the LR chi^2 is 114.83, where the Prob> chi^2 = 0.000 indicating that the variables in the model were jointly significant to influence the dependent variable. The Pseudo R^2 =70.56% implying that the model fits well to the extent that more than percent of the variation in the outcome variable is explained by the variable in our model.

Logistic regression Number of obs = 118
LR chi2(5) = 114.83
Prob> chi2 = 0.0000
Log likelihood = -23.953523 Pseudo R2 = 0.7056

Poverty status	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Hh sex	-7.607545	1.881686	-4.04	0.000*	-11.29558	-3.919508
mrst	-2.765242	1.305497	-2.12	0.034**	-5.323969	-.2065147
hhsize1	.087374	.4153731	2.62	0.009*	.2732575	1.90149
Empst	-.6508434	1.29235	-0.50	0.615	-3.183803	1.882116
Hhage	-.1273935	.052459	-2.43	0.055	-.2302113	-.0245757
accr	-5.068346	1.522222	-3.33	0.001*	-8.051846	-2.084846
edlvhh	-1.001576	.3759732	-2.66	0.008*	-1.73847	-.2646818
having house	-2.88995	1.009544	-2.86	0.004*	-4.86862	-.9112792
monthly expe	-.0002056	.0001071	-1.92	0.0558	-.0004156	4.36e-06
cons	14.06185	3.833209	3.67	0.000	6.548899	21.5748

Source: Own Estimation Result, 2019
asterisks*, **and*** significant at 1, 5 and 10 % respectively.
Marginal effects after logit
y =Pr(poverty status) (predict)

= .76626581

Variables	dy/dx	Std. Err.	z	P>|z|	[95% C.I.]		X
HH sex*	-.8742408	.06762	-12.93	0.000	-1.00678	-.7417	.584746
mrst*	-.5248595	.22293	-2.35	0.019	-.961785	-.087934	.398305
hhfsize	.1947514	.07247	2.69	0.007	.052706	.336797	4.72034
Empst*	-.1116878	.21058	-0.53	0.596	-.524423	.301047	.618644
HH age	-.0228165	.00903	-2.53	0.512	-.040515	-.005118	41.4576
Ac.to cr.* .440678	-.8069018	.12699	-6.35	0.000	-1.0558	-.558001	
Education	-.1793847	.07666	-2.34	0.019	-.329643	-.029127	2.11864
Having hous*	-.389899	.13677	-2.85	0.004	-.65796	-.121838	.686441
month expe	-.0000368	.00002	-2.16	0.031	-.00007	-3.3e-06	2110.85

(*) dy/dx is for discrete change of dummy variable from 0 to 1
Source: Own Estimation Result, 2019

Examination of the above Logit estimates demonstrates that the variable that was positively correlated with the probability of being poor was only family size. The variables that were negatively correlated with the probability of being poor were sex, age, marital status, education, employment status, having house, access to credit and expenditures.

The positive value coefficients of family size indicated that as family size increased, the household's chance of falling into poverty also raised. Hence, high family size was positively associated with poverty in Nejo town.

On the other hand, the negative value of the coefficients of sex, marital status, age, education, employment status, having house, and expenditures indicated that as the value of these variables increased, the household was less likely to fall into poverty.

Sex: The probability of being poor was 87 times greater for female headed households than that of male headed households at 1% level of significance. This implies that female headed households were more affected by poverty than male headed households in the study area. The reasons was that most of the female worked at the low income positions, as daily laborers, doing household chores like preparing food for family.

Marital status: The probability of being poor was 52 times greater for single, divorced and widowed as compared to married at 5% level of significance. It indicates that married persons were more likely to escape from poverty than others due to the fact that, married persons have greater motivation to work since they are more responsible persons.

Family size: Holding other independent variables constant, as the a household's family size increases by one person, the probability of being poor increases by a factor of 0.19. This shows that as the number of household size increases the probability of being poor also increases.

Access to credit: As indicated in the table, the probability of being poor was 81 times greater for households who did not have access to credit at 1% level of significance. Using access to credit is one way of escaping from poverty through investing cash flow from credit associations. The cash that the household borrows and invest may generate some output and profit. Then the household would pay back the principal with interest and made profitable at the end of the day. That means the households who use access to credit were most likely to improve their living standard through borrowing capital and invest it to generate revenue.

Education Level: As the education level of the household went up one level, the chance to being poor fell down by a factor of 0.18, keeping other predictor variables constant. It indicates that education had significant role in reduction of poverty in the study area.

House Tenure: The probability of being poor was 39 times greater for households who did not have house as compared to those who had a house. This implies that households who lived in rented and government houses were more affected by poverty in Nejo town.

In the above table, only family size was positively correlated with poverty, which implies that as the family size increases poverty also raised while variables such as sex, marital status, age, employment, education, house tenure, access to credit and expenditures were negatively associated with poverty. This implies that increase of one of them decreases the chance of a household to fall into poverty. From the nine variable predictors most of them such as sex, marital status, family size, access to credit, educational status, and housing tenure were statistically significant.

4. Conclusions and Recommendations

4.1. Conclusion

This study examines the determinant of household poverty and also demonstrates and emphasize incidence of poverty in the Nejo town. The determinants of poverty in the area included demographic and socio economic of household head, such as educational level, household access to credit, family size, marital status of household head, occupational status, age, sex, house tenure of household head and expenditures of the household. Besides, in the descriptive part, variables such as access to clean water, getting enough electricity, good sanitation facilities/toilet, independent and dependent family members, having properties like television, car, motor bike, refrigerator, bicycle were used to show what poverty was look like in the town.

The major finding of the study revealed that the sex, age, marital status, education, access to credit, house tenure and occupational status of a household were inversely related to the poverty status of urban household. As indicated above, as one of these variables increased by unit, the probability of being poor was reduced for each of them by some percent. For instance, as the age of a household increases by one year, a probability of being poor decreased by 2.28 percent. That means, as the age of a household increases the knowledge and skills the household members to make decision and understand ways of reducing poverty also improves.

On the other hand, only family size was a predictor variable positively associated with poverty. The increase of family size by one person raised the chance to being poor by 19.47 per cent.

Access to credit was the other significant variable to influence the probability of impoverishment. The findings showed that the probability of being poor was reduced by 80 times the household who used access to credit than that of the household that did not have access to credit at 1% level of significance. This implies that the households who use access to credit were escaping from poverty by increasing their income through investing the cash flows borrowing from the credit association.

The findings of the study showed that, majority of female headed households were exposed to poverty than male headed households. Most of households in the town were male headed (58.474%) compared to that of female headed households (41.526%). When seen in terms of age, as the age of a household members increases by a single year, the probability of being poor decreases. According to findings of the study, middle age household heads had better chance of escaping from poverty due to having better skills and knowledge to reduce poverty. In terms of occupational status of household heads, unemployed household heads were highly affected by poverty than the those employed. Size of family was an important indicator of the level of poverty in the town because, most of the households with large family size were highly affected by poverty. In addition, education level of households was the most significant factor to indicate poverty in the study area, due to the fact that increased educational attainment of households reduced poverty because of strong the household decision making capability.
FGT indexes showed that, the incidence of poverty was spreading among the surveyed households, with 0.336 head count ratio, 0.12 poverty gap, and 0.0578 as the severity index in the town.

This calls for urgent interventions aimed at curbing the fate of the poor. One way of doing this is studying the determinants of urban poverty by informing concerned parties as the factors are important in fighting against poverty. Without the clear identification of the factors that account for the continuous improvement of life in the town, it is really difficult to come up with concrete solutions. As urban poverty is a multitude of interrelated factors, a cause being a consequence simultaneously, critical identification of the variables is important. However, because it is difficult to bring panaceas or remedies for the whole problems over right prioritization of the variables is of paramount importance. Logistic regression results showed that demographic features of household head were statistically significant in explaining urban household poverty in the study area except employment status and ages of households.

4.2. Recommendations

Based on qualitative and quantitative data gathered from Nejo Town Administration concerning the household heads and the results of the study, the following recommendations are forwarded to reduce poverty in the town.

- Female headed households were more likely faced poverty than male headed households i

n the town. Therefore, the Town Administration should undertake some affirmative actions to improve the living standards of female headed households in order to help them e scape from poverty. Increasing education enrolment of female is one way of empowering w omen in the town which helps them to make better decision.

- Create job and employment opportunities for the jobless segment of the society there by in creasing their income. In addition, since the town is suitable for investment, encouraging t he private sector and enhancing investment in manufacturing industries is believed to be o ne means of increasing employment opportunities and increasing income to empower the p oor through providing the selective training depending on researches that identified the job o pportunities and facilitate startup capital through financial institutions and credit associatio n as well as to monitor and evaluate cooperatives and individuals.
- To capacitate the unemployed people, give focus to those under poverty line especially wo men and youth through providing different trainings, organizing the jobless in small scale enterprises and facilitate access to credit services and startup capital that help them involve in different income generating activities.
- The educational attainment of the heads of the households was found to be the most import ant factor associated with urban poverty clearly suggests ways of focusing on the value of e ducation. Adequate education is central in addressing incidence of poverty and the main means of reducing poverty in the town.
- Household size was positively and significantly correlated with poverty in Nejo town as t he study depicted. This has a clear implication for the residents of the town in that househo lds with large size will fall into the hardcore sections of poverty easily than those who have not. Thus, in order to minimize such effects, family planning and/or education of cou ples is provided by the concerned bodies. In this regard the Town Administration must initi ate the town's health service to play a crucial role.

There are also some roles and responsibilities of the Town Administrations in poverty reduction that believed to have significant contributions because the institution is the closest to local problem. Hence, it is essential to define the rolee and responsibilities of administrative institutions and other stakeholders and their interaction while dealing with the poverty reduction practices in line with the policy objectives and goals.

The roles and responsibilities of local authorities in poverty reduction efforts in collaboration with the higher-level authorities include;

i) Identifying poverty types and its nature, prepare a plan to curve poverty in line with the national strategy and in administration context.
ii) Providing loan and credit services.
iii) Facilitating and organizing micro/small scale groups.
iv) Organize and lead the local based micro enterprises and women union and providing a conducive environment that enabling them attain higher level of wealth status.
v) Providing land for investment purposes.

vi) Giving selective training depending on researches that identified the job opportunities and facilitates startup capital through financial institutions as well as to monitor and evaluate cooperatives and individuals.

The roles and responsibilities of the local institutions are expected to enhance the effective and efficiency of the poverty reduction activity provided that they are appropriate and genuine.

References

Aldrich and Nelson (1984). Linear Probability, Logit and Probit model: SAGE Publications, University of Minnesota and Iowa.

Coudouel, A., Jesko, Hentschel, S. and Wodon, Q. T. (2002). Poverty Measurement and Analysis. In PRSP Source Book, World Bank, Washington DC.

Dalton, R. and Fiel, W. (2002/2003). The Analysis of Household Survey: A Micro Econometric Approach to Development Policy, The John Hopkins University Press, USA.

Decron.S. (2006). Economic Reform, Growth and the Poor; Evidence From Rural Ethiopia, Journal of Development Economics.

Dercon.S. (2006). Growth and Shocks, Evidence From Rural Ethiopia, Mimeo Center for the Study of African Economics, University of Oxford.

Ellis. F. (2000). Rural Livelihood and Diversity in Developing Countries, Oxford University Press.

_____ (2012). Economic Difference, Social Divisiveness and Targeting; Journal Development Study Finance Map of the World 2012of

Fukuda-Parr, S. (2006). The Human Poverty Index: A Multidimensional Measure. The New School University.

Greeley, M. (1994). Measurement of Poverty and Poverty of Measurement. Institute of Development Studies, IDS Bulletin 25.2, 1994.

Gujarati (1992). Essentials of Econometrics, Abridged Version of *Basic Econometrics.*New York: McGraw-Hill

Haddad, Lawrence and Ahmed (2005). Chronic and transitory poverty; Evidence from Egypt, 1998-2000 journals of development studies

Jalan.J and Ravallion.M. (2006). Evidence from Rural China: Journal of Development Studies, Poverty Journal 2011, United Nations World Food Program.

James A. Robinson (2002). *The Origins of Power, Propensity and Poverty;* Why Nations Fail.

Kedir.A and A. Mckay (2005). Chronic Ppoverty in Urban Ethiopia; A Panel Data Evidence Paper Prepared for International Conference on Staying Poor; Chronic Poverty and Development, Hosted by Institute of Development Policy and Management, University of Manchester.

Makoka, D. and Kaplan, M. (2005). Poverty and Vulnerability; Term Paper, Interdisciplinary Course International Doctoral Studies Program.

Michael Todaro (2011). Economic Development. 11th edition, New York University and Population Council, Stephen C. Smith, Washington University.

Ministry of Finance and Economic Development Report (2000/1-2010/11. Development and Poverty in Ethiopia. June, 2013 MoFED (2012). Ethiopia's Progress Towards Eradicating

Poverty: An Interim Report on Poverty Analysis Study 2010/11, Development Planning and Research Directorate.

Ranis, G. Stewart, F. and Samman, E. (2006). Human Development: Beyond the HDI, Queen Elizabeth House Oxford University.

R. Murgai, (2009). Urban Development Policy and Poverty Reduction in Behrman, Development Economics, vol. 49 No. 50.

Schubert. R. (2004). Poverty in Developing Countries Its Definition, Extent and Implications, Economics Vol.49, No.50.

United Nations Development Program (1996). Economic Growth and Human Development: Human Development Report 1996, New York.

United Nations Development Program (2012). What is Poverty? Concepts and Measures: International Poverty Center Poverty in Focus, pp: 12 – 14.

United Nations Development Program (2013). Monetary and Non-monetary Indicators of Poverty Are Poorly Correlated in Many Developing Countries, World Development,Vvol. 28:2123-2125.

World Bank (2001). World Development Report 2000/01: Attacking Poverty. Oxford University Press

World Bank (2012). Development and Poverty Profile of Ethiopia: Addis Ababa.

World Bank (2011). Introduction to Poverty Analysis, [Online], World Bank Institute, Available from: http://www.worldbank.org/. Accessed on January 05, 2011

World Bank (2008). World Development Indicators, Poverty Data, Washington DC

World Bank (2012). Progress Against Extreme Poverty, Washington D C.

The Impact of External Debt on Economic Growth in Ethiopia, Muluken Bihonegn, Debre Markos University

Abstract

This study examines the long run and short run relationship between external debt and economic growth in Ethiopia using time series data for the period 1985 to 2017. To this end, the descriptive and regression analysis were used. Using the long run co-integration test method and short run error correction model (ECM), the findings of the study revealed that external debt has insignificant impact on the economic growth both in short run and long run. The study also tested for time series behaviors like presence of stationary, co integration, multicollinearity, autocorrelation, heteroscedasticity and model specification problems to guard against spurious results. The researcher recommends that external debt ought to be utilized properly and wisely by being invested on prioritized and most productive investment, only be contracted when it is really needed to finance projects or investments that will significantly contribute for the growth and development of the economy, and channel the borrowed fund to the productive real sectors of the economy rather than social consumption.

Keywords: external debt, economic growth, Ethiopia

1. Introduction

1.1. Background of the Study

Finance is a primary fuel for economic growth and development. Simply, economic growth is a quantitative increase in either GDP or GNP; but economic development is the overall change of social, economic, political, religious and other human aspects in the country. in other words, development is maintaining welfare in the country for example increasing living standard of humans, increase per capital income and so forth. So, finance is the main to determine economic growth of a country, it has its own sources: taxation, debts and money printing. These are the major sources of finance. From these sources, taxation is made on capital and other income earnings. However, there is a problem of capital in Ethiopia due to low level of saving, low investment and low productivity. So, the next alternative is financing of the economy by using public debt. Public debt is composed of internal or domestic debt and foreign or external debt. Domestic debt is collection of debt from domestic sources; such as investors, private banks and other domestic financial institutions and organizations, business enterprises by the government. External debt is that part of the total debt in a country that is owed to creditors outside the country. The debtors can be governments, corporations or private households. According to the World Bank definition, “Total external debt is a debt owed to nonresidents repayable in foreign currency, goods or services”. External debt is an important source of finance mainly used to supplement the domestic sources of funds for supporting development and other needs of a country. Usually external debt is incurred by a country which suffers from shortages of domestic savings and foreign exchange needed to achieve its developmental and other national objectives. Patella C. et al (2004: 5-13) suggested that reasonable levels of

borrowing by a developing country are likely to enhance their economic growth. They noted that countries at their early stages of development have small stocks of capital; and are likely to have investment opportunities with higher rates of return. Domestic savings of developing countries are very low compared to the investment activities they expect to perform for rapid economic growth; thus, their domestic saving should be supplemented by foreign resources. However, if the external debt is not used in income-generating and productive activities, the ability of a debtor nation to repay the debt is significantly reduced. Alemayehu (1998) revealed that, many developing countries have been greatly exposed to external capital inflows in the past four and half decades. Such external flows are now becoming the source of external debt problems in Africa in general and Ethiopia in particular. External debt magnitudes of larger proportion have been very familiar in Sub-Saharan Africa. Many countries in this region have been stressed with debt burdens that outweigh their export earnings, the growth rate and even level of their gross national product. Over the 1970s and 1980s, the external debt levels of highly indebted poor countries (HIPC) rose to a level constituting a 'debt crisis'. For Agenor and Montel (1996), the original cause for the debt crisis was the excessive borrowing by the public sector to service their existing debt. This happened due to the reverse relationship between the safe real interest rate in the international market and the overall real GDP growth rate in the Heavily Indebted Poor African Countries (HIPCs). The huge external debt stock and debt service payments of African countries and Ethiopia in particular prevented the countries from embarking on larger volume of domestic investment, which would have enhanced growth and development (Clements, et al. 2003). External debt became a burden to most African countries because contracted loans were not optimally deployed, therefore returns on investments were not adequate to meet maturing obligations and did not leave a favorable balance to support domestic economic growth. So, Ethiopian economy not performed well because the necessary macro-economic adjustment has remained elusive. Krumma (1985) argued that, the available external loan improves the productive capacity of the borrowing country. It is unnecessary to take extra external loan to service the original debt. According to (Cline,1985), if marginal productivity of each available external debt is greater than or equal with the principal and the interest payment, external debt will have a positive impact on the economy of the borrowing country. This in turn will require the foreign debt to be used in productive sectors and in basic infrastructures which can enhance the productivity of other sectors. Under this condition, external debt servicing doesn't affect economic growth. But, if the borrowing country failed to service its debt, it will lose its' credit worthiness; and this in turn might affect the economic performance of the borrowing country by reducing the availability of foreign debt (Mjema and musonda, 1994).

According to IMF (2000:46), the worldwide debt crises of the 1970s and 1980s occurred mainly due to the oil price shocks, high interest rates and recessions in the developed countries. While weak primary commodities prices are referred as the major contributors to debt explosion in the developing countries. Since then, retarding effect of external debt on economic growth has been an increasing concern of many less developed countries (LDCs). A study by the World Bank (1999:31) argues that a large debt servicing made by highly indebted LDCs

have been retarding their economic growth. Sub-Saharan African countries, as part of LDCs, servicing of accumulated external debt has been impeding their economic development (Eurodad, 1995).

As cited by Getahun (1994:4), Ethiopian debt crisis is not different from the rest of less developed countries. Ethiopia had very low level of debt before the year 1970. The poor performance of the Ethiopian economy since 1974 has made external assistance a prominent feature of the country's economic structure. Thereafter, Ethiopia has become more and more dependent on external assistance and has reached a stage where it cannot function without it (Befekadu, 2000). The external debt level of the country has been piling up rapidly. Ethiopia has been facing chronic deficits both internally and externally throughout the 1970's to 1980's that call for further external borrowing to cover the gap. This makes Ethiopia one of the Sub-Saharan African countries which has a total debt that exceeds its GNP, having a debt to GNP and debt to export ratios of 108.2 percent and 642.4 percent in 1980s and 150 and 980 percent in 1990s, respectively (Alemayehu G., 1997). Ethiopia is categorized as one of the Heavily Indebted Poor Countries (HIPCs) which has been suffering with high debt burden (Global Development Finance, 2000). When we came to Ethiopian debt trend, the Imperial Government had cautious policy in borrowing from external sources and the rate of economic growth was ahead of the cost of borrowing. The debt burden indicators, debt to GDP and debt to export of goods and non-factor services, were 12% and 72%, respectively, in 1974, at the end of the regime period (Getahun, 1994: 4). When we come to the the Derg regime, there was heavy borrowing for purpose of implementing comprehensive development initiatives which were not effective to increase domestic saving. These increasing debts were due to different factors: the Military government had been honoring its obligations of external debt until 1989, when the first arrears appeared, and for the first time in history the country failed to meet its obligation on debt. Ethiopia's stock of external debt showed a marked declined in 1999 due to a rise in exports earning which capacitate the country its debt timely and debt cancellation. The current Ethiopia's government external debt is around 46 million dollars.

1.2. Statement of the Problem

One of the greatest problems facing many Sub-Saharan African countries in general and Ethiopia in particular is the highly indebtedness of these countries beyond their repayment capacities. The external debt problem is becoming more acute for a number of reasons as cited by Ajayi (1991:1). First, the size of the debt relative to the size of the economy is enormous; and can lead not only to capital flight, but also may discourage private investment. Secondly, debt servicing payments take a significant proportion of the annual export earnings. Meeting debt servicing obligations ruin the resources of the country significantly, which otherwise would be used for financing other basic services and improve the welfare of the citizens, having high macroeconomic implications. This leads to raise a question whether a country's economy can grow fast enough so that it will duly service its debt obligations, simultaneously carrying out its domestic investments smoothly. Thirdly, the burden of debt for a large number of Sub-Saharan African countries threatens not only the execution, but also the prospects of success

of adjustment programs being embarked upon. Fourth, the current system of debt management has a dire macroeconomic impact on an economy's output. Few studies pin down vital role of the emerging field of external debt and debt indicators in Ethiopian economy with emphasis on empirical relationship of external debt and economic growth. Hana Argaw (2013) studied the impact of external debt on economic growth of Ethiopia and found that external debt had positive impact on economic growth of the country. Mulugeta F. (2014) evaluated the impact of external debt on economic growth and came up with the result that reveals past external debt negatively affecting economic growth while current external debt inflows affects positively. Findings of Minale Worku (2014) show that external debt statistically insignificantly affects economic growth in both short run and long run. However, most of the studies undertaken in this area were failed to address important variables like labor force (population), terms of trade, and inflation which are the key determinants of economic growth. This paper attempts to consider these gaps and try to address the impact of debt burden in detail in Ethiopia.

1.3 Research Question

- What is the trend of external debt in the economic growth of Ethiopia?
- What is the long-run and short run relationship between external debt and economic growth in Ethiopia?
- What are the major determinants of external debt in the Ethiopian economy?

1.4 Objectives of the Study

General Objectives

The main objective of this paper was to examine the impact of external debt on economic growth in Ethiopia.

Specific Objectives

- To assess the trend of external debt in the Ethiopian context.
- To investigate the long-run and short run relationship between external debt and economic growth in Ethiopia.
- To examine the major determinants of external debt in the case of Ethiopian economy.

1.5 Scope of the Study

This study examined the impact of external debt burden on economic growth, inspiring the direction and examining the transmission channels of this relationship with particular focus on Ethiopia. To realize this objective, the period of 1985/87 to 2016/17 was used.

1.6 Limitation of the Research

The first limitation of the study was the problem of inconsistency of data prepared by different institutions. Even data from the same institution showed different figures for the same year. Generally, this study faced with the problem of inadequate materials for assessment and difficulty to access relevant data for thorough analysis, inconsistent data and some weaknesses of the model.

1.7 Significance of the Study

The study attempted to show the impact of external debt on the economic growth, with particular focus on Ethiopia. The study contributed in providing an econometric basis through examining the effect of external debt on Ethiopia's economic growth. Besides, based on the findings of the study, government leaders can adopt appropriate policies for minimizing macroeconomic imbalances and eliminating economic distortion due to heavy debt stock which will be useful for policy makers.

2. Research Methodology

2.1 Research Design

Given that this study seeks to study the effect of foreign debt on economic growth, both descriptive as well as econometric analysis models were used. But focused more on econometric analysis.

2.2 Types of Data and Sources of Data

The study was conducted based on secondary data from domestic and foreign sources. The domestic sources were the former Ministry of Economic Development and Cooperation (MEDaC) the now Ministry of Finance and Economic Development (MoFED) and the National Bank of Ethiopia (NBE) while the external sources included World Debt Tables(The World Bank), World Development Indicator, different World Bank Reports and IMF publications.

2.3 Sample Size

Time series data of 32 years (1985-2017) from external and internal sources of secondary data were used for econometric analysis.

2.4 Method of Data Collection

Published and unpublished documents, annual statistical reports, previous study reports, journals and other books from the documentation centers/archives and libraries of different relevant offices of governmental organizations were reviewed to collect data.
International publications and books were also utilized by browsing web-sites.

2.5 Model Specification

Theoretical Framework

According to Sala-I-martin (1997), economic theories do not identify the exact factors or variables that determine economic growth. Hassan and Mammon (2013) modeled real gross domestic product (GDP) as a function of external debt, debts service payment, export, inflation, and exchange rate. Uma, Eboh and Obidike (2013) noted that real gross domestic product is determined by total domestic product, total external debt, and interest rate on total external debt. In addition to these variables, Ajayi and Oke (2012) added exchange rate as a factor that

determine GDP growth in an open economy. Theoretical literature indicates that capital and labor affect productivity, which in turn determines GDP.

The Empirical Model Framework

It is specified on the basis of the theoretical model explained above part taking into account other variables that are believed to be important in describing the model better in the context of the country under study, Ethiopia. Moreover, the model is preferred based on its relevance and availability of data.

The grand (General) econometric model for the study was:-

$\underline{EG} = \beta_0 + \beta_1 RGDP_t + \beta 2\, n_t + \beta 3 CAB_t + \beta 4\, DSEX_t + \beta\ 5\, EDY_t + \beta 6\, INF_t + \beta 7 SRr + \omega_{it}$

Where:-

$\underline{EG}$= RY = the economic growth for country

$\beta\ 0$ = intercept

$RGDP_t$ = is GDP of one fiscal year

N_t = is population growth rate (labor force)

CAB =Current account as a percentage of GDP:

$DSEX_t$ = is Debt service export ratio

EDY_t = Ratio of Total external debt to GNP

IN_t =Inflation rate of the country

SRr= short run debt service to international reserve ratio

W_t = error term

The main variables used to test the hypothesis were EDY (Ratio of external debt to GNI) and DSEX (Debt service export ratio); which measures the debts overhang and debt crowding out effect respectively. Based on the theoretical model in the previous section, both EDY and DSEX were expected to have a negative coefficient in the analysis.

2.6 Description of the Variables

Economic Growth: Economic growth is the Dependent variable in the analysis and represented by the growth rate of real GDP per capita.

RGDP: represents the amount of output or production produced domestically in one fiscal year on a fixed price.

Population growth rate: is one of the main variables on the capital accumulation equation developed by Robert Solow. According to the equation, population growth rate reduces capital accumulation. "If there were no new investment and no depreciation, capital per worker would decline because of the increase in the labor force (population)".

Inflation rate: is the percentage increase in the overall price of goods and services over time. It is the change of consumer price index of goods and services.

Ratio of External debt-GNP (a proxy variable for debt overhang)

From 1980's onwards, the disincentive effect of external debt on investment and growth, which is debt overhang, is considered as one of the major causes for the poor performance of many developing countries. To counter this effect, I included the usual debt overhang measure, total

debt to income ratio in the econometric model. In general, a higher ratio shows a higher debt burden; and in this study we expect a negative impact from total debt GNI ratio on economic growth.

Debt service export ratio (a proxy variable for debt crowding out)

Along with the debt overhang effect, the debt crowding out effect is also studied by different researchers like Krugman (1988) and Sachs (1989). This is the case when indebted poor countries transfer resources, including foreign aid and foreign exchange resources to service their accumulated debt. The equivalent ratio which can trap the crowding out effect is the total debt service export ratio. The study expects a negative impact of the ratio on economic growth.

Current account as a percentage of GDP: shows the current account value of the country relative to the country's total level of production, measured as gross domestic product (GDP).

Short run debt service to international reserve ratio: is the ratio of total debt service of the country relative to the international reserve ratio.

2.7 Method of Data Analysis

2.7.1 Descriptive Method of Analysis

The study applied quantitative method of data analysis using time series data. This approach included descriptive statistical tools such as mean scores, medians, ranges, standard deviations, correlation coefficients, percentage, proportions.

2.7.2 Econometric Analysis

2.7.2.1. Stationary and Non-Stationary Series

Unit root test has become a widely popular approach to test for stationary. A commonly applied formal test for existence of a unit root in the data is the Dickey-Fuller (DF) test, it is simple extension being the Augmented Dickey Fuller (ADF) test. The augmentation is adding lagged values (p) of first differences of the dependent variable as additional repressors which are required to account for possible occurrence of auto correlation. In this study, the Augmented Dickey Fuller test was applied. The unit-root test helps to detect whether a variable is stationary or not and to detect the order of integration at which the variables can be stationary. Hence, tests for the unit roots are the primary task before conducting co integration analysis (Enders 1995).

2.7.2.2 Co-integration Tests

One possible means of avoiding spurious regression is the application of co-integration techniques which allow the estimation of non-spurious regressions with non-stationary data. The economic interpretation of co integration is that if two (or more) series are linked to form an equilibrium relationship spanning the long-run, then even though the series themselves may contain stochastic trends (i.e., non-stationary) they will nevertheless move closely together overtime and the difference between them will be stable (i.e. stationary) (Enders,1995). Therefore, it is important to view co integration as a technique to estimate the equilibrium or

long-run parameters in a relationship with unit root variables. In order to determine whether or not a long-run equilibrium relationship exists among the unit root variables in a given model, we need to test empirically that the series in the model are co integrated.

2.7.2.3 Post Estimation Tests /Diagnostic Tests Multi co-linearity Test

Multi co-linearity is correlation of explanatory or independent variable with each other or it is a problem arises due to the presence of linear relationship among the explanatory variables. The interdependence of the independent variable is examined through variance inflation factor.

The existence of the problem of multi co-linearity is tested by using correlation coefficient test and variance inflation factor (VIF). Some authors use the VIF as an indicator of multi co-linearity the larger the value of VIF, the more the collinear the variable x. As a rule of tomb, if the variance VIF of a variable exceed 10, which will happen if R2 exceed 0.90, that the variable is said to be collinear. In addition, tolerance (TOL) used as a measure of multi co-linearity. The closer the tolerance to 0, the greater is degree of co-linearity between the variables within the other repressors. On the other hand, the closer TOL is to one the greater the evidence that the variable is not collinear with another repressor. Further, VIF above 10 shows the existence of multi co-linearity.

Heteroscedasticity Test

Heteroscedasticity is created when the distribution of error term around the explanatory variable is not constant (have not constant variance). It signifies that the individual variance may be different. The nature of the variance of the error term is judged via Brush Pagan test by using decision rule. If p-value is higher and calculated chi-square value is less than the critical chi square, then we accept the hypothesis of not constant variance and if there is a problem of heteroscedasticity, we would robust standard error of the variable individual variance difference.

Autocorrelation Test

Autocorrelation is the situation where the value of the random term of time ‘t’ is correlated with its previous value. We use Durbin’s alternative test to check whether there is autocorrelation in the model or not. If there is higher p-value, there is no serial correlation and if there is lower p-value there is serial correlation.

Functional Specification Error

In regression analysis, specification is the process of developing a regression model. This process consists of selecting an appropriate functional form for the model and choosing which variables to include. This test includes detecting the presence of unnecessary variables or omitted variables and incorrect functional form.

3. Result and Discussions

3.1 Descriptive Analysis

3.1.1 The Trend of External Debt in the Ethiopian Economy

This shows the up and down movement of debt repayment in the study period. When we see the trend of debt service through its growth rate in the study period, initially it was very low as compared to that of the level of growth rate of debt. It shows there was higher accumulation of external debt stock. Through time due to the reduction of debt growth, the growth rate of debt service was comparable with that of debt growth rate. The growth rate of debt servicing in 1996 was 125.1% i.e. the level of debt servicing was increased by 125.1. But the growth rate of debt servicing declined (-71.3%) in 1997. After this, growth rate of debt repayment was comparable with the growth rate of debt stock. From the below graph we can infer that, usually there is opposite growth rate between variables. This shows that when the country‘s debt repayment performance is improved, the accumulation of external debt or debt stock in the country‘s becomes lower.

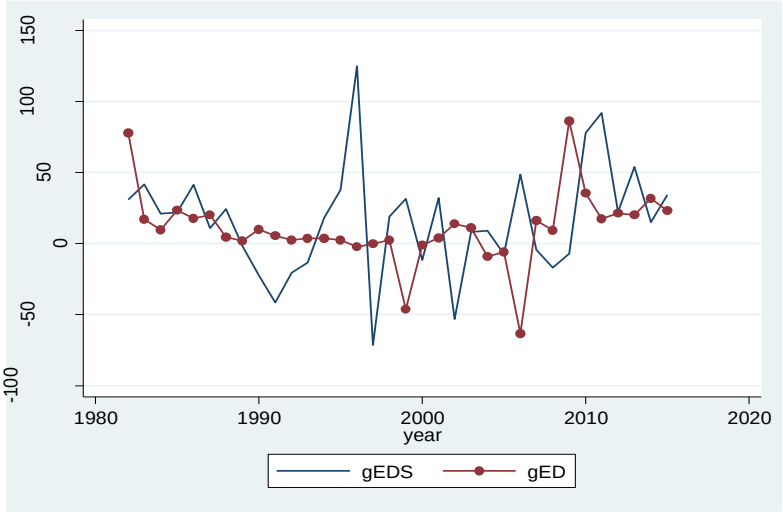


Figure 1: Trend of external debt in Ethiopia

3.1.3. Debt Burden Indicator and Debt Sustainability

A. Debt Service Export Ratio (DSEX)

This indicates the impact debt service imposes on export earnings. This in turn affects the trade balance and capital formation of the country and overall, the economic growth. Debt service export ratio measures the amount or level of export which is important for earning of capital used for capital formation if we don’t have debt service. The figure below shows that, the ratio followed a cyclical movement in the study period. But after 2000, the ratio decreased and approaches to the origin especially after 2001 and 2002. Therefore, the debt service of the country could be sustainable for the coming period. This means, the payment was significantly

lower than that of export debt service and may have less effect to discourage the country export and due to this we can say the country will sustain for the future .

Debt service to export ratio was continuously declining after 2001. This was not due to an improvement in country's debt servicing capacity, but rather it was due to the huge debt relief obtained at that time. Similarly, the debt to export ratio had declined due to the rise in export earnings and huge debt relief. Accordingly, as per IMF debt sustainability analysis framework for Ethiopia, the country's risk of external debt distress was moderate, but with continuous accumulation of debt stock and rise of debt ratios, country should monitor its public enterprises borrowing.

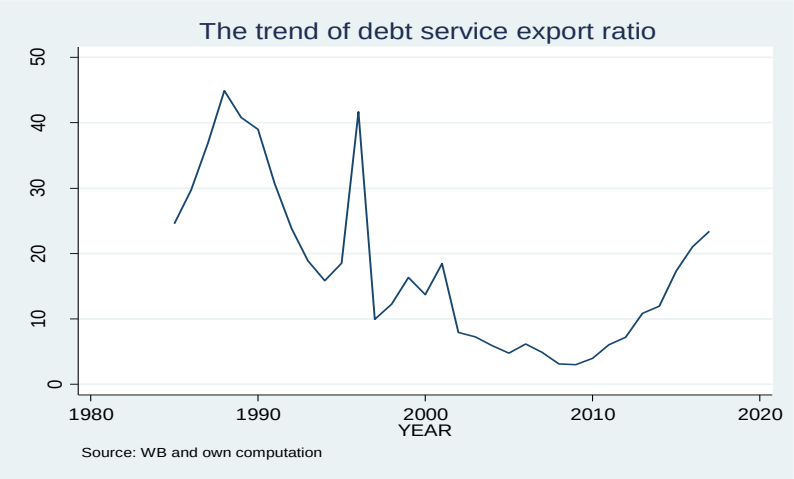


Figure 2: Trend of debt service export ratio

B. Total External Debt Service to GNP Ratio (Edy)

This ratio measures the level of national income to which the burden of debt service was raised or declined over a given period of time. In other words, it answers the question" what proportion of national income at the market price paid to the lender countries?" As we can see from the figure below, which shows the debt service ratio of Ethiopia over time, debt service ratio of Ethiopia was at increasing rate from 1985 to 1988. But from 1989 to 1993, the debt service ratio decreased at increasing rate. Thereafter, it increased from 1994 to 1996, because when the country obtained debt relief it might use it to service debt. The debt service ratio of Ethiopia shows cyclical movement until 2004 and starting from 2005 the ratio was more or less comparable and it approached to the origin until 2010. Finally, it increased at decreasing rate from 2011 to 2017. Generally, debt service ratio of Ethiopia was stationary over the study period. Hence, the country's repayment of debt was quite preferable in relation to GDP performance. Therefore, the external debt servicing of the country was sustainable for the coming period.

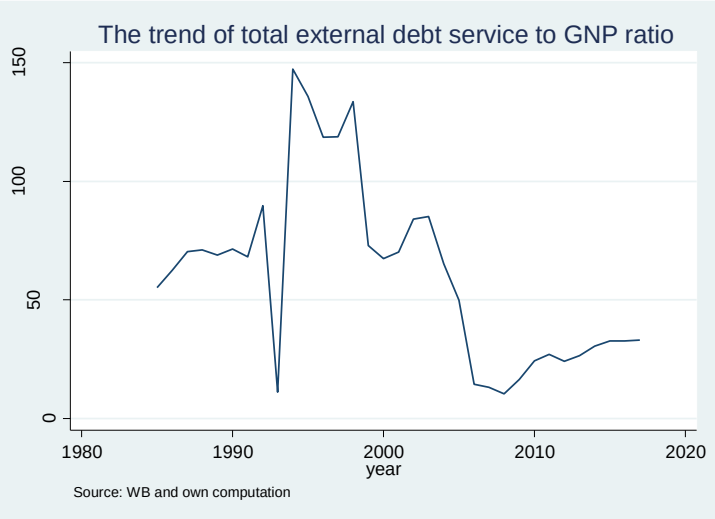


Figure 3: trend of external debt service to GNP ratio

3.2 Econometric Analysis

This section presents and discusses the result of empirical analysis based on the economic framework given in chapter three. Preliminary tests that should be undertaken before estimating the model were stationary test, co-integration test, and error correction tests.

The study analyzed the short and long run dynamics of inflation by estimating vector error correction model as proposed. A beauty of VECM is that it enables us to simultaneously capture both the short run and long run estimates. Besides, the model's the adjustment to long run equilibrium can be determined by the estimated coefficient of the error term. Before regressing VECM, all the series were subjected to pre and post VECM estimation diagnostic test, which are important to ensure the reliability of the model and inferences made based on it. Pre-estimation tests are important so as to determine which econometric model is suitable given the underlying properties of the variables employed unit root and co-integration properties are of the essential pre estimation tests; the post-diagnosis test results are presented under the appendix section of this paper.

3.2.1 Unit Root Test

Since this study employs a time series data, it was mandatory to test stationary of the data. A unit root test was conducted employing Augmented Dickey fuller (ADF) test to prove whether the variables in the model were stationary or not. The calculated values were compared with the critical values at determined levels of significance. If the calculated value is greater than any of the critical value, then we reject the null hypothesis, which actually means the variables are stationary. Otherwise, we do not reject the null hypothesis meaning that there is a unit root implying the variable is non-stationary.

Table 1: Unit Root Test

Variable name	Test statics	P value	1% critical	5% critical	10% critical
Growth rate	-7.281*	0.0000	-4.325	-3.576	-3.226
E D Y	-8.432*	0.0000	-3.709	-2.983	-2.623
Popn rate	-4.087*	0.0010	-3.723	-2.989	-2.625
E D S X	-7.159*	0.0000	-3.709	-2.983	-2.623
Real GDP	-7.361*	0.0000	-3.709	-2.983	-2.623
Inflation	-8.301*	0.0000	-3.709	-2.983	-2.623
S R D I R	-4.911*	0.0000	-3.709	-2.983	-2.623
C G D P	-6.560*	0.0000	3.709	-2.983	-2.623

Note: * represents first difference

Here, the decision as to whether accept or reject the null hypothesis was based on the MacKinnon critical value at 1%, 5% and 10% level of significances. The above table 1 reports the ADF unit root estimates on the first difference of the variables under consideration. As with a prior theoretical expectation, all the variables which were non-stationary became stationary after taking their first difference and adding lags for some variables. Besides, all the variables were stationary at their first difference. i.e. the unit root test statistics for all variables were significant at 1%, 5% and 10%.

3.2.2 Johnson's Co-integration Test Results

Before proceeding to error correction method (ECM), the first test was to check whether the variables are co-integrated or not. Co-integration refers to the existence of a long run equilibrium relationship between variables. The idea of long run relationship implies that two or more variables may wonder (deviate) away from each other in short run but move together in the long run. The table below shows that the error term was stationary at 1%, 5% and 10% level of significance. Since absolute value of computed t-statistics was greater than absolute value of critical value, we reject the null hypothesis of existence of unit root in the residual. Hence, there was a meaningful long run relationship between the variable which direct to undertake a short run regression.

Table 2: Co integration test result

Variable name	Test statistic	P value	1 % cri value	5% cri value	10% cri value
Residual	-6.56	0.000	-3.709	-2.983	-2.623

3.2.3 The Error Correction Method (short run dynamics)

The last stage to complete the analysis was to consider the error correction model which provides information of short run adjustment. It was shown previously from the test of co-integration on the error term that the variables had long run equilibrium relationship. Thus, after testing for co-integration, the short run equilibrium was obtained by using vector error correction method (VECM), the first difference of all the explanatory variables and one period lag of residual (ECM_1) for achieving equilibrium adjustment.

Table 3: Error correction method

Variable	Coefficient	Standard error	[95% conf.	interval
Pop_1	2.366688	1.296294	-.1738	4.907
EDY_1	-0.0048013	0.0031754	-.011	.001
EDEX_1	0.0477969	0.0098364	.0285	.067
RGDP_1	-0.8204835	0.0154224	.850	-.790
INF_1	0.0705051	0.0067643	.0572	.083
ShDR_1	-0.0119347	0.0017389	.0153	-.008
CAB_1	0.1396018	0.0294503	.818	.197
Resi_1	-0.64324	0.03456	.033	.051

Source: own computation, 2019

EG1=2.367POP_1-0.0035EDY_1+0.048EDEX_1-0.82RGDP_1+0.07INF_1-0.012ShDR+0.14CAB_1-0.643Resi_1

According to the estimation of vector error correction model (VECM), external debt is insignificant in the short run but, the other variables are significant. The result of Resi_1 is 0.6432or 64.32%, which shows that the economic growth disequilibrium is adjusted by about 64.32% towards its long run equilibrium in a given year.

As shown in the above table, the total debt to GDP was negatively related with economic growth but the debt service to export ratio was positively related with economic growth in short run but the debt service to export ratio through process reduced and in the long run negatively related with economic growth. Export earnings service and the debt payment in the country were indirectly reducing country's earning.

3.3 Diagnostic Tests

3.3.1. Multi co-linearity Test

Multi co-linearity problem is tested among explanatory variables. As the rule of thumb, if vif<10 it shows that there is no multi co-linearity problem among explanatory variables of the model. In our analysis the mean vif =2.67 which is lower than 10. Therefore, there was no multi co-linearity problem in the model.

3.3.2 Hetrocedasticity Test

Hetrocedasticity is the non-constancy of variance of the error term. If the model has constant variance and constant mean, the model has no hetrocedasticity problem. As the general rule, if prob>chi2 or p-value is greater than 5%, accept the null hypothesis (the model is homocedasticity). From this analysis, prob > chi2 or p-value is greater than 5% and the null hypothesis was accepted as shown below. This indicates that there was no hetrocedasticity problem. To detect this problem, the researchers used Breusch –Pagan test for hetrocedasticity. Since the Breusch-Pagan test is designed to detect any linear form of hetrocedasticity.
Ho: there is no hetrocedasticity
H1: there is hetrocedasticity
Prob >chi2=0.3698
So, there was no problem of hetrocedasticity in the model.

3.3.3 Autocorrelation Test

Autocorrelation is a statistical test, which is tested to determine whether random number generator is producing independent random number in a series. The autocorrelation testis mainly concerned with dependence between numbers in series. This research used run test and LM test statistics to test the existence of autocorrelation problem. In the analysis:
Ho: there is no autocorrelation
H1: there is autocorrelation
Prob>|z|=0.58(run test)
Prob>chi2=0.1700(LM test)

Since the two, prob>|z| and prob >chi2 are greater than 5 % (0.05), we do not reject the null hypothesis (accept the null).i.e. there is no autocorrelation (successive value of residuals independent).

3.3.4 Test for Functional Specification Error

Ramsey RESET test using powers of the fitted values of RGDP rate.
Ho: model has no omitted variables
H1: model has omitted variables
F (3, 22) = 1.88
Prob>F =0.7497. Since prob>F equal to 0.7497, we do not reject the null. It implies that the model no omitted variables.

4. Conclusions and Recommendation

4.1 Conclusions

This study analyzed the effect of external debt on economic growth of Ethiopia using annual data from 1985-2017. The first and the most relevant techniques for unit root test and co-integration test were employed to investigate the stationary of the time series data of the variables. The study carried out the model stability tests and the result showed that no evidence of serial correlation, no multi co-linearity problem, no functional form problem (the model was correctly specified), no heteroscedasticity problem. The study also showed that external debt and economic growth had no uniform trend from period to period. That means, if external debt increases in some period, the gross domestic product decreases and vice-versa. From this it can be concluded that when the country performance was improved to repay the debt burden that resulted decreasing of the amount of external debt stock accumulation in the country and vice-versa. However, the analysis of the study showed that external debt had statistically insignificant effect on Ethiopian economic growth both in long run and short run.

4.2 Recommendations

Based on the estimation results obtained from the study and the conclusion derived, the following recommendation are forwarded to the government of Ethiopia on the issue of external debt servicing on economic growth of Ethiopia.

- Before making external borrowing, the government of Ethiopia should conduct detail study by professionals about the net effect of the external debt.
- Instead of making large sum of borrowing, the government should promote internal public cooperation, like the current cooperation for Great Ethiopian Renaissance Dam (GERD).
- The government should use effective debt management and spend it on productive areas rather than for consumption and military purpose.
- Instead of continuous debt servicing, there should be an arrangement for repayment of the loan (s) within the agreeable time.
- The Ethiopian government should promote exportation of domestic products as a high exchange rate will make our goods more attractive in the foreign market and will increase foreign exchange earnings.
- Diversifying export sector by an export-led growth strategy is one of the solutions to reduce the debt problem. Proper macroeconomic management of the economy as a whole is also important, since it has effect on the volume and servicing of external debt.

References

Agenor and Montel, PJ. (1996). Development Macroeconomics, Edition 1, Princeton University press.

Ajayi, S. IBI(1991). "Macroeconomic Approach to External Debt: The case of Nigeria", Africa DMU Page 41 Economic Research Consortium, Research number.

Akram, N. (2010). Impact of Public Debt on the Economic g Growth of Pakistan. Islamabad: Center for Poverty Reduction and Social Policy Development.

Alemayehu G. (1997). The Historical Origins of African Debt Crisis. ISS working Money, Finance and Development Series No.62.The Hague: Institute of Social Study.

Alemayehu G. (1999). Profile of Ethiopia's External Debt. In the profile of Ethiopian Economic Performance and Evaluation. Paper presented on 8th annual conference EEA.

Ali H., Mustafa C.,(2009). External Debt and Its Impact on Economic and Business Growth in Pakistan. International Research Journal of Finance and Economics, 20(20), 132–140.

Bangura S. (2004). External Debt Management in Low Income countries. IMF working paper No. 00/196.

Befekadu D.(2000). Growth and Foreign Debt: The Ethiopian Experience,1964-1986.African Economic Research Consortium Paper,No.13:English Press Limited, Kenya.

Bertelsmann, K. (2004). "New Ways of Achieving Debt Sustainability beyond the Enhanced HIPCInitiative",Inter-economics39(6):321-330.

Berhanu N.(1999). Annual Report on the Ethiopian Economy. The Etheiopian Economic Association Vol. I.

Chawdhury D.(2001). Debt, Stabilization and Development. Basil Blackwell, Cambridge, Massachusetts. USA. Checherita, C., & Rother, P. (2010). The impact of high and growing government debt on DMU Page 42 economic growth: An empirical investigation for the Euro Area. Frankfurt: European Central Bank.

Claessens S. et.al (1990). The Debt Laffercurve: Empirical estimates. World Development Book Vol.18.

Clements,B.,Bhattacharya, R. and Nguyen,T.Q.(2003). "External Debt, Public Investment, and Growth in Low-Income Countries". IMF Working Paper WP/03/249, December.

Cline, WilliamR.(1995). International Debt Re-examined, Washington DC: Peterson Institute for International Economics.

Cohen D. (1993). Low Investment and Large LDC Debtin the 1980's. The American Economic Review, June, 1993.

Cohen D.(1992). Large External Debt and (Slow)Domestic Growth: A Theoretical Analysis. Journal of Economic Dynamics and Control.

Dinca, M., & Dinca, G.(2013).The impact of public debt up on economic growth. International Journal of Education and Research,1(9),1-12.

Enders (1995). Applied Econometrics time series. NY: Wiley Seriesin Probability and Statistics.

Eurodad B.(1995). World Credit Reports and Tables: WB various year publications.

Fatma, M., & Zouhaier, H.(2014). Debt and Economic Growth. International Journal of Economics and Financial Issues,4(2),440-447.

FosuA.K.(1996).The Impact of External Debt on Economic Growth in Sub-Saharan Africa. Journal of Economic Development, Vol.12, No.1

FosuA.K.(1999).The External Debt Burden and Economic Growth in the 1980s: Evidence DMU Page 43 from Sub-Saharan Africa. Canadian Journal of Development Studies,Vol.20, No.2.

Geiger D. (1990). Developments in the study of cointegrated economic variables. Oxford Bull.Econ.Stat.,UK,48:213-228.

Getahun N. (1994). External Debt Problem of Ethiopia. NBE publication: Biritu No.57

Gujarati, Domad or N. (2003). Basic Econometrics. 4th ed: Mc Graw Hill co., New York.

Jones. I. Charles (2002). Introduction to Economic Growth, Edition 4, New York:W. W. Norton.

Jones (2002): “External Debt and Economic Growth ” The case of Ethiopia: Addis Ababa University.

Kenneth M. Kletzer & Brian D.Wright (1998). “Sovereign Debt as Inter temporal Barter, Center for international and Development Economics Research,workingpapersC98-100.

Krumma, Kashie.L.(1985). "The External Debt of Sub-Saharan Africa: Origins, Magnitude and Implications for Action", World Bank, Staff Working Papers 741.

Krugman, Paul. R.(1988). "Financing Versus Forgiving a Debt overhang", Journal of Development Economics,Vol.29 PP 253-268.

Maghyereh, A., and Hashemite. (2003). “External Debt and Economic Growth in Jordan: The Threshold Effect”, Economic International/International Economics 56(3): 337-355.

Mjema, G.D. (1996). "The Impact of Foreign Debt Servicing in the Economy of Tanzania: A Simultaneous equation approach", African Journal of Economic Policy.

Mosely. (1992). Aid Saving and Growth Revised. Bulletin of Oxford university institute of Economics and Statistical.Vol.2.

Mulugeta Fekadu (2014). The impact of external debt on economic growth in Ethiopia, Unpublished Master thesis, Addis Ababa University DMU Page 44.

Ogunmuyiwa M.S. (2011). “Does External Debt Promote Economic Growth in Nigeria?”, Current Research Journal of Economic Theory, Vol.3 Issue:1, pp.29-35

Patella C.et.al (2004). External Debt and Growth. Finance and Development. Finance and Development Vol. 39, No.2, IMF Working Paper.

Patella C.et al (2004). What are the Channels through which the External Debt Affects Growth? IMF Working Paper. African and Asia and Pacific Departments.

Sachs J .(2002).Resolving the Debt Crisis of Low-Income Countries. Brooking papers on Economic Activity: Basil Black Well, Oxford.

Shabbier T. (2013). Public Debt, Economic Freedom and Growth. Evidence from Developing Countries.vol.3, p.4.

Taylor, L. (1994). The Rocky Road to Reform, Trade, Industry and Agriculture. World Bank Publication.

Were (2001). An Atomy of a Crisis: the Causes and Consequences of Surging Food Prices. Agricultural Economics,39(s1), pp 375-391.

World Bank.(1999-2010).World Debt Tables/Global Development Finance. Washington D.C., Various year issues.

Employee Performance Evaluation System for Ethiopian Broadcasting Corporation (EBC), Surafel Tadesse, Yohannes Alemayehu, Tamrat Teshale, Abel Yegrem

St. Mary's University

1. Introduction

1.1 Background

The Ethiopian Broadcasting Corporation (EBC) is an Ethiopian public service broadcaster. It's headquartered is in Addis Ababa, Ethiopia and it is the country's oldest and largest broadcaster.

The EBC was established by the order of Emperor Haile Selassie and initially operated by a British firm, Thomson. It is owned by the Ethiopian government. Its programs include news, sport, music, language and other entertainment.

The employee performance evaluation at EBC was done in traditional paper work method. When using a paper work for evaluating employee performance, there was high paper wastage, so our proposed system will solve this type of wastage and recommended using computerized system

1.2 Statement of the Problem

Performance evaluation is very tedious & complicated. It is difficult in conducting consistent reports because the record is documented manually and require much time and human power to search and get a file, ratings was not connected to performance and there was lack of understanding on how the ratings was done and difficulty in generating different types of reports.

The employee performance evaluation at EBC was done manually. It was encountering many problems such as difficulty in getting real information at real time during evaluation, difficulty in conducting consistent documentation because the record was documented manually and require much time and human power. Also there was a security problem as the system was manual in which documents were stored in packed paper files so that the files were highly exposed to damage and can be taken by any other unauthorized person or group. The proposed system will help EBC to have its own database.

The research was aimed at finding answers to the following basic questions:

- What do you think is the goal of performance reviews?
- What is working in the current process?
- What is not work in the current process?
- What should the final product look like in your opinion?

1.3 Objective of the Project

General Objective

The general objective of the project was to develop a web-based employee performance evaluation system for Ethiopian Broadcasting Corporation (EBC).

Specific Objective was to:

- make the system accurate, easy and efficient to record performance evaluation and record the accurate date and time when the performance of an employee is measured.
- make the evaluation data carefully recorded and documented.
- make the system simple and user friendly.
- generate different kinds of reports easily from stored data.
- make the evaluation data secured.
- solve all the problems, related to performance evaluation within the company.

1.4 Significance of the Project

Web-based employee performance evaluation system is a system which is customized to the needs of the Ethiopian Broadcasting Corporation (EBC) . The most important feature of the new system is that it is an accurate, easy and efficient system to record performance evaluation results and record the accurate date and time when the performance of an employee is measured. Also, the evaluation data will be carefully recorded and documented. It is also simple and user friendly, it enables searching the required information using keys. Overall the purpose of this employee performance evaluation system is to solve all the problems of the company related to performance evaluation and to satisfy the requirements of the employees.

1.5 Business Area Analysis

a) Current System

According to the then Human Resources Manager of the Ethiopian Broadcasting Corporation (EBC), (based on the interview conducted on November, 2018), the Ethiopian Broadcasting Corporation (EBC) had 3000 personnel of which 74 were managers.

At the strategic level of management, there were 21 managers, 32 middle level managers and 24 junior managers. The rest of the personnel were responsible for different, but relevant portfolios in various departments.

People have different personalities and work ethics. So, in order to manage their work efficiently and fairly, there has to be a system in place to allocate tasks to different workers. At the time the study was conducted, a manual system was in use at the Ethiopian Broadcasting Corporation (EBC) that provided most of the requirements for this project. In a manual system data are stored in a cabinet. Files are thus often misplaced or lost. And at times, it is difficult to find relevant files. Records for employs are also not always filed properly and thus information is not centralized and not easily accessible.

When the study was conducted, there were different forms and reports, the evaluation process was done in traditional way, manually, with papers. Papers were used to store values, and if the papers were missed/misplaced, d it is difficult to find the data as there was no backup data.

Each employee evaluation performance was conducted according to the following points:
From 47 – 50 acquired point / five point / or superior performance.
From 38 - 46.99 acquired point / four point / or advanced performance.
From 26 - 37.99 acquired point / three point / or intermediate performance.
From 20 - 25.99 acquired point / two point / or low performance.
From 20 below very low performance.

b) Proposed System

The proposed system has global functionality, but it is optimized to Ethiopian Broadcasting Corporation (EBC). This system solves all problems observed in the existing system; in other words, the existing system at EBC had many problems so the proposed system will solve all the problems at the current related to employee performance evaluation for the future.

The proposed system focused on some of the listed techniques:
If we start from file handling, every Performance evaluation results are recorded in a database. The Evaluator can simply access i.e. searching, updating, managing the records and generate different kinds of report using different type of charts.

The Administrator makes the system secured from illegal or unauthorized users or persons.

With respect to time, the automated computerized evaluation system saves a lot of time compared to the current system. The proposed system provides measurable ratings consistent with business goals.

Reliability of the system is moderately high because apart from the good standards of performance measurement, its objectives and workflow, the evaluation carried by one single manager may introduce inaccurate outcomes of the evaluation.

Generally, the new system will reduce the problem on time accuracy, security issue, and complexity and information distribution. The system will include a centralized data base for employee's performance data records that facilitate fast information retrieval, modifying, inserting and deleting. It also includes an attractive user interface that facilitates accessing the database and recording accidental data easily.

1 Requirement Definition

a) Functional Requirement

Functional requirements focus on the main function, which the new system will provide. The system to be developed has different functions. The functional requirements that will be provided by the new system include the following activities:

Approve Evaluation Result:
This event enables Department Managers and employees to approve(agree) the evaluation result after the evaluation is done.

Evaluate Employee:
This event enables the evaluator to evaluate the employee's performance based on his/her work habit.

Generate Evaluation Report:
All of the system users, except the administrator, generate evaluation reports and employees generate only their evaluation report.

Manage Employee:
HR managers manage their own evaluated employees. Managed activity includes adding new employees, activate and deactivate employees in the system.

Manage User Account:
Only the administrator is involved in this event and it includes creating user account, activating and deactivating user accounts.

Update User Account:
This operation involves only the administrator to update user accounts if the users forget their user name and password.

View Evaluation Result:
All users of the system, except the system administrator, can view evaluation results and only employees can view their evaluation result.

b) Non-Functional Requirements

Non-functional requirements describe user-visible aspects of the system that are not directly related with the functional behavior of the system. These requirements do not directly affect the performance of the system but are nonetheless important. They are concerned with security, performance, internationalization, usability, maintainability, reliability, modifiability, efficiency, portability across operating systems, testability, understandability.

The non-functional requirements of the system are presented below:

Speed
The system will perform at 1 second or less at normal circumstances while appending and retrieving data to and from the database respectively (i.e. when networks and nodes are ok).

Reliability
The system allows reliable communication between the Users and the System. It also allows reliability while searching and displaying data from the database, while appending data in the database and data are passed to the correct end user.

Security
The system database will be secured from accessed by any unauthorized person by making the login to the system only restricted to legal persons.

Quality
The system allows putting backup of data and it fulfills all user requirements.

User friendly interface
Simple and interactive user interface components should be part of the system. This user-friendly interface requirement of the system will be available in any employees, HR managers, evaluators and system administrator interface of the application.

Actor Description
Actors are persons that interact with the system and the actors who interacts with the system are Administrator, HR Manager, Evaluator, Department Manager and Employee. They are described below in brief:

Administrator: Is a person who controls the system and gives privilege to users.
HR Manager: Is a person who responsible for managing evaluator and employees who works in the company.
Evaluator: Is a person who is responsible for evaluating employees.
Employee: is a person who works regularly in a specified company.
Department Manager: Is a person who is responsible to approve the evaluation reports.

3. Object Oriented Analysis

The purpose of Object-Oriented Analysis is to understand what is built. This is similar to requirement gathering described in chapter 2, the purpose of which is to determine what users ant to build. The main difference is that the focus of requirement gathering is on understanding the users and their potential usage of the system, whereas the focus of analysis sifts to understanding the system itself.

The following figure depicts the main artifacts of analysis efforts and the relationships between them. The sold boxes indicate major analysis artifacts, whereas the bordered rectangle boxes represent major requirement artifacts. The arrows represent drives relationships. The figure has three important implications. First, analysis is an iterative process. Second, taken together, requirement gathering and analysis are highly interrelated and iterative. Third, essential use case model and essential user interface prototype evolve into corresponding analysis artifacts respectively.

System Use case

UI identification
The User Interface (UI) identification shows about which actions are performed on the user view interface. These include:

Approve Evaluation Result: This event enables the Department Manager and employees to approve (agree on) the evaluation result after evaluation is done.

Evaluate Employee: This event enables the evaluator to evaluate the employees' performance based on their work performance.

Generate Evaluation Report: All of the system users, except the administrator, generate evaluation reports and employees generate only their evaluation report.
Login: Administrators, employees, HR managers, department managers and evaluators should be able to use this system, they enter User ID and password which they have got from the administrator of the system and evaluators are easily create their own accounts online. To use this web application, the user must have a valid User ID and Password. If the user enters correct User ID and Password, then he/she can get the user privilege. But if User ID and Password is not valid, the access will be denied.

Manage Employee: HR managers manage evaluated employees. Activities to manage include adding new employees, activate and deactivate employees in the system.

Manage User Account: Only the administrator is involved in this event and it includes creating user account, activating and deactivating user accounts.

Update User Account: This operation involves only the administrator to update user accounts if the users forget their user name and password.

View Evaluation Result: All the users of the system, except the system administrator, can view evaluation results and employees can only view their evaluation result.

Actor Identification
The actors that interact with the system are the Administrator, HR Manager, Evaluator, Department Manager and Employees. They are described in brief below:-
Actor name: Administrator
Identification: Actor-01
Description: is a person who controls the system and gives privilege to users.
Role: manage and update user accounts.
Actor name: HR Manager
Identification: Actor-02
Description: is a person who is responsible for managing evaluator and employees.
Role: Manage employees, view evaluation results and generate evaluation report.

Actor name: Evaluator
Identification: Actor-03
Description: is a person who is responsible for evaluating employees.
Role: Evaluate employees, view evaluation results and generate evaluation report.

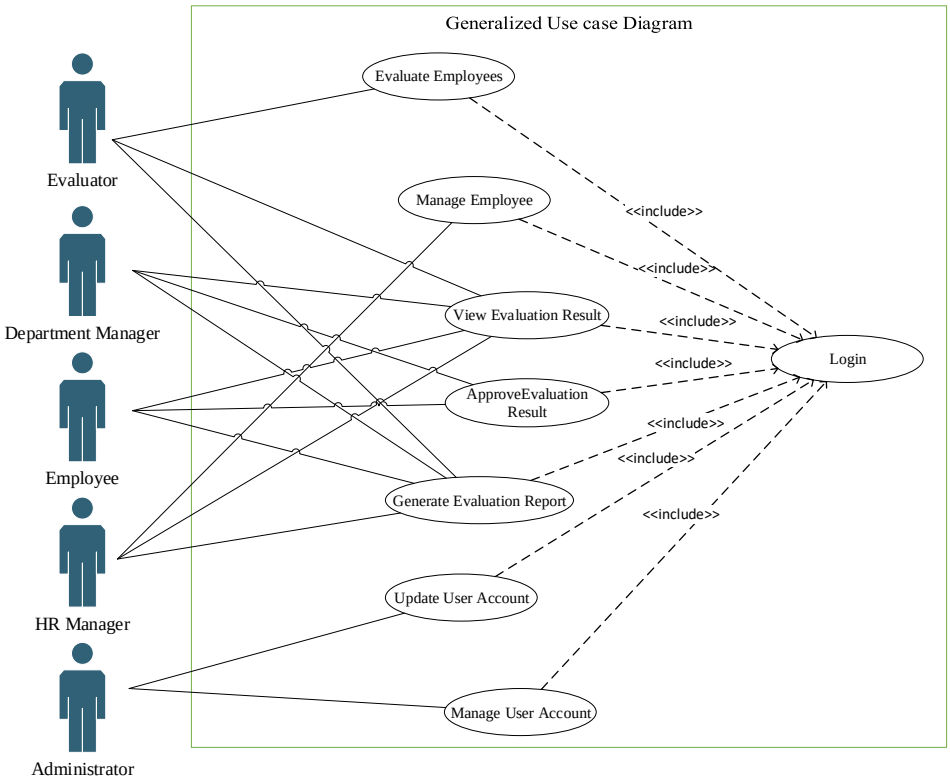
Actor name: Employee
Identification: Actor-04

Description: is a person who works regularly in a specified company.
Role: Approve evaluation results, generate evaluation report, view evaluation results.

Actor name: Department Manager
Identification: Actor-05
Description: is a person who is responsible to approve evaluation results.
Role: Approve evaluation report, generate evaluation report and view evaluation result.

Use case Diagram: are diagrams that shows use cases, actors and their interrelationship.

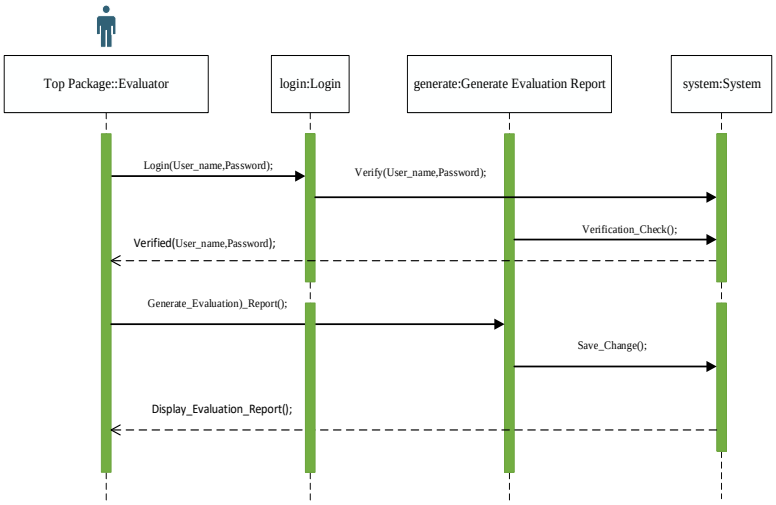
Generalized Use Case Diagram: describes all the actor interaction on the system diagrammatically



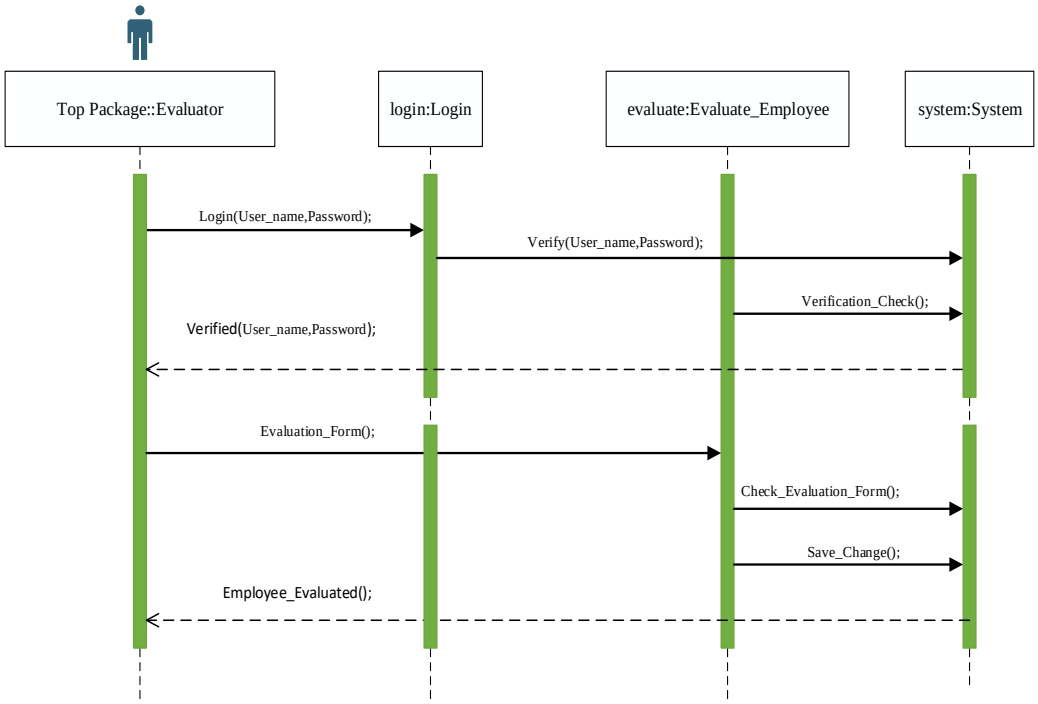
Sequence Diagramming

Sequence diagrams are used to model the interactions between the actors and the objects within a system. A sequence diagram shows the sequence of interactions that take place during a particular use case or use case instance. The objects and actors involved are listed along the top of the diagram, with a dotted line drawn vertically from these. Interactions between objects are indicated by annotated arrows.

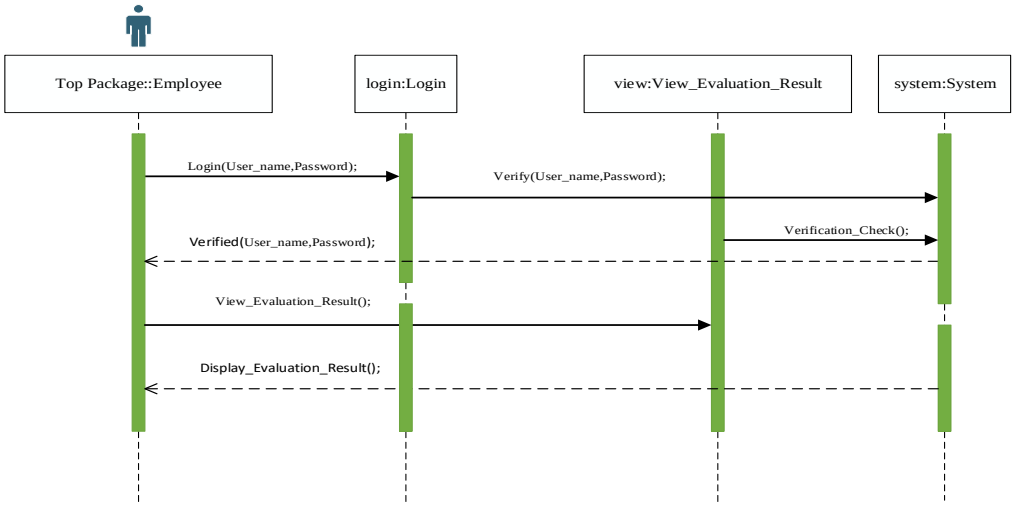
Evaluator:


Top Package::Evaluator
login:Login
generate:Generate Evaluation Report
system:System
Login(User_name,Password);
Verify(User_name,Password);
Verification_Check();
Verified(User_name,Password);
Generate_Evaluation)_Report();
Save_Change();
Display_Evaluation_Report();

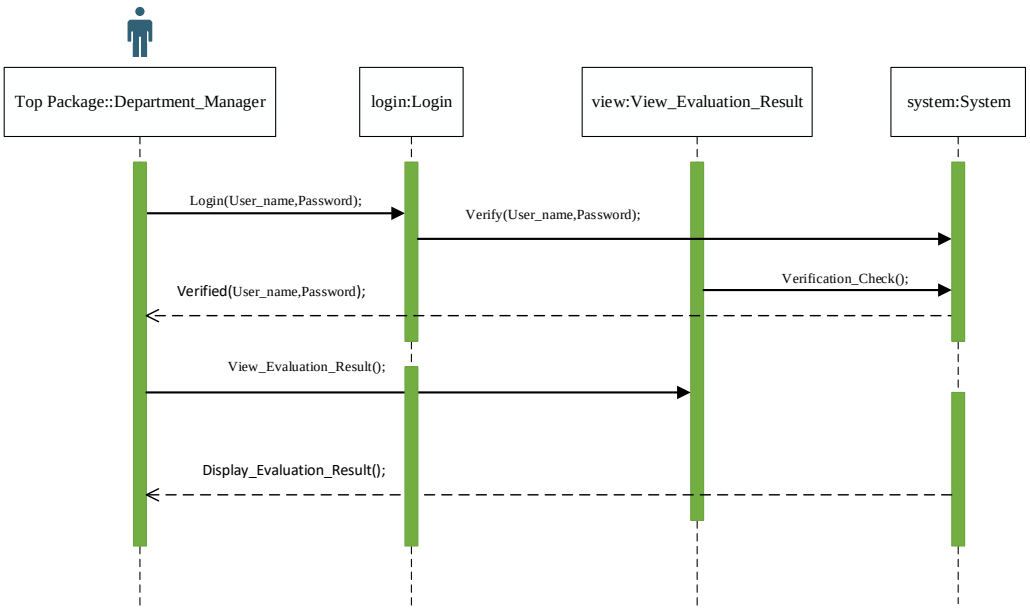
Evaluator:


Top Package::Evaluator
login:Login
evaluate:Evaluate_Employee
system:System
Login(User_name,Password);
Verify(User_name,Password);
Verification_Check();
Verified(User_name,Password);
Evaluation_Form();
Check_Evaluation_Form();
Save_Change();
Employee_Evaluated();

Employee:



Department Manager:



Conceptual Modeling

Unrefined Class Diagram

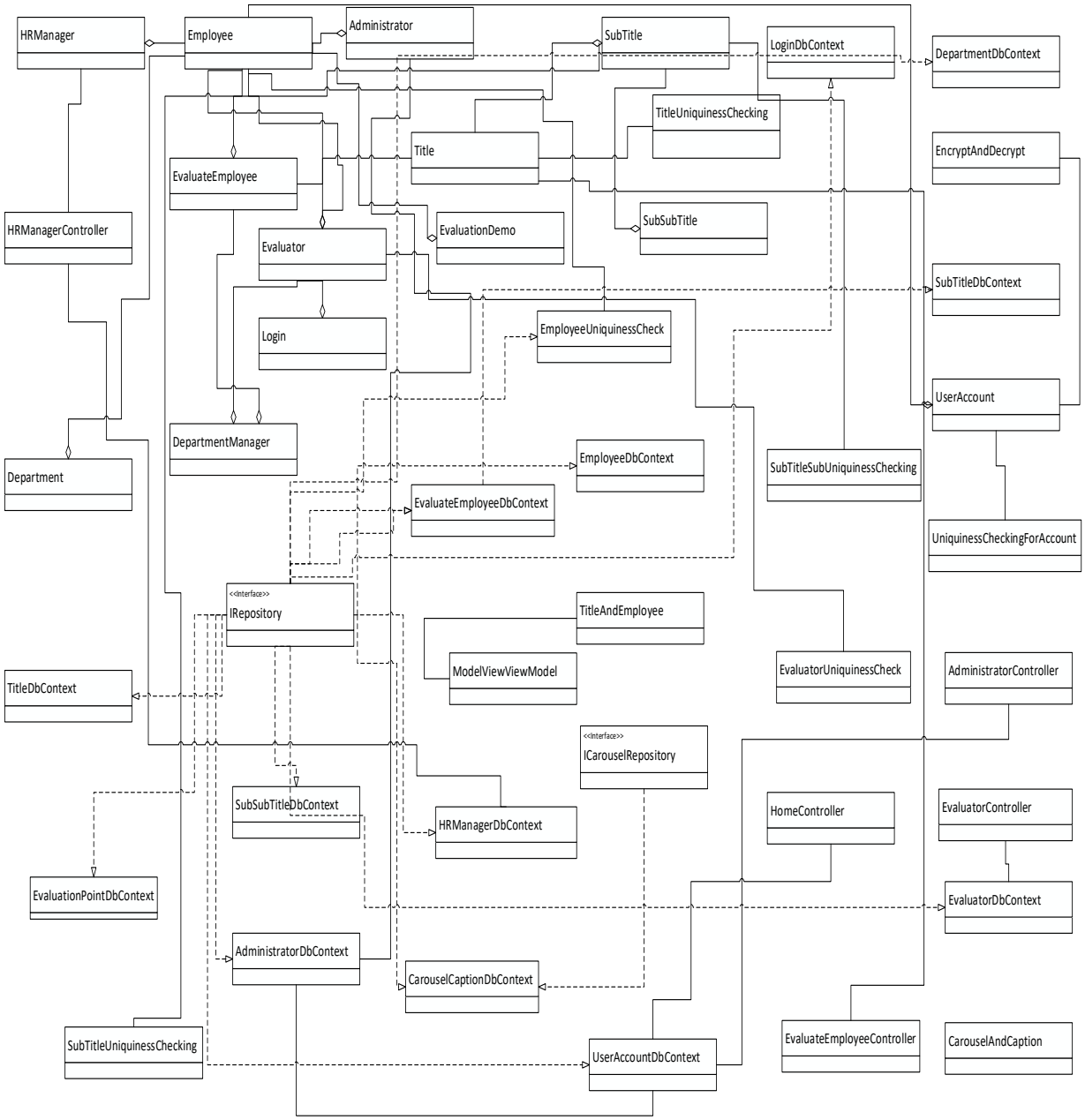
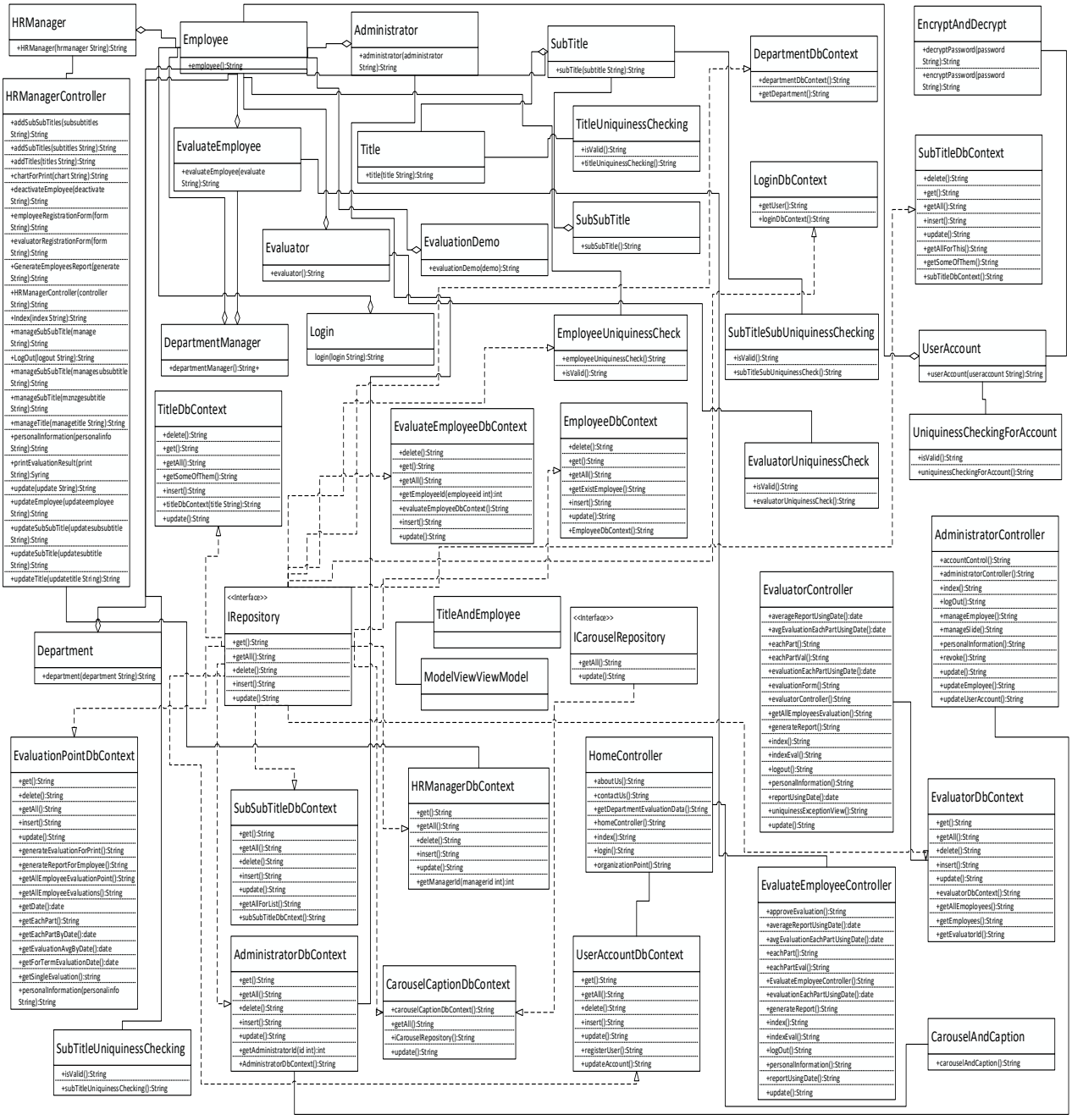


Figure 4 - Unrefined Class Diagram

Refined Business Class Diagram



4. System Design

Architectural Pattern

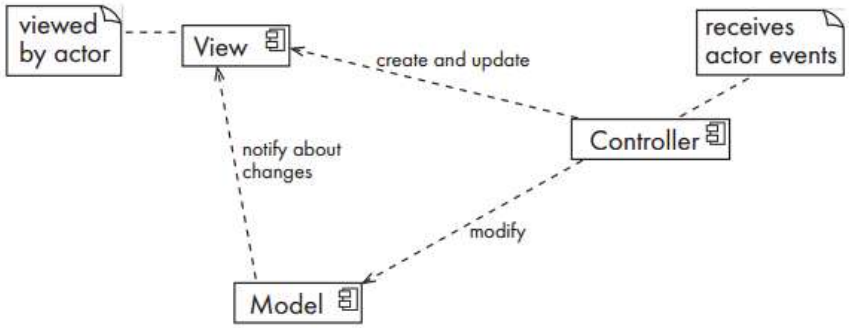
The Model–View–Controller (MVC) architectural pattern

Model–View–Controller, or MVC, is an architectural pattern used to help separate the user interface layer from other parts of the system. Not only does MVC help enforce layer cohesion of the user interface layer, but it also helps reduce the coupling between that layer and the rest of the system, as well as between different aspects of the UI itself. The MVC pattern separates

the functional layer of the system (the model) from two aspects of the user interface, the view and the controller.

MVC in Web Architectures

Web architectures generally use MVC as follows:
1. The View component generates html for display by the browser.
2. There is a component that interprets http 'post' transmissions coming back from the browser this is the Controller.
3. There is an underlying system for managing the information – this is the Model.



4.2 System Algorithm

Particular work evaluation

1. Get each evaluation items result
2. Add Get each evaluation items result

Total=15;

SumWork1 = item1+item2……+item_N;

$$Mid = \frac{Total}{2}$$

Where N is the number of items.

If SumWork1 is greater than mid

Print ("best performance");

Else

Print ("less performance");

Total work performance

1. Get the sum of each work result
2. Add sum of each work result

Total Work = SumWork1+ SumWork2…….+ Sum Work N;

If **Total Work** is greater than or equal to 47 and **Total Work** is less than or equal to 50

Print ("Superior performance");

Otherwise

If **Total Work** is greater than or equal to 38 and **Total Work** is less than or equal to 46.99

Print ("Advanced Performance");

If **Total Work** is greater than or equal to 26 and **Total Work** is less than or equal to 37.99

Print ("Intermediate Performance");

If **Total Work** is greater than or equal to 20 and **Total Work** is less than or equal to 20.99

Print ("low Performance");

Otherwise

Print ("Very low performance");

Average work result thought the N year

1. Get the total work result in each Evaluation
2. Average the total work result in each year

N year Performance = $\frac{\textbf{Total Work1+ Total Work2…… Total Work N;}}{\textbf{N}}$

If average is greater than or equal to 47 And average is less than or equal to 50

Print ("Superior performance");

Otherwise

If average is greater than or equal to 38 and Average is less than or equal to 46.99

Print ("Advanced performance");

If average is greater than or equal to 26 and average is less than or equal to 37.99

Print ("Intermediate Performance");

If average is greater than or equal to 20 and average is less than or equal to 20.99

Print ("low Performance");

Otherwise

Print ("Very low performance");

Average department value

1. Get the **Total Work** each employee
2. Add the **TotalWorkE1** each employee
3. Average of the department

Department average = **Total WorkE1+TotalWorkE2…….+Total Work EN;**

N

Where N is number of employees

Comparing the total work performance in each department

Let say Department X and Department Y are Departments in the Organization

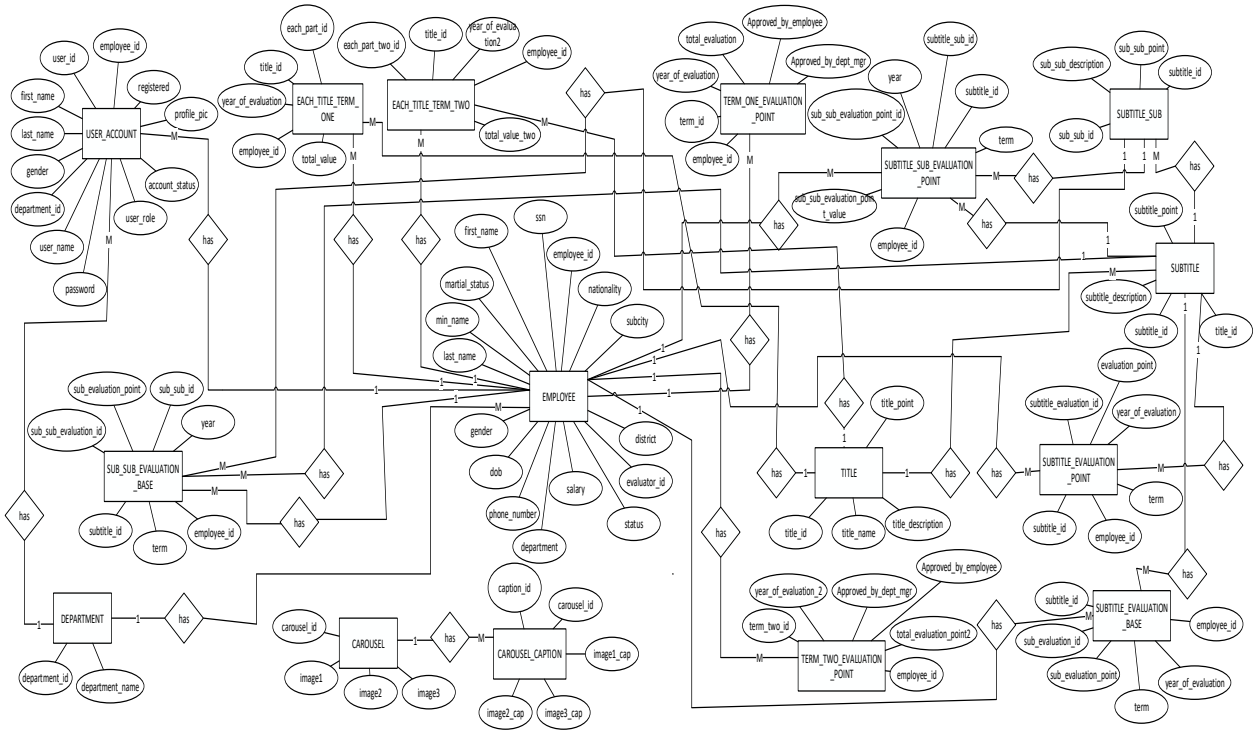
1. Get the Department average of Department X
2. Get the Department average of Department Y

If Department average of Department X is Department average of Department Y

Print ("Department X is best performance than Department Y");
Else
Print ("Department Y is best performance than Department X ");

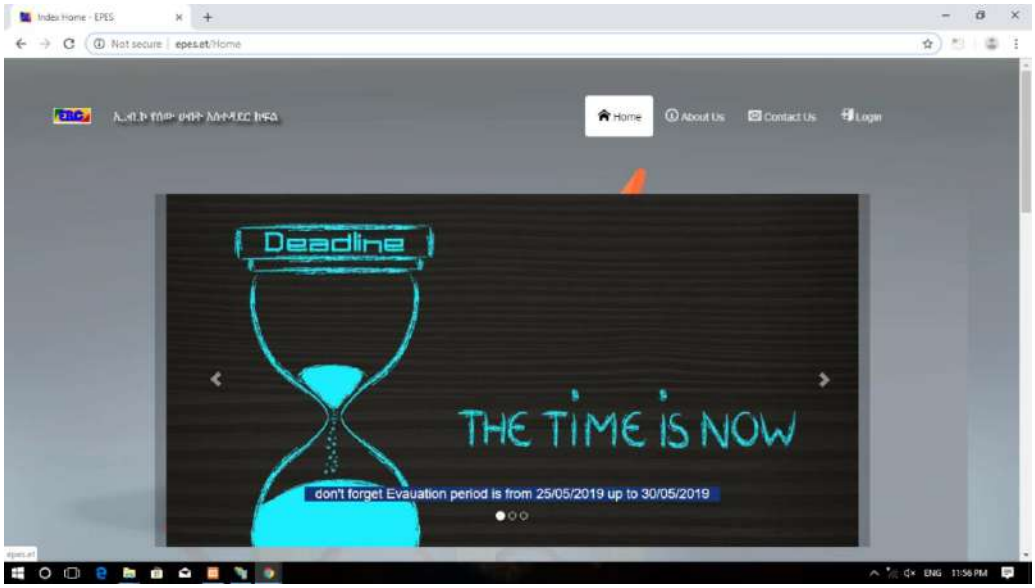
Data Model

ER Diagram

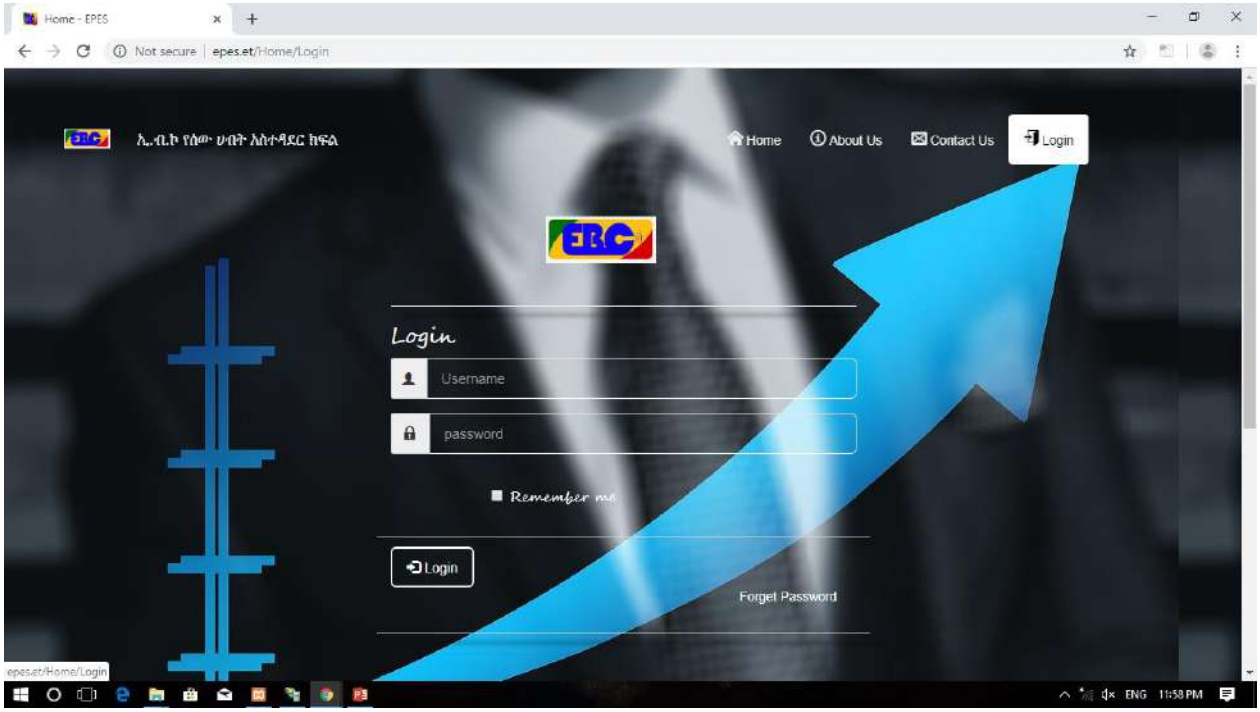


User Interface

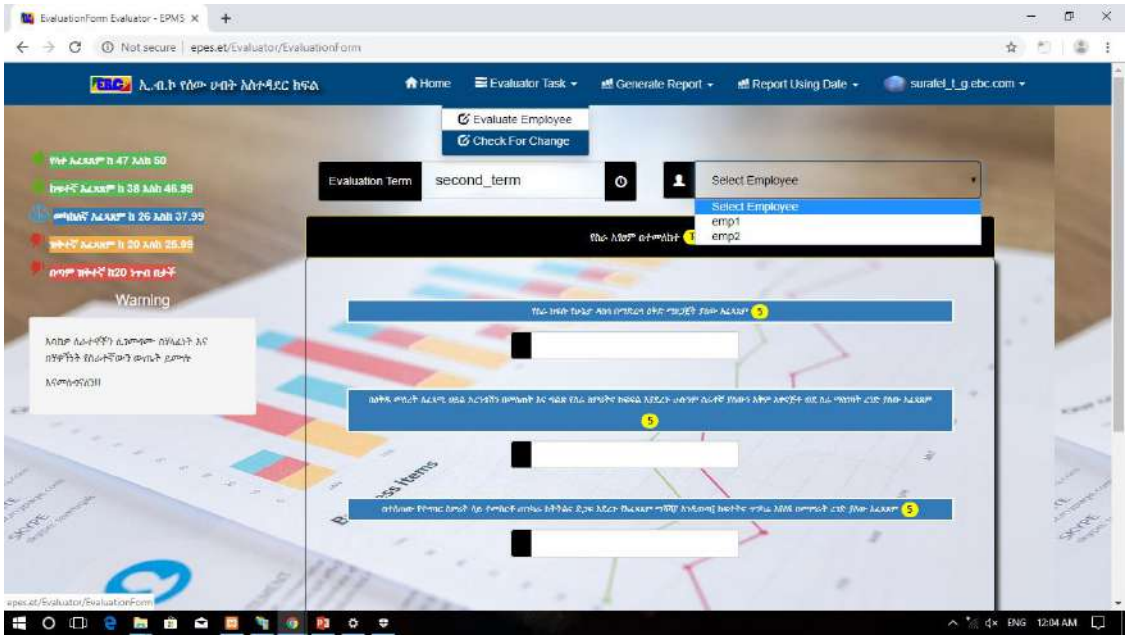
Home Page:



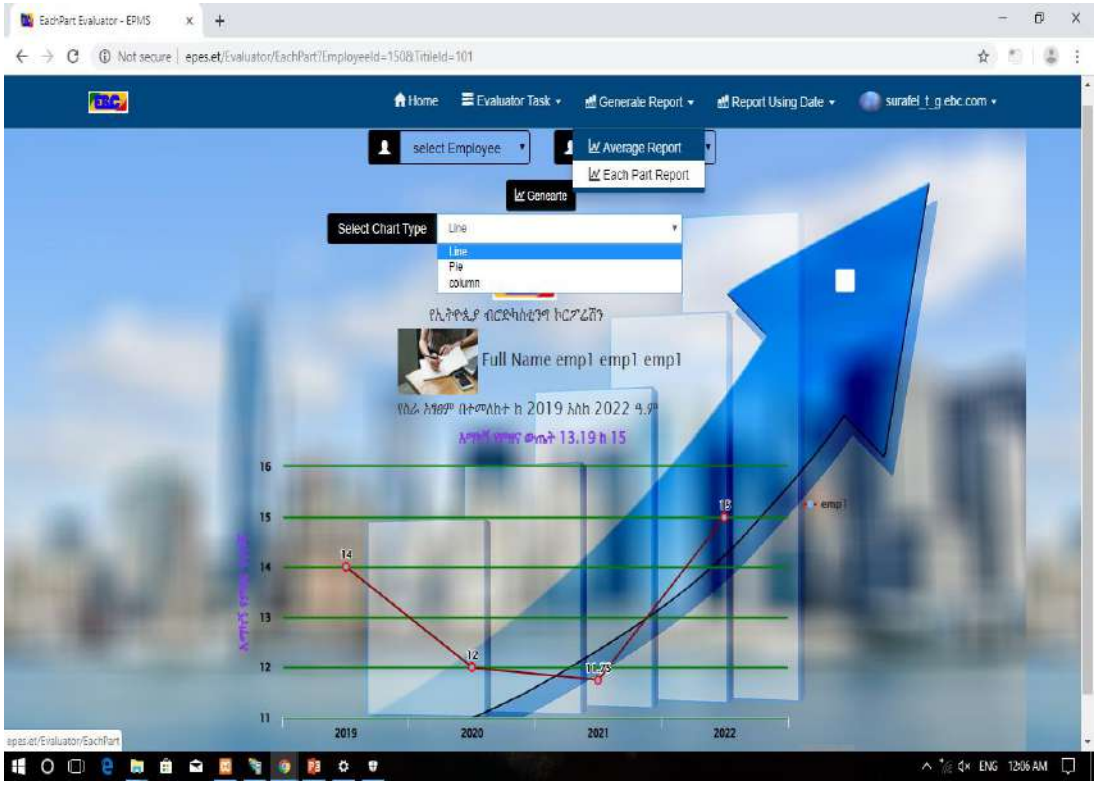
Login Page:



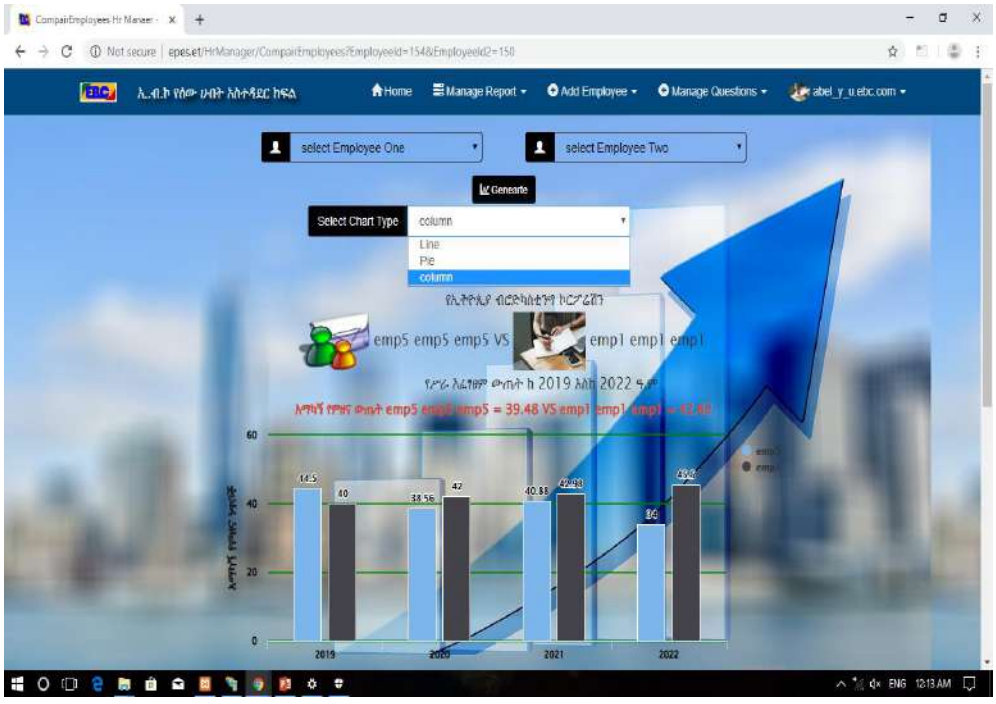
Evaluation Page:



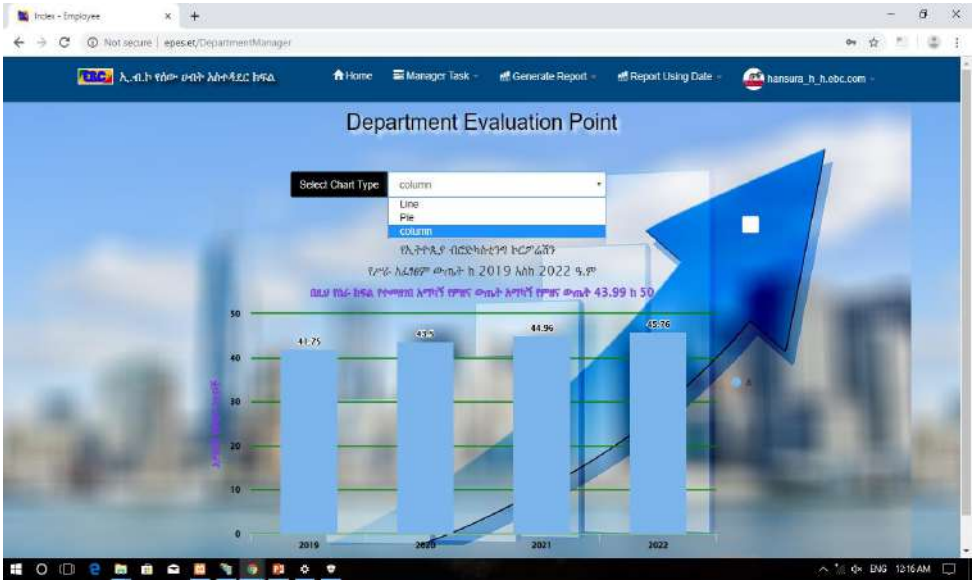
Report Generate Page:



Compare Employees:



Department Evaluation:



5. Conclusion and Recommendation

In developing this system, we have observed that there were other systems that need to be automated in the performance evaluation of Ethiopian Broadcasting Corporation (EBC). In relation to our project, the manual System hinders the Ethiopian Broadcasting Corporation (EBC) not to use its resources efficiently and evaluate its employees effectively.

5.1 Conclusions

Our employee performance evaluation system grew into systems that were almost expected to produce mediocre performance. Storing change management is absolutely necessary to move an organization from deeply ingrained performance evaluation system to something new. The employees and the managers disliked their current performance evaluation system. Generally, our employee performance evaluation system performs well compared to the current system.

5.2 Recommendation

We, the project team members, recommend the following points:

- This system will give a solution for some of the problems in the performance evaluations in Ethiopian Broadcasting Corporation (EBC).
- This performance evaluation system will add some new features using artificial intelligence, make the evaluation system more efficient, accurate and effective and finally we will also add 360-degree evaluation method to the system.

References

Modern Systems Analysis and Des - Jeffrey A.Hoffer

Pressman Software Engineering

The object primer agile modeling driven development. Reference Object Oriented Software Engineering Practical Software Development using UML and Java by Timothy C. Lethbridge Robert Laganière.

www.ebc.et.https://dotnet.microsoft.com/app/aspnet/mvc

Assessment of Causes and Consequences of Youth Alcohol Abuse in Ambo Town: The Case of 01 Kebele

Kalid Hussen, Ambo University

Abstract

This study aimed to assess the causes and consequences of youth alcohol abuse in 01 Kebele of Ambo town. The main objective of the study was to assess the causes and consequences of youth alcohol abuse in 01 Kebele of Ambo town and the specific objectives of the study were; to find out the causes of youth alcohol abuse, describe the social consequences of youth alcohol abuse and to find out the economic consequences of alcohol abuse in the study area. The study employed both qualitative and quantitative research methods. Interviews and questionnaire were the data collection instruments. The research team used non probability sampling technique. From non-probability sampling, the researchers used snow ball sampling to select the respondents. Researchers interviewed two key informants selected from Ambo town Kebele 01 Administration Office. The total populations of youths were 11216 or 27% of the total population in the Kebele. From that population, the researcher selected 50 respondents using snow ball sampling technique. The findings of the study showed that, the majority of youth alcohol abusers were male aged between18-22 which was because of the biological development of youths' growth when they consider everything as normal and they cannot consciously identify the pain and pleasure. According to the study, the causes of youth alcohol abuse were: peer pressure, family influence, socio-economic factors, and media factor. Consequently, youth alcohol abusers were exposed to psychological problem, health problem and committing crime. This had in turn affected the society by disturbing the social order, stability and smooth functioning through delinquency and crime like homicide, sexual assault, and rape. Alcohol abuse has many economic crises because the addicted involved in criminal acts such as stealing property, committing suicide, economically dependent on others and snatch off, etc. To reduce the problem, family should be socialized their children properly, the community should establish anti-alcohol club, should arrange different recreational place for youth, and finally the government should formulate strong rules and regulations on alcohol consumption of youth.

Keywords: causes, consequences, youth alcohol abuse, Ambo town

1. Introduction

1.1 Background of the Study

About 230 million people or 5 percent of the world youth population was estimated to have abused by alcohol. Alcohol kills around 0.2 million people each year. Similarly, some reports state that cause of youth alcohol abuse undermines economic and social development and consequently will expose the youth or the productive part of the citizen to crime, instability, war, disorder, insecurity, injury, car accidents, and spread of HIV/AIDS. Not only this, but also youth alcohol use will be the major cause to society causing economic cost, Health cost, crime related cost and loss of productivity (Abodinsky 2O11).

The social, cultural and economic growth of a given society has been greatly determined by the degree of the development of youth generation. It is the youth generation who are responsible to eradicate poverty and to enable people to lead a better and healthier life. Since youth generation are the foundation for political, economic, technical and social development, then youth social health is being the supporting factor. Despite the great responsibilities of the youths there are serious problems that throw their life at danger (Homer 2009).

Considerable numbers of youth become addicted to alcohol and this is determinant to health. This and many similar health hazards challenge youth's proper physical, mental and psychological development (Anteneh and Mesfin 2007). Abuse of alcohol has become one of the rising major public health and socio-economic problems worldwide and recent trends indicates that abuse of alcohol would be dramatically increase particularly in developing countries (Stone 2007).

In addition, the youth alcohol abuse increases their sexual risky behavior contributing to the spread of HIV infection and recently very serious disease is cancer due to result of alcohol abuse. Regarding our country Ethiopia, it is not surprising that the problems of alcohol abuse was dramatically increasing. Several studies indicate that alcohol abuse among Ethiopian youth was considerably rising. Now a days, different alcohol use has been widely practiced among the youth segment of the society in Ethiopia. Youth alcohol abuse may involve recreational benefits such as to have fun, social conformity; mood enhancement and coping with stress (Abrham 2004).

The findings of different studies revealed that there was excessive alcohol consumption and it was believed to be one of the factors associate with unprotect risky sexual behavior. Predisposing the youth for the HIV/AIDS transmitting and risk of car accident will increase. Among the Ethiopian population, the youth segment of the population is the most at risk of abused by alcohol. As the findings of different studies conducted at different time show, there is no question that the abuse of alcohol is extremely harmful, leading to decreasing their work performance and increases risk of contracting HIV and other sexual transmit disease or other psychiatric disorder such as exhaustion, lack of meaning in life, hopelessness and sleeplessness. Furthermore, it was exposed the youth to illegal activities (Bekele 2006).

The FDRE Educational Sector Development Program IV (ESDP IV) also emphasized the issue of youth alcohol abuse. One of the major goals of this program was preventing alcohol and leading the life of the youths in education and making them productive throughout their life (Getenet and Melesse 2008).

Therefore, unless the causes and consequences of the youth alcohol abuse is clearly identified and corrective prevention and intervention takes place, it results in multi dimension social, psychological, political and economic problems. This intern would have strong impact on our national growth and transformation plan (GTP). Youth alcohol abuse in Ambo town was not different from that of at global and national level in different continents and nations. In Ambo town, alcohol abuse was already increasing at an alarming rate among youths. Ambo town, 01

Kebele was located in the area at which the majority of the dwellers lead their life by selling alcohol and beverage. Due to this, there were many injuries, raping and other crimes happening in the area.

1.2. Statement of the Problem

The problem of alcohol abuse among youth was remaining an important area of a research due to the implication of alcohol dependence on the future life of youths. Alcohol abuse has an effect on every area of life including family, society and social life of peoples (Ashtan and Elizabeth 2008). Some studies show that high prevalence of alcohol abuse among youths and those are especially dominant in town or city dwellers. For instance, Sisay (2001) had conducted a research entitled, Economic Impacts of Drug Abuse Among Youths, the Case of Adigrat University, and concluded that, the use of hard drugs, such as heroin and other narcotics is becoming common among higher educational institution like universities. not only these substances, but also others like, alcohol, shisha, chat, and tobacco are the most abused substance in these institutions where they are located in cities and towns.

Youth alcohol abuse causes common public health, car accident, and diseases that peaks in persons between 18 and 26 year of age and this showed that the problem was highly dominant among youths. In Ethiopia, high number of alcohol abuse become one of the most serious problems of youths in the recent years (Messay 2009).

The students drug abusing habit has its own negative consequences on their academic performance that they got weak academic grade or rank, physical deterioration and becoming thin. Not only this, but also has its own negative consequence on their economy because they buy drug beverages by wasting much money and this leads them to high economic expenses. Youths exhibited aggressive behavior and faced many troubles with friends, teachers, and families as well as to the community, and peer pressure is the main cause of drug abusing habit (Emushet. D 2010).

Firstly, the above researches focus on the university students, and did not focus on youths who live with the society in towns. Thus, this observed gap initiated the researchers to conduct the study focusing on youths in Ambo town 01 Kebele dwellers. The study assessed the causes and consequences of youth alcohol abuse in 01 Kebele.of Ambo town.

Secondly, different researchers had done researches generally dealing with drug abuse. Emushet. D (2010) and Sisay(2011), both conducted researches to study the socio-economic factors of drug abuse and concluded that students usually started to be abused by drug at freshman level and the habit expanded and strengthened as it gives more freedom and school settings - motivates for drug abuse. The studies did not explain the causes and consequences of alcohol addiction in specific, so based on this gap, the researcher focused on alcohol abuse than any other drugs and observed that alcohol abuse was more dominant in the Ambo Town, 01 Kebele.

1.3 Objectives of the Study

General Objective

The main objective of the study was to assess the causes and consequences of youth alcohol abuse in 01 Kebele of Ambo town..

Specific Objectives

The study was specifically conducted to:

- find out the causes of youth alcohol abuse in the study area.
- describe the social consequences of youth alcohol abuse in the study area.
- find out the economic consequences of alcohol abuse in the study area.

1.4 Research Questions

This study was expected to answer the following research questions:

- What are the causes of youth alcohol abuse in the study area?
- What are the social consequences of youth alcohol abuse in the study area?
- What are the economic consequences of alcohol abuse in the study area?

1.5 Significance of the Study

The study has important information as a baseline for study why people become abused by alcohol in their daily life and it will come up with a good recommendation that tries to reduce and create awareness for the youths who are addicted to alcohol in a community to be reserved from alcohol addictive behavior; it can also promote the laws and regulations on production, sale and consumption of alcoholic beverages. Finally, this study can serve as an input for different policies and strategies which would be drafted by the government and non-governmental organizations (NGOs) to intervene on the problem.

1.6 Scope of the Study

The scope of this research was delimited geographically and thematically. Geographically, the research was conducted in Ambo town, 01 Kebele and conceptually it was conducted to assess the causes and consequences of youth alcohol abuse in Ambo town. Although the problem of alcohol abuse and dependence on alcohol exist in many areas of the town, due to shortage of time and financial constraint, the study focused only on the causes and consequences of youth alcohol abuse in Ambo town 01 kebele. 01 Kebele was selected from other Kebeles in the town due to high number of dwellers who lead their life by selling alcohol and beverage.

1.7. Limitations of the study

In terms of knowledge and conceptual analysis, the study didn't address issues like political, economic and emotional understandings about youth's alcohol abuse.

1.8. Definition of key terms

Alcohol; is a liquid form of substance which contains ethyl alcohol also known formally as ethanol that can cause harm and even damage a person's DNA.
Alcohol abuse; is the process of using alcohol continually and obsessively which affect or harm the health condition of the user such as causing injuries, violence, and disease.
Youth; is a time of life when one is young, and often means the age between childhood and adulthood or maturity.

2. Research Methodology

The research employed cross sectional research design because it is a onetime study due to time constraints and lack of sufficient finance.

2.1. Description of the Study area

The study was carried out in 01Kebele of Ambo town, West Shewa zone, Oromia Regional State, Ethiopia which is found between astronomical grades of $8^0$47'N-$9^0$21'N and 37^0 32 E-$38^0$30 E (Ambo District Finance and Economic Development Office, 2018). The capital of West Shewa zone is Ambo which is located at 128 km away from Addis Ababa. Its total area is 81674 hectares and the elevation is 2101m above sea level. The majority of the people are followers of Protestant and Orthodox religions. Ambo is known for its mineral water which is bottled outside of the town and also the location of research station of the Ethiopian Institute of Agricultural Research.

2.2. Research Design

The focus of the study was to describe the causes and consequences of youth alcohol abuse. In connection to this, mixed method i.e. quantitative and qualitative methods were used to collect, analyze and interpret the data. The reason for selecting both qualitative and quantitative data collection methods was to obtain both statistical and conceptual data in order to increase clarity. Quantitative design was employed, through distribution of questionnaires because of its time and cost effectiveness and qualitative method was used to get clear and deep information from own experience of individual through face to face interview.

2.3. Target Population

From the total population of 41541 in 01 Kebele of Ambo town, 27% were youths (01 Kebele Administration Office, 2019). The target population were predominantly youths. This fits the objective of the study and the best source of information for the study. Sample respondents were selected among 11216 youths that were found in the study area.

2.4. Sample Size and technique

The study used two types of sample designs, that is, non-probability sampling and probability sampling. In this study non-probability sampling technique, specifically snow ball sampling,

was used. The reason why non-probability sampling was used was because of the difficulty to get sampling frame and because of huge number of residents in the Kebele.

The Yamane formula for determining the sample size is given by (Yamane 1967).

$$n_o = \frac{z^2 p(1-p)N}{z^2 p(1-p) + N e^2}$$

Where

n_o = sample size

z = confidence interval corresponding to a level of confidence

p = population proportion

N = population size

e = precision or error limit

Source: Yamane (1967:258)

Where, N is the sample size, Z is the value from Z tables (1.96) at 95% confidence level, P is population proportion and ε is error estimate (0.05%). Based on the pilot survey that the researcher conducted, in order to determine the sampling proportion of the study, the researcher took 60 youths purposively and out of these, 45 respondents responded, then the estimated value of sample proportion (p) from this pilot survey was:

$P = \frac{n_0}{N_0} = \frac{45}{60} = 0.75$, then $q = (1-p) = 1 - 0.75 = 0.25$

Where n_0 is the sample size from pilot survey

N_0 is the total population that was taken to conduct pilot survey.

Therefore, based on the sample size determination method that was used by Yemane, (1967):

$$no = \frac{z^2 p(1-p)N}{z2pq + Ne2} = \frac{(1.96)\text{^}2(0.75)(0.25)(11216)}{(1.96)\text{^}2(0.75)(0.25) + 11216(0.05)\text{^}2} = \frac{(3.8416)(2103)}{0.7203 + 28.4} = 277$$

Finally, the result obtained from the above formula was 277. However, the researcher couldn't cover the expenses for the investigation and it was also very difficult to gather relevant information from all the 277 respondents within the time allocated for the study. So, the researcher were obliged to use only 50 respondents.

2.5 Method of Data Collection

In this study, both quantitative and qualitative method of data collection were used

2.5.1 Survey

To acquire adequate and reliable data, the study used sample survey data collection method by using questionnaire for quantitative data. In connection to this, both self-administrated and interviewer-administrated questionnaires which included both open ended and close ended questions were used. The questionnaires were first prepared in English then translated into Amharic and Afan Oromo, so as to increase the clarity of question and enable the respondents to easily answer the questions without language barriers.

Moreover, the data collection was done by the researcher while collecting the data the question which were not clear and legible to the respondents was clarified by the data collectors. The questionnaire was distributed to the participants based on their free will to respond genuinely.

2.5.2 In-depth interview

The researcher had in-depth interview with four youths who were abused by alcohol using the interview as data collection instrument in order to generate qualitative data.

2.5.3 Key informant Interview

Interview was conducted with two key informants among the Kebele Administration workers. These key informants were interviewed in order to have profound information concerning the causes and consequences of youth alcohol abuse, since they were individuals who were believed to have better knowledge and experience concerning the issue under investigation.

2.6 Sources of Data

2.6.1 Primary Sources of Data

Primary sources of data were selected youths and kebele administration workers in the study area from whom the data were collected through questionnaire that includes both close ended and open ended questions and interview, respectively. The primary data collection took place through face to face contact with respondents at the informants' home, workplace and in Bars.

2.6.2 Secondary source of data

The secondary data were collected from different written materials such as text books, magazines, documents, newspapers, internet sources, journals and previous research conducted on the related topic i and other related materials or sources that are related to the topic.

2.6.3 Participants of the Study and Inclusion Criteria

The participants of the study were youths that were residents of Ambo town 01 Kebele and who were abused by alcohol. Inclusion criteria were arranged for the purpose of guiding the data collection process and to determine the right targets from which the data were generated.

These include youths that were vulnerable to alcohol abuse. The second inclusion criterion was those who gave consent after being informed about the purpose of the study.

2.7 Methods of Data Analysis

The collected data from the respondents were analyzed using both quantitative and qualitative method of data analysis. In quantitative data analysis, the researcher used descriptive statistical methods like percentage, frequency and table. For qualitative data which were obtained from key informants and interview, thematic analysis was employed. The data were analyzed separately.

2.8 Ethical Consideration

The study followed ethical issues that inform consent and confidentiality. The respondents were informed about the objective of the research that it was intended only for academic purpose and they were also told about their right to jump off vague questions and even terminate filling the question. They were told that the information they provide will be kept confidential and won't be shared to others without their consent.

3. Data Analysis and Interpretation

This part deals with analysis and interpretation of data gathered from Ambo town, 01 Kebele through questionnaires distributed and interview made with the selected youths experienced with alcohol addiction.

3.1. Socio-Demographic Characteristic of the Respondents

The personal background gives some basic information about the sample population involved in the study.

Table 1: Distribution of respondents by age, place of birth and sex

No	**Respondents**		
1	Age	**Frequency (n)**	**Percentage**
	18-22	20	40
	23-25	18	36
	26-28	12	24
	Total	50	100
2	Place of birth	**Frequency (n)**	**Percentage (%)**
	Urban	20	40
	Rural	30	60
	Total	50	100
3	Sex	**Frequency (n)**	**Percentage (%)**
	Male	43	86
	Female	7	14
	Total	**50**	**100**

Source: survey of April 2019

Question No.1 in Table 1 above shows that from total number of respondents, those between 18-22 years account 20 (40%), followed by 23-25 aged groups which accounted 36% and 24% were between 26-28 years of age. This implies that the majority of youth alcohol users were in the age range of between18-22. From the total respondents, 30(60%) were coming from rural areas, whereas the remaining 20 (40%) were living in urban areas. This shows that, majority of the youth alcohol abusers were from urban areas. Among the respondents, 43(86%) were male and the remaining 7(14%) were female.

Table 2: Distribution of respondents by level of Education, nation and religious background

1	**Respondents' level of education**	**Frequency (n)**	**Percentage (%)**
	Illiterate	13	26
	Primary level	20	40
	Secondary level	10	20
	College and above	7	14
Total		**50**	**100**
2	**National background**	**Frequency (no)**	**Percentage (%)**
	Oromo	31	62
	Amhara	10	20
	Tigre	4	8
	Other	5	10
	Total	**50**	**100**
	Religion	**Frequency (n)**	**Percentage**
3	Protestant	10	20
	Orthodox	25	50
	Muslim	4	8
	Waqefeta	6	12
	Others	5	10
	Total	**50**	**100%**

Source: Survey April, 2019

Question number 1 in Table 2, indicates that13(26%) of respondents were illiterate, 20(40%) completed primary level, 10(20%) completed secondary level and 7(14%) of the respondent were college students and college graduates and above.

Among the respondents, 31(62%) were from Oromos, 10(20%) were Amharas, 4 (8%) were Tigre and the remaining 5(10%) were from other nations who lived in the study area.

Among the respondents, 25(50%) were orthodox Christians, 10(20%) were Protestants, 4(8%) were Muslims, 6(12%) were Waqefeta and the remaining 5(10%) were followers of other religions. This shows that the majority of the respondents were Orthodox Christians.

Table 3: Distribution of economic and marital status of respondents

1	**The source of income of alcohol abusers**	**Frequency (n)**	**(%)**
	Unemployed	15	30
	Daily laborer	10	20
	Farmer	13	26
	Civil servant	8	16
	Traders	4	8
	Total	**50**	**100**
2	**Marital status**	**Frequency (n)**	**(%)**
	Single	27	54
	Married	12	24
	Divorce	6	12
	Widowed	5	10
	Total	**50**	**100**

Source: survey, April 2019

The above table 3, Question number 1 indicates that from the total respondents, 15(30%) were unemployed, 13(26%) were farmers, 10(20%) were daily laborers, 8(16%) were public servants, and the remaining 4(8%) were traders.

Table 3, Question number 2, shows that from the total respondents, 27(54%) were single, 12(24%) were married, 6(12%) were divorced and the remaining 5(10%) were widowed.

3.2. Major Causes of Youth Alcohol Abuse

Table 4: Youths consumption of alcohol for mental satisfaction

Youths use alcohol for mental satisfaction	**Frequency (n)**	**(%)**
Yes	40	80
No	10	20
Total	**50**	**100**

Source: Field survey April 2019

As indicated in Table 4 above, majority (80%) of the respondents responded that they use alcohol for mental satisfaction, whereas 10(20%) of them responded that they do not use

alcohol for mental satisfaction. This shows that the youths started alcohol for mental satisfaction, without realizing its long-term negative effect on their life.

Table 5: Peer pressure as a factor leading to alcohol abuse

Peer pressure leads to alcohol abuse	Frequency (n)	Percentage (%)
Strongly agree	22	44
Agree	14	28
Disagree	8	16
Unable to decide	6	12
Total	**50**	**100**

Source: Field survey, April, 2019

As shown in table 5 above, from total respondents, 22(44%) said they strongly agree that peer pressure is a factor leading to alcohol abuse, followed by, 14(28%) of respondents who also agreed that peer pressure is a factor leading to alcohol abuse, 8(16%) of them didn't totally agree that peer pressure is a factor leading to alcohol abuse, and the remaining 6(12%) of the respondents were unable to decide on the issue.

Therefore, from the above data, it can be concluded that majority of the youths fell into alcohol abuse due to peer/friend pressure.

Table 6: Family's frequency of alcohol consumption

Item	Response	Frequency (n)	Percentage (%)
Do your family use alcohol daily?	Yes	38	76
	No	12	24
	Total	50	100

Source: Field survey, April 2019

As shown in table 6, 38(76%) respondents responded that their family uses alcohol daily, and the remaining 12(24%) responded that their family do not use alcohol daily.

From this, it can be concluded that daily alcohol use of family members had a great negative influence on the children which led them to abusive alcoholic behavior, as they learned everything from their family in the process of socialization during their childhood.

Table 7: Types of Alcohol predominantly used by Respondents

Item	Types	Frequency (n)	Percentage (%)
Which type of alcohol you use predominantly?	The factory drink	33	66
	The traditional drink	17	34
Total		**50**	**100**

Source: Field survey April 2019

As indicated in table 7, 33(66%) of the respondents were using alcohols that are produced in factories and the remaining 17(34%) of the respondents were using traditional alcohol beverages. This shows that majority of the respondents were using alcohols that are produced in factory.

According to the findings, the expansion and increased availability of alcohol products that are produced in factories in every part of the study area was the major cause for youth alcohol abuse.

Table 8: Frequency of Alcohol Promotion of Respondents per week

How often do you watch alcohol promotion on television?	**Frequency (n)**	**(%)**
Always	39	78
sometimes	7	14
Rarely	4	8
Total	**50**	**100**

Source: Survey April 2019

As can be seen from table 8, out of the respondents, 39(78%) were found to watch promotion of alcohol beverage on television always, followed by 7(14%) of the respondents who said they watch promotion of alcohol beverage on television sometimes, and the remaining 4(8%) of respondents were found to watch promotion of alcohol beverage on television rarely. From this, it can be concluded that the majority of respondents were found to watch promotion of alcohol beverage on television always. According to the finding, media was creating a big influence on the life of youth, as the current generation has strong connection with social and mass media.

Table 9: Frequency about the alcoholic behavior of respondent's friends

The alcoholic behavior of respondents' friends	**Frequency (n)**	**Percentage (%)**
Highly addictive	**30**	**60**
Moderately addictive	**12**	**24**
Low addictive	**8**	**16**
Total	**50**	**100**

As we can see from table 10, majority 30(60 %) of the respondents' friends were highly addictive to alcohol, 12(24 %) of the respondents' friends were moderately addictive, 8(16 %) were low addictive. Therefore, it can be concluded from the findings that peer pressure was the major factor leading youths to alcohol abuse. Most of the respondents were influenced by their friends to use alcohol.

Generally, as responded by the respondents, friendship with addictive peers had greater impact on youths to be abused by alcohol. There were also other factors such as, lack of attention to

the youth by the family, family's experience in alcohol use, watching repeatedly alcohol promotions on different mass media and finally, the expansion of alcohol and beverage producing factories and retailers, bars, and hotels were also causes for youths to be abused by alcohol.

Table 10: Family treatment for the children who are abused by alcohol

Treatment within your family in the case of alcohol abuse	**Frequency (n)**	**(%)**
They don't care	25	50
Family advice not to do so	17	34
Encouragement	8	16
Total	**50**	**100**

As can be seen from table 10, majority 25(50%) of the respondents responded that their family don't care about their abusive alcoholic behavior, followed by 17(34%) of the respondents who said their family advise them not to drink alcohol, and the remaining 8(16%) of the respondents replied that their family encourage them in their abusive alcoholic behavior.

So, the researcher concluded that lack of or careless control of family on the children had negative effect on the abusive alcoholic behavior of youths.

3.3. Major Consequences of Youth Alcohol Abuse

3.3.1. Social Consequences of Youth Alcohol Abuse

Table 11: Disease and negative social relationship of youths who are abused by alcohol

1	Do you believe that alcohol abuse leads to diseases on youths?	**Frequency (n)**	**Percentage (%)**
	Yes	38	76
	No	12	24
	Total	**50**	**100%**
2	Which disease do you know that alcohol abused youths faced?	**Frequency (n)**	**Percentage (%)**
	HIV/AIDS	16	32
	Cancer	4	8
	Heart disease	8	16
	Other diseases	10	20
	Total	**38**	**76**
3	Alcohol abused youths have negative social relation	**Frequency (n)**	**Percentage (%)**

4	Strongly agree	28	56
	Agree	10	20
	Neutral	6	12
	Disagree	4	8
	Strongly disagree	2	4
	Total	**50**	**100%**

Source: Survey April, 2019

As can be seen from table 11, question number 1, among the respondents, 38(76%) responded that alcohol addiction had bad health consequences on youths, and the remaining 12(24%) responded that alcohol addiction does not have bad health consequence on youth's health.

Out of 38 respondents who responded 'Yes' to the question No.2, which says alcohol addiction has bad health consequences on youths, 16(32%) assumed that alcohol abused youths are exposed to HIV/AIDS, 4(8%) of the respondents responded that youths who are abused by alcohol are more exposed to cancer, 8(16%) said that alcohol abused youths are exposed to heart disease, and 10(20%) said they believe alcohol abused youths are exposed to other diseases. So, majority of alcohol abused youth were exposed to HIV/AIDS, because alcohol abusers have high sexual gratification when they use the alcohol.

Majority of the respondents, 38(76%), agreed that youths who are abused by alcohol have negative social relation, 6(12%) of the respondents were neutral, and the remaining, 6(12%) disagreed that youths who are abused by alcohol have negative social relation. Therefore, majority of youths who were abused by alcohols have no smooth relation with community or family members.

Table 12: Frequency of respondents who feel depression and hopelessness

Feel depression and Hopelessness	**Frequency (n)**	**(%)**
Strongly agree	31	62
Agree	12	24
Disagree	7	14
Total	**50**	**100%**

Source: Field survey May, 2018

As shown in table 12 above, majority (62%) of the respondents said they strongly agreed that alcohol abused youths feel mental depression and hopelessness, 12(24%) agreed that alcohol abused youths feel mental depression and hopelessness, and the remaining 7(14%) respondents disagreed that alcohol abused youths feel mental depression and hopelessness. From this, it can be understood that majority of the respondents were strongly agreed on the issue, which implies that the alcohol users were feeling a sort of mental depression and hopelessness.

3.3.2. Economic consequences of youth's alcohol abuse

Table 13: Economic problem of alcohol abuse

Item	Response	Frequency	%
Do you face an economic problem as a result of alcohol conception?	Yes	40	80
	No	10	20
	Total	**50**	**100**

Source: Own survey April, 2019

Table 13 above shows that, 40(80%) of the respondents replied that alcohol abuse has an economic problem, while 10(20%) of the respondents said that alcohol abuse does not have economic problems. This shows that most of the respondents faced negative effect of alcohol abuse on their economy.

Table 14: Probability of occurrence of car accident and violent crime due to alcohol abuse

1	Do you assume that alcohol abuse can be cause for car accident?	**Frequency (n)**	**Percentage (%)**
	Yes	45	90
	No	5	10
	Total	**50**	**100**
2	Do you think that alcohol abuse can be cause for violent crime?	**Frequency (n)**	**Percentage (%)**
	Yes	41	82
	No	9	18
	Total	**50**	**100**

Source: Own survey April, 2019

As indicated in table 14, Question No.1, majority of the respondents (90%) responded that alcohol abuse could be the cause for car accident, 5(10%) of the respondents didn't agree that alcohol abuse has effect of on car accident. This shows that alcohol has negative effect and leads to car accident.

Table 14 question No. 2 indicates that, majority (82%) of the respondents considered that the violent crime happening in the study area was the consequences of excessive use of alcohol, whereas 9(18%) did not consider that alcohol abuse was the cause of violent crime in the study area. From this it can be concluded that alcohol caused many economic crises because the addicted involve in criminal acts such as stealing, committing suicide, become economically dependent on others etc.

Table 15: Money expenditure for alcohol

Item	Response	Frequency	%
How Much money do you spend	Less than 200 birr	3	6
	200-300 birr	10	20
	301-400 birr	15	30
	Greater than 400 birr	22	44

for alcohol monthly?	**Total**	**50**	**100**

Source: Own survey April, 2019

Table 15 above shows that, among the respondents, 22(44%) spent above 400 birr per month, 15(30%) spent 301-400 birr per month, 10(20%) of the respondents spent 200-300 birr per month, and the remaining 3(6%) of the them spent less than 200 birr per a month for alcohol consumption. From this, it can be concluded that the youths were economically harmed due to alcohol abuse because they were spending much money to buy alcohol beverages that hindered them from fulfilling their other basic needs.

Table 16: Youths' Source of money for alcohol

Item	Response	Frequency	Percentage
What is your source of money to use alcohol?	Family	22	44
	Work	18	36
	By cheating	10	20
	Total	50	100

Source: Survey April, 2019

As indicated in table 16 above, majority (44%) of the respondents were getting money from their family, 18 (36%) said they got money by doing different jobs, 10(20%) of the respondents got money by cheating. Therefore, majority of the respondents got money from their family which will negatively affect the economy of the individuals, their family as well as the public in general.

Generally, from the above analysis on the social and economic consequence of alcohol abuse on youths, it can be concluded that alcohol abuse had negatively affected social life of youths, and their economy in the study area.

3.4. The Data Obtained from Key Informants and In-depth Interviews

The data which were generated from key informants through interview showed that, the main causes of youth alcohol abuse were peer pressure, family alcohol abuse experience and socio-economic factors.

According to the key informants, peer pressure was the main cause that leads the youth to alcohol abuse, as most of the time the youths spent their time with their friends and adopted alcohol abuse from them. Some of the youth drink alcohol when they got depressed and particularly the students were abused by alcohol for refreshment and recreation after they finished exam. So, their friends followed them and adopt taking alcohol all time.

The key informants also expressed that family was another main cause of youth alcohol abuse, as some youths who abused by alcohol adopted alcohol abuse from their parents, brothers,

sisters and other closed family members and relatives. Because parents are the primary agents of socialization, some children consider their parents as their role models and followed in their footsteps, including taking alcohol. Environment was also another cause that leads to alcohol abuse according to the key informants. They said that in some places, there was more availability of alcohol and the availability of alcohols had led the youth to alcohol abuse. In some community drinking alcohol is seen as a tradition or normal exercise, they added. According to the key informants, teachers and medical doctors use alcohols such as beer, Tej, Tella, Areqie and others. Therefore, youths considering th teachers and the doctors as role models, and adopt alcohol abuse from them. Subsequently, students achieve low academic performance or fall exams due to alcohol abuse,

The key informants suggested that one way to reduce the rate of youth alcohol abuse is through awareness creation about the causes and consequences of youth alcohol abuse. They also suggested establishing recreation areas, sport clubs in the town. In addition, they recommended that as majority of alcohol abused youth were unemployed, make job opportunity available for the youths by facilitating loan schemes for the youth to start small businesses to support themselves and their family. As productive force of the community, that is, the youth are exposed to different behavioral, safety and socio-economic problems. taking care of youths is very important and burning issue, the key informants suggested. The key informants also indicated that, alcohol abuse has serious influence on the life and wellbeing of the youth. Alcohol abused youths are expose to anti-social behavior and have negative social relationship with their family members and the community at large.

According to the interview conducted with alcohol addicted youths, the main cause of alcohol abuse was loss of parents in their early age. These youths were abused by alcohol because of lack of emotional and financial support from their family which subsequently force them to spend most of their time on street.

Another main cause, according to the youths, to be abused by alcohol was gradual expansion of alcohol factories. In addition, the social and mass media influence, with alcohol promotion and sponsorship. The youths faced challenges due their alcohol use, such as mental illness, anxiety, and depression. Some youths even cannot think or do their job properly unless they take alcohol.

The youths interviewed also indicated that there is always great probability for alcohol abused youths to become highly exposed to serious diseases such as cancer and HIV/AIDS, as such youths are highly vulnerable to sexual abuse and rape, and some even commit suicide.

3.5. Discussion and Major Findings

According to Marquis (2009), youth alcoholism is increasing yearly for a number of reasons including availability of alcohol production, peer pressure, role of television promotion and advertisement. The findings of the research coincided with these factors. According to John Stones (2002), family has been described as the single most dominant childhood factor shaping

latter adaption. The influences of family and environment on youth are fundamentally important, but complex factors about the quality and consistency of family management, family communication, family relationship and role modeling have been consistently identified as predicative of alcohol abuse. Family factors include ineffective parental family management techniques, such as lack of discipline. The findings of the study supports this.

Alcohol abuse, which is an inherent problem of developing countries like Ethiopia, has a big influence on the health of individuals. The major factor behind the youth alcohol abuse is predominantly the peer group influence in school or in the local community. This was supported by 36 (72%) of the respondents who indicated that peer pressure was a primary cause for youth to involve in alcohol abuse practices. The study also indicated that alcohol abuse also depended on the individual's sex and age.

According to the findings of the study, male whose age was between 18-22 were dominantly alcohol abused. The findings of the study was similar with genetic theory, which indicates male dominance in alcohol abuse. To this end, the findings of study showed that 43 (86%) of the respondents were male alcohol users and 20 (40%) of those aged between 18-22 were more alcohol abused youths.

The study showed that marital status and the occupation of an individual were determinant factors for alcohol abuse. This means unemployed persons had high probability to be abused by alcohol rather than others. This was supported by 27 (54%) of the respondents who were single and 15 (30%) of the respondent who were unemployed. The findings of the study showed that 13 (26%) of the alcohol abused youths were illiterate, which proved that the more educated the person the less to become alcohol abused. The findings of the study also revealed that the expansion of alcohol factories and availability alcohol in every corner of the study area was the cause for youth alcohol abuse. Because 33 (66%) of respondents who were abused by alcohol said they were influenced by expansion of alcohol producing factories and the rest of the causes were family factors and media influence. Drinking local beverages such as Tella, Tej, Areqie and etc., was the other factor for youth to abused by alcohol.

According to the findings of the research, socio economic consequence was another major consequence of alcohol abuse as reported by 31 (62%) of the respondents who responded that alcohol abused youths encountered mental depression and helplessness. The key informants interview revealed that, in order to reduce the rate of alcohol addiction, family should take care of the youths and children and NGOs and government should formulate strong rules and regulations that help to minimize the severity of the problems related with alcohol addiction because youths are the main productive agents of the country's development.

4. Conclusions and Recommendations

4.1. Conclusions

The objective of this study was to identify the causes and consequences of youth alcohol abuse in Ambo town particularly in 01 Kebele. Youth is the transitional stage where physical and psychological changes actually take place. Combining these transitional stages and intake of alcohol can have a number of consequences for youth. Youth alcohol abuse is not an acceptable rite of passage but serious threat to youth's development and health. The causes of youth alcohol abuse are peer group influence, family factor, socio economic status of youths and macro environment factors. Behavioral consequence, safety consequence, socio economic consequences and other accidents and death were the common consequence according to this study. And the study indicated that unmarried and unemployed persons were more involved in alcohol abuse.

The availability of traditional and modern alcohols were simply the causes for youths to adopt abusive alcoholic behavior. The traditional kind of alcohol were such as Tella, Tej, Areqie and the modern ones were Dashen, Meta, Saint George, Waliya, Habesha beer, etc. which are produced by breweries. The findings of the research indicated that males were dominantly abused by alcohol more than females, due to the patriarchal system of domination. The main factors that caused the youth abuse of alcohol were peer pressure, family and socio-economic factor.

Generally, from the findings of the study we can conclude that the majority of alcohol abused youths were abused because of peer pressure, family alcohol use experience and socio-economic factors. The most type of alcohols used by the youth were both the traditional and modern, traditional drinks such as Tella, Tej, Areqie and the modern ones such as beers

Youths use these alcohols to gain mental strength, to celebrate occasion and pleasure, to get relief from anxiety, depression, loneliness, and following bad role models. The alcohol addicted youth faced not only health problems but also, they were neglected by the society from different occasions of social life considering them as if they are deviant from the norms and values of the society. Additionally, youth alcohol abuse has wide spread economic consequence as alcohol and beverages are costly and if ones are abused and use them daily it will throw youths in the absolute poverty. And even youths will be unable to afford for their basic needs.

The youth's alcohol using habit has its consequence on their social relationship because these youths are most of the time unfavorable and aggressive in their relationship with others. And alcohol using habit also has its own negative consequence on their economy because those youths buy alcohol by wasting their money which leads them to become poor f.

4.2. Recommendations

The following recommendations are forwarded based on the findings of the study:

- In order to reduce youth's alcohol abuse, families should socialize with their children properly and educate them about the bad consequence of alcohol abuse.
- Youths should select good friends who are free from alcohol addiction in order to be reserved from alcohol.
- The community and schools should establish and incorporate youths and children's in anti-alcohol club.
- The consequences of youth alcohol abuse is very complicated with far-reaching tendencies, to the extent of destroying the generation; hence, Ambo Town Administration and other concerned bodies shall work hand in hand to control and eliminate the possible alcohol suffering of youths around the potential area.
- Frequent training, awareness creation sessions, workshops and meeting are most important to update the knowledge, attitude and practices of youths regarding alcohol abuse; hence, it is highly recommended to regularly and frequently create such opportunities for the target youth.
- Local government should create job opportunities for youths to reduce alcohol abuse rate and prevalence in the town and rural areas, The concerned government body should increase job opportunity and minimize the increasing rate of alcohol addiction, poverty and HIV/AIDS in the community.
- Finally, the researchers would like to recommend that this study will be a baseline for those who want to further study on the issue.

References

Abodinsky H, (2004), Epidemiology of Alcohol and Other Drugs among American Youths.
Abriham Zegeye (2011). Family and Peer Influences on the Development of Alcohol Use in Adolescent.
Alemu G, (2017). Assessment of Cause of youth alcohol use in Ethiopia.
Anteneh and Mesfin A, (2007). Mental Factor Youth Alcohol Use.
Ashtan and Elizabeth, (2008). Drinking Practices in Ethiopia and Related Factors.
Bolassa Al Homer, (2009). Alcohol Use and Popularity Social Payoff from Conforming to Peer Behavioral Reaction.
Bonnie and O'Connell, (2008). Social and Emotional Consequence of Alcohol Drinking.
Catalano, (2011). Individual Risk Factor of Alcohol Use.
Chfetz . M.E. (1999). Alcohol and Alcoholism. Oxford University Press, New York, USA.
Dave, Dhaval (2012). Illicit Drug Use among Arrestees and Drug Press Price, National Research Bureau of Economic Working Paper.
David and Grand, (2007). Cultural and Economic Factor Alcohol Use.
Dodgen Shea, (2001). Social Learning Theory of Youth Alcohol Use.
Ethiopian Ministry of Health. Report, (2003).
Fekadu, (2007). Youth Alcohol Use in Ethiopia Past, Present, and Future.
Ferrence, R.G. (1998). Sex Difference in the Prevalence of Problem Drinking, New York, USA.

Gertein R.Dean, (2008). Alcohol Use and Consequence, Alcohol Public Policy Press, New York, USA.

Getnet and Melesse, (2008). Research on Reasons for Drinking Alcohol.

Gezahen and Mitiku, (2014), Expansion of Factory Drink in Ethiopia Country.

Gurbe, (2004). Alcohol in the Media.

Higson and Kenkel, (2009). Social and Emotional Consequence of Alcohol Drinking.

John Stones, (2002). Alcohol Advertising and Promotion.

Kebede, (2002). Alcohol Uuse among Youth in Ethiopia.

Marquis', (2009) Alcohol Abuse and Dependence Symptoms in Adolescent Drinkers.

Pandania, (2005)., Causal Factors in the Drinking Alcohol.

Rahel, (2009). Psychological Explanation of Alcohol Use.

Shale and Gashaw, (1991). Traditional or Locally Produced Alcohol in Ethiopia.

Sisay, (2011), Research on Socio-economic Factor and Macro Environmental Factor of Drug Abuse, Adigrat University.

WHO (2010). Global Status Report on Youth Alcohol Uses.

Yamane, T. (1967). "Statistics: An Introductory Analysis". 2nd Ed. New York. Harper and Row press.

Challenges and Prospects of Transforming GAAP to IFRS:A Case of Addis Ababa Bottle and Glass Share Company, Prince Dereje, Abdulaziz Hyder and Michael Yetinayet St. Mary University

Abstract

This paper was presented to show the whole aspect of a research conducted on the subject of the Challenges and Prospects of Transforming GAAP to IFRS in Addis Ababa Bottle and Glass Share Company. The research was conducted to identify the internal and external challenges of implementing IFRS in the company; besides the prospective possibilities of the transformation process of GAAP to IFRS in terms of success of implementation and the resulting reporting quality. The research followed the qualitative research method known as case study, taking the employees of AABGSC, AABE and Ministry of Revenue as its population in order to identify the internal and external challenges of implementing IFRS by taking primary data with questionnaires and interviews. In addition, secondary data from AABGSC's AABE registration document and AABE's follow-up checklist were used to reach at proper conclusions. The results were analyzed using content analysis incorporated with descriptive approaches. Through this analysis, the internal challenges identified were; perceptions of finance department's director towards the applicability of the standards, inadequacy of trained personnel, lack of awareness on the need of implementation, lack of management commitment, unachievable deadlines because of late registration, lack of pressure from internal auditors and failure to hire consultants and evaluation experts. Whereas, the external challenges were lack of follow up by AABE, rejection of IFRS based statements by ERCA for tax purposes, incorrect information from external auditors about the deadlines, lack of market information, lack of support from experienced bodies, insufficiency of trainings and lack of implementation manual. The current reporting quality of the case company showed that there existed a good prospective possibility of applying standards with a result of a good reporting quality. The competence of the employees and their motivation to enhance their knowledge of IFRS showed that there was a good possibility of a successful application of IFRS standards by its own employees.

Keywords: implementation, challenges, prospects, reporting quality

1. Introduction

1.1. Background of the Study

Financial reports are the backbones of commerce and investment in the sense that they are the major inputs for the decision-making process of all the parties surrounding a certain business. The main concerns of those decision-making groups are understandability and comparability of the reports. Comparability is an issue specially faced by investors and financers that are engaged in businesses of different countries. A nation may choose a certain set of accounting standards to be followed by its companies while other nations prefer different standards.

GAAP and IFRS represent two of the fundamental grounds for accounting standards used by different countries in the world. Although each country has its own version of GAAP, each GAAP has substantial similarity with the other. Since 2002, FASB, which has primarily maintained and developed by the United States, GAAP and IASB, which prepared the whole literature of the body of IFRS, have been working toward convergence since 2002. Although this process would have its own implications to the future of accounting and financial reporting, the main point of focus for this research was linked to the issues of converting GAAP to IFRS.

Pocket IFRS (2017) defines IFRS as "*the IASB's full set of requirements is called IFRSs or (the IFRS standards in the IASB's communications), and comprises the IASs, SICs, IFRSs and IFRICs adopted or issued by the IASB. All of these individual requirements have equal authority."*

The distinction between IFRS and GAAP is hard to identify, but their variations have a huge role in evaluating a company's financial health. This includes effects in the company's internal matters, such as tax base in addition to cross-border investment activity such as investor misinformation and cross-border transactions. GAAP is more 'rule based' and gives more rigorous detailed guidance while IFRS provides more principle-based standards with limited application guidance. Although applying it to non-profit entities is not forbidden, IFRS is designed for use by profit-oriented entities, while GAAP is designed for use by both profit-oriented and not-for profit entities, with additional codification topics that apply specifically to not-for profit entities (KPMG, 2017).

There are also differences between the two reporting grounds regarding assessment of going concern; consolidated financial statement preparation; comparative information of different periods; classifications of separate components of a single transaction; fair value measurement; matters of consolidation; presentation and classification requirements of financial position and statement of profit or loss; valuation of property, plant and equipment; capitalization of some intangible assets; lease accounting; inventory measurement and cost determination methods; revenue recognition; employee benefits; and so on.

In Africa, the momentum of IFRS implementation appears to be very slower than other countries of the globe. Sedzani (2012) pointed out that one of the biggest challenges in the process of using IFRS in some countries of Africa is the lack of permission from their governments and other local governance structures, meaning, they are prohibited by law to use IFRS. On the other hand, a major portion of the continent's nations can't provide any information on their accounting structure, which made the researcher assume that the countries probably lack a formal accounting system in place. According to Efobi, UR. (2013), there are 34 countries in Africa that have adopted and publicly announced the adoption of IFRS, and this list include Ethiopia.

The Ethiopian government has been showing a huge drive for openness to foreign investment. This is why financial reporting standards of the country have to be headed towards achieving global uniformity. *"IFRS provides international investors with a brand of trust in the quality*

of financial reporting."(AABE, 2015). The accounting system makes the reporting process simple and provides guide as to what to include and not to include in the financial statement. More than 100 countries have implemented IFRS and in time all countries are expected to (Addis Chamber, 2016).In addition, according to the AABE's strategic plan, IFRS implementation will have a big role in the country's growth potential by increasing stability, stewardship, accountability and transparency both at institutional and government level; elevates the general educational level of accountants; and contributes to the improvement of good governance by reducing corruption.

The road map of IFRS adoption presented by AABE (2015) classifies the total institutions in the country into three divisions, and it has assigned them different types of reporting grounds and scheduled adoption dates. According to this classification, small and very small enterprises are expected to present their financial statements using simple accounting system essentially linked to tax reporting. The second group includes medium sized and large privately held companies and issuers on alternative markets, and it states that they are expected to use simplified IFRS. Finally, companies listed on regulated markets and financial institutions are expected to report using IFRS.

This conversion has been given a regulatory framework under the Financial Reporting Proclamation No.847/2014, Council of Ministers regulation 332/2014 and other directives issued by AABE. The IFRS implementation road map of AABE explains that the purpose of these standards is to maintain transparency. It has also identified the scope of IFRS conversion to touch almost every aspect of the company. In addition, it states that implementation of ISAs has to be immediate and no road map is needed. This research identified the challenges and prospects of conversion of GAAP to IFRS in the case company, Addis Ababa Bottle and Glass Share Company.

1.2. Background of the Organization

Addis Ababa Bottle and Glass Share Company was established in 1965 E.C. with the ownership of the government (primarily under the 'alcohol and beverage' category in 1967 E.C. and later under the Cement Corporation). After the Military Government of the country was put to an end in 1983 E.C., the company was made under the Privatization and Public Enterprises Supervising Agency and was made to possess a designated board of directors. Since 2002 E.C., the company became part of the Bazeto Industrial and Training P.l.c. It got its current name, Addis Ababa Bottle and Glass S.C., in the year 2004 E.C. along with its re-establishment according to the Ethiopian Commercial Code. As of July, 2007 E.C., a conglomerate of Ethiopian and Chinese investors are managing the company.

The nature of the products intended to be produced in the company during its establishment could be described as a glass descended. These products included bottles to be used in beverage companies and household equipment like tumblers. In the last decades, the tumbler machineries got old and stopped production. Formerly, the furnace of the bottle producing machine had a capacity of producing 30 tons of glass per day and was with a limited life (rebuilding was

required at the end of each production batch). But after recent design changes, the furnace capacity has been upgraded to 33 tons per day.

The equipment and resources of a single production line of the company had an ideal capacity of producing 30 tons of glass bottled per day meaning 10,230 ton in a year. Nevertheless, frequent power interruption and other obstacles had limited the annual production to about 6,598 tons, while the target was 9,795 tons. The company's supply was not able to cover the demand it is expected to. That is why the company ran an expansion project that includes an installation of new machineries and equipment in the premises of its existing factory.

The employees in the company were 1,212. Of these employees, two hundred sixty six were permanent male employees; one hundred and thirty eight were permanent female employees (this makes the sum of the permanent employees in the company 404); the remaining eight hundred eight employees were composed of 107 administrative employees, 3 marketing and sale employees, 232 production overhead employees and 62 direct laborers.

1.3. Statement of the Problem

One of the literatures on IFRS implementation in Ethiopia is the presentation of Dawit (2017) which notes that, *"There should be no doubt that conversion to IFRS is a huge task and a big challenge"*. It listed six practical challenges of IFRS. They were: potential knowledge shortfall, accounting education and training, limited training resources, tax system effect, legal system effect, and enforcement and compliance mechanism. The IFRS implementation, as a project, was expected to pass through challenges such as inadequate skills for the project, lack of accountability, improper risk management, impossible deadlines, resource deprivation, and lack of stakeholder engagement which were presented as challenges of project management by Villanova University (2011) and Gaurav (2016).

The IFRS foundation is responsible for developing a single set of high-quality accounting standards (IFRS foundation). However, if problems such as, lack of proper curriculum as well as text books that prepare graduates well for enhanced financial reporting requirements; lack of domestic institution which monitors and enforces continuous professional development; lack of appreciation on the role of quality of financial reporting by the business community, which were mentioned in ROSC (2007) still exist during the implementation of IFRS, the intended quality of financial reporting will be undermined. In addition, Love day (2017, Nigeria) concluded that there was significantly a strong positive relationship between the auditing quality and financial reporting quality measured by reliability. However, AABE (2015) mentioned that audit firms in Ethiopia have low technical capacity and other resources. This research addressed the current reporting quality of AABGSC, on the ground of IFRS standards. As researchers with Accounting and Finance background, the researchers of this study were motivated to understand the emphasis given by Ethiopia to standardize the accounting practice, its challenges and planned solutions (prospects). The involvement of foreigners in the company made the researchers of this study value the overseas attractiveness of the company's business and the need for comparable financial statements. In addition, although there are a limited

number of empirical literatures on the area, none of them gave special attention to the manufacturing companies of Ethiopia, particularly AABGSC. This research, to some extent, fills the gap of knowledge regarding practical aspects of IFRS implementation.

1.4. Research Questions

To achieve its general and specific objectives this research raised the following questions:

1. What are the hardships faced in the process of implementing IFRS in AABGSC?
2. What external challenges are encountered in the process of IFRS implementation in AABGSC?
3. What are the measures planned to clear the obstacles of properly using IFRS in AABGSC?
4. How can the current reporting quality of AABGSC be described?

1.5. Objectives of the Study

1.5.1. General Objective

The General Objective of this research was to identify the challenges and prospects regarding transformations of GAAP to IFRS in Addis Ababa Bottle and Glass Share Company.

1.5.2. Specific Objectives

This research was designed to achieve the following specific objectives:

- Identifying the internal challenges faced during the IFRS implementation process of Addis Ababa Bottle and Glass Share Company.
- Identifying the external challenges of implementing IFRS in AABGSC.
- Understanding the current financial reporting quality of the company.
- Understanding the prospective possibilities of successful IFRS implementation in AABGSC by its own employees

1.6. Significance of the Study

This research is very important for the management, investors and other stakeholders of AABGSC, because it facilitates the challenge identification process of this very important standard transformation. It is also useful for other similar companies since it would suggest measures to make the standard transformation process smooth.

In a broader sense, it supports the country's goal of achieving a uniform accounting standard system, and foreign investor demands of comparable financial reports by serving as a reference material for all of those in need as well. The main point that magnifies this importance is the limited number of researches done in the area. It will also serve as an empirical evidence for further researches on the area. Most importantly, the process of this research would equip us (the researchers) with the important skills to carry out a complete research and a good understanding on the area of IFRS implementation in Ethiopia which will build up our future career.

1.7. Scope of the Study

The scope of the study includes AABGSC, and order to identify external challenges, it has been extended to include AABE and Ministry of Revenue of Ethiopia.

2. Research Design and Methodology

2.1 Research Design

This research employed a qualitative research method, particularly case study. According to Anol (2012), case study (case research) is a way of studying a situation in depth through time within its natural settings. Some of the unique strengths of this research method according to Anol (2012) are that it can be used for theory building; it can help derive richer, more contextualized and more authentic interpretation of the incident of interest; it also helps to study the phenomenon of interest from the perspectives of multiple participants.

2.2. Population and Sampling Technique

2.2.1 Population

According to Anol (2012), a population can be defined as all people or items (unit of analysis) with the characteristics one wishes to study. The population of this research were the employees of Addis Ababa Bottle and Glass Share Company, the employees of AABE and the Employees of Ministry of Revenue.

2.2.2. Sampling Technique

The sampling method used while conducting this research was purposive sampling. This method helps researchers to pick out samples in relation to criterion which are believed to be significant for the specific research (Prabhat and Meenu, 2015). According to our informant in the company, the departments in AABGSC that had more exposure to the process of the conversion of GAAP to IFRS were the Finance and Commerce Department, the Internal Audit Department and the Training Department, and Property Handling Department and we made our sampling frame. Although what the researchers planned was to distribute 15 questionnaires, 7 employees from Finance and Commerce Department, 2 employees from the Internal Audit Department1 1 employee from Human Resource Department and 4 employees from Property Handling Department (a total of 14 employees) filled out and returned the questionnaires. In order to strengthen the data input, we also conducted interviews with the Director of Accounting and Finance Department, 1 employee from the Ministry of Revenue and 1 AABE employee.

2.3 Data Type and Sources

We used both primary and secondary data sources for analysis. Primary data were collected though questionnaires and interviews. Prabhat & Meenu (2015) quoted Barr, Davis &Johnson who defined questionnaires as "…*a systematic compilation of questions that are submitted to a sampling of population from which information is desired*.", and quoted Vivien Palmar to

define that interview "…*constitutes a social situation between two persons, the psychological process involved requiring both individuals mutually respond through the social research purpose of the interview call for a varied response from the two parties concerned*."

Our secondary data sources were: published and unpublished data sources like books, study works, works of other researchers on areas of IFRS implementation, journals and articles. Secondary data, according Anol (2012), include industry reports and internal documents such as demographics of the executive teams (responsible for strategic decisions), financial performance of firms, publicly available third-party data, data collected by other researchers and government statistics (generally data that as previously been collected and tabulated by other sources). In addition, Prabhat & Meenu (2015) quote Kerlinger to define secondary data sources as "… *an account or record of an historical event or circumstance one or more steps removed from an original history*."

2.4. Methods of Data Collection

2.4.1 Methods of Primary Data Collection

The primary data were collected using questionnaires and interviews. 14 employees (7 from Accounting and Finance Department, 2 From Internal Audit Department, 1 from Human Resource Department and 4 from Property Handling Department) filled out and returned the questionnaires. On the other hand, supplementary data were collected through semi-structured interviews with the director of the company's Accounting and Finance Department, 1 Employee from AABE and 1 Employee from Ministry of Revenue. This makes the total number of those who provided us the Primary Data 17. In addition, the researchers used observation to enhance the data of the research.

2.4.2 Methods of Secondary Data Collection

The AABE registration documents in Addis Ababa Bottle and Glass Share Company, AABE list of registered, other Public Interest Entities, Government Proclamations and AABE's progress checklist were used as secondary data sources. In addition, we used the published and unpublished articles prepared by the stakeholders of the GAAP to IFRS conversion process in Ethiopia, and reviewed books written about IFRS, and the works of other researchers who did detail studies on related topics.

2.5 Data Analysis Methods

For a qualitative method, we used the technique of Content Analysis to discover and describe the meanings of the acquired data. According to Anol (2012); "*Content analysis is the systematic analysis of the content of a text (e.g. who says what, to whom, why, and to what extent and with what effect) in a quantitative and qualitative manner*." It is also defined as "*an approach to quantify qualitative information by systematically sorting and comparing items of information in order to summarize them*" by USGAO (2013). To quantify the contents of the

some of the data collected using questionnaires, we used descriptive approaches of mean and standard deviation. This was just to give more meaning to the data.

2.6 Limitation of the Study

Although it has been clearly stated that financial statements should only prepared using International Financial Reporting Standards in Proclamation 847/2014 of the Federal Democratic Republic of Ethiopia, there were no much practical experiences with regard to the implementation of the standards. For this reason, the biggest limitation of this research was lack of adequate information. The other limitation of this research was time insufficiency especially for the last two chapters, because of the need to fulfill other academic requirements.

3. Data Analysis and Interpretation

This chapter presents the analysis of the data gathered using interviews and questionnaires, which were quantified using the data analysis techniques that were believed to be necessary by the researchers. It also contains the explanation of the results of the primary data. The sampling techniques used was expert sampling method in order to increase the quality of the response from the interviewees and the responders. In order to collect the data, 15 questionnaires were distributed to the selected departments and 14 (93.33%) were completely filled out and given back to the researchers. All the data obtained thrugh the questionnaires were quantified by computing their frequency and percentage. For those questionnaire items presented using Likert Scale, the data presentation included mean and standard deviations. In the end, a detailed analysis was done to show the connotation of the main results.

3.1. Background of Respondents (Questionnaire)

Table 1: Respondents' Information

No.	Category	Description	Frequency	%
i.	Educational Background	Bachelor's Degree	12	85.714%
		Master's Degree	2	14.286%
		Total	**14**	**100%**
ii.	Work Experience	0-10 years	8	57.143%
		11-20 years	5	35.714%
		21-30 years	1	7.142%
		Total	**14**	**100%**
iii.	Field of Study	Accounting and Finance	12	85.714%
		Management	2	14.286%
		Total	**14**	**100%**

iv.	Have you taken IFRS training/education?	Yes	3	21.249%
		No	11	78.571%
		Total	**14**	**100%**
v.	If you choose 'Yes' for the above question, which IFRS training/education have you taken?	Implementation training	3	100%
		Total	**3**	**100%**
vi.	For how many years have you been an employee of AABGSC?	0-10 years	10	71.429%
		11-20 years	4	28.571%
		Total	**14**	**100%**

Source: Primary Data, 2019

Table 1 shows the qualifications and relationships of the respondents with IFRS. With regard to educational background, majority (85.714%) of the respondents had Bachelor's Degree followed by those with Master's Degree (14.286%). This shows that although there was an unbalanced percentage of the educational background, since most of them were Bachelor's Degree holders, the researchers considered that the respondents were qualified and were able to respond to the provided questions.

With regard to work experience, majority (57.143%) of the employees had 0-10 years of work experience, followed by those with work experience of 11-20 years (35.714%), and 21-30 years (7.142%). The researchers assume that the dominance of those employees with 0-10 years of work experience shows that the company's Accounting and Finance and the Internal Audit departments were constituted by a relatively fresh manpower who could be trained and which can make improvements with regard to IFRS implementation.

With regard to field of study, the greater percentage of the respondents were in the field of Accounting and Finance (85.714%), and the field of study of the remaining respondents (14.286%) was Management. This shows that he employees of AABGSC were the most qualified with regard to implementation of IFRS standards in the company.

Only 21.249% of the respondents took IFRS training/education, of which all (100%) said they took implementation training. Although the percentage of respondents who did not take the IFRS trainings was high, as almost all of the questionnaire items did not include opinions which require knowledge about the IFRS standards, this trait wouldn't affect the quality of the responses to a significant extent. But it should be noted that the number of IFRS trained employees in the company was very few.

Regarding length of employment in ABGSC, majority (71.429%) of the respondents said theyserved as employees of AABGSC for a range of 0-10 years, and the remaining (28.571%)

were employed at the company for a range of 10-20 years. Although this shows a dominance of respondents which did not work in the company for a long period of time, with the support of the data from the second personal question (about work experience), there were respondents which had worked in other companies and had ample experiences about the accounting and reporting quality of their former companies.

3.2. Findings Regarding Internal Challenges of Implementing IFRS

Table 2: Internal Challenges in Implementing IFRS

No.	Item	Response	F	P	M	S.D.
1	Implementing IFRS is essential to our company.	Strongly Agree	8	57.142%	1.571	0.756
		Agree	4	28.571%		
		No Comment	2	14.286%		
		Total	**14**	**100%**		
2	The company's operational and business environment makes it challenging to successfully implement IFRS.	Agree	1	7.143%	3.642	0.842
		No Comment	5	35.714%		
		Disagree	6	42.857%		
		Strongly Disagree	2	14.286%		
		Total	**14**	**100%**		
3	The IFRS trainings and implementation experiences are helpful to properly implement the standards.	Agree	3	21.429%	3.0	0.679
		No Comment	8	57.142%		
		Disagree	3	21.429%		
		Total	**14**	**100%**		
4	The company has enough number of personnel that have a good knowledge of Accounting and Finance.	Strongly Agree	9	64.286%	1.5	0.855
		Agree	4	28.571%		
		Disagree	1	7.143%		
		Total	**14**	**100%**		
5	There is awareness about the reason behind implementation of	Agree	3	21.429%	3.643	1.082
		No Comment	2	14.286%		
		Disagree	6	42.857%		

	IFRS in Accounting and Finance/Audit Department.	Strongly Disagree	3	21.429%		
		Total	**14**	**100%**		
6	The management is committed to make sure that IFRS is successfully implemented in the company.	No Comment	3	21.429%	4.21	0.802
		Disagree	5	35.714%		
		Strongly Disagree	6	42.857%		
		Total	**14**	**100%**		
7	The deadlines given to implement IFRS are hard to achieve.	Strongly Agree	2	14.286%	2.357	0.829
		Agree	7	50%		
		No Comment	4	28.571%		
		Disagree	1	7.143%		
		Total	**14**	**100%**		
8	The company has accounting software capable of applying IFRS.	Strongly Agree	2	14.286%	2.786	1.122
		Agree	4	28.571%		
		No Comment	3	21.429%		
		Disagree	5	35.714%		
		Total	**14**	**100%**		
9	The Internal Audit Department of the company has been committed to facilitate IFRS implementation of the company.	Agree	4	42.857%	3.071	0.828
		No Comment	5	35.714%		
		Disagree	5	21.429%		
		Total	**14**	**100%**		
10	The company has either part-timeor fulltime employees that work on valuation of the assets to find fair value.	Agree	2	14%	3.5	0.760
		No Comment	3	21%		
		Disagree	9	64%		
		Total	**14**	**100%**		
11	Has the company refrained from implementing IFRS	Yes	5	36%		
		No	9	64%		
		Total	**14**	**100%**		

	because of its high cost?					
12	Does the company's management regularly review the IFRS implementation progress?	Yes	2	14%		
		No	12	86%		
		Total	**14**	**100%**		
13	If your answer is 'Yes' to question number 12, what is its feedback to the current status of the adaption?	Excellent	1	50%		
		Good, But not enough	1	50%		
		Total	**2**	**100%**		
14	The company has IFRS implementation Consultant.	Agree	1	7.143%	3.214	0.802
		No Comment	11	78.571%		
		Strongly Disagree	2	78.571%		
		Total	**14**	**100%**		

Source: Primary data, 2019

Table 2 shows the Frequency (F), Percentage (P), Arithmetic Mean (M) and Standard Deviation (S.D.) of the responses of the questionnaire respondents for questions and statements regarding internal challenges of implementing IFRS in AABGSC.

N.B. for the purpose of calculating the mean, the researchers labeled the five point Likert Scales as: Strongly Agree=1, Agree=2, No Comment=3, Disagree=4, strongly Disagree=5 and the formula for Arithmetic Mean and Standard Deviation is given below.

Arithmetic Mean (M) $=\sum_{i=1}^{n}\frac{FiDi}{n}$ *Standard Deviation (S.D.)*$=\sqrt{\sum_{i=1}^{n}\frac{Fi(Di-M)^2}{n-1}}$

Based on the calculation using the above formulae, Arithmetic the Mean results 0<M<3 were interpreted as a dominance of agreement in the responses, Arithmetic Mean results M=3 were interpreted as a dominance of neutrality in the responses and Arithmetic Mean results 3<M<5 were interpreted as a dominance of disagreement in the responses. In this respect, the analysis and interpretations of the findings presented in table 3.2 are given as follows:

- There was a dominance of agreement in the responses of the 1st Item (Implementing IFRS is essential to our company: M=1.571 and S.D. =0.756), with the most frequent responses being 'Strongly Agree' (57.142%), which shows that the company's employees that were responsible for the IFRS implementation understood the benefit of implementing the

standards and supported the change, and thus there was low employee resistance to change in AABGSC with respect to IFRS implementation.

- The 2nd Item (The company's operational and business environment makes it challenging to successfully implement IFRS: M=3.642; SD=0.842, Most Frequent Response=Disagree (42.857%)) received responses dominated by disagreement. On the contrary, the information the researchers obtained through interview with the Director of the Company's Accounting and Finance Department suggested that, although the IFRS implementation trainings were given to some personnel in the company, there was an understanding that the standards were not fully applicable. Although there was a conflict between the results obtained through interview and questionnaire, it was understood from observation that the employees followed orders from the Director of Accounting and Finance Department and the Director had a huge influence on the employees. Thus, the researchers took the negative perception of the director towards IFRS implementation as a challenge. (*Addressed by Aytenew (2018) as week corporate governance*).
- Item No. 3 (The IFRS trainings and implementation experiences are helpful to properly implement the standards M=3.0 and S.D.=0.679, Most Frequent Response= No Comment (57.142%) was responded with the highest degree of neutrality. From this, the researchers concluded that there were few employees who were well experienced and trained in IFRS implementation, and this had a negative influence on the implementation progress of the company.*(Addressed in the presentation of Dawit,2017 as Potential Knowledge Shortfall*) .
- Most of the respondents agreed to the 4th Item (The company has enough number of personnel that have a good knowledge of Accounting and Finance: M=1.5, S.D. 0.855, Most Frequent Response = Strongly Agree (64.286%). This shows that the company was equipped with the human resource that can handle IFRS implementation tasks. In the interview, the company's Director of Accounting and Finance Department also mentioned that the company had the necessary personnel who were capable to implement IFRS. The Director also mentioned that it was not too hard for the Company to implement the standards had the company been supported with an implementation manual that clearly shows what needs to be done to implement the standards and through all the necessary information and guidance from the external stakeholders on the implementation of IFRS implementation. Thus, the company did not face challenges with regard to competence of personnel.
- The dominant response for the 5th Item (There is awareness about the reason behind implementation of IFRS in Accounting and Finance/Audit department: M=3.643, S.D.=1.082, Most Frequent Answer= Disagree (42.857%) was a disagreement and shows that the selected departments had a little understanding about the reason why IFRS was needed to be implemented. According to the interview with the company's Director of Accounting and Finance Department, the company was not made aware about AABE's IFRS implementation orientation days; although the company was registered by AABE, and no one from the Board had ever communicated the company since the registration. Although the implementation mandate has been given through proclamation (Proc. No. 847/2014), the company was reluctant to contact AABE and understand the procedures of IFRS

implementation. Therefore, this reluctance of not following with the proclamation was a cause for the slow progress of IFRS implementation.

- The 6th Item (The management is committed to make sure that IFRS is successfully implemented in the company: M=4.21, S.D. =0.802, Most Frequent Answer= Strongly Disagree (42.857%) got a dominant response of disagreement. This shows that the company's management was not devoted to ensure the implementation of IFRS in AABGSC. In the interview with the company's Director of Accounting and Finance Department, the researchers understood that the company was communicating with its current firm of external auditors, which also gives IFRS consultancy services, to gain more IFRS trainings.
- There was a dominance of agreement to the 7th Item (The deadlines given to implement IFRS are hard to achieve. M= 2.357, S.D.= 0.829, and Most Frequent Answer= Agree (50%). This shows that there was a belief in the selected departments that the required reporting date was too close to be handled by the company's personnel. According to the interview made with the company's Director of Accounting and Finance Department, the company was provided with the information that it was required to present, that is, IFRS based financial statement after one year and not at the end of this year from external auditors. The interviewee from AABE informed us that, the time the company needed in implementing IFRS, to successfully adopt the standards using its own employees, was 36 months (three years). If it was late and could not make the necessary changes that IFRS requires, the minimum time that it needed to adopt the standards using its own employees was 24 months (two years). But with the assistance of consultants, the company had the capacity to prepare the IFRS based financial statements even within two months before the reporting date, since the consultants were experienced. In addition, from secondary data it was understood that the company was registered by AABE on 10/03/2011, which was 11 months before the month of Tikimt, which was the final reporting month. Based on these findings, the researchers determined that: the company was too late even to be registered by AABE, which convinced the employees to think that the deadline (11 months) for implementation was too hard to achieve, and this was also supported by the information from AABE which said the implementation needed 24 months.
- The external audit firms gave wrong information to the company, which slowed down the implementation progress. Thus, the researchers found out that late registration and wrong information from the external audit firms were the challenges for IFRS implementation in AABGSC. (*Addressed as time consuming by Willey (2018) and inadequacy of transition period by Aytenew (2018).*
- The most frequent response for the 8th Item (The company has accounting software capable of applying IFRS) is disagree (35.714%) the arithmetic mean (M=2.786, S.D. = 1.122) shows that there was a dominance of agreement within the responses. From this, the researchers realized that there was no IFRS implementation challenge in relation to the company's software. On the other hand, the interviewee from AABE informed us that one of the challenges of implementing IFRS was that the software used by the company's Finance Department might not be effective enough. For example, Peachtree Accounting Software might enable registration of all IFRS based accounts but could not perform the necessary

calculations for the new accounts added by IFRS. The interviewee also added that companies can use Peachtree along with Excel to perform the newly added calculations. Through the observation the researchers realized that the company was using Peachtree along with Excel, the accounting software capability was not a challenge with regard to IFRS implementation in the company.

- There was a dominance of disagreement in the responses for the 9th Item (The internal audit department of the company has been committed to facilitate IFRS implementation of the company. M= 3.071, S.D.= 0.828 and Most Frequent Response = No Comment & Disagree (35.174%). The findings showed that the company's internal auditors did not exert the required pressure to ensure the implementation of IFRS. Thus, the low involvement of internal auditors in the company was a challenge for implementing IFRS in the company.
- There was a dominance of disagreement in responding go the 10th Item (The company has either part-timers or fulltime employees that work on valuation of the assets to find fair value: M= 3.5, S.D.= 0.760, Most Frequent Response= Disagree (64%), which shows that there were no valuation experts employed in the company. Thus, since fair value measurements are one of the core changes included in IFRS, the absence of the employees with valuation expertise made the company to be unable to fully implement the standards internally, and to look for external assistance.
- The most frequent response for the 11th question (Has the company refrained from implementing IFRS because of its high cost?) was No (64%), which shows that high implementation cost was not a challenge with regard to implementation of IFRS in the company.
- The findings of the 12th question (Does the company's management regularly review the IFRS implementation progress?) supports the findings of the 6th statement. The most frequent response was No (86%), which was showed that there was little attention given by the company's management for IFRS implementation. According to interviewee with AABE, the major challenge regarding IFRS implementation in other Public Interest Entities comes from lack of management decision. The Finance Department might be willing and motivated to adapt IFRS, but the required commitment might not be lacked on part of the management, and this was the major challenge. Thus, the researchers concluded that low management commitment was the major obstacle in implementing IFRS in AABGSC. (*addressed by Aytenew (2018) Research, as week support from management)*
- The finding of the 13th Item (If your answer is 'Yes' to question number 12, what is its feedback to the current status of the adoption?) was redundant because the response 'Yes' for the 12th Item was ruled out by the researchers.
- Item No. 14 was responded with a dominance of disagreement (The company has IFRS implementation consultant: M= 3.214, S.D.=0.802, Most Frequent Response=No Comment (78.571%). This means, the company did not hire IFRS consultant. The failure of the company to hire a consultant was an obstacle to its implementation progress.

3.3. Findings regarding external challenges of IFRS implementation

Table 3:External Challenges in Implementing IFRS

No.	Category	Description	F	P
1	The company is registered by the Accounting and Audit Board of Ethiopia (AABE).	Yes	10	71.429%
		I don't know	4	28.571%
		Total	**14**	**100%**
2	AABE regularly reviews the IFRS implementation process in AABGSC.	No Comment	3	21.429%
		Disagree	6	42.857%
		Strongly Disagree	5	35.714%
		Total	**14**	**100%**
3	There is available and accessible market information that facilitates in determining asset fair value.	Agree	2	14.286%
		No Comment	7	50 %
		Disagree	4	28.571%
		Strongly Disagree	1	7.143%
		Total	**14**	**100%**
4	There are qualified and experienced external valuation experts that assess the fair values of the company's major assets.	Strongly Agree	2	14.286%
		Agree	4	28.571%
		No comment	4	28.571%
		Disagree	3	21.429%
		Strongly Disagree	1	7.143%
		Total	**14**	**100%**
5	The university/college I have been in gave me an excellent accounting knowledge that has strengthened my professional judgment.	Strongly Agree	5	35.714%
		Agree	8	57.143%
		Disagree	1	7.143%
		Total	**14**	**100%**
6	The accounting department gained support from well experienced professional accountancy bodies (such as external audit firms, certified accountants.) on how to apply IFRS.	Agree	1	7.143%
		No comment	6	42.857%
		Disagree	5	35.714%
		Strongly Disagree	2	14.286%
		Total	**14**	**100%**

Source: Primary data-2019.

- Most frequent response to the 1st Item (The company is registered by the Accounting and Audit Board of Ethiopia-(AABE) was 'Yes' (71.429%) which indicated that the company was an AABE member. In contrast, there was a dominance of disagreement in responses to the 2nd question (AABE regularly reviews the IFRS implementation process in AABGSC. M=4.143, S.D.=0.770 and Most Frequent Response =Disagree (42.857%) which shows that one of the external challenges of implementing IFRS in the company was lack of review by AABE regarding the application of IFRS standards in AABGSC. On the other hand, the interviewee with AABE showed that AABE had organized awareness creation events. The reasons given by the interviewee of ABBEE why AABE was not following up the other Public Interest Entities were:
  1. Shortage of manpower: since there were 890 Other Public Interest Entities currently registered by AABE and AABE employees have checked only on 300 of them; and
  2. The impact of a misleading financial report issued by Significant Public Interest Entities was very high, that was why they were committed to follow them up.

  But, because of the influence from the researchers, AABE reviewers went to the company and checked the progress of the company with regard to IFRS implementation.

  The only way proposed by AABE to make sure that the Other Public Interest Entities would implement IFRS was by making them incapable of paying tax to ERCA without AABE's approval. The Interviewee from Ethiopian Ministry of Revenue informed the researchers that IFRS-based financial statements are not acceptable for tax purposes mainly because of valuation. The fair value of assets has a growing trend thus Depreciation Expense, which is one of the tax deductibles keeps on increasing. This, in turn, lowers the tax revenue of the government.

  Thus, lack of early reviews from AABE, and rejection of IFRS reports for tax purposes were identified by the researchers to be external challenges. (*partly supported Firdawok, 2017).*
  - The 3rd Item (There is available and accessible market information that facilitates in determining asset fair value. M=3.286, S.D.= 1.109, Most Frequent Response= No Comment (50%)) was dominantly responded with a disagreement. On the other hand, the 4thItem, which was also related to fair value measurement (There are qualified and experienced external valuation experts that assess the fair values of the company's major assets. M=2.786, S.D. = 1.188 Most Frequent Response= Agree = No Comment= 28.571%) had a dominance response of agreement. This shows that, although qualified valuation experts were available, there was lack of available and accessible market information that facilitates fair value determination. This in turn had a negative influence on the quality of report (*also in Aytenew, 2018*).
  - The 5th Item was presented to identify the role of Universities and Colleges on the professional judgment of the respondents (The university/college I have been in gave me an excellent accounting knowledge that has strengthened my professional judgment. M= 1.786, S.D. = 0.802 and Most Frequent Response= Agree (57.143%). The findings showed that the respondents were confident that they had gained the knowledge required to improve their

professional judgment, which was also essential to properly implement IFRS standards. Thus, the role of higher education was rejected to be an external challenge, since one of the necessities of IFRS is a good professional judgment (*also in, Page 20 of this paper*).

- The 6th Item was presented to see the extent of support provided by well-experienced professional accountancy bodies in order to facilitate the implementation of IFRS in AABGSC. The arithmetic mean 3.571 (S.D. =0.852) showed that there was a dominance of disagreement in the responses for the Item. This means well experienced professional accountancy bodies did not give the necessary support to facilitate IFRS implementation. The company's Director of Accounting and Finance Department informed the researchers through interview that, no one had helped the company's finance personnel to understand the IFRS clearly. On the other hand, the interviewee from AABE informed the researchers that AABE had given a very successful awareness creation sessions, and was always open to give all the necessary advises if requested by any of the Other Public Interest Entities missing the awareness creation sessions of AABE. (*Supported by both Firdawok,2017 and Aytenew,2018*)
- The interview made with the Ministry of Revenue indicated that the challenges of implementing IFRS in Other Public Interest Entities like AABGS were mostly external. The trainings were not sufficient, the standards haven't been translated to Ethiopian practices, and there was no implementation manual prepared in Ethiopia based on a tangible research(*mostly supported by Firdawok, 2017*).

3.4. Findings regarding the company are current reporting quality

Table 4: The Company's reporting quality

No	Category	Description	F	P	M	S.D.
1	The company has a strong and effective accounting culture that makes it able to continuously produce high quality financial reports.	Strongly agree	6	42.857%	1.857	1.027
		Agree	6	42.857%		
		Disagree	2	14.286%		
		Total	**14**	**100%**		
2	The IFRS implementation process has added value to our financial reporting quality.	Strongly Agree	5	42.857%	2.071	1.131
		Agree	2	7.143%		
		No Comment	4	28.571%		
		Disagree	2	7.143%		
		Total	**14**	**100%**		
3	The company has completed preparation of opening financial	Yes	2	14.286%		
		NO	12	85.714%		
		Total	**14**	**100%**		

	reports based on IFRS.					
4	The company has completed preparation of comparative information based on IFRS.	Yes	2	14.286%		
		No	12	85.714%		
		Total	**14**	**100%**		
5	How do you rate the company's current reporting quality?	Excellent	3	21.429%		
		Good, but needs improvements	11	78.571%		
		Total	**14**	**100%**		

Source: Primary data, 2019)

The 1st question of table 4 was about the accounting culture of the company. There was a dominance of agreement in the responses for the existence of a strong and effective accounting culture that makes it able to continuously produce high quality financial reports. (M=1.857, S.D.=1.027). This shows that there was a prospect of a continuation of this reporting quality when IFRS would fully be adopted in the company. Thus, this was one of the prospective facts on the company with regard to IFRS implementation along with an excellent reporting quality.

- There was a dominance of agreement in the responses to question number 2, which was about the improvement of the company's financial reporting quality because of the progress in implementing IFRS (M=2.071, S.D.=1.131, Most). This showed that implementing IFRS had a positive influence on the reporting quality of the company.
- The findings of the 3rd and 4th Items show that the company did not finish the process of preparing the opening and comparative financial statements as per the requirement of IFRS- as indicated by the most frequent responses for both Items which was 'No' (85.714%). According to a checklist from AABE, the company's progress had to be fulfilled: converting its IFRS policies to policies required in IFRS principles; prepare a chart of accounts that is required by IFRS and insert opening balances; GAAP and IFRS Gap analysis; fixed asset registration; adjustments; writing-off receivables and payables that had stayed in the balance sheet for a very long period while being known for sure that they wouldn't be collected or paid respectively; derecognizing assets that offer no future benefits, either by disposing or converting to noncurrent assets held for sale; valuation of major assets; preparation of opening and comparative figures. The researchers were also informed by the interviewee from AABE that Other Public Interest Entities, including AABGSC, were required to submit IFRS-based financial reports for the end of that Ethiopian calendar year (Sene 30, 2011). The submission date started from Hamle 1, 2011 E.C. and that AABE would tolerate submission until the month of Tikimt, 2012 E.C. It was also stated in Country's Financial Reporting Proclamation (Proclamation No. 847/2014), IFRS should be used when preparing

Financial Statements. Thus, the company's IFRS implementation progress was very slow than expected.

- Opinions on the then reporting quality of the company were addressed by the researchers in the 5th Item of table 4. The most frequent response was that the company's existing reporting quality was 'good', but needed improvements (78.571%). This was understood by the researchers as the reporting quality was not rated as 'excellent' by the majority of the respondents because IFRS implementation was still in progress and not fully completed. The researchers also interviewed the company's Director of Accounting and Finance Department about the existing reporting quality of the company, to which the Director replied that the reporting quality of the company was 'very good'. The company's accounting system was manual, before five years. But in the last five years, the department automated its accounting system using Peachtree Accounting Software after a huge work had been done. This automation had solved almost all problems related with financial reporting. The interviewee had a personal opinion that no one in the manufacturing industry had used the software as much as AABGSC. The reporting quality and dependability of the company could be taken as a prospect to the excellence of the reporting quality of the financial report outcomes of IFRS implementation.

3.5. Findings regarding Prospects of Implementing IFRS in AABGSC by its own employees

Table 5: Plans of Employees to Enhance IFRS Knowledge

No.	Category	Response	Frequency	Percentage
	Which of the following self-improvement actions are you planning to take as an accountant/auditor in order to continuously apply and enhance your knowledge of the IFRS standards throughout your professional career?	Studying the standards in detail.	4	8.571%
		Taking further IFRS trainings	8	57.142%
		Getting the IFRS diploma	2	14.286%
		Total	**14**	**100%**

Source: Primary data, 2019)

Table 5 shows the findings of the Item which asks the respondents what self-improvement actions they were planning to take to continuously apply and enhance their knowledge of the IFRS standards. As shown in the table3.5. 28.571% of the respondents were planning to study the Standards in Detail; 57.142% said they were planning to take further IFRS trainings; and 14.286% of the respondents were planning to get IFRS diploma.

The response rate of 100% (14/14) shows that all of the respondents were eager to improve their IFRS knowledge one way or another. This can be taken as a prospective potential of implementation of IFRS in AABGSC.

4. Summary, Conclusions and Recommendations

4.1. Summary of the Findings

The data gathered through questionnaires and interviews were presented along with the secondary data on the third chapter of this paper. This section provides a brief summary of the findings presented and interpreted in Chapter three. The general backgrounds of the respondents show that they were qualified and had the necessary educational and work experience that enable them to understand and give a genuine response to our questionnaires.

The findings of the study regarding the internal challenges were summarized as there was a dominance of: **agreement** on the need for implementing IFRS in AABGSC; **disagreement** on the inapplicability of IFRS in AABGSC; **neutrality** on the importance of IFRS trainings and implementation process; **agreement** on the fact that the company had enough personnel with good Accounting and Finance knowledge; **disagreement** regarding awareness about the reason behind implementing IFRS in the Accounting and Finance and Audit departments; **disagreement** regarding the commitment of management to make sure IFRS was successfully implemented in the company; **agreement** that the IFRS implementation deadlines were hard to achieve; **agreement** that the accounting software of the company was able to handle IFRS implementation; **disagreement** about the pressure of the internal departments to ensure IFRS implementation; **disagreement** on the company having either part-time or fulltime employees of valuation; and the most frequent response for the appearance of cost as an obstacle on IFRS implementation was '**No'**, and there was a dominance of **disagreement** on the company having IFRS consultant.

The external challenges in implementing IFRS in the company were also addressed and the findings were summarized as: the most frequent response on the company's registration by AABE was **Yes**, while there was a **disagreement** regarding regular follow-up of the company's implementation progress by AABE; **disagreement** regarding availability of accessible market information that facilitates valuation, **agreement** on the availability of valuation experts; **agreement** regarding the sufficiency of the knowledge given by higher educational institutions; **disagreement** regarding the support of well experienced professional accountancy bodies on IFRS implementation.

Regarding the existing reporting quality of the company: there was a dominance of: **agreement** about the strong and effective accounting culture of the company; **agreement** about the improvement of the company's financial reporting quality because of IFRS implementation progress; **disagreement** regarding finishing the process of Opening and Comparative financial statements., The most frequent response regarding the existing reporting quality of the company's financial reporting was **Good, But needs improvements**.

Regarding Prospects of implementing IFRS in AABGSC, which got a 100% response rate; most of the respondents (57.142%) were planning to take further IFRS trainings, 28,571 of the respondents were planning to study the standards in detail, and the remaining 14.286% were planning to get IFRS diploma.

4.2. Conclusions

This research was conducted in order to identify the challenges and prospects of transforming GAAP to IFRS in Addis Ababa Bottle and Glass Share Company, through a qualitative research, on the basis of Proclamation No. 847/2014, which states that: "*the financial reporting standards to be used when preparing financial statements shall be International Financial Reporting Standards, or International Financial Reporting Standards for SMEs, or International Public Sector Accounting Standards applicable to Charities and Societies.*". The four basic questions answered by the research were: what are the hardships faced in the process of implementing IFRS in AABGSC? what external challenges are present regarding IFRS implementation in AABGSC?; What are the measures planned to clear the obstacles of properly using IFRS in AABGSC?; and how can the current reporting quality of AABGSC be described.

Based on the responses of questionnaires, and the interview with the support of secondary data, the researchers identified the challenges and prospects of IFRS implementation in AABGSC.

The findings of the primary and secondary data indicated there were a number of internal and external challenges and prospects with regard to transformation of GAAP to IFRS in Addis Ababa Bottle and Glass share company. The findings of the study also showed quality of the existing reporting system of the company. The internal challenges identified in implementing IFRS in the company according to the perceptions of the Director of Accounting and Finance Department were that IFRS standards were not fully applicable, inadequacy of the number of personnel trained on IFRS implementation, lack of awareness about the reason behind implementation of IFRS, missing the awareness creation sessions conducted by AABE, lack of commitment of the company's management, unachievable deadlines of IFRS implementation because of late registration, lack of pressure from the company's internal auditors, lack of valuation experts employed in the company and failure to hire implementation consultants.

The external challenges encountered in transforming from GAAP to IFRS in Addis Ababa Bottle and Glass share company were identified as: lack of follow up from AABE; refutation of IFRS-based financial reports for tax purposes by ERCA; wrong information from external auditors about the implementation deadlines; lack of available and accessible market information that facilitates the determination of the fair value of the company's major assets; lack of support from well experienced bodies such as external audit firms; insufficiency of trainings; direct adoption of IFRS by the country without translating the standards to Ethiopian practices; and lack of implementation manual prepared in Ethiopia based on a tangible research. Because of the above challenges the company's IFRS implementation progress was not satisfactory.

The findings of the study regarding the existing reporting quality of Addis Ababa Bottle and Glass Share Company suggested that the accounting culture of the company was strong and effective to keep record of all the material information in a well-organized manner; the progress of implementing IFRS had a positive influence on the reporting quality of the company; the company did not finish the process of preparing the opening and comparative financial statements as per the requirement of IFRS-I; and although the company's existing reporting quality was good it needed s improvements. This shows that, there was a good prospective possibility of implementing IFRS standards with an excellent reporting quality.

There were also prospects to the successful transformation of GAAP to IFRS in Addis Ababa Bottle and Glass Share Company. The prospects identified were: the dominance of acceptance by the company's personnel that implementing IFRS was essential to the company; the existence of enough personnel that had a good knowledge of Accounting and Finance; registration by AABE; availability of qualified and experienced external valuation experts' the company's plan to obtain IFRS trainings by collaborating with the existing external auditors which also provided IFRS consultancy services; and the motivation of the responsible employees to study the standards in detail, take further IFRS trainings or get IFRS Diploma..

4.3. Recommendations

This section presents the recommendations forwarded by the researchers based on the findings, interpretations and conclusions of the research. The researchers recommended the following to the company's management and personnel:

- Make all the necessary arrangements and start the employee's IFRS trainings as soon as possible. This was to make sure that the employees at least understood the standards, which would make the completion of the transformation from GAAP to IFRS in Addis Ababa Bottle and Glass Share Company successful. Since there already were enough personnel with good knowledge of Accounting and Finance, the company needs to make use of the skills and knowledge of its employees in order to improve its financial reporting quality by implementing IFRS. We also recommend that the trainings taken by the employees should not be limited only to implementation trainings; it should be diversified to include valuation trainings and IFRS Diploma.
- Contact AABE and understand the outcome of not fully and properly implementing IFRS and taking the necessary measures to increase the speed of transforming its basis of accounting from GAAP to IFRS. AABE would also give them advises on how to progress faster regarding IFRS implementation.
- Take measures such as forming an IFRS implementation committee, which is comprised of various departments such as the Accounting and Finance Department, Internal Audit Department, IT Department, Human Resources and Trainings Department. This is because the requirement of the implementation process is not limited to a certain department.
- Hire consultants to finish the preparation of IFRS-based financial statements before the required reporting date (Hamle 1 up to Tikimt 30), in order not to suffer from

inconveniences created by the AABE's enforcement of the measures to those who were not able to follow the implementation schedule.

- The internal auditors are recommended to push the Accounting and Finance department to speed up the progress of IFRS implementation of the company.
- The company's management should enhance its commitment to ensure implementation of IFRS in the company.

References

Karim Popatia(2017). IFRS & GAAP: Reconciling Differences Between Accounting Systems and Assessing the Proposed Changes to the IFRS Constitution, 38 Nw. J. Int'l L. & Bus.

https://addischamber.com(August,2016). International Financial reporting Standards (IFRS) training provided

KPMG (2017). IFRS compared to US GAAP.

Dawit Mengistie (June,2017). The Accounting and Auditing Board of Ethiopia: International Financial Reporting Standards (IFRS) Implementation Road Map.

Sedzani Faith Siaga (October, 2012). Challenges to The Adoption of International Financial Reports in Africa.

Jaclyn Felder-Strauss (January,2014). https://www.purdueglobal.com: Should We Stay (GAAP) or Should We Go(IFRS)?

Accounting and Audit Board of Ethiopia-AABE (Nov2015). Five Years Strategic Plan 2015/16-2020/21.

Reports on Observance of Standards and Codes (ROSC) Ethiopia (November, 2007.

Dr. Prabhat Pandey & Dr. Meenu Mishra Pandey (2015). Research Methodology: Tools and Techniques.

Anol Bhattcherjee(2012). Social Science Research: Principles, Methods, and Practices-text books collection-3.

United States Government Accountability Office (USGAO) (July, 2013). Content Analysis: Principles and Practices.

Efobi, U.R., (2013). List of Countries that Have Adopted IFRS in Africa and Year the Country Publicly Announced the Adoption.

Edupristine (December, 2017). Https://www.Edupristine.com, Financial Reporting

John R. Alexander (2002). History of Accounting.

Abbas Ali Mirza, Magnus Orrel& Graham J. Holt (2008). IFRS Practical Implementation Guide and Workbook, Second Edition, Published by John Wiley & Sons, Inc., Hoboken, New Jersey.

'Various Authors' (2018). WLLEY Interpretation and Application of IFRS Standards, A John Wiley and Sons, Ltd, Publication

'Various Authors' (2016). Generally Accepted Accounting Practice under International Financial Reporting Standards, A John Wiley and Sons, Ltd, Publication

ACCA Study Text for Diploma in International Financial Reporting (2016).

Yitayew Mihret (March 2016). IFRS Adoption in Ethiopia: A Critical Analysis of the Process, Issues and Implications.

Deloitte (2017). IFRS in your Pocket.

IFRS foundation (year- still in force)- IFRS 1- First-time Adoption of International Financial Reporting Standards

IFRS foundation-Objectives of IFRS Foundation.

Shana Shimin P (January, 2018). A study on the Convergence of IFRS in India: benefits challenges, National Journal of Multidisciplinary Research and Development

John Onyemechi Odo, Ph.D (September, 2018). Adoption of IFRS in Nigeria: Challenges and the Way Forward/

Nader N. & Robert M. O. (November, 2014). 'Issues Challenges. And Lessons for IFRS Adoption in Kenya and Other Adopters'. International Research Journal of Management and Commerce Vol. 1, Issue 8.

Firdawok Teshome (January, 2017). Challenges and Prospects of International Financial Reporting Standards; Addis Ababa University, School of Graduate Studies

Aytenew Agumas Babil (December, 2018). Challenges of Practical Implementation of IFRS in Ethiopia, Evidence from Banking Sector; Addis Ababa University.

Meri Williams (February, 2008). The Principles of Project Management.

IASB(2010): The Conceptual Framework for Financial Reporting.

AICPA (2010): udit Committee Berief. From the Audit Committee Effectiveness Center

St. Mary University: Introduction to IFRS; a PowerPoint Presentation of Introduction to IFRS, given for IFRS trainees starting from December, 24, 2018- January, 16, 2019.

Dawit Tadesse (2017), Ethiopia: The Impact of IFRS on Income Tax Administration, Addis Fortune.

Teferi Deyuu Alemi and Dr. J.S Pasricha (2016). IFRS Adoption Progress in Ethiopia, www.iiste.org.

Nunuy NurAfia &Dien Novainy Rahmatica (2014, Indonesia). Factors influencing the quality of financial reporting and its implications in good governance.

GauravVasantrao Patil (2016). Project Management Challenges

Loveday A. NWANYANWU (2017). Audit Quality Practices and Financial Reporting in Nigeria.

Proclamation No.847/2014 of the Federal Democratic Republic of Ethiopia.

Analyze the Determinants of Rural Household Saving: The Case Study in Aneded Woreda, East Gojjam,

Adna Habtu, Belete Animaw, Bekalu Tesfaye, Belete Hailemariam, Debre Markos University

Abstract

Saving is the strategic variable in achieving financial security and growth affecting both individual and national wellbeing. However, saving level in Ethiopia particularly in rural areas is limited and little is known empirically about its factors. This study was initiated with the objectives of empirically examining and identifying major factors affecting rural households' savings. For the purpose of the study100 rural households were selected as a sample by using multi-stage sampling technique and also a cross sectional data were collected from 100 sample households. Both primary and secondary data were used. Interview guide and focus group discussion were used to collect primary data from the sampled households. Secondary data were collected from related review of literatures. For the purpose of data analysis, descriptive statistics (frequency distribution, mean, t-test, chi2- test and standard deviation), and Binary logit econometric model were used. The descriptive results of the study showed that 47% of the sampled households had savings in financial institutions during the survey time where as 53% of the sampled households had no saving in financial institutions. From the Binary logit results, four variables namely; monthly income, dependency ratio, households head attitude towards saving and distance from financial institutions were found to have significant effect on rural households' savings. Based on these findings, the researcher recommended that government agricultural offices with nongovernmental organizations should work to improve the rural households' agricultural productivity through income diversification and also government should design policies to increase employment rates and to increase employment rates and to decrease unemployment rates that will have a strong indirect effect on household saving through decreasing household dependency ratio, decreasing the number of dependent household members or increasing their productivity. Financial institutions should provide saving service through satellite branches reasonably near to the rural households' residences to promote rural households saving. Finally, financial institutions, government and other sectors shall work together to increase awareness about saving in the society in order to improve the perception of rural households towards saving.

Keywords: household saving, financial security, financial institutions

1. Introduction

1.1 Background of the Study

The business dictionary defines savings as the portion of disposable income not spent on the consumptions of consumer goods, but accumulated or invested directly in capital equipment, by paying off a home mortgage or indirectly through the purchase of securities. Saving is one of the factors affecting growth to lead the developing countries to development. Savings has long been considered as an engine for economic growth. Savings creates capital formation and

it further leads to technical innovation and progress which helps with the economies of large-scale production and increases specialization, which helps to accelerate the productivity of labor, further resulting increased GDP (Issahaku, 2011). Thus, savings leads to fuller utilization of available scarce resources in an efficient way, increasing the size of national output, income and employment, thereby solving the problems of inflation, unemployment and balance of payment, poverty, inequality, and making the economy free from the burden of foreign debt and leads to state of better welfare. The vicious circles of poverty in developing countries can also be broken through sufficient savings, and it is the main key to economic development as well (Issahaku,2011).

According to (Rehmanet al.,2010), the current economic performance of developed countries is due to high capital accumulations that result from saving, so saving is the most important determinant of countries economic development. However, it is notable that the slow rate of development in third world countries are usually attributed to the low levels of national savings, that constraint their capacity to invest in capital formation. This leads to lower level of economic growth and development than other countries that contribute enough savings. So, saving is usually considered as the main source of economic growth.

The continent of Africa has been identified as having an unsatisfactory growth in saving rates, which slows down capital accumulation. Africa's low saving rate influences the ability of banks to lend to small enterprises due to the limited availability of capital. Sub-Saharan countries are also facing low saving rate problem which was below 17% in 2011. The issue of low levels of domestic savings is a major problem in developing countries due to high levels of unemployment, low level of wages, and the participation of a large proportion of the population in the informal sector, and poor performance of the economy. According to (Prinsloo, 2000) and (Deaton, 2005), a serious problem confronting poor countries including Ethiopia, is savings and investment gap which restrain the rate of economic growth and make the countries more vulnerable to international capital shifts. Because of this gap, these countries faced challenges to finance investments needed for growth from domestic saving. It is also common to see these countries to finance their investment in the short run partly through domestic government borrowings, foreign loan and grants but this can significantly increase debt burden and cannot be a solution in the long run.

The saving habit of Ethiopia is very low. A number of issues can be raised why low saving rates exist in the countries, but common reasons for households not to save are low income, inflation, low interest rate, cultural background, education, social affairs, unemployment and the planning and minimum expenditure controlling habit of most households(Tsega & Yamane, 2014).

According to (EEA, 2013), Ethiopia's saving rate is 4.9% of which rural saving rate is 4.3% and urban saving rate is found to be 5.5%. Similarly, the Amhara region saving rate is found to be 5.3%, of which the rural saving rate is 4.7% and the urban saving rate is 5.8%. Thus, Ethiopia's saving rate in rural areas is found to be low. The empirical studies conducted in

Ethiopia show that the MPS of households in rural areas was less than 0.5 (Bereket, 2006). Likewise, low household saving rate is expected in Aneded Woreda.

Aneded is one of the Woredas of East Gojjam Zone in Amhara regional state. It is one of the most productive areas especially in Wheat, Maize and Teff production. And most of the production is carried out by small holder farmers characterized by low income and having limited access for credit. Thus, mobilizing own saving could serve as a main source of finance for investment to the rural households in the study area. Despite this, the rural households in the study area have limited formal and semi-formal saving. Thus, assessing factors affecting rural household's savings in the study area can bring valuable contribution to the accumulation of capital there by for investment boost. Therefore, this study has a great role to find out factors that affect rural households saving in Aneded Woreda.

1.2 Statement of the Problem

In literatures on economic development, much of the interest on saving has been focused on the relationship between saving and growth. This is witnessed clearly in the Rostow, Harrod-Domar and Solow-Swan classical growth models. For example, Harrod-Domar growth model states growth rate as a ratio of saving rate and capital-output ratio. The findings show that even though there is a reverse causality of growth to saving, the causation of saving to growth is the dominant one. Through saving, capital accumulation, which is vital to acquire technology for economic growth, is more likely possible. Saving is not only about hoarding but it is also about consumption smoothing in the face of volatile and unpredictable income and helping to secure a standard living situation. Consumption smoothing is also a useful way of thinking about government policy, wellbeing of the people and efficient utilization of scarce resources (Sisay, 2012).

The household savings and economic development are closely related with each other. Saving by individual household is important for the household themselves. It's a necessary condition to improve the quality of life of the members of the household. Certain household needs more durable consumer goods which require relatively large amount of money which ordinary household can never acquire unless they save over an expanded period of time. This is also true in Ethiopia where the household (HH) saving ratio has declined highly. It can be taken for granted that low saving rate is worth among the low income household due to poverty, unemployment, lack of education and information failures. So, low-income households have limited saving capacity and are mostly not financially efficient. Even those who are financially efficient may not trust the formal financial institutions because of lack of saving formality (Cronje mark, 2009).

Numerous reasons, including low and irregular income, lack of access to financial services and low level of education have been contributing to low savings rate in developing countries particularly in Ethiopia. Specifically, in the study area, smallholders' income is characterized as seasonal and irregular, and in this situation, saving is usually less considered. The unavailability or few formal financial institutions in the rural areas of Ethiopia could be a

disincentive for formal saving. The continent of Africa has been identified as having an unsatisfactory growth in saving rates, which slows down capital accumulation. Africa's low saving rate influences the ability of banks to lend to small enterprises due to the limited availability of capital. Sub-Saharan countries are also facing low saving rate problem which is below 17%, so Ethiopia is not unique to the region.

According to (IMF, 2015) survey, Gross national saving (% of GDP) is still regarded as poor. It decreases from 33% in 2011 to 26.98% in 2015. Currently in Ethiopia, from the total population, only six million households save money in financial institutions, on average 875 birr per year. Saving rate of Ethiopia to GDP is 9.5%, which is the worst saving rate in the world as compared to China, Bangladesh, and South Africa which have a better saving rate in the world (Aronetal. 2013).

From the total population in Aneded Woreda, 25.45% of the households save from their monthly income in financial institution (Aneded Woreda Revenue Authority Office, 2018). This shows, the saving habit of the households was low, due to, low number of the financial institution, lack of awareness about the role of saving, irregular income and extra.

Currently, Ethiopia executes many huge projects, like the Great Ethiopian Renaissance Dam, which favor and require huge amount of savings. By the time the country needs huge amount of financial capital, beyond the requirements of the savers for themselves, for the general welfare, it expects huge amount of savings from the rural households.

Few studies have been conducted to identify factors affecting rural households saving in Ethiopia (i.e. Kidane, 2010). However, most of them were done at macro level (Girma et al., 2013) and very few of them explored the micro level in Haramaya (Birhanu, 2015), and in the other part of the country. Therefore, the objective of this study was to fill these gaps adding a new variable, attitude of the households, by identifying the existing problems related to saving using logit econometric analysis method. In this research the researchers tried to answer the following basic question:

- What are the major factors affecting rural households' savings in the study area?
- What is the perception of households towards saving in the study area?

1.3 Objective of the Study

1.3.1 General Objective

The general objective of the study was to investigate the factors that affect rural households saving in Aneded Woreda, East Gojjam Zone, Amhara Regional State.

1.3.2 Specific objectives of the study

- Identify the major factors affecting rural household's savings in the study area; and
- Assess the perception of households towards saving in the study area.

1.4 Hypothesis

Based on the available theories and empirical researches/studies, the researcher anticipates the correlation between saving and potential determinants as follows:

- There is a positive relationship between absolute (current) income and household saving (Keynes, 1936; Amimo et al., 2003; Touhami et al., 2009, Bautista & Lambert, 1990, Serven et al., 2000, Azhar, 1995, and Meyer & Jocelynalma, 1985).
- Female-headed households have better saving status than male-headed households (Azhar, 1995, Chowa, 2006 and Amimo et al., 2003).
- Households with more female family members than male family members save more than households with female family members less or equal to male family members (Azhar, 1995, Chowa,2006, and Amimo et al., 2003). When the age of the household increases at labor force (18-64), the household saving level increases.
- There is significant relationship between family size and household saving (Rehman et al., 2010 and Azhar, 1995).
- There is significant difference in saving levels of married and unmarried households (Rehman et al., 2010; and Chowa, 2006).
- As education level of household head increases, household saving shows improvement (Girma et al., 2013, Azhar, 1995, Rehman et al., 2010, Kibet et al., 2009, Amimo et al., 2003, Meyer & Jocelynalma ,1985 and Chowa,2006).
- As the household dependency-ratio increases, the household saving decreases. (Rehman et al., 2010, Kibet et al., 2009, Amimo et al., 2003, and Meyer & Jocelynalma, 1985).
- As the perception of household towards saving improved, household's willingness to save increase.

1.5 Significance of the Study

This study has a vital role by providing information that enables effective measures to be taken to improve saving in Aneded Woreda. It also contributes to eradicate the bottlenecks of the saving in the study area. Similarly, it would create awareness for the households about the significance of saving and starting their own business which will reduce unemployment rate and migration of households from rural to urban areas to participate in the informal sector of the economy. Also, this research is important for the policy makers, planners, governmental and non-governmental organization working in the areas of household saving and rural household saving promotion; it can also serve as a reference material for other interested researcher who want to conduct the study on similar topic.

1.6 Scope of the Study

It is better to conduct the study covering most parts of Ethiopia. However, it was impossible due to the shortage of time, finance, experience and other constraints. Therefore, the scope of the study was limited to Aneded woreda to investigate the factors that affect rural household saving. As well, the study used only a one-year data (Year 2010 E.C).

1.7. Limitations of the Study

In conducting the study, the researchers faced a number of constraints and challenges. The researchers selected and focused only on the four rural Kebeles out of nineteen Kebeles in the Woreda and did not consider others which might have an influence on rural household saving and might need further investigation, experience, finance, time. This might have constrained to make conclusions for all regions and Ethiopia at large. And also, some of the respondents were reluctant to give information about their income, by relating the data gathering process with tax. Additionally, this study focused only on eleven variables. There might be other variables that might have determined rural household saving.

2. Research Methodology

2.1 Description of the Study Area

This study was conducted in Aneded Woreda. Aneded Woreda is one of the eighteen Woredas of East Gojjam Zone, Amhara Regional State. It has recently been separated from Awabel Woreda. The capital of Aneded Woreda is Amber, which is 260 km away from Addis Ababa and 20 km away from Debre Markos, Capital of the Zone. It has twenty Kebeles, of which nineteen were rural and one was urban Kebele. Aneded Woreda is bordered on the South with the Abay River, which separates it from the Oromia Region, on the Southwest with Baso Liben, on the Northwest with Guzamn, on the North with Sinan, and on the East with Awabel (Agricultural Office of Aneded Woreda, 2007). As per the 2007 National Census conducted by the Central Statistical Agency (CSA) of Ethiopia, the Woreda had a total population of 91,224, of whom 45,408 were male and 45,816 were female; and only 1,778 or 1.95% were urban inhabitants. The majority of the inhabitants (98.87%) followed Ethiopian Orthodox Christianity, while 1.1% of the population ere Muslim and the remaining 0.03% were followers of other religions. The agricultural production system of the Woreda is characterized by mixed type, crop production and livestock. Crop production was one of the main agricultural activities and mainly of rain fed and traditional with some area under irrigation. The major crops grown in the area are Teff, Wheat, Maize, Barley, Pea, Bean, etc. There are two cropping seasons in the area, Belg (short rain season from March to April) and Meher (main rain season from June to September). Belg rains are mainly used for land preparation and planting long cycle crop such as Maize. The Meher rain is used to planting of cereal crops like Teff, Wheat, and Bean. According to Aneded Woreda Revenue Authority Office (2018), among the Woreda's total population, 25.45% of the households were saving their monthly income in formal and semi-formal financial institutions.

2.2. Data Source and Method of Data Collection

The study used both primary and secondary source of data. The primary sources of data were gathered through interview, questionnaire and focus group discussion, while the secondary data were gathered from related literature including books, unpublished materials, journals, government publications, reports of international and regional organizations. . The main data

collection technique used in the study was questionnaire for those who can read and write, and interview for those who cannot read and write.

2.3 Research Design

The study was concerned with investigating the factors that affect rural household saving in Aneded Woreda. The study applied both descriptive and inferential analysis. This study describes the information related to saving of rural households by collected cross sectional data from the study area, because of the nature of the variable. And inferential analysis was applied for testing explanatory variables that have significant effect on the saving status of rural households.

2.4. Sampling Procedures and Sample Size

Multi-stage sampling method was used to select sample respondents to study factors affecting rural households saving. First, the researcher divided the rural Kebeles as near and far using stratified sampling method, as. This enables to increase a samples statistical efficiency, to provide adequate data for analyzing the various sub-population, to obtain representative sample in a reasonable time and money, to compare strata as well as make more varied inference from the sample to the population. Interviewing the whole targeted households would have become tedious and time taken, and as a result, the study was used the stratified sample of the respondent to complete the study. Rural Kebeles less than 10 km away from the formal and the semi-formal financial institutions were considered as 'Near' where as rural Kebeles above 10 km away from the formal and the semi-formal financial institutions were considered as 'Far'. Then four rural Kebeles, two from near and two from far areas were selected randomly. In the second stage, the rural households in each Kebele were stratified into saver and non-saver categories based on the sources provided by the financial institutions. At the third stage, 100 sample households were selected using the formula given by Becker, (2005), a sample size calculator which provides with the recommended number of samples required to estimate the true proportion mean with the required margin of error and confidence level, from a total of 3766 population found in the selected four Kebeles at 8 percent error and 95 percent confidence level. The procedure is presented as follows:

Sampling Size

The sampling size for this study will determine by using the formula, as indicated in (Becker ,2005). This study will use the following formula to calculate sample size.

$$n = \frac{z2*p(1-p)}{(e2)}$$

Where;

n = the sample size

P=population proportion

e =level of precision (1%, 5%, and 10%, If the sample size is too large to manage, we use some levels of precision between 5% and 10%)

Z= level of confidence for 95 is (1.96)

The nineteen rural kebeles have 17889 household heads. From the 3766 household heads are live in the four rural kebeles in 2007/2008E.C. From the first calculate p.

$$P = \frac{Number\ of\ household\ head\ for\ four\ kebeles}{Target\ population} = \frac{3766}{17889} = 0.211$$

$$n = \frac{1.96^2*0.211(1-0.211)}{(0.08)2} = 100$$

The stratum also calculated as follows

$$n_i = \frac{Ni}{N} * n$$

Where, Ni=number of household's heads in each kebele

ni =sample size from each kebele

N –total number of household heads in the 4 kebele

n = sample size

By using the above stratified sampling formula, the proportional number of respondents in each kebele calculated as follows.

- First kebele $= \frac{1130}{3766} * 100 = 30$
- Second kebele $= \frac{753}{3766} * 100 = 20$
- Third kebele $= \frac{1017}{3766} * 100 = 27$
- Fourth kebele $= \frac{866}{3766} * 100 = 23$
- Non-response rate (5%) = 100*5% = 5
- Total sample size = Non-response rate + sample size

  100 + 5 = 105

2.5. Method of Data Presentation and Analysis

Both descriptive and econometric methods of data analysis were employed to study the effect of different variables. By applying descriptive statistics such as tables, frequency and percentages the researcher compared and contrasted different categories of sample units with respect to desired characteristics. Under econometric analysis, since the study mainly deals with dichotomous variables, the researchers were forced to use logit model. As linear probability model is plagued by different problems, logit is preferred to be the best model of estimating dichotomous variables, and Binary logistic regression analysis was applied for identifying significant factors that affect rural households saving in the study area. The

qualitative data which gathered through focus group discussion were analyzed through narration and description for the sake of triangulation.

Econometric model specification

Saving is the difference between income and planned consumption, i.e.,

S = Y-C

Saving function is derived from the consumption function. Planned saving is a function of aggregate income, i.e., S = f(Y)

According to Keynes, saving function has the following characteristics: Saving is a stable function of income, saving varies directly with income and the rate of increase in saving is less than the rate of increase in income. At very low levels of income as well as at zero income, since consumption is positive, saving must be negative. As income increases, dissaving vanishes and saving becomes positive. In Keynes' terminology, this feature suggests that the value of the marginal propensity to save (MPS) is positive but less than one.

Saving Equation As consumption function equation is a linear one, so saving function must be a linear one:

$S = Y - C = Y - (a + bY)$ since, $C = a + bY$

Or $S = -a + (1 - b)\, y$ for, $0 < (1-b) < 1$

Therefore, Binary logistic regression model is a proper model when the dependent variable is a dummy one consisting of two categories, 0 and 1, or more levels; logistic regression model can be properly used (Gujarati, 1995).

Thus, logistic regression model that was employed in the study used a binary logistic regression model, where dependent variable is Y and independent one is X. In order to elucidate the model, the following logistic distribution function was used (Maddala, 1986, Greene, 1993 and Gujarati, 1995).

$$Pi = \sum(y = \frac{1}{Xi}) = \frac{1}{1+e-(\beta 1+\beta 2Xi)} \quad \ldots\ldots (1)$$

In the logistic distribution equation, Pi is the independent variable; Xi is the data that is the possibility of a preference by an individual (option of having 1 and 0 values). When β1+β2Xi in Equation 1 is replaced by Zi, Equation 2 is obtained:

$$Pi = \frac{1}{1+e^{-zi}} \quad \ldots\ldots (2)$$

Zi is between -∞ and +∞, and Pi is between 1 and 0. When Pi shows the possibility of savers, the possibility of non-savers of rural households is

1- Pi. Then, the possibility of non-saver can be explained as in Equation 3 as follows:

$$1 - \frac{1}{1+e^{-zi}} = 1 - Pi \quad \ldots\ldots (3)$$

Equation 4 is obtained by dividing the savers by non-savers:

$$\frac{Pi}{1-Pi} = \frac{\frac{1}{1+e^{-zi}}}{1-\frac{1}{1+e^{-zi}}} = \frac{1}{e-Zi} \quad \ldots\ldots (4)$$

When the natural logarithm of both sides of the equation is written, Equation 1 is obtained:

$$Li = \ln\left(\frac{Pi}{1-Pi}\right) = Zi = \beta 1 + \beta 2Xi \quad \ldots\ldots (5)$$

Thus, non-linear logistic regression model is liberalized based on both its parameters and variables. "L" is called "logit" and models such as this called "logit models" (Gujarati, 1995, 2003). In these situations, Equation 1 is used for proper transformations:

$$Pi = \sum(Y = \frac{1}{Xi}) = \frac{1}{1+e-(\beta 1+\beta 2x1+\beta 3x2+\cdots+\beta kxk)} \quad \ldots\ldots (6)$$

Odds and odds ratio are significant terms in logit model. Odds are defined as the ratio of the number of events that occurred to number of events that did not occur. "Odds ratio" on the other hand, is the ratio of two odds, in other words, the ratio of likelihood to another. In Equation 4, two probabilities, savers and non-savers probability of an event are proportioned and this is the odds of proportion. It is important to understand that possibility, odds, and logit concepts, are three different ways of explaining the same thing (Menard, 2002).

$$Zi = \beta o + \sum \beta iXi + Ui \quad \ldots\ldots (7)$$

Therefore, the above Binary logit econometric model was used to identify major factors affecting rural household savings.

$Y = \beta o + \beta 1AGE + \beta 2AGES + \beta 3MARST + \beta 4GEN + \beta 5Famsize + \beta 6INC + \beta 7DR + \beta 8I + \beta 9AHHS + \beta 10DFI + \beta 11EDUL + u$……..... (8)

Where:

Y= is the probability of an individual participating in saving,

B= is parameter of explanatory variable

y = 1, an individual participates in saving

y = 0, otherwise

Ui = Error term

The error term "U" contains many important determinants of saving which were ignored. This is out of the researcher's scope.

Table 1: Variable Description

Variable	**Possible short Form**	**Measurement Description**
Households saving status	Y	Y = 1, If households save in formal and semi-formal financial institution, otherwise 0.
Educational level	EDUL	Continuous.
Age	AGE	Continuous
Age squire	AGES	Continuous
Gender	GEN	Gen = 1, If the household head is male, otherwise 0.
Marital status	MARTS	MARTS = 1, if the household head married, otherwise 0.
Family Size of the household	FAMSIZE	Continuous
Distance from the financial institution	DFI	Continuous
Income	INC	Continuous
Interest rate	I	I = 1, If the households have high perception on interest rate, otherwise 0.
Attitude of households on saving	AHHS	AHHS = 1, If attitudes of households on saving is positive, otherwise 0.
Dependency ratio	DR	Continuous

Source: own formulation (2019)

3.6. Definition and Measurement of Study Variables and Hypothesis

3.6.1. Dependent Variable

The dependent variable has a dichotomous nature measuring rural households' savings status in formal and semi-formal financial institutions in the year 2011/2012. This was to distinguish or discriminate between those savers and non-savers in the study area. It takes a value of 1 if the households save in formal and semi-formal financial institutions, otherwise 0.

3.6.2. Independent Variables

This study considered independent variables such as attitude, education level, sex, age, age square, marital status, family size, income, distances from saving institution and variables related to saving institutions such as interest rate which were defined and hypothesized as follows.

Education level (EDUL): Education affects saving performance by influencing the level of saving and the options for asset accumulation available to the household. (Kulikov et al., 2007) found out that education as a human wealth promotes rural household saving. It was expected, therefore, households who were literate had a higher probability of saving which had positive effect for literate.

Household's marital status (MARTS): Marital status has also been shown to have an effect on asset accumulation (Grinstein-Weiss et al., 2006). Historically, marriage has been viewed as a source of financial security continues to be a determining factor for economic well-being. Pooling resources for a married couple may provide a cushion for them to accumulate assets without going under in times of crisis. The expected effect of rural household saving on single households was negative.

Gender (GEN): Several studies have shown that sex has an effect on asset accumulation. In sub-Sahara Africa, women own fewer assets than men (Lebeau et al., 2004). In rural SSA, women's ability to accumulate assets is governed by family and community norms, which historically have favored men to the disadvantage of women. (Gedela, 2012) found out that male-headed households save more than female headed households. The expected effect of sex on female headed households was negative.

Age (AGE): it is a continuous variable, defined as the household age on average at the time of the study measured in years. (Rehman et al., 2010) found out that age has a positive relationship with household savings. The life-cycle hypothesis suggests that there exists a relationship between age and saving rates. When the age of the households increases their saving status decreases. Therefore, the expected effect of age on rural households saving is negative.

Age squire (AGES): it is a continuous variable, defined as the household heads age at the time of the study measured in years. (Rehman et al., 2010) found out that age has positive relationship with household savings, when the age of the household is at the time of labor force. However, as the life-cycle hypothesis suggests that there exists a relationship between age and

saving rates have negative, when the age of the households increases above the age of 64.because above the age of 64, the households are out of the labor force and as the result, their income will decrease and use their present income for current consumption. Therefore, the expected effect of age on rural households saving is negative.

Family Size of the household (FAMSIZE): is the total number of family members of the household. A household with high number of dependents in the family have less savings. (Rehman et al., 2010) found out that family size significantly and inversely affecting household saving. The expected effect of family size on rural household saving was negative for households who have large family size.

Distance from the financial institution (DFI): here it is assumed to capture the effect of walking distance to the formal and semi-formal financial institution from home measured in kilometers. Better access to roads expands output markets in addition, from the fact that as farmers are located far from the financial institution there is limited access to input and output markets and market information. More importantly, the longer distance from the market likely to discourage the households from participating in market-oriented production that increase their income and possibly encourage to save in financial institutions (Essa et al., 2012). The expected effect on saving was negative.

Income (INC): it is a continuous variable and operationalized as the total earnings of a family from sale of agricultural produce, off-farm and non-farm activities. Income level which shows that when the income level of households increases, the saving rate will also increase by some per cents. (Abdelkhalek et al., 2009) indicated that income strongly affects the saving level of the household. The expected effect of this variable on rural household saving was positive.

Interest rate (IR): It is the percentage of the balance in a deposit account that the savers receive as income from their deposit. It is measured by the sample households earning as interest from their deposit in a year. The interest could encourage or discourage rural households and this could in turn influence their willingness to save in formal financial institutions. (Mahlo, 2011) estimated the relationship between household savings and interest rate in South Africa and his result shows that there was a positive relationship. But (Simleit et al., 2011) found out a negative effect on rural household savings. In most cases, the interest rate obtained from saving discourages savers and the expected interest rate had negative effect on rural households' savings.

Attitude: it is the perception of rural households on saving. Since the awareness of the household on saving is improved and if they think it will be advantageous on their livelihood, they will save in the formal and semi-formal financial institution.

Dependency ratio (DR): dependency ratio, which is a continuous variable defined as DR = (HS – NE) / HS, where; DR is the dependency ratio, HS is the household size and NE is the number of earners in a household (Burney & Khan, 1992). It is expected to have a negative effect on rural house hold saving in the study area.

4. Results and Discussions

This chapter presents and discusses the results of the analysis on factors affecting rural households' savings. Descriptive statistics was used to summarize the data using frequency distribution, mean and standard deviation. Statistical tests like; link test for model specification, fittest for testing goodness of fit. In addition, an econometric model of Binary logit was applied using STATA version 14 to identify major factors affecting rural households' savings.

4.1. Descriptive Results

4.1.1. Characterization of Savers and Non-Savers by Demographic Factors

Table 2: Characterization of saver and non-saver households by demographic factors

Variable			Saving status			χ2 -value
			Saver (N=47)	Non saver (N=53)	Total (N=100)	
Gender	Female	N	18	31	49	2.3
		%	38	58	49	
	Male	N	29	22	51	
		%	62	42	51	
Marital Status	Married	N	41	24	65	4.99
		%	87	45	65	
	Single	N	6	29	35	
		%	13	55	35	
Attitude of household head towards saving	Good	N	42	9	51	9.14
		%	89	17	51	
	Bad	N	5	44	49	
		%	11	83	49	

Source: Own field survey data formulation (2019)

Gender of the Household Heads

Gender is one of the variables that can explain rural household's savings. As indicated in table 2, out of the sampled households 51(51%) were male and the remaining 49(49%) were female. Of the total sampled households, 31(63%) of the non-savers were female-headed households whereas, 18(37%) of the non-savers were male-headed households. On the other hand, 18(38%) of the sampled saver households were female-headed households whereas, 29(62%) of the sampled saver households were male-headed households. Based on Table 2 the chi-square value ($\chi2$= 2.3; P=0.09) showed that there was no statistically significant association between saving status and sex of saver and non-saver households. This implies that being male or female headed household had no statistically significant effect on saving decision of the households. This possibly indicates that male and female-headed households had equal chance to access to information on saving.

Marital status of household heads

The marital statuses of the head of the households also affect the saving status of the rural households. Of the total sampled household heads, 65 (65%), and 35 (35%) were married and

single, respectively (Table 2). Among the non-savers, 24 (45%) were married whereas 29 (55%) of them were single. On the other hand, 41 (87%) of the savers were married whereas 6 (13%) were single. The chi-square test indicated that there was no statistically significant association between marital status and saving status of saver and non-saver households ($\chi 2$ = 4.99; P = 0.17). Therefore, the result of the study showed that being married or single had no significant effect on rural households' savings. Thus, married and single household heads had similar socio-cultural background regarding rural households' savings.

Attitudes of Household Head Towards Saving

The attitude of the heads of the households towards saving also affects the saving status of the rural households. Of the total sample household heads, 51 (51%), and 49(49%) had positive and negative attitude towards saving respectively (Table 2). Among the non-savers, 9 (17%) had positive attitude towards saving whereas 44 (83%) of them had negative attitude towards saving. On the other hand, 42 (89%) of the savers had positive attitude towards saving whereas 5 (11%) of the savers had negative attitude towards saving in formal and semi-formal financial institutions. The Chi-square value ($\chi 2$ =9.14; p= 0.002) of the sample households indicated that there was statistically significant association between attitudes of household heads towards saving and saving status of savers and non-savers. The implication was that households who had positive attitude towards saving had higher probability to save their money in formal and semi-formal financial institutions.

Age of Household Heads

The average age of the household heads was 30.11 years. The average age of the savers and non- savers was 29.65 and 30.5 years respectively. Thus, the average age of sample households indicated that the age of savers was not much greater than that of non-savers. There was no statistically significant difference between the mean age of savers and non-savers with respect to their age. The t-value (t=1.03; P=0.30) showed that there was no statistically significant difference between the mean age of savers and non-savers with respect to their age. Although age was found to be a significant factor to rural households savings by many empirical studies, the result of this study showed that it had no a significant effect on rural households savings. The possible explanation here is that as the mean age of savers and non-savers were relatively the same, these households would have relatively similar life experience regarding saving.

Age Square of the Household Head

The average age square of the household heads was 993.03 years. The average age square of the savers and non- savers was 952.46 and 1029 years respectively. Thus, the average age square of sample households indicated that age square of savers was much less than that of non-savers. The mean difference of age square between savers and non-savers had no statistical significance (t=1.37; P=0.17).

Family Size of Sample Households

The size of the family is also an important factor for the saving status of the rural households. Accordingly, the average family size of the sample households was 5. The results indicated

that the average family size of the sample savers and non-savers was 4 and 6 respectively. The t-value indicated that there was no statistically significant mean difference (t-value= 1.33; p=0.18) between the mean family size of savers and non-savers (Table 3). The variation of family size of the two groups did not show a larger difference and the results indicated that there was no significant effect on rural households saving.

Education Level of Household Heads

Education enhances the capacity of individuals to obtain, process, and utilize information through different sources. It is required to make saving decision. As a result, level of education of the head of the households influences the saving status of the rural households. According to the survey results, the average education level of household heads in the study area was 4.61 year, of which the average level of household heads education for saver and non-saver was 5.36 and 3.94 year respectively. Additionally, savers and non-savers who were illiterate were 5 (11 %) and 12 (23%) respectively and from the savers and non-savers those who were literate were 42 (89 %) and 41 (77%) respectively. The mean difference between educational level of savers and non-savers household heads was statistically significant (t=2.25; P=0.03). The percentage difference between savers and non-savers in terms of literacy level may mean that literate household heads had more exposure to the external environment and information which helps them to easily associate them with saving in financial institutions. It implies that saver rural households with more education were likely to save their money in formal and semi-formal financial institutions. This finding was similar with the findings of Aron et al., (2013) which indicated that the more the academic level of households increases, the more their saving status shows improvement Girma et al., (2014) that showed positive and statistically significant effect on rural households' savings. But, Sebhatu(2012) found out that education and rural households' savings had negative relationship and the possible explanation given was some saving schemes might not need good educational background of the respondents.

Table 3: Characterization of savers and non-savers by age, age square, level of education and family size

Variable	**Saving status**			
	Saver (N=47) Mean	**Non saver** (N=53) Mean	**Total** (N=100) Mean	**t-value**
Age	29.65	30.5	30.11	1.03
Age Square	952.46	1029	993.03	1.37
Family size	4	6	5	1.33
level of education	5.36	3.94	4.61	2.25

Source: Own field survey data formulation (2019)

4.1.2. Characterization of Savers and Non-Savers by Socio-economic Factors

Dependency Ratio of the Households

The dependency ratio of the sample respondents was ranging from a minimum of 0 to a maximum of 0.67 with mean and standard deviation of 0.25 and 0.22 respectively (see table 4). From the survey results, the average dependency ratio for saver and non-saver was 0.09 and 0.39 respectively. The result also revealed that savers had less dependency ratio than non-savers. The t-value (t=5.35; P=0.00) showed that there was statistically significant difference between the dependency ratio of savers and non-savers.

Monthly income of the household

The major sources of income for the sample households was crop production, livestock production and off farm/non-farm activities. Income is an important factor of the saving status of the rural households. It is a positive factor that analyses the saving status of households. As shown in Table 4, the monthly income of the sample households was calculated in ETB and found by the researcher. The average monthly income of the sample households and the standard deviation were ETB 2386.7 and ETB 1684.6 respectively. Furthermore, the average monthly income of the savers and non-savers was ETB 3470.5 and ETB 1425.6 respectively. The mean income indicated that there was greater monthly income difference between savers and non-savers. The t-value (t=5.32; P=0.00) also showed that there was statistically significant mean difference between the monthly income of savers and non-savers with respect to their income levels. As indicated in the relative income hypothesis, higher income leads to higher probability of households to save. This result was consistent with a study by Aron et al. (2013) that showed income was a significant factor for the saving status of households and the result revealed that when the income level of households increases, the saving rate will also increase by some per cent. Rehman et al. (2010) also showed that household income would increase households saving ability.

Table 4: Characterization of savers and non-savers by socio-economic factors

Variable	**Saving status**		
	Saver (N=47) Mean	**Non saver** (N=53) Mean	**t- value**
Monthly income	3470.5	1425.6	5.32
Dependency ratio	0.09	0.39	5.35

Source: Own field survey data formulation (2019)

4.1.3. Characterization of Savers and Non-Savers by Institutional Factors

Distance from the Financial Institutions

Distance from the financial institutions was one of the most factors that affect rural household saving status. From the survey the average distance from the formal and semi-formal financial

institution and standard deviation was 9.72 and 5.69km respectively. The average distances traveled by savers and non-savers to their nearest financial institution were 5.11 and 13.45km respectively. Furthermore, the average distances of near and far tformal and semi-formal financial institution were 4.72km and 14.53 km respectively. The result indicated that households who lived around the formal and semi-formal financial institutions traveled relatively lower distance to save their money in financial institutions. But, the mean distance between savers and non-savers to their nearest financial institution was not statistically significant (t=1.15; P=0.25).

Table 5: Characterization of savers and non-savers by distance from financial institutions

Variable	**Saving status**		
	Saver (N=47) Mean	Non saver (N=53) Mean	t-value
Distance from the financial institution	5.11km	13.45km	0.25

Source: Own field survey data formulation (2019)

4.1.4. Characterization of Savers and Non-Savers by Institutional Related Factors Interest rate

Saver households were asked whether the interest rate had discouraged or encouraged them to save in formal and semi-formal financial institutions which are paid by formal and semi-formal financial institution. Accordingly, 42 (89%) of the saver households said that interest rate did not discourage them to save in formal and semi-formal financial institution, whereas 5 (11 %) respondents said that interest rate discouraged them to save informal and semi-formal financial institution (Table 6). The chi-square value ($\chi 2$ =0.12; p= 0.06) of the sample households indicated that there was no statistically significant association between interest rate and saving status of savers and non-savers. The result shows that interest rate did not matter for rural households (for speculative motive), but rather for transaction and precautionary motive.

Table 6: Characterization of savers and non-savers by interest rate

Variable			**Saving status**			
			Saver (N=47)	**Non saver (N=53)**	**Total (N=100)**	**$\chi 2$-value**
Interest rate	High	N	42	8	50	0.12
		%	89	15	50	
	Low	N	5	45	50	
		%	11	85	50	

Source: Own field survey data formulation (2019)

4.1.5. Forms of Savings used by Rural Households

Table 7 shows formal, semi-formal and informal saving status of the sample households. Out of 100 sample households considered in the analysis, 47% saved their money in financial institutions and 53% did not save in the financial institutions.. Among those savers of the sample households, 27(57%), 8(17%), and 12(26%) saved their money in semi-formal, formal and informal financial institutions respectively.

Table 7: Forms of Savings used by Rural Households

Financial institution	Frequency	Percent	Cumulative
Semi-formal	27	57%	57
Formal	8	17%	74
Informal	12	26%	100

Source: Own field survey data formulation (2019)

The reason why rural households saved their money in formal and semi-formal financial institution

Table 8 shows that there were several reasons why sample households were engaged in formal, semi-formal and informal financial saving institutions. Out of the saver households who were asked what encouraged them to save in formal and semi-formal financial institution, 15 (31.9%) confirmed that mitigating an emergency was the sole reason, 19(40.2%) did it in order to buy expensive item, 7 (14.9%) said increase of the money value from saving and 6(13%) said for other purpose. Similarly, Rehman et al., (2010) indicated what motivated of rural households to save, which includes; reserving against unforeseen contingencies, providing future anticipated differences between income and expenditure.

Table 8: Reason why Rural Household saves their money in formal and semi-forma financial institution

Reason	Frequency	Percent	Cumulative
For emergency	15	31.9%	31.9
Expectation to increase in money value	7	14.9%	46.8
To buy expensive item in the future	19	40.2%	87
Other	6	13%	100

Source: Own field survey data formulation (2019)

Reasons why rural households do not save their money in formal and semi-formal financial institution

Table 9 shows the reasons for the respondents for not saving in formal and semi-formal financial institutions. Of the sample households considered in the survey, 53% had no saving

experience in formal and semi-formal financial institutions due to different reasons. They gave the following reasons for not saving in those institutions: 21 (39.6%) due to low income, 19 (35.8%) were not aware about saving culture, 9 (17%) said saving institutions are far and 4(7.6%) cited other reasons.

Table 9: Reason why rural households do not save their money in formal and semi-formal financial institution

Reason	Frequency	Percent	Cumulative
Lack of awareness	19	35.8%	35.8
Distance of saving institutions	9	17%	52.8
Low household income	21	39.6%	92.4
Other (like the money value from saving is going up	4	7.6%	100

Source: Own field survey data formulation (2019)

4.1.6. Summary of Descriptive Results of Explanatory Variables

In order to have a clear picture of the demographic, socio-economic, and institutional and variables related to saving institutions which differentiate savers from the non-savers.

Table 10: Summary results of descriptive analysis of explanatory variables

Determinant Variable	Mean	Standard deviation
Age of household head	30.11	9.34
Age square	993.03	736.72
Income	2386.69	1684.64
Gender	0.51	0.5
Dependency ratio	0.25	0.22
Family size	5	3
Marital status	0.65	0.48
Education level	4.62	3.37
Distance	9.72	5.69
Attitude	0.51	0.5
Interest rate	0.5	0.5

Source: Own field survey data formulation (2019)

4.2. Econometric Analysis of the Response of Rural Household Saving with Respect to its Determinants

4.2.1 Discussion of estimated logit model

In this section, this study tries to examine empirical factors that determine rural households saving within the study area. The Logit regression analysis was employed for estimation purpose. The dependent variable 'saving' is a function of many independent variables. In this study, the major independent variables used including the dependent variable are described below.

Table 11: Maximum likelihood estimates of the Binary logit model

Explanatory variable	Estimated coefficient	Standard error	Marginal effect
Age	-0.348	0.414	-0.07680
Ages	0.005	0.007	0.00117
Inc	0.002**	0.001	0.00038
I	5.838	3.840	0.874974
Gen	2.435	2.051	0.4936234
Dr	-15.699**	7.747	-3.464625
Fam. Size	-0.217	0.307	-0.0479035
Marts	-6.512	4.260	-0.9234918
Edu .level	-1.048	0.651	-0.2312016
Dfi	-0.292***	0.169	-0/0644304
Ahhs	11.863***	6.096	0.9927819
Cons	7.208	6.933	-

Source: Model output (2019)

No of observation = 100, Prob> chi2 = 0.0000, Pseudo R2 = 0.85, ** = statically significance at 5% and *** = statically significance at10%.

Overall Level of Significance Test

This section presents the findings from the econometric results on the determinants of rural household saving. It covers logit model used in this study and the results of the logit regression analysis of the estimated model specified is presented as above. Table 11 shows coefficient, standard errors, z-values and p>|z| value for explanatory variables and pseudo R-square and number of observation included in the study.

The regression result of the model shows that the model was overall significant statistically at 1% level of significance or 1% margin error because the probability of the model was less than 1% (i.e. prob>chi2 = 0.0000<0.01). Prob>chi2 value of 0.0000 indicates strong statistical significance, which enhanced the reliability and validity of the model.

Even though the model as a whole was statistically significant, not all variables were independently statistically significant. According to the result, attitude and monthly income affected rural household saving positively and significantly at 10% and 5% level of significance respectively. And also, dependency ratio and distance from the financial institutions affected rural households saving negatively and significantly at 5% and 10% level of significance respectively. Level of education, marital status, family size, and age affected the rural household saving negatively but insignificantly at all level of significance. Age square, interest rate and gender affected the rural household saving negatively but, statistically insignificance at all level of significance.

Marginal effects and its interpretation

Even though we interpreted and discussed the Logit result of the regression, the important one for recommendation in Logit model was the marginal effect. This is because it is the marginal effect, neither the Logit nor the odd ratio, which shows probability.

In terms of marginal effect, the model is:
Saving=0.99ahhs-0.064dfi-0.23edul-0.92marts-0.048famsize-3.46dr+0.49gen+0.87i
+0.00038inc+0.0012ades-0.077age

Dependency Ratio

Dependency ratio had statistically significant and negative impact on rural household saving at 5% probability level. The marginal effect of dependency ratio which was -3.46 implies that, other things being constant, as the dependency ratio increases by one unit, on average the probability of rural household saving in formal and semi-formal financial institution goes down by 3.46 amount and statistically significant at 5%. The secret in the significant and negative sign of dependency ratio was that when dependency ratio is large the income generated by those small independents would be consumed by those who were not generating income. That led to a possibility of income to fall and finally, the saving status of rural household will decline. This result was also consistent with what we have already discussed in the the above hypothesis part. As the permanent income hypothesis suggested, the saving status of the household is mainly affected by consumption behavior of the households rather than their income. It was consistence with these research findings.

Monthly Income

Average monthly income showed statistically significance and positive effect at 5% probability level on rural households saving status and it was in line with the hypothesis. Keeping all other factors constant, as the amount of monthly income increased by one unit, on average, the probability of rural household saving in financial institution went up by 0.00038 amount (0.038%) and was statistically significant at 5%. Part of the explanation for this result income would increase households saving ability and enhanced the probability of households to save in formal and semi-formal financial institutions.

As indicated in the relative income hypothesis, higher income leads to higher probability of households to save. This result was consistent with studies by (Aron et al., 2013, Tsega &Yemane, 2014 and Rehman et al., 2010), which show rural households saving is significantly and positively associated with households' income and the result of this study revealed that when the income level of households increased, the saving rate also increased by some per cent. The model's result indicates that saving and income had strong association i.e. higher incomes raise the capacity to save.

Distance from Financial Institutions

The model result of the study confirmed that distance affects negatively and significantly at 10% probability level and it was in line with the hypothesis. The model result revealed that those households who were living at a short distance from formal and semi-formal financial institutions had more access to save where as those who were living at far distance from formal and semi-formal financial institutions had less access to save in formal and semi-formal financial institutions due to distance factor. Moreover, as the distance from formal and semi-formal financial institution increased by one km, on average, the probability of rural household saving status in formal and semi-formal financial institution declined by 0.064 amounts (6.4%) and statistically significant at 10%, other things being kept constant. The possible explanation for this was that as the sample households got close (near) to the formal and semi-formal financial institutions, they had more access to use the service than the those in far places. This finding was similar to the findings of Chemonics International (2007) which identified that distance remained a major barrier to formal financial saving and other markets in rural areas in SSA especially in rural Uganda, where only 10% of the population had access to basic financial services.

Attitude of the Household

The model revealed that the attitude of the households had positive impact on rural household saving status and statistically significant at 10% probability level and it was in line with the hypothesis. The model result showed that households heads that had a positive attitude towards saving saved their money in formal and semi-formal financial institutions. Keeping all other factors constant, on average, the probability of household heads with positive attitude towards saving was greater than the household heads with negative attitude towards saving by 0.99 (99%). Therefore, lack of positive personal saving habit significantly harmed the desire of households to save by engaging them in extravagant events. Because household head with positive personality regularly manages income, spends reasonably through planning, rigorously manages unexpected expenditures, thinks about family future, and protects him/her from adductions.

4.2.2 Appropriate Test in logit model

Before performing the econometric estimation, itself, different econometric assumptions were tested using appropriate methods. The Hosmer and Leme's goodness-of-fit test, link test (model specification test) were applied to test whether there was omitted variable in the model

or not. Additionally, we employed vif and hettest for multi co-linearity and hetro scedasticity respectively.

Link Test

It is a relevant test in order to check the prevalence of omitted variables, mathematical formulation problems and model specification errors.

Table 12: Link Test

Y	p>|z|
Hat-squ	0.099

Source: Model output (2019)

The link test result (hat-sq=0.099(9.9%) which was greater than 0.05(5%), showed that there was no omitted variable, mathematical formulation problem and model specification error in the model.

Lfit Test

Table 13: Logistic model for "Y", goodness-of-fit test

Logistic model for "Y", goodness-of-fit test. Number of observations = 100 Number of covariate patterns = 100	
Pearson chi2(88)	46.65
Prob> chi2	0.9999

Source: Model output (2019)

It is important to test goodness-of-fit of the model. Goodness-of-fit of the estimated regression gives the proportion of the total variation in the dependent variable that is explained by all the explanatory variables. It lies between 0 and 1, provided there is an intercept term in the model. The closer to 1 (100%) is the better goodness of fit, whereas, the closer to 0(0%) is the worse of fit.

The goodness-of-fit of the model is measured by the coefficient of determination (R-squared). Table 13, shows that the coefficient of determination was 0.9999 which implies that about 99.9% of the variation in the dependent variable (saving) was explained by the explanatory variables included in the model and the remaining 0.01% of the variation in saving was explained by other variables that were not included in the model or included in the disturbance term.

Multi co-linearity Test

Table 14: VIF test of multi co-linearity

Variable	Vif	1/vif
Ages	24.11	0.041
Age	23.56	0.042
I	2.77	0.361
Dfi	2.42	0.412
Dr	2.21	0.452
Famsize	1.94	0.516
Ahhs	1.87	0.536
Inc	1.54	0.649
Marts	1.53	0.655
Edul	1.19	0.843
Gen	1.10	0.909
Mean vif	5.84	

Source: model output (2019)

Even if there is no formal test for multi co-linearity, its degree can be shown or detected. VIF and 1/VIF are the most familiar methods of detecting the problem of multi co-linearity among the explanatory variables. As a rule of thumb, if VIF of a variable exceeds 10 or the tolerance margin (1/VIF) less than 0.1 or 10%, then we would say that there is a serious problem of multi co-linearity. Therefore, in this case, all the VIFs in our model were below 10 and thus all the tolerance margin (1/VIF) were more than 0.1 or 10% implying that multi co-linearity, was not a problem in our model. Even though VIF in our model was less than 10, it approached to 10 because of household heads' age and age square were highly correlate to each other.

Hetroscedasticity test

Since the number of observations is higher than 30, hettest for hetro scedasticity would use to test the presence of hetro scedasticity problem. If the p-value is very small, we would have to reject the null hypothesis that says there is homoscedasticity.

Table 15: Breusch-Pagan / Cook-Weisberg test for Heteroscedasticity

Ho: Constant variance Variables: fitted values of "Y"	
chi2 (1)	0.68
Prob> chi2	0.4095

Source: model output (2019)

In our model the p-value was too small (0.4095), which was greater than 0.05. Therefore, we did not reject the null hypothesis. So, our model did not have a problem of hetro scedasticity.

5. Conclusions and Recommendations

5.1. Conclusions

The study was conducted to assess factors affecting rural households saving in Aneded Woreda, East Gojjam Zone, amhra Regional State. Different characteristics of the households were analyzed among savers and non-savers. These characteristics were categorized as demographic (Education level, Gender, Age of the household heads, Age square, Marital status, Family size and Attitude of the household head), socio-economic (Annual income and Dependency ratio), institutional factors (distance from formal and semi-formal financial institutions) and variables related to saving institutions (interest rate).

In this study, cross sectional data collected from 100 sample households in four rural Kebeles namely, Amber Zuria, Shafo Gudalema, Talak Amba, and Jamma were used. Among the four kebeles, two rural kebeles were near to the formal and semi-formal financial institution and the rest two Kebeles were far from financial institutions. Both primary and secondary sources of data were used and interview and focus group discussion were used as data collection tools. Data analysis methods like percentage, frequency distribution-test, chi2 test, mean and standard deviation were used. The result of the descriptive statistics indicated that most of the variables hypothesized to determine the rural households were significantly associated with rural households' savings status. Moreover, Binary logit model was used to identify major factors affecting rural households' savings.

From the descriptive statistics, the explanatory variables, that is, household head's marital status, gender, age, age square, distance, interest rate and family size did not have statistically significant association with rural households saving status. But attitude, educational level, dependency ratio and monthly income had statistically significant association with rural household saving status.

Results of the Binary logit model indicated that monthly income and attitudes of household heads towards saving had positive and statistically significant effect on rural households saving status whereas dependency ratio and distance from financial institution had negative and statistically significant effect on rural households' savings status in the study area.

The descriptive analysis showed that some rural households practiced saving in financial institutions and the common reasons for rural households not saving in financial institutions in the study area were that they had no surplus cash to save, low income, they were not aware about saving culture and saving institutions were far.

Besides, the Binary logit analysis showed that household heads' attitude towards saving enhanced households' awareness to decide to save money in financial institutions. Moreover, household heads with positive personal saving habits had more probability to save than household heads with negative personal saving habits. Households with high monthly income

preferred to save in financial institutions. Distance from financial institutions and dependency ratio had significantly affected rural households' savings in the study area. Developing strategies that promote rural households savings in rural areas was an integral part to achieve economic growth in the study area.

5.2 Recommendations

It is obvious that the level of saving in Ethiopia is very low; even it is less than saving of low-income Sub-Saharan Africa countries. It is not secret that saving contributes a lot for economic growth and development. Based on findings of the study, f the following policy recommendations are forwarded.

The result of the Binary logit model revealed that average monthly income had positive and statistically significant effect on rural households' saving status. Based on this finding, due attention should be given to increase income of rural households by implementing different policies. Government should subsidize the household through diversifying their agricultural activities and income source by engaging them in non-farm/off farm activities.

Financial institutions, Government and other sectors shall work together to increase awareness about saving in the society; provide technical support programs in different districts; give productive loan and follow up their credit utilization so that they can use it to generate additional income and this in turn motivates rural households to save in financial institutions; modernize and make accessible the saving institutions; reviewing the saving interest rates; and stabilize price policy of agricultural output.

Government should design policies that help to increase employment rates and to decrease unemployment rates that will have a strong indirect effect on household saving through decreasing household dependency ratio. Decreasing the number of dependent household members or increasing the number of productive household members is the responsibility of households.

To improve the saving attitude of rural households in the study areas, the households should be able to avoid negative personal saving habits that may impair their saving behavior and adopt good saving practices even at small amount of income. Each household should develop and implement financial planning each year for its day-to-day activities.

The findings of the study revealed that distance from financial institutions had negative and statistically significant effect on the saving status of rural households. Hence, financial institutions should provide saving services by establishing satellite branches reasonably near to the rural households' residences. In addition, policy interventions should focus on increasing the availability and accessibility of financial institutions in rural areas to promote rural households saving.

Finally, it is vital that a survey with a nation-wide coverage be conducted to provide more in-depth and comprehensive picture of household saving status in Ethiopia.

Reference

Abdelkhalek, T. (2009). A Micro Econometric Analysis of Households Saving Determinants in Morocco. University of Paris, France.

Agricultural Office of Aneded woreda, (2007).

Amimo, O. (2003). The Potential for Financial Savings in Rural Mozambican Households. The Mozambican Development Review.

Aneded Woreda Revenue Authority Office(2018).

Aron Hailesellasie, Nigus Abera & Getnet Baye (2013). Assessment of Saving Culture among Households in Ethiopia. Journal of Economics and Sustainable Development, 4 (15):1.

Azhar, B. (1995). Rural Savings:Their Magnitude, Determinants and Mobilization. The Pakistan Development Review.

Banerje, A. & Duflo, E. (2011). The Economic Lives of the Poor. The Journal of Economic Perspectives: 21(1): 141- 167.

Bautista, R. & Lamberte, M.(1990).Comparative Saving Behavior of Rural and Urban Households in the Philippines. Journal of Philippines Development.

Befekadu K.(2007). Outreach and Financial Performance Analysis of Micro- finance Institutions in Ethiopia. Journal of Economic Perspectives

Becker, W.K. (2005). Statistics for Business and Economics Using Microsoft Excel 97. Indian University S.R.B. Publishing, Bloomington, India.

Bereket,k. (2006). Land Reform, Distribution of Land and Institutions in Rural Ethiopia.

Birhanu, M. (2015). Factors Affecting Rural Household Saving: West Arsi Zone. Rural Development and Agricultural Extension. Haramaya University, Haramaya, Ethiopia.

Burney, N. & Khan, A. (1992). Socio-economic Characteristics and Household Savings: An Analysis of the Households' Saving Behavior in Pakistan. The Pakistan Development Review. Vol. 31. pp. 31-48.

Carpenter & Jensen (2000). Household Participation in Formal and Informal Savings Mechanisms: Evidence from Pakistan, Review of Development Economics, 6(3), pp.314-328.

Central Statistical Agency (2007). Household Income-Consumption Expenditure Survey Report. Federal Government of Ethiopia.

Chemonics International, (2007). Improving Access to Financial Services in Rrural Uganda: Rural SPEED Final Report. Washington D.C, Chemonics.

Chowa, N. (2006). Savings Performance among Rural Households in Sub-Saharan Africa: The Effect of Gender. Washington University: St. Louis.

Cronje, M. (2009). Creating a Savings Culture for the Black Middle Class in South Africa.

Deaton, A. (2005).The Life Cycle Theory of Consumption.

Dejene, A. (2003). Informal Financial Institution; The Eeconomic Importance of Iddir, Equb and Loans.

Duesenberry, J. (1949). Income, Saving and the Theory of Consumption Behavior. Cambridge, Mass: Harvard University Press.

EEA, (2004/2005). Annual Report on Ethiopian Economy, Addis Ababa, Ethiopia.

EEA, (2013). Annual Report on Ethiopian economy, Addis Ababa, Ethiopia.

Essa C. M., G. A. Obarea, A. Bogaleb, & F. P. Simtowec.(2012). Resource Use Efficiency of Smallholder Crop Production in the Central Highlands of Ethiopia, Journal of Developing Country Studies, 2.

Flamini,V. (2009). The Determinants of Commercial Bank Profitability in Sub-Saharan Africa. IMF Working Paper.

Friedman, M. (1957). A Theory of Consumption Function. Princeton, N.J.: Princeton University Press.

Gebeyaw, A. (2008). Financial Performance of National Bank of Ethiopia Workers' Savings and Credit Association with Special Emphasis to Adjustments.

Gedela, S. (2012). Determinants of Saving Behavior in Rural and Tribal Households: An Empirical Analysis of Visakhapatnam District, International Journal of Research in Social Sciences.

Girma, T. (2013). Determinants of Rural Households Savings in Ethiopia: The Case of East Hararghe Zone, Oromia Regional State. Haramaya University.

Girma, T. (2014). Saving Patterns of Rural Households in East Hararghe. Journal of Development and Development Economics, 6(4):177-183.

Greene, W. (1993). Econometric Analysis; Second Edition. Macmillan Publishing Company, USA, p. 775.

Grinstein, W.(2006). Savings Performance in Individual Development Accounts: Does Marital Status Matter? Journal of Marriage and Family.

Gujarati, D. (1995). Basic Econometrics, Third Edition. McGraw-Hill Inc, New York.

Gujarati, D. (2003). Basic Econometrics, Third Edition. McGraw-Hill Inc, New York.

International Monetary Fund Data, (2015).

Issahaku, H. (2011). Determinants of Saving and Investment in Deprived District Capitals in Ghana. A Case Study of Nadowli in the Upper West Region of Ghana. Wilolud Journals, Continental J. Social Sciences, 4 (1): 1 – 12.

Kelley, A. & J. Williamson, (2009). Household Saving Behavior in the Developing Economies: The Indonesian Case, Economic Development and Cultural Change, 16(3): 385-403.

Keynes, J. (1936). The General Theory of Employment, Interest and Money. New York: Harcourt, Brace.

Kibet, L.K., Mutai, B.K., Ouma, D.E., Ouma, S.A. & George, O. (2009). Determinants of Household Saving: Case Study of Small-holder Farmers, Entrepreneurs and Teachers in Rural Areas of Kenya.

Kidane, B. (2010). Determinants of Gross Domestic Saving in Ethiopia: A Time Series Analysis. Study Mode Com. Available from http:// www. Study mode .com. essays. Determinants of Gross Domestic Saving 535269 .html. [Accessed on July 17/2013].

Kifle, T. (2012). Determinants of Saving Behavior of Cooperative Members Survey Evidence from Tigrai Region, Ethiopia. Journal of Research in Economics and International Finance, 1(5) : 150—146

Klause, S., (2001). Household Saving in Developing Countries: First Cross-country Evidence. The World Bank Economic Review, Vol..6, No..3; pp 529-547.

Kulikov D., Paabut, A. and Staehr, K., (2007). A Micro-econometric Analysis of Household Saving in Estonia: Income, Wealth and Financial Exposure. EestiPank Working Paper, No. 8

Lebeau, D. (2004). Women's Property Rights and Inheritance Rights in Namibia. Windhoek, Namibia, Pollination Publishers.

Maddala, G. (1986). Partial Dependent and Qualitative Variables in Econometrics. Cambridge, Cambridge University Press.

Mahlo, N. (2011). Determinants of Household Savings in South Africa. University of Johannesburg.

Menard, S. (2002). Applied Logistic Regression Analysis, Second edition. Sage Publications, California.

Mengistu, K. (2013). Proceedings of the National Conference on Loan and Saving: The Role in Ethiopian Socio-economic Development, 15-16 February 2013. Haramaya University, Haramaya, Ethiopia.

Meyer, R. And Jocelynalma, A. (1985). Deposit Mobilization for Rural Landings. FAO, Rome.

Michael, F.(1999). Saving in the Contest of Micro Finance State of Knowledge, Working Group on Saving Mobilization, GTZ.

Modigliani, F. and Ando, A. (1963). The Life-Cycle Hypothesis of Saving and Inter-country Differences in the Saving Ratio. Oxford: Clarendon Press.

National Bank of Ethiopia, (2010). National Bank Annual Report of 2010.National Bank of Ethiopia, Ethiopia.

Nayak, S. (2013). Determinants and Patterns of Saving Behavior in Rural Households of Western Odisha, India.

Newman, C. (2008). Household Saving in Vietnam: Insight Forms a 2006Rural Household Survey. Vietnam Economic Management Review.3 (1), pp34-40.

Prinsloo, J. (2000). The Saving Behavior of the South African Economy. South African Reserve Bank.

Rajesh, S. (2008). Indians Are Wise Savers But Poor Investors, National Council of Applied Economic Research, New Delhi. Available at http://www.ibtimes.com/articles.[Accessed on February 20, 2011].Greene WH. 1993.Econometric Analysis; Second edition. Macmillan Publishing Company, USA, p. 775.

RehmanHafeez, Faridi Muhammad & Bashir Furrukh, (2010). Households Saving Behaviour in Pakistan: A Case of Multan District. Pakistan Journal of Social Sciences 30 (1): 17-29.

Schmidt-Hebbel K., Serven L., & Solomano A. (1996). Saving and Investment Paradigms, Puzzles, Policies. World Bank Research Observer, 11 (1):87-117.

Serven, L., Schmidt, H. & Loayza, N. (2000). Savings in Developing Countries: An Overview. The World Bank Economic Review.

Shikha, J., Eswar, P. & Akiko, T. (2009). Economics Working Paper Series No. 162 Saving in Asia. Asian Development Bank, Plillines. Available at http://www.adb.org/economics. [Accessed on October 10, 2010].

Sisay, T. (2012). Rural Households Saving Rate Determinants in Kalu Woreda, Eastern Amhara Region. Ethiopian Economic Association.

Simleit, C., Keeton, G. & Botha, F. (2011). The Determinants of Household Savings in South Africa. Rhodes University, South Africa.

Touhami, A., Florence, A., Najat, E. & Sabine, M. (2009). A Micro-econometric Analysis of Households Saving Determinants in Morocco. African Review of Money Finance and Banking 2010, pp7-27.

Tsega Hagos &Yemane Michael, (2014). Determinants of Household Saving in Ethiopia: A Case of North Gondar Zone, Amhara Regional State, Ethiopia. International Journal of Development and Economic Sustainability, 2(4): pp 37-49.

United Nations (2007). Domestic Resource Mobilization and Developmental States, Economic Development in Africa, New York.

United Nations, (2009). Cooperatives in Social Development, Report of the Secretary General, New York.

Wolday, A. (2004). The Development of Micro Finance Industry in Ethiopia: Current Statusand the Prospect for Growth. Addis Ababa, Ethiopia.

Wolff, P. Distler, M., Drochner, M., Meise, J., and Schmidt, D. (2011). Assessing the Sustainability of Savings and Credit Cooperatives in Uganda. German Development Institute, Bonn.

Online Examination System for SMU Biruktawit Teka, Sara Tesfaye, Sara Tadesse, Nardos Tesfaye, St. Mary's University

1. Introduction

This document will propose all features and procedures to develop the system. It contains the objective, scope and limitation, beneficiaries, primary requirements, design model and other parts of the project. St Mary University (SMU) is well known in giving quality and deluxe learning. To support the learning system for the University, we thought to create an online examination for the University.

Online examination system is very useful for educational institutions to prepare an exam, save the time that would have been wasted to correct exam papers and prepare mark sheets. It will also help to assess the students' performance and develop their skills. But the disadvantages of this system are that, it takes a lot of time to prepare the exam for the first time. And it also requires to make sure that Computers are available for each student.

1.1 Background of the Organization

St. Mary's University (SMU) evolved from St. Mary's Language School which was established in 1991 in Addis Ababa. It was in this language center that St. Mary's University was born as a College.

SMU was established in1998 under St. Mary's general education development plc. with the Head Office in Hawassa and a branch in Addis Ababa. In the last quarter of 1998, the University College admitted more than 300 students in Addis Ababa and 25 students in Dilla with a policy to strengthen the Addis Ababa branch.

The College shifted its Head Office from Hawassa to Addis Ababa at Lideta Campus, in 1999. In September 2000, the Department of Computer Science was opened and the degree program in law was initiated for first time. Some years later, more degree programs were introduced in Business areas.

With a view to create more access to higher education, SMU launched distance education program which has now more than 100 coordination offices across the country. The College of Open and Distance Education housed at the University's Head Quarters in Addis Ababa offers undergraduate program in diverse disciplines.

SMU was recognized as a full-fledged university by HERQA in 2013. St. Mary's University has made remarkable growth and expansion of programs in number and types. In addition to its more than twenty undergraduate programs run through conventional and distance modes of learning, the University now runs about 20 local and international master's programs, Computer Science being one of the postgraduate programs.

1.2 Statement of the Problem

The traditional approach to measuring a person's level of knowledge is in paper examination. But now days in addition to examination, some kind of assignment and projects are given to students by the teachers and marked or assessed by the same teachers.

Online examination is the modern method of conducting examination in most sectors of education. It helps to replace the traditional method of paper and pen-based examination.

While eliciting project requirements from the University, we identified the problem regarding departmental examinations being traditional. The following are apparent problems of the current system:

- Paper and pen-based examination
- Material, space and personnel cost
- Time consuming
- Exams are marked and assessed by the same teacher who gives the course
- Students can see their result only when teachers are physically available.
- Personnel responsibility increasing while protecting students to avoid cheating
- The chance of losing exam may exist in current system
- Results may not be accurate since calculation is done manually

1.3 Objectives of the project

1.3.1 General objectives

The general objective of this project was to develop web based online exam application that helps to make existing examination system easier.

1.3.2 Specific Objectives

The specific objectives of the project were:

- To create an online Examination project that helps to assess student's knowledge by conducting online objective tests;
- To check the responses of the candidates automatically;
- To reduce time consumption;
- To allow staff to create and delete exam and answers;
- To show exam schedule notification using integrated online examination; and
- To enable the institution to conduct exam and have automated checking of answers based on responses.

1.4 Alternative Solution

Online examination is one of the technologies which is used to replace the traditional method of examination which is paper and pen-based examination. The alternative solution for the student that can serve as between online examination and paper-based exam are:

- Partial Automated online examination.
- Online examination which doesn't generate result.

1.5 Feasibility study

A feasibility study was carried out to select the best system that meets performance requirements. The main aim of the feasibility study was to determine online examination is whether it would be financially and technically feasible to develop the product than the alternative solution we have.

1.6 Significance of the project

This project has much significance for students and staff of SMU: Student can get exam online.

- The result will be shown to the participating students in a timely manner.
- It gives privilege for St. Mary's University staff to create and delete exam.
- No loss of data.
- It makes the students technology oriented.

1.7 Beneficiaries of the project

The proposed system was primarily intended for the University's students and staff. Upon implementation, the project will finally benefit the institution with an up-to-date technology while at the same time better assist students and staff with their learning/teaching needs. Our web-based online exam application gives the following benefits:

- Cost reduction and time reduction
- Students get exam schedule notification
- No need for the teacher to present physically to view results.
- Introduce students with online exam technology
- Ease of exam creation
- Add or delete the exam easily
- Eliminate redundancy due to paper and manual work.
- Convenient evaluation process
- Cost effective than physical paper-based exams.

1.8 Methodology

1.8.1 Data collection

We used the following methods to collect relevant data required for our project.
Interview: we used interview to gather relevant information about the background of the institution, its work activities and the functions of its existing system.
Observation: we did preliminary analysis of different departments in relation to their inner workings and observed as to how exams actually take place.
Document analysis: we also collected certain relevant information from written documents in SMU. In addition, we also tried to review other relevant documents to develop our project proposal.

1.8.2 System Development Methodologies

We preferred OOSAD (Object Oriented System Analysis and Design) methodology and iterative to develop our system. This was because an OOSAD provides the following advantages:

- It promotes better understanding of user requirements.
- It leads to clear design by using use case, activity diagrams and sequence diagrams.
- It allows to breakdown complicated systems into smaller, clearly defined and more manageable parts.
- It makes the maintenance easy.
- It enables the standardization of objects which increases design understanding and decreases the risks associated with project development.

1.9 Development Tools

A programming tool or software development tool is a computer program that software developers use to create, debug, maintain, or otherwise support other program in the web application development process.

1.9.1 Hard ware Tools

Hardware tool is one of the development tools which is a physical component and helps to achieve the general objective of the project.

Table 1: Software tools Required

No.	Hard ware Tools	Quantity
1	Laptop computers	4
2	CD-RW	4
3	Flash 64GB	1
4	External Hard Disk 1Tera Byte	1

Table 2:Hardware tools

Activities	Software Tools
Plat form	MS windows, Ed raw max, Viso
Database server	MySQL server
Web server	Xampp server
Browsers	Chrome/Mozilla/Explorer
Editors	Sublime text editor and notepad ++
Documentation	Microsoft word 2016/13
User interface design	HTML
Coding language	PHP
Server-side scripting language	PHP
Client-side scripting language	HTML, CSS, JavaScript

1.10 Scope and Limitation of the Project

1.10.1 Scope

The department requested this project to assist the institution in meeting its technological goals. The newly enhanced Online Examination System will increase the service and functionality of the department to current and future students by making it accessible online. It will also help reduce internal cost and improve efficiency by providing standard functions. It will handle all the operation and generate reports as soon as the test is finished. It can provide special advantages to the students or applicants.
But, the project was geographically limited to St Mary's University and also functional only for the Department of Computer Science. The Online Examination System can automatically determine results or calculate total grade for multiple-choice questions only.

1.10.2 Limitation of the project

- The proposed system did not include all the department of St. Mary's University
- Our web-based application did not integrate or access data source from the University's data base.
- He Online Examination includes only multiple-choice questions.

1.11 Risk, assumptions and constraints

1.11.1 Risks

During the development of the project, there were different problems that were encountered. These were:

- *Unfortunate failure of system*: To handle this problem, the team members used some method partially by using back up mechanisms using flash disks, CD/DVD and by storing the data in more than two computers.
- *Power interruption*: we tried to use laptops to cover the gap happened to our project during power failure.
- *Virus attack*: It is difficult to control data from virus but we tried to scan the data, installing and updating antivirus software.
- One of our group members fell sick while in the process of project development, and to solve this problem the remaining group members together covered the task of this team member.
- Therefore, whatever situation happened, or occurred that hinder the progression of the project, the team tried to use the best option to do what was expected from the team.t.

1.11.2 Assumption

The project members will be present when needed and all members will be in their best to accomplish the project.

- Users of the system will fully cooperate in all phases of the project. Hardware like PC, Printer, Photo Copy, Stationary Materials etc. and software requirements like MS word, Xampp server, etc. will be available

1.12 Software Process Model

A software process model is a simplified representation of software process. Each model represents a process from a specific perspective. These generic models are abstractions of the process that can be used to explain different approaches to the software development. There are many process models in our project.

1.12.1 Alterative Model

Iterative process starts with a simple implementation of a subset of software requirements and iteratively enhances the evolving versions until the full systems are implemented. Iterative development is a way of breaking down the software development of a large application into smaller chunks. Iterative model is used in the following scenarios:

- When the requirements of the complete system are clearly defined and understood.
- The major requirements are defined, while some functionalist and requested enhancements evolve with the process of the development process.

- A new technology is being used by the development team, while they are working the project.
- If there are some high-risk features and goals, which might change in the future.
- When the resources with needed skill sets are not available and are planned to be used on contract basis for specific iterations.

2. Business Area Analysis and Requirement Definition

2.1 Introduction

The existing system of St. Mary's University is not convenient and operated manually. Students, to take exam, are required to attend exam class on time. As we maintained in the first chapter, the current system needs new technology and change to face the problem, therefore we analyzed those problems to provide alternative solution.

2.2 Business area Analysis

2.2.1 Detailed Analysis

The detailed analysis focused on the current system of the University and activities of the system. The current system of the university is based on paper and pen-based examination which requires to do the following activities:

- In order to take exam, students are required to attend exam class and on time.
- Teachers can show exam results whenever they want and when they are available in the University.
- Students should contact the teachers to see their results.
- Students must come to the Campus to see exam schedule.

2.2.2 Problem of the Current system

Conventional modes of exams are now outdated as we have seen in past couple of decades. The problem of the current Conventional mode of exams system is that student must come in person to take exam in the exam room and there is no online examination in the University. As we have observed during the data collection, the main problem in St. Mary's University was work burden on the students and lecturers and lack of media for both student and teachers as means of comfortable communication. Therefore, activities of the university depend on the manual work. A

Generally, those problems were:

- Manual examination which lead to wastage of resource like paper, time, place.
- Lack of media for communication to see the student result
- Time taking, expensive and less secured.
- No convenient evaluation process
- Insecurely save the whole data of students.

2.2.3 Players of the existing system

- Students
- Staff
- Instructors (Lecturers) and
- Departments.

2.2.4. The Proposed System

Our web-based application is used to conduct online examination. The student can sit at individual terminals and login to write the exam in the provided duration. The questions are given to the students. Our web application display results instantly as well as store it in database. And give privilege to staff to add new exam and create new question and delete exams. In addition, our web-based application takes care of authentication of the staff, student and admin.

2.2.4.1 Features of Proposed System

Our proposed system has current system features. The following are some of the features the examination system will provide the following:

Time Limit of the Examination
Participants may log-in to the system to take the examination after the start time. When the testing time is up, the exam results will be submitted by the student. If the examination is not completely finished at cut off time, exam will be submitted automatically and report generated regarding incomplete/unfinished status. The start time and end time will be recorded precisely in seconds.

Submission Ways
Submit all answers at once which allow the participants to review and modify their answered questions before they submit the final answers.

Result Release
Immediate release of results since all examinations consist of objective type of questions, the scores can be calculated automatically when the testing is over. The participants can view the results instantly.

Notification
There will be a notification for student to see exam schedule. Staff will notify students when there is exam.

2.3 Requirement Definition

Requirement is an aspect of what the proposed system must do or a constraint on the system developments. It lays out functional and non-functional requirements. The project team used several requirements gathering technique like interviewing, documentation, actual observation of the current system to acquire user's requirement.

2.3.1 Functional Requirement

The functional requirement defines a function of a system or its component, where a function is described as a specification of behavior between output and inputs.

User Requirement

1. Admin Aspect
- Register Staff and Student
- Delete Staff and Student
- Schedule Notification
- Change the Password

2. Staff Aspect
- Log in
- Create and delete Exam
- View score and ranking

3. Student Aspect
- Log in
- Take the Exam
- Submit answer of the Exam
- View Result of taken Exam.

4. System Aspect

4.1. Check submitted answer with the proper answer
4.2. Generate the result.

5. Analysis

5.1. Authenticating the user based on username and password
5.2. Recording User response to every Exam

FR Functional requirements

Table 3: Functional requirement

1	Log in: enables the students and the staff members log on to the system.
2	Online exam: enables students to take exam online, and requires students to have valid user name and password.
3	Exam result: after taking the exam, it enables students to see their exam result.
4	Exam uploading: enables the staff to create and delete exam for students.
5	Manage system: admin Registered student and staff, and the Registered staff and student will be active and nonnative accordingly

2.3.2. Nonfunctional Requirements

Nonfunctional requirement is used to describe user's visible aspect of the system. The nonfunctional requirements are listed as follows:

- The system should have document for the future improvement and maintenance.
- The system should be platform independent.
- The capacity of client and server computer needed to be specified, client computer have medium processor and server computer should have large processor.

St. Mary's University Online Exam will have the following nonfunctional requirements to archive its functionality.

NFR Non-functional Requirement

Table 4: Nonfunctional requirement

1	User friendly: the system is easy to use and work on it because from the beginning users are those who know how to operate the system and work on it so our system is user friendly and can be accessed easily.
2	Performance: the system will have good performance
3	Availability: anyone who has privilege, user name and password can access the system and students have to come to the university to take exam
4	Portability: the system does not depend on single machine and software system independent, so if there is any machine which can archive the required target then users can work on it

Actors of proposed system

Actors of the proposed system are:

- Student
- Staff
- System
- Admin

2.3.3 Essential user interface prototyping

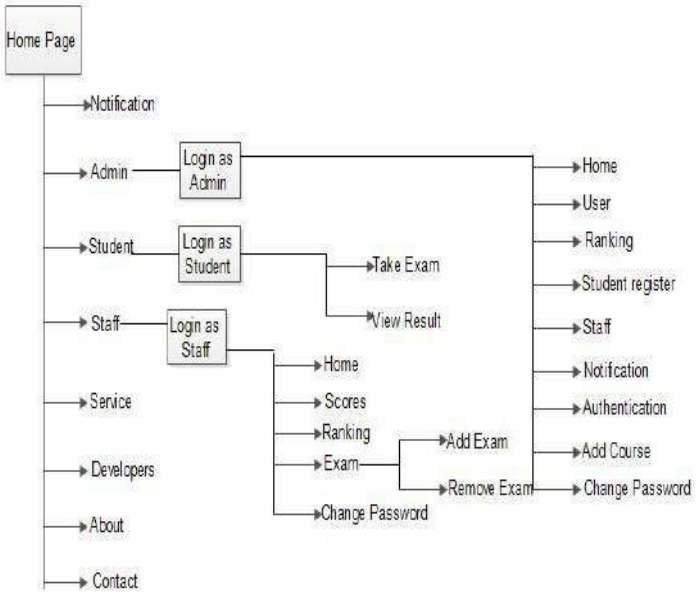


Figure 1: Essential user interface prototyping

3. Object Oriented Analysis

The definition of an object-oriented analysis model encompasses a description of the static and dynamic characteristics of classes that describe a system or product. This activity is performed by a software engineer.

3.1. System Use Case

Use cases model the system from the end-user's point of view. It defines the functional and operational requirements of the system by defining a scenario of usage that is agreed upon by the end-user and the software engineering team.

3.1.1. Business Rules for the Proposed System

The business rules and constraints to develop the application can be summarized as follows:

- Student should have valid user name and password.
- Student has to come to the University to take the exam.
- Student has to come for exam on time.
- Students who do not take or pass the pre-course are not valid to the exam.
- Student can't submit answers for each question.
- Staff should have valid user name and password.
- Staff can't create question without its equivalent answer.
- Staff create and delete question.
- Staff create and delete exam.
- Admin registers student to the system.
- Admin registers staff to the system.
- Admin can make student active to the system.
- Admin can make staff active to the system.

3.1.2 Actor Description

Actors are external entities that interact with the system. Actor initiates system activities for the purpose of completing some tasks. So, the following are actors in this project :

Student: is the person who has a right to notify exam, take exam, submitted answer and view result.

Staff:- is one who participates in the system mostly staff member, lecturer or examiner who manages exam and set questions, create and delete exam.

Admin:- is the person who has the right to register student for exam, delete student and add and delete staff member to manage the system.

System:- is the system which checks student inputs and calculates result. In this case, system is an actor as the system is doing some self-processing action.

3.1.3. Use Case Diagram

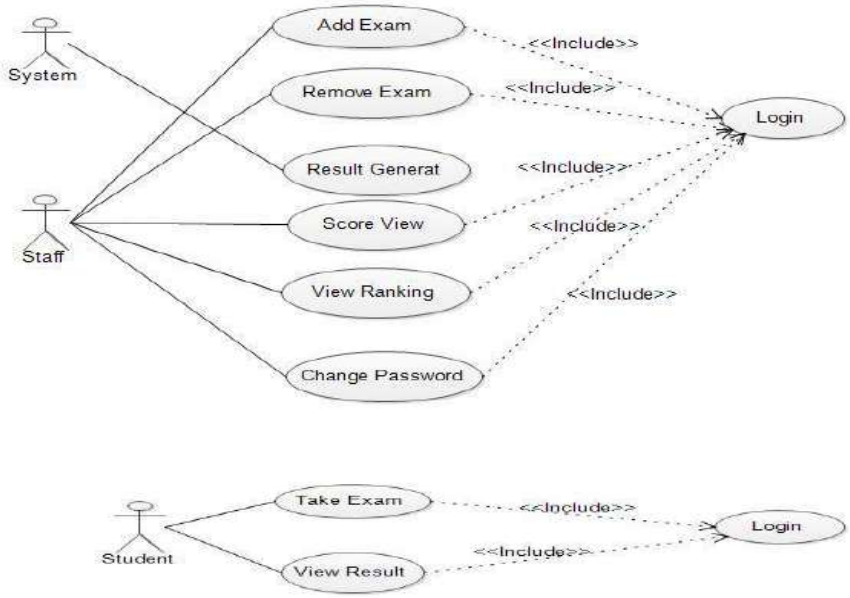


Figure 2: Staff and System Use Case

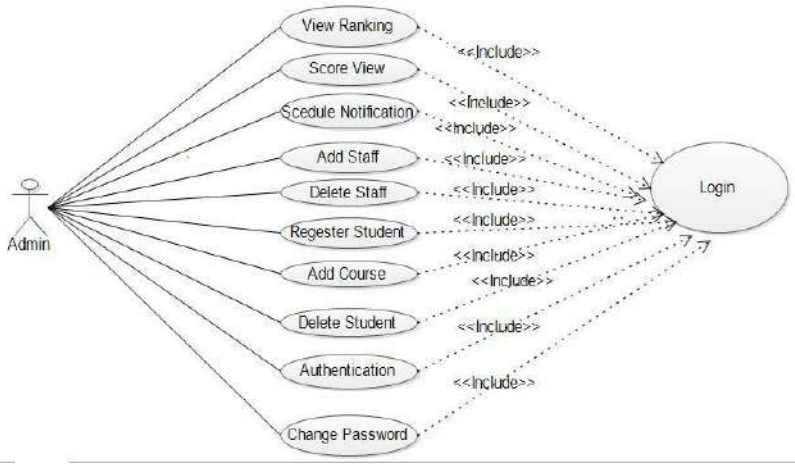


Figure 3: Admin Use Case

3.3 Activity diagram

Activity diagrams are graphical representations of workflows of step wise activities and actions with support for choice, iteration and concurrency. In the Unified Modeling Language, activity diagrams are intended to model both computational and organizational processes (i.e., work flows), as well as the data flows intersecting with the related activities. Although activity diagrams primarily show the overall flow of control, they can also include elements showing the flow of data between activities through one or more data stores.

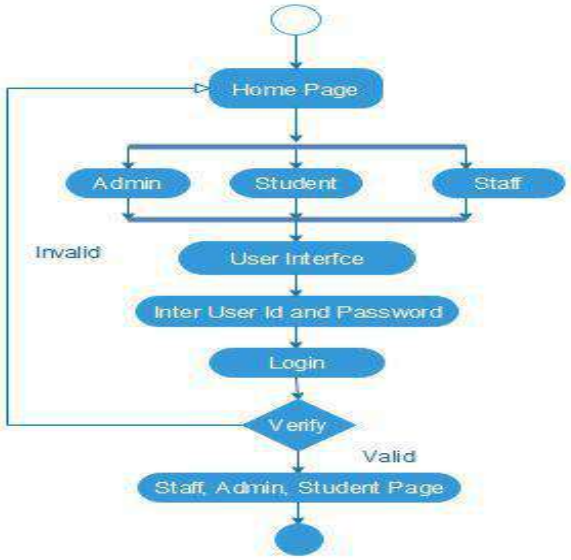


Figure 4: Staff and System Use Case

Figure 5: Take exam and result view activity diagram

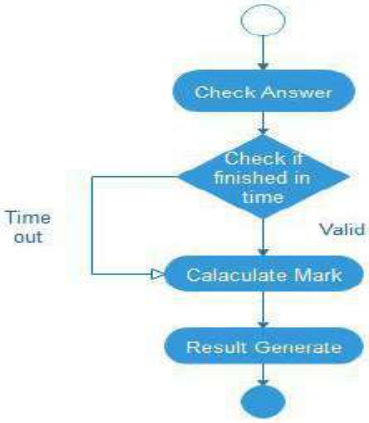


Figure 6: Result generate activity diagram

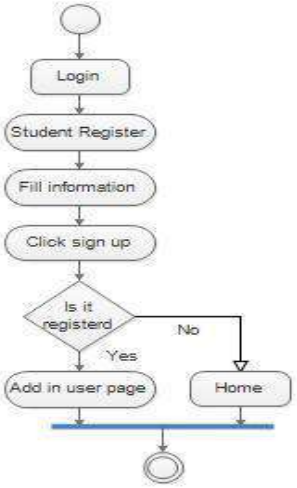


Figure 7: Student register activity diagram

Figure 8: Create exam activity diagram

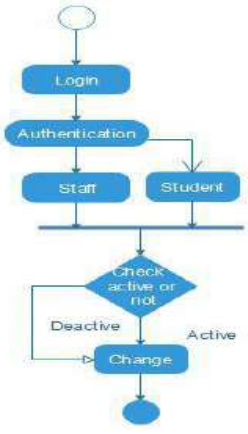


Figure 9: Student Authentication activity diagram

4. Object Oriented Design

Object-oriented modeling (OOM) is a common approach to modeling applications, systems, and business domains by using the object-oriented paradigm throughout the entire development life cycles. OOM is technique heavily used by both Object-Oriented Analysis (OOA) and Object-Oriented Design (OOD) activities in modern software engineering.

4.1. Design Class Modeling

4.1.1. Class Diagram

A class diagram in the Unified Modeling Language (UML) is a type of static structure diagram that describes the structure of a system by showing the system's classes, their attributes, operations (or methods), and the relationships among objects.

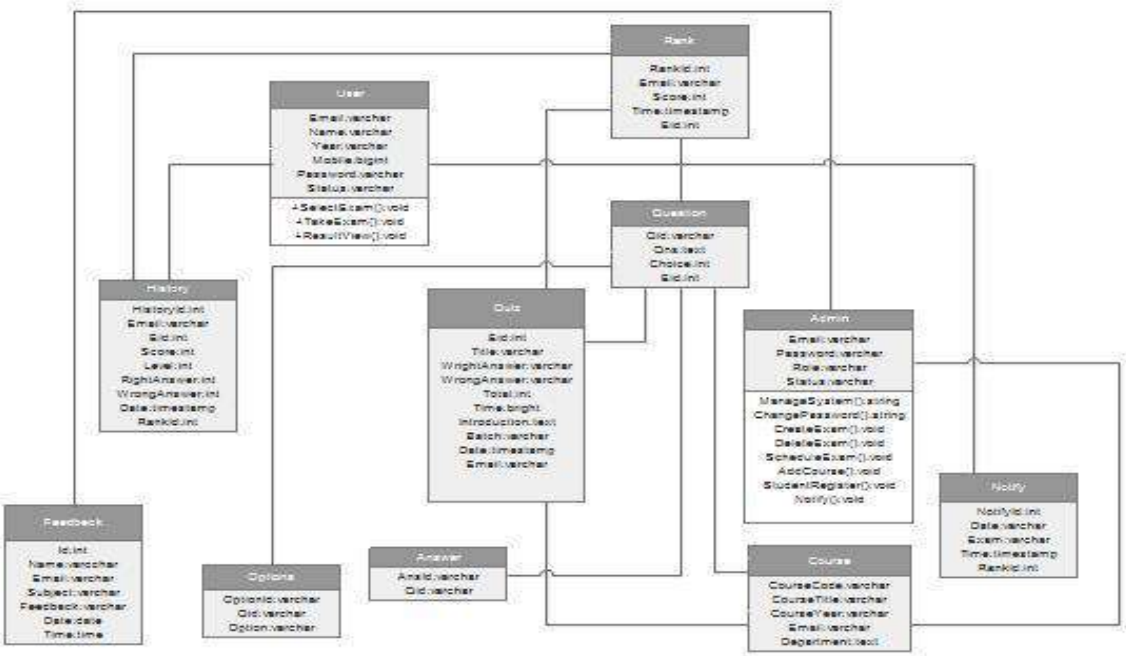


Figure 10: Class diagram

5. User Interface Design

The following figures are taken as sample from the system which help us to know how the system works and the general steps in the figure.

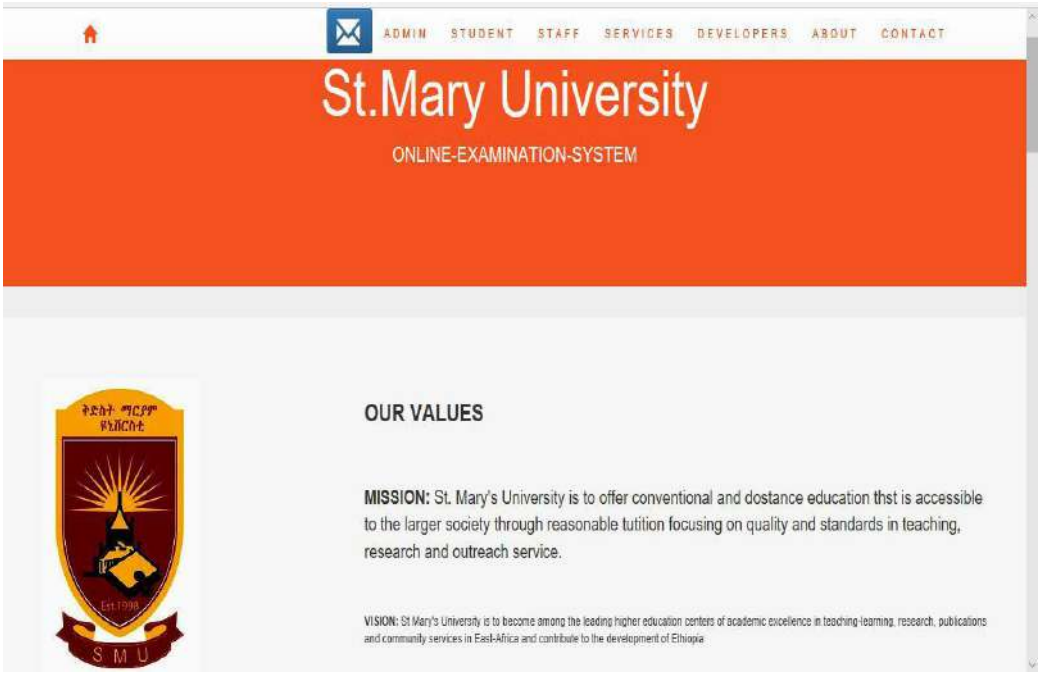


Figure 11: Home page

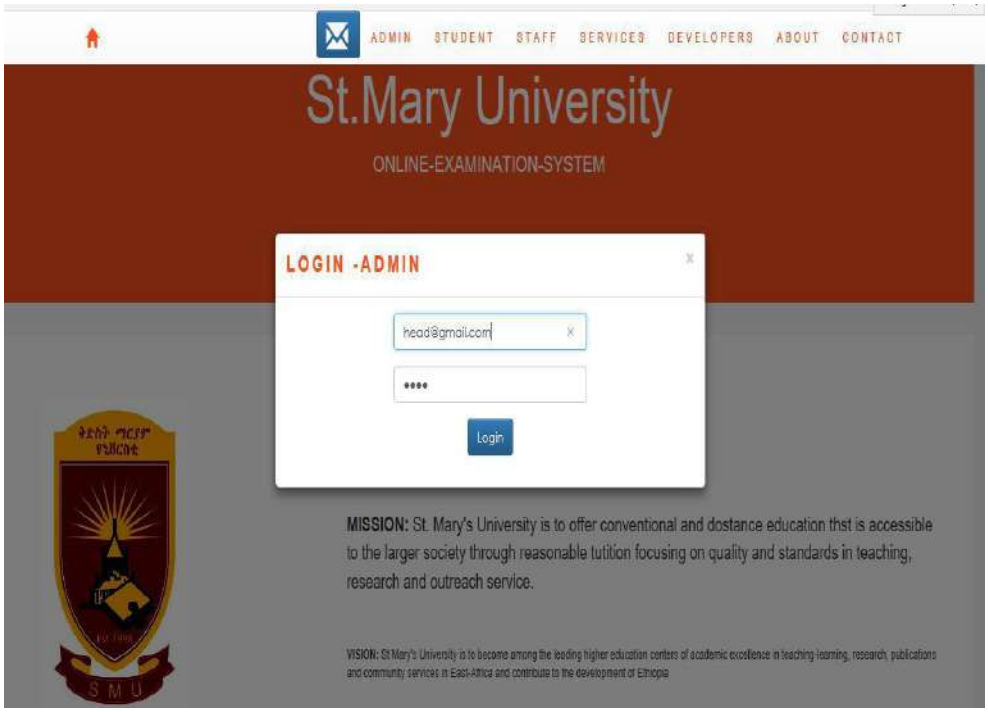


Figure 12: Admin log in page

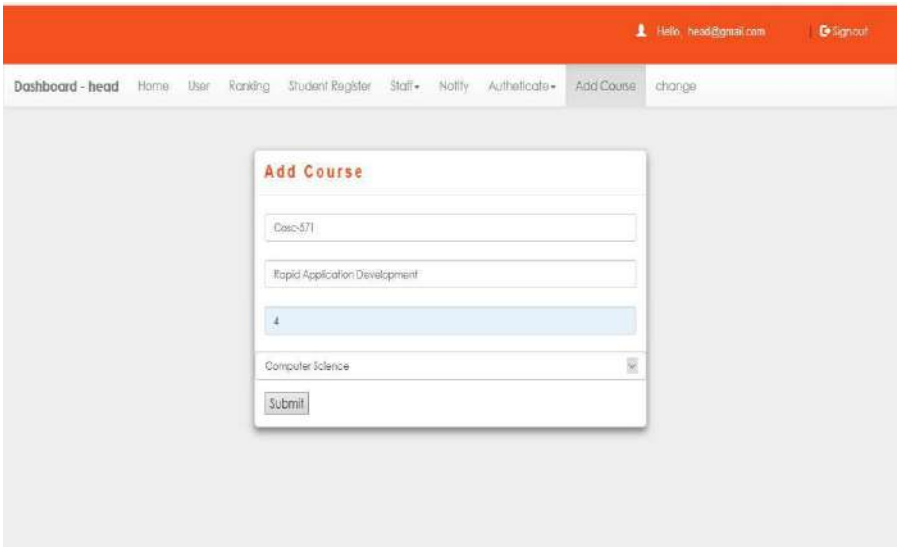


Figure 13: Add course page

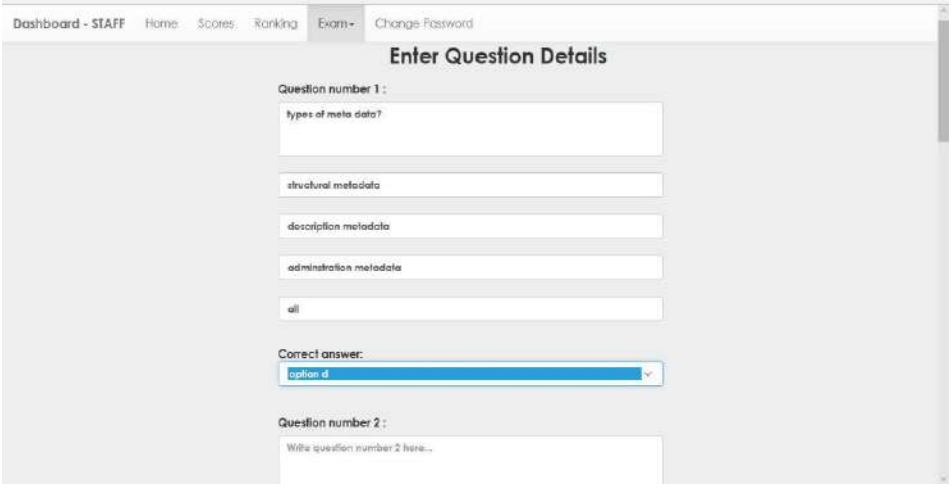


Figure 14: Change password page

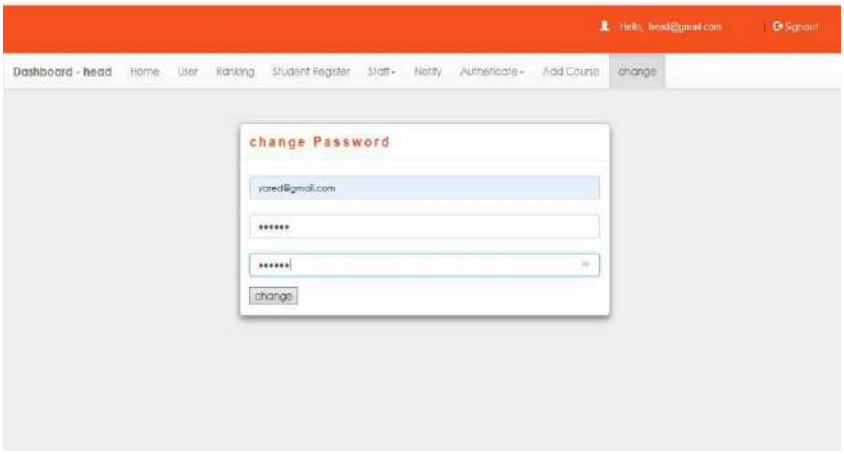


Figure 15: Add question page

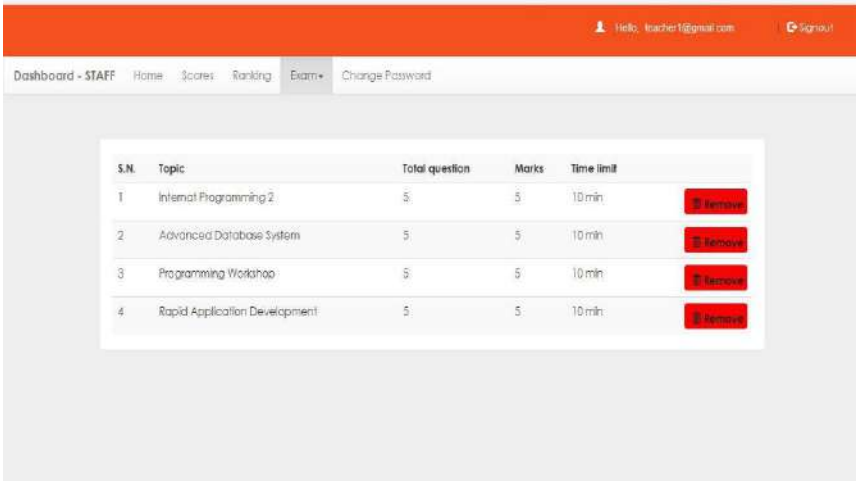


Figure 16: Remove exam page

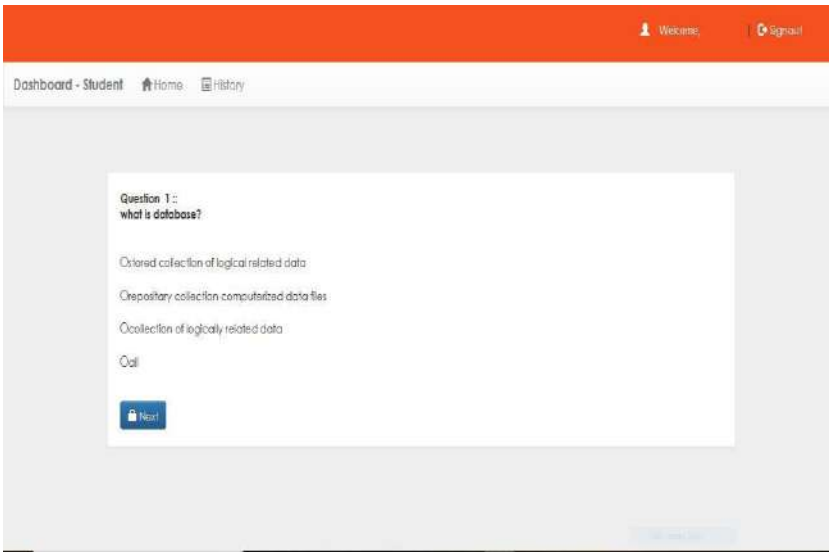


Figure 17: Student registration page

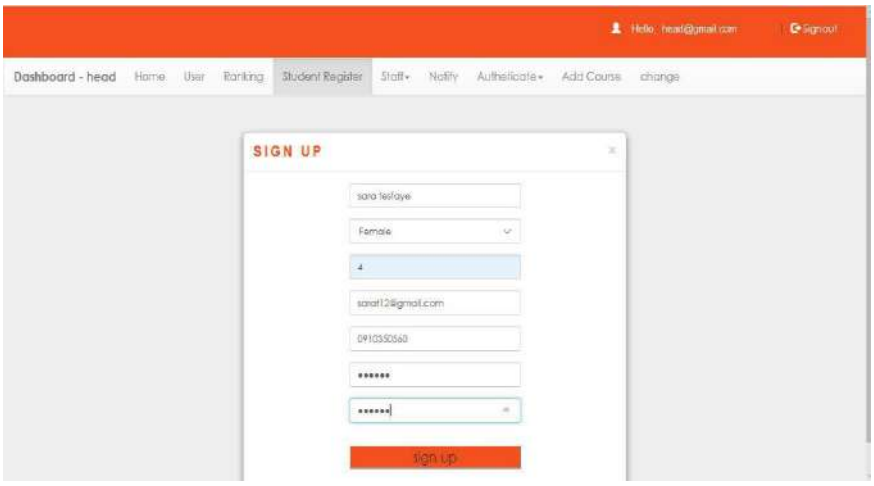


Figure 18: Take exam page

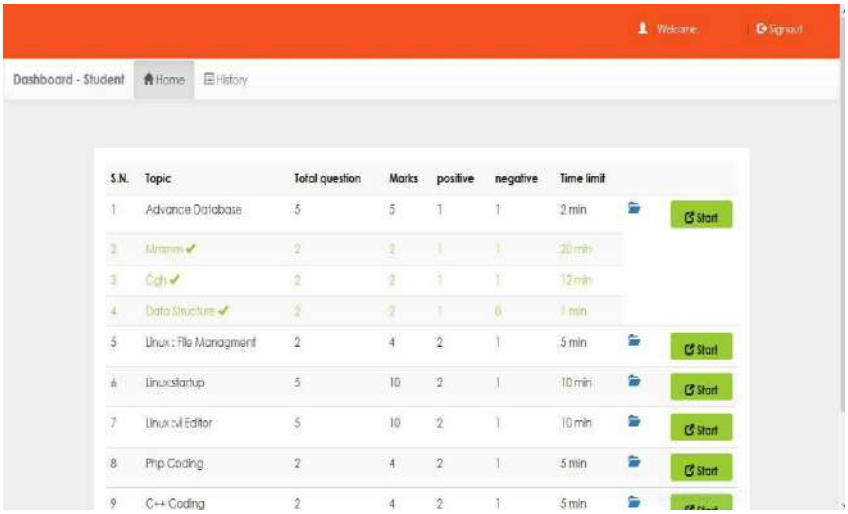


Figure 19: View result page

5. Object Oriented Implementation

Implementation in the system includes implementing the attributes and methods of each object and integrating all the objects in the system, to function as a single system. The implementation activity spans the gap between the detailed object design model and a complete set of source code files that can be complied together. this chapter presents implementation codes and interface. The test case also includes sample for unit test case support.

5.1. Implementation Technology

When the user types in the URL of the page in the address field of the browser, a Web Server is contacted to get the requested information. In the Xammp, The XAMPP suite of Web development tools, created by Apache Friends, makes it easy to run PHP (Personal Home Pages) scripts locally on your computer. Manual installation of a Web Server and PHP requires in-depth configuration knowledge, but installing XAMPP on Windows only requires running an installer package. This package installs not only a Web server and PHP but also MySQL, FileZilla, Mercury, Perl and Tomcat. These applications allow testing of full websites on your own desktop without the need to upload everything to an online Web server. For the implementation we use Windows server 2008 R2 and we installed Xammp.

XAMMP

Xammp is a free and open source cross plat form web server solution stack package developed by Apache friends, consisting mainly of the appache http server, and interpret for scripts written in the PHP and perl programming languages. Since most of actual web server deployment uses the same components as XAMMP, it makes transitioning from a local test server to a live server possible.

Advantage of XAMMP

- You can start and stop the whole web server plus database stack with one command.
- XAMMP is portable so you can carry it around on a thumb drive.
- The security setting are strict by default nobody but you will be able to access the web server.
- PHP error reporting is enabled by default which helps when debugging scripts.

Windows Server 2008 R2

Windows server 2008R2 is a server operating system developed by Microsoft, which build on the enhancement built into windows server 2008. The operating system which is highly integrated with the client edition of windows 7, offers improvement in scalability and availability as well as power consumption.

5.2. Coding

There are several data base tables we have listed them below.

1. The first table name in the data base is Admin

CREATE TABLE `admin` (`email` varchar(50) NOT NULL, `password` varchar (500) NOT NULL,PRIMARY KEY (`email`);//this table used to store admin data.

2. The first table name in the data base is Answer

CREATE TABLE `answer` (`qid` varchar(50) NOT NULL, `ansid` varchar(50) NOT NULL) ALTER TABLE `answer` PRIMARY KEY (`ansid`)//this table stores answer.

3. The first table name in the data base is Feedback

CREATE TABLE `feedback` (`id` int(11) NOT NULL,`name` varchar(50) NOT NULL,`email` varchar(50) NOT NULL,) //this table stores feedback of user.

4. The first table name in the data base is History

CREATE TABLE `history` (`history_id` int(11) NOT NULL,`email` varchar(50) NOT NULL,`eid` int(11) NOT NULL,`score` int(11) NOT NULL, ADD CONSTRAINT `history_ibfk_1` FOREIGN KEY (`rank_id`) REFERENCES `rank` (`rank_id`)//

5. The first table name in the data base is Notify

CREATE TABLE `notify` (`notify_id` int(11) NOT NULL,`date` varchar(50) NOT NULL, `exam` varchar(50) NOT NULL,`time` timestamp NOT NULL DEFAULT CURRENT_TIMESTAMP ON UPDATE CURRENT_TIMESTAMP,// this table contain schedule notification data

6. The first table name in the data base is Options

CREATE TABLE `options` (`qid` varchar(50) NOT NULL,`option` varchar(5000) NOT NULL,//this table contain option to be select by student

7. The first table name in the data base is Questions
CREATE TABLE `questions` (`qid` varchar(50) NOT NULL, `qns` text NOT NULL, `choice` int(10) NOT NULL,//this table contains data of question which added

8.The first table name in the data base is Quiz
CREATE TABLE `quiz` (`eid` int(11) NOT NULL,`title` varchar(100) NOT NULL, PRIMARY KEY (`eid`);//this table contains data of exam which are added.

9.The first table name in the data base is Rank
CREATE TABLE `rank` (`rank_id` int(11) NOT NULL,`email` varchar(50) NOT NULL,//this table contain exam taken student rank

10.The first table name in the data base is user
CREATE TABLE `user` (`name` varchar(50) NOT NULL, `gender` varchar(5) NOT NULL,)

5.3 Testing

Tasting Strategy

For each level of testing, a separate test plan is prepared with the following set of deliverables:

- Test Case Identifier
- Features and items to be tested
- Pass / Fail Feature
- Test Procedure

5.3.1. Testing and testing procedure

System Testing:- System Testing (ST) is a black box testing technique performed to evaluate the complete system the system's compliance against specified requirements.
Unit testing:-Unit testing will be conducted to verify the implementation of each necessary requirement changes..

Test case user Register
Student

Table 5: Test case user

Register
Student

Test Identifier	Student Registration Form
Features to be Tested	To Add student in to the websites
Feature pass/fail	Test passes if it is student register
Means of Control	In put Date and out put
Test Procedure	1.Full name 2. Gender 3.Department 4. Insert email-id 5. insert password 6. Mobile number 7.Sign in
Expected Result	• follow register student Page • register student page is display • check and validate all input value.
Actual Result	We take ten users to be add follow register
	student Page, register Page popup, we fill all forms and all ten values store in DB
Pass/fail	Passed

Test case Add Exam	
Test Identifier	Add Exam Form
Features to be Tested	To Add Exam in to the websites
Feature pass/fail	Test passes if it is Exam is add
Means of Control	In put Date and out put
Test Procedure	1.exam title
	2.course title
	3.Department
	4.course number

	5.total mark	
	6.right answer mark	
	7.wrong answer mark	
	8.time for exam	
Expected result		Add exam details
	• Fill question in question details	
		Add exam successfully
Actual result	We	add five courses, fill Add exam details
	of five course and Fill question in question	
	details, finally Add exam successfully	
Pass/fail	Passed	

Test Case Add staff

Table 6 : Test case Add Exam

Test Identifier	Add staff Form
Feature pass/fail	To Add staff in to the websites
Means of Control	In put Date and out put
Test Procedure	1.enter Email-id 2.enter password 3.click submit
Expected result	• follow register staff Page • register staff page is display • check and validate all input value
Actual result	We take ten staff members to be add follow add staff Page, register Page popup, we fill all forms and all ten values store in DB
Pass/fail	Pass

Test Case: Delete staff

Table 7: Delete

Test Identifier	Delete staff Form
Feature pass/fail	To Delete staff in to the websites
Means of Control	In put Date and out put
Test Procedure	1.enter Email-id 2.enter password 3.click submit 4.delete staff
Expected result	• follow delete staff Page • delete staff page is display • delete staff
Actual result	We take five staff members to be deleted follow remove staff Page: we delete staff by email-id from DB
Pass/fail	Passed

6. Conclusions and Recommendations

6.1 Conclusion

The proposed Online Examination System can be easily adopted by St. Mary's University and students in order to make the exam more secure and more flexible. The system is subdivided into four main sub systems (Staff, System, Student, Admin) that are designed to give the system maximum benefit by carefully demonstrating each subsystem service. The administrator's function is to be able to manage the entire system; the System's function is to be able to generate and publish exam results; the staff's functions are clearly identified to be able to delete, create exam and question; and the last sub-system is student's the role in the

proposed system is to select and take exam, submitting and viewing answer. Thus, the proposed system is easy and flexible for future development, because each subsystem can be handled separately without influence on the other system.

Generally, this system will solve the existing system's major problems that can make the students to take the exam easily and the organization or staff members to easily examine the students.

6.2 Recommendations

Since the system is dynamic, further enhancements can be incorporated into the system and SMS server which enables students to get real time notifications of results. Also, a mail server to enable users register with the correct valid emails so that when they register, a link can be sent to their emails so that they click it to activate their registration. This will also enable users to receive updates from the site and any other subscriptions like newsletters and news.

Reference

Roger S. Pressman (2001). Software Engineering A Practitioner's Approach, Fifth Edition,

Roger S. Pressman (2010). Software Engineering: A Practitioner's Approach, Seventh Edition.

Joseph S. Valacich and F. George (2017). Modern System Analysis and Design, Eighth Edition.

Previous Year Senior Papers Found at Mexico Campus under Department of Computer

Research and Knowledge Management
Office (RaKMO)
P.O. Box 18490, Addis Ababa, Ethiopia
Tel: +251(0) 11-558-0616
Email: rakmo@smuc.edu.et
Website:http://www.smuc.edu.et