Vidhyayana - ISSN 2454-8596
An International Multidisciplinary Peer-Reviewed E-Journal
www.j.vidhyayanaejournal.org
Indexed in: ROAD & Google Scholar

THE COLLERATION BETWEEN HUMAN POPULATION AND ECONOMIC GROWTH A CASE STUDY OF THE CITY OF BLANTYRE MALAWI

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Vidhyayana - ISSN 2454-8596
An International Multidisciplinary Peer-Reviewed E-Journal
www.j.vidhyayanaejournal.org
Indexed in: ROAD & Google Scholar

ABSTRACT- Population is a topic that has been talked about over and over by economists throughout time and with good reason. The issues related to population include depletion of raw materials and resources that are used for human consumption, this means the depletion of raw materials and resources will lead to an end in production of goods and services that mankind have grown accustomed to consumption for their daily needs and wants. So there is a connection between population and productivity of which if population is too high or too low it will bring about the inefficiency and ineffectiveness in production. This study sees itself with the aim of going further on aspect of population check which was part of the population theory made by Thomas Malthus in which he talked about population check where he pointed out the importance of it and that if population is left unchecked then the human race will end up depleting raw material and resources to satisfy their consumption behaviors. The increase in population has seen a lot of deforestation, air pollution and many other things arise due to relocation of humans in order to occupy any free and inhabited land or build factories to increase production for human consumption. Regardless of the time frame of Malthus and his theory on human population, it is still evident and relevant that as he stated in his theory human behavior still indeed follows the pattern of procreation and that's why there is a need of controlling it before it gets too big to overlook and manage. There are many things that could be linked with an unchecked population of which I would encourage more scholars to undergo deeper into the study of population to better help mankind understand the importance and dangers of a population left unchecked.

Keywords- Unchecked population, Consumption, Mankind

Chapter 1: INTRODUCTION

1.1 ECONOMIC GROWTH: AN OVERVIEW

Economics has been studied throughout history and practiced in every aspect of the daily human life, whether it is at the work place, in the household, in politics, hospitals etc… the concept of economics is practiced by every individual in their daily lives regardless of whether they know it or not. Economics is wide topic and it ranges from social aspects to even environmental aspects. So how can we even begin to describe what economics is? According to Adam Smith he defined economics as "an inquiry into the nature and causes of the wealth of nations". The study of economics has been broken down into two parts; Microeconomics which is a branch of economics that studies the behavior of individual units such as households, individuals and enterprises within the economy, Microeconomics uses demand and supply as tools of analysis to study the decisions of individual entities in the economy. The other branch

of economics is known as Macroeconomics which is the branch that studies how an overall economy (the market or other systems that operate on a large scale) behaves.

"Economic growth is an increase in the production of goods and services over a specific period. Economic growth creates more profit for businesses, As a result stock prices rise that gives companies capital to invest and hire more employees as more jobs are created, incomes rise, and consumers have money to buy additional products and services. Purchases drive higher economic growth, for this reason all countries want positive economic growth. This makes economic growth the most watched." (K. Amadeo and M. J. boyle 2020).

Economic growth is what every country seeks to achieve, the tool used to measure a country's economic growth is the Gross Domestic Product (GDP). GDP is the final monetary value of the goods and services produced within the country during a specific period of time, usually within a particular year. GDP measures final production, it does not include the parts that are manufactured to make a product. It excludes exports because they are produced in the country while imports are excluded due to the fact that they are not a final product produced within the country. The most accurate measure of growth is real GDP since it removes the effects of inflation. Real GDP is an inflation adjusted measure that reflects the value of all goods and services produced by an economy in a given year.

Population is defined by oxford dictionary as "all the inhabitants of a particular place" and it also defined by the same oxford dictionary as "a community of animals, plants, or humans among whose members interbreeding occurs". From these two oxford definitions and for the benefit of this study we are going to define human population as a community of humans inhabiting a particular place, region, country or continent. We are focusing on the human aspect of population as it will help to give us a better outlook into this study, unlike most things on earth the human population grows based on a geometric rate, which means that the larger the land the greater the population, for example if we compare two countries India and Malawi on population and geometric structure we will see that India has a larger geometric area (3,286,927 square kilometers) and population (1,391,716,282 estimate as of May 14 2021 by Worldometer) while on the other hand Malawi has a smaller geometric area (118,484 square kilometers) and population (19,554,257 estimate as of May 14 2021 by Worldometer), so this indicates that population increases at a geometric rate.

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1.2 RELEVANCE OF THE STUDY

This study is designed to understand and find out the level of population at which the maximum productivity is required to bring about economic growth. The theory of Thomas Malthus of population shows that if left unchecked population would increase beyond control and as a result mankind would end up depleting all the natural resources on any given particular land. The relationship between population and economic growth can stand as a pivotal point between a nations success and failure in the development assuming all other variables are held constant, this study is designed to bring a contribution in the control countries can take to ensure the maximum level of productivity that can be achieved through the monitoring and control of a nations population levels.

1.3RESEARCH PROBLEM STATEMENT

Population is tied to a lot of things but this paper will mainly focus on two economic factors that will be shown to be affected by the changes in population. The economic impact of population can vary from the climate changes to demand and supply of products (goods and services). According to W.B Gutierrez "The decrease of population growth is a necessary requirement to reduce carbon emissions in the future; however, it's objected if this can lead to "population control" programs in developing countries. And as we know, these countries would be severely affected by climate change; from this perspective has been identified at least one of three possible interaction ways between demographic trends and the climate change effects: (i) a quick deterioration of the natural resources' sources, (ii) the increased demand of scarce resources and (iii) the increasing human vulnerability to extreme meteorological phenomena. Population growth increase goods and services demand which certainly involves increased environmental pressure. At the same time, economic growth, which is considered as the best way to reduce the population growth rate, it's also associated with severe natural resources degradation. Up to now, in developing countries the economic growth mechanisms have been unable to reduce population pressure and unequal economic development, but at the same time these mechanisms tend to reinforce the environmental degradation factors resulting from economic activity. It is what we call the economic growth paradox." Population control can lead to an increase in the economic growth and development of a country and also towards an improved climate if it is properly kept in constant check and control. Research on the correlation between population and economic growth is absent and thus the research study tries to bridge this gap in the subject substance mentioned.

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1.3.1 RESEARCH OBJECTIVES

The research will be based on a primary method approach of data collection of which questionnaires will be used, these questionnaires will be derived from the research objectives which are:

- To find out the level at which population can produce maximum production output.
- To find out the tools and methods that can effectively reduce the rapid growth of population.
- To see the relationship between population and economic growth.
- To understand the importance of population control to a growing economy

1.3.2 RESEARCH QUESTIONS

Hence the following questions arise:

- Is the increase or decrease of a nation's population important?
- What measures can be used to control population?
- What sort of existing relationship is there between population and economic growth?
- What is the importance of controlling population towards a country?
- Why is economic growth so important?
- Is there a relationship between climate change and population?

1.4. HYPOTHESIS OF THE STUDY

It's a known fact that every nation regardless of its size wants to be successful in its economic structure and grow. With all other factors held constant (ceteris paribus) the most influential factor that can determine the growth of an economy is the population. This is where the hypothesis comes about.

- **Hypothesis 0: There is no correlation between population and economic growth in the case study based on the city of Blantyre Malawi.**
- **Hypothesis 1: there is a correlation between population and economic growth in the case study based on the city of Blantyre Malawi.**

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1.4.1CONCEPTUAL FRAMEWORK

INDEPENDENT VARIABLES **DEPENDENT VARIABLE**

The diagram above is an illustration of how the study tries to show the relationship between population and economic growth, the study has placed the economic growth as a dependent variable to indicate that any changes in the population will have an effect on the economic growth of a nation.

1.5. RESEARCH DESIGN AND METHODOLOGY OF THE STUDY

1.5.1 RESEARCH DESIGN

Research design encompasses with the data collection, measurement and analysis of data and landing at a conclusion. The study is an exploratory type of study based on field survey and major emphasis is on discovery of ideas. The concepts are clearly developed; priorities are being established with the aim of improving the final research design. Primary and secondary data were collected through structured questionnaires from a generated sample size of the city of Blantyre in Malawi. Population and economic theories were reviewed and the research framework was developed that had taken into the consideration of factors that might influence the relationship between population and economic growth in the city of Blantyre. Formulation of hypotheses was laid down to explore the impact of these determinants through the data collected in from sample taken from population of Blantyre. The study is exploratory in nature and focuses on analyzing the insight of the population in Blantyre.

1.5.2RESEARCH APPROACH

The approach of the research was to gain an understanding of individuals, group and to analyze the influence of each other. This study has a quantitative approach with little emphasis on qualitative approach and intends to gain an understanding of the correlation between population and economic

growth in Blantyre. Hypothesis was formulated using the logical reasoning in related to the finding of prior studies done by researchers. Hypothesis was tested with the data collected from structured questionnaire and had tried to selected samples that represent the characteristics of Blantyre population.

1.5.3 SAMPLE DESIGN

The Sample: The sample of the study constituted of 200 respondents which were randomly chosen to reduce the biasness of only selecting a single group that might consist of people of the same age range, only one gender, or only working class. The respondents were selected through non-probability convenience sampling method. The study had been conducted in the city of Blantyre.

Sampling: The survey method was used in the study. Randomly Urban and Rural areas of Blantyre were selected for collecting the data. Both Urban and rural areas were selected for the sample size. Questionnaire was distributed to the different areas of the city. Questionnaires were sent personally as well as sent through the mail to the respondents. Respondents were from both urban and rural areas while determining the sample size, geographical location of the place was considered to have both the representative from urban and rural areas. Respondents considered for the study was identified to be knowledgeable with the question at hand.

1.5.4 Data Collection methods and Techniques

Techniques of data Collection: Primary and Secondary data collection techniques was used for the specific purpose of study .The collected data was used to examine the theories of adoption and the data were used to analyze and answer the research question in order to achieve the objective of the research objectives.A structured questionnaire was design to collect the data focusing on the review of literature, feedback from experts and outcome of others researchers. Pilot testing of questionnaire was done first and was pre tested on samples individuals to ensure the quality of questionnaire for avoiding any misleading as well as ambiguity in questionnaire. After the changes the final questionnaire was drafted for collecting the data.

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1.5.5 TOOLS AND TECHNIQUES FOR DATA ANALYSIS AND MODELING

SPSS (Statistical Package for Social Sciences) was used for analysis of survey data collected and was used for graphical representation, frequency distribution as well as for using different statistical techniques. Reliability testing was done with Cronbach's alpha coefficient using SPSS.Socio demographic profile was presented in the form of frequency percentage. The reliability testing was done for the research variable. Linear regression analysis was used for testing the hypotheses "Multi-linear regression analysis was used to test models' prediction capabilities. To test whether or not the observed differences of two samples means drawn from independent populations are significant, is tested through t-test. The multivariate technique, Factor analysis with Principal Component method is applied to identify the correlation between population change and economic growth. The significance of difference in group mean perception scores is tested with t-test for two groups and with F-test (also called one-way ANOVA) for more than two groups. The cross-tabulation analysis between two factors is also used and association between two factors is tested using chi-square analysis. The unique correlation between population and economic growth is evaluated with the help of multiple regression technique. For structural equation modeling purpose, AMOS-20 software was used. Structural models were tested on the basis of path analysis. Chi-squared Automatic Interaction Detection (CHAID) decision tree technique was used for prediction and classification of the customer's demographic profile". "CHAID analysis provides multivariate relationship and its tree structure output is easy to interpret. The Neural network procedure was used in producing a predictive model for one or more dependent (target) variables based on values of the predictor variables".

1.6 SCOPE OF THE STUDY AND LIMITATIONS

This paper is aimed at going deep in to the relationship of population and economic growth. The area of which this study will be conducted is the city of Blantyre in Malawi. This study is on which will not have its limitations due to the fact that the data collection may face a lot of difficulties in this period of the covid 19 pandemic, plus the issue that the researcher will mainly rely on distribution of questionnaires through email and google platforms because the researcher underwent the research while in India and not Malawi.

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CHAPTER TWO: LITERATURE REVIEW

2.1 INTRODUCTION

Economics has been studied throughout history and practiced in every aspect of the daily human life, whether it is at the work place, in the household, in politics, hospitals etc… the concept of economics is practiced by every individual in their daily lives regardless of whether they know it or not. Economics is wide topic and it ranges from social aspects to even environmental aspects. So how can we even begin to describe what economics is? According to Adam Smith he defined economics as "an inquiry into the nature and causes of the wealth of nations". The study of economics has been broken down into two parts; Microeconomics which is a branch of economics that studies the behavior of individual units such as households, individuals and enterprises within the economy, Microeconomics uses demand and supply as tools of analysis to study the decisions of individual entities in the economy. The other branch of economics is known as Macroeconomics which is the branch that studies how an overall economy (the market or other systems that operate on a large scale) behaves.

P.A. Vallejo Castillo**,** C.I. Andrade-Velasco**, (2014**) the relationship between population growth and economic growth is of great interest both for demographers and for development economists. Considering the case of Mexico, the objective of this study was to analyze the dynamic relationship between population growth and economic growth, through a structural break co-integration analysis for the period 1960-2014. The Gregory-Hansen co-integration test confirmed the existence of a long run equilibrium relationship between population and economic growth in Mexico. Based on the results of this test, we used 1985 as the year in which the structural break occurs in the co-integrating equation and therefore we included a dummy variable for this year in the VECM developed in the paper. In the short run, it was found that economic growth has a negative effect on population growth. In the long run, it was found that population has a positive effect on per capita GDP and that per capita GDP positively affects population. Additionally, a Granger causality test indicated that per capita GDP is Granger-caused by population and population is Granger-caused by per capita GDP, thus revealing the presence of a mutually reinforcing relationship between these two variables. In sum, the results found in this study suggest the existence of a bi-directional causality between population growth and economic growth in Mexico.

E. Wesley, F. Peterson (2017) the relationship between population growth and economic growth is controversial. This article draws on historical data to chart the links between population growth, growth in per capita output, and overall economic growth over the past 200 years. Low population growth in high-income countries is likely to create social and economic problems while high population growth in low-income countries may slow their development. International migration could help to adjust these imbalances but is opposed by many. Drawing on economic analyses of inequality, it appears that lower population growth and limited migration may contribute to increased national and global economic inequality.

Patrice Vimard and Raïmi Fassassi (2012) to meet the priority of accelerating socio-economic development while preserving the environment for future generations, there is a need to identify development constraints that Africa has faced until today and the means of contributing to the continent's future development. The population issue is an overriding factor in addressing these questions. This chapter examines the relationships between demographic dynamics, economic growth and social development in Africa and especially the possible linkages between Africa's lagging demographic transition and its slow socio-economic progress. In order to background explorations of the continent's future, the chapter first provides a broad-brush view of current demographic trends in Africa by showing the continent's specificity in global comparison and highlighting the main differentiations among African countries. After placing discussions on population and development policies in the African context, the relationships between demographic growth and development in Africa are analysed by examining the specific case of North Africa and the impact of human capital improvement upon demographic changes. This treatment of the current state of the population–development relationship in Africa enables us to present the different domains where uncertainties prevail and draw up possible medium-term trajectories concerning demographic change and development. The conclusion emphasises the regional dimensions of demo-economic relationships.

Malawi Growth and Development (2012) Malawi's population has grown rapidly from almost 4 million in 1966 to 14.8 million in 2012.1 UN population projections show that Malawi's population could easily reach 23 million in 2025 and 37 million in 2050 if families continue to have, on average, six children. This astounding growth has come from:

• A decline in mortality that the country has experienced since the 1950s due to improvements in

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nutrition and health care.

• Stubbornly high levels of fertility that have remained unchanged since 2004.

Even with a national HIV prevalence of 11 percent, AIDS-related mortality does not offset the results of high fertility.

As Malawi and the world improve health and reduce mortality by focusing on the Millennium Development Goals, Malawi's population growth will continue to pose challenges for its development, unless families have fewer children. Malawi has made substantial improvements in addressing its population issues, especially by increasing its use of modern contraceptive methods, currently at 42 percent. Yet for Malawi to achieve its full set of goals in its Growth and Development Strategy (MGDS), it must address population growth. Family planning is a key strategy to achieving our goals. The popular slogan "Children by Choice" tells us that we need to decide if and when to have children. Family planning can ease pressure on available resources, contribute to sustainable economic growth and development, and lead to a healthy and prosperous nation.

"A healthy population is not only essential but also a pre-requisite for economic growth and development. There is a very close and strong correlation between health status and level of development. That is, countries with good health are highly developed, whereas those with poor health are underdeveloped."

— Malawi Growth and Development Strategy

Malawi adds over 400,000 people each year to its population. Without a reduction in the average number of births per woman, health, education and employment services will be overstretched. This trend will continue to challenge the country's progress to meet the Millennium Development Goals, despite current efforts to advance Malawi's economic growth and prosperity, as described in the Malawi Growth and Development Strategy (MGDS). The MGDS is the overarching five-year strategy to help achieve Malawi's goals and its Vision 2020. The goals are closely aligned with the Millennium Development Goals. The central goal of the MGDS is to promote economic growth and development with strategic investments and to provide basic social services, setting the stage for Malawi to become a middle-income country. This primer examines several of the priority issues addressed in the MGDS:

1. Agriculture and Food Security
2. Energy, Industrial Development, Mining and Tourism
3. Education, Science and Technology
4. Public Health, Sanitation, Malaria and HIV and AIDS Management

5. Integrated Rural Development

6. Child Development, Youth Development and Empowerment

7. Climate Change, Natural Resources and Environmental Management The 2010 annual review of the MGDS shows progress in a number of areas.

However, rapid population growth challenges the sustainability of these improvements. This primer provides information on the relationship among population growth, family planning, and the seven priorities of the MGDS. Each section offers facts about specific priorities, the relationship of the issue to population growth, and suggested actions for mobilizing support.

G. Matchaya**,** C. Nhemachena**,** S. Nhlengethwa**(2018)** this article's objective was to analyse the links between income per capita growth, savings and population growth. Using partial correlations and both the Solow basic growth model and the augmented Solow model, this article finds evidence to support the existence of a negative relationship between very high population growth rates and income per capita, as well as a positive relationship between savings and income per capita. An increase in population growth, *ceteris paribus*, depresses the prospects of high savings because most output is consumed and the marginal propensity to save is low. The basic Solow growth model with labour and capital appears to fit the data well, although the fit improves with the inclusion of the levels of human capital involved. Investment in human capita, and investments in physical capital appear to positively affect income growth, whereas population growth negate income per capita. Countries, including Malawi, Tanzania, Madagascar and Lesotho among others, need to reduce overexpenditure by government and invest more in productive capital (see, e.g., Matchaya, Chilonda & Nhlengethwa 2014). There is need for the SADC region to embark on a campaign to increase savings rates which currently average under 16% of GDP to closer to 30%, in line with what is observed in developed countries, as well as to reduce population growth which in some cases is as high as 3.2 % to under 2%.

IMF Country Report No. 17/184 (2017) despite development and implementation of a number of policies including DEVPOLs, SAPs and the MGDSs, socio-economic development has hardly been attained and poverty has remained a big concern in Malawi. This is attributed to a number of factors such as inadequate implementation of some policies/plans in place, agricultural land degradation; low production and productivity, poor access to markets, high transport costs and negative effects of climate change. It is against this background that the Government has to develop this EDD and the next national

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development strategy in order to improve national economic development and reduce poverty among the Malawian

population. During the five years, the economy is expected to grow by a rate of at least 6.0 percent annually. Five priority areas have been identified through national consultations. These KPAs are addressing the challenges that have been identified to affect sustainable growth. The KPAs are: agriculture and climate change management; education and skills development; energy and industrial development; transport and ICT infrastructure development; and health and population management. The Government and other stakeholders in the country are committed to implementing these in full through provision of necessary and adequate resources. The emphasis will be on development policies which are expected to spur economic growth and development in the country. Hence, the Government will concentrate on domestic resource mobilization to make sure that the priority areas are adequately funded.

Main Cities by Population in Malawi

#	CITY NAME	POPULATION
1	**Lilongwe**	646,750
2	**Blantyre**	584,877
3	**Mzuzu**	175,345
4	**Zomba**	80,932
5	**Kasungu**	42,555
6	**Mangochi**	40,236
7	**Karonga**	34,207

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#	CITY NAME	POPULATION
8	**Salima**	30,052
9	**Nkhotakota**	24,865
10	**Liwonde**	22,469
11	**Nsanje**	21,774

2.2 CONCLUSION

A review of the various studies on the topic of the relationship between population and economic growth it is quite clear that there is a deep connection between the two variable showing that a change in the other variable has an effect on the other depending on which kind of change has taken place. The aim of this study is to find out whether there is a certain level at which a country can have a maximum output of production depending on the level of population. The use of the relevant studies done by other researchers will help in this study in attaining the desired results.

CHAPTER THREE:
RESEARCH METHODOLOGY

3.1. Introduction

This chapter discusses the methodology that will be used for data collection. It will put much focus on the research design, the sampling techniques, and the data collection tools. It will also describe the procedure for collecting data, the techniques for data analysis and interpretation.

3.2. Research Design

(D R Cooper 2006) defines research design as "the arrangement of conditions for collection and analysis of data in a manner that aims to combine relevance to the research purpose with economy in procedure." He continues to say, in fact, the research design is the conceptual structure within which

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research is conducted; it constitutes the blueprint for the collection, measurement and analysis of data. It is a plan, a blue print or strategies employed towards research answers. The research will be conducted in small and medium enterprises such as; . The subjects that will be involved in the research will be the Managers.

3.3. Population and Sample

Population is the total/complete collection of elements about which we wish to make some inferences (Cooper, 2003) the research will cover a minimum sample size of 30 respondents. A sample is an individual or group of individuals extracted from another which has got almost similar or the same characteristics for examination with an aim of drawing conclusions about the rest, (Cooper, 2003) defined Sample as part of the target population carefully selected to represent that population. Purposive sampling will be the technique used for selecting the respondents. The education qualifications will be ranging from certificates holders to PhD holders. It will consist of both males and females. The study will be conducted in Blantyre in selected small and medium-sized enterprises. The researcher used the formula below to find the accurate sample size in line with the population size.

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

Where n=ideal/optimal/desired sample size

N=Population

e= marginal error. (5%)

$$n = \frac{800}{1 + 800(0.05)^2}$$

$$n = \frac{800}{1+1}$$

$$n = \frac{800}{2}$$

$$n = 400$$

According to Paula Barreiro (2010), if nN> 0.1 (10%), then any percentage above 10% of the sample population can be used to represent the sample population. The researcher chose 80%, on the basis that there

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might be a few SMEs that progress so in order to reduce error and attain a better and reliable figure, the researcher chose 80% of the 400 population size.

$$n=\frac{400}{800}$$

$$=0.5$$

$$=400*40\%$$

$$= 160$$

3.4. Instruments of Data Collection

The research study collected data using questionnaires as a tool. The questionnaires were containing both open-ended and close-ended questions. The questionnaires were set by the researcher in such a way that consistency from the respondents will be achieved and also in a way that biasness shall be avoided at all costs. The questionnaires were formed by the researcher with help from the supervisor

3.5. Procedure for Data Collection

The researcher obtained a letter of introduction from the supervisor. This letter helped him to book appointments with the respondents of the questionnaire. After being given an appointment time and date, the researcher travelled to the organization on the scheduled dates to conduct the study. On the day of interview, the researcher made formal introductions of himself to the respondents so as to gain confidence from them and also to create rapport. The researcher also gave instructions to the respondents on how to respond to the questions. The researcher then issued out questionnaires to the respondents so that the respondents respond to the research questions. Upon finishing responding to the questionnaires, the researcher collected the questionnaires from the respondents and cross-checked them to see if the questionnaires have been responded to as desired.

Finally, the researcher thanked the respondents for the information provided and for the time spared for the study. The researcher guaranteed assurance to the respondents that the information provided shall remain confidential and that the information provided shall be used for academic purposes only.

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3.6. Procedure for Data Analysis

Data analysis usually involves reducing accumulated data to manageable size, developing summaries, looking for patterns and applying statistical techniques (Cooper, 2003) Mostly, data analysis is determined by the method that will be used to collect data: and also varies with the type of data to be collected thus quantitative. This is a descriptive type of a research, survey research using structured questionnaires with open and closed ended questions and statistical analysis among others. Quantitative data to be collected will be analyzed using descriptive analysis.

The data collected was cleaned to eliminate unnecessary information. Each and every answer from the questionnaires was critically analyzed and all unnecessary data was removed so that the researcher only has the needed and necessary data. The results was presented in graphs, charts and tables. The basis of the conclusion was derived from the responses that were provided on the questionnaires.

4. Population of Malawi (2020 and historical)

Year	Population	Yearly Change	Yearly % Change
2020	**19,129,952**	501,205	2.69 %
2019	**18,628,747**	485,530	2.68 %
2018	**18,143,217**	473,021	2.68 %
2017	**17,670,196**	464,935	2.70 %
2016	**17,205,261**	459,958	2.75 %
2015	**16,745,303**	441,138	2.87 %

The able above is an illustration on the population change of Malawi from the year 2015 to the year 2020. The population has increased on a yearly basis and this is an indication that the population is still increasing regardless of any efforts that are being made by the country to control this increase. Up to date from 2016 there are more than 10,000 graduates who have been unable to find employment for the past 5 years due to the population being as it is. Malawi is very small geometrically and the population figures on this table may indeed be small in comparison to countries like the United States or India, but to a country

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like Malawi the population figure is quite high for its small geometric size.

4.1 Malawi Population Forecast

Year	Population	Yearly Change	Yearly % Change
2020	**19,129,952**	476,930	2.70 %
2025	**21,857,472**	545,504	2.70 %
2030	**24,849,440**	598,394	2.60 %
2035	**28,022,273**	634,567	2.43 %
2040	**31,317,322**	659,010	2.25 %
2045	**34,703,793**	677,294	2.07 %

In this table what we are focusing on are the future forecast of the population in Malawi which are in the time intervals of 5 years. By the year 2030 which is 9 years from this current year of 2021 the population is estimated to have grown with an amount of 5million+, as indicated in the explanation of the previous table about the geometric size, this means that in about 9 years job availability will be worse than it already is in the current state, and also the availability of land for cultivating, building homes, factories, companies, schools etc… will become very scarce and will also bring about more air and land pollution.

5. Current State of Malawi

At the very present Malawi ranks at in the top 10 poorest countries in Africa having an estimated GDP per capita of ($1,172). Malawi's currency has been fluctuating from the previous years which has seen a rise in the oil prices and most commodities within the country, Malawi is a country that is mainly an importing nation rather than exports. The major industry in Malawi is its agricultural industry but has never been fully tapped and utilized to its full potential, Malawi has probably one of the best land and fertile for almost each and every crop and it is this that the country can focus on to increase its productivity. The utilization of land for a nation like Malawi would in turn mean that population should indeed be checked and controlled in order to have land for cultivation and production.

Vidhyayana - ISSN 2454-8596
An International Multidisciplinary Peer-Reviewed E-Journal
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6. Government Role

The government of Malawi needs to have a hands on approach and fully intervene in the population situation of the country in consideration of the geometric size and the issues that arise in such cases of overpopulation. China is amongst one of the countries in the that is very overpopulated, but the government took an approach that saw the citizens very compliant to it, if the Malawian government were to act in such ways where they decided to make official laws against the number of children a family can have and laws that will instill fear in underage pregnancies and sexual behaviors that may lead to teenage pregnancies this could start a ripple in the country and may have a positive effect in the direction of a low population that may be needed 5 or 10 years from now. The government needs not to act in a violent, forceful or unethical manner to achieve this goal but they can tackle the situation through scholars and proper research and a desirable outcome may come about that may prevent the overpopulation of the country.

7. Conclusion

Population is one very important aspect of a nation's economic growth and development. Having a too high population will lead to too much consumption and depletion of raw materials and also having too little of a population on the other hand will bring about inadequate productivity within the nation itself, that is why there is an important need for a country like Malawi which mainly imports to keep its population in check and controlled otherwise they will over consume due to the fact that they rarely produce.

Vidhyayana - ISSN 2454-8596
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