POPULATION AND ECONOMIC GROWTH IN UGANDA (1994 - 2012)

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DECLARATION

I **WALUGEMBE JIMMY** registration number **BEAS/31926/102/DU** do declare that this report has been my original working and it has never been submitted to any institution for approval.

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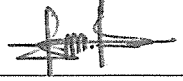
Signature: 

APPROVAL

This report has been submitted to the under graduate degrees committee for the award of a Bachelor degree in Economic and Applied Statistics of Kampala International University with our approval as supervisors.

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DEDICATION

This work is dedicated to my Parents Mr. John Kimbugwe and Mrs. Ruth Kimbugwe and to the entire family for the support rendered to me throughout my entire academic life. May God reward you all abundantly.

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With sincere appreciation, I would like to thank my supervisor **MR. EDSON MWEBESA** for his tireless efforts that have enabled me complete my research report. Special thanks go to my head of department **PR. SEMPEBWA GODWIN** for all the support and guidance. Thanks go Mr. Ayen Morris Okucu for the guidance all through to produce this dissertation , not forgetting my classmates; Grace Milly, Wekoye Fred, Malisi Offen, Shakirah, Alice Acom, Ogwal Bonny, Afish, Gasper DP, Katwere Amosi, Kuac Ngong, Ocen Chrissy, Ogwete Erick and Ogwang Solomon, for their encouraging advice and cooperation during the entire course. And to all the lecturers who have taught me. To all of you, thanks so much, may God reward you abundantly.

ABBREVIATION AND ACRONYMS

ACF	Autocorrelation Function
BoU	Bank of Uganda
GDP	Gross Domestic Product
GNP	Gross National Product
IFS	International Financial Statistic
IMF	International Monitory finance
MoFPED	Ministry of Finance Planning and Economic Development
OECD	Organization for Economic and Development cooperation
PACF	Partial Autocorrelation Function
R &D	Research Development
SADC	South Africa Development Cooperation
UBOS	Uganda Bureau of Statistics
USD	United States Dollar
WB	World Bank
WTO	World Trade Organization

ABSTRACT

This research report set out to investigate the relationship between Population and economic growth (measured by GDP) in Uganda (1994-2012). The study employed time series survey data since examined data for a short time. Its objectives were; to establish the trend of Population in Uganda (1994-2012), to establish the trend of GDP growth of Uganda (1994-2012), to investigate the relationship between Population and GDP growth in Uganda (1994-2012). The hypothesis of the study was there is no relationship between Population and GDP growth in Uganda. Time series analysis such Correlation analysis, regression analysis mechanisms were used. The trend of Population and GDP growth showed a general increase respectively. Using the correlation, regression approach, there was a strong positive correlation between Population and GDP growth($r=0.943$), there was also significant relationship between Population and GDP growth at 0.05 level of significance, stationality was tested and found that both Population and GDP has trend by using ACF and PACF. In conclusion therefore both Population and GDP growth has a general increase; there is a positive relationship between Population and Economic growth in Uganda. It has agreed (Easterlin 1967; Thirlwall 1972; Simon 1992; Kelley and Schmidt 1996; Ahlburg 1996).The trend in Population implies that high fertility rate low death rate among others.

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CHAPTER ONE

PROBLEM AND ITS SCOPE

1.1 Background of the study.

A high population growth is a growing concern throughout the world and a challenge to countries' economies. The world's population was about a billion in 1800 and rose to 2.5 billion in 1950 (Martin 2009). In the year 2007 the world's population was 6.7 billion and is projected to rise to 9.2 billion by 2050 with almost all population growth projected to occur in what are now considered less developed regions. Between 1950 and 2000, when the world's population increased from 2.5 billion to 6.1 billion, the major shifts in population weights by continent were the result of changes in fertility and mortality rather than large-scale migration (Martin, 2009).

In the early of twenty-first century, the world population had fluctuated around 6 billion, in which developing countries contributed to 80percent of the total amount and mostly occur in Asian countries. The fact is population growth and economic growth always has a close relationship. Over periods, the arguments about positive and negative effects of population on economic development are still complicated problems for most of the economists. One of these economists is Thomas Malthus. In his model (1826), he stated that the population growth can reduce the output per capita because population increases at a geometrical rate while production rises at an arithmetic rate so that output growth rate cannot keep the same pace. (Thomas Malthus, 1826)

Kenya was the first Sub-Saharan African country to have a population policy by forming of the National Family Planning Programme to reduce population growth in 1967. However the implementation of the population policy did not yield the desired results and led to the revision of the 1967 policy to form the Sessional Paper No. 4, of 1984 on Population Policy (Muia *et.al* 2003). The 1984 policy incorporated demographic and socio-economic goals and diversified implementing ministries and nongovernmental and religious organizations. The demographic intentions in the Sessional paper were to reduce the population growth rate, reduction of fertility, Reduction of mortality particularly infant and child mortality and also the reduction of rural–urban and rural–rural migration. (Muia *et.al,* 2003)

The 2002 Census suggests that Uganda had a population of 24.7 million in that year. The total fertility rate (the number of children that, given current age-specific birth rates, women will have in their lifetime) as estimated by the DHS, stood at 6.9, largely unchanged over the past ten years and much higher than in neighboring countries (e.g. Kenya: 4.7; Tanzania: 5.6, see UBOS, 2001). Consequently, the population growth rate was about 3.4percent per year between 1991 and 2002, which puts Uganda among the countries with the highest population growth rates in the world. According to these projections, Uganda's population is expected to reach 103.2 million people in 2050. This projection is based on considerable fertility decline from presently about 7 to only 2.9 in 2045-2050. Whether this will be achieved is far from certain and will likely depend on overall economic development in coming decades as well as government efforts to support a fertility decline. But even with this considerably fertility decline, population growth will still be over 2percent per year in 2045-50 and Uganda's population is projected to stabilize at a population of some 200 million only in the 22nd century.

Somer Taylor (1987) defined population growth as how quickly the members of a group increase in number over a set period of time. This took the annual population projections from UBOS. This study adopted Somer Taylor (1987) definition.

According to Martin et al (1991) defined economic growth as the increase in the level of productivity of goods and services of a country within a period of time, Micheal. P (1993) defined economic growth as the expansion of our production possibilities. This was measured as the in term of GDP growth; this study adopted Martin et al (1991) definition and it was measured in billion US Dollars.

1.2 Problems Statement

The population growth affects both the consumption and productivity of a country's economy. One more person can increase not only one pair of hands for labor but also one mouth for consumption. Especially in Uganda a developing country, where the population growth is more and more drastic, economic growth therefore also changes critically over periods. Up to now, the debates about whether population growth is beneficial or detrimental to economic growth still have to be discussed. As a result, it is significant to take into account the effects of population on economic growth in this country, which focus on per-capita term specifically. Therefore this research seeks to investigate the impact of population on economic growth. We shall conclude whether an increase in population growth can lead to a benefit or detriment to economic growth in Uganda.

1.3Purpose of the Study

The purpose of the study was to investigate the effect of population on economic growth in Uganda (1994 to 2012), to show the trend of population in Uganda (1994 to 2012), to show the trend of economic growth in Uganda (1994 to 2012), to test hypothesis, and the theory.

1.4 Research objectives

1.4.1General objective

To investigate the relationship between population and economic growth in Uganda (1994 - 2012).

1.4.2 Specifics objective

- To establish the trend of population growth rate in Uganda (1994 to 2012)
- To establish the trend of economic growth in Uganda (1994 to 2012)
- To investigate the relationship population and economic growth in Uganda (1994 to 2012)

1.5 Research questions

- What is the level of trend of population growth rate in Uganda?
- What is the level of trend of economic growth in Uganda?
- What is the effect population growth rate on economic growth in Uganda?

1.6 Hypothesis of the study.

Ho: There is no relationship between population and economic growths in Uganda (1994 to 2012).

1.7 Scope of the study

1.7.1 Content scope

The study was focused on the establishment of the trend of population growth rate in Uganda (1994 to 2012), the trend of economic growth in Uganda (1994 to 2012) and in determination of the effect of population growth rate on economic growth in Uganda (1994 to 2012).

1.7.2 Geographical Scope.

The study was carried out in Uganda. Uganda has a population of 34 million, with a total land area of 240000km^2 (UBOS 2012).This was done from (6th Feb. to 31st June 2013)

1.7.3 Theoretical scope

The study was guided by the theory of Thomas Malthus (1826) which states that the population growth can reduce the output per capita because population increases at geometrical rate which production rate rises at arithmetic rate so that output cannot keep the same price.

1.7.4 Time scope.

The study was conducted in five month and it was used to review the nineteen -year time series data that is, from 1994 to 2012.

1.8 Significance of the Study.

The government policy / makers ; the government can base on these findings of the study to formulate and implement population growth policies, Economic growth policies .such policies can be a platform for the sustained economic growth.

The study is useful to academia, especially researchers who may be interested in carrying out empirical studies on population and economic growth.

This study is useful to an individual in that it help to understand how the growing population can lead to economic growth.

1.9 Operational definitions

Economic growth

Economic growth is defined as the increase in the level of productivity of goods and services of a country within a period of time. This study adopted martin definition and it was measured in terms of Gross Domestic Product.

Population growth:

Population growth is defined as how quickly the members of a group increase in number over a set period of time. This was measured as the annual projection of population growth.

CHAPTER TWO

LITERATURE REVIEW

Concept, Ideas, Opinion from Authors/Expert

2.2 Population growth.

Somer- Taylor (1987) defined population growth rate as how quickly the members of a group increase in number over a set period of time.

Population growth was alternatively defined as the average annual percent change in the population, resulting from a surplus (or deficit) of births over deaths and the balance of migrants entering and leaving a country. The rate may be positive or negative. The growth rate is a factor in determining how great a burden would be imposed on a country by the changing needs of its people for infrastructure (e.g., schools, hospitals, housing, roads), resources (e.g., food, water, electricity), and jobs. Rapid population growth can be seen as threatening by neighboring countries (world 2012).

Mortality transition

Over two centuries, from 18th century to 20th century, the level of mortality has changed dramatically in Asian countries. The demographers use life expectancy of birth, which is the average number of years that newborn baby can be expected to live, as a mean to measure the mortality level. Generally, the life expectancy of birth has increased rapidly from the beginning of 18th century.

Life Expectancy

Life expectancy at birth is an estimate of the average number of years a person is expected to live if a particular pattern of mortality is maintained. The over-all life expectancy at birth from 2002 Census was 50 years. There was a gain of 2.3 years in life expectancy between 1991 and 2002. Males registered a lower life expectancy (49 years compared to their female counterparts (52 years).

The data was collected from 1969 to 2002 from worldbank.org, as can be seen on the graph, in Uganda the average life expectancy in 1969 was 46.5 , 1991 was 48.1and 2002 up to 50.4There are two main reasons that make the big change in mortality level. Firstly, the living standard has

improved in overall; include housing and other necessities like food and water. When people have a higher level of income, they will enjoy a better nutrition and thus have more resistant to disease. The second reason is the Population of new technology from Western countries; include medical treatment, drainage system, vaccines protecting people from dangerous epidemics like smallpox, measles, etc... This also explains why the life expectancy in Uganda is increased much faster.

Fertility transition

In order to measure fertility, demographers use the total fertility rate (TFR) which is the number of children that one woman can give birth through her lifetime. In general, the total fertility rate in Asian developing countries has declined dramatically over the past three decades. According to the data of United Nations Population Division, the average TFR declined from 6.27 in 1965 to 2.47 in 2009 (decreased more than 2.5 times).

There are many factors which contribute to the decrease in birth rate in Asian developing countries. In some countries, such as China and Vietnam, the government has applied intensive family planning program to control birth rate. But in most of countries, socioeconomic is a key factor of the situation. Delaying marriages, rising cost of health caring and education for children are some main factors in socio-economic case. Moreover, the income level, which increases vastly in some middle-income countries like China and Thailand, raises the opportunity cost of time spending for rearing children. Last but not least, education, especially female education, is expected to be strongly related to the fertility rate. Highly educated women have preferences for well-educated children, so it makes more difficult to have large-size families because of the children-rearing cost. Along with the tremendous development in economy, the education level has also increased in order to satisfy the need of the new emerging economy. Due to studies conducted by Cochrane (1983), he suggested that the education level has a negative impact on fertility rate.

The interaction of Fertility and Mortality

The Net rate of reproduction is considered a good mean to measure the interaction among fertility and mortality. The Net rate of reproduction (NRR) is defined as the number of daughters that each girl who is born can be expected to give birth to (David N. Weil, 2008).

Most of the countries in our sample experience the increase in Life expectancy; however, according to United Nations Population Division, the data of NRR collected from 1970-2005 reduced all the time. The main reason is that the second variable, total fertility rate declined at a faster rate. Take India for an example, in the period of 45 years, from 1955-2000, despite of the increasing in life expectancy (from 42.6 to 62.1), the NRR slightly decreased from 1.75 to 1.43 since TFR faced a dramatic downward, from 5.92 percent to 3.45 percent. Moreover, the "decreasing infant mortality rate" also has a strong effect on fertility rate. Each family has its own desired fertility. If the infant death rate equal to ½ and the desired fertility equal to two, the family have to give birth to four children in order to ensure that two of four children will survive in future. Because the infant death rate decreases sharply overtime; take Indonesia for example, according to the United Nations Population Division, the infant death rate decrease from 201/1000 in 1950s to 27/1000 in 2005s; and the desired fertility seems to be fixed or decreased, the total fertility rate will decrease.

2.1 Economic growth

Roger Leroy (2004) defined Gross domestic product as the market value of final goods and services produced in an economy during a year as a flow of production using the available factors of production. Gregory Mankiw (1998), defined GDP growth as the value of all final goods and services produced within a country in a given period and was measured in billions of USD. This study adopted the definition of the latter.

The overall economic performance of Uganda as measured by Gross Domestic Product (GDP) for the fiscal year 2011/12 reflects a lower growth rate compared to 2010/11. In the fiscal year 2011/12, the preliminary real GDP at market price grew by 3.2 percent compared to the 6.7 percent growth registered in 2010/11.This, therefore, indicates a slowdown in growth of 3.5 percentage points of the economy between the two fiscal years. Nominal Per Capita GDP increased by 21.3 percent from 1,206,866 Uganda Shillings in 2010/11 to 1,463,961 Uganda Shillings in 2011/12(UBOS 2012).

Uganda has substantial natural resources, including fertile soils, regular rainfall, small deposits of copper, gold, and other minerals, and recently discovered oil. Uganda has never conducted a

national minerals survey. Agriculture is the most important export sector of the economy, employing over 80% of the work force. Coffee accounts for the bulk of export revenues. Since 1986, the government - with the support of foreign countries and international agencies - has acted to rehabilitate and stabilize the economy by undertaking currency reform, raising producer prices on export crops, increasing prices of petroleum products, and improving civil service wages. The policy changes are especially aimed at dampening inflation and boosting production and export earnings. Since 1990 economic reforms ushered in an era of solid economic growth based on continued investment in infrastructure, improved incentives for production and exports, lower inflation, better domestic security, and the return of exiled Indian-Ugandan entrepreneurs. Uganda has received about $2 billion in multilateral and bilateral debt relief. In 2007, Uganda)received $10 million for a Millennium Challenge Account Threshold Program. The global economic downturn hurt Uganda's exports; however, Uganda's GDP growth has largely recovered due to past reforms and sound management of the downturn. Oil revenues and taxes will become a larger source of government funding as oil comes on line in the next few years. Rising food and fuel prices in 2011 led to protests. Instability in South Sudan is a risk for the Ugandan economy because Uganda's main export partner is Kenya, and Uganda is a key destination for Sudanese refugees (MTTI, 2012)

When they do arise, for instance, during the coffee boom of 1994-95 where the price in U.S. cents to a pound of coffee was 126.83. This failure to improve production is based upon a lack of investment and an assumption of the continuation of the usually relatively low levels paid by th e volatile world market for primary commodities. For example, in 1999 the price in U.S. cents to a pound of coffee was only 67.65. Considering the long-term maturity of coffee plants, the instability of international markets does not provide much of an incentive for improved efficiency of production. It should also be noted that export crops such as coffee are very susceptible to natural disasters, which further reduces their economic viability. For instance, a hurricane in 2000 pushed Uganda's national harvest back a year. It is upon this that Uganda's export earnings keep on fluctuating and hence affecting the GDP (UEPB, 2003).

Uganda has experienced strong economic growth over the past decade. Real GDP at market prices has averaged 6.7 percent per annum sin 1990/1991.Recently concern have been raised that growth has slowed slightly over five years, as the average growth rate between 1998/99 and 2002/03 was 6.1 percent per annum, as compared to 6.8 percent between 1997/98 was boosted by three years exceptionally strong growth in the early 1990s, which was driven by reforms implemented in the first half of 1990s and coffee boom (MoFPED 2004). The determinants of growth in Uganda during the 1990s have been identified as improved security ,the restoration of macroeconomic stability, the removal of economic distortions and the improvement in the terms of trade, as a result of the mid-nineties coffee price boom. Growth productivity, meaning the efficiency with capital and labor are used, made a significance contribution to GDP growth during the 1990s, reflecting the scale of rehabilitation of production processes after the restoration of peace to most of the country (MoFPED 2004).

2.3 The effect of population on economic growth

2.3.1 Positive effects

The "Economies of Scale" phenomenon of population growth

Despite of the Malthus' theory of diminishing return when it comes to scarce resource like food and water, some of optimistic "population growth" economists, like Kuznets (1956), Boserup (1965) and Simon (1981), believed that population growth can really help the nation economy to turn from ineffective economy into "economies of scale" state. According to Kendrick (1977), economies of scale are an important factor to increase the productivity (increase in output per unit of labor) of one nation. A country, which has a rapid population growth, can suffer many burdens, such as capital dilution, shortage of necessity resources and the casualty could lead the whole population to poverty, famine and starvation. However, there are three arguments supported for the idea that population growth can boost the country economy by "economies of scale" phenomenon.

Firstly, a nation, which has a rapid population growth rate, means that its population size will develop with a quicker rate. The bigger the population size is, the larger the market size becomes. In order to meet the product demand of the large-size market, bigger and more effective as well as longer performance period manufacturing plants are required to develop

(Simon 1994). Therefore, the producing cost and setup cost per one output have tendency to reduce.

Secondly, the large-scale of population not only have a large size market but also possess an impressive number of labors. Because of the availability of labor force, it is possible for firms to divide their labor into particular division of labor to do specific tasks. An excellent example of specialization is car assembly line in which each division just takes responsibility of installing only one part of the car such as engine or car wheels.

According to Adam Smith, "division of labor has caused a greater increase inproduction than any other factor. This diversification is greatest for nations with moreindustry and improvement, and is responsible for "universal opulence" in those countries". Moreover, through specialization, working skill of labor force is likely to improve more quickly with learning-by-doing. Since a large size of population demands a tremendous number of products, these workers have more chances to improve their working skill. As a result, the average time spending for producing one unit of output have tendency to decrease more quickly than in smaller market-size. Correlating with saving producing time, the cost per one product is also deducted and firm is more efficient through specialization.

Finally, the rapid population growth rate could cause a positive effect on communication and transportation. Transportation plays an important role in economic development. A good transportation system can help reduce transportation cost and travel time. Along with high population growth rate, the increase in population density is inevitable. A dense population is likely to pressure the government to develop more in transportation system such as railroad, highways and road.

Take China as an example, according to United Nations Population Division, in 1985, its population density was 110 people/km2 and the total amount of railroad was 52,000 km while in 2010, the total length of railroad is 91,000 km (increase 75percent) and its population density is 141 people/km2 (increase 28percent).Transportation improvement is surely a general trend for every economic development, but it is not deniable to state that the population density has a strong impact on number of construction of transportation. As Julian L. Simon stated in "The

Ultimate Resource", "population growth clearly leads to an improved transportation system, which in turn stimulates economic development".

Acceleration of technological progress

The Industrial Revolution started at the beginning of 18th century and ended at the end of 19th century. This is the period when Malthusian "population growth" model was broken down and technology proved its own importance for the economic growth. In Cobb- Douglas model, $y = A.k^{\alpha}h^{1-\alpha}$; where y is output per worker, A is productivity and h is human capital per worker; technological progress, which increase the value of parameter A, eventually lead to the higher output per worker with the same number of input. According to early neoclassical model of Solow (1956), the role of technological change is crucial and he emphasized that it is even more important than the accumulation of capital.

There are some theories supported for positive effect of population growth on technological growth, two most well-known theories belonged to Boserup and Simon. Among in the optimistic economists in "population growth" field, Boserup is quite famous as an anti-Malthusian economist. In her theory, she argued that when the population faces a critical event like shortage of food or other necessity goods, people would find a way to overcome the situation by increasing workforces, using new method of producing or inventing new machines, tools, etc. In Simon-Steinmann Economic growth model, Simon also shows the idea that the greater the total population, the greater the level of technological growth which eventually lead to yield greater capita income. A country, which has a higher population growth rate, implies that there is a rapid increase in school-age population. Instead of investing in other essential industrials to increase the overall capital accumulation, the government has to spend more public spending in schooling and educational facilities (Jullian Simon, 1994)

The pressure created by massy number of school-age population also retards the general education level of the nation. However, in long run, huge investment in education in present can result in the accumulation of human capital, which is a special stock of competence, knowledge, personalities as well as the ability to produce economic value. Human capital has two effects on economic development. First, human capital can be used as a productive factor like other capitals

like machine, vehicles etc. Second, human capital can directly contribute to the development of new technology which effect positively to the productivity. Hence, greater population growth tends to raise the level of technology growth (Simon, 1981)

The population growth enlarges the size of labor force, so, the average wage rate, therefore, is pushed down. In developing countries, low wage rate is considered an important factor in the progress of industrialization and modernization, which are closely related to the wealth of the nation. Moreover, instead of spending a huge amount of money to pay the labor, firm can invest more in R&D sector, which finally result in the sufficient development of new technology that leads to higher productivity. Hence, the growth of population is likely to help firms to have a better chance in competing with other foreign rival firms.

2.3.2 Negative effects

The Solow Model

Economist Robert Solow developed the Solow Model in 1956. In this model, he considered the following production function:

$y = A.k^{\alpha}L^{1-\alpha}$

Where Y is the aggregate output, A is the total factor productivity, K is the size of manufactured capital and L is the amount of labor used overtime.

Capital dilution:

The first problem caused by population growth is capital dilution. In Asian Developing countries, the total population is going up dramatically. For example, according to United Nations Population Division, in 1965, India had the total population around 497 thousands while in 2010, the total population of India is approximately 1,214 million. Assume that the amount of capital in a country is constant; an increase in population will lead to a decrease in capital per worker (since adding more workers can lower the amount of capital at each worker's disposal).

Standard of living:

Population growth also leads to higher total consumption demand for goods and services.

The figure below illustrates the relationship between demand and supply curve based on Quantity demanded and price. If supply lower than demand, the goods will become scarce. Due to high demands and shortage of resources, the prices of the goods will increase, causing a shift

to the left in the supply curve. The raise in price, however, declines the demand for goods, which causes a shift in the demand curve to the left. The decrease in demand is caused by the inadequate income per capita, which implies that people cannot afford to buy necessary goods and services required to survive. Consequently, this leads to starvation, poverty, disease as well as a decrease in economic growth.

Resource shallow:

Another negative effect of population growth on economic growth is the problem of resource shallow. Natural resources are finite and cannot be produced. According to Malthusian model (1826), higher population growth can lead to a decrease in natural resources per capita, which means reduces the capital-labor ratio. According to Galor and Weil's model (1996), there is a link between the capital-labor ratio and the gender-gap wage ratio. Labor has two dimensions, which are physical and mental. Each man is allocated with one unit of physical labor and one unit of mental labor while each woman is assigned with one unit of mental labor only. A lower capital-labor ratio in this model presents a worse compensation to mental labor concerning physical labor. As a result, the gap between women and men's wages will be raised. In other words, lower capital-labor ratio can lead to an increment of the gender-gap wage ratio, which implies that women will prefer to stay at home and give more time to have children rather than go to work. Thus, this fact can lower the level of output per capita and increase the population growth. With this model, we can sum up that the population growth and GDP per capita have a tendency to develop in opposite ways.

Age structure.

Last but not least, we will discuss the impact of the age-structure in output per capita of a country. The demography divides population into three categories, which are: young age population (0-14 ages), working age population (15 - 64 ages) and old age population (over 65 ages). Amongst these three categorizes, young age and old age population can negatively affect the output per capita for two reasons.

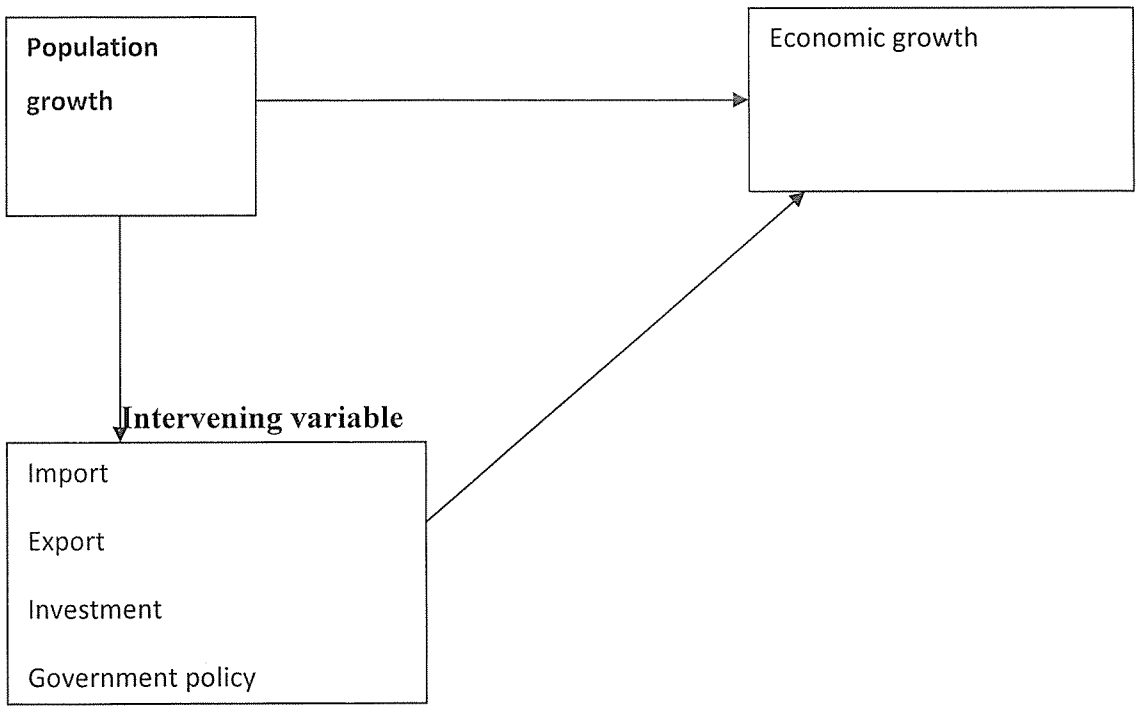
First, population in the ages of below 14 and over 65 belong to the group in which most people are not or stop working. In case they have no ability to work, the proportion of population

participating in productive works will be reduced, which leads to a decline in the total output per capita.

2.4 Conceptual framework.

The conceptual framework indicates the effect of population on economic growth. It also portrays others factors apart from population, which promote economics growths and these, are government policy, taxation, investment and the level of technology. The economic growth for this case it was measured in terms of real Gross Domestic Product.

Figure 1: The conceptual framework of population growth rate and real GDP growth.



Source: Researcher (2013)

2.4 Theoretical Perspective

The study was based on the theory of Thomas Malthus (1826) which states that the population growth can reduce the output per capita because population increases at geometrical rate which production rate rises at arithmetic rate so that output cannot keep the same price.

The debate on the relationship between population and economic growth could be traced back to 1798 when Thomas Malthus published the book An Essay on the Principle of Population. According to the Malthusian model, the causation went in both directions. Higher economic growth increased population by stimulating earlier marriages and higher birth rates, and by cutting down mortality from malnutrition and other factors. On the other hand, higher population also depressed economic growth through diminishing returns. This dynamic interaction between population and economic growth is the centre of the Malthusian model, which implies stationary providing directly productive assets (Meier 1995, pp. 276-77).

Population pressure is likely to intensify the foreign exchange constraints by placing more pressure on the balance of payment. The need to produce food will require the development of new industries for export expansion and/or Population substitution. The rapid increase in school-age population and the expanding number of labor 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 as about 33 per cent of the children of primary-school age are not enrolled in school and of those who enter school, 60 per cent will not complete more than three years of primary school (Meier 1995, p. 285). Also, too denser a population aggravates the problem of improving the health of the population. In most developing economies, the working age population had roughly doubled in the past twenty-five years. At expected growth rates, it will double again in the next twenty-five years. This growth clearly intensifies pressure on employment and the amount of investment available per labor market entrant (Meier 1995, p. 277).

Larger population may help overcome possibly diminishing returns to this generation's human capital in the production of the next generation's human capital because greater population growth induces more specialization and a larger market that raise returns to human capital and

knowledge. If human capital per capita were sufficiently large, the economy would move to steady-state growth, whereby in the steady-state growth path, consumption per capita would increase at a slower rate than human capital if the population is growing and if the production of consumer goods has diminishing returns to population. However, consumption per capita can still be increasing, despite these diminishing returns, if the positive impact of the growth in human capital on productivity in the consumption sector more than offsets the negative impact of population growth. Thus, zero population growth is not necessary for sustainable growth in per capita consumption, even with diminishing returns to population in the production of consumer goods (Becker, Glaeser, and Murphy 1999, p. 148).

The belief that population shows economic development is not a wrong but harmless idea, rather it has been basis for in humans programs of personal liberty in one of the most valued choice a family can makes –the number of children that it wishes to hear and raise, also harms has been the funds themselves by the way money laundered through international organizations that comes back to finance domestics population propaganda organization, and so on (Simon 1981 chap 21-25).

Another famous economist is Robert M. Solow (1956). Unlike Malthus, he focused on the term "population growth rate" instead of the "population level". He stated that an increase in the population growth rate can decline the capital per worker as well as the steady-state output per worker. As a result, higher population growth can bring the detriment to the productivity and economic growth. However, there are also some optimist views stated that population growth can make a positive impact on economic growth. An example is Ahlburg (1998). He believed that larger population can lead to "technology pushed" and "demand pulled" which means higher population growth can increase the needs for goods and boost the technological development. Therefore, it can increase the labor productivity, income per capita and living conditions.

2.5 Related studies.

Thornton (2001) conducted a similar research on the long-run relationship between population and economic growth in seven Latin American countries, namely, Argentina, Brazil, Chile, Colombia, Mexico, Peru, and Venezuela. The study used annual time series data generally over the period 1900-94 and employed the same methods of analysis as Dawson and Tiffin (1998). The study concluded that there is no long-run relationship between the two variables in any of the seven countries. Furthermore, population growth neither Granger causes economic growth nor is caused by it. This study was carried in middle developed countries. In this case, this report has sought to investigate the effect of population growth on economic growth in developing country like Uganda.

The empirical study on the relationship between population and economic growth in Asian economies is limited. Thus, the study provides some evidence of the relationship between population and growth in those countries. Moreover, the empirical studies on the relationship between population and economic growth in the literature are mainly conducted using cross-section data (Thornton 2001, p. 464). Nevertheless, some studies are conducted using time series data (Dawson and Tiffin 1998; Thornton 2001).This report focused on the time series data on population and economic growth in Uganda.

Johansen (1988) (J) cointegration method to examine the long-run relationship between population and economic growth. Moreover, the possibility of a structural break in the long-run relationship between the two variables is examined using the Gregory and Hansen (1996) (GH) cointegration method. The advantage of the method is that it does not require information regarding the timing of or indeed the occurrence of a break. In other words, it determines the break point endogenously from the data rather than on the basis of a priori information, which the problem of data mining can be avoided. Furthermore, the Granger causality between population and economic growth was addressed. The time in which the study was conducted was too far and this cannot give empirical evidence for Uganda case.

The relationship between population and economic growth was complex and the historical evidence is ambiguous, particularly concerning the causes and impacts (Thirlwall 1994, p. 143) Becker, Glaeser, and Murphy (1999, p. 149) demonstrated in a theoretical model that a large population growth could have both negative and positive impacts on productivity. A large population may reduce productivity because of diminishing returns to more intensive use of land. He failed to explained in depth the effect of population growth rate on economic growth with empirical evidence.

Dawson and Tiffin (1998) used annual time series data over the period 1950-93 to analyze the long-run relationship between population and economic growth in India. The study employed the data for Taiwan are over the period 1951-98; the data for Hong Kong and Indonesia are over the period 1960-2000, respectively; the data for Singapore are 1960-96, and the data for Malaysia are 1955-2000. All the data were transformed into logarithms. The plots of logarithms of population and the real GDP per capita are given. Generally, this shown no relationship between population and the real GDP per capita in all economies examined. The trends of population tended to be stationary while the trends of the real GDP per capita showed some fluctuations.

Becker, Glaeser, and Murphy (1999, p. 147) demonstrated in a theoretical model that population growth will increase parental utility if it has a sufficiently positive impact on human capital accumulation or if the impact on current production is not too negative. Since human capital is more Populationant at higher levels of development, greater population is likely to raise per capita welfare in more developed economies. On the other hand, an increase in population growth may lower the productivity of farming in poorer agricultural economies, so that output per capita there would be lower initially. However, even in these economies, greater population growth would tend to raise the accumulation of human capital by raising rates of return on investments in schooling and other human capital. Moreover, families would lower their fertilities if population growth raises rates of return on investments in children because that would cointegration and Granger causality methods and reported that there is no long-run relationship between the two variables. Moreover, population growth neither Granger causes economic growth nor is caused by it.

There are few empirical studies on the relationship between population and economic growth. A majority of them used cross-section regression to analyse the relationship between the two variables (Easterlin 1967; Thirlwall 1972; Simon 1992; Kelley and Schmidt 1996; Ahlburg 1996). Some of them found no statistically significant relationship between population and economic growth .

Bloom and Williamson (1998) adjust a neo-classical growth model to show that this second phase of the demographic transition is associated with particularly high growth, while the first phase leads to high growth. Therefore they call the first phase (in which Uganda is currently in) a 'demographic burden' and the second phase a 'demographic gift'. The quicker the fertility decline in that phase, the larger the demographic gift. East Asian countries achieved a particularly quick fertility decline in the 1960s to 1980s and thus had a particularly large demographic gift and Bloom and Williamson (1998) have traced up to 50percent of their high per capita growths in these decades to the demographic gift.

CHAPTER THREE

RESEARCH METHODOLGY

3.1 Research Design.

Time series analysis was adopted and the use of quantitative techniques to analyze secondary data scientifically to critically conclude the research objectives, secondary data was collected from different ministries, some quantification was necessary because of the need to tabulate data and use of statistical techniques to arrive at a dependable conclusion. Also inferences were drawn by fitting the regression model and testing for its significant using the t-statistic .The researcher also correlated the two variables and test for the significant of the Pearson's correlation coefficient of determination to test for the population growth and economic growth in Uganda for nineteen years (1994 -2012)

3.2 Research Population

The target population of this study was published and report on population and economic growth from 1994 to 2012.the targeted annual reports by Uganda Bureau of Statistics (UBOS),Bank of Uganda (BOU),Ministry a of Planning and Economic Development.

3.3 Sample Size

This study analyzed data attributing to variables for the past 19 years that is from 1994 to 2012.

3.3 Sampling Procedure.

The sampling technique used was by purposive random sampling to arrive on the sampling size of the population.

3.4 Research Instrument.

The Record sheets were used to in collection of data from Uganda Bureau of Statistics, World Bank report, Bank of Uganda and Ministry of Planning Finance and Economic Development.

3.5 Data Gathering Procedure and Source

After the proposal was approved, the researcher got an introductory letter from the Department of Economic and Applied Statistics of Kampala International University, which introduced him to the respective ministries and they were informed by the researcher on area of interest of data to be collected. Data collection was done by skilled research assistants under close supervision of the researcher to ensure that all the information required were collected.

The domestic sources are the annual and quarterly bulletin of the Bank of Uganda, Uganda Bureau of Statistic, the Ministry of Finance Planning and Economic Development, IMF's, International Financial Statistics, World Bank and United Bank of Africa . The data was entered into the record sheet and compiled. This was used to analyze the relationship between population and economic growth in Uganda (1994-2012) with the help of computer -statistical package

3.6 Time Series Data Analysis

The data was analyzed with the help of Ms. excel and word, STATA packages was also used to derive descriptive statistics and accompanying table, diagrams and graphs was relevant for the study prior to the estimation of the regression line ,descriptive analysis was conducted to describe the behaviors of the individual variable over the duration of the study by plotting each variable against time, it included testing for significance correlation coefficient and stationality between the dependence and independence variables. Data analysis involved time series analysis to test for trend or stationary Autocorrelation and Partial Autocorrelation coefficient.

The following formulae and computational equations were used.

The correlation is given by

$$\mathbf{r}=\frac{n\sum xy-\sum x\sum y}{\sqrt{(n\sum_x 2-(\sum x)^2\}\{n\sum y^2-(\sum y)^2\}}}$$

The t_c computed is

$$t_c=\frac{r\sqrt{n-2}}{\sqrt{1-r^2}}$$

Reject H_0 if $t_c \geq t\alpha$ at 0.05 level of significance

The Simple Linear Regression Model.

Economic growth $=\alpha +$ **(population)** β_o

$$Y = \alpha + \beta_0 X_0 + \varepsilon_i$$

Where y economic growth

α:The economic growth without population

β_0: The rate of change economic growth rate to population

x_0: Population growth rate

The test for statistical significance ofα and β_0, we see the following null hypothesis,

Ho: $\alpha = o$, **Ho:** $\beta_0 = o$

3.7 Limitations of the Study

In Uganda, evaluating the quality of data, there is no adequate, consistent data in domestic sources. For example, there is a discrepancy of GDP data reported by IFS yearbook and the current Ministry of Finance and Economic Planning. One of problems in data collection is that different sources use different calendar year. Since it is difficult to compare different calendar year data effort will be made to convert data from different calendar years into the same calendar year.

CHAPTER FOUR

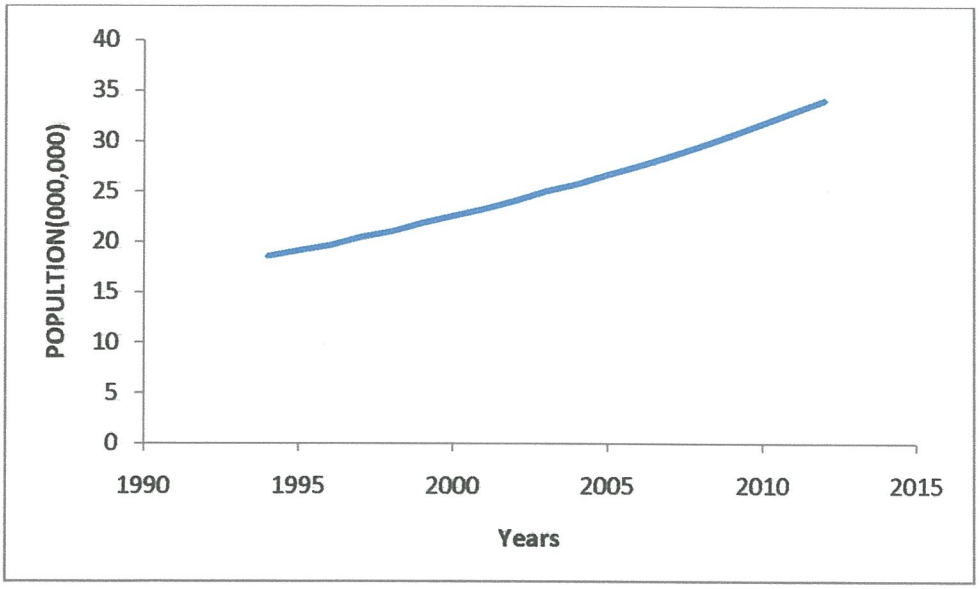
PRESENTATION, ANALYSIS AND INTERPRETATION OF DATA

Data was presented using figure, graphs based on the research objectives and the corresponding research questions, testing the hypothesis and for implication of the findings. (i) To establish the trend of population in Uganda (1994 to 2012),(ii) To establish the trend of GDP growth in Uganda (1994 to 2012),(iii)To investigate the relationship between population and GDP growth in Uganda (1994 to 2012).

4.1 The Trend of the population of Uganda (1994-2012)

Objective one was to show the trend of population in Uganda (1994-2012).Under this; the researcher used the line graph as can be seen below

Figure 2: Trend of the population of Uganda (1994-2012)



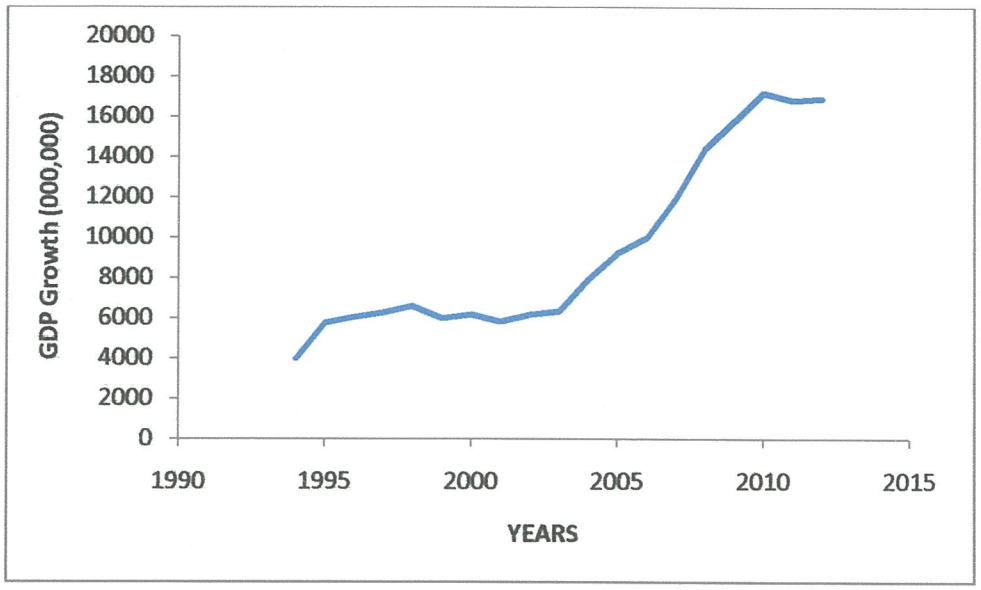
Source: Researcher (2013)

Population growth has shown a general increase over time. This might be a result of high fertility rate, low death rate and improved medical facilities. It has a percentage of 45.5.

4.2 The Trend of the GDP growth of Uganda (1994-2012)

Objective one was to show the trend of Population in Uganda (1994-2012).Under this; the researcher used the line graph as can be seen below

Figure 3: Trend of the GDP growth of Uganda (1994-2012)



Source: Researcher (2013)

There is a general increase in a GDP growth in Uganda over the period under study. In 1996 it tries to show a constant growth then it rise steadily. This increase might be due to other factors such as exportation of goods, improve level of technology, favorable government policies towards economic growth. It has a percentage of 76.4 percent.

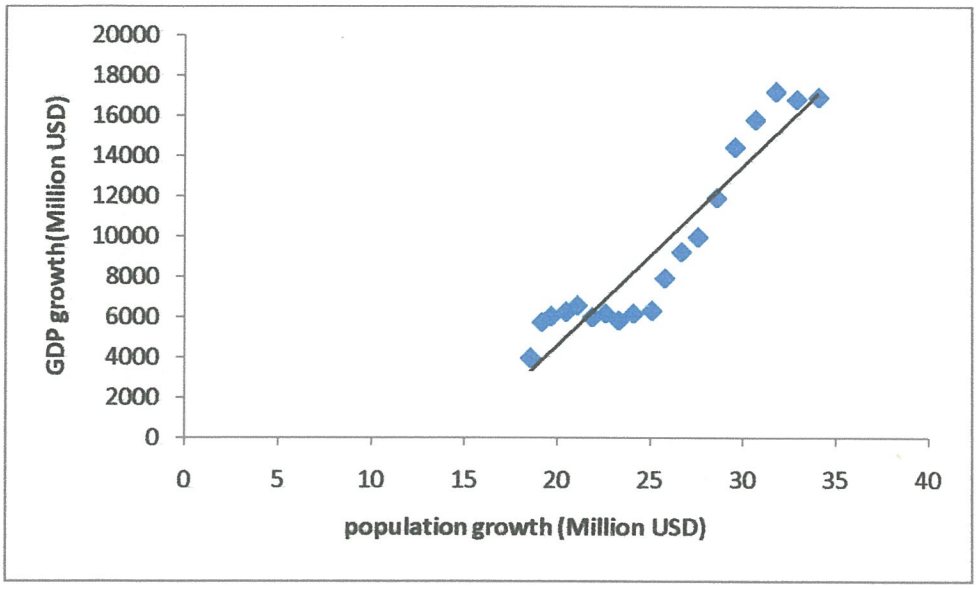
4.3 The relationship between population and GDP growth in Uganda (1994-2012)

Objective three was to investigate the relationship between population and GDP growth in Uganda, the researcher used scatter plot graph, correlation analysis, regression analysis and time series analysis to test and establish this relationship as can be observed.

A scatter plot of population against GDP growth in Uganda (1994-2012)

To show the relationship between population and Gross Domestic Product in Uganda, the researcher used scatter plot as can be seen below.

Figure 4: A scatter plot showing the relationship population between Gross Domestic Products (GDP) in Uganda.



Source: Researcher (2013)

Most of the points are close to the fitted line .This is an indication that the population has a strong positive relation on economic growth.

4.3.1 Stationarity test

Autocorrelation Function and Partial Autocorrelation Function (ACF and d PACT)

The researcher used time series- Autocorrelation Function and Partial Autocorrelation Function for unvariate analysis. These look at the trend in population and GDP growth in Uganda

ACF is denoted by the formulae below

$$\int_k = \frac{(yk - yk-1)}{var(yk)}$$

$\int_k$ is the autocorrelation coefficient value.

The value of the correlation coefficient lies between -1and +1

The autoregressive of order on is denoted by formulae

$$\int_{k=} \mu + \alpha_1 (y_{t+k} - \mu) + e_t$$

e_t is the uncorrelated error term with zero mean and variance σ^2 it is also called the white noise.

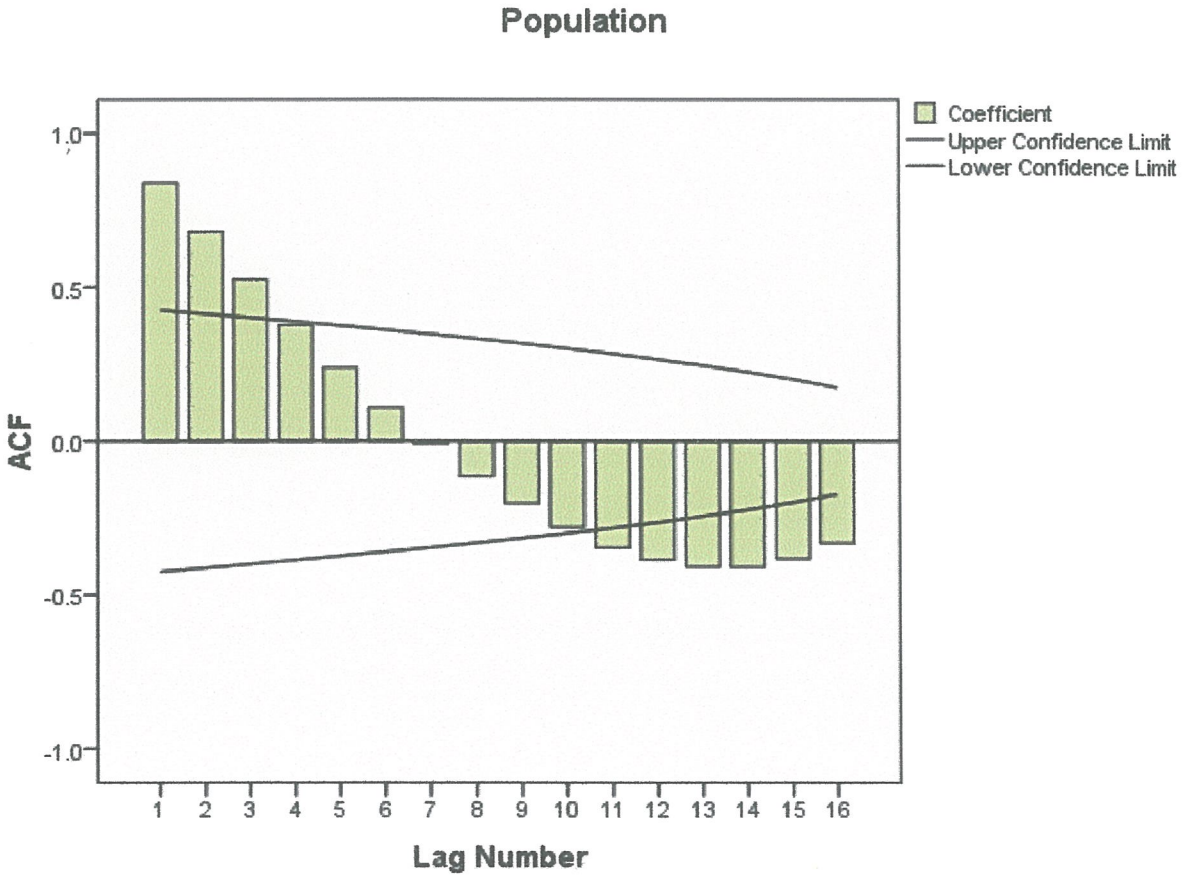
ACF = $\int_k$ is of lag 1 and the probability (sig= 0.000) which is less than the (sig=0.050) from the appendix 2 and 4 it has a minimum variances and also ACF reduces as the number of lag increases. This gives a strong evidence to reject the null hypothesis and conclude that there is no stationarity between population and GDP growth.

The hypothesis for this can be seen stated below;

H_0: There is stationarity between Population and GDP growth.

Here the rejection is criterion if (sig=0.00) < (sig=0.05), reject the null hypothesis and conclude that there is trend in population and GDP growth in Uganda.

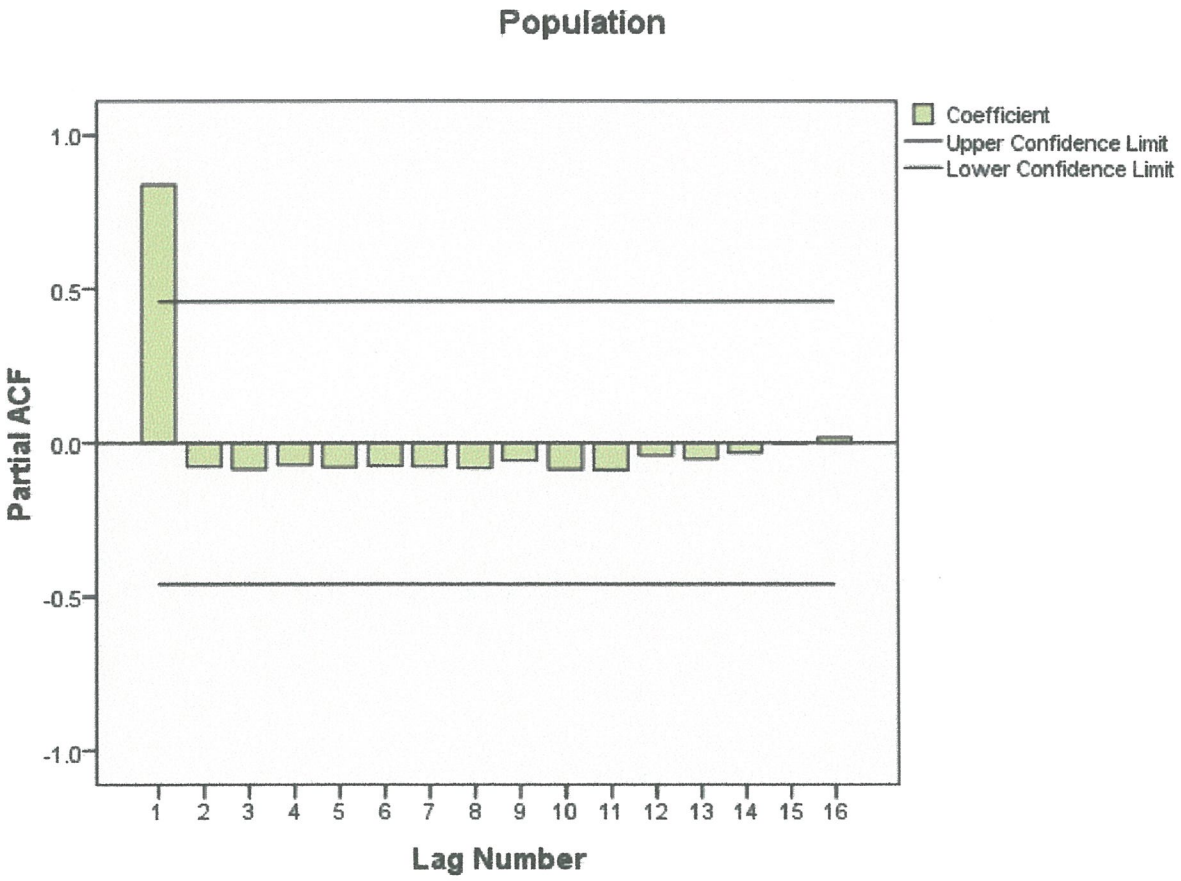
Figure 5: Autocorrelation Function (ACF) of Population in Uganda (0.05)



Source: Researcher (2013)

There is a normal distribution of Population growth ,this because it has a constant mean and the variance are small as can be observed from **Appendix 2** .and the **(sig=0.00)<(sig=0.05)** there for we reject the null hypothesis and conclude that there is no stationarity in Population of Uganda

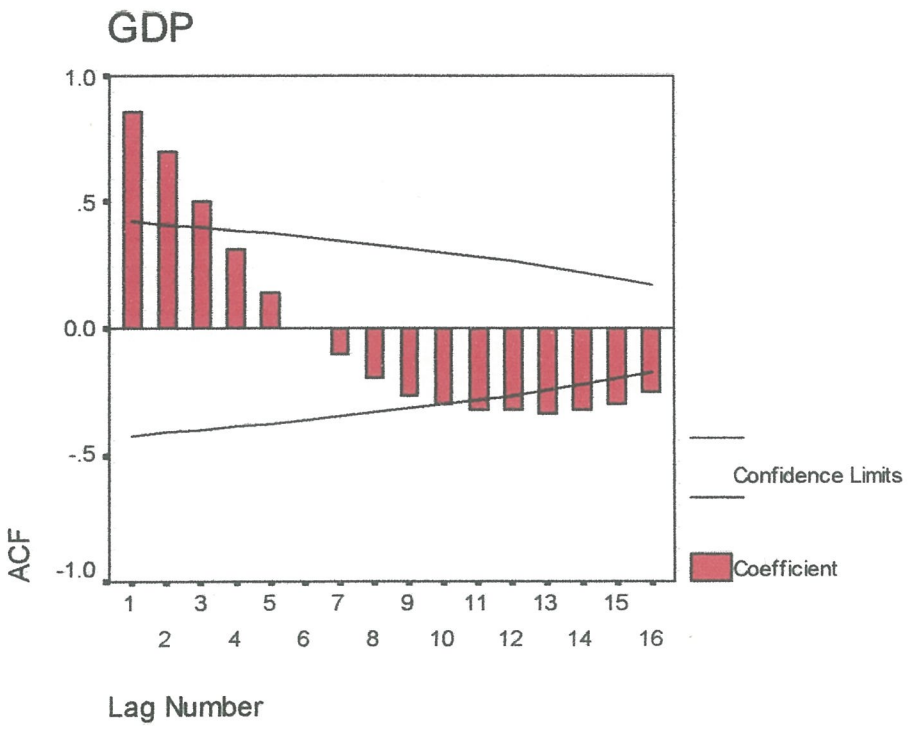
Figure 6: Partial Autocorrelation Function (PACF) of Population in Uganda (0.05)



Source: Researcher (2013)

PACF has not shown of normal distribution this might be due to some other variables which affect population, but still **(sig=0.00) <(sig=0.05)** we reject the null hypothesis and conclude that there is no stationarity in population in Uganda for the period under study.

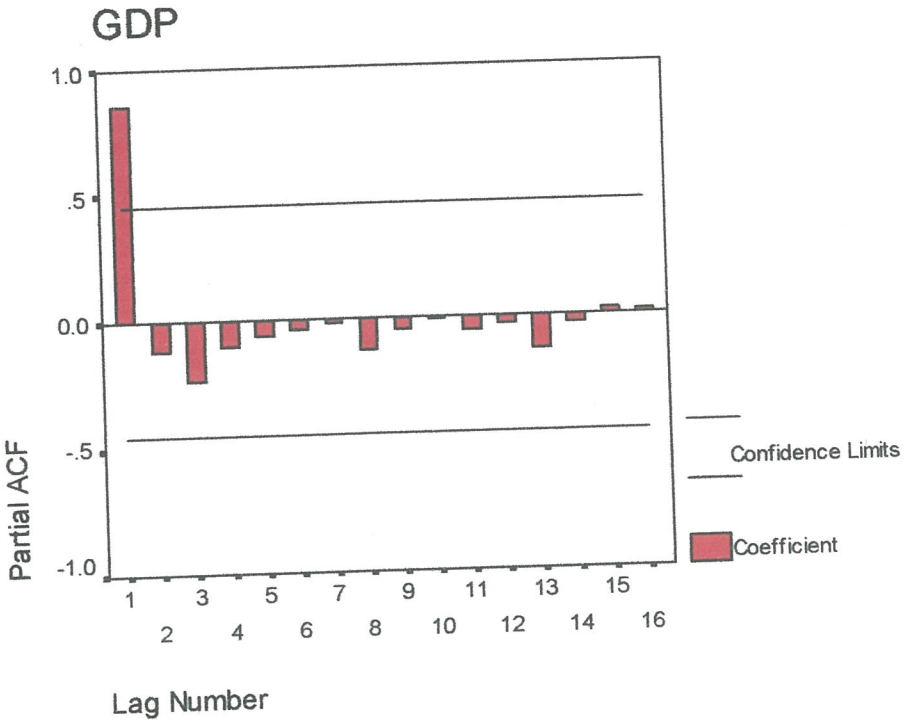
Figure 7: Autocorrelation Function (ACF) of GDP growth in Uganda (0.05)



Source: Researcher (2013)

There is a normal distribution of GDP growth ,this because it has a constant mean and the variance are small as can be observed from **Appendix 4** .and the **(sig=0.00)<(sig=0.05)** there for we reject the null hypothesis and conclude that there is no stationarity in GDP growth of Uganda

Figure 8: Partial Autocorrelation Function (ACF) of GDP growth in Uganda (0.05)



Source: Researcher (2013)

PACF has not shown some kind of normal distribution this might be due to some other variables which affect GDP growth, but still **(sig=0.00)<(sig=0.05)** we reject the null hypothesis and conclude that there is no stationarity in GDP growth in Uganda for the period under study.

4.3.2 Correlations analysis of Population and GDP growth of Uganda

The researcher used Pearson's correlation coefficient to establish the strength of relationship between Population and GDP growth in Uganda.

Table 1: Correlation of Population and GDP growth in Uganda (0.05)

Variable correlate	R-Value	Sign-value	Interpretation	Decision
Population growth verses GDP growth	0.943	0.000	There is a relationship	Reject the null hypothesis

Source: Researcher (2013)

There is a strong positive correlation between population and GDP growth as can be seen from the above table (**r=0.943**), the strength of relationship between population and GDP growth is determined by the coefficient of determination **(R^2=0.889).** This implies that the variation in GDP growth is explained by **88.9** percent of the population, meanwhile the **11.1** percent is explained by other variables, this reveals that the relationship between these two variables is too strong. Since **(sig=0.000 <sig=0.05)**, we reject the null hypothesis and conclude that there is a relationship between population and GDP growth in Uganda (1994-2012).

4.3.3 Regression analysis of Population and GDP growth in Uganda.

To establish this relationship the researcher used bivariate linear regression analysis as can be seen in the table below.

Table 2: Regression of population and GDP growth in Uganda (0.05)

Variable represented	**Adj. R^2**	**F-Value**	**Sign-value**	**Interpretation**	**Decision**
Population and GDP growth	0.882	135.91	0.000	There is a relationship	Reject accept H_0
Coefficient	**Beta**	**t**	**Sign-value**	**Interpretation**	**Decision**
Constants	-13142.49	-6.67	0.000	There is a relationship	Reject the null hypothesis
Population	886.78	11.66	0.000	There is relationship	Reject the null hypothesis

Source: Researcher (2013)

Legend

The researcher fitted the regression model using the information from table 2 above and this is represented as;

GDP growth = α+ β(population)+ε_i

The fitted the model becomes

$Y=-13142.49+886.78(population)+\varepsilon_i$

This implies that GDP growth without population reduced by 13142.49 (million US dollars) and a unit change in population lead to an increase in GDP growth by 888.78 (million US dollars).

$t_\alpha=(0.05,18)=\mathbf{1.734}$ The slope $\mathbf{t_c=13.8}$ and the decision rule is, if $/t_c/\leq t_\alpha$, accept $\mathbf{H_0}, \alpha = \mathbf{0.05}$ level of significance, since $\mathbf{t_c=13.8}$ is greater than $t_\alpha = \mathbf{1.734}$ we reject the null hypothesis which states that population is not part of the model and conclude that there is a relationship between population and economic growth in Uganda (1994-2012).

$AdjR^2$ =0.882, this implies that population affects economic growth by 88.2 percent and the other percentage is explained by other variables such as exports, imports, government policy among others

CHAPTER FIVE

DICUSSION, SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 DICUSSION

5.1.1 The Trend of Population in Uganda.

The Population has shown a general increase over the period under studied this is attributed to high fertility rate, low mortality rate, improved medical facilities among others. Yet when you look at Uganda there has been war for over twenty years and we expected the population to decrease because so many people have died especially in Northern Uganda but this was contrary to the finding.

5.1.2 The Trend of GDP growth in Uganda.

There has been a general increase in GDP growth in Uganda over the period under study that is (1994-2011),an increase in the GDP growth is due to balance in the level of consumption and savings among the population .This is because as a result of savings, people are able to invest hence leading to economic growth. Other factors which lead to economic growth apart from population are; high level of technology, favorable government policy among others.

5.1.3 The relationship between Population and GDP growth in Uganda

The relationship between population and GDP growth has been significant according to the fitted line as regression analysis and correlation were performed and found a strong positive correlation between population and GDP growth (r=0.943) .The relationship was statistically significant. The study result made agreed with Kelly et al (1994), Glaser et al (1999), Thornton (2001) which studied the same topic on population and economic growth and found a significant relationship.

5.1. Summary of Findings

The main objective of this study was to investigate the relationship between population and GDP growth in Uganda. For the relationship between population and GDP growth, the probability of the t-distribution was used based on a simple linear regression model at **0.05** level of significance. The dependent variable and the independent variables were found be normally distributed. This implies a significant relationship between Population and Economic Growth in Uganda (1994-2012).

5.3 Conclusion.

This study has established the trend of population in Uganda (1994-2012) and found a general increase over the period under studied; it has established the trend of GDP growth in Uganda (1994-2011) and found a cyclic fluctuation. This might be due to other factors which determine GDP growth apart from population , the study has also investigated the relationship between population and GDP growth in Uganda using correlation ,regression analysis with the test of hypothesis and found a positive relationship .The study was guided by the theory Thomas R Malthus (1826) which states that the population growth can reduce the output per capita ,this was contrary to the findings. Since economic growth cannot be realized without people.

5.4 Recommendation

Basing on this finding, I would recommend the government to embark on population control policies through family planning methods to slow down the levels of population growth.

I would recommend the government to embark on industrialization, and modern techniques of agricultural production since this area can employ a larger population resulting into high productivity hence economic growth.

5.5 Suggestions for Further Research

The results presented in this report are not very conclusive and should be treated as being preliminary. Further analysis of the survey data (Population and GDP growth) needs to be done to validate these findings and provide greater confidence in explaining the changes in population and GDP growth.

A study should be carried to establish how the Labor force participation can contribute to economic growth;

Inflation and cost of living;

The relationship between inflation and economic growth;

The relationship between household investment and economic growth.

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TABLE 3 : Data on Population and Economic Growth of Uganda (1994-2012)

YEARS	POPULATION (000,000)	GDP GROWTH(000,000)
1994	18.6	3990.4
1995	19.2	5755.8
1996	19.7	6044.6
1997	20.5	6269.3
1998	21.1	6584.8
1999	21.9	5998.6
2000	22.6	6193.2
2001	23.3	5840.5
2002	24.1	6178.6
2003	25.1	6336.7
2004	25.8	7940.4
2005	26.7	9237.3
2006	27.6	9977.2
2007	28.6	11916
2008	29.6	14440.8
2009	30.7	15803.5
2010	31.8	17197.4
2011	32.93	16809.6
2012	34.1	16918.8

Source: UBOS, IMF, World Bank (2012)

Appendix 2 Autocorrelations of Population of Uganda

MODEL: MOD_1.

Autocorrelations: POPULATION

Lag	Auto-Corr.	Stand. Err.	-1 -.75 -.5 -.25 0 .25 .5 .75 1	Box-Ljung	Prob.
1	.839	.212	.□*******.*********	15.609	.000
2	.681	.206	.□*******.******	26.501	.000
3	.525	.200	.□*******.***	33.385	.000
4	.378	.194	.□********	37.194	.000
5	.239	.187	.□***** .	38.819	.000
6	.110	.181	.□** .	39.190	.000
7	-.008	.173	. * .	39.192	.000
8	-.115	.166	. **□ .	39.673	.000
9	-.208	.158	. ****□ .	41.401	.000
10	-.286	.150	******□ .	45.031	.000
11	-.346	.142	*.*****□ .	51.003	.000
12	-.387	.132	***.****□ .	59.528	.000
13	-.409	.123	***.****□ .	70.639	.000
14	-.409	.112	****.***□ .	83.978	.000
15	-.383	.100	****.***□ .	98.606	.000
16	-.332	.087	****.**□ .	113.265	.000

Plot Symbols: Autocorrelations * Two Standard Error Limits .

Total cases: 19 Computable first lags: 18

Appendix 3: Partial Autocorrelations of Population of Uganda

Partial Autocorrelations: POPULATI0N

```
Pr-Aut- Stand.
Lag  Corr.  Err. -1  -.75  -.5 -.25   0   .25  .5   .75   1
□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□
1   .839   .229          .□********.********
2  -.078   .229          .    **□      .
3  -.087   .229          .    **□      .
4  -.072   .229          .     *□      .
5  -.081   .229          .    **□      .
6  -.075   .229          .    **□      .
7  -.079   .229          .    **□      .
8  -.084   .229          .    **□      .
9  -.076   .229          .    **□      .
10 -.075   .229          .     **□     .
11 -.065   .229          .     *□      .
12 -.057   .229          .     *□      .
13 -.053   .229          .     *□      .
14 -.032   .229          .     *□      .
15 -.002   .229          .      *      .
16  .018   .229          .      *      .
```

Plot Symbols: Autocorrelations * Two Standard Error Limits .

Total cases: 19 Computable first lags: 18

Appendix 4: Autocorrelations of GDP Growth of Uganda

Autocorrelations: GDP

Lag	Auto-Corr.	Stand. Err.	-1 -.75 -.5 -.25 0 .25 .5 .75 1	Box-Ljung	Prob.
1	.855	.212	.□*******.*********	16.191	.000
2	.698	.206	.□*******.******	27.632	.000
3	.504	.200	.□*******.**	33.967	.000
4	.316	.194	.□****** .	36.621	.000
5	.144	.187	.□*** .	37.215	.000
6	.003	.181	. * .	37.215	.000
7	-.101	.173	. **□ .	37.555	.000
8	-.197	.166	. ****□ .	38.966	.000
9	-.264	.158	.*****□ .	41.754	.000
10	-.303	.150	******□ .	45.821	.000
11	-.324	.142	******□ .	51.053	.000
12	-.324	.132	*.****□ .	57.047	.000
13	-.335	.123	**.****□ .	64.501	.000
14	-.326	.112	***.***□ .	73.001	.000
15	-.300	.100	**.***□ .	81.990	.000
16	-.254	.087	**.**□ .	90.580	.000

Plot Symbols: Autocorrelations * Two Standard Error Limits .

Total cases: 19 Computable first lags: 18

Appendix 5: Partial Autocorrelations of GDP Growth of Uganda

Partial Autocorrelations: GDP

```
Pr-Aut- Stand.
Lag  Corr.  Err. -1  -.75  -.5 -.25   0   .25  .5   .75   1
□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□
1   .855   .229          .□********.********
2  -.120   .229          .    **□      .
3  -.233   .229          .  *****□      .
4  -.101   .229          .    **□      .
5  -.063   .229          .     *□      .
6  -.036   .229          .     *□      .
7  -.012   .229          .      *       .
8  -.126   .229          .    ***□      .
9  -.051   .229          .     *□      .
10 -.008   .229          .      *       .
11 -.052   .229          .     *□      .
12 -.033   .229          .     *□      .
13 -.136   .229          .    ***□      .
14 -.032   .229          .     *□      .
15  .021   .229          .      *       .
16  .015   .229          .      *       .
```

Plot Symbols: Autocorrelations * Two Standard Error Limits .

APPENDIX 7: The Researcher Curriculum Vitae

CURRICULUM VITAE

BIO DATA:

NAME	:	WALUGEMBE JIMMY
DATE OF BIRTH	:	16/ 0CT/ 1990
NATIONALTY	:	UGANDAN
SEX	:	MALE
CONTACT ADDRESS:		RAKAI DISTRICT, KYOTERA SUB-COUNTY, KYOTERA PARISH P.O BOX 100 RAKAI

E-MAIL ADDRESS:jimmywalugembe@gmail.com

TELPHONE CONTACT: +256-700367493

PERSONAL PROFILE:

I am a finalist of Kampala International University in Bachelor of Science in Economics and applied Statistics. I am a self-motivated and result oriented person with good interpersonal and communication skills. I am well endowed with knowledge in the above field, research related studies and dissemination of findings and decision-making. I am fluent in English and Luganda.

EDUCATION BACKGROUND

2010- 2013	Kampala International University, Kampala Bachelor`s Degree in Economics and Applied Statistics
2008-2009	Masaka SS, Masaka District Uganda Advanced Certificate of Education
2004-2007	Masaka SS, Masaka District Uganda Certificate of Education

1997-2003 St. Cecilia Boarding Primary School, Rakai District.

Primary Leaving Examination Slip

EXPERIENCE AND SKILLS

I am competent in data collection, organization and management. I practiced these skills at Rakai District local government as an intern in 2012 for two months under the supervision of District Planner and the District Community Development Officer.

Competence in carrying out research, and discussion of research findings evidenced by researching on Population and Economic growth in Uganda in 2013 which will provide for the award of my degree in November 2013.

I am a computer literate in Ms Word, Ms excel, Ms Access and internet application also basic skills in analysis and interpretation of data using STATA & SPSS software packages.

Being an active member of Uganda statistics society (U.S.S) enables me to get experiences from people in the field relevant to my qualification adding to my knowledge and skills.

REFEREES

Pr. SEMPEBWA GODWIN

Head of Department

Economics and Applied Statistics,

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P.O Box 20000, Kampala

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DCDO

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OFFICE OF THE HOD
SCHOOL OF ECONOMICS AND APPLIED STATISTICS

28TH June 2013

Dear Sir/Madam,

RE: INTRODUCTION LETTER FOR WALUGEMBE JIMMY REG NO. BEAS/31926/102/DU TO CONDUCT RESEARCH IN YOUR INSTITUTION.

This is to introduce to you the above mentioned, a 3rd year 2nd Semester student at Kampala International University pursing a Bachelor of Economics and Applied Statistics. He is carrying out a research study on **POPULATION AND ECONOMIC GROWTH (1994-2012).**

You are kindly requested to offer him the necessary assistance especially on Objectives, Methods, Analysis and Findings, he also need information about time, human resource. Then this will enable him collect the required data so as to complete his research project.

Any assistance rendered to him will be highly appreciated.

Yours in service,

KAMPALA INTERNATIONAL UNIVERSITY
28 JUN 2013
SCHOOL OF ECONOMICS & APPLIED STATISTICS

Dr. Sempebwa Godwin B.
HOD – School of Economics and Applied Statistics