POPULATION GROWTH AND YOUTH UNEMPLOYMENT IN SOMALIA (1991-2017)

BY

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DECLARATION

I **MOHAMED SAID MOHAMED ALIN** hereby declare that "This dissertation is my original work and has not been presented for a degree or any other academic award in any university or institution of learning".

Signed .....

Date: 26-11-2018

APPROVAL

I conform that this research dissertation was written by the candidate under my supervision

Name: James Wokadala (PhD)

Signed: ..... Date: 27/11/18

DEDICATION

I dedicate this research dissertation to my dear parents, and my family, and my colleagues. All this would have not been possible if it were not for your undying support and love that has always been forthcoming, thank you.

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LIST OF ABBREVIATIONS

ADF	Augmented Dickey-Fuller
AIC	Akaike's Information Criteria
ARCH	Autoregressive Conditional Heteroscedasticity
CLRM	Classical Linear Regression Model
GCF	Gross Capital Formation
GDP	Gross Domestic Product
ILO	International Labour Organization
IOM	International Organization for Migration
LDC	Lower Development Countries
NPP	Normal Probability Plot
OLS	Ordinary least square
UN	United Nations
UBOS	Uganda bureau of statistics
UNDP	United Nations Development Programme
UNFPA	United Nations Population Fund

ABSTRACT

he purpose of the study was to investigate the relationship between the population growth and youth ıemployment in Somalia. The specific objectives of the study were; to examine the long-run ·lationship, causation, and effect of population growth on youth unemployment rate. The study used a escriptive, correlation and longitudinal design and only employed the Quantitative research approach. he study was carried out using secondary data collected from 1991 to 2017. Augmented Dickey-ıller (ADF), tests were carried out on the variables of population growth rate and youth ıemployment and were found to non-stationary at level but stationary after first difference. ointegration 4 results of Trace and Maximum Eigenvalue findings showed that there is a long run lationship between population growth and youth unemployment rate. Granger causality tests also dicated that population growth causes youth unemployment in Somalia. A regression model ıcompassing all variables under study and the results indicated that population growth impacts on ›uth unemployment significantly which means that as population growth increases, youth ıemployment also increases. This can be seen by observing the p-value of population growth which in is case is 0.0170 which is less than 5% le vel of significance. The study concluded that there is a Long n relationship between population growth and youth unemployment because there is Cointegration nong Population growth, Gross domestic product, and Gross capital formation and youth nemployment rate based on findings which confirm the results got from the first tracet rank test and us that there is a long run relationship among population growth, Gross domestic product, and Gross pital formation and youth unemployment. Furthermore, the study concluded that population growth s also had a relatively small effect on unemployment in Somalia because population growth does ·anger Cause youth unemployment rate but Unemployment rate does not granger cause population owth. The study concludes that rapid population growth increases various forms of unemployment in ›malia and that the lack of investment in infrastructure and subsidy for sectors with potential for eating jobs. The study recommends that Government of Somalia should also improve on sensitization d educating the people on population control through teaching them on birth control measures like ild spacing, invest heavily in the private sector through supporting private investors setting up anufacturing companies to employ youths and acquire them with necessary skilling to sustain them in e and that it should also create an enabling environment for self-employment, job creation and trepreneurship.

CHAPTER ONE
INTRODUCTION

1.1 Background

1.1.1. Historical Perspective

Globally 200 years ago there were less than one billion humans living on earth. Between 1900 and 2000, the increase in world population was three times greater than during the entire previous history of humanity an increase from 1.5 to 6.1 billion in just 100 years. The year of 1962 saw the growth rate peak at 2.1%, and it has since fallen to almost half and thus a picture of the world population in the very long-run shows extremely rapid growth. Indeed, for a long time the world population grew at an increasing rate. Today, according to UN calculations there are over 7 billion of us. Recent estimates suggest that today's population size is roughly equivalent to 6.5% of the total number of people ever born. This is the most conspicuous fact about world population growth: for thousands of years, the population grew only slowly but in recent centuries, it has jumped dramatically (Max Roser & Esteban Ortiz-Ospina, 2012).

In developing countries like Bangladesh, the employment generation is a challenging task because of the growing population and relatively small size of the economy. The economy of the country has undergone a structural change since its independence. It has gradually moved from an agrarian to a more industry and services sector based economy. This is reflected also in the pattern of employment in broad economic sector. Along with the structural change the economy has also achieved impressive growth in terms of Gross Domestic Product (GDP). A recent report of the World Bank (2012) reveals that Bangladesh is the only country in South Asia where growth in labour force outpaced growth in employment during the last decade. However, the growth of the economy has not been accompanied by adequate employment creation and the number of unemployed people has increased over the years where unemployment rate

remained remarkably low in Bangladesh, only at 4.5 percent in 2010 (Labour force Survey 2010, BBS). Though the composition of growth trend in Bangladesh suggests a positive shift towards a modern economy, the pace of the shift is yet to get adequate momentum. It is observed from table 4.2 that annual employment growth in recent years has been higher in agricultural sector than the service sector in Bangladesh. This is probably due to high underemployment in the agriculture sector which absorbs more of the incremental labour force even though the sector is burdened with surplus labour (Daily Sun, 2012).

The African population has grown rapidly over the past century, and consequently shows a large youth bulge, further reinforced by a low life expectancy of below 50 years in some African countries. In some African countries, half or more of the population is under 25 years of age. The total number of people in Africa grew from 221 million in 1950 to 1.2 billion in 2016. The population doubled in the period 1982–2009and quadrupled from 1955–2009, according to United Nations estimates. As of 2016, the total population of Africa is estimated at 1,225,080,510, representing approximately 15% of the world's population. According to UN estimates, the population of Africa may reach nearly 2.5 billion by 2050 (about 26% of the world's total) and nearly 4.4 billion by 2100 (about 39% of the world's total). Sub-Saharan Africa has the fastest population growth projected between now and 2050 and the highest youth population in the world. It is crucial that governments factor this 'youth bulge' into national and social development planning (Stren & White, 2016).

The East African nation of Somalia is located in the Horn of Africa with a 2018 population estimated at 15.18 million, up from the 2013 estimate of 10 million. The country is rapidly expanding with almost 3% annual population growth and a high fertility rate of 6.26 children per woman, which is the 4th highest in the world. Its 10.9 million population represents a huge increase from the 3.3 million people in 1975, but

civil strife in the 90's increased Somali diaspora and many of the highly educated people left. There are two cities in Somalia with a population over 1 million: Mogadishu is the largest with 2.4 million followed by Hargeisa at 1.2 million (Central Intelligence Agency, 2014).

The global rate of youth unemployment indicates high levels of unemployment among the youth. The median age data from the world.bymap.org website is used to define the term "youth migrant and non-migrant population, or youth population". The median age of the migrant and non-migrant population throughout the developing world does remain in a late adolescent phase with ages ranging from the 15th birthday until the 24th birthday (world.bymap.org, 2013, median age). In fact, the rate of growth of unemployment among the youth population is higher that the case of adults (Alanana, 2013).

The reported incidence of youth unemployment is even higher in developed economies as compared to emerging and developing economies. However, in the recent years the cases have been so sporadic in developing countries especially in Africa (Alanana, 2013). This is because according to Alanana (2013), the numbers of the youth population is increasing at an alarming rate as compared to the rates at which job opportunities are being created. The case of unemployment among the youth in Africa is alarming and is currently a threat to social-economic stability and peace.

In the African region, there is no unique determinant of the youth employment challenge in the rather; a combination of factors contributes to compound a situation that has become a top political priority for the region. In sub-Saharan Africa, unemployment rates remain relatively low, as the vast majority of employable active youth cannot afford not to work. However, these youth regularly suffer from under-employment and lack of decent working conditions. Of the 38.1 per cent estimated total working poor in sub-Saharan Africa, young people account for 23.5 per cent. Young

girls tend to be more disadvantaged than young men in access to work and experience worse working conditions than their male counterpart, and employment in the informal economy or informal employment is the norm (International Labour Office, 2008).

In North Africa, unemployment rates (among a generally more educated labour force) are quite high (23.8 per cent estimated in 2012, with a 3 percentage point increase between 2010 and 2011 and a steady increase since 2007) and projected to remain high over the next five years (Donna & Alexandra, 2013). Unemployment can arguably be considered to be at the root of the Arab Spring uprisings. At the same time, labour force participation rates for women are the second lowest in the world (33.4 per cent in 2012, right after the Middle East).

In Somalia most of youths are unemployed and migration is high and the population of unemployed youths stands at 75% in 2014, much higher than Somalia's national average. Somalia relative stability attracts youths from all over Somalia despite there being few opportunities for formal employment. For Somalia as a whole, youth between the ages of 14 and 29 represent around 42% of the population in 2010. If the bracket is expanded to ages 10 to 34, the composition represents roughly 60 percent. In contrast to East Asia, where the youth bulge has peaked, the youth population in Somalia will not peak in the foreseeable future (Clark and Summers, 2015).

1.1.2 Conceptual Perspective

According to Charles, (2010), population growth refers to the increase in the number of people that reside in a country, state, county, or city like Mogadishu for example. Businesses and governmental bodies use this information to make determinations about investing in certain communities or regions and its measure population growth rate measures how fast the size of population is changing.

Globally, human population growth amounts to around 83 million annually, or 1.1% per year. The global population has grown from 1 billion in 1800 to 7.6 billion in 2017.It is expected to keep growing, and estimates have put the total population at 8.6 billion by mid-2030, 9.8 billion by mid-2050 and 11.2 billion by 2100. Many nations with rapid population growth have low standards of living, whereas many nations with low rates of population growth have high standards of living (World Population Prospects, 2017*).*

There were about 1.2 billion youth aged 15-24 years globally in 2015, accounting for one out of every six people worldwide. By 2030, the target date for the sustainable development goals, the number of youth is projected to have grown by 7 per cent, to nearly 1.3 billion. Youth can be a positive force for development when provided with the knowledge and employment opportunities they need to thrive. In particular, young people should acquire the education and skills needed to contribute in a productive economy, and they need access to a job market that can absorb them into its labor force (World Population Prospects, 2012).

Among the greatest challenges facing many countries today are inadequate human capital investment and high unemployment rates among youth. Some countries like Somalia are struggling currently to educate and employ their young people, while also anticipating substantial growth in the number of youth. These countries will be doubly challenged in their efforts to assure universal high-quality education, productive employment and decent work for all (Urdal, 2012).However, one of the greatest challenges of the Sub - Saharan African economies like Somalia today is the high rate of youth unemployment that has maintained a rising trend over the years. The problem of youth unemployment has been of great concern to the economists and policy makers in Somalia and it has been caused by the high population amongst the youths living in the country.

Since 1950, the populations of LDCs have increased tremendously, most of which are considered to have at least quadrupled. According to the no-change scenario of the

United Nations, these populations are expected to increase multiple times by 2100 due to the high levels of fertility. With constant levels of fertility and mortality, Niger's population would increase 57 times, Uganda's population 4 times, and the population of Timor-Leste by almost 1 time. Only Somalia, Afghanistan, Guinea, Guinea Bissau and Timor-Leste has seen a mere tripling of their populations (United Nations Population Fund (UNFPA), 2010). Such predictions would be a source of worry if the least LDCs, whose population growth triples that of the developing countries, are unable to meet the vast needs of growing numbers of people. Apart from the fast rate of population growth; the LDCs suffer from high dependency ratio - the proportion of the non-working population of a country to the total population. Because of the high dependency ratio, there is a lot of pressure on the resources.

The International Labor Organization (ILO) defines youth unemployed as numbers of the economically active youth population who are without work but available for and seeking work, including people who have lost jobs and those who have voluntarily left work (World Bank, 2012). The unemployment rate is a measure of the prevalence of unemployment and it is calculated as a percentage by dividing the number of unemployed individuals by all individuals currently in the labor force.

According to Fajana (2010), youth unemployment refers to a situation where youths who are willing and capable of working are unable to find suitable paid employment. It is one of the macro-economic problems which every responsible government is expected to monitor and regulate. The higher would be the poverty level and associated welfare challenges. Fajana (2010, Alao (2011), and Wikipedia (2010) identify the following types of unemployment. Frictional Unemployment is caused by industrial friction in which jobs may exist, yet the workers may be unable to fill them either because they do not possess the necessary skill, or because they are not aware of the existence of such jobs. The employable may remain unemployed on account of shortage of raw materials, or mechanical defects in the working of plants.

Therefore, the better the economy is doing, the lower this type of unemployment is likely to occur. Residual unemployment is caused by personal factors such as old age, physical or mental disability, poor work attitude and inadequately training. Technological unemployment is caused by changes in the techniques of production. Technological changes are taking place constantly, leading to the increased mechanization of the production process.

1.1.3 Theoretical Perspective

The study was based on the theory of demographic transition and Classical Theory Of Unemployment. The theory of demographic transition is based on an interpretation of demographic history developed in 2015 by the American demographer Warren Thompson (1887–1973). Adolphe Landry of France made similar observations on demographic patterns and population growth potential around 1934. In the 1940s and 1950s, Notestein developed a more formal theory of demographic transition. By 2009, the existence of a negative correlation between fertility and industrial development had become one of the most widely accepted findings in social science (UBOS, 2013). The transition involves four stages, or possibly five. In stage one, pre-industrial society, death rates and birth rates are high and roughly in balance. In fact, growth rates were less than 0.05% at least since the Agricultural Revolution over 10,000 years ago. Population growth is typically very slow in this stage, because the society is constrained by the available food supply; therefore, unless the society develops new technologies to increase food production (e.g. discovers new sources of food or achieves higher crop yields), any fluctuations in birth rates are soon matched by death rates. In stage two, that of a developing country, the death rates drop rapidly due to improvements in food supply and sanitation, which increase life spans and reduce disease. The improvements specific to food supply typically include selective breeding and crop rotation and farming techniques (UBOS, 2013).

Other improvements generally include access to technology, basic healthcare, and education. In stage three, birth rates fall due to various fertility factors such as access to contraception, increases in wages, urbanization, a reduction in subsistence agriculture, an increase in the status and education of women, a reduction in the value of children's work, an increase in parental investment in the education of children and other social changes. During stage four there are both low birth rates and low death rates. Birth rates may drop to well below replacement level as has happened in countries like Germany, Italy, and Japan, leading to a shrinking population, a threat to many industries that rely on population growth. As the large group born during stage two ages, it creates an economic burden on the shrinking working population. Some scholars break out, from stage four, a "stage five" of below-replacement fertility levels. Others hypothesize a different "stage five" involving an increase in fertility (Adawo & Atan, 2013).

The second theory is the Classical Theory of Unemployment which elaborates that the classical economists did not propound any particular theory of employment but however, gives a number of assumptions (Audra & Haoming, 2002). There are two main assumptions of classical theory of employment, namely, assumption of full employment and flexibility of price and wages. Thus in simple terms full employment refers to an economic condition in which every individual is employed. In economics terminology, full employment signifies the market condition where the demand for labor is equivalent to the supply of labor at every level of real wage. Therefore, full employment is the employment level at which every individual who desires to work at the prevalent wage rate gets employed (Audra & Haoming, 2002).

According to Lerner, "Full employment is a situation in which all those who are able to and want to work at the existing rate of wage get work without any due difficulty." According to Spencer, "Full employment is a situation in which everyone who wants to work is working except for those who fictionally and structurally unemployed." The

classical economists had a notion that labor and other resources are utilized completely or fully employed. According to classical economists, over-production is a general condition of an economy. Therefore, the condition of unemployment does not occur in the economy. According to them, if the condition of unemployment of youths occurs, it is a temporary or abnormal condition in the economy. In addition, classical economists also propounded that the condition of unemployment occurs due to the interference of government or private organizations in normal mechanism of market forces. In addition, it can be due to wrong speculation of organizations regarding the economic condition. Therefore, classical economists considered that there would always be a condition of full employment in the economy (Carl Menger, 2007).

1.1.4 Contextual Perspective

The study was carried out in Somalia especially cities with high population of unemployed youths like Mogadishu, Hergeisa, and Kismio and these regions have been chosen because Somalia is not anentirely lawless and ungoverned land. It is a country of stark contrasts between resilience and vulnerability, and between the troubled south central region and the relatively stable and peaceful north (World Population Prospects, 2017). Age-old kinship systems, traditional coping mechanisms and remittances from the sprawling Somali diasporal coexist with severe poverty and environmental degradation. Thus typically, mass population of young people in conflict zones is viewed either as victims and/or perpetrators. Although the potential of youth as agents of change is evident from the revolutions emanating from the Arab Spring, they still often appear in public debates primarily as accomplices in crime, suicide bombing and rebellions. This leads to a common approach to policies and programmes for youth based on a concern with deficits, where youth concerns are addressed primarily to prevent them from becoming tomorrow's armed groups, criminals and terrorists. The risk with this thinking, and its emphasis on keeping disaffected youth content and occupied mainly in the short or medium term, is that it produces results that may be

unsustainable, and it overlooks longer-term negative impacts on youth and development more generally (World Bank, 2010).

1.2 Problem Statement

Somalia today suffers from the increasing rates of youth unemployment which has been brought about by the immerse population of people which is rising day by day. Basing on the survey conducted by the Somalia Human Development Report (2016), statistics show that unemployment is 54% for people aged 15 to 64 and 67% for youth aged 14 to 29 which is one of the highest rates in the world from the estimated Population of 7.5 million people. The youth population in Somalia will not experience a peak in the foreseeable future due to high fertility rates, estimated at 6.2 births per woman between 2010 and 2015.

Therefore since over 67 percent of Somalis are under the age of 30; most face blocked transitions to adulthood due to multiple social, economic and political exclusions. These are related to clan and cultural affiliations, gender, age, illiteracy and poverty, among other factors. They have been reinforced by dominant social attitudes and prejudicial cultural practices, and perpetuated by violence (Marito, 2016).

Due to the crisis in Somalia, a third generation of youth has missed the opportunity for education and have no memory of a functioning state as Somalia has been without a central government since the collapse of its 22-year military dictatorship in 1991 of two decades of endless civil war and unrest. This has caused many Somali youth to face harsh realities whereby many are poor, uneducated and unemployed, or have left the country as migrants or refugees. Others have joined the armed militia, either voluntarily or involuntarily, and use violence to earn quick money through robbery, ransacking or piracy. During this time, hundreds of thousands of Somalis have starved to death, countless others have been killed and displaced, and thousands of children and youth

have been forced to join militias. Another critical challenge comes from the fact that under-employed young people are more likely to breed unrest than those that are productively occupied.

In this respect, the UN Youth Employment Network, in collaboration with the World Bank and the International Labour Organization (ILO), has recommended four critical areas for national action: employability, equal opportunities, entrepreneurship and employment creation (Okafor, 2011).. Therefore for these reasons, the research seeks to establish the population growth and youth unemployment in Somalia from 1991 to 2016.

1.3 Purpose of the Study

The purpose of this study was to investigate the relationship between the population growth and youth unemployment in Somalia.

1.4 Specific Objectives of the Study

i. To find out the long run relationship between the population growth and youth unemployment rate in Somalia.
ii. To establish Granger causality between population growth and youth unemployment rate in Somalia.
iii. To determine the effect of population growth on youth unemployment rate in Somalia.

1.5 Research Questions

i. Is there long run relationship between population growth and youth unemployment rate in Somalia?
ii. Does population growth granger cause youth unemployment rate in Somalia?
iii. Is there significance effect of population growth on youth unemployment rate in Somalia?

1.6 Research Hypotheses

H_{01}: There is no significant relationship between population growth and youth unemployment rate in Somalia.

H02: There is no granger causality between population growth and youth unemployment rate in Somalia.

H_{03}: There is no significant effect of population growth on youth unemployment rate in Somalia.

1.7 Scope

This gives the coverage of the study in terms of geographical, theoretical, content and time scope.

1.7.1 Geographical Scope

This study was conducted in Somalia which is bordered by Ethiopia to the west, Djibouti to the northwest, the Gulf of Aden to the north, the Indian Ocean to the east, and Kenya to the southwest. Somalia has the longest coastline on Africa's mainland, and its terrain consists mainly of plateaus, plains and highlands. Climatically, hot conditions prevail year-round, with periodic monsoon winds and irregular rainfall.

1.7.2 Theoretical Scope

The study was based on the theory of demographic transition and Classical Theory of Unemployment. The theory of demographic transition is based on an interpretation of demographic history developed in 2015 by the American demographer Warren Thompson (1887–1973). And the Classical Theory Of Unemployment which elaborates that the classical economists did not propound any particular theory of employment but however, gives a number of assumptions (Audra & Haoming, 2002).

1.7.3 Content Scope

This study examined population growth in terms of birth rate, immigration rate and mortality rate and also it examined the youth unemployment in terms of unemployment rate from 1991 to 2016.

1.7.4 Time Scope

This study covered a period of 26 years that is from 1991 to 2017. This is because it is during this time period that the population growth of Somalia rapidly has grown and fueling youth unemployment in the country.

1.8 Significance of the study

- The study will also serve as a future data base for further researches that will be carried out as researchers can draw data from the findings which will have narrowed the existing gaps on population growth and youths unemployment.
- Furthermore, the findings from this study, may guide government policy makers and planners in Somalia in developing more effective strategies for controlling population growth in the country.
- The study will help academicians and scholars in the field of Economics and statistics in order to learn more on the impacts that population growth has on youths unemployment in developing countries.
- The result of this study can benefit economists to come up models that can be used to forecast the future trends of youth unemployment rates due to changes in population growth which will facilitate to make informed decisions.

1.9 Operational definitions

Population growth: This is the increase in the number of individuals in a population. The "population growth rate" is the rate at which the number of individuals in a population increases in a given time period, expressed as a fraction of the initial population. Specifically, population growth refers to the change in population over a unit time period, often expressed as a percentage of the number of individuals in the population at the beginning of that period (Population Reference Bureau. 2014).

Youth: This refers to people from aged 15-24 inclusive, in practice the operation of the term among different societies is contested and it is highly subjected to cultural, social, institutional legal framework and political factors (Higgins, 2011).

Youth unemployment: This is the unemployment which is derived from labour force minus employed persons. Unemployment occurs when a person is able and willing to work but is currently without work (Rowley & Feather, 2007).

Gross Domestic Product: The total market value of all final goods and services produced annually within the boundaries of a country (Adawo & Atan, 2013).

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The study reviewed literature from various scholars on the major variables of the study which included; theoretical Review, the variation of youth unemployment in Somalia, effect of population growth on youth unemployment, relationship between population growth and youth unemployment, empirical study and the research gap.

2.2 Theoretical Review

The theory of demographic transition is based on the actual population trends of the advanced countries of the world. The theory was developed by Warren Thompson in 2015. According to this theory, every country passes through three different stages of population growth. In the first stage, the birth rate and the death rate are high and the growth rate of population is low. In the second stage, the birth rate remains stable but the death rate falls rapidly (Slama & Tashchian, 2014). As a result, the growth rate of population increases very swiftly. In the last stage, the birth rate starts falling and tends to equal the death rate. The theory of demographic transition is the most acceptable theory of population growth. It neither lays emphasis on food supply like the Malthusian theory, nor does it develop a pessimistic outlook towards population growth. It is also superior to the optimum theory which lays an exclusive emphasis on the increase in per capita income for the growth of population and neglects the other factors which influence it (Coale, 2011). The demographic transition theory is superior to all the theories of population because it is based on the actual population growth trends of the developed countries of Europe. Almost all the European countries of the world have passed through the first two stages of this theory and are now in the final stage. Not only this, this theory is equally applicable to the developing countries of the world.

Very backward countries in some of the African states are still in the first stage whereas all the other developing countries of the world are in the transitional stage two. It is on the basis of this theory that economists have developed economic- demographic models so that underdeveloped countries should enter the final stage and attain the stage of self-sustained growth. Thus this theory has universal applicability (Sayer& Morris, 2007).

If, however, population still goes on increasing, that is, crosses the optimum point, output per capita will start declining. The economy would then become over-populated. Why does the output per capita fall when optimum point is exceeded? This is because there are now more men in the economy than are needed by it. A given amount of capital and natural resources have to be shared among a larger number of workers with the result that each of them has a smaller amount of equipment, materials and natural resources to work with. For this reason, the average productivity declines (Ang & McKibbin, 2007).

It is very likely that many people may not get employment and, therefore, add nothing to production. Pressure of population on land increases. But the additional men, who get employment in agriculture, add nothing to total production (Ang & McKibbin, 2007). In other words, marginal productivity of these extra men in agriculture is zero or nearly zero. This is what is commonly known as the phenomenon of disguised unemployment. Disguised unemployment exist s in over-populated agricultural economics from where even if some workers are withdrawn, total production does not fall.

Thus, low standard of living, open and disguised unemployment, and food problem are all signs of over-population (Adawo & Atan, 2013). It is clear that both under-population and over-population-have disadvan-tages. In both cases, the per capita income is lower than it would be in the case of optimum population. It is the optimum population with the highest per capita output which is the best for a country to aim at.

A fast-growing population aggravation the unemployment problem. Disguised unemployment in rural areas and a large-scale unemployment in urban areas is a common phenomenon in over-populated but under-developed economies. This means that a large number of people have to be fed and clothed, but who make no addition to the country's output. This leads to the diversion of the country's resources away from economic development (Adawo & Atan, 2013).

The second Classical Unemployment theory classical or real-wage unemployment occurs when real wages for a job are set above the market-clearing level, causing the number of job-seekers to exceed the number of vacancies. Classical, or real-wage unemployment, occurs when real wages for a job are set above the market-clearing level causing the number of job-seekers to exceed the number of vacancies. On the other hand, most economists argue that as wages fall below a livable wage many choose to fall out of the labor market and no longer seek employment (The Saylor Foundation, 2012).

Most economists have argued that unemployment increases the more the government intervenes into the economy to try to improve the conditions of those with jobs. For example, minimum wage laws raise the cost of laborers with few skills to above the market equilibrium, resulting in people who wish to work at the going rate but cannot as wage enforced is greater than their value as workers becoming unemployed. Laws restricting layoffs made businesses less likely to hire in the first place, as hiring becomes more risky, leaving many young people unemployed and unable to find work (McGaughey, 2018).

This is especially true in countries where low-income families are supported through public welfare systems. In such cases, wages would have to be high enough to motivate people to choose employment over what they receive through public welfare. Wages below a livable wage are likely to result in lower labor market participation in

above stated scenario. In addition it must be noted that consumption of goods and services is the primary driver of increased need for labor. Higher wages leads to workers having more income available to consume goods and services. Therefore, higher wages increase general consumption and as a result need for labor increases and unemployment decreases in the economy. Many economists have argued that unemployment increases with increased governmental regulation (Basingstoke & Hampshire.2010). For example, minimum wage laws raise the cost of some low-skill laborers above market equilibrium, resulting in increased unemployment as people who wish to work at the going rate cannot (as the new and higher enforced wage is now greater than the value of their labour).

2.3 Effect of population growth on youth unemployment

Rapid population growth increases various forms of unemployment. Although population growth has had a relatively small effect on open unemployment in developing countries, this fact does not demonstrate any demographic stimulus to job creation. It simply indicates that unemployment is not a feasible option for most people (UBOS, 2013).

It is likely to exacerbate income inequalities, particularly if many new young workers have little education. When a large proportion of workers are young and inexperienced, their productivity tends to be lower. Except for those who have more education than older workers, their starting wages will tend to be lower, and they must compete with each other. Relatively few will receive employer training to upgrade their skills (Duvander, 2013).

Several factors may be blamed for the prevalence of youth unemployment in Nigeria. There is a high population growth rate 3.5 percent per annum which accompanies an already large national population of over 167 million people. In addition, deficient school curricula and poor teacher training have contributed to the failure of educational

institutions to provide their students the appropriate skills to make them employable (Wenk & Hardesty, 2011). Since schools in rural areas are generally more deficient in infrastructure, teaching facilities and teacher quality than schools in urban areas, this may help account for the high growth in rural unemployed youth. In fact, some experts suggest that the major jump in rural youth unemployment in 2011.

The effects of this twofold trend of rapid population growth and rising youth unemployment are especially visible in the late Maathai's own country, Kenya. Over the past half century, the number of people in Kenya is estimated to have risen from just over 6 million to about 44 million. Much of that growth may be attributed to the period between 1950 and 2014, when every Kenyan woman had an average of about eight children in her lifetime (Bloom & Freeman, 2012).

Kenya's vertiginous population rise has slowed since its mid-80s peak, but the country's total fertility rate remains relatively high, at 3.98 children for every woman. The UN's latest assessment of world population prospects suggests the number of people in Kenya will quadruple by the end of this century, climbing to just over 160 million (UBOS, 2013). Unless things change, more will inevitably mean less for the east African republic's youth. Youth unemployment estimates vary wildly, but between 1.8 million and 10 million people aged between 15 and 34 are without work. A fourfold population increase is a sobering prospect.

Monteiro and Victora (2005), notes that although a growing youth population is a challenge, it cannot fully explain the unemployment figures in Africa. The figures instead are largely the result of specific economic and political contexts. Lack of investment in infrastructure and subsidy for sectors with potential for creating jobs for example, have created deep structural issues. In many cases, these issues predate the youth bulge (Adawo & Atan, 2013).

2.4 Relationship between population growth and youth unemployment

Population growth and youth unemployment tend to have a long run relationship whereby theoretically, a high rate of population growth may reduce the existing unemployment opportunities among youths living within a country like Somalia. Many studies have been conducted to find out the relationship between population growth and youth unemployment. It was assumed and explained that there was a negative relationship between population growth and youth unemployment (Fanati & Manfredi, 2013). This is commonly believed that the relationship between the youth unemployment rate and population growth is governed by Okun"s Law (Malley & Molana, 2007).

Muscatelli and Tirelli (2011) argued that the empirical evidence on this subject is very thin and has yielded mixed results. According to them there are many other factors which many influence youth unemployment along with population growth. These factors include GDP and Gross capital formation. Therefore, it can be concluded that the relationship between population growth and youth unemployment has been significantly negative, however, there are evidences which prove a reverse phenomenon.

According to Friedberg and Hunt (2015) population growth and urbanization go together, and youth unemployment is closely correlated with urbanization. Rich countries are urban countries. Population growth increases density and, together with rural-urban migration, creates higher urban agglomeration. And this is critical for achieving sustained growth because large urban centers allow for innovation and increase economies of scale. Companies can produce goods in larger numbers and more cheaply, serving a larger number of low-income customers. Many countries have companies which have been benefitting from increasing population growth and density in targeting the large numbers of lower and lower-middle income. Their business model is viable because they can serve a multi-million customer base (Sinding, 2011)

Rapid population growth tends to depress savings per capita and retards the level of investment which in the country especially in form of industrialization which might create a lot of employment opportunities to youths in the country like Somalia. Industrialized nations such as the United States and European countries, however, need a steady supply of cheap, unskilled labor to staff manufacturing plants and fill menial service positions (Birdsall, 2011). The availability of this employment during the 20th century led to a large-scale migration from rural to urban areas, as well as increased immigration, legal and illegal. Debate continues on the value of these population movements, with the increased productivity of the nation possibly offset by depressed wages. Lower labor costs in high-birthrate Third World countries are attractive to manufacturing industries that are increasingly redistributing unskilled jobs (Crook, 2007).

Thus Population pressure is likely to intensify the foreign exchange constraints by placing more pressure on the balance of payment. The need to import food will require the development of new industries for export expansion and/or import substitution. The rapid increase in school-age population and the expanding number of labour force entrants puts ever-greater pressure on educational and training facilities and retards improvement in the quality of education, which is a problem in developing economies. Also, too dense a population aggravates the problem of improving the health of the population and intensifies pressure on employment and the amount of investment available per labour market entrant (Martin, 2009).

Developing countries experience the negative impact of rapid, uncontrolled population growth, often requiring western countries to provide direct aid to avert famine. Lack of jobs or employment and poor social conditions, including regional warfare and weak governance, often make conditions worse when scarce resources are not sufficient to meet the needs of a rapidly growing population. These conditions exacerbate poverty,

malnutrition, childhood and maternal mortality, use of child labor and already inadequate educational opportunities, especially for women (Easterlin, 2006).

Population growth is closely tied to economic development. On the one hand, labor shortages will slow the rate of economic growth in industrialized countries, but on the other hand, a high birthrate in a developing country may stress limited renewable resources. Governments in western and other industrialized countries like Japan are challenged to create effective immigration policies and programs to increase the birthrate, while countries with weaker economies pursue public health policies to reduce population growth. Globally, a smaller population presents multiple benefits from an ecological perspective, but some economies are challenged by low birthrates and are redirecting their need for unskilled labor to countries with higher populations and lower wage demands (Fox & Dyson, 2008).

2.5 Empirical Studies

Studies on determinants of unemployment indicate that there are internal and external factors that determine youth unemployment (Muhammad et al 2013). The internal factors revolve around labour market fundamentals affecting labour supply and demand. These internal factors comprise workers and trade union preferences, bargaining powers, firms, technology, and market power. To begin with, Valadkhani (2003) modelled major determinants of Iran unemployment using data between 1968 and 2000. He used consumer price index, output gap, total investment and the exchange rate as variables. He found out that these factors determine the variations in the unemployment rate. In addition, Kalim (2003) analyzed the statistical relationship between youth unemployment, and population using dataset for 13years from 1986-1999.

The result in Kalim (2003) revealed that there was a positive relationship between unemployment and population over a period of 1986-1999. The results of Kalim (2003) indicated that population growth are major contributors of unemployment in the economy.

On the same note, (Aktar & Shahnaz, 2005), as quoted by (Muhammad 2013), examined the determinants of youth unemployment using data from 1991-2004. The findings revealed that growth rate of GDP, growth of service sector and private sector investment had greater impact than public sector investment to reduce youth employment. Arguing that these ignored key macroeconomic variables in model that may be responsible for youth unemployment, they incorporated population, GDP, private investment (PI), FDI, and ED as determinants of youth unemployment.

The findings revealed that there was high youth unemployment due to high population in general. Population growth leads to increase in unemployment. According to the findings of the (UNDP, 2013), Youth represents an important cohort of the Kenya's population. The number of youth almost tripled from 4.94million in 1979 to 13.67 in 2009. Kenya's population is projected to be 46.33 million in 2015and 69.93 million by 2030. This implies that youth will be 35.35% in 2015 and 35.18% in of population 2030. In 2009 the youth population expressed as a percentage of adult is 66.6% (Harvey, Moon, & Geall, 2009).When youth population grows by margin the labour market cannot absorb, youth unemployment increases. Muhammad et al. (2013) noted that rapid increase in population raises many socio-economic problems in the economy: it increases unemployment and accumulates the backlog of unemployment.

Arnab Roy (2015) carried out a study on youth unemployment conditions in India. The India is a fastest economic growing country in world. However, the growths of youngsters' population were occurred unemployment. The unemployment is common for both developed and developing countries. The education level is increased but the

skill development is quiet critical subject. The study focuses on youth unemployment, unemployment trend among youth, problems faced by youth and challenges faced by youth. For the census of 2011, 28 % of youths were unemployed. More over 93 % of youths are working in informal sector. The most important point is 40 % of Indian population aged between 13 to 35 years. The current scenario youth is prone to frustration and lack of interest to do something. The world development report is report on 2013, 9 % of males and 11 % female youths are unemployed. Finally, this study concluded that India need to create over one million jobs per annum (Bhavika Joshi, Serene Shekhar and SaritaSanwal, (2015).

Studies conducted in different countries show that one's own educational background, gender,family factors (such as parent education or sibling employment status) are among those which are worth examining (Osterman, 1980; Freeman & Wise, 1982; McDermott, 1995; Ianelli& Smyth, 2008). Using the Turkish Household Labor Force Survey for 2008 and hierarchical logistic regressions, this study tests whether these demographic and family background factors have a significant role in explaining youth labor market outcomes of Turkish youth controlling for structural characteristics of the regions in Turkey. A major aggregate determinant of youth unemployment is related to the size of the youth labor force (Macunovich, 1999; Shimer, 2012; Korenman & Neumark, 1997, 2000; O'Higgins, 2001 & 2003; Jimeno& Rodriguez-Palenzuela, 2002; Yenturk & Baslevent, 2007). Holding other factors constant, a greater number of people in the labor market mean a greater number of jobs required to accommodate them. Studies have shown that the relative size of the youth cohort to the adult population has a significant impact on youth unemployment; however, the aggregate labor market conditions have more impact (O'Higgins, 2001 & 2003, p. 45; Blanch flower& Freeman, 2000; Muller &Gangl, 2003, p. 271; Korenman &Neumark, 1997 & 2000; Yenturk &Baslevent, 2007).

Very few studies examine youth unemployment or issues related to the employment of youth in Turkey considering the size of the problem (Yenturk & Baslevent, 2007). Most existing studies are descriptive in that they lay out statistics on youth employment or unemployment. The unavailability of micro data until recent years and the challenging nature of the structure of the data that are available have hindered comprehensive studies of the factors which impact the distribution of employment and unemployment among youth. United Nations Development Program (2008, p. 8) stated that Turkey needs an articulate youth employment strategy. This would involve: "identifying the specific features, constraints and opportunities which matter most in terms of employment creation," and "new and more specific employment policies, geared towards the needs of the young" (UNDP, 2008, p. 8). The study of Turkey as part of this dissertation is an attempt to first identify these specificities in order to contribute to the definition of the issues around youth employment and unemployment, and thereby contribute to the construction of employment policies for youth in Turkey, taking into account international and local dynamics.

Study carried out by Ang &McKibbin (2007) noted that Sub-Saharan Africa has the fastest population growth projected between now and 2050 and the highest youth population in the world. It is crucial that governments factor this 'youth bulge' into national and social development planning. Youth employment challenges in Africa are often associated with rapid population growth rates. The correlation however is not always direct, nor that simple (Asteriou& Stephen, 2007). First, the youth bulge has not created an even unemployment rate throughout the continent. Second, it is not the numbers of young people that has created unemployment, but structural issues specific to individual countries.

At a flat rate of 11.9% in 2012 and 2013 as reported by the International Labour Organisation, compared to the current global average of 13.1%, Africa does not have high levels of youth unemployment (Berg, 2012). However due to the size of the

continent, and different degrees of urbanization and shifts in economic activities, it is very difficult to generalize.

A study conducted by Bloom & Freeman (2012) revealed that despite being a leading economy in sub-Saharan Africa, with almost 50% of unemployed youth, South Africa has one of the highest levels of youth unemployment in the region. Similarly, although Nigeria's 13% youth unemployment is not well above the regional average, due to the large size of its population (around 170 million), the actual number of unemployed young people is high. On the other hand, small and land-locked Rwanda has one of the lowest youth unemployment rates globally, according to statistics from the World Bank (Bollerslev, 2012). Although a growing youth population is a challenge, it cannot fully explain the unemployment figures in Africa (Burnham & Anderson, 2004). The figures instead are largely the result of specific economic and political contexts. Lack of investment in infrastructure and subsidy for sectors with potential for creating jobs for example, have created deep structural issues. In many cases, these issues predate the youth bulge Therefore the relationship between population and youth unemployment is complex (Curtain, 2004). As populations expand, a concerted effort needs to be made to avoid the destabilizing factors that result from youth exclusion and lack of equitable growth. To do this, African countries need to address the systemic issues behind the problem through transformative economic policies and social sector spending.

2.6 Research gap

The research failed to address the effects of youth unemployment on income which study was carried out with the view that any information will be availed to the government and other partners in the policy circle to be used as the basis of establishing polices to mitigate youth unemployment problem as it requires clear information of its effect. Thus, estimation of effects of youth unemployment on their future earnings is crucial in it mitigation in the country where the largest part of the population are out of the formal or paid employment (Awogbenle, A.C. & Iwuamadi,

K.C. 2010). This study showed that youth unemployment greatly affects their contribution to the country's gross domestic product (GDP). Hence unemployment also stifles the development of the next generation as the current generation will not be able to educate and train their children. As unemployment increases the tendency for young people to engage in criminal activities are high. The youth now lack the capacity to access health services, leadership and management skills, and are prone to poverty because they are unable to engage in meaningful and gainful employment. Many of them have also resorted to corrupt tendencies in order to quickly go up the ladder.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter deals with practical procedures which were used in carrying out this study. It gives details of the research design adopted, data sources, research techniques, model of specification, regression model, unit of measurements, ethical consideration, ascriptions of authorships, limitation of the study and diagnostic tests.

3.2 Research Design

The study used descriptive, correlation and longitudinal design. This study employed the Quantitative research approach. This was because on the nature of the research problem, objective and the type of research hypotheses. Thus it was an appropriate research design type to collect, analyze interpret and present all the necessary Data for the mentioned problem statement.

3.3 Model specification

According to theory of competitive market economy, supply of labour and demand for labour are two invisible hands that determine employment in the labour market. Population growth and youth unemployment refers how to correlate the population growth and youth unemployment in Somalia, the factors that influence growth domestic product (Gdp growth) and gross capital formation.The functional form of the model linking the dependent variable of youth unemployment to the dependent variables is specified as:

$$\mathrm{Yenmpt_t} = \mathrm{f(pop_t,\ GDPgrowth,\ GCF)} \quad \text{.....(3.1)}$$

The above compressed equation can also be expanded to come up with the following regression equation for instance;

$$\mathrm{logunempt_t} = \log\alpha + \beta_0 log\mathrm{pop_t} + \beta_1 \mathrm{logGDPgrowth} + \beta_2 \mathrm{logGCF} \ldots\ldots\ldots\ldots\ldots\ldots \text{(3.2)}$$

Where:

$unempt_t$ = Youth Unemployment in millions

$Popn_t$ = annual Population growth

GDP growth = Gross domestic product growth in US dollars (billions)

GEP = Gross Capital Formation in US dollars (millions)

α_o = constant

t = The subscript used to represent the time component in the model summarizing the year when the data was collected. α, β =These regression coefficients representing the causal relationships between the dependent variables and each of the independent variables in the model.

ε =The error term also called the stochastic error term is used to represent all the other variables that may not be directly represented in the model due to the scope but could have an inference on the model.

3.4 Data Sources

Youth unemployment is the dependent variable used and the data was obtained from world development indicator by World Bank. The data of population growth will be obtained from World Bank Statistics(1991-2017) . The data for GDP and gross capital formation was obtained from the world development indicator by World Bank.

3.5 Research Techniques

3.5.1 Cointegration

Regression of one non-stationary variable on another is very likely to yield impressive-seemingly results which are wholly spurious (Mukherjee et al., 2015). In general, if two time series variables are both non-stationary in levels but stationary in first-differences, they are integrated of order 1, I (1), then there could be a linear relationship between them which is stationary, I(1) and as such all the series of interest should be integrated of the same order, preferably I(1).The two time series

variables that satisfy this requirement are considered to be co integrated. Variables are co integrated with one another if the residuals from the levels regression are stationary.

The study follows Johansen (2012) and Johansen and Juselius (2012) Cointegration technique. The technique establishes the long run relationship between variables. The first task is to make sure that the data is integrated of the same order. This is done by using unit root tests to examine the stationary of data sets. Thus, the variables are subjected to the Dickey Fuller (DF) and the Augmented Dickey-Fuller (ADF) unit root tests.

After the cointegration tests, this study employs the Fully-Modified Ordinary Least Square (FMOLS) as proposed by Phillips and Hansen (1990) to determine the long-run effect/coefficients of remittances and other variables on economic development. The FMOLS is used because it has some interesting characteristics which make it better than ordinary least squares (OLS). Firstly, the FMOLS modifies the ordinary least squares to account for serial correlation and endogeneity in regressors as a result of cointegrating relationships by presenting an asymptotically unbiased and fully efficient estimates. In addition, the FMOLS provides optimal coefficients for cointegrating regressions when the variables in the models are full ranked i.e. integrated of order one [I(1)] (Phillips,1995).

3.5.2 Time series Analysis

In this study, time series data was used to analyze the relationship between unemployment rate and population growth in Somalia for the period of 1991-2017. In econometric analysis, when time series data are used, the preliminary statistical step is to determine the order of integration of each time series used. A time series Y_t is stationary if its probability distribution does not change over time, that is, if the joint distribution of (Y_{s+1}, $Y_{s+2...}$, Y_{s+T}) does not depend on s; otherwise, Y_t is said to be non-

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stationary. If the series is not stationary, then inference procedures are invalid. Results derived from the regression models would produce spurious results if non-stationary data is used. Therefore, the first task is to check for the existence of stationary property in the series of private sector investment and economic growth. To check the stationary of the data the Augmented Dickey-Fuller (ADF) test is applied.

3.5.3 Testing for Stationarity

The assumptions of the Classical regression model necessitate that both the dependent and independent variables be stationary and the errors have a zero mean and finite variance. Non stationary variables results in spurious regression and as Granger and Newbold (2013), argued they are characterized by a high R^2 and a low Durbin-Watson (dw) statistic, t-and F-statistics that appear to be significant, but the results derive no any economic sense (Verbeek,2012). The results "looks good" because the least-squares estimates are not consistent and the customary test of statistical inference do not hold (Enders, 2011).

In addition, a series is said to be integrated and is denoted as I (d), where d is the order of integration. The order of integration refers to the number of unit roots in the series, or the number of differencing operations it takes to make a variable stationary (Takaendesa, 2004). In particular, as shown in Phillips (2012), the ordinary least squares estimator does not converge in probability as the sample size increases, the t-and F- statistics do not have well-defined.

3.5.4 The Augmented Dickey-Fuller (ADF) Test

The Augmented Dickey-Fuller (ADF) test for autoregressive unit root tests the null hypothesis

H_0: $\mu=0$ against the one sided alternative H_1: $\mu< 0$ in the regression

$$\Delta Y_t = \beta_0 + \mu Y_{t-1} + \delta_1 \Delta Y_{t-1} + \delta_2 \Delta Y_{t-2} + \cdots + \delta_p \Delta Y_{t-p} + u_t \qquad (1)$$

Under the null hypothesis μ=0, Y_t has a unit root; under the alternate hypothesis, Y_t is stationary. The ADF statistic is the OLS t-statistic testing μ=0 in the equation above. If instead the alternate hypothesis is that Y_t is stationary around a deterministic linear time trend, then this trend t (the period number), must be added as an additional regress or in which case the Dickey-Fuller regression becomes

$$\Delta Y_t = \beta_0 + \alpha t + \mu Y_{t-1} + \delta_1 \Delta Y_{t-1} + \delta_2 \Delta Y_{t-2} + \cdots + \delta_p \Delta Y_{t-p} + u_t \qquad (2)$$

Where

t is the time index,

α is an intercept constant called a drift,

β is the coefficient on a time trend,

γ is the coefficient presenting process root, i.e. the focus of testing,

p is the lag order of the first-differences autoregressive process,

u_t is an independent identically distributes residual term.

The ADF statistic is the OLS statistic testing μ=0 in the above equation. The lag length p can be chosen using the Akaike's Information Criteria (AIC) because it is known as the best information criteria to use. Burnham and Anderson (2004), argue that AIC has a theoretical as well as practical advantage because it is derived from principles of information criteria. Yang (2005), also argues that the rate at which AIC converges to the optimum is the best possible. The general form for calculating AIC is

$$\text{AIC} = \frac{2p}{T} - \frac{2lnL}{T}$$

Where L is likelihood value, p is the number of parameters and T is number of observation. Given a set of candidate values for the data, the preferred value is the one with the minimum AIC value.

3.5.5 Phillip Perron Unit test

Philip Perron Unit root test will be conducted based on the results on the data that was attained. The decisions are made basing on the t-statistic, that is to say, if the absolute value of t-statistic is more than the critical values, then we reject the null hypothesis and conclude that the series is stationary. On the other hand, if the absolute value of the t-statistic is less e than the critical values, we fail to reject the null hypothesis and conclude that the series is non-stationary. The critical values for this t-statistic are given in Mackinnon (1991).

3.5.6 Granger Causality Test

Granger Causality test examines whether lagged values of one variable helps to predict another variable. Granger causality means that if one variable for example in our study, population growth granger causes, youth unemployment, then population growth is a useful predictor of youth unemployment whereas past values of youth unemployment do not help to predict population growth when controlling for past values of youth unemployment. Therefore, in the VAR model we can identify whether population growth predicts youth unemployment using Granger Causality test. Granger is specified accordin6g to Emenike (2015) as follows.

$$Y_t = 0 + 1Y_{t-1} + \ldots\ldots\ldots\ldots iY_{t-1} + 1X_{t-1} \ldots\ldots\ldots\ldots iX_{t-1} + \mu$$

$$X_t = 0 + 1X_{t-1} + \ldots\ldots\ldots\ldots iX_{t-1} + 1Y_{t-1} \ldots\ldots\ldots\ldots iY_{t-1} + \mu$$

Where, the subscripts *t* and *t-1* denote time periods and μ is a white noise error. The constant parameter *0* represents the constant growth rate of *Y* in the equation (7) and *X* in the equation (8). Granger (1969) shows that X Granger-causes *Y* if *Y* can be forecast better using past *Y* and past *X* than just past *Y*. Sample *F*-test is applied to

examine causality in the variables. A significant *F*-statistic implies that lagged changes in a variable *Y* Granger cause changes in variable *X*. Unidirectional causality will occur between two variables if either null hypothesis of equation (7) or (8) is rejected. Bidirectional causality exists if both null hypotheses are rejected and no causality exists if neither null hypothesis of equation (7) nor (8) is rejected (Duasa, 2007).

3.5.6.0 Diagnostic tests

3.5.6.1 Normality Test

In the literature, there are several tests for normality such as histogram of residuals normal probability plot (NPP), Anderson–Darling and Jarque–Bera tests. The Jarque–Bera test for normality is employed in this research. The Jarque - Bera test is a test based on OLS residuals mainly used in a large sample test. First, it requires calculating the Skewness and Kurtosis and then measures the OLS residuals. In this case, we used the JB test to determine whether the residuals are normally distributed or not.

The null hypothesis and the alternative hypothesis are given as;

H_0: Residuals are normally distributed

H_1: Residuals are not normally distributed

Under the null hypotheses where the residuals are normally distributed, if the p-value of the statistics is sufficiently low or lower or equal to the level of significance, then it will be rejected. But if the p-value is found to be reasonably higher, then the normality assumption will not be rejected. In other words, the normality assumption is not rejected mostly when the value of the statistic is close to zero. The Jarque–Bera test statistic follows the chi square distribution with two degrees of freedom (Jarque&Bera, 2013).

$$A'^2 = A^2 \times (1 + \frac{0.75}{N} + 2) \quad \text{.....(5)}$$

3.6 Ethical Consideration

The following strategies were adopted to ensure the moral justification of the investigation.

3.7 Ascriptions of authorships

The researcher might accurately attribute this to the sources of information in an effort to celebrate the works of past scholars or researchers. This ensured that no plagiarism occurred.

3.7.1 Scientific adjudication

The researcher works according to generally acceptable norms of research.

3.8 Limitations of the study

Data set issues especially loss of some values due to differencing and the assumptions of least squares methods where the variables had to be transformed into logarithms before they are regressed.

The assumptions underlying the theory adopted in the study also limits the research findings

CHAPTER FOUR
DATA ANALYSIS AND INTERPRETATION OF RESULTS

4.1 Introduction

In the preceding chapter, methods of analyzing the population growths, as well as the long-run relationships between population growth and youth unemployment rates have been discussed. In addition, the Ordinary least square (OLS) technique is discussed to in an attempt to find out the impact of population growth on youth unemployment rate. Furthermore, econometric techniques that are discussed in the previous chapter are employed in this chapter and the results are discussed in detail.

The initial part of this chapter deals with descriptive summary of the data. This can be used to evaluate the scores of each variable for more advanced statistical analysis and the data can easily be understood in the form of tables and graphs.

In the next sub-sections of the chapter unit root tests are performed using the Augmented Dickey Fuller (ADF) test and the Phillips (2012) test. The results of these stationarity tests will then lead to the testing of long-run relationships between the variables understudy. The long-run relationship is captured using Johansen co-integration tests.

4.1.0 Descriptive Summary

Table 4.1: The summary statistics for the series of the data set

	YUNEMP.	Pop	GDP	GCF
Mean	9.618519	10,400,913	3,292,222,222	308,396,068
Median	9.5	10,116,228	3,220,000,000	271,228,226
Maximum	11.1	14,742,523	7,330,000,000	522,976,538
Minimum	7.4	7,455,936	590,000,000	118,986,364
Std. Dev.	1.202253	2,338,635	1,936,857,751	103,408,152
Skewness	-0.040621	0.318576	0.29298	0.5776
Kurtosis	1.651828	1.838777	2.001826	2.448967
Jarque-Bera	2.052189	1.973701	1.507161	1.842889
Probability	0.358404	0.372749	0.470678	0.397944
Observations	27	27	27	27

Source: Author (2018)

Where;

YUEMP is the Youth unemployment rate

Pop is Population

GDP is the Gross Domestic Product

GCF is Gross Capital Formation

Descriptive statistics were used to compare the means, standard deviation, skewness, kurtosis and normality of population growth, youth unemployment rate, Gross Capital Formation (GCF) and Gross Domestic product (GDP). Table 1 shows that the average of population growth is 10,400,913 and its median value is 10,116228. These two values are close to each other indicating minor symmetry with the variable.

A closer look at the remaining variables in the above table shows that all the means of the variables are very closer to their median values. This can show that there is minor symmetry in each of the variables above. The maximum and minimum values of the series are also given for each series under the row maximum and minimum, respectively. Looking at standard deviation, it measures dispersion of variables around the mean in the series. Interpreting standard deviation of the series in absolute terms, the distribution with smaller standard deviation exhibits less dispersion and larger standard deviation shows higher dispersion. Accordingly, in Table 1, unemployment rate is least dispersed with the value of 1.202253 while GCF has the highest dispersion with a value of 103,408,152.

Symmetry of the distribution of the series around the mean is measured by skewness. For a distribution to be considered Symmetric it should have a zero skewness value. Thus, by observing the row of skewness from the above table only youth unemployment rate is negatively skewed with a value of -0.040621, otherwise the rest of the variables seem to have symmetric distribution because their values are not far from zero.

The row under kurtosis in the above table, measures flatness and peakedness of the distribution is measured by kurtosis of a series. For a distribution to be considered normal it should have a kurtosis value of 3 and hence all our variable under study have digits that are no kurtosis.

The null hypothesis of Jarque Bera (JB) test for normality normal distribution cannot be rejected for all variables.

4.1.2 Unit Root Test Results Using the ADF test

This section involves testing for the stationarity of the individual variables using Augmented Dickey-Fuller and Phillip-Perron tests. Table 2 indicates the unit root test results performed in this study-following both the ADF test. A maximum number of 1lags were used for the ADF tests (as determined automatically by E-views statistical package).

Table 4.2: ADF and PP Test Results at level for Intercept at 5% level of significance

ADF TEST RESULTS AT LEVEL				Phillip-Perron (PP) TEST RESULTS AT LEVEL			
Variable	**Test statistic**	**Critical value**	**P-value**	**Test statistic**	**critical value**	**P-value**	**Decision**
Pop	-1.46084	-2.986225	0.5364	1.55474	-2.98103	0.9990	Do not Reject the null
Yunempt	-2.04801	-2.981038	0.2659	-1.82317	-2.98103	0.3615	Do not reject the null
GCF	-2.20324	-2.981038	0.2099	-2.20324	-2.98103	0.2099	Do not Reject the null
GDP Growth	-1.98651	-2.981038	0.2905	-1.37756	-2.99806	0.5751	Do not Reject the null

Source: Author (2018)

The null hypothesis for the ADF and PP tests is that all the series have a unit root. The result indicates that the independent variables of population growth, Gross Domestic Product growth (GDP), Gross Capital Formation (GCF) and the dependent variable youth unemployment rate (YUnemp) were found to be the non-stationary in their level form. This can be seen by observing the values of the Augmented Dickey-Fuller (ADF) test with the critical values of the test statistics at all 0.05 level of significance. Therefore, the Null-Hypothesis is not rejected and thus it is sufficient to conclude that there is unit root in the above variable in their level form.

Table 4.3: ADF and PP Test Results at First difference for Intercept at 5% level of significance

ADF Test Results at First difference				**Phillip-Perron (PP) Test Results at First difference**			
Variable	**Test statistic**	**Critical value**	**P-value**	**Test statistic**	**critical value**	**P-value**	**Decision**
POP	-17.9324	-2.991878	0.0001	-2.99098	-2.98622	0.0494	Reject the null hypothesis
Yunempt	-5.54993	-2.991878	0.0001	-14.3383	-2.98622	0.0000	Reject the null hypothesis
GCF	-5.03375	-2.986225	0.0004	-5.03375	-2.98622	0.0004	Reject the null hypothesis
GDP growth	-5.88809	-2.986225	0.0001	-5.93541	-2.98622	0.0001	Reject the null hypothesis

Source: Author (2018)

The null hypothesis for the ADF and PP tests is that all the series have a unit root. The result indicates that the all the variables that were found to be non-stationary at level became stationary when they were differenced once, and thus the Null-Hypothesis of

non-stationarity was rejected followed by the conclusion that all these variables became stationary or have no unit root. Having known that the variables that was non-stationary at level became stationary at first difference, the implication is that they qualify for Cointegration. For Cointegration to be applied at least one variable should be non-stationary at level but become stationary at first difference and thus Cointegration was applied.

4.2 Results of the long run relationship between population growth and youth unemployment rate in Somalia

In the Johansen's co-integration approach, similar to the Engle-Granger approach of co-integration the first step is to check for stationarity of the concerned variables in the study. As discussed in subsection earlier, variables that are relevant for this study are found to be integrated in different orders, i.e., all are I(1). Given that all variables become stationary at their first order, it became the most desirable case in order to continue with the Johansen's approach of co-integration test. The test is performed in order to determine the existence of co-integration between youth unemployment rate (Y) and the independent variable of population growth.

Table 4.4: Cointegration rank Test (Trace) results of the variables

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.720263	67.12880	54.07904	0.0023
At most 1 *	0.583569	35.28114	35.19275	0.0489
At most 2	0.321832	13.38027	20.26184	0.3342
At most 3	0.136578	3.671284	9.164546	0.4633

Trace test indicates 2 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

Source: Author (2018)

The findings of Table 4 above from the Unrestricted Cointegration trace rank test shows that there is co-integration Population growth, Gross domestic product, and Gross capital formation and youth unemployment. Comparing the p-value at none and the p-value at most 1, it is decided that we reject the null hypothesis at 0.05 level of significance. It is therefore concluded that there is a long run relationship among the variables in the model.

Table 4.5: Cointegration rank Test (Maximum Eigenvalue) results of the variables

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.720263	31.84766	28.58808	0.0184
At most 1	0.583569	21.90087	22.29962	0.0568
At most 2	0.321832	9.708989	15.89210	0.3616
At most 3	0.136578	3.671284	9.164546	0.4633

Max-eigenvalue test indicates 1 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

Source: Author (2018)

The results from Maximum Eigenvalue indicate that there is Cointegration among Population growth, Gross domestic product, and Gross capital formation and youth Unemployment rate. These findings confirm the results got from the first trace rank test hence by observing the p- value of at none from the above table we reject the null hypothesis that there is Cointegration among these variables thus we conclude that there is a long run relationship among population growth, Gross domestic product, and Gross capital formation and youth unemployment.

4.3. Results Granger causality between population growth and youth unemployment in Somalia

To establish if population growth granger causes youth unemployment or not, granger causality tests were carried out and the findings have been indicated in the table below.

Table 4.6: Granger causality test

Null Hypothesis:	Obs	F-Statistic	Prob.
LOGPOP does not Granger Cause LOGYUNEM	25	4.78294	0.0201
LOGYUNEM does not Granger Cause LOGPOP		0.03743	0.9633

Source: Author (2018)

The findings in the above table have been used to examine if population growth granger causes youth unemployment rate in Somalia or not. To establish this, the two null hypotheses have been setup in the table 6 above. The rejection criteria is that the study rejects that null hypotheses above if the p-value of any of the above null hypothesis in table 6 is less than 0.05. Following the outcome of the above results of the p-value of 0.0201 of Granger causality test, the current study rejects the first null

hypothesis in table 6 and concludes that population growth does Granger Cause youth unemployment rate but Unemployment rate does not granger cause population growth. In nut shell this study concludes that population growth causes youth unemployment in Somalia given the study variable also on the other hand, the findings have indicated that youth unemployment does not cause population growth.

4.4 Results of the effect of population growth on youth unemployment rate in Somalia

Regression analysis was used to establish the extent to which independent variables affect youth unemployment rate in Somalia and the results are presented in the table below. Stationary variables were used for population growth and youth unemployment.

Table 4.7: showing regression output analysis model of all the variables under study at 5% level of significance

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOGPOP	0.628160	0.243267	2.582181	0.0170
LOGGDP	-0.050667	0.081163	-0.624264	0.5389
LOGGCF	-0.090037	0.042348	-2.126105	0.0450
C	-5.025080	2.625534	-1.913926	0.0687

R-squared	0.652459	Mean dependent var	2.257461
Adjusted R-squared	0.605067	S.D. dependent var	0.128863
S.E. of regression	0.080982	Sum squared resid	0.144278
Durbin-Watson stat	1.979051	Long-run variance	0.004065

4.4.1 Interpretation of the model of the above model

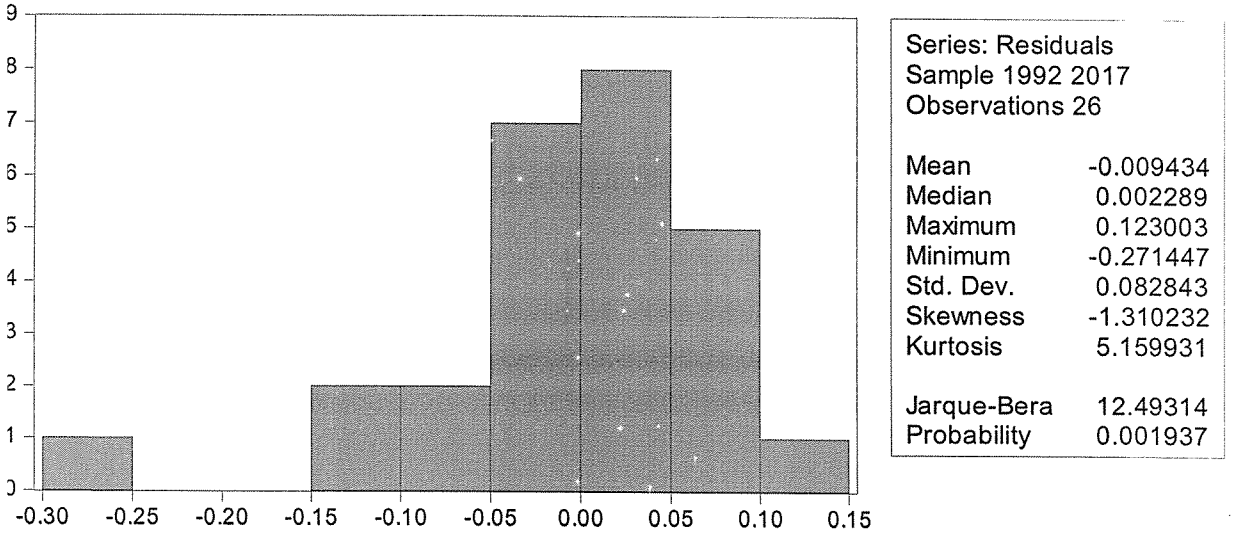
The findings of the above regression model indicate that population growth impacts on youth unemployment significantly. This means that as population growth increases, youth unemployment also increases. This can be seen by observing the p-value of population growth which in this case is 0.0170 which is less than 5% level of significance. The model also reveals that the variables of gross capital formation (GCF) has a negatively significant impact on youth unemployment at 5% level of significance shown by p-values of 0.045 and GDP growth does not have any significant impact on youth unemployment.

The R-squared value from the above model is 0.6524 indicating that the independent variables of GDP growth, population growth and gross capital formation account for only 65.2% changes in youth unemployment in Somalia.

4.5 Diagnostic Tests

Diagnostic tests determine the goodness of the model. Thus, the regression model was preceded by diagnostic tests presented. The diagnostic tests included: Jarque-Bera test for Normal data.

Figure 4.1: A graph showing normality in residuals after regression



The normality test for the residual series is undertaken using the Jarque-Bera (J.B.) statistic. The J.B. test from figure 1 shows that the model is not normally distributed. This is due to the p-value of 0.001937 in the model is less than 0.05 level of significance, we reject that null hypothesis of normality and rather conclude that our residuals are not normally distributed.

The long run relationship between population growth and youth unemployment rate

To establish if there is a long run relationship between the variables, Cointegration test were used to identify their long run interaction. In this research, the study compared the findings of both Trace and Maximum Eigenvalue results to examine if there is a long run relationship between population growth and youth unemployment as revealed in table 4 and 5 respectively. The Unrestricted Cointegration trace rank test showed that there is a co-integration between Population growth and youth unemployment rate since its p-value of 0.0023 at none, and 0.0489 at at-most 1, were all less than 0.05. Thus the null hypothesis of non-existence of a long run relationship between youth unemployment and population growth was rejected. The findings were confirmed by the second test results of Maximum Eigenvalue with the p-value of none(p-value of 0.0184) being less than 0.05 therefore in conclusion there is a long run relationship between population growth and youth unemployment in Somalia.

The Granger causality between Population growth and youth unemployment

From the findings in table 6 the results indicate that youth unemployment does not Granger Cause Population growth. This is because the p-value of 0.9633 is greater than 0.05. In this case, we fail to reject the null hypothesis that youth unemployment causes population growth and thus conclude that youth unemployment does not Granger Cause Population growth in Somalia.

The findings also revealed that Population growth does granger cause youth unemployment. This is because the p-value of 0.0201 is less than 0.05 implying that we reject the null hypothesis and concludes that population growth granger causes youth unemployment.

The effect of population growth on youth unemployment

A multiple regression analysis was used to establish how population growth impacts youth unemployment rate. The findings of the results showed that there is a positively significant relationship between the two variables under study. The findings also revealed that gross capital formation has a significantly negative relationship with youth unemployment and gross domestic product do not have significant relationship with youth unemployment rate and the entire model of the independent variable and its error term account for 65.25 % of changes in the dependent variable of youth unemployment.

CHAPTER FIVE

DISCUSSIONS, CONCLUSIONS AND RECOMMENDATIONS

5.1. Discussions of Findings

The aim of this study was to examine the impact of population growth on youth unemployment in Somalia for a period between 1991 and 2017. Since this study involved time series data, there was need for stationarity tests to be carried out and since it involved a long run relationship analysis, Cointegration using Johansen test was also required. Finally, regression analysis was used to establish the impact of population growth on youth unemployment.

5.1.1 Long run relationship between population growth and youth unemployment rate in Somalia

Cointegration was used to test if there is any log run relationship between population growth rate and youth unemployment in Somalia. Before testing for this long run relationship between the two variables, there was need to establish if our variables were non-stationary at level and if after first difference, they become stationary since this is mandatory for Cointegration to take place. From the previous analysis chapter, the findings revealed that the variables were non-stationary at level but when they were differentiated once, the become stationary qualifying our variables for Cointegration and these findings are in line with Engel and Granger (2013) and Cheung and Lai (2011), who proposed that for Cointegration test to take place, the series should be non-stationary at level but become stationary after being differentiated once. However, after the Johansen trace test were run, we established that there is a long run relationship between these two variables. Attempts to confirm the results of the trace tests using the Maximum Eigenvalue test also confirmed that there was a long run relationship between youth unemployment rate and population growth in Somalia.

Therefore the results from Maximum Eigenvalue indicate that there is Cointegration among Population growth, Gross domestic product, and Gross capital formation and youth Unemployment rate. These findings confirm the results got from the first trace rank test hence by observing the p- value of at none and at most 3 from the table 4 and 5.thus our null hypothesis that there is no long run relationship between population growth rate and youth unemployment was rejected hence we concluded that there is a long relationship between the two variables under study.

All in all, the findings revealed that youths are at the forefront of the Africa's demographic shift toward cities: the number of young people in the continent is growing faster than anywhere else in the world. As young people leave rural areas for cities in search of better economic opportunities, they add to an already growing urban youth population. In fact, most migrants into urban centers around the world are young people.

5.1.2 Granger causality between Population growth and youth unemployment in Somalia

After establishing a long run relationship between the two variables, the next task was to examine if population growth causes youth unemployment in Somalia given the time series data. The outcome of the results revealed that population growth granger causes youth unemployment in Somalia as indicated by a p-value of 0.0201 in table 6.This findings conform with the findings of Monteiro and Victoria (2005), who in their study established that a country that has high rate of population growth is most likely to be faced with high rates of youth unemployment Thus in Somalia the results show that population growth causes youth unemployment.

On the other hand, the findings indicated that youth unemployment does not granger cause population growth and this was equally revealed by the finding of table 6 which showed a p-value of 0.9633 which is greater than 0.05.These findings conform with the

findings Crepon (2012), who also examining the causes of high unemployment rates in Sub-Saharan countries established that the main cause of unemployment is uncontrolled population growth rates in these countries. He argued that if these countries do not enact policies that aim at reducing the growth rates of their population then there will be increased unemployment for years to come and subsequently, under development.

5.1.3 The effect of population growth on youth unemployment rate in Somalia

The research was also set out to establish the impact of population growth rate on youth unemployment in Somalia from 1991-2017. Regression analysis was used so as to get the extent to which population growth rate impacts youth unemployment rate. The findings of the research indicate that there is a significant relationship between population growth, gross capital formation and youth unemployment at 5% level of significance. The findings of the regression analysis also showed that one-unit increase in population growth rate increases youth unemployment rate by 0.628160 units indicating a small significance. The results further revealed that the model was significant with a p-value of 0.0170 and R-squared value of 65% means that population growth rate accounts for 65% of the changes in youth unemployment rate in Somalia. The research finding complements with Muhammad et al (2013) who found a positive relationship between population growth and youth unemployment. This is possibly true due to the fact that youth population increases yet skilling and training for employability is lacking.

The finding revealed a positive relationship between population growth rate and Youth employment however (Asteriou& Stephen, 2007) argues that the correlation is not always direct, because Firstly, the youth bulge has not created an even unemployment rate throughout the continent then Secondly, it is not the numbers of young people that has created unemployment, but structural issues specific to individual countries.

This finding also contravenes the conclusion that unemployment and population growth rate have positive relationship as cited by Fanati and Manfredi (2013) that a number of factors determine the supply of labour in an economy. The chief among them is the rate of population growth. High rate of population growth is expected to increase the supply of labour and put pressure on the labour market.

Monteiro and Victora (2005), notes that although a growing youth population is a challenge, it cannot fully explain the unemployment figures in Africa. This assertion is contrary to the research conclusion that increase in population growth rate increases youth unemployment.

5.2 Conclusion

5.2.1 Long run relationship between population growth and youth unemployment

The study concludes that Somalia is among Sub Saharan countries with the fastest population growth projected for 36 years between 2014 and 2050 and the highest youth population in the world where Low Developed Countries like Somalia are experiencing extreme levels of poverty, structural weaknesses of their economies and the lack of capacities related to growth, often compounded by structural handicaps. This therefore implies that the working-age population of the LDCs like Somalia will increase by an annual average of about 15 million, and the labour force will increase by about thousand per day over the next forty years, on average.

This is true because most of the youth are absorbed in the already occupied informal sectors waiting to get an opportunity in the formal sector, notwithstanding the gender dimension inherent in these countries with unemployment, underemployment and vulnerable employment (Berg, 2012). This therefore concurs to the findings of the study that there is a long run relationship between population growth and youth

unemployment, implying that in the short run the relationship may not show up but its effect persists after a long period time.

5.2.2 Granger causality between Population growth and youth unemployment in Uganda

The study concluded that population growth has also had a relatively small effect on unemployment in Somalia and this fact does not demonstrate any demographic stimulus to job creation. It simply indicates that unemployment is not a feasible option for most people and therefore it is likely to exacerbate income inequalities, particularly if many new young workers have little education. When a large proportion of workers are young and inexperienced, their productivity tends to be lower. Except for those who have more education than older workers, their starting wages will tend to be lower, and they must compete with each other.

5.2.3 The effect of population growth and youth unemployment

The study concludes that rapid population growth increases various forms of unemployment in Somalia and that the lack of investment in infrastructure and subsidy for sectors with potential for creating jobs for example; have created deep structural issues within the country economy. In many cases, these issues have been brought about by Ploygamy since Sharia Law allows men to marry more than one wife, high fertility rates amongst women, which have inhited high levels population growth.

5.3 Policy Recommendations

Since there was significant evidence that youth unemployment rate is due to population growth and that gross capital formation reduces youth unemployment. There is need for the government and nongovernmental organizations should:

- The Government of Somalia should also improve on sensitization and educating the people on population control through teaching them on birth control measures like child spacing.

- The Government of Somalia should invest heavily in the private sector through supporting private investors setting up manufacturing companies to employ youths and acquire them with necessary skilling to sustain them in life.
- The Government of Somalia should also create an enabling environment for self-employment, job creation and entrepreneurship if the country is to benefit from the youth population, and this should be through setting up market centers and trade shows for entrepreneurs and traders to be open up SMEs in these markets to earn a living.
- The study recommends that the Government of Somalia should take effective steps to spread women education and create employment opportunities for them so that they can understand the evils of population growth.
    - The government of Somalia needs to raise, the employment avenues in low developed states of Somalia like; Galmudug state, Hirshabelle state as well as urban areas especially in regions like Banadir region.

5.4 Contribution to the existing Knowledge

This study will be helpful in supplementing the pool of knowledge and understanding regarding population growth and youth unemployment in Somalia. According to the evidence, it has been noticed that the rapid population growth especially in cities like; Mogadishu, Hargesia, and Kismayo are has resulted in competition of youths for the little employment opportunities existing in the country since Somalia still continues to grapple with high youth unemployment rates. This has been caused by uncontrolled rapid population growth due to many occurrences of teenage marriages where many girls have been subjected to marriages at ages of 15 and 16 years.

5.5 Suggestions for Further Research

The present research focuses on a few casual variables and there may still be a need to study other relevant variables to determine whether they give the same findings as the ones found in this study.

This study narrowed its focus to a Ugandan context. This means a similar approach can be used to study other countries cases.

This study used the Cointegration to estimate the relationship between youth unemployment and population growth rate. Therefore, it invites the researcher to criticize this model and prove its relevancy.

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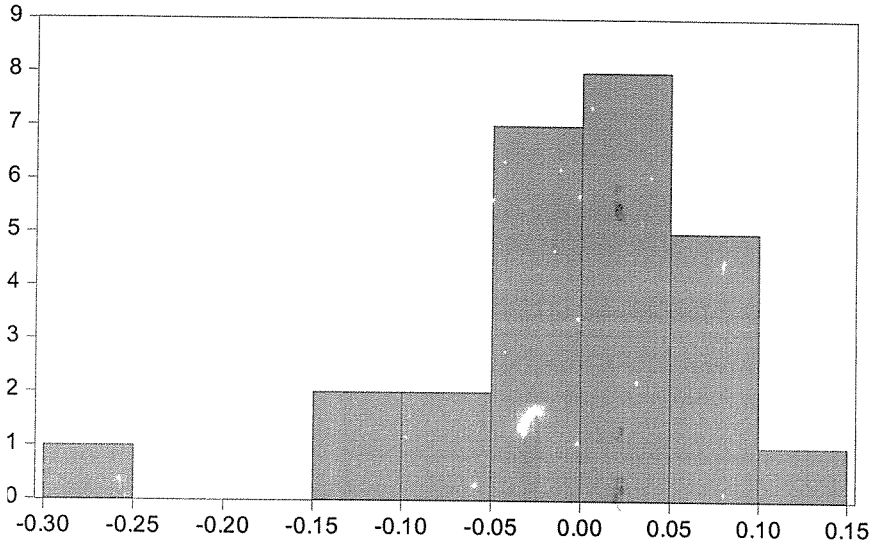
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Appendix I: Normality test



Series: Residuals
Sample 1992 2017
Observations 26

Mean	-0.009434
Median	0.002289
Maximum	0.123003
Minimum	-0.271447
Std. Dev.	0.082843
Skewness	-1.310232
Kurtosis	5.159931
Jarque-Bera	12.49314
Probability	0.001937

Appendix III: (Granger causality test)

Pairwise Granger Causality Tests
Date: 08/21/18 Time: 13:23
Sample: 1991 2017
Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
LOGPOP does not Granger Cause LOGYUNEM	25	4.78294	0.0201
LOGYUNEM does not Granger Cause LOGPOP		0.03743	0.9633
LOGGDP does not Granger Cause LOGYUNEM	25	1.62995	0.2209
LOGYUNEM does not Granger Cause LOGGDP		0.04883	0.9525
LOGGCF does not Granger Cause LOGYUNEM	25	1.01687	0.3797
LOGYUNEM does not Granger Cause LOGGCF		1.57281	0.2321
LOGGDP does not Granger Cause LOGPOP	25	1.03377	0.3739
LOGPOP does not Granger Cause LOGGDP		2.96267	0.0747
LOGGCF does not Granger Cause LOGPOP	25	0.94150	0.4067
LOGPOP does not Granger Cause LOGGCF		0.70553	0.5057
LOGGCF does not Granger Cause LOGGDP	25	0.41226	0.6677
LOGGDP does not Granger Cause LOGGCF		0.28088	0.7581

Appendix III: Data used in the study

Year	YUNEMP. Rate	Pop	GDP	GCF
1991	9.2	7,455,936	590,000,000	185,248,947
1992	8.9	7,488,544	780,000,000	118,986,364
1993	8.6	7,519,811	810,000,000	223,437,239
1994	9.5	7,583,954	1,050,000,000	232,974,307
1995	8.6	7,704,894	1,330,000,000	232,134,498
1996	7.8	7,892,389	1,140,000,000	260,675,627
1997	8.7	8,137,475	1,260,000,000	306,549,398
1998	8.7	8,422,372	1,430,000,000	384,722,602
1999	8.7	8,720,231	2,010,000,000	385,114,885
2000	8.8	9,011,479	2,220,000,000	420,094,029
2001	8.1	9,290,823	2,580,000,000	266,669,575
2002	10	9,564,167	3,120,000,000	249,587,855
2003	9.5	9,836,397	3,440,000,000	279,629,261
2004	8.3			

		10,116,228	3,090,000,000	364,499,479
2005	7.4	10,409,925	3,220,000,000	470,912,220
2006	10.3	10,718,317	3,590,000,000	485,892,879
2007	9.1	11,038,596	3,310,000,000	488,546,439
2008	10.3	11,369,276	3,910,000,000	522,976,538
2009	11.1	11,707,990	4,470,000,000	403,180,218
2010	11.1	12,053,223	4,330,000,000	213,636,364
2011	11.1	12,404,725	5,590,000,000	213,824,451
2012	11.1	12,763,776	5,140,000,000	261,259,542
2013	10.6	13,132,349	5,350,000,000	279,670,782
2014	10.9	13,513,125	5,650,000,000	275,080,311
2015	11.1	13,908,129	5,930,000,000	266,507,762
2016	11.1	14,317,996	6,220,000,000	263,654,047
2017	11.1	14,742,523	7,330,000,000	271,228,226

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Source: world Bank, 2017

Where;

POP rate is the population rate

YUEMPT RATE is the Youth unemployment rate

GCF is the Gross capital formation

GDP is the Gross Domestic product growth