ASSESSING THE EFFECTS OF MACROECONOMIC VARIABLES ON ECONOMIC GROWTH IN UGANDA

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BQE

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July 24, 2018
Declaration

I would like to declare that this research has been carried out and written by me and has not received any previous academic credit at this or any other institution.

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Signature ................................

Date ..................................
Approval

Following my supervision of study topic “The Effect of Macroeconomic variables on economic growth with Uganda as a case study”, I am satisfied as a lecturer that it is worth submitting for consideration as one of the requirements for the award of the degree of Bachelor of Science in Quantitative Economics of Makerere University, Kampala.

Supervisor: 

[Signature]

Lecturer, Makerere University

Date: 30/12/18
Dedication

I dedicate this research to the people who have been there for me in this academic journey especially my parents who made sure that this dream would come to a success by providing me with the necessary resources. Thank you very much, God bless the work of your hands.
Acknowledgement

I would like to express my sincere gratitude to my supervisor Tuyiragize Richard for his valuable guidance throughout this research project of which without his direction it would have been impossible to reach this far.
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<td>CAB</td>
<td>Current Account Balance</td>
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<td>VAR</td>
<td>Value at Risk</td>
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<td>TAR</td>
<td>Threshold Auto Regression</td>
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<td>ERP</td>
<td>Economic Recovery Program</td>
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<td>OGLS</td>
<td>Open General Licensing System</td>
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<td>SAPs</td>
<td>Structural Adjustment Programs</td>
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<td>MDGs</td>
<td>Millennium Development Goals</td>
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<td>SDGs</td>
<td>Sustainable Development Goals</td>
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ABSTRACT

One of the most important objectives for any country is to sustain high economic growth. Even though there are many factors that affect economic growth, this paper has focused on only four that is Inflation, Unemployment Rate, Current Account Balance and Population Size. The relationship between economic growth and these variables is quite contestable as was seen while reviewing the empirical literature. Each researcher seems to be reaching a different conclusion depending on the country or time period under consideration. This study has been carried out using data on Uganda’s economy from 1990 to 2017 extracted from the International Monetary Fund’s World Economic Outlook Database, updated as of April 2018. Linear regression analysis has been used to establish the extent to which the macroeconomic variables under study affect economic growth in Uganda. From the analysis results it was established that Unemployment Rate; Current Account Balance and Population Size have a significant effect of economic growth at 5% level of confidence. Following the research findings the researcher recommended creation of more job opportunities by government and skilling the youths appropriately in order to curb unemployment. The researcher also recommended government to promote domestic industries for value addition if they are to export goods that fetch higher foreign exchange in order to reduce the current account deficit. And finally government was advised on sensitizing the masses on the dangers of over population.

Key words: Economic Growth, Inflation, Unemployment, Current Account Balance and Population Size
CHAPTER ONE

INTRODUCTION

1.1 Background

Godwin (2007) defines economic growth as an increase in real Gross Domestic Product (GDP). That is, Gross Domestic Product adjusted for inflation where as Muhamood (2015) defines Economic growth as the ability of an economy to increase its productive capacity through which it becomes more capable of producing additional units of goods and services. The growth or development of a country can be measured through various economic indicators such as Human Development Index (HDI), Total Factor Productivity (TFP), Gross Domestic Product Growth rate (GDP) e.t.c (Smyth, 1995). But for this particular study Gross Domestic Product measured at current prices has been chosen as the proxy to measure economic growth due to the ease of measuring and obtaining its data in the target country.

This research has taken Uganda as its case study for various reasons among which includes the relative peace that the country has enjoyed in the past almost three decades. Uganda like many other developing countries puts economic growth as one of its foremost priorities as evidenced by many policy frameworks and structural transformations the country has had to undertake in order to achieve this phenomenon. Prior to the current government, Uganda’s economy was in shambles due to high rates of inflation that were mainly due to budget deficit financing by monetary base expansion that is printing of more currency notes to cover the budget gap. And as such when NRM took over bringing back the inflation rate to normal rates was its first priority.

With the dawn of a new era under NRM in early 1986, government took steps toward economic rehabilitation. The country's infrastructure, notably its transport and communications systems which were destroyed by war and neglect, were rebuilt. Recognizing the need for increased external support, Uganda negotiated a policy framework paper with the IMF and the World Bank in 1987 and it subsequently began implementing economic policies designed to restore price stability and sustainable balance of payments, improve capacity utilization, rehabilitate infrastructure, restore producer incentives through proper price policies, and improve resource mobilization and allocation in the public sector.
One of such policies was the Economic Recovery Program (ERP) adopted in 1987 to 1992 where Uganda was to obtain credit from IMF with objectives like (i) a currency reform under which one new Uganda Shilling would be equivalent to 100 old Ugandan Shillings; (ii) a 77% devaluation; (iii) increases in producer prices including coffee Robusta (182%), coffee Arabica (158%), seed cotton (375%), green leaf tea (257%) and flure cured tobacco (280%); (iv) increase in prices of petroleum products thus establishing parity with neighboring states and, (v) doubling of the civil service wage bill as of June 1, 1987. Future actions would include those reforms agreed to in the context of the Policy Framework Paper (PFP) in the areas of fiscal management; where the restoration of financial discipline was called for; money and credit where a key objective was to reduce inflation; the exchange rate, where there was need to maintain a realistic exchange rate for the Uganda Shilling and trade policy where the main initiative would be the introduction of a limited Open General Licensing System under which import licenses and foreign exchange would be provided freely upon request. Overall, the thrust of the policy reforms over the next twelve to eighteen months would be towards stabilizing the economy and thus creating a policy environment conducive to rapid growth with an efficient use of resources.

The ERP could not be sustained for long as inflation again spiraled up; the government then adopted the Structure Adjustment Program as proposed by IMF to developing countries that needed funds to inject into their failing economies. The SAPs were to mainly orient the economy towards private sector led growth and mobilize domestic and foreign resources for development; it had among other conditions like rolling back inefficient state from intervention in the economy, privatizing, deregulating and liberalizing the economy and devaluate the exchange rate reducing government expenditure by retrenching some workers, carry out fiscal austerity through retrenchment of public servants, diversify and promote exports according to comparative advantage and many others that were thought to the major causes of the ailing economy at that time.

The whole idea about SAPs was to reduce short term consumption for three to five years in order to save, settle external debt and balance the budget and prepare a platform for rapid and sustained investment and economic growth and employment as well as distribute the benefits of economic growth through a trickle down mechanism. The process would translate into poverty
reduction and its offshoots of hunger, ignorance and disease. Fighting and defeating inflation by reducing money supply through correct interest rates was also a key element of the SAPs.

The SAPs were to lead Uganda to achievement of the Millennium Development Goals (MDGs) as adopted in 2000 which were later modified to Sustainable Development goals on 25\textsuperscript{th} September, 2015 (www.savethechildren.com) upon which Uganda’s Vision 2040 has been formulated. It is themed on ‘Transforming Ugandan Society from a Peasant to a Modern and Prosperous Country within 30 years’. Generally the policies Uganda implemented especially from 1992 led to economic stability and significant achievements in growth and poverty reduction. Real GDP growth from 1992 to 2012 averaged about 7.5 percent per annum, and during that period GDP quadrupled. The proportion of Ugandans living below the minimum income to meet the cost of basic needs that stood at 56\% in 1992/1993 fell to 24.5\% in 2009/2010 (EPRC, 2013)

1.2 Problem Statement

Several researches have been carried out to establish the relationship between macroeconomic variables and economic growth world over though in Uganda such studies are rare. A study titled Economic growth and inflation, a panel data analysis by (Fikirte, 2012), the results indicated that there was a negative relationship between economic growth and inflation. This study is also examined the causality relationship between economic growth and inflation by using panel Granger causality test. Panel granger causality test showed that inflation can be used in order to predict growth for all countries in the sample, while the opposite was only true for Congo, Dep. Rep and Zimbabwe.

Another study by (Upreti, 2015) which aimed at identifying the factors affecting economic growth in developing countries, cross-country data for 76 countries from 2010, 2005, 2000, and 1995 was used and results showed that a high volume of exports, plentiful natural resources, longer life expectancy, and higher investment rates had positive impacts on the growth of per capita gross domestic product in developing countries

(Kumar, Manmohan, & Jaejoon, 2010) in their working paper titled public debt and growth, found a linear inverse relationship between initial debt and subsequent growth in a sample of emerging and advanced economics. The impact of high debt was smaller in developed
economies. They also found that only very high levels of the debt-to-GDP ratio had significant negative effects on economic growth. Reinhart and Rogoff (2010) studied 20 developed economies for about two centuries and found that the negative relationship between growth and level of debt was very weak.

In Uganda such studies are rare and with this research I hope to fill this knowledge gap.

1.3 Scope of the Study
This section discusses the boundaries of the survey. It includes the content scope, the geographical scope and the time scope.

1.3.1 Content scope
The study was focused on assessing the effects of macroeconomic variables on economic growth with Uganda’s economy as a case study. Uganda’s economy was chosen because it is a developing economy and developing economies provide good avenues along which to observe macroeconomic factors at play. Unlike in developed countries where some of these factors like inflation which always almost stable, in developing countries it is the opposite. There is always variation which prompted the researcher to undertake this study with the major aim of establishing whether such variations are really significant in terms of influencing economic growth.

1.3.2 Geographical scope
Geographically the study will adopt Uganda as the case study. Uganda is a land locked country in the East African region located along coordinates 0.347596°N, 32.2903°E with Kampala city as its capital. The country boosts of a 44.2 million population according to world population review, 2016 and it’s among the youngest and fastest growing in the world.

1.3.3 Time scope
This study considered the time period 1990 to 2017 because during this period Uganda has enjoyed relative peace compared to the periods before which has given chance for the economy to grow. With this relatively stable and longer period of observation effects of macroeconomic variables on economic growth should be well observed.
This study focused on assessing the effect of macroeconomic variables on economic growth with a case study of Ugandan economy thus geographically the study was limited to within the boundaries of Uganda. For the case of time, the research was conducted from June to August which gave ample time to researcher to collect the necessary data, carry out the analysis and present the research findings.

1.4 Objectives of the Study

This study was guided by two major categories of objectives that is the main objective and the specific objectives

Main objective

The main objective of this study was to assess the effect of macroeconomic variables on the growth of the economy with Uganda’s economy as the case study.

Specific objectives

This study was be guided by the following specific objectives

1. To establish the relationship between inflation and economic growth
2. To find out if the current account balance value has an effect on economic growth
3. To understand the influence of unemployment rate on the growth of a country’s economy
4. To study the relationship between population size and the country’s economic growth

1.5 Hypotheses

1. There is no relationship between inflation and economic growth
2. The current account balance has no effect on economic growth
3. Unemployment rate has no influence on the growth of a country’s economy
4. There is no relationship between the population size of a country and its economic growth
1.6 Significance of the study
This research is paramount to developing countries especially the policy makers. A good understanding of how macroeconomic variables affect economic growth gives them the edge and flexibility in designing the most appropriate strategies / policies aimed at growth of the economy.

Also the fact that little is known about the effect of macroeconomic variables on the performance of the Ugandan economy, this research couldn’t have come at a more appropriate time than this to fill this knowledge gap and provide a foundation for more research about the topic.

And lastly economic agents like banking institutions, business community, investors and others will be the beneficiaries of this research because with a good knowledge of how these macroeconomic variable operate and their effects, they should be able to make appropriate decisions.

1.7 Organization of the study report
This study has mainly been organized under five chapters. Chapter one provides background information about economic growth in Uganda especially in view of what Uganda as a country has done in order to achieve economic growth together with what prompted the researcher to undertake this study (research problem). With the problem identified objectives were set with the main objective being to assess the effect of macroeconomic variables on economic growth. This main objective was then narrowed to four specific objectives that is (1) to establish the relationship between inflation and economic growth (2) to find out if the current account balance value has an effect on economic growth (3) to understand the influence of unemployment rate on the growth of a country’s economy and (4) to study the relationship between population size and the country’s economic growth. The scope of the study highlighted the content, time and target population to be covered. The chapter ends with the researcher highlighting the significance of the study and a pictorial representation of the relationship between the dependent and independent variables also termed as the conceptual framework. Chapter two highlights both theoretical and empirical literature about the study topic whereas chapter three presents the methodology that was used to undertake the study. Chapter four is an analysis of the collected data, its interpretation and answering the research hypotheses. Chapter five is the final chapter that has the conclusions reached at by the researcher basing on research findings and the recommendations follow.
Figure 1.8: The conceptual framework

A conceptual framework is a visualization of how the independent variables are related to the dependent variable. In this case the study sought to assess the effect of macroeconomic factors on economic growth with Uganda as a case study. GDP at current prices was used as a proxy for measuring the dependent variable that is economic growth and factors inflation, unemployment rate, current account balance and population size served as the independent variables.

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Dependent Variable</th>
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<td>Inflation</td>
<td>Economic Growth</td>
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<tr>
<td>Unemployment rate</td>
<td></td>
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<tr>
<td>Current Account Balance</td>
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<td>Population size</td>
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CHAPTER TWO

LITERATURE REVIEW

2.1 Theoretical review

Many scholars and researches have advanced several theories that try to explain the forces behind the growth of world economies and the following are the few that have caught the researches attention.

The classical theory of economic growth

This theory is built on three major assumptions that is (1) flexibility of prices (2) Say’s law which is simply stated as supply creates its own demand and (3) Saving investment equality. The classical theorists argued that economic growth will decrease or end because of an increasing population and limited resources. They developed the idea of a subsistence level which they termed as an equilibrium level to model this theory. They believed that if real GDP rose above this level, the population would also rise and bring back the real GDP to the original equilibrium (subsistence level). But this model had its limitations like;

1. The role of technical progress was underestimated in the model. Experience has shown that the role of DR, as the pointer to the day of doom, has certainly diminished.
2. The iron law of wages, which suggests that wages cannot be above the subsistence level because the Malthusian Law of Population has been discredited as the sole-explanation of wage determination. The iron law of wages is based only on supply, whereas wages are determined both by demand and supply. It does not take into account the role of trade union on wage determination.
3. The Malthusian Theory of Population Growth has been found to be misleading in the light of the experience of economic development of the economically advanced European countries. The Malthusian argued that, whenever wages are above the subsistence level, people like to have more babies rather than other things seems to be unacceptable, both logically and empirically.
4. The classical model seems to be too simplistic to account for the complex factors which influence growth.
Never the less the classical model points at one of the most important factors that influence economic growth that is the population of the country and the notion of supply creates its own demand still holds to a great extent in today’s economies especially in developing countries where agriculture is the main source of livelihood.

**Marxist Theory of Economic Growth**

Marx rejected some principal features of the Classical theory of economic growth and offered his own theory within a socio-historical framework in which economic forces play a major role. In Marxist theory, the law of diminishing returns has been discarded because Marx believed that the Classical theory of Stationary State was actually a creation of human actions rather than the end product of a natural, immutable law. For a similar reason, Marx also castigated the Malthusian theory of Population.

Marx looked at economic development from a social and historical standpoint. Each stage of economic growth was regarded as the product of Hegelian dialectics of a game of contradictions where a thesis created its anti-thesis and the conflict between the two produced a synthesis. Marx emphasized that, with capitalism, social relations of production are much more important than exchange relations between goods.

The social character of labor has been stressed in particular. Marx argued that labor productivity is a gift, not of nature, but of history embracing thousands of centuries. However, the Marxist concept of relations of production is rather vague. It has been interpreted as an ‘organic whole’ characterized by labor organization and skill, the standing of labor in society, technological and scientific knowledge and its use in a certain environment. In the Marxist analysis, these relations of production determine the socio-cultural set-up of a society. Marx believed that capitalism would not end up in a quiet classical stationary state; rather, it would break up with a ‘bang’ when the expropriators are expropriated.

This theory has been followed by countries like India, Egypt and Ghana in their development plans. The basic strategy has been to increase investments in capital goods industries and services, and to increase supply of consumer goods by increasing investment and production in agriculture and small sector. The primary aim of this is to create larger employment
opportunities to increase purchasing power and fresh demand to build strong capital base and increase productive and technical capacities within the economy.

2.2 Review of empirical literature

Empirical literature consists of research findings that have been reached at by researchers that have collected and analyzed data pertaining to the topic and made their conclusions in regards to what they have found.

2.2.1 Inflation and economic growth

Inflation is defined as a sustained increase in the general level of prices for goods and services in a country and is usually measured as an annual percentage change. As inflation rises, the local currency keeps depreciating or loses value against the major currencies like the US dollar. With increasing prices local production becomes expensive, firms struggle to break even and others are not fortunate enough to play along and find themselves shutting down. This definitely deters economic growth.

Maliik (2001), attempted to examine the relationship between inflation and GDP growth for four South Asian countries that is Bangladesh, India, Pakistan and Sri Lank. In his study he employed co-integration and Error correction model to examine the extent to which economic growth was related to inflation and vice versa. With the annual data sourced from the IMF international financial statistics CD-ROM, the empirical evidence suggested that there was a long run relationship between economic growth rates and inflation rates in all four countries. Finally, the study evaluated that inflation and economic growth were positively related, the sensitivity of inflation to changes in growth rates was longer than that of growth to changes in inflation rates.

Gylfason & Tryggvi (2001) studied to investigate the cross country link between inflation and growth. Their study dealt with cross country analysis for 170 developing and developed countries. The study used annual data series covering the frequency from 1960-1992. They employed simple regression techniques in order to determine the link between inflation and growth. The empirical findings suggested that the cross country links between inflation and growth are economically and statistically significant and robust.
Valdovinos (2003) studied to examine the growth rate of the economy and the level of inflation from a non-structural, low frequency point of view. The study used annual data for the eight Latin American countries covering the period from 1970-2000. The study also employed spectral analysis to examine the growth inflation levels. The empirical findings of the study emphasized that the average long run rate of inflation in a country is negatively associated with the countries long run rate of growth.

Gokal & Hanif (2004) attempted to investigate the meaningful relationship between inflation and growth in Fiji. The study used the annual data from the period 1970-2003. The study employed the econometric techniques like Unit Root Test (ADF, PP) and Granger Causality. The study found that there existed a weak negative correlation between inflation and growth.

Another study by (Kasidi & Kenani, 2012) examined the impact of inflation on economic growth and established the existence of inflation growth relationship. Time-series data for the period 1990-2011 were used to examine the impact of inflation on economic growth. Correlation coefficient and co-integration technique established the relationship between inflation and GDP and the coefficient of elasticity was applied to measure the degree of responsiveness of change in GDP to changes in general price levels. Results suggested that inflation has a negative impact on economic growth. The study also revealed that there was no co-integration between inflation and economic growth during the period of study. No long-run relationship between inflation and economic growth in Tanzania.

A study on inflation and its impact on economic growth by (Behera, 2014) established the existence of an inflation-economic growth relationship in the context of South Asian countries. In order to examine the impact of inflation on economic growth, Behera used time series data for the period 1980-2012 and found that there existed a high positive correlation between inflation and economic growth for all the countries. The co-integration result suggested that there was a long run relationship for Malaysia. However, the rest of the countries had no long run relationship between inflation and economic growth.

In a working paper presented to the African Development Bank by Ndoricimpaa (2017), which was aimed at establishing the Threshold Effects of Inflation on Economic Growth in Africa with Evidence from a Dynamic Panel Threshold Regression Approach, it was confirmed that there
existed nonlinearities in the inflation-growth nexus. An inflation threshold of 6.7% was estimated for the whole sample, 9% for the sub-sample of low-income countries and 6.5% for middle-income countries. The findings suggested that low inflation was growth enhancing for the sub sample of middle income countries but neither affected economic growth for the whole sample nor for the sub sample of low income countries. However, inflation above the threshold was found to be detrimental to economic growth for all the cases considered.

2.2.2 Current Account Balance and Economic growth

The current account balance is one of the two components of a country’s balance of payments, the other being the capital account. The CAB consists of the trade balance that is the difference between the total value of exports of goods and services and the total value of imports of goods and services. A country whose export value exceeds the value of imports is said to be incurring a surplus and its termed as a net lender to the world whereas a country whose export value is less than the import value is said to be running a deficit and as such termed as a net borrower from the rest of the world. The ratio of the current account balance to the GDP of the same country determines its international competitiveness and can as well be interpreted in reference to its level of economic growth.

All sub-Saharan countries and other developing countries Uganda inclusive have a negative current account and the effects of such an account on the economic growth of a country have been explored by different researchers. In their paper presented at the 11th International Academic Conference, (Erem, Ibrahim Sahin; Mehmet, Mucuk;, 24 June 2014) had the objective of analyzing the relationship between economic growth and current account deficit for Turkey using time series analysis. For this purpose, Gross Domestic Product and Current Account Deficit data of Turkey between the quarterly data including 2002-2013 were used. And their Empirical findings showed that current account deficit affected economic growth negatively for the Turkish economy. These study findings did not defer from those arrived at by (Telatar & Terzi, 2009) who tested the relationship between economic growth and the current account balance for the period 1991: 04 -2005: 04 with quarterly data for Turkey. In their study they used Granger causality and VAR analysis. Regarding the results of their study findings was an increase in the rate of growth lead to deterioration in the current account balance.
A study by (Celil & Esen, 2016) investigated the existence of threshold effects of current account deficits on economic growth over the period of 1999:Q2 - 2014:Q2 for Turkey by using the then recently developed threshold autoregressive (TAR) models that provided appropriate procedures for estimation and inference. Based on the estimation of the threshold model, the results revealed evidence of threshold effects related to the current account deficits in Turkey. According to the analysis results, the estimated threshold value of the deficits for economic growth was 4%, and any ratio of the current account deficits above this threshold had a negative effect on economic growth while any rate below this threshold had a positive effect on economic growth.

Yılmaz and Akıncı (2011) tested the relationship between economic growth and the current account balance for the period 1980 -2010 data for Turkey. They used ADF unit root test, Johansen’s cointegration test and Granger casualty in their study and according to the results of their study, gross domestic product in the current account balance had a unidirectional causal relationship.

### 2.2.3 Unemployment rate and economic growth

Empirical evidence from pioneer researches by (Okun, 1962) came to a conclusion that as unemployment fell by 1%, gross domestic product increased by 3%, but this was criticized because in his study only data from USA was used which makes the results contestable in other economies. Never the less his study findings have today turned into a law simply known as Okun’s law that explains the observed relationship between changes in unemployment and the growth rate of real gross domestic product. Ever since his research in 1962 more researchers have taken interest in exploring this same thought.

Pierdzioch (2009) examined the relationship between economic growth and unemployment focusing on the G7 countries covering the period 1989-2007. Their results confirmed the consistency between Okun’s law and professional economist’s forecasts of changes in unemployment rate and the real output growth rate. They also found a direct relationship between magnitude of unemployment and the size of the output gap. Wang and Abrams (2007) found similar results of a negative relationship between economic growth and unemployment focusing on the 20 OECD countries for the period between 1970 and 1999.
A study by (Akeju & Olanipekun, 2014) validated the Okun’s law in Nigeria using the Error Correction Method and Johansen cointegration technique. The study findings showed that there were both short and long run relationships between unemployment rate and output growth in Nigeria. Hence, there was need to incorporate fiscal measures and increase the attraction of foreign direct investment (FDI) to reduce the high rate of unemployment in the country.

A year later another study was launched by (Onwanchukwu, 2015) who examined the impact of unemployment on economic growth in Nigeria from 1985 to 2010, using ordinary least squares regression technique, his findings revealed that unemployment does not have a significant impact on the economic growth of Nigeria. However, inflation was found to significantly impact on the economic growth of Nigeria.

Banda (2016) investigated the relationship between unemployment and economic growth in South Africa for the period between 1994 and 2012. The findings from Johansen cointegration revealed that there was a long run relationship among the variables. The result further showed that there was a positive relationship between GDP and unemployment in South Africa. Biyase and (Biyase & Bonga-Bonga, 2010) study applied OLS and established that the relationship between growth and employment are ‘paradoxical’ which means that the South African unemployment rate is ascribed to an output performance which is not sufficiently job-generating, instead there is a surge in labor force participation rates.

Sibusiso & Hlalefang (2018) sought to investigate the trends and impact of unemployment on economic growth in South Africa using quarterly data over the period 1994Q1 to 2016Q4. The Auto Regressive Distribution Lag (ARDL) bounds test approach was applied to determine the existence of the long run linkage among the variables. The results from the ARDL model suggested that there was a long run relationship between unemployment and economic growth. The empirical results obtained confirmed that there was a negative relationship between unemployment and economic growth both in the long and short run.

2.2.4 Population size and economic growth

Population defined as the total number of number of people living in a given area is at the heart of economic growth simply because it has everything that to do that pertains economic growth, from being entrepreneurs (the wheels of innovation and drivers of the economy) to being the last
point in the life cycle of a product that is as consumers. The size, structure and health of a country’s population may have a big influence in determining the country’s economic growth.

Adediran (2012) examined the effect of population on economic development in Nigeria and it was found that the Malthusian theory of population is relevant to Nigeria as a developing economy. The study used trend analysis with the scope spanning between 1981 and 2007 and ordinary least square method of analysis too was applied. In examining the time series properties using the Phillips-Perron (PP) non-parametric unit root test, the analysis showed that real gross domestic product, population growth and per capita income are non-stationary at all levels, but the null hypothesis of non-stationary was rejected at first difference for both test models with intercept and trend. The study also revealed that population growth has a positive and significant impact on economic sustainability peroxided as real gross domestic product (RGDP) and Per Capita Income.

Xiujian (2002) examined the relationship between rise in the productivity of population growth and the labor division. He found that the change is productivity was not explained by the growth of population. But he found that division in labor had increased the productivity. He also explained that the increase in population of a nation helps the improvement in division of labor in a country.

Gill (1992) investigated the relationships between population growth and economic development for the economy of India. He concluded that population growth is good but up to some extent, while large population growth caused pressure on resources within the economy. Large population growth has negative impact on economic development.

A study by (Stephan & David , 2007) combined both macro and micro econometric approaches and using panel data; they were able to consider the impact of population growth on per capita economic growth and poverty. They found both theoretical considerations and strong empirical evidence that suggested that the currently high population growth had a considerable break on per capita growth prospects in Uganda. Moreover, it contributed significantly to low achievement in poverty reduction and was associated with households being persistently poor and moving into poverty. This was therefore likely to make substantial improvements in poverty reduction, and per capita growth, very difficult.
2.3 Summary of the literature review

The empirical literature reviewed revealed mixed answers about the different macroeconomic variables under study, a variable like inflation in some cases like that of Valdovinos (2003) and Gokal & Hanif (2004) exhibited a negative relationship with economic growth while in Maliik’s (2001) study showed a weak positive relationship. The same applies to the other variables where there seems to be a threshold above which negative effects on economic growth start to set in as like it was deduced from the study of (Celil & Esen, 2016) about current account deficit and economic growth. On the source of the empirical literature reviewed most of the studies have been carried out in other countries especially in Asia and West African countries like Nigeria. In Uganda such studies have not been carried out and if they have been, then they are not published so with this research I hope to fill that information gap.
CHAPTER THREE

METHODOLOGY

3.1 Introduction
This chapter focused on the description of the research design, the population of interest, the sources of data, the techniques of analysis that would be used and model specification.

3.2. Research Design
The study used a longitudinal study design / panel study design. In this design data is collected from the same sample/ population of interest over a certain period of time which enables the researcher to describe the patterns of change and help him / her in establishing the direction and magnitude of casual relationships.

3.3. The target population
The study used Uganda’s economy as the target population because during the 27 years under consideration , Uganda has had several policy frameworks all aiming at achieving economic growth through maintaining price stability, improving the country’s balance of payment position, empowering the youth so as to curb the rampant unemployment and many others. So this gave a chance to the researcher to understand how effective these policies have been by studying the impact their intended outcomes have had on the economy. Significant impacts will imply a good policy framework was implemented.

3.4. Data Sources
The International Monetary Fund’s World Economic Outlook data base as updated of April, 2018 provided the necessary secondary data needed for this research. The data is highly credible because it is prepared by experts and meets international standards and data was collected for the period 1990 up to 2017 which should be long enough to enable the assessment of the impact of macroeconomic variables economic growth.

3.5. Data Analysis
The study used STATA software for analysis at univariate, bi-variate techniques and multivariate levels of analysis. At univariate level summary statistics were generated to give a picture of the variables and help make a decision on the statistic to use while reporting. The summary statistics
were supplemented by Figures to provide a visual understanding of the trends that were in the variables. Pairwise correlation was used as the choice technique at bivariate level of analysis given that variables were continuous in nature. The probability values of the correlation coefficients were used to decide on which variables were suitable to be included in the general model when carrying out econometric analysis. For econometric analysis, the researcher adopted the following model

\[ Y_{ij} = \alpha_0 + \alpha_1 X_1 + \alpha_2 X_2 + \alpha_3 X_3 + \alpha_4 X_4 + \epsilon_{ij} \quad 3.1 \]

Where \( Y_{ij} \) is the value of GDP at time \( i \) brought about by change in variable \( j \), \( \alpha_{ijs} \) are the coefficients of the macroeconomic variables with \( \alpha_0 \) being the intercept that is the value of gross domestic product when the influencing variables are held constant and the \( \alpha_{ijs} \) for \( i = 1 \) up to \( 4 \) are the coefficients of variables inflation, unemployment rate, current account balance and population and lastly the \( \epsilon_{ij} \) represents the error term.
CHAPTER FOUR

DATA ANALYSIS

4.1 Introduction
This chapter presents the analysis of collected data and its interpretation in accordance to the study objectives. The data used in this chapter was collected from International Monetary Fund, World Economic Outlook Database, updated as of April 2018. This data base the is a collection of over fifty economic indicators from various countries all over the world. The indicators are measured as according to the country’s reporting standards which in most cases are aligned with those that are intentionally recognized. Thus the WEO data base is a credible source of such information.

4.2 Summary statistics of individual variables
This level of analysis was meant to establish the choice of techniques to be applied at bivariate and multivariate levels of analysis in order to answer the question presented in the main objective of this study that is establishing the effect of macro-economic variables on economic growth with Uganda as a case study.

Given that the choice variables were continuous in nature, a summary statistics analysis technique was chosen to explore and shade some light on the characteristics of the variables and as such a summary table was developed.

Table 4.2.1: Summary statistics

<table>
<thead>
<tr>
<th>Variable</th>
<th>Min</th>
<th>Max</th>
<th>Mean</th>
<th>Std dev.</th>
<th>Skewness</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP (Billion US$)</td>
<td>2.809</td>
<td>27.949</td>
<td>12.50068</td>
<td>8.674573</td>
<td>0.5972909</td>
</tr>
<tr>
<td>Inflation</td>
<td>-0.3</td>
<td>45.4</td>
<td>10.64807</td>
<td>11.17702</td>
<td>2.08602</td>
</tr>
<tr>
<td>Unemployment rate</td>
<td>0.9</td>
<td>4.16</td>
<td>2.441464</td>
<td>0.9611336</td>
<td>0.0986414</td>
</tr>
<tr>
<td>CAB</td>
<td>-2.179</td>
<td>0.049</td>
<td>-0.6928929</td>
<td>0.7021632</td>
<td>-0.8884645</td>
</tr>
<tr>
<td>Population</td>
<td>15.782</td>
<td>37.674</td>
<td>25.38896</td>
<td>6.735784</td>
<td>0.2804906</td>
</tr>
</tbody>
</table>
From the summary statistics table 4.2.1, the variables GDP, unemployment rate, CAB (current account balance) and population size were moderately skewed. In the 28 years under consideration Uganda’s GDP has averaged at 12.5 billion US dollars, unemployment has fared at 2.4 on average whereas variables current account balance and population size have recorded means of -0.69 billion US dollars and 25.39 million people respectively over the period under study. Inflation on the other hand has showed great Skewness towards the right. Measured as average consumer prices, inflation was at its lowest at-0.3% back in 2002 and a maximum of 45% in 1990.

**Figure 4.2.2: Trend analysis of GDP as measures in billions of US dollars**

![GDP, current prices (Billion US$)](image)

Source: International Monetary Fund's Economic Outlook (2018)

Figure 4.2.2 paints a picture of how Uganda’s economy has been growing over the last twenty eight years. Growth domestic product at current prices has been adopted as a proxy to measure this growth. Back in 1990 Uganda’s economy was doing well averaging at 5.743 billion US dollars but this growth could not be maintained in the next two years where there was a global financial crisis. In 1993 the economy picked up and had grown to a worth of 3.323 billion US dollars, from this point for the next ten years the economy was doing well having achieved an average of 6.06 billion US dollars. From 2004 where the economy was at 8.285 billion US dollars to 2017 where the economy had grossed to 26.345 billion US dollars, Uganda’s economy has been doing well with slight declines in some years but overall managed to maintain an average growth of 19.61 billion US dollars. 1992 was the worst year in which the economy
grossed at a mere 2.809 billion US dollars a figure that can attribute to global financial crisis of that period. Uganda being heavily dependent on exportation of raw materials found it hard to escape the pangs of the financial crisis because its foreign market was no longer capable of making effective demand. Never the less the economy has also seen some good days like the year 2017 where it grossed a record high of 27.949 billion US dollars.

**Figure 4.2.3: Trend analysis of Inflation measured at current prices**

![Inflation Trends Graph](image)

Source: International Monetary Fund's Economic Outlook (2018)

Inflation trends in Uganda are one that has never been stable instead they are full spikes. This year the inflation is relatively stable and the next it is worse. This kind of trend is mainly attributed to factors like dependence on the agriculture sector where prices often fluctuate because they are determined according to seasons. Harvest times attract miserable prices because there is plenty of produce and in times of scarcity prices spiral up. Also these prices are prone to global conflicts especially those that cause fuel prices to spike up. Back in 1990 consumer prices averaged at 45% which is the highest ever recorded in this period of analysis, in the following year the prices came down but they were not be held there as 1992 saw them spiral up a second highest recording of 42.23%. 1993 saw the prices come down to an average of 29.97% and this marked the beginning of years with relatively low levels of inflation. From 1994 the average consumer prices decreased at a relatively stable rate to hit -0.3 in 2002 the lowest ever recorded. From 2003 up to 2017 consumer prices have averaged at 7.68%. In these last fourteen years
inflation was at its worst in 2011 where it was recorded at 15%. This was mainly attributed to then general elections in which politicians injected a lot of money in their campaigns that only served to worsen the economic situation.

**Figure 4.2.4: Trend analysis of unemployment rate**

![Unemployment rate graph](image)

Source: International Monetary Fund's Economic Outlook (2018)

Uganda like most of the developing countries face a problem of high rates of unemployment that have become almost chronic due to their persistence from year to year without major changes. In the years 1990 to 1992 Uganda’s unemployment rate was at its lowest averaging at a rate of 0.9%. In the next seven years unemployment rate kept on increasing oscillating between 1.2% and 2.7% to settle at average of 2%. The next twelve years were worse than the previous as the rate kept on worsening. 4.2% the highest ever recorded rate in the years under consideration was recorded during this period specifically in 2009. Such rates are mainly attributed to population explosion coupled with the introduction of free primary and secondary education that saw many young people acquire education with nowhere to apply their skills. Years 2013, 2014 and 2015 saw the unemployment rate reduce to 1.9% and this increased to in the next two years to 2.1% in 2017.
Since 1990 Uganda has been running a current deficit except for one year 2005 where the current account balance recorded a surplus of 0.049 billion US dollars the highest ever recorded. 2014 was the year in which the country’s current account balance was at its worst recording a deficit of 2.179 billion US dollars followed closely by year 2011 that registered a deficit of 2.087 billion US dollars. For the majority of the period of analysis that is from 1990 to 2007 Uganda has recorded an average current account balance deficit of 0.222 billion US dollars and this has to continue to increase to an average of 1.541 billion US dollars from the year 2008 to 2017. This change could be mainly explained by the vast amounts of money that have been subjected into infrastructure development like road and hydro power dam construction works.

Source: International Monetary Fund's Economic Outlook (2018)
Uganda boosts of the youngest population in the East African region and worldwide it has one of the fastest growing populations. The introduction of free health services and sensitization about primary health care have done much to curb maternal and infant mortality rates but less in controlling population growth as most Ugandans still pride themselves in having big families. Poverty and unemployment have forced youths into early marriages which has led to rapid population growth over the years. From 1990 up to 2017 Uganda’s population has been growing at an average rate of 0.8141 million people per year. The housing and population census of 2014 revealed that majority of Ugandan population was in the age bracket of 0 to 34 years accounting for 81.3% of the total population with 59.3% being below the age of 18 (age one is considered legally old enough to take own decisions).
Table 4.3: Correlation results

<table>
<thead>
<tr>
<th></th>
<th>GDP (Billion US$)</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP (Billion US$)</td>
<td>1.0000</td>
<td></td>
</tr>
<tr>
<td>Inflation</td>
<td>-0.3063</td>
<td>0.1129</td>
</tr>
<tr>
<td>Unemployment rate</td>
<td>0.3086</td>
<td>0.1100</td>
</tr>
<tr>
<td>CAB</td>
<td>-0.9010</td>
<td>0.0000</td>
</tr>
<tr>
<td>Population</td>
<td>0.9586</td>
<td>0.0000</td>
</tr>
</tbody>
</table>

Inflation and GDP (economic growth) have a weak negative relationship that is not significant. This is attributed to the fact that some type of inflation like mild inflation stimulates economic growth but anything beyond the mild levels will impact the economy negatively as it makes final goods expensive. With reduced effective demand production is also cut down to meet what can be consumed. This eventually results in a decline in economic growth.

The relationship between unemployment rate and economic growth is weak but positive. The relationship is positive because unemployment means many people are up for jobs that are increased labor supply which cuts down the price of this labor this means that producers are now faced with lower production costs and can thus increase their production which should result economic growth. But if this unemployment rate continues to rise, at some point it will be a disadvantage because it reduces the purchasing power of the population. Without consumers production is no more hence economic decline.

The current account balance and economic growth are strongly negatively related and this relationship is significant at 5% level of confidence. As the economy increases its reliance on foreign goods informs of imports so will it continues shrieking. This is a case for many
developing countries that they prefer to spend more on foreign goods rather than supporting local industries. This affects the rate of economic growth in these countries negatively.

Population and economic growth have a strong positive relationship that is significant at 5% level of confidence. As the population grows so will the economy because a growing population provides a ready market for local products and more importantly provides human capital which is one of the most important ingredients of economic growth

4.3 Econometric analysis
To determine the extent to which the macro economic variables affect economic growth, a linear regression model of the form

$$ Y_{ij} = \alpha_0 + \alpha_1 X_1 + \alpha_2 X_2 + \alpha_3 X_3 + \alpha_4 X_4 + \varepsilon_{ij} $$

was chosen where:

$Y_{ij}$ is the value of GDP at time $i$ brought about by change in variable $j\alpha_{tis}$ are the coefficients of the macro economic variables with $\alpha_0$ being the intercept that is the value of gross domestic product when the influencing variables are held constant and the $\alpha_{tis}$ for $i = 1$ up to 4 are the coefficients of variables inflation, unemployment rate, current account balance and population and lastly the $\varepsilon_{ij}$ represents the error term.

Econometrics analysis results

|                  | Coef.   | Std. Err. | T     | P>|t| |
|------------------|---------|-----------|-------|-----|
| GDP              | 0.0334707 | 0.0256274 | 1.31  | 0.204 |
| Inflation        | -0.8587793 | 0.2794943 | -3.07 | 0.005 |
| Unemployment rate| -4.517599 | 0.5527149 | -8.17 | 0.000 |
| Current Account Balance | 0.9374136 | 0.0625333 | 14.99  | 0.000 |
| Population       | -12.68921 | 1.616101  | -7.85 | 0.000 |

Source: STATA Results
The model

\[ Economic growth = -12.68921 + 0.0335 \text{ inflation} - 0.859 \text{ unemployment rate} \]
\[ -4.518 \text{ current account balance} + 0.937 \text{ population size} \]

To begin, with the model adapted to establish the impact of macroeconomic variables on economic growth is a good model as evidenced by the probability value of the F statistic (p = 0.0000) which is less than the critical at 5% level of confidence (p = 0.005). And this model too explains at least 98.47% of the observed variation in the dependent variable as seen from the value of the coefficient of determination R-squared (0.9847) thus conclusion made from this analysis should be credible enough.

### 4.3.1 The relationship between economic growth and inflation

From the econometric analysis results, a unit increase inflation rate like creeping inflation results to 0.0335 rise in economic growth of Uganda as a country since it helps in boosting production due to the presence of unused resources yet in the long run when it reach’s to hyperinflation it may have a negative impact on the economic growth because most people would prefer to invest their money in permanent assets like real estates.

### 4.3.2 The influence of unemployment on economic growth rate

unemployment rate has a negative impact on the economic growth because a unit increase in unemployment results to 0.859 decrease in the economic because high number of people who are unemployed results to over dependence on the few who are working, low savings, low investment in the country, low production hence resulting to vicious circle of poverty and low economic growth in the end.

### 4.3.3 The effect of current account balance value on economic growth

A unit increase in the Current account balance value leads to 4.518 decline in the economic growth because high current account balance value means high country’s debt, high importation rate and over dependence in the foreign world.
4.3.4 The effect of population on economic growth

A unit increase in the productive population which is young and energetic results to 0.937 units rise in the economic growth because high population provides cheap labor which in turn results high production rates in the country. On the other side, a high population that is not productive results to low productivity and high government expenditures on the social service like medical, schools and hence low economic growth rate.

4.4 Hypothesis testing

This study was guided by four hypotheses and with the aid of empirical evidence gathered they were answered as follows

H1: All factors held constant, inflation has no effect on economic growth

From the analysis of empirical evidence gathered it was established that inflation had a non-significant impact on the growth of Uganda’s economy.

H2: All factors assumed constant, unemployment rate has no effect on the growth of the economy

The impact of unemployment rate on the growth of Uganda’s economy was found to be significant at 5% level of confidence. With its negative coefficient it implies that as unemployment rate continues to rise, the economy will keep declining simply because unemployment reduces purchasing power of the population.

H3: all factors held constant, current account balance has no effect on economic growth

From the empirical analysis carried out in this research, it was found that the current account balance has a significant impact on the growth of an economy. With a negative coefficient it implies that an economy that relies heavily on foreign goods is less likely to grow.
H4: Assuming all factors are held constant population size has no impact on the growth of an economy

The research revealed that population size has a significant impact on the growth of an economy with probability value of 0.000 which is less than the critical at 5% level of confidence. Thus a large population is essential for economic growth to provide a ready market and cheap labor.
CHAPTER FIVE
CONCLUSIONS AND RECOMMENDATIONS

5.1: Introduction
This chapter is a synthesis of the earlier discussions. The main objective of the study was to assess the effect of macroeconomic variables on the growth of the economy with Uganda’s economy as the case study. The specific objectives of the study were:

- To establish the relationship between inflation and economic growth
- To find out if the current account balance figure has an effect on economic growth
- To understand the influence of unemployment rate on the growth of a country’s economy
- To study the relation between population size and the country’s economic growth

5.2: Conclusions
Existing empirical literature on the subject matter was reviewed. The researcher utilized secondary data from International Monetary Fund, World Economic Outlook Database, updated as of April 2018. And by the end of the research it was found out that the country’s economic growth is significantly influenced by unemployment rate, the current account balance and its population.

The analysis results (as shown by positive R, and R-Square) established that relationship between unemployment rates, current account balance had significant impact on the growth of the economy with probability values of 0.005, 0.000 and 0.000 respectively.

Therefore, this study concludes that there is a strong positive impact of population of the country and creeping inflation on economic growth with values of 0.937 and 0.033 respectively whereas current account balance and unemployment have negative impact on the economic growth of the country with values of -4.518 and -0.859 respectively.

The study concurred with Maliik (2001), whose study evaluated that inflation and economic growth were positively related but disagree with Pierdzioch (2009) who examined the relationship between economic growth and unemployment focusing on the G7 countries covering the period 1989-2007 and obtained a positive relationship between unemployment and the growth of an economy.
5.3: Recommendations

Based on the results for the study the researcher recommends the following

During research it was revealed that unemployment rate has a negative influence on economic growth. To curb this problem the researcher advises as follows;

Equipping the labor force with the right skills through an overhaul in the education system. Uganda currently runs on an education system that was meant to serve its colonial masters and this system has outlived its purpose especially in this error of technology where creativity and innovation are key to the success of an economy.

They should ensure job creation and security by putting in place appropriate laws especially concerning employment of foreigners in government led projects.

The government should ensure supply of reliable and cheap electric energy to support small businesses because recent studies have ranked Uganda as among the top countries with the highest number of startup business but they also pointed out that these usually do not last for a year. High cost of operation is one of the causes of the collapse of these businesses

The country’s current account balance was also found to have a negative effect on the country’s economic growth and the researcher had the following to say;

Protection of the local industries from foreign multinational companies that out compete the young local industries in terms of credit, market and other resources. This should enable local industries to grow and reduce dependence on foreign imports.

Efficient utilization of borrowed funds. Uganda faces a problem of chronic corruption that has seen billions of borrowed funds vanish in thin air. This has left the country spending a huge portion of its GDP on debt servicing which has only worsened the current account deficit

And lastly government should concentrate more on creation and support of import substitution industries to enable the country spend less on imports like Uganda produces coffee but it also imports coffee products. This is one of many examples where Uganda should be making the final product itself to cut on that foreign expenditure.
Population was found to be significant in influencing economic growth but if this is not managed well can become disastrous. And the researcher had the following to recommend;

In Uganda most of the heavily populated areas are the poorest where early marriages are seen as source of income, government should put in place effective measures to curb this vice through offering cheap and proper education services, putting in place stringent punishments on parents who force their children into early marriages.

The government should increase sensitization of the public about the dangers of a large population through mass media communication, through local council committees that reach the grass roots of the community because it is mostly people from deep in rural areas that take pride in having large families.

Its quality must be maintained through good health services if it is to actively participate in economic activities, its skills must be sharpened through a proper education system so that it brings more value to production units in terms of innovations and inventions aimed at increasing productivity.

5.4 Areas for further study

Due to limited time and resources that were at the disposal of the researcher, some areas were not covered and the researcher suggests that these should be looked into.

This research was carried out with one case study that is Uganda; a study with more countries should paint a clearer picture of the influence of macroeconomic variables on economic growth.

Only four variables were utilized in this research, another study that employs more independent variables is recommended to bring out the factors that truly influence economic development.

And lastly, global situations like the influx of refugees should also be investigated to find out how much such incidences affect economic growth of host countries.
References


