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*The Impacts of Economic Growth on Human Development in East Africa:
A Comparative Analysis among member Country of EAC and Ethiopia.*

By
Mekonnen Zebene

June, 2013
Addis Ababa

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By

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A Master thesis Submitted to the School of Graduate Studies of Addis Ababa University in Partial Fulfillment of the Requirement for the Degree of Master of Art in African Studies(Program: Human and Economic development in Africa).

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List of Abbreviation

AHDR	Africa human development report
COMESA	Common Market for Eastern and South Africa.
CSA	Central Statistical Authority
EAC	East Africa community
ERA	Economic report for Africa
FAO	Food and Agriculture organization
GDP	Gross domestic product
GDPpc	Gross Domestic Product Per Capita
GNI	Gross National income
GNP	Gross national product
HDI	Human development index
HDR	Human development Report
IGAD	Intergovernmental Authority on Development
IMF	International Monetary Fund
MDGs	Millennium Development Goals
NBE	National Bank of Ethiopia
NGOs	Non governmental Organization
OLS	Ordinary Least Squares
PPP	Purchasing power party
SSA	Sub Saharan African Countries
UNDP	United Nation Development programme
UN ECA	United Nation Economic commission for Africa
UNFPA	United Nation population FUND
US\$	United States dollar
WB	World Bank
WDI	World Development Indicators

Abstract

Economic growth is an important determinant of human development, which can contribute to the improvement of human development and poverty alleviation in East Africa countries. The economic growth rate of a country would be meaningful only if it is accompanied by improvement of human development. This study examines the impact of economic growth in enhancing the quality of human life in the current member countries of EAC and Ethiopia. Specifically, it analyzes the effect of the economic growth on human development of these countries for the period 1990/91 to 2011/12 by collecting quantitative from secondary sources. Empirical analysis has been performed by using descriptive and econometric technique to investigate the relationship between economic growth and human development. To achieve the objectives of the study, an econometric model for each country are estimated by using OLS method of estimation. So, this paper presents Six models for the sampled country to measure the impacts of proxies' measure of economic growth on HDI (proxy measure of human development).By applying multiple linear regression model,HDI is regressed on LRGDP,LRGDPpc,RGDPg,AVA,PEE,PEH,Pr and POVL in each country that listed above. The paper concludes that the trends of the RGDP, RGDPpc and HDI have been fluctuated overtime. On average, the performance of these variables since 1990s and 2000s has been very low. This shows that a strong heterogeneity among these countries. This variation reveals that there is unequal performance of economic growth and human development in the East Africa countries. Moreover, all of the six countries models that estimated based on OLS i.e. regression results of each country indicate that LRGDP,LRGDP and RGDPg has a positive and insignificant impact on HDI. Similarly, the econometric results indicated that AVA,PEE and PEH have a positive and insignificant relationship with HDI. Although, Pr and POVL have a negative and insignificant impact on HDI. So, the OLS results showed unexpected reverse relationship with statistically insignificant effect at 10% and 5% levels of significance in all sampled East Africa countries except AVA in Uganda. Therefore, the econometric result is unreliable and invalid for policy formulation, policy analysis and predication purposes. Hence, member countries of EAC and Ethiopia should create a conducive macroeconomic environment and policy, and also NGOs and Government of these countries should commit their resources to invest in the human development sub sectors. But, further indepth research on this subject by using advanced econometrics methods is required in the future in the sampled countries under investigation.

Chapter One

1. Introduction

1.1. Background

Africa is one of the developing regions in the world with low level of socio-economic development. It is also the poorest continent, hosting the world's poorest countries. Sub Saharan Africa region, particularly East Africa is the poorest region of the world that is getting poorer in the face of sustained growth and significant improvement of living standards in the rest of the world (World Bank, 2005, P. 89) .For example, most of the world's poor live in Sub Saharan Africa which accounts about 17% of the total population and also the incidence of poverty is highest (about 39%). Although accurate data on poverty in Africa are hard to come by, there is evidence that poverty rates are high and rising. In 2005, the proportion of people living in extreme poverty, using the new US\$ 1.25 per day poverty line, was 51% in sub-Saharan Africa and 3% in North Africa (ERA, 2010, P.7). Countries in the East Africa region are varied in terms of economic growth and human development. According to Global Monitoring Report (2013), it indicates that the percentage of population living below \$1.25 a day in SSA is 48.5% during 2010. In other words; different countries in this region have different economic growth as well as human development. All countries in the East Africa have been confronted with deep-rooted developmental constraints like rapid population growth, low physical and human capital development and inadequate infrastructure, etc. These and other socio-economic problems lead to variations of economic growth and human development among the East African countries. This in turn results in disparity in socio-economic performance in the region.

Economic growth refers to the expansion of the national income- the total production of goods and services of a country over a given period of time. In other words, economic growth is defined as a quantitative change or expansion in a country's economy. It is conventionally measured as the percentage increase in GDP or GNP during a period of time. Economists use many different methods to measure how fast a certain economy is growing. The most common way to measure the economy is real GDP, real GDP per capita and its growth rate. Thus, economic growth is a sustainable increase in the capacity of an economy to satisfy the needs and wants of the economy over time. Therefore, the real GDP growth rate is equal to the nominal GDP growth rate minus the inflation rate. Economic growth depends on various socio- economic- political – cultural and environmental factors.

Human development, on the other hand, can be simply defined as a process of enlarging choices of the people in various ways by opening various opportunities. In more elaborated way, human development is defined as a process of enlarging people's choices and enhancing human capabilities and freedoms, enabling them to live a long and healthy life, have access to knowledge and a decent standard of living, and participates in the life of their community and decisions affecting their life. This encompasses a focus of development policies on “advancing the richness of human life, rather than the richness of the economy in which human beings live, which is only part of it” (UNDP, 1990, P.120). The extensions of freedoms that give humans capabilities, opportunities and choices to assist and actively contribute to development are at the time of primary goal and fundamental means of development (Amartya Sen, 1999, P .89).

Economically, East Africa's economies are predominantly agriculture which means that agriculture is the basis of the national economies and the source of livelihood of the people in the region. The share of agriculture contribution to total GDP of the countries of Burundi, Ethiopia, Kenya, Rwanda, Tanzania, and Uganda were 24%, 42%, 24%, 42%, 42% and 24%, respectively (World Bank, 1997, P. 236). Therefore, agriculture remains the dominant sector in the East African economies as well as and the main sources of foreign exchange and employment.

1.2. Statement of the problem

According to the human development report of 2011, sub-Saharan Africa is the only region that continues to stagnate below 0.5 on the value of HDI for long period of time which is the lower value in the world human development situation. This implies that the state of Human Development in SSA has changed little since 1985 but still lower than other regions of the world. Whereas the other developing regions have made substantial progress in human development since 1985 (UNDP, 2011, P. 80).

Poverty continues to affect the lives of the people in East's Africa countries. The African poverty level is continuing still now. At the turn of the millennium, nearly half of the African population earns less than US\$1 a day. That is it is twice the average global rate of extreme poverty. As a result, the percentage of the world's extreme poor living in Africans particularly Sub-Saharan Africa in 1998 had risen to 66% from 11% in 1960 (Ndulu, 2004). For example, the number of population live below \$1.25 a day at the national level in Burundi, Ethiopia, Kenya, Rwanda, Uganda and Tanzania were 68% (1998), 29.6% (2003), 40% (1994), 51.2% (1993), 33.8% (1999-2000) and 38.6% (1991), respectively, but the poverty level at international level for above countries were

81.3% (2006), 39.0% (2005), 19.7% (2005-2006), 76.6% (2000), 51.5% (2005) and 88.5% (2000-01), respectively (World Bank,2010).UN report indicate that income per capita will grow at only 2.7 per cent in 2011, and 2.8 per cent in 2012, which is below the threshold of 3 per cent considered as the minimum rate to make a substantial dent in poverty and far below the rate needed to achieve the MDGs in most countries. The need for greater progress is urgent. According to the 2011 Rural Poverty Report of the International Fund for Agricultural Development , Sub-Saharan Africa is home to nearly one third of the world's poor. While their share in the continent's total population is declining, their absolute numbers have increased from 268 million to 306 million over the last decade(Africa Progress Panal, 2011,P.25). Many of them are still living without social and economic facilities. Many countries in the third world still face the stark reality of wrenching poverty and deteriorating living standards for their growing population. Strong economic growth therefore advances human development, which in turn promotes economic growth. The extent to which growth reduce poverty depends on the degree to which the poor participate in the growth process and share in its proceeds (Ndulu, 2004). In East Africa, particularly member countries of East African community and Ethiopia, per capita real income is very low when compared to other regions of the world; however, Ethiopia, Uganda, Rwanda and Tanzania are the fastest growing economy in the world. For example, during 2000-2009 on average, the real GDP growth rate of Burundi, Ethiopia, Kenya, Rwanda, Tanzania and Uganda were 2.6%, 7.8%, 3.7%, 6.1%, 8.0% and 8.0%, respectively. Gross domestic Product Per Capita (\$PPP) during 2011 were 146, 381, 772,443, 469 and 522, respectively for the above stated countries (ADB, 2010, P.59).

On the other hand, Africa's current economic growth is not all positive. It is generally not accompanied by much needed structural transformation and diversification, and often does not translate in to equitable human development and public services (Africa progress panel, 2011). The problem is caused, driven and compounded by the poor quality of African economic relationships and the low quality of African growth. The rate of growth of real per capita income in the member countries of EAC and Ethiopia remains low on average because of a variety of distortions and institutional deficiencies, colonial regime and increasing of population growth.

Given the figures of economic growth in the East Africa countries, the problem is that human development does not corresponds with the relatively high economic growth. That is economic growth is in a good position, but the human development is still lower than the other regions countries. In other words, each country exhibit a fast growing economy in the world but there is a lower per capita income and HDI. Still the situation of human development in SSA is lower, which accounts 0.463 on average (UNDP, 2011). Although, the real GDP growth rate were 5.5% and GDP per capita were US\$ 616 during 2009 on average (ADB, 2010). According to Human Development Report, these countries were grouped under low human development countries in the world because each country has lower value of HDI among all countries of the world, on average.

1.3. Objective of the study

The general objective of this study is to examine, assess and analyze the impacts of economic growth on the proxy measures of human development in the East African regional bloc countries, particularly the current member countries of EAC regional

integration and Ethiopia. Under this major objective of the study, the following specific objectives of the study were being addressed in the thesis research.

- To examine the effects of economic growth on the proxy measures of human development in the Six countries of East Africa namely Burundi, Kenya, Ethiopia, Rwanda, Tanzania and Uganda from the period of 1990 to 2011 fiscal year .
- To identify the strength and direction of the causality between economic growth and human development indicators by using a cross country correlation analysis.
- To show the trends of economic growth and human development performance using the major proxy measure of Economic Growth and Human Development like, real GDP, real GDP per capita, real GDP growth rate and HDI from 2000 to 2011.
- To conduct a comparative analysis of the influences of indicators of economic growth on the proxy measures of human development.
- To investigate the relationship between the indicators of economic growth and human development in a systematic and empirical framework across the specified countries at macroeconomic level.

1.4. Statement of Hypothesis

The list of variable that described in the methodology section of the study will have different impact on human development in East African economies. The real GDP and per capita real income growth rate is the major indicator of economic growth that has both theoretical and empirical evidence. The impacts of such variables vary from

countries to countries and most importantly their direction of influence may also differ in each country.

Based on empirical and literature review on economic growth and human development in developing countries, the following hypotheses are believed to guide the analysis.

- It is hypothesized that economic growth rate has a significant positive and strong effect on the human development of member countries of EAC and Ethiopia.
- The real GDP and real GDP per capita are expected to have a significant positive impact on the performance of human development. The expectation is that with increase of real GDP per capita and its growth rate, there will be an increase of proxies' measures of human development and thus, an improvement in human development.
- It is also expected that the public expenditures on health and education have a significant positive influence on the value of HDI in the developing countries like EAC countries and Ethiopia.

The validity of all these statements will be investigated in the result and discussion section of the paper.

1.5. Significance of the study

The one way relation between economic growth and human development is a very important issue. Low human development with low per capita real income is one of the characteristics of developing countries. Such countries like EAC countries and Ethiopia are characterized by poor human development performance. In this situation, countries may see economic growth as one of the options to improvement of human development and their performance. Thus, this study analysis and examine the impacts of the

indicators of economic growth on human development proxy's measures in Six East Africa countries namely: Burundi, Kenya, Ethiopia, Rwanda, Tanzania and Uganda.

Hence, this study intends to make significant contributions in the following ways.

- It will provide some insights and understanding on the relationship between economic growth and human development and then benefits governments, NGOs, researchers, students and society; provide up to date information on the status of economic growth and human development for policy makers, planners and decision makers; and also the finding of this study could be useful in improving policy design, institutional set up, monitoring and evaluation of projects in the area of economic growth and human development.
- This study will also fill the gap in the literature pertaining to the analysis of the effects of economic growth on human development; add to the available knowledge by providing new and robust evidence on economic growth and human development relationship and helps for accumulation of knowledge and new research ideas.

Finally, the research will suggest recommendations to solve the major problem of the study. This would give a clue for policy makers and planners in East African countries to design or formulate a better policy and programs to enhance human development of the East African countries community. And, it also adds highlights for those interested researchers to work on this area in the future for further research and then enrich literature review on the topic and serves as a reference material for researchers and students.

1.6. Scope of the study

This study focuses on East Africa regional bloc member countries, namely: Burundi, Ethiopia, Kenya, Rwanda, Tanzania and Uganda. More generally, it investigates the impacts of economic growth on human development in East Africa community current member countries and Ethiopia. The East African Community is a type of intergovernmental organization or regional integration in East Africa regional bloc that comprising of five countries in East Africa, namely: Burundi, Kenya, Rwanda, Tanzania and Uganda. The organization was originally founded in 1967, collapsed in 1977, and was officially revived on July, 2000. The EAC is an integral part of the African Economic Community that encourages cooperation and integration in economic and political aspect of development among its member's countries. This regional integration facilitates inter-territorial Cooperation among EAC current member countries (ERA, 2010 P.125).

The research would have been more meaningful if it was analyzed by using macroeconomic level data on economic growth and human development in the East African countries. These countries have one major characteristic in common which is fast growing economy accompanied with low human development in terms the value of HDI. Therefore, the impacts of the major and strong indicators of economic growth on the proxy measures¹ of human development are studied in the East Africa. And then variables of strong association in the analysis were be used during the study. These variables are real GDP, real GDP growth rate, per capita real income, per capita real income growth rate, and inflation rate, public expenditure on health and education,

¹ It is an approximate measuring indicator of dependent and independent variables.

Agriculture value added and HDI. Data on each variable were being collected from 1990 to 2011 because this analysis is based on a time series data of the proxy's measures of economic growth and human development in East Africa countries' economies.

1.7. Limitations of the study

Due to the limited numbers of case studies covered in this study, the findings of the study would not be generalized to the other East African countries. This is because of variations of socio-economic-cultural-environmental context in each country under investigation. In fact, the basic reason for not undertaking region-wide based research was due to time constraints and shortage of finance. Still there were such constraints under investigation. The next restriction of the study up to the researcher best knowledge is shortage of materials which are based on exhaustive research work on this topic in the context of EAC countries and Ethiopia.

In general, during carrying out of the study, the researcher had tried to overcome all pitfalls and constraints of the study in order to get best result of the research. Moreover, getting an accurate, reliable and detailed data on each variables of the study was being another limitation because of inadequate and absence of administrative records from embassies of East African countries in Addis Ababa and UN- organizations.

1.8. Concepts and Definitions of terms

This study employs and uses a wide array of concepts. In order to avoid ambiguity of terms, this section deals briefly with the main concepts and terms used throughout the thesis.

Economic growth refers to a sustainable increase in the country's output, income and efficiency over a period of time or a continuous rising of RGDP or per capita income and

real GDP per capita. It also defined as the expansion of the output and income of the country i.e. the total production of goods and services. In other words; economic growth is defined as a quantitative change or expansion in a country's economy. Thus, it is a sustainable increase in the capacity of an economy to satisfy the needs and wants of the economy over a given period of time. An economy's growth is measured by the increase in value added produced by the individuals and enterprises operating in that economy. Thus, measuring real growth requires estimates of GDP and its components value in constant prices. It can also be measured by GDP per capita growth and real GDP growth. According to UNDP, **human development** is defined as the expansion of people's freedoms and capabilities to lead lives that have reason to value. In other way, it is the expansion of people's freedoms to live long healthy and creative lives; to advance other goals they have reason to value; and to engage actively in shaping development equitably and sustainably on a shared planet. Thus stated, human development includes well-being (welfare), empowerment and justice. This concept takes into account all the product of development such as education, health, income. So, it refers to the process of empowerment in the possession of the capacity to build up oneself so as to be able to live a long life, be able to read and write and, have income so as participate in the political, societal and economic affairs effectively and above all are gainfully employed to earn a living.

According to Todaro (2009), **Economic development** is any effect or undertaking which aids in the growth of the economy. That is, it is the process of developing and maintaining suitable economic, social and political environment" in which "balance growth" may be realized and increasing the wealth of the community . While this

definition looks simple enough at first glance, an examination of each of its component parts shows how complex economic development actually is. Economic development is a “process”. So, it is Qualitative change and restructuring in a country’s economy in connection with technological, economic and social progress. The main indicator of economic development is increasing GNP per capita (or GDP per capita) reflecting an increase in the economic productivity and average material well-being of a country’s population. Economic development is closely linked with economic growth.

Gross Domestic Product refers to the total value of all final goods and services that produced in a country in one or half year. In other words, it is the total market value of all final goods and services produced annually by resources, located within a country, regardless of their ownership. It can be measured by adding up all of an economy’s incomes i.e. wages, interest, profits and rents or expenditures i.e. consumption, investment, government purchases, and net exports, or output. Thus, it can be measured by value added (output), expenditure or income approach.

Gross National Product is the total market value of all final goods and services produced during a year by resources owned by the citizens of the country. In other words, the value of all final goods and services produced in a country in one year plus income that residents have received from abroad, minus income claimed by non residents.

Real GDP or GNP is the physical national output goods and services produced during the given year, measured in terms of the prices of the base year or constant price. It is GDP adjusted for inflation that is, Nominal GDP divided by the price index. So, it is obtained by deflating the Nominal GDP or GNP. Therefore, it is the total market value of

final output produced in a given period measured in the prices of base period i.e. at constant prices.

Nominal GDP or GNP is defined as the physical national output produced during the given year measured in terms of the prices of the same year. Also, it is the value of final output produced in a given period measured in the prices of that period i.e. at current prices.

GNP or GDP per capita refers to a country's gross national or domestic product divided by its population. It shows the income each person would have if GDP were dividing equally. Also called income per capita. GNP per capita is a useful measure of economic productivity, but by itself it does not measure people's well-being or a country's success in development. It does not show how equally or unequally a country's income is distributed among its citizens (World Bank, 2010).

Gross Domestic Product, PPP is gross domestic product converted to international dollars using purchasing power parity rates. An international dollar has the same purchasing power over GDP as the U.S dollars have in the United States.

Gross Domestic Product per capita, PPP is GDP per capita based on purchasing power parity. PPP GDP is gross domestic product converted to international dollars using purchasing power parity rates.

Gross National Income (GNI), World Bank atlas method is the sum of value added by all resident producers plus any product taxes less subsidies. It is the broadest measure of national income. It measures total value added from domestic and foreign sources claimed by residents. GNI comprises GDP plus net receipts of primary income from foreign sources. In other words, it is equal to GNP minus depreciation of capital less

indirect business taxes. It is supposed to be a more accurate measure of income to labor and owners of capital because these taxes are siphoned off by the government. So, it was a more accurate indicator of incomes to resource owners than is the case nowadays.

Gross domestic product growth is the average annual growth rate of real GDP at market prices based on constant local currency. Aggregates are based on constant 2000 and 1990 U.S dollars. Average annual growth rate of real GDP is calculated from constant price GDP data in local currency of a given country.

Gross domestic product per capita growth is the average annual growth rate of real GDP per capita at market prices for the given period of time. It is based on GDP measured in constant prices. Growth in GDP is considered to a broad measure of the growth of an economy. GDP in constant prices can be estimated by measuring the total quantity of goods and services produced in a period, valuing them at an agreed set of base year prices and subtracting the cost of intermediate inputs, also in constant prices.

Price indexes inflation, GDP deflator, is measured by the annual growth rate of the GDP implicit deflator and shows the rate of price change in the economy as a whole. Inflation is the situation of continuously rising general level of prices. Inflation can be measured by means of the general price level which, in turn, is measured by a price index. A price index compares the cost of a given combination of goods and services for two or more different years and the rate of inflation is measured as the annual percentage change in the value of price index for a given period. It is obtained by dividing nominal GDP by real GDP and multiplying it by 100.

Constant prices refer to value figures deflated by a price index such as the CPI. It is also the market values of goods and services during the base year period i.e. country's original base year. It is also called constant market prices.

Current year prices refer to undeflated value of goods and services produced in the economy during the current period of time. Thus, it is market value that measures GDP or GNP at the current time. It also called current market prices.

Life expectancy at birth is the number of years a new born baby would live if patterns of mortality prevailing at its birth were to stay the same throughout its life. Thus, it is the expected number of years of life remaining at a given age and sex (male, female and total).

The life expectancy index contains the average number of years to be lived by a group of people born in the same year and measures overall quality of life in a country and summarizes the mortality at all ages. The change in this indicator reflects changes in the overall health of a country's population, in people's living conditions, and in the quality of health care.

The education index is an index which is measured by the adult literacy rate and the combined primary, secondary and tertiary gross enrollment ratio. The adult literacy rate gives an indication of the reading and writing abilities of the people or nation while the GER gives an indication of the level of education from all level and post graduate education.

The income index is an index that is measured by dividing per capita income in a market by the average national per capita income, PPP. It tells us the decent standard of living of the people or society.

The **HDI**² is a measure of the overall human progress in a more holistic manner with special emphasis on living a decent life. It is a composite index embracing longevity (measured by life expectancy, representing a long and health life); knowledge (measured by education attainment) as a composite indicator combining adult literacy and gross enrolment in the ratio of two thirds and one third, respectively; and a decent standard of living (represented by GDP per capita measured in terms of purchasing power parity). These three components capture the ends of the development effort: life expectancy index, education index and GDP index which are all weighted by 1/3 to derive the HDI. To measure human progress or development of a country more accurately, emphasis is put on the ends rather than the means of human progress. The most critical ends of development have been identified as HDI and its components. These are a long and healthy life, education and a decent standard of living. Generally, it is a composite of several social indicators that is useful for broad cross-country comparisons even though it yields little specific information about each country. First used in the United Nations Development Programmers Human Development Report 1990.

Food security can be defined as the condition when all people at all times, have physical, social and economic access to sufficient safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life. It thus encompasses the availability of food, people's access to food and their use of food as well as the stability of all three components. This definition includes the qualitative dimensions of safety and nutrition i.e. people's energy, protein and nutrient needs for life, activity, pregnancy and growth.

² 0 to 0.5 HDI value were categorized under low human development country group.
0.5 to 0.75 HDI value were categorized under medium human development country group.
0.75 to 1 HDI value were also categorized under high human development country group.

Quality of life: People's overall well-being. Quality of life is difficult to measure (whether for an individual, group, or nation) because in addition to material well-being (economic and social tangible issues), it includes such intangible components as the quality of the environment, national security, personal safety, and political and economic freedoms.

Standard of living. The level of well-being (of an individual, group or the population of a country) as measured by the level of income (for example, GNP per capita).

1.9. Structure of the study

The research paper is organized around five chapters. In addition to the Introduction section which includes background, statement of the problem, objective, significance and limitation of the study, there are another four chapters. Chapter two discusses the relevant of theoretical and empirical Literature. Third chapter deals with research design and methodology including model specification and estimation method, data type, data collection methods and data analyzing method. Chapter four presents discussion and analysis of the major finding of the study. Finally, chapter five discusses and presents conclusion and recommendations (policy implications) in line with the output of the study.

Chapter Two

Literature Review

2.1. Theoretical literature review

2.1.1. Introduction

There is a vast literature on the economic growth as well as human development aspects in the world and Africa; however, much less is available on the relationship between economic growth and human development. This gap is even more obvious regarding literature on the topic in East Africa. Although the concepts of indicators of economic growth and human development are clearly stated in various UN agencies reports, the entire theory on the impacts of economic growth on human development is very much limited, particularly the context of the Ethiopia and EAC countries. It is against this backdrop that this chapter focuses on review of literature in relation to economic growth and human development indicators in developing countries like Latin American, Asians and African countries. This chapter, thus cover both theoretical and empirical literature on to impacts of economic growth on human development in various developing regions and countries.

2.1.2. Gross domestic product, government expenditure and human development

Economic growth impact on the indicators of human development in developing countries is arguable in developing countries and it has a long a hotly contested subject. Rains,G and Stewart,F (2001) argued that it may not be necessary to look at great length on the basic notion that human development should be viewed as the bottom-line or basic objective of human activity, and that economic growth should be targeted as a contributor to it, rather than as the end product.

In its broadest sense, according to them human development defined as permitting people to lead longer, healthier and fuller lives and more narrowly, it is interpreted as the status of people's levels of health and education. Obviously, there exists a strong one and two-way relationship between economic growth and human development. On the one hand, economic growth provides the resources to permit sustained improvement in human development; on the other hand, sustained improvements in the quality of human capital are an important contributor to economic growth. Yet, while this symbiotic two-way relationship is easily accepted, the specific factors linking them have not been systematically explored with the assumption that growth has to precede any progress in human development.

One study conducted by Ranis and Stewart in Latin America(2005) showed that the impact of a given aggregate levels of average household income on human development depends not only on the average level but also the distribution of that income and on the extent to which societal poverty has been alleviated. In other words, it is important to know the nature of the growth process particularly how growth is generated and how income distribution equally, as well as how well it has succeeded in reducing poverty .When income per capita is low or when it is badly distributed, the total expenditure of many households on human development is bound to be low. However, in general low-income households spend a higher proportion of their income on the human development items than those with higher incomes. They also argued that with the *ceteris paribus* assumption, female headed households spend more than male-headed households on health, education, food, potable water. Case studies from Latin American, experiences and evidences,(such as Bolivia, Brazil, Chile Nicaragua and Peru) indicate the effects of a

positive income change on household demand for human development components like education, health and others. For example, in the case of Brazil it is estimated that, if the distribution of income were as equal as Malaysia's, school enrollments of poor children increased by 40 % (Birdsall, Ross, and Sabot, 1995). While the evidence on the relationship between income and health has shown less impact in developing region of the world, studies in Brazil and Nicaragua suggest that household income has a significant effect on the demand for health and showing again a much higher response for low income household than higher income. Symmetrically, while human development levels are negatively affected by reductions in economic growth, the extent of the impact varies greatly with the distribution of income and its change over time (Rains and Stewart, 2001, P. 335-336).

Health and education are important Social goods in developing country, as they help in creating human capital, which in its turn brings human development or economic development. The allocation of resources (budget) out of GDP for Education and health activities for improving human development of developing countries is guided by improving public goods investments by various levels of government. Investment in social goods by a given government is a function of multiple elements namely, the relative size of public expenditures, the proportion of these expenditures that flow to the human development sectors and finally how these expenditures are allocated within each of these sectors (Rains and Stewart ,2001,P. 335).They briefly discussed the impact of public sector expenditures on human development levels; how expenditures in the direction of enhancing human development levels; how expenditures are allocated in the direction of enhancing human development levels, and how effective they are in raising

human development levels is, of course another central issue. This link in the chain between expenditure inputs and human development outputs may be called the human development production function.

UNDP (1998) stressed that many factors influence the levels and changes in human development, ranging from aspects of the macro economy which in turn are affected by developments in the international economy to micro factors operating in individual households and business organizations. According to the human development report(1998) the main macroeconomic determinants of human development, together with determining the levels and changes in household income, are initial levels and growth rates of income per capita and initial levels and trends in the distribution of income. Meso policies³ centre on health, education, potable water and other social services usually provided by government and can be measured by the shares of government budgetary expenditures in GNP or GDP. The level of meso policies can be described as low if government expenditures on the social sectors are less than 6 % of GDP, moderate if they are between 6 and 10 %, and high if they are greater than 10%. Per capita public spending in the social sectors would correspond positively with the average per capita GDP. Higher incomes can, therefore, have a positive impact on human development not only through ensuring high primary incomes but also by providing larger absolute resources to the government. So, as the report conclude that there is no automatic link between economic growth and human development(UNDP,1998,P. 43).Countries with durable progress in human development often started from very different initial conditions in 1960 and have at times followed quite different routes to sustain their success. This is only achieved through fast and equitable growth of the

³ Government expenditure policy on social sub sectors.

economy in both developing and developed countries. For example, the Republic of Korea has achieved human development through economic growth. In this country, most of the people incomes have grown enough to enable improvements in the human conditions without significant government interventions. However, not all countries of the world have achieved sustained human development. Social sector expenditures as a percentage of GDP have been relatively low (UNDP, 1998, P. 44-45). In East Africa, particularly some countries like Kenya, human development was for many years successful, despite the fact that the difficult initial conditions that is low income and low human development indicators and a rather uneven distribution of income (UNDP,2005,P.105).

According to the report of UNDP (1998) in Kenya, therefore, the government's moderate efforts were supplemented by significant private involvement in the provision of social services, especially in education. This along with a moderate growth contributed to Kenya's improvements in human development towards the end of the 1970s. In the 1980s, however, the failure to increase the coverage of meso policies in the face of declining primary incomes and unequal income distribution appears to be associated with deterioration in human development. Kenya's government interventions have generally been moderate, with the share of social sector public expenditures remaining stable at 7% to 8% of GDP during 1973-86. Two thirds of this spending was for education and the rest mostly for health. The human development role of the public expenditure can be seen in various ways. Tsuneo Ishikawa (1983) argued that public expenditure played a positive role in human development conditions on Japan economy. During 1960s, Expenditures on public hygiene relative to GDP increased sharply and also it is the period of rapid

growth in household income. Thus, it was argued that the decrease in mortality rates might merely reflect the general rise in the living conditions. He suggest that it is desirable to see whether the government effort on health had positive effects on the reduction of mortality rates which in turn improves the life expectancy at birth of the people of Japan that were independent of the increase in household income.

According to human capital theory, Human capital is generally regarded as an important input into economic growth, and economic growth and also a major source of providing the resources to achieve human development. The theory state that human development is not only an end product of the development process but also a means to generating future economic growth, but the conventional view of a unidirectional path of the economic growth and human development is misspecified both in the general case and the East African context. Much of the literature on human development has focused on what the appropriate measures of economic development are and whether economic growth or per capital income levels are sufficient as measures of the well-being of a population. It is generally accepted that economic growth provides the means by which an economy can upgrade its human development levels over time (Michael. et al, 2003). According to Michael et.al (2003) the two way linkages between economic growth and human development accounting for the fact that human development is likely to be not just an end product, but an input as well as a key ingredient in the development process. Therefore, there are evidence for the positive relationships between economic growth and human development from global point of view, but the relationships are not automatic in either direction (UNDP, 2010).

Human development can also be affected by the purchasing power of the people. This purchasing power of goods and services in developing countries is highly influenced by a sustainable increment of the average level of prices in any type of market which is called inflation rate. The inequalities in human development have an adverse impact on the lives and capabilities of the people. Recent data on public spending on education and health suggest that real per capita expenditures for education and health have been increasing in developing countries on average, but declining in transition economies. These increases have been accompanied by tangible improvements in social indicators. But a sizable portion of public spending on education and health is devoted to higher education and curative health services. Thus, in a number of countries, increases in spending for primary education and preventive health care ensure that the benefits of social spending are distributed more equitable while accelerating human development of developing countries (Sanjee V et.al, 1998). Sanjee V et.al argued that social indicators are improving in many developing countries as public spending on education and health increases. But a greater share of investment in human capital like primary education and preventive health care i.e. public spending on education and health can boost human development because of its positive effects on the formation of human capital, it can improve economic growth while promoting equity and reducing poverty. How productive and beneficial spending on education and health is, however, depends on how funds are allocated within these sectors (Sanjee V et.al, 1998, volume 35).

2.1.3. Economic growth and Human Development

Contemporary economic development literature shows that there is a mutual link between human development and economic growth in the developing countries. Human development which perceived as a final goal of humanity is not sustainable unless there is high quality and quantity of economic growth. Economic growth greatly influences human development via social expenditures of the central and local governments, households, NGOs and business organizations. On the other hand, a higher level of human development assures a more robust rate of economic growth. For consolidation of the positive links between human development and economic growth, the quality of latter is more important than its speed of growth (Moldova HDR, 2000).

Rains (2004) show that in a line with the ideas of Marx that a sustained economic development has achieved through constant internal transformations of the economy. Therefore, the capitalist system needs to constantly innovate and diversify. Growth is a necessary condition but not sufficient for human development. But, it is an important means to enlarge human choices. So, it is not an end in itself. The structure and quality of growth influences the human development process of the country.

Obviously there exists a strong two way relationship between Economic growth and human development in a bidirectional way. On the one hand, Economic growth provides the resources to permit sustained improvements in human development; on the other, Sustained improvements in the quality of human capital are an important contributor to economic growth. The general policy setting and prevailing political ideology seem to have contributed to the strong relationship between the two variables. A central pillar of post-revolutionary governments has been a strong commitment to social development. In

the 1960s and 1970s, there has been a “progress framework” and “shared development” which sought to enhance land reform, health, sanitation, education and food production; and focused on redistributing economic growth through higher social expenditure ratios, respectively (Ranis and Stewart, 2001,P.355-356).

As a result of favorable spending patterns and reduction in poverty, human development improved substantially between 1960 and 1980 in developing countries. Life expectancy increased from fifty-nine years to sixty –six years; infant mortality decreased from 74.2 per 1000 births to 53.1; literacy among fifteen year olds and older increased from 66 percent to 83 percent; and educational enrollment as percentage of the population almost doubled, from 16% to 30% in the above countries. For example, the human development improvements feedback into the HD-GNP cycle as total factor productivity to Mexico’s very robust growth rates. Over 1950-70 period, Mexico’s annual GDP grew at 6.6 percent, resulting in an average increase of 3.3 percent in GDP per capita and helping to produce a virtuous cycle of development (Maddison et. al., 1992, P.131 - 155).

It is clear that the level of human development and monetary poverty are in a negative correlation. In order to show how economic growth influences various dimensions of human development, it is useful to differentiate the two types of poverty: individual poverty affects families or individuals who have inadequately low available incomes and social poverty affects families or individuals who, regardless of available incomes, for different reasons, have no adequate access to public goods provided by the government (education, health care, infrastructure, social protection, personal security) (Rains and Stewart, 2000 cited in NHDR of Moldova, 2006 pp: 58)

Ranis and Stewart (2002) pointed out that the main links in the chain from economic growth to human development occur through the following ways.

- a) The distribution of GDP between households and governments. Since household and government perform better if different roles in generating conditions favorable for human development, civil society, for example, through community organizations and other NGOs also play a vital role. These organizations' share of national resources depends on the decisions of government and households on how much to allocate to the human development activities.
- b) The distribution of income among households as income going to poorer households is more likely to enhance the human development of a country (education and health), since deficiencies are greatest among such households.
- c) Households' propensity to spend after –tax income on items which contribute most directly to the promotion of human development in poor countries, such as food, education, health Services.
- d) With regard to the government, the allocation of resources for improving human development is a function of total and specific public sector expenditure on the flow of the human development items. This can be expressed in the form of three ratios: the public expenditure ratio, defined as the proportion of GNP spent by the various levels of government; the human development allocation ratio defined as the proportion of total government expenditure going to the human development sectors, and finally the human development priority ratio, defined as the proportion of total human development sector expenditure going to 'priority areas'. Within the health and education sectors, however some expenditure are

clearly much more productive in terms of achieving advances in human development than others: for example, basic education, especially in countries at an early stage of development, is generally recognized to have a larger impact on human development than tertiary education.

- e) The activities of NGOs or other sectors of civil society are likely to promote human development. Although data on this is more scattered, NGO expenditures appear to be heavily oriented towards human development objectives, e.g. generating incomes for the poor, and school, nutrition and health projects. In most contexts, NGOs play a supplemental or even marginal role, but in a few areas such as the Bangladesh rural advancement committee and the Grameen bank in Bangladesh the Harambee schools in Kenya and the 'commodores populares' in Peru, for example—they appear to represent a major source of human development enhancement (Riddell et al., 1995 cited in Rains and Stewart, 2002, P. 100).
- f) The effectiveness of various expenditures in raising human development levels is an important consideration. Expenditures on human development inputs are clearly not objectives in themselves, but rather constitute instruments for achieving and advancing the various dimensions of basic well-being of the people.

According to Rains and Stewart (2000), GDP contributes positively to human development of developing regions mainly through household, government activities and civil society. For example, Gross National Product contributes to human development through household activities. Higher levels of GDP mean higher levels of income that will be available to households. If households spend their disposable

income on basic needs (food, water, health and education); then these are likely to contribute most directly to human development. Contrarily, if income is low or badly distributed, a household's expenditure on human development is likely to be adversely affected and could lead to poverty. Thus, economic growth has an important role in human development.

The same level of GDP can lead to very different performance on human development according to the allocation of GNP among institutions and variations in their behavior. As a result of the increase in public expenditure allocation ratio i.e. human development allocation ratios and improvements in the human development production function, performance of human development during the 1980-92 adjustment period appears to have been better than in the previous decades in the context of Africa with improvements of indicators of human development. Infant mortality, for example, dropped from 33.2 to 25.6 per 1000 births between 1980 and 1990 (Beccaria and Carciofi, 1995, P.229-230).

Ranis (2004) argued that at macro level, the distribution of the increased income from economic growth will also have a strong impact on human development. Since poorer households spend a higher proportion of their income on goods which directly promote better health and education, economic growth whose benefits are directed more towards the poor will have a greater impact on human development, via increased food expenditure as well as on education. In fact, Anand and Ravallion (1993) find that most of the effects of economic growth on human development are likely to flow through government budgetary expenditures on socio-economic activities, central or local.

Income growth clearly strikes one as the main contributor to directly increasing the capabilities of individuals and consequently the human development of a nation since it encapsulates the economy's command over resources (Amartya Sen, 2000). For example, while the citizens of the Indian state of Kerala have life expectancies and literacy rates comparable to those of many developed countries, the fact that they cannot enjoy many of the benefits of citizens of such countries (such as better housing, transportation or entertainment) demonstrates the importance of GDP as an instrument for achieving a wide range of capabilities. However, GDP also has a strong effect on literacy and health outcomes, both through private expenditures and government programs. Thus, insofar as higher incomes facilitate the achievement of other crucial human development objectives, and also have an indirect effect on human development. At micro level, Rains (2004) argued that there is a great potential for a positive causality i.e. individual and household consumption can be an important element in increasing human development and may respond more closely to the real needs of the population than do government programs.

2.1.4. Agriculture and human development in Africa

UNDP (2012) argued that sustainable increases in agricultural Productivity, production and scientific farming system and better nutrition are the drivers of food security and human development. The views of such argument is straight forward that is more productive agriculture will build food security by increasing the availability of food and declining of food consumer price index, thus improving access to social services like health, education and others. Increasing productivity in agricultural sector can also raise the income of millions of small holder farmers, and then it

improves the living standards and health and education, thus expanding people's capabilities.

Africa has showed a growing in economy in the last three decades. Africa achieved relatively high growth rates in the first decade of the twenty first century, culminating in a continent wide average growth rate of 6.1% in 2007. However, GDP growth in Africa declined from 4.9% in 2008 to 1.6% in 2009 and expected to grow to 4.3% in 2010 (ERA, 2010, P.1-5). Although, the agricultural sector which contributes the largest share of the economy has not shown progress in the 21th century. It is still found in a traditional way of production. Most of the production of agricultural commodities serves for subsistence to the consumption of rural households and its members. Despite the fact that the efforts to achieve human development or economic development objectives, the African economy more or less in the traditional subsistence sector which is stagnant in the African economy. In general, the majority of African people are farmers, livestock herder's, fisherman, and hunter. However, the traditional agriculture sector tries to modernize its subsector by using little green technology in agricultural system in Africa. This sector is basic and at best that yields enough food and income for the households to survive which in turn helps for human development progress. African governments try to seek ways to improve the traditional subsistence sector either by promoting the use of modern farming equipment like fertilizers and pesticides or by forming collective farms for subsistence farmers to share. Moreover, African countries produce both food crops and cash crops for export in order to gain foreign exchange. Africa's most important crops for export are coffee, cotton, cacao beans (cocoa beans), Peanuts, oil palms,

tobacco, cloves and sisal. Agriculture determines the availability of food, the first link in the chain of food security and human development. For most Africans, especially the poor, agriculture is also the wellspring of income and work, core elements of human development. In turn earnings and employment enhance food security by enabling access to sufficient quantities of nutritious food security by enabling access to sufficient quantities of nutritious food (UNDP, 2012 P.150). According to such report, higher production and productivity in agriculture sector can bring a sustained food security, a higher human development and higher pressure on price of foods. Therefore, it argues that without food security, sustained improvement in human development will remain an unattainable goal. Just as food is necessary for life, so is food security is a prerequisite for human development.

Agriculture in Africa employs more than 80% of the working labour force in many countries of Africa. In general, agriculture is the back bone of the national economy of African countries. However, still the continent is not self sufficient in the production of food crops to feed its people. The annual growth of agricultural output is far behind the rapid population growth in most countries of Africa. Africa agriculture is generally characterized by extremely low productivity and tradition bound practices. This is because of the problems that limit agricultural economic development in Africa. For example, climate changes, soil erosion, lack of modern agricultural inputs and facilities and defective agricultural policy are some of the challenges that retard the impact of agricultural development on human development (ERA, 2010, P.1-7 and 101-103).

Africa has been an extraordinary rebound in agricultural development over the past decade. These countries in Africa have expanded the sector even during the ongoing uncertainty in the global economy crisis. This has brought a much needed eradication of poverty in the region. There is no doubt that Economic growth is an important ingredient for human development, and it is necessarily imperative that economic growth of a country is sustained (UNDP, 2012, P. 120).

Even though most African countries are on the average regarding fulfilling of the MDGs target i.e. target for hunger and poverty reduction, the Sub Saharan Africa as a whole continues to be the world's most food insecure region, particularly East African countries. Hunger and malnutrition remain pervasive in many countries and rising food prices are compounding the situation for millions across the continent, especially in regions of protracted conflict and in fast growing urban areas (Africa Progress Report, 2011, P.37).

According to the African progress report (2011), food prices are higher today than at any time since 1984. Even though the World Bank's food price watch sees Sub Saharan Africa are less exposed to risks related to soar food prices as domestic food production is increasingly replacing imports and recent harvests have been good, the price spikes have deepened existing macro and micro vulnerabilities. Thus, raising food prices affects negatively the purchasing power of the poor people in sub-Saharan Africa countries.

Practical efforts to improve agricultural production are beginning to yield higher production in many countries of Africa such as Ghana, Malawi, Mali, Mozambique and Tanzania. Focused international assistance and innovative partnerships, have

helped governments to intensify production in agriculture. The improvement of private sector in agriculture including through the promotion of agricultural growth corridors and agro-industrialization will help to increase resources available for agricultural investments.

Abundant agricultural resources are found in the Sub-Saharan African countries. But, in all part of the region, millions of poor people are hungry and malnourished as a result of totally uneven local food production and distribution of diets among the poorest in both urban and rural areas of the countries. Countries agricultural capacity is the base of food security in Sub Saharan Africa, which in turn, it is the bedrock of human development.

2.2. Empirical Literature Review

There are various studies that dealt with the relationship between economic growth and human development in Latin America, Asia and other region of the world during the last four decades. All of earlier studies indicated that economic growth had a positive and significant effect on human development of developing countries.

Many studies have been conducted about the link between economic growth and human development. Moreover, some studies focused on the relationship between human development and the optimum role of government i.e. public expenditure and investment in social sector to achieve the goals of the society and economy.

It was Rains and Stewart (2001) who first connected their work on economic growth and development in Latin American based on cross country comparative study. They focus on the two-way relationship between economic growth and human development, focused on Latin America. The intention is to try and understand this relationship by discussing

interesting and relevant regional case studies. They conclude that while generalizing too much from individual country experiences may be risky, given their diverse initial conditions and historical legacies, certain instructive patterns do emerge from comparative Latin American performance; the observed patterns appear to suggest the general observation that human development must precede or accompany economic growth in order for virtuous patterns of development to result; income distribution appears to be an important variable in explaining differences in performance of economic growth and human development, via its impact in both two way directions interactions; and the relative effectiveness of expenditures on human development inputs appears to be an important mechanism for sustaining improvements in human development. They recommend that for improvement of the links between economic growth and human development, more resources being allocated towards education and health services, policies that generate more equal distribution of income and providing more opportunity for the unemployed.

A well organized study on the link between economic growth and human development were conducted by joint research of Ranis, Stewart and Ramirez (2000). They used the reasoning and inductive evidence to set a hypothesis about the links between human development and economic growth in both causal directions. In the attempt to test this hypothesis, they ran cross country regressions including thirty-five to seventy-six developing countries for the years 1960-1992. The intent was to identify the more significant variables of Economic Growth in affecting improvements in Human Development that measured using life expectancy and shortfall reduction of mortality rates between 1970 and 1992 as the shorthand indicator of such improvement. They

found out that GDP growth per capita was significant in all cases, the social expenditure ratio was significant in all equations, and even more interesting was the finding that the social expenditure ratio's impact on the level of human development seems to work through the female primary educational enrollment ratio. Such empirical results conclude that given these findings of positive significant links between economic growth and human development, an individual country may find itself in a virtuous cycle, with vigorous growth leading to improved human development, and improved levels of human development in turn leading to vigorous growth in Latin America.

Davis (2009) explored the relationship between the optimal size of government and human development. The aim of the paper is to analyze the impact of the size of government consumption expenditures on social welfare as measured by the human development index. He used Generalized Method of estimation with multi-country, multi-year panel data and regression analysis, (multiple linear regression models).

From his analysis, he concludes that:

- a) In Overall countries, the estimated level of government consumption expenditures that is associated with maximal improvement in the HDI by 17% which means it improves human development of country in a positive manner.
- b) Utilizing government investment expenditures in place of government consumption expenditures yields different results. The estimated level of government investment expenditures that is associated with maximal improvement in HDI by 13%. That is human development improves as government expenditure increases.

Then, finally he suggested that the optimal size of government with respect to human development measures is significantly larger than the optimal size of government with respect to GDP measures. Therefore, he found out that there was a significant positive effect of government consumption and investment expenditure on human development based on evidence of multi country data.

Rains and Stewart (2005) also tried to confirm the significance of various links of the economic growth and human development. They tested the links between these two issues empirically. According to them, they developed and distinguish the linkage between economic growth and human development. These two links are: economic growth to human development, economic growth itself, income distribution, social expenditure ratio and education; human development to economic growth; including human development itself. They performed an ordinary list square (OLS) regression analysis for a twenty-one year period between 1960 and 1980 on a main sample of 69 developing countries, using the following explanatory variables: GDP per capita, GDP per capita growth, public expenditures on education as percentage of GDP, and public expenditure on health as percentage of GDP. The dependent variable was indicator of human development i.e. human development index and infant mortality short fall reduction. These variables were derived from the economic growth to human development linkage chain. The results of the study confirmed that GDP per capita growth had a positive and significant influence on human development; social expenditure ratio on health and education were highly significant and positive impact on human development. Therefore, human development progress

as well as improvement was positively related to GDP per capita and social expenditures in developing countries and that significance of increased occur when the lag of the dependent and independent variables was used. Because of the strong two way linkage between economic growth and human development, one has to improve both to sustain progress in either. Economic Growth which is an important input in to human development improvement is itself not sustainable without progress in human development.

Muhammad et al (2010) tried to examine the interrelationships between foreign direct investment, international trade extension and real GDP growth rate with human development in the current international scenario in case of Pakistan. They used a multiple regression framework to separate out the effects of key macroeconomic factors like FDI, RGDP, foreign trade and per capita income growth rate on the human development and economic stability of Pakistan. The explanatory variables that were used in the estimated models were ratio of FDI to GDP, real GDP growth rate, per capita RGDP, and foreign trade. The dependent variable was HDI value on the average. Data on such variables over the period of 1975 to 2008 were used to analyze the relationship between it. The study were employed an ordinary least squares method for estimating models based on quantitative evidence. The study conclude that evidence from the OLS regression had showed FDI (proxies by ratio of FDI to GDP) was an important prerequisite for promoting human development and economic stability i.e. the coefficient of FDI was significant as expected. The empirical results of the study also proved that the RGDP ratio i.e. RGDP growth rate of the economy of Pakistan was insignificant and had a negative impact on the human development in the case of Pakistan socio-economic

situation. So, the study highlighted that there were no impact of RGDP on HDI, but FDI or public expenditure had a positive impact on human development. They came up with a negative but insignificant impact of RGDP on the human development because of great income inequality and poor distribution of income in Pakistan.

Chukwunonso G Iheoma (2009) examined the impact of social spending on human development in Selected West African Countries like Nigeria, Ghana and Senegal. According to him the fundamental focus of economic development is the development of people over the years, there has been a common consensus among development economists on the efficacy of social services in achieving this objective. But, as the case in developed countries, is social spending capable of ensuring human development in developing countries? This study aims at providing answers to this question using Nigeria, Ghana and Senegal as case studies. The single most important objective of economic development is the enhancement of the ability and capability of the human person i.e. human development. Human development is an important input for economies especially for citizens' continuous improvement mainly on knowledge, skill, life expectancy, and abilities. Thus, the definition of human capital development is referred to as the knowledge, skills, competencies, and attributes embodied in individuals that facilitate the creation of personal, social and economic well-being. Human development is the ultimate objective of economic development. It is also arguably the best means available for promoting development. Viewed as an end in itself rather than as a means, human development is about enriching human lives. Material enrichment – producing a larger volume of goods and services may contribute to this but it is not the same thing.

Additionally, the study employs secondary time series data to ensure uniformity. Data on social expenditures were obtained from the three sampled countries that are extracted from the World Bank's World Development Indicators' website and HDI values are from the UNDP Human Development Report for various years. The author used descriptive analysis technique like mean, maximum, minimum, and standard deviation on the data to facilitate comparative analysis among the stated countries and support econometric analysis. The study adopts the fixed effect partial adjustment model and regressed the human development index on health and education spending across these countries estimated using the ordinary least square estimation method. This study was aimed at understanding the role of social expenditure in enhancing human development in Nigeria, Ghana and Senegal. It concludes that from the empirical review, one fact is obvious: there seem to be lack of agreement among researchers on the contribution of health and education spending on human development. While some authors found that both health and education are significant, the works of others identify only health as contributing to human development. This study identified health expenditure, but not education expenditure as contributing to human development in the selected countries both in the long and short runs, although the long run impact exceeds its short run value. Thus, it is posited that the countries concerned should articulate health policies that will ensure proper funding and adequate utilization of budgetary allocation to the health sector, especially the primary health care delivery system since this is the system that is grassroots oriented. This is because results show that while health spending is significant in explaining human development in these countries both in the short and long runs, education spending is not. Therefore, it is recommended

that in order to ensure the continued human development in these countries, increased funding of the health sector is necessary. Furthermore, ensuring adequate utilization of education sector allocation and enhancing the availability and accessibility of education services especially to the urban poor and rural dwellers will address the disconnect between education spending and human development. Also, adequate funding as well as proper utilization of funds in the education system is required to ensure the contribution of the sector to human development.

Patrick L. Akpan (2007) investigated the impact of public expenditure on the pace of human development in Nigeria. He carried out descriptive analysis using percentage, tables, rate or proportion. And he used tables to show the patterns and trends of public expenditure and human development in Nigeria by using time series data from 1970 to 2006. The composition, adequacy and level of government spending and the policy implications on human development has been examined by this paper. In this country, transfer payments to social security takes a lion share of government spending and percentage on GDP. Social spending represents the least share of federal government expenditure and percentage of GDP. Administrative services has consumed a greater portion of government expenditure, education and health sectors have suffered neglect and is characterized by low and or insignificant proportion of the expenditure of government. So, he argued that spending pattern and trend of government leads to a growing incidence of poverty in the Africa. Even though public spending plays a significant role in the development of sub-Saharan economies, the experience of Nigeria reflects a backward movement. There has been serious external and internal imbalances, narrow and disarticulate production base, lopsided pattern of development

and declining foreign exchange earnings among other drawbacks. This implies that the human development situation in Nigeria does not offer any cheering news. The study found that Public spending plays a significant role in the emerging sub-Saharan Africa towards developmental process. It provides social services particularly, in the primary, secondary and tertiary institutions as well as health care delivery. It equally leads to improvement of the welfare and productivity of even the poor and the rich. These have great effects on human capital development. Thus; low level of life expectancy is explained by inadequate finances meant for health sector in Nigeria. Comparatively, other countries in Africa are performing better than Nigeria in this regard. Human Development Report (HDR, 1998) uncovers the fact that Nigeria ranks 40th in the Human Development Index when viewed from the year reviewed. However, there was a slow and marginal improvement during the period under review. This is explained by poor budgetary allocation to health and education sectors of the economy. Generally, the trend and pattern in sectoral composition of government spending on education, and health has been on the declining position even though health sector enjoys a relatively marginal increase on the aggregate.

2.3. Conclusion

Although the relationship of economic growth and human development is confirmed, there is less theoretical as well as significant empirical research supporting the relationship in the African context particularly in the East Africa countries. In other words, Studies relating to the above issues were investigated neither systematically nor empirically in Africa. Macroeconomic literature related to the subject has been scarce or limited in East Africa. Despite this new development paradigm, there are no explanations on economic growth and human development interaction in East Africa countries using quantitative analysis. Therefore, there is no specific literature regarding this topic in countries under investigation. This is because research on the topic has mainly relied on cross country regression analysis and data. Cross section regression studies of the topic have numerous methodological drawbacks and poor testing method on better quality of data. In this study, Data consistency particularly for economic growth and human development relationship is required before analysis, interpretation and conclusion.

Chapter three

3. Research Methodology and Models Specification

3.1. Research design

This study deals with the analysis of the relationship between economic growth and human development. It also analyses the impacts of economic growth on human development by employing quantitative empirical, comparative, exploratory, and correlation analysis in East African countries namely, Burundi, Ethiopia, Kenya Rwanda, Tanzania and Uganda. These designs are the best suitable for a better understanding and analysis of the impacts of economic growth on human development in the East African economies. And also, the above stated designs are best suited method to answer the research questions and analysis of the trends as well as patterns of economic growth and human development in the above mentioned countries. In addition to these design, both descriptive and econometrics analysis for empirical analysis of the study were be applied in this paper to handle and measure the impacts of economic growth indicators on proxy measure of human development. Conducting an Econometric analysis for such issue is helpful in supplementing the descriptive analysis result and measuring the impact of economic growth proxies' measures on human development and its proxy measures. Then, the study were comparing the various performances of economic growth and human development as well as the developed models with its regressions coefficients in the member countries of EAC and Ethiopia to know the variations among each nation . This study also uses longitudinal study that repeatedly measures the issues over a period of time. The study employs a time series data in economic growth and human development and its components since 1990 until 2011. This is because long period data

helps to know the association and relationship between the specified variables in the study.

The strength of the association between variables in the study can be easily known and understood in a better way through employing and using the correlation analysis⁴ for developing models. So, this method is very appropriate for such research because models building were be based on strong and highly correlated variables in the study variables and it also helps in identifying strength of variables. Therefore, for effective answering and analysis of the objectives of the study, the study were employ quantitative and empirical analyses based on time series data i.e. quantitative data that were be collected from the above stated countries of East Africa region.

3.2. Description of the Study area

East Africa is one of the regional blocs of Africa that includes nineteen countries of Africa. This study; however, focuses only on the member states of East African Community and Ethiopia which represents some of the fastest growing economies in Africa. The above countries are also the members IGAD and COMESA. Each country has its own political administration with Province or regional classification.

Burundi, which is a landlocked state in Eastern Africa, and a member of EAC, is bounded on the North by Rwanda, on the East and south by Tanzania, and on the west by Lake Tanganyika and Democratic Republic of Congo. Burundi has area coverage of 27,834 sq km (Microsoft Encarta, 2009). Bujumbura is the capital and largest city. According to 2011 estimate of population, the population of Burundi was 8578172 (UNFPA, 2011), 89 % of the population lives in rural areas, comparing to 11% who live in urban areas. The

⁴ It is statistical techniques that measure the strength or degree of linear association between two variables and also show the direction and magnitude of the association.

chief ethnic groups of Burundi are the Hutu and Tutsi who have traditionally comprised 85% and 14% of the population, respectively. The economy of Burundi is composed of three economy sectors. These are agriculture, namely: industry and services. In terms of contributions of each economic sector to GDP, agriculture and allied activities accounted for 24% of GDP, industry 25% and service 52% during the fiscal year of 2010/11. Burundi has an annual real GDP per capita growth of 4.9% and is considered to be one of poorest countries in the world (IMF, world economic outlook, 2011).

Ethiopia, a member of IGAD and COMESA, is bounded on the North East by Eritrea and Djibouti, on the East and South East by Somalia, on the south west by Kenya, and on the west and Northwest by Sudan. Addis Ababa is Ethiopia's capital city. Ethiopia covers an area of 1133380 km² (EMA, 2011). The country is politically divided into nine regions and two administrative cities. The total population of Ethiopia (2011 estimate) Was 84,734262 (UNFPA, 2011) but 2007 census and housing of Ethiopia was 74,000,000 (CSA, 2007). Most Ethiopian people live on rural farm communities, about 85% of the population live in rural farm communities and furthermore, occupations in agriculture supports 78% of all Ethiopians. Ethiopia is one of the world's poorest nations, with a per- capita income of US\$377 a year in 2009/10 (NBE, 2010/11). The health of the Ethiopian economy depends on agriculture sector, which in turns depends on rainfall.

Kenya, a Republic in East Africa and a member of EAC, IGAD and COMESA, is bounded on the North by Sudan and Ethiopia, on the East by Somalia and the Indian Ocean, on the South by Tanzania, and on the west by Lake Victoria and Uganda. Nairobi is the country's capital and largest city. Nearly all Kenyans are black Africans, divided in to more than 40 ethnic groups belonging to the Bantu, Cushitic and Nilotic. Kenya has a

total area of 582646 km² with a population number of 41 609728 (UNFPA, 2011). Approximately, 58% of Kenya's population lives in rural areas most concentrated in the fertile southern half of the country (MS-Encarta, 2009). Kenya's economy is based on farming, herding, hunting and trade. In 2006, the GDP was \$22.8 billion or about \$ 623.20 per person. During 2010/11, Kenya had an annual GDP per capita growth of 5.7% (IMF, 2011). In 2010/11, sectoral contributions of agriculture, industry and service economic sector were 24%, 25% and 52% of Kenya's GDP, respectively. Therefore, Kenya is the most industrially developed economy in East Africa because of high contribution of industry to Kenya's GDP.

Rwanda is a member of EAC, IGAD and COMESA, is bounded by Uganda, on the North; Tanzania, on the East; Burundi, on the south and on the west by Lake Kivu and DRC. Rwanda covers an area of 26,338 km² and Kigali is its capital and largest city. According to the 2011 estimates of UNFPA, the population of Rwanda was 10, 942950; out of these 22% of the population is urban and 78% is rural population. The population density was 408 persons Sq.km. Three ethnic groups make up the population of Rwanda. These are the Hutu (about 85%), the Tutsi (14%) and cattle raisers and the TWA (1%). In 2010/11, real GDP per capita growth of Rwanda's was 6.5%, and agriculture accounted for 42% of Rwanda GDP, industry 14% and services 44% of the GDP (IMF, 2011).

Tanzania is also a member of EAC and found on the Indian Ocean. A diverse country in which close to a hundred different languages are spoken. Tanzania was formed by the federation of the nations of Tanganyika and Zanzibar in 1964. It is bounded on the North by Kenya and Uganda; on the East by the Indian Ocean, on the South by Mozambique, Malawi and Zambia, and on the west by the DRC, Burundi and Rwanda. Dares Salaam is

the executive capital and largest city. Tanzania covers an area of 945,100sq.km (MS-Encarta, 2009). The population of Tanzania consists of mostly members of more than 120 black African groups, the majority of which speak a Bantu language. The total population of Tanzania according to the estimate made by UNFPA during 2011 was 46,218,486. As for the urban rural divide, according to 2005 estimates, 38% and 62% of the population were urban and rural, respectively. By the end of 2010/11, Tanzania economy had an annual real GDP per capita growth of 6.5% on the average basis. According to IMF estimate of sectoral contribution in the GDP, the share of agriculture, industry and services sector were 42%, 18% and 40% of Tanzania's GDP, respectively (IMF, world economic outlook, 2011).

Uganda, a landlocked country on the equator in East Africa. The country contains a different landscape of vegetation's, dense forests, Savanna and tall mountains, as well as almost half of Lake Victoria, the largest lake in Africa and the primary source of the Nile River. Uganda is bounded by Kenya to the East; Sudan to the North; Democratic Republic Congo to the west and Rwanda, Tanzania and Lake Victoria to the South and South East. It has a total area of 241038 sq. km (MS Encarta, 2009). According to 2011 estimate, Uganda's population was estimated at 34508205 (UNFPA, 2011). Its population is predominantly rural and is concentrated in the south, particularly at the edge of Lake Victoria. GDP composition of the Ugandan economy is beginning to shift away from agricultural production towards industry and services based economies. During 2010/11, agriculture contributes 24% of the GDP, while industry and service contributes 25% and 52%, respectively and during the same period, the real GDP per capita grew by 5.2% (IMF, 2011).

3.3. Data collection and Method of analysis

3.3.1. Data Type

The main aim of this study is to analysis the impacts of Economic growth on human development in Burundi, Ethiopia, Kenya, Rwanda, Tanzania and Uganda, and to compare the macro level performance of Economic growth and human development amongst these countries. In order to understand the links between economic growth and human development, data on proxies' measures of economic growth and human development are collected from various sources. This study depends on quantitative variables that measured by numerical scale of measurement. This data is purely time series that cover the period between 1990 and 2011. Such time series data for countries of East Africa enables us to identify and measure the effect of the proxies' measures of economic growth on human development and its components that are not simply detectable in pure cross-section data.

The major data for this study that are relevant to specific objectives are grouped under dependent and independent variables. The independent variables that are proxies measures of economic growth include :real GDP per capita, real GDP growth rate, real GDP, per capita real income growth rate, inflation rate, public expenditure on health and education, agriculture contribution to country GDP .On the other hand the dependent variables include HDI as a proxy measures of human development of East African countries. All of these variables are macroeconomic data that were obtained from national level of East African countries under investigation.

Variables data that are used in the analysis are secondary data and obtained from documentary sources. Secondary data are data that have been collected for some other

purposes. Such data which included in the study are totally continuous and measurable by ratio and interval scale of measurement. Due to complexity in nature for calculation of HDI and its components index, secondary data are collected from various sources of data. This is because secondary data can usually be found more quickly and cheaply, but collection of primary data can be costly and time consuming. Moreover, secondary data can be assessed by the statistical process and methodology to check its quality for valid analysis and interpretation.

3.3.2. Data collection method and sources of data

Data for this study was acquired from different Secondary sources. The study collects secondary quantitative data from documentary records like survey reports, books, official records, previous research papers, statistical abstracts, journals, articles, published and unpublished documents, and periodicals. Moreover, the data can be found from websites databases, reports of government and international organizations. So, secondary sources of method as a data collection tool for such study are used to get data on proxies' measures of Economic growth and human development in East Africa community countries and Ethiopia that were helps to link the relationship between economic growth and human development. The research data are gathered by enumerators by using unstructured and administrative secondary data questionnaires⁵. In case of Ethiopia, Ethiopia data are collected from regional states bureau of Finance and Economic development and others office at each region. However, only data at national level have been collected for the rest countries. But, relevant data for this thesis were gathered from various sources such as embassies of East African countries that are located in the capital

⁵ Informal and formal questionnaires that is administered well to collect secondary data from all sources.

city of Ethiopia, Addis Ababa and UN-organizations. This is documentary records that are administered in a proper way through statistical methodology and data quality management techniques. During the study, data on economic, social and demographic variables based on the models and analysis were collected primarily from Embassies of Burundi, Kenya, Rwanda, Tanzania and Uganda in Addis Ababa. Secondly, such data were obtained from international organizations. Thirdly, data that cannot directly get from the above two sources, it were indirectly searching from internet websites, data bases and others. For such study, getting quantitative and time series data from documentary records would be useful for conducting a better analysis of the trends and impacts behavior of both dependent and independent variables. In this study, quantitative data based on quantitative variables were gathered in structured and formal way through structured questionnaires for six countries. An unstructured questionnaire refers to formatted and well organized questions that submitted to all sources of data i.e. embassies of East Africa countries, UN organization and others to collect secondary data in an administered way. So, it is well administered questionnaires. This help for a better understanding and analysis of the study variables.

The major source of data for the dependent variables is obtained from UNDP human development report, and African human Development reports at continent and country level. The explanatory variables like economic growth indicators and related data can be taken from international organizations Such as World Bank-WDI and WDR, UN-ECA Economic Report for Africa, IMF, and UN- statistical abstracts year book (various years report) were used as the major sources of the data for independent variables for analysis of the impacts of economic growth on human development in East Africa countries like

member states of EAC and Ethiopia. And also, FAO database and IMF- world economic outlook data base will be additional sources for missing data that will not be getting easily from the above sources. These additional sources will support to obtain missing value of data from 1990 to 2011 fiscal years during the study of the problem.

Thus, to understand the effects of economic growth on human development and the links between economic growth and human development in a satisfactory way at a macro level, the above listed sources of data for both dependent and independent variables are very crucial for obtaining data for building models and comparative analysis. So, such data that are gathered from all secondary sources are quantitative data that are best suited for empirical analysis of the study.

3.3.3. Methods of data analysis

In this research, there are various methods that help for analysis of the data which are collected from different sources. These analyzing tools were determined by the objectives of the study that described under section 1.3. As stated before, the thesis is based on a country macroeconomic data that is indicators of economic growth and human development covering the period from 1990 to 2011. The study uses both descriptive and econometrics analysis as quantitative data analysis techniques in order to answer the thesis research objectives and analyze the problem under investigation. Such tools of data analysis were help for better understanding and measuring of the impact of economic growth on human development at Macro level.

One of the preliminary data analysis tools that are applied in this research is descriptive analysis. In order to describe the data, preliminary descriptive statistics such as means, maximum, minimum, standard deviation and percentages or proportions are calculated

based on the collected data for major dependent and independent variables. Moreover, the collected quantitative and time series data were presented by using illustrations like graphs and tables. One way of analyzing the relationship between economic growth and human development is looking at the trend of the two together on the same coordinate plane by using real GDP growth rate, Real GDP, Per Capita real GDP and HDI and its growth rate over a period of time.

Conducting an econometrics analysis for the issues in terms of various the given variables is helpful in supplementing the descriptive analysis result. So, statistical and econometrics techniques of analysis like multivariate regression analysis were carried out in the thesis. In this study, a cross country multiple Linear regression analysis is the one and most multivariate technique that were used as one of the method of data analysis. On the basis of perceived functional relationship between proxies' measure of economic growth and human development in the country economy, a multiple linear regression analysis was specified based on assumptions i.e. *Ceteris paribus*. In this econometrics works, models were adopted to scrutinize the impacts of different composition of economic growth and human development (Gujarati, 2004). This is because econometric models are a better measure of the effects of economic growth on human development and it is employed under this investigation to handle the issues. Consequently, quantitative regression analyses were applied to estimate the effects of various dimensions of economic growth on HDI. However, it requires proper specification of the models and appropriate data. Moreover, statistical techniques including person product moment correlation and hypothesis testing were used to analyze the data. With secondary data on the above variables, the models were estimated via ordinary least squares

technique and evaluated based on relevant data from the regression output. As a result, two equations were specified and estimated using OLS⁶ method of estimation. As the data used for models building is time series data from each countries, various testing method were performed. This is because, such tests are helping to check the significance of the models, coefficients, the goodness fit of the models, investigate the presence of significant relationship between variables in the countries, and others advantage. And also simple correlation coefficients (r) were used to measure the degree and direction of association between variables in order to know the strength of the association (Gujarati, 2004).

Finally, all such analysis was performed using statistical package like SPSS and Stata. So, estimation of models coefficient were facilitated by the above statistical software. And SPSS⁷ version16 is used for data management, computation of statistical figures and data analysis in general.

3.4. Models Specification and method of Estimation.

In this paper, regression models⁸ are considered in each country. All models uses multiple linear regression analysis which is multivariate regression analysis based on panel data for building the models and evaluating the models using testing methods for evaluating the whole model and its coefficients for valid conclusion. In an attempt to determine the effects of proxies measured of economic growth on human development in the above East African countries, it is necessary to develop a model to link the

⁶ It is an econometric method of estimation of regression coefficient and models

⁷ Statistical Soft ware for social science.

⁸ Model is defined as a simplified representation of the real situation that helps for analysis and prediction of the real phenomena i.e. mainly used to explain past events and then predicts future events.

relationship between the variable sets in order to justify the correlations and relationship that exist between them. In line with the theoretical propositions reviewed in the literature, the impacts of indicators of economic growth on human development will be examined by specifying the following two equations or models.

3.4.1. Models Specification.

For the purpose of this study, multiple linear regression analysis is specified within the context of the countries under investigation focusing on economic growth and human development indicators. This is to enhance the estimation and evaluation of the relationship between economic growth and HDI parameters within each East African countries.

Theoretically, the model indicate that human development using HDI as its proxy measure depends on economic growth proxies measures like public expenditure on health and education, real GDP, per capita real GDP, real GDP growth rate, inflation rate, and agriculture Value added as percentage of GDP. The functional relationship of the model is based on time series and cross sectional data (panel data) that is presented as follows starting with a simple linear model that can be used to characterize a variable's behavior in a panel dataset.

$$Y_{it} = \alpha + \beta X_{it} + U_{it} \text{-----} \quad (1)$$

$i = 1, 2 \dots N$, represent international units of explanatory variables for each countries and $t = 1, 2, 3 \dots T$, represents time or years, represent the cross-sectional dimension and the time-series dimension, respectively (panel data). Y_{it} is dependent variable on the international unit in value and x_{it} is stochastic independent variable for international unit in percentage, dollar, rate, value and others unit. U_{it} is also stochastic or

disturbance term. This study employed ordinary least square (OLS) in analyzing the effect of economic growth on human development in East Africa between 1990 and 2011. Real economic output and per capita income are proxies for economic growth. This is to know the precise effect of Economic growth on human development index as proxy for human development. The studies were uses model to estimate the impacts of economic growth on human development in a numerical way. HDI model were based on the above model or functional relationship. Accordingly, the OLS regression model i.e. the functional relationship to be estimated is specified as follows:

MODEL: functional form

$$HDI_{it} = f(RGDP, RGDP_{pc}, RGDP_g, RGDP_{pc}, AVA, PEE, PEH, Pr, POVL), \text{ Ceteris paribus}^9 \text{-----} (2)$$

Where:

HDI_{it} : it is HDI in country i in time. This index is proper in index for measuring human Development.

$RGDP_{1it}$ is real gross domestic product in country i in time t.

$RGDP_{pc2it}$ is Per capita real GDP in country i in time t or index for measuring Economic growth in the income /output/ GDP real performance.

$RGDP_{g3t}$: is real gross domestic product growth rate in country i in time t (Average annual growth rate of real GDP in rate in country i).

AVA_{5t} : is Proportion of Agriculture value added to RGDP in country i in time t.

PEE_{1it} : Proportion of public expenditures on education in country i.

⁹Ceteris Paribus: It refers to assumption of other things remaining constant or unchanged and it allows us to make straight forward predictions. It also makes a complex issue simpler i.e. it simplifies a complex issue.

PEH_{2it} : Proportion of public expenditures on Health in Percentage in country I in time t.

Pr_{3it}: inflation rate in country i in percentage.

POVL: Percentage of population living below \$1 PPP per day in country i in time t.

U_{it} it is disturbance term that includes or captures the impact of other factors or determining factors.

The explanatory variables in the above function are directly or indirectly are indicators of economic growth. Each model by country was presented or estimated one by one in each country of East Africa. The multiple linear regression model of the functional relationship is presented in the following model. The study were considers the following model step by step.

Model: HDI model by Country

HDI is regressed on each of proxies' measure of economic growth as a Multiple Linear Regression Model. Thus, the multiple linear regression models are estimated as follow:

$$\mathbf{HDI}_{it} = \beta_0 + \beta_1 \mathbf{RGDP}_{it} + \beta_2 \mathbf{RGDPpc}_{it} + \beta_3 \mathbf{RGDPg}_{it} + \beta_4 \mathbf{AVA}_{it} + \beta_5 \mathbf{PEE}_{it} + \beta_6 \mathbf{PEH}_{it} - \beta_7 \mathbf{Pr}_{it} - \beta_8 \mathbf{POVL} + U_{it} \text{-----} (3)$$

Thus, No need of logarithmic transformation for RGDPpcg, RGDPg and AVA¹⁰ independent variable in this model because it is an indexes value which is average but there is logarithmic transformation for RGDP and RGDPpc Variables.

This model is estimated under each countries of East Africa by using country time series and cross sectional data from 1990 to 2011 from UN, WB and UNDP sources of data.

¹⁰ Value added refers to the difference between a firm's sales and its purchases of materials i.e. raw materials and services from other firms. So, it is the net output of a firm's after adding up all outputs and subtracting intermediate inputs.

Taking the natural logarithm¹¹ to RGDP and RGDPpc in the HDI equation, HDI equation can be rewritten as:

$$\mathbf{HDI_{it}=\beta_0+\beta_1LRGDP_{it}+\beta_2LRGDP_{pcit}+\beta_3RGDP_{git}+\beta_4AVA_{it}+\beta_5PEE_{it}+\beta_6PEH_{it}-\beta_7Pr_{it}-\beta_8POVL_{it}+U_{it}-----} \quad (4)$$

Where;

L represents the natural logarithm of the respective variable.

LRGDP_{it} represent natural logarithmic form of real GDP in country i in time t.

LRGDP_{pcit} also represent per capita logarithmic form of real GDP in country in time t.

This is the estimated multiple Linear Regression model in which HDI is regressed on a selected and Strong correlation coefficient variables or parameters of Economic Growth.

Thus, the functional relationship between HDI and Economic Growth indicators/parameters is presented in the above model.

In this context, the study considered the eight explanatory variables only like as the most relevant variable in determining Human Development proxies' indicators (measures).

However, Human Development depends on the other factors that never included in the models but included under the variable **U_{it}**¹².

β_0 is the constant terms, but, $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6, \beta_7$ and β_8 are slope coefficients of the respective explanatory variables in each model. Sometimes, these are elasticity of each independent variable in the model as variables coefficient (regression coefficients) in the model if transformed in to natural logarithmic form (Gujarati, 2004). Each captures the relative impact of the explanatory variable's on the response variables i.e. dependent

¹¹ Models transformation in to logarithmic form (function) helps for looking the trends of data in a better way and solving problems of data.

¹² **U_{it}** is stochastic or random variable to accommodate the influence of other determinants of HDI that are not included in each models. These other determinant factors are political, environmental, cultural and other economic indicators that affect human development of a country over time.

variables (HDI). Because of indices values in the model is not measurement unit of variable, no need of applying in the natural log form. β_0 in model is the level of HDI obtainable when the respective explanatory variables assume zero value in country in time. Each regression coefficients (to be estimated) measures how much units of explanatory variables would be changed with a unit change in the dependent variable and U_i is white noise error term.

3.4.2. Models Estimation and Evaluation techniques

In this study, annual time series data were used from the period 1990 to 2011. Variables are measured in real terms. There are variables in model expressed in logarithmic form but there are variables in non-log form like index values or rate. Multiple linear regression models are estimated by employing estimating techniques. The technique employed in estimating the regression coefficients of the models are the OLS method. OLS estimation models were used to estimate a system of structural equations among the independent and dependent variables. In essence, this estimation models are a multivariate regression that capable of having multiple endogenous regressors. For estimation and evaluation of the estimates of the models, and test of research hypothesis, time series data relating to the above models variables were collected. Such estimation of models coefficients were performed or facilitated by use of statistical software package i.e. SPSS version 16. Evaluation of parameter estimates and test of research hypothesis were based on relevant statistics from regression output and ANOVA output using F-test, t test, and R^2 . R^2 the most commonly used measure of the goodness of fit of a regression line. Verbally, it measures the proportion or percentage of the total variation in dependent

variable that explained by the regression model. These all statistical testing were subjected to test at the significance level of 0.05 i.e. $\alpha = 0.05$.

3.5. Variable description and Expected sign

3.5.1. Variable Description

To examine the impacts of economic growth on human development in current member countries of EAC and Ethiopia, the study uses and apply different social and macro economic variables as described in the above specified model. The empirical analysis of this study employs both dependent and independent variables in the model.

Human development index (HDI_{it}): - is dependent variable that mostly used to measure the human development of a country. It is a proxy measure of human development or progress of any country in the world. According to UNDP, HDI is a summary measure of human development i.e. it measures the average achievements in a country in three basic dimensions of human development: along and healthy life, access to knowledge and a decent standard of living. This means that it is geometric mean of normalized indices measuring the country achievements in each dimension i.e. life expectancy index, education index and income index. Thus, UNDP calculate HDI based on country's data on life expectancy at birth, education and income. So, HDI is the sum of one third of life expectancy index, one third education index and one third of income index.

Mathematically, HDI¹³ is calculated as follow:
$$HDI = \frac{LEI + EL + II}{3}$$

Where

¹³ According to UNDP, the value of HDI is always between zero and one ($0 < HDI < 1$). It helps for categorizing human development level of a country into low, medium and high.

LEI= life expectancy index

EI = education index

II = income index

Real Gross Domestic Product (RGDP_{it}) is the most used macroeconomic variable for measuring economic growth. It is transformed in to logarithmic form to make more manageable and to be able to look at its trend over a period of time. Its unit is the international standard unit of measurement i.e. USA dollars. This unit is mostly used by WB, IMF and UN organization. RGDP refers to the sum of the gross value added by all residents producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. In other words it is the market value of all final output produced in a given period measured in the prices of base year i.e. at constant market prices. Therefore, it is possible to calculate RGDP by dividing nominal GDP by GDP deflator or price index, mathematically,

$$RGDP = \frac{\text{Nominal GDP}}{\text{GDP deflator}}$$

Per capita Real GDP (RGDP_{pcit}):- it is also known as per capita income of a country, simply, it is real GDP divided by the total population of country. Mathematically, GDP or PRGDP is calculated by the following formula.

$$RGDP_{pc} = \frac{RGDP}{TOTAL\ POPULATION} = \frac{RGDP\ PPP}{TOTAL\ POPULATION}$$

Therefore, GDP per capita, PPP is based on purchasing power parity. PPP GDP is converted to international dollars using purchasing power parity rates. Data on PPP are from World Bank organization. So, it is the average income of each person of a country i.e. income per person of a country over a period of time.

Per capita real GDP growth rate (RGDPpcg_{it}): refers to the average annual growth rate of real GDP per capita of a country. It is measured as percentage change in real GDP per capita of a country over a period of time. It is based on GDP per capita in constant market prices in a period for each country. Mathematically, it can be calculated by the following formula: $RGDPpcg = \frac{RGDPpc - RGDPpct}{RGDPpct}$

Where,

RGDPpc_{t-1} is real GDP per capita at t-1

RGDPpc_t is real GDP per capita at t

Real GDP growth rate (RGDPg_{it}): is the average annual growth rate of real GDP of a country at market prices based on constant local currency. It is computed as percentage change in real GDP i.e output or income of a country from one period to another. GDP in constant prices can be estimated by measuring the total quantity of goods and services produced in a period, valuing them at an agreed set of base year prices and subtracting the cost of intermediate inputs, also in constant prices. This RGDP changes over a period of time results in real GDP growth.

Agriculture value added (AVA_{it}):- is a type of value added of economic activities of a country that contributes to gross domestic products in real terms. It is calculated as the difference of gross value of output in agriculture sector¹⁴ and the value of its intermediate inputs used in the production of goods and services. In other words, AVA is gross output of forestry, hunting, fishing, crops and livestock predication less the value of their intermediate inputs. This calculation is done without making deductions for depreciation of assets /capitals/ or depletion and degradation of natural resources. In the model, AVA

¹⁴ Agriculture: The sector of an economy that includes crop production, fruits and vegetable production, animal husbandry, hunting, fishing, and forestry.

is measured as percentage unit i.e. percentage of AVA to RGDP. This is done to show the share of AVA from the GDP of the country over a period of time. Therefore, AVA is equal to the sales of agriculture sector products minus the purchases of inputs i.e. intermediate input from other firms or industries.

Inflation rate (Pr_{it}): is the average annual percentage rate of increase in the general price level of goods and services. Inflation refers to an increase in the average level of prices of goods and services for long period of time. Therefore, it is the rate of growth or decline of the general price level. It can be calculated or measured by price index like consumer price index on annual basis. So, rate of inflation is measured as the annual percentage change in the value of price index of a country for a given period of time i.e. year.

Public Spending on Education (PSE_{it}): This is current and capital expenditure on education sector by government. It also includes subsidies to private education at the primary secondary and tertiary levels by local, regional and national Governments including municipalities, but it excludes household contribution, PSE is measured as percentage of GDP to show the proportion of the Government expenditure on education sector from the total GDP of the country at expenditure approach.

Public Spending on Health (PSH_{it}): it consists of recurrent and capital spending on health sector from government i.e. Central and local governments. This Expenditure is allocated for Capital expenditure for health sector infrastructure and health facilities i.e. purchase of health sector capital goods. It also includes subsidies to private health sector in all level. PSH is measured as percentage of GDP to show the proportion of the

government expenditure on health sector from the GDP of the country at expenditure approach.

Poverty level ($POVL_{it}$): refers to the Population who live below national poverty line which is the Percentage of the population living below \$1(PPP) per day. National estimates are based on population- weighted Subgroup estimates from household surveys. Population below \$1 a day are the percentages of the population living on less than \$1a day at 1990 and 2005 international prices (World Bank).It also called income poverty under the context of this paper.

3.5.2. Variables Expected Sign

From the proposed models, the following theoretical and empirical signs of the relationship between dependent and independent variables are expected for the specified models in subsection 3.5.1.

According to all studies conducted by Rains and Stewart (2000, 2004, and 2005) it is argued that proxy measure of economic growth i.e. per capita real GDP and real GDP growth rate has a significant and positive influence on human development in developing countries. In line to this, the sign of real GDP and per capita income growth rate is expected to be positive in the model. This implies that the higher rate of growth of per capita income and real GDP will result in a good improvement of human development and HDI.

According to UNDP (1996) real GDP and per capita income has a positive sign in the relationship with HDI. A positive impact relationship between HDI and RGDP and, per capita income is expected i.e. an increasing of these variable results in the improvement

of the HDI and human development of developing countries. Hence, variable RGDP and RGDPpc is expected to have a positive sign.

Alejandro et al (1998) argued that public expenditure on health and education i.e. government expenditure to health and education sector is expected to have a positive sign. Similarly, a higher spending on health and education related issues will results in a good performance of HDI and human development which makes variables PSE and PSH to have a positive sign.

African human development report (2012) stated that a good performance of Agriculture sector in developing countries have a significant impact on HDI and human development. Hence, the sign expected from AVA is positive. A good agricultural productivity and Agriculture production will have a positive impact and rapid improvement of HDI and human development and its growth.

According to UNDP (various years HDR) argued that inflation rate affects HDI and human development negatively. Due to this reason, the sign of inflation rate is expected to be negative. Since an increasing of rate of inflation of a country, it will results in declining of HDI and poor progress of human development i.e. lower human development situation.

Therefore, to summarized the above stated independent variables relationship with HDI (proxy measure of human development) from theoretical and conventions point of view, it is expected that a positive relationship exists between HDI and real GDP, GDP per capita, real GDP growth rate, real GDP per capita growth rate, public expenditure on education, Public expenditure on health and agriculture value added in developing country.

Chapter Four

4. Discussion and Analysis of Results

4.1. Descriptive analysis and results

4.1.1 Trends and Performance of GDP and its growth rate

The performance of economic growth of a country is highly explained by the RGDP and its growth rate. Frequent macroeconomic policy changes in EAC member countries and Ethiopia have an impact on the overall performance of the economy, which in turn affects the economic growth of an economy. For example, there are various types of economic system and policy that have different effects on the performance of the proxy measure of economic growth. In this subsection, the macroeconomic performance and trends of RGDP and its annual average growth rate are presented for the period 2000 -2011.

As indicated in table 4.1.1, on average the six countries aggregate RGDP was 2.35 billion US\$ during 2011. However, on average RGDP of Ethiopia's, Kenya's and Rwanda was around 2.29, 2.45 and 4.16 billion US\$ on the same period, respectively. Thus, Rwanda's RGDP was higher than the other member countries of EAC and Ethiopia and it had the highest RGDP among them during 2011. On the other hand, Uganda, Burundi and Tanzania RGDP was 1.48, 1.59 and 2.1 billion US\$ on average during the same period, respectively. This figure reflects that these countries RGDP was lower than Rwanda RGDP but less low than Ethiopia and Kenya RGDP. Similarly, as presented in the table 4.1.1, RGDP trend and performance over the specified periods vary from 2000 to 2011 in the EAC current member countries and Ethiopia. The descriptive finding showed that Ethiopia's RGDP was the highest among them during these periods. So, RGDP of

Ethiopia's was 4.28 billion US\$ during the above specified year. But, during the same period of time, Burundi's RGDP was 1.24 billion US\$ on average. This value is the minimum RGDP when compared to the other countries. Therefore, RGDP of the six countries between 2000 and 2011 exhibit variation. This is confirmed by standard deviation of RGDP during these periods. There is very low dispersion of RGDP (0.21 billion US\$) and high value (3.39 billion US\$) since 2000 to 2011 in Burundi and Ethiopia, respectively. Thus, minimum and maximum variation of RGDP has been shown in Burundi and Ethiopia across each year.

Table 4.1.1: Real GDP trends across East African Community Countries and Ethiopia(in billion US\$) ,2000 to 2011

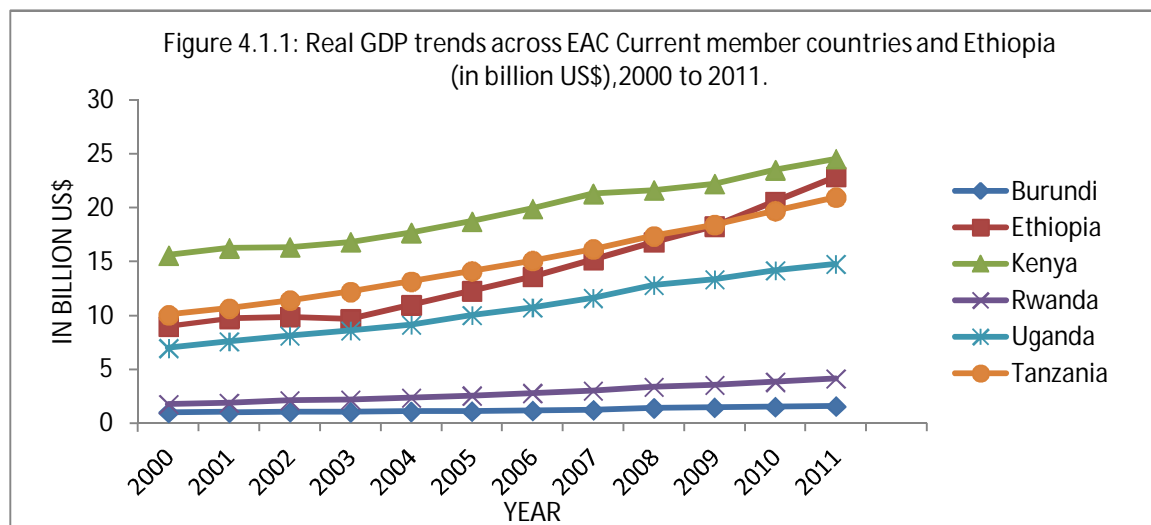
Year	Burundi	Ethiopia	Kenya	Rwanda	Uganda	Tanzania
2000	1.01	8.99	15.57	1.78	6.98	10.06
2001	1.03	9.74	16.27	1.90	7.59	10.66
2002	1.07	9.89	16.36	2.15	8.13	11.43
2003	1.06	9.67	16.83	2.20	8.63	12.21
2004	1.11	10.99	17.69	2.36	9.13	13.17
2005	1.12	12.29	18.74	2.58	10.04	14.14
2006	1.18	13.62	19.92	2.81	10.75	15.09
2007	1.25	15.18	21.32	3.03	11.61	16.17
2008	1.42	16.81	21.64	3.37	12.83	17.38
2009	1.47	18.29	22.24	3.58	13.36	18.42
2010	1.53	20.59	23.52	3.83	14.20	19.72
2011	1.59	22.89	24.55	4.16	14.79	20.98
MEAN	1.24	14.08	19.55	2.81	10.67	14.95
STDEV¹⁵	0.21	4.68	3.07	0.78	2.68	3.62

Sources: Own computation based on data from World Bank, WDI database and UN data website.

On average, Ethiopia's economy which is non member country of EAC has the largest economic size (RGDP) that is higher than the other member countries. According to estimates measured at average constant price showed that there were variations of RGDP among the six countries under investigation. This variation leads to unequal level of economic growth among them. Especially, the variation is higher between Burundi and

¹⁵ Standard deviation of the sampling distribution.

Ethiopia, Tanzania and Ethiopia, Burundi and Uganda and among Uganda, Kenya and Tanzania.



Sources: Own computation based on WB, WDI data

Figure 4.1.1 shows that the trends of Real GDP across each countries since 2000. As can be seen from the graph, RGDP of the EAC member countries and Ethiopia has a great variation among the cross section with the maximum on average being 19.55 billion US\$ in Kenya from 2000 to 2011 whereas the minimum is 1.24 billion US\$ in Burundi on average during the same period. On average, RGDP of each country has shown upward trends except the slow rate upward movement in Burundi and Rwanda (figure 4.1.1).

Table 4.2 shows that countries like Rwanda, Ethiopia and Uganda are relatively the top countries with the average GDP growth rate of 8.6%, 7.3% and 6.7%, respectively during 2011/12. On the other hand, Burundi, Kenya and Tanzania have the lowest GDP growth rate of 4.21%, 4.5% and 6.3% on the same year, respectively. In 2011, the Rwanda's economic growth rate is the highest but Burundi's GDP growth rate is the lowest when compared with other countries. Based on the figure in table 4.1.2, the economies Rwanda's, Uganda's and Burundi's economy grew positively from 7.2% to 8.6%, 5.9%

to 6.7% and 3.8% to 4.2% from 2010 to 2011, respectively. However, the GDP growth rate of Ethiopia's, Kenya's and Tanzania's were declining from 9.9% to 7.3%, 5.6% to 4.5% and 7% to 6.3% during the same period, respectively. According to the World Bank estimates of the above figure, deterioration of economic growth rate were attributed to the existence of increasing inflation, drought problem in East Africa, political crisis in East Africa particularly in Kenya during election and finally climate change in the country.

Table 4.1.2: Real GDP Growth rate trends across East African Community countries and Ethiopia (in Percentage), 2000 to 2011

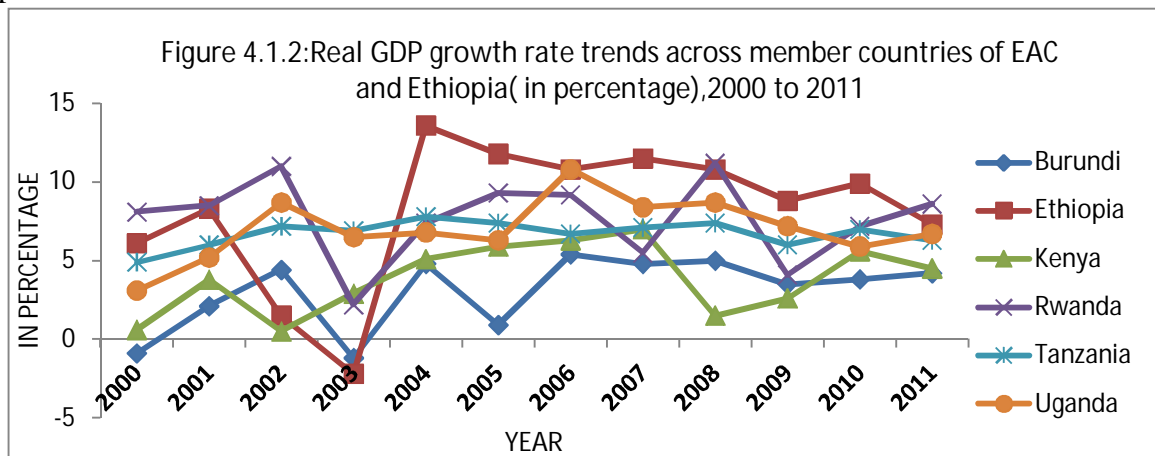
Year	Burundi	Ethiopia	Kenya	Rwanda	Tanzania	Uganda
2000	-0.9	6.1	0.6	8.1	4.9	3.1
2001	2.1	8.3	3.8	8.5	6	5.2
2002	4.4	1.5	0.5	11	7.2	8.7
2003	-1.2	-2.2	2.9	2.2	6.9	6.5
2004	4.8	13.6	5.1	7.4	7.8	6.8
2005	0.9	11.8	5.9	9.3	7.4	6.3
2006	5.4	10.8	6.3	9.2	6.7	10.8
2007	4.8	11.5	7	5.5	7.1	8.4
2008	5	10.8	1.5	11.2	7.4	8.7
2009	3.5	8.8	2.6	4.1	6	7.2
2010	3.8	9.9	5.6	7.2	7	5.9
2011	4.2	7.3	4.5	8.6	6.3	6.7
MEAN	3.07	8.18	3.86	7.69	6.73	7.03
STDEV	2.31	4.55	2.24	2.66	0.80	1.97

Sources: Own computation based on UN data website, WDI (the WB).

Also, table 4.1.2 indicate that the average annual growth rate of GDP of Ethiopia, Rwanda and Uganda are relatively the highest Performing country with growth rates of 8.18%, 7.69% and 7.03% during the last thirteen consecutive fiscal years, respectively. On the other hand, Burundi is the lowest GDP growth rate performance with economic growth rate with a value of 3.07% during the same period, respectively. During 2000 to 2011, Ethiopia's GDP growth rate is highest but Burundi economic growth rate is the lowest among the six countries.

The cross country difference in growth rate of GDP is also shown during both 1990 to 2000, and 2000 to 2011. During these periods, Uganda’s economy registered accelerated growth during 1990 to 2000 but Ethiopia’s economy recording rapid positive growth during 2000 to 2011. During 1990s on average, Burundi registered a negative growth rate of GDP i.e. -1.37% which is the lowest growth rate among the six countries. Moreover, in both consecutive periods, Burundi’s economy registered low growth rate of GDP on average. Thus, Uganda and Ethiopia showed higher and good growth of GDP than others countries. Variation also exists on specific year like 2011. During this period, maximum growth rate of GDP had shown in the Rwanda’s economy but minimum in Burundi’s economy. In all case, Burundi perform poor growth rate of GDP and thus there is more poverty in the country when compared with the other countries.

However, on aggregate the mean growth rate of RGDP of the six countries is 6.09% and 2.7% during 2000 to 2011, and during 1990 to 2000, respectively. Highest GDP growth rate is registered during 2000 to 2011 but lowest record during 1990 to 2000. This aggregate figure is breaking down into disaggregate one based on countries. On average, from 1990-2000 to 2000-2011 all six countries started to make improvement in the performance of the economy. The track of economic growth is strong especially after 2000s. However, the growth record was relatively good during 2000 to 2011 as compared to the period before, but still poor growth performance taken place in Burundi economy. Thus, among each country there is uneven and unequal growth rate during the specified period since 2000.



Sources: Data from National Accounts Estimates of main aggregate, UNSD and UNdata Website.

Figure 4.1.2 depicts the trends of average annual growth rate of real GDP across the stated countries since 2000 to 2011. According to the figure, negative growth rate of RGDP has been registered in Burundi and Ethiopia during 2000 and 2003. However, the rest countries during other periods have shown a positive average annual growth rate of GDP at constant market price. The growth of RGDP as illustrated in figure 4.1.2 showed that the minimum and maximum value of -2.2% and 13.6% are observed in Ethiopia during in the year 2003 and 2004, respectively. In this regard, Ethiopia is the countries that show fast growth of RGDP during 2004 but slow growth during 2003. However, Post 2000 period, each country experienced slow and fast growth of economy that is upward and down word fluctuation of annual average growth rate.

4.1.2. Trends and performance of per capita real income

The changes in the per capita income of a country overtime have implications on the economic growth. This in turn affects the well-being of the individual as well as the society in the region. GDP per capita as defined before is highly influenced by performance of economic conditions of developing countries GDP. In addition to RGDP and its growth rate, per capita income also serves as the other major additional proxy measure of economic growth of a country.

As indicated in the table below, available evidences suggest that the per capita income of EAC member countries and Ethiopia varied from time to time. This implies that there were variations of income among these countries. Except Burundi, it has documented that a considerable increase of GDP per capita was particularly registered in the rest countries from 1990-2000 to 2000-2011, on average. But, Burundi's economy has shown declining

during the same period. More specifically, per capita income of Ethiopia, Tanzania, Uganda, Rwanda and Kenya has increased from 159 US\$ to 215 US\$, 241 US\$ to 402 US\$, 252 US\$ to 386 US\$ 276 US\$ to 345 US\$ and 411 US\$ to 597 US\$ since 1990 – 2000, on average respectively. So, it has shown an upward trend recently during these categorized periods. However, per capita income of Burundi's has decrease from 227 US\$ to 178 US\$ during the same period (See Appendix 3). As shown on the table, Kenya's people have got a highest per capita income during 2000 to 2011 on average. However, Burundi's society has got the lowest GDP per capita among the people of the other countries during this period.

Table 4.1.3: Per capita Real GDP trends across East African Community member countries and Ethiopia (in US \$), 2000 to 2011

Year	Burundi	Ethiopia	Kenya	Rwanda	Tanzania	Uganda
2000	131	124	407	214	308	256
2001	131	131	411	223	318	261
2002	134	129	403	246	332	275
2003	129	123	404	245	346	283
2004	131	137	413	258	363	293
2005	128	149	427	275	380	301
2006	131	162	442	291	394	323
2007	133	176	461	305	411	339
2008	136	191	456	329	429	357
2009	137	203	457	339	442	371
2010	138	219	471	353	459	380
2011	141	230	478	371	474	393
MEAN	133	165	436	287	388	319
STDEV	4	39	28	52	56	48

Sources: Own computation based on WDI, WB and UNdata Website.

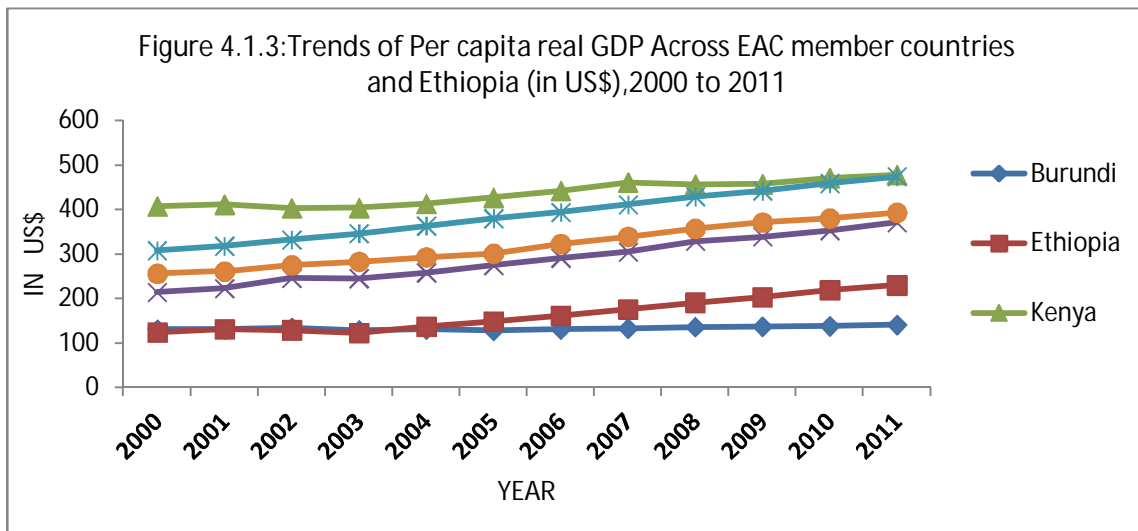
Moreover, as stated in the above table the per capita income of all the six countries has shown an increasing trend on average during the years 2000 to 2010 and 2010 to 2011. Specifically, the per capita income of Burundi's, Ethiopia's, Kenya's, Rwanda's, Uganda's and Tanzania's has increased from 131 US\$ to 138 US\$, 124 US\$ to 219 US\$,

407 US\$ to 471 US\$, 214 US\$ to 353 US\$, 256 US\$ to 380 US\$, and 308 US\$ to 459 US\$, respectively since 2000 to 2010. Also from 2010 to 2011, the above countries per capita GDP has increased from 138 US\$ to 141 US\$, 219 US\$ to 230 US\$, 471 US\$ to 478 US\$, 353 US\$ to 371 US\$, 380 US\$ to 393 US\$ and 459 US\$ to 474 US\$, respectively. But, the Tanzania's per capita income has not show any changes from 2010 to 2011 on average. In these periods, the Kenya's per capita income is the maximum among EAC member countries and Ethiopia. However, Burundi's economy has shown the minimum i.e. lower per capita GDP among them during the same period.

During 2010 to 2011 period, Kenya was registering the highest GDP per capita, but other countries like Burundi and Ethiopia has registered the lowest figure among these all countries. However, per capita income has not been shown more increasing i.e. high growth rate, on aggregate. The reasons why countries has not shown higher per capita growth rate is because GDP per capita has not been as fast as the rate of population growth in the country. Hence, no much significant increase in the per capita income could be observed among each country since 2000 to 2011. According to estimate on average, Burundi, Ethiopia, Kenya, Rwanda, Uganda and Tanzania registered a per capita income growth rate of 4.0%, 10.5%, 6.0%, 7.8%, 6.4% and 5.0%, respectively during these periods(own computation)¹⁶. However, average annual growth rate of per capita income of the above countries was registering 11.0%, 11.6%, 3.1%, 10.2%, 5.1% and 0% during 2011, respectively. Available documents from WB, IMF and UN indicate that per capita income growth rate on average is still low. This low level of income leads to expansion or spread of poverty in these countries.

¹⁶ Per capita real GDP annual growth rate is Own computation based on table 4.1.2 data

As observed from the table, all six countries under study have shown an upward trend in some period and lower performance in other time since 2000 that is fluctuation behavior of the trends (See figure 4.1.3). This indicates that there has been a major improvement in the per capita income. This increasing trend of GDP per capita might be due to peace, stability attained in the country and other appropriate policy measures taken by government of each country. However, in these countries there were periods that show declining of per capita GDP during 1990s and 2000s. This observed declining trend of per capita income was mainly attributed to the change in climate, inappropriate policy measures taken by government and existence of drought in the east Africa during 2000s and also others.



Sources: data from WB, WDI and UNdata Website

Regarding the trends in the per capita RGDP, it has an upward but fluctuated behavior since 2000 as shown in figure 4.1.3. This figure explicitly has shown the trends of RGDPpc in the current member countries of EAC and Ethiopia. During the early periods of 2000, per capita income of each country was very low as compared to the end of 2000s. Figure 4.1.3 shows that each country per capita RGDP has shown upward trend except a slight decline during 2002 to 2003, 2001 to 2003 and 2001 to 2002 in Burundi,

Ethiopia and Kenya, respectively. Besides, an RGDPpc trend shows a great variation among the cross section members. The minimum per capita real income value of 124US\$ corresponds to Ethiopia during 2000 whereas the maximum value of 47US\$ corresponds to Kenya during 2004. On average from 2000 to 2011, the maximum per capita RGDP of 438US\$ in Kenya. However, the minimum of 134US\$ in Burundi during the same period on average. Thus, each year Kenya's per capita income was the highest among these six countries. However, the lowest per capita income is observed in Burundi and followed by Ethiopia (figure 4.1.3).

In a nutshell the performance of per capita real GDP since 1990s and 2000s has been still very low when compared with other developing countries. But, it shows less improvement. The mean per capita income of these six countries at macro level is 260 US\$ during 1990-2000, but it is 354US\$ between 2000 and 2011. This implies that the EAC's member countries and Ethiopia's per capita income on aggregate has shown increment during the last two decades. However, per capita GDP of such region exhibit heterogeneity among these countries.

4.1.3. Trends and Performance of HDI and its Growth rate

As described before, HDI is the major proxy measure of human development situation of a country. It can be affected by social and economic factors like education, health care and income. The HDI is not designed to assess progress in human development over a short period of time because some of its components do not change rapidly in response to policy changes. This is particularly for the education and health sector activities. It is however, useful to review HDI's progress over the medium and long term. So, recent trends in human development can be looked at and assessed through the lens of the HDI

(UNDP, 2011, P. 25-26). All in all, the HDI helps to answer about the progress of societies in terms of improvement of welfare status of the individuals (See chapter one about HDI and its category).

According to the UNDP estimates in the human development report (2013), the value of the HDI for Burundi, Ethiopia, Kenya, Rwanda, Tanzania and Uganda has increased from 0.352 to 0.355, 0.363 to 0.396, 0.509 to 0.519, 0.47 to 0.476, 0.47 to 0.476 and 0.454 to 0.456 during the two consecutive years i.e. 2011 and 2012 respectively. Advances in the HDI have occurred across all countries that are these countries achieved progress. The fastest progress in human development has been recorded in Burundi, followed by Rwanda and then Ethiopia. Two of the six countries namely Burundi, and Ethiopia have a higher level of human development index today than in 1990s. According to estimate, HDI of Burundi, Ethiopia, Kenya, Rwanda and Uganda grew by 12.3%, 10.6%, 2.0%, 11.0% and 6.7% from 2011 to 2012, respectively. Similarly, average annual HDIs growth rate for the above listed countries was 2.33%, 2.57%, 1.27%, 2.92% and 1.65% between 2000 and 2011, respectively(Own computation and See Appendix 3). However, country like Tanzania has shown a low annual average growth of HDI from 2011 to 2012 with a HDI growth rate of 1.3%. This implies that a decline of human development improvement during the same period. This results in low human development progress. The HDI value of Kenya is highest during 2011 and 2012, but Burundi had the lowest. Approximately, five out of six countries i.e. with the exceptional of Tanzania had recorded an increase of HDI value from 2000 to 2012 (See table 4.1.3). This explains the consistent difference in the above periods. So, it has shown upward trends in the improvement of human development of a country during 2000s. This progress of human

development index in the EAC member countries and Ethiopia could among others, be mainly attributed to the following major factors. First, there was a decline in the adult illiteracy rate, in other words, an increasing of adult literacy rate and education enrolment ratio. This educational progress is a result of the concerted effort of government and provision of basic education to all people. Second, access to safe water improved much more than before years; and also coverage of safe water much more increased in both rural and urban areas of a country. Third, the nutritional status of children improvement and a decline of malnourished children in the country bring progress of human development. This improvement is in part due to several interventions through national nutrition and development projects by government, NGOs and others. Finally, a reduction of deprivation and poverty resulting from drought, cattle rustling and conflicts. Moreover, progress of HDI through engagement of the people in the income and employment generating activities and provision of a better access to improved social services such as education, health and better economic opportunity. In addition to the above factors, the economy of these all countries has received major private foreign investment, better infrastructure and other services. This all factors have kept the gap of human development between countries narrow i.e. reduce the gap in terms of their HDIs.

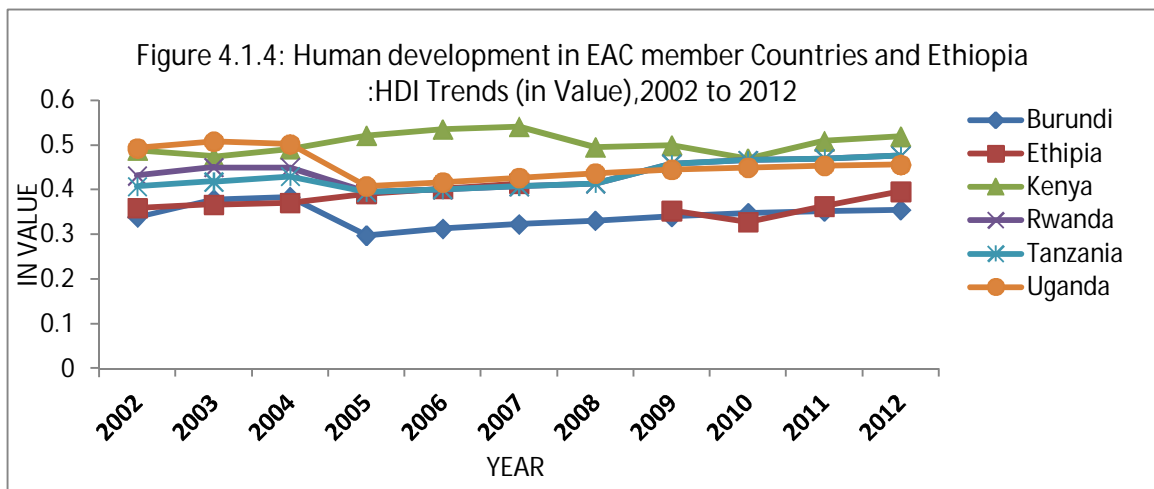
Table 4.1.4: Human development index trends across East African Community Member countries and Ethiopia (in Value), 2000 to 2011

Year	Burundi	Ethiopia	Kenya	Rwanda	Tanzania	Uganda
2000	0.358	0.332	0.443	0.369	0.369	0.375
2001	NA	NA	NA	NA	NA	NA
2002	0.339	0.359	0.488	0.431	0.407	0.493
2003	0.378	0.367	0.474	0.45	0.418	0.508
2004	0.384	0.371	0.491	0.45	0.43	0.502
2005	0.298	0.391	0.521	0.395	0.395	0.408
2006	0.313	0.402	0.535	0.401	0.401	0.417
2007	0.323	0.414	0.541	0.408	0.408	0.427
2008	0.331	NA	0.495	0.414	0.414	0.437
2009	0.34	0.353	0.499	0.458	0.458	0.445
2010	0.348	0.328	0.47	0.466	0.466	0.45
2011	0.352	0.363	0.509	0.47	0.47	0.454
2012	0.355	0.396	0.519	0.476	0.476	0.456
MEAN	0.343	0.371	0.499	0.432	0.426	0.448
STDEV	0.025	0.028	0.028	0.034	0.034	0.039

Sources: HDI from various years HDR since 2000 to 2012, UNDP and UN data Website.

Achieving fastest progress in human development comes from improvement of HDI i.e. progress of non income and income component of HDI since 2000. A high growth rate of HDIs leads to fastest progress in human development of countries. For example, Burundi, Rwanda and Ethiopia registering high growth rate of HDI. And also, among the six countries from the periods of 2011 and 2012, Kenya is the top best countries that perform highest HDI value during this period. So, achieving higher HDI above 0.5 brings country in the medium human development countries group. However, the other five countries perform less progress in the HDI value and then these countries remain in the low human development countries group because their HDI's values were below 0.5. Therefore, there is an overall progress in human development with significant variability in the trends of HDI in the member countries of EAC and Ethiopia. Thus, the average HDI of

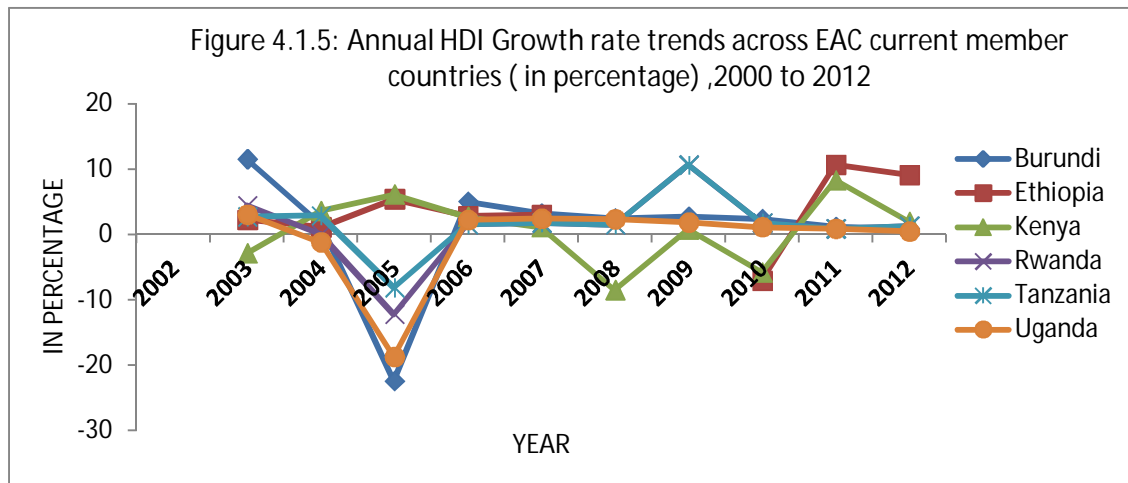
six countries in aggregate has increased from 0.42 in 2011 to 0.45 in 2012 and also this continuing the upward trend starts from 2000. This increase in HDI reflects expansions of health, education and income indicators of HDIs.



Sources: Own computation based on the data from UNDP, HDR data and UNdata Website.

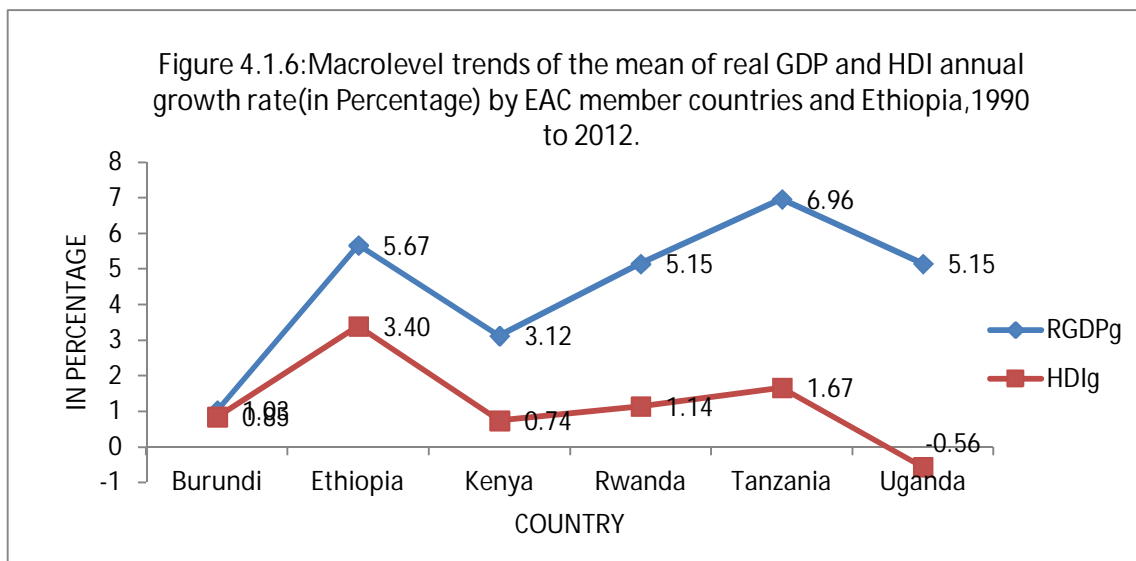
Figure 4.1.4 shows cross sectional variation of HDI with the maximum of 0.519 in Kenya during the year 2012 and a minimum of 0.355 in Burundi during the same period. This indicates that human development in Kenya is higher than the other countries and poor human development is observed in Burundi during this period. The HDI variable which is indexed between zero and one by UNDP which measure the level of development of a country. Specifically, HDI value of less than 0.5 indicate that relatively low human development whereas greater than 0.5 shows medium and high human development. As a case of the trends of HDI, the figure 4.1.4 shows a great variation across the EAC member countries and Ethiopia during 2005. In this regard, the minimum value of this variable is 0.34 which is observed in Burundi from 2000 to 2012 whereas its maximum value on average is 0.50 that is observed in Kenya during these periods. Moreover, the figure 4.1.3 showed that the minimum and maximum value of HDI has been observed in Burundi during 2005 (0.298) and in Kenya in 2012 (0.519), respectively. Thus, over a

period overall observation across each country has been shown an increasing and decreasing trend (figures 4.1.4).



Sources: Own computation based on the data from UNDP, HDR data and UNdata Website.

On average, annual growth of HDI over a time has been shown in figure 4.1.5. From the figure, average annual growth rate of HDI has shown fluctuation during the last decades. Except Ethiopia and Kenya, negative growth of HDI has been registered for other countries. Poor growth of HDI performance observed in the year 2005. However, the figure shows that growth of HDI attains maximum in 2003 in Burundi and lowest (the minimum) in Burundi during 2005 that is both the maximum and minimum growth rate of HDI are observed in Burundi during the year 2003 and 2005 respectively (figure 4.1.5). However, during 2012 Ethiopia registered a growth of human development i.e. Ethiopia human development grew by 9.1% from 2011 to 2012 which is the maximum growth rate of HDI during 2000s. During such period, Uganda grew by 0.4% which is the lowest growth of HDI. This reflects that the gap of human development between Ethiopia and Uganda is wider in terms of average annual growth rate of HDI.



Sources: Own computation based on the data from WB WDI and UNDP, HDR data and UNdata Website.

Figure 4.1.6 shows the co-movement of average annual growth rate of HDI and RGDP.

This graph indicates that there is a strong correlation between these two variables across each member country of EAC and Ethiopia since 1990 to 2012, on average. As a result, maximum growth of RGDP registered in Tanzania. However, maximum growth of HDI had shown in Ethiopia. So, one way of analyzing the relationship between economic growth and human development is by looking at the trend of the two variables on the same coordinate plane. As can be seen from the figure 4.1.6, there is a direct and positive correlation between economic growth and human development in terms of growth of RGDP and HDI over a period of time.

4.2. Econometric analysis and Findings

The relationship between economic growth and human development has continued to attract researchers and policymakers. The estimated models by country level help to assess the impacts of economic growth on human development in a numerical way. This section presents the empirical results using a panel data of six countries from the year 1990 to 2011. It particularly analyses the econometric results for the case of Burundi,

Ethiopia, Kenya, Rwanda, Tanzania, and Uganda. Besides, estimation of models with its estimated coefficients that measures the magnitude of the impacts based on evidence from each country, the issue of inter country comparison with particular emphasis on models and its coefficients are analyzed.

4.2.1 Models estimation Results

The results of OLS from the data analysis are presented in the estimated models of each country. A summarized OLS result that estimate the impacts of economic growth on human development can be presented in the table 4.2.1. The estimated models for the analysis of economic growth impact on human development are extracted from SPSS 16 output. Model of each country is a model when HDI is dependent variable whereas indicators of economic growth are independent variable.

Table 4.2.1 shows the regression results of econometric technique. In this table, the estimation results of six models are reported for each member country of EAC and Ethiopia. That means six models for six countries i.e one model per country. The regression coefficients i.e. estimated parameters of the models tells the quantitative impact of regressors on the dependent variable. This is because econometric models¹⁷ with its coefficients are another way of analyzing and measuring the impacts as well as the relationship between the proxy's measure of economic growth and human development.

The estimated stochastic model and relevant statistics for evaluation are shown in appendix1, 2 and 3. Coefficients of explanatory variables are estimates of models that

¹⁷ **Econometric Models:** refers to the representation of a relationship between economic and social variables as an equation or set of equations in which statistical precision can be attributed to the parameters linking the variables.

determine the direction of the relationship between variables (See Table 4.2.1). In this table, the results of the six models by country are reported and in the models, the dependent variable i.e. HDI is used as a proxy measure of human development.

**Table 4.2.1: Standardized Regression Coefficients of Regressor Variables
By Country, SPSS Output, Regression or Econometric result.**

Dependent Variable: HDI

Method of Estimation: OLS

Sample Period and data used: 1990 to 2011

Independent Variables	Regression coefficients ¹⁸						Average at macro level
	Burundi	Ethiopia	Kenya	Rwanda	Tanzania	Uganda	
LRGDP	8.148	6.781	4.141	37.586	52.573	1.615	18.47
RGDPg	0.433	0.978	1.73	1.498	0.235	0.255	0.855
LRGDPpc	0.625	0.813	0.288	10.51	5.191	0.733	3.026
AVA	0.777	0.598	1.165	3.409	2.723	1.476	1.691
PEE	0.163	0.841	1.69	1.683	0.455	0.493	0.887
PEH	0.597	0.472	0.628	2.842	0.815	0.268	0.937
Pr	-0.05	-0.434	-0.67	-0.024	-0.372	-0.251	-0.30
POVL	-0.048	-1.087	-1.152	-3.316	-1.081	-0.698	-1.230
Constant	45.371	1.256	16.119	10.192	5.387	4.316	13.773
R ²	0.894	0.868	0.907	0.922	0.813	0.955	0.89

Sources: Own computation based on SPSS Output, data from 1990 to 2011.

4.2.1. Burundi human development model

According to the result that obtained from SPSS output and then shown in the appendix, the long run estimated model with the corresponding coefficients from Burundi economy is presented as follow. And thus, the relevant model with estimates of the long run impact coefficients can be constructed as follow.

$$\text{HDI} = 45.371 + 8.148 \text{ LRGDP} + 0.625 \text{ LRGDPpc} + 0.433 \text{ RGDPg} + 0.777 \text{ AVA} + 0.163 \text{ PEE} + 0.597 \text{ PEH} - 0.05 \text{ Pr} - 0.048 \text{ POVL}$$

¹⁸Its Units or Values expresses in percentage that measure the quantative impact of independent variables on dependent one.

This is an estimated model for Burundi economy to look and measure both the impacts and relationship between variables. Before estimating the model, each variable have to be tested whether there is a strong correlation or not and also its significance. As can be seen from the table, each independent variable has a strong association with HDI based on the correlation coefficients finding but they are insignificant. Within Burundi, according to the model it is indicated that an improvement of human development is strongly and positively associated with RGDP, RGDPpc, RGDPg, AVA, PEE, and PEH; but negatively related with Pr and POVL. More specifically, the econometric result reveals that LRGDP, LRGDPpc, AVA, PEE and PEH influence HDI positively with an insignificant relationship with a value of 8.148, 0.625, 0.433, 0.777, 0.163 and 0.597, respectively. Although, inflation rate and poverty level of Burundi shows a negative insignificant influence on human development.

When tested for significance, the impacts of each explanatory variable on human development are statistically insignificant as evidenced by the t-statistic value of each variable and their corresponding p-values (see appendix 1). Also, the overall effect of the explained variable is F statistic¹⁹ (3.849) with corresponding probability (0.061) indicates the model is at least be good fitted model at 5 percent level of significance, jointly. Thus the parameters of the model variable point out to the fact that all variables are insignificant determinant of human development of Burundi.

4.2.1. Ethiopia human development model

The estimated model for the analysis of economic growth and human development linkage in Ethiopia as extracted from the SPSS output is constructed as follows.

¹⁹ Helps for Overall test of the model i.e. Joint test of significance for each regression coefficients.

$$\text{HDI} = 1.256 + 6.781 \text{LRGDP} + 0.813 \text{LRGDPpc} + 0.018 \text{RGDPg} + 0.598 \text{AVA} + 0.841 \text{PEE} + 0.472 \text{PEH} - 0.434 \text{Pr} - 1.087 \text{POVL}$$

According to the table 4.2.1 and appendix 2 OLS results showed that the effect of RGDP, RGDPpc (in logarithmic form),RGDPg, AVA, PEE and PEH to the Ethiopia HDI is positive and statistically insignificant . Such result is mostly inconsistent with theoretical prediction. On the other hand, Pr and POVL have a negative insignificant impact on human development that is such variables have a negative relationship with the human development of Ethiopia. Based on the t- statistic and the corresponding p- value result of regression, all explanatory variables were found insignificant in relation to specific coefficients. Also, jointly the model is insignificant based on F- statistic and corresponding probabilities. But the R squared result shows that 86.8 percent of the total variation in HDI is accounted for by all independent variable in the Ethiopia context. Similar to Burundi, coefficients of the explanatory variables are inconsistent with the empirical findings of other studies like Rains and Stewart (2004).

4.2.3. Kenya human development model

The long run human development model that is estimated based on regression result in Kenya economy with the corresponding coefficients of independent variables is presented as follows.

$$\text{HDI} = 16.119 + 4.414 \text{LRGDP} + 0.288 \text{LRGDPpc} + 1.730 \text{RGDPg} + 1.65 \text{AVA} + 1.690 \text{PEE} + 0.628 \text{PEH} - 0.670 \text{Pr} - 1.152 \text{POVL}$$

The results in general point out that regressors like RGDP, RGDPpc, RGDPg, AVA, PEE and PEH have insignificant and positive impacts on human development. This implies that for the period under consideration, the roles of all these variables are insignificant

and positive in improving human welfare of Kenyans. According to table 4.2.2, the partial correlation of all independent variables with HDI is strictly strong and then all are major determinant of human development. The results further shows that rate of inflation and poverty level have negative and insignificant impact on human development. This tells that these two variables reduces human development performance by reducing the purchasing power of the individuals which in turn affects the health, education and other social service of the country at both at macro and micro level. Thus, according to the results Pr and POVL have played a negative role in the improvement of human development according to the results. The above results reveals that the overall fit of the model is unacceptable since the explanatory variation in the model and the F-statistics(test) do not reject the null hypothesis that state all the coefficients in the model are jointly and individually insignificant . Also, individual coefficients of the model are statistically insignificant as evidenced by the t- statistic and their corresponding probabilities. Thus, the regression result indicates that in the long run output or income of a country produce have a insignificant and positive impact on HDI and then brings positive impact on the social services development of Kenya.

4.2.4. Rwanda human development model

In Rwanda economy, the estimated model for the analysis of the issue can be represented by the following function:

$$\text{HDI} = 10.192 + 37.586 \text{LRGDP} + 10.510 \text{LRGDPpc} + 1.498 \text{RGDPg} + 3.409 \text{AVA} + 1.683 \text{PEE} + 2.842 \text{PEH} - 0.024 \text{Pr} - 3.316 \text{POVL}$$

The results are depicted in table 4.1.2 and appendix 2. Notice RGDP, RGDPpc, RGDPg, AVA, PEE, and PEH of Rwanda have a positive and insignificant impact on the HDI

from maximum impact of 37.586% to minimum of 1.498% that is it is estimated coefficients. In contrast, Pr and POVL have a negative insignificant impact on the HDI with estimated impact value of -0.024 and -3.316, respectively. But, the result indicates that maximal impact of economic growth on human development is shown on the RGDP and RGDPpc, but insignificant impact. This implies that for this country, increase in all positive impact variables on HDI leads to an improvement of human development at all aggregate level of the country. The positive and negative effect and relationship of all independent on HDI were found to be insignificant based on the t- statistic and corresponding p- values evaluation method. However, the R-squared also shows that 92.2 percent of the total variation in HDI is explained by regression model during the period under review.

In the above estimated model, variables that have positive and insignificant impact on HDI like AVA, PEE, PEH and income reflected that positive relationship with the human development through improving its components and HDI. Although Pr and POVL have a negative and insignificant relationship with HDI.

4.2.5. Tanzania human development model

The relevant single model with the estimate of the long run impact of economic growth on the human development of Tanzania can be constructed as follow:

$$\text{HDI} = 5.387 + 52.573 \text{LRGDP} + 5.191 \text{LRGDPpc} + 0.235 \text{RGDPg} + 2.723 \text{AVA} + 0.455 \text{PEE} + 0.815 \text{PEH} + 0.372 \text{Pr} - 1.081 \text{POVL}.$$

It is evident from table 4.2.1 that the long run behavior of the model for Tanzania is estimated based on macroeconomic data that reported on the model. The result of the model representing the natural logarithms of RGDP per capita and RGDP have the

largest magnitude of coefficients that affect HDI positively and also has insignificant impact. However, the others independent variables influence HDI in small size in either positively or negatively with insignificant impact. According to the model, all coefficients of the explanatory variables are inconsistent with the expectations i.e. expected sign in the review of literatures.

When tested for significance, the effects of independent variables on human development are statistically insignificant as evidenced by the t- statistic values. In addition, the joint effect of the independent variables on the explained variable is statistically insignificant as the F- statistic (3.543) with the corresponding p-value (0.0788) indicate. So, jointly or individually all explanatory variables coefficients are insignificant at 5% and 10% of level of significance as indicated by the t and F- statistic with corresponding probability value . Also, the R² higher. That is, the R² of 81.3 percent (0.813) indicates that the explanatory variables explain about 81.3 percent of changes in the dependent variable. Thus, this all indicate that a link between income and HDI is suggested that higher and positive economic growth imply greater pressure on human development.

4.2.6. Uganda human development model

The model that is estimated using OLS to measure statistical significance and impacts in Uganda is presented as follow.

$$\text{HDI} = 4.316 + 1.615\text{LRGDP} + 0.733\text{LRGPpc} + 0.255\text{RGDPg} + 1.476\text{AVA} + 0.493\text{PEE} + 0.268\text{PEH} - 0.251\text{Pr} - 0.697\text{POVL}.$$

The estimated equation to assess the impact of economic growth on human development is very crucial under such study. As table 4.2.1 shows the increasing of Pr and POVL in the period 1990 to 2011 reduced the HDI by -0.251 and -0.697, respectively on average.

But, the impacts of these variables are insignificant negative in the improvement of human development. However, the other factors have a positive and insignificant influence on human development. Specifically, by looking at the econometric model i.e. OLS result, the variable like output, income, agricultural value added and public expenditure on health and education in Uganda economy have an insignificant positive impact in the improvement of human development of the country .

Looking at the significance of the variables, all explanatory variables are statistically insignificant except AVA is a significant impact at 10 percent level of significance only. This implies that AVA variables which have positive and insignificant effect bring a benefit for country by encouraging improvement of human development. When tested the significance of the coefficients of the variable and overall model, except AVA, other explanatory variables impact on HDI are statistically insignificant based on t- test and its P value. Moreover, the overall i.e. jointly all the coefficient variables are significant at 5% of significance level as indicated by the F-test and its Prob F. The R^2 of 0.955 implies that the regressors explain about 95.5 percent Of the total variation in the HDI.

Table 4.2.2: Cross country Correlation Coefficient of dependent Variable with independent Variables, partial simple correlation coefficient, rij SPSS OUTPUT.

r_{ij}	Burundi	Ethiopia	Kenya	Rwanda	Tanzania	Uganda
HDI with LRGDP	0.62	0.52	0.56	0.93	0.97	0.41
HDI with LRGDPpc	0.57	0.63	0.63	0.99	0.76	0.58
HDI with RGDP	0.69	0.95	0.53	0.89	0.59	0.92
HDI with RGDPpc	0.63	0.86	0.58	0.87	0.82	0.73
HDI with RGDPg	0.46	0.69	0.45	0.44	0.60	0.93
HDI with AVA	0.62	0.48	0.58	0.48	0.45	0.80
HDI with PEE	0.34	0.84	0.53	0.86	0.57	0.96
HDI with PEH	0.49	0.46	0.49	0.67	0.62	0.81
HDI with Pr	-0.52	-0.55	-0.62	-0.6	-0.54	-0.87
HDI with POVL	-0.46	-0.63	-0.48	-0.57	-0.65	-0.51

Sources: Own computation based on SPSS.

Thus, each countries human development model according to OLS results shows that insignificant positive and negative impact with the human development index except Uganda AVA impact on Human development that is a positive significant impact. This is because of invalid and unreliable data i.e. poor data quality; inconsistency data from each country socio economic performance and poor data collection method and procedures. So across the country of East Africa the fitted models are not reliable and valid models at all level of significance level. However, Jointly Uganda and Burundi human development models are a good model at 5% and 10% level of significance, respectively. And also; there is a possible multicollinearity problem across RGDP, RGDPpc, and LRGDGP and LRGDGPpc independent variables.

4.2.2. Cross- country comparison

Human development is the ultimate indicator of poverty reduction and economic development of a country. According to UNDP, the human development paradigm rests on an overriding commitment of several core principles. These are the expansion of human choices to improve human development and the role that the people themselves, especially the poor in bringing about change in their lives as well as a process that places people at the centre of development. Thus, improving human development is a major goal of development policy and strategy. In this sub section, comparative results based on each country model are presented and discussed.

From the result shown in the table 4.2.1 and 4.2.2, the real Gross Domestic Product, per capita real income, and average annual growth rate of RGDP have insignificant and positive effects on human development index. Similarly, agricultural value added or gross production, and public expenditure on health and education have also a strong

positive and insignificant relation with HDI in all models except Uganda. On the other hand, rate of inflation and relative poverty level have a negative and insignificant influence in each country model. This implies that the expected sign of estimated coefficients and its insignificance for the respective independent variables are similar in all of the six models. Thus, except Pr and POVL, other variables have positive insignificant relationship with the dependent variable i.e. HDI in all cases.

According to the econometric results, the cross country difference is shown in the magnitude of each coefficient of explanatory variables. These variations of estimated coefficients in according with its sizes make the impact on HDI vary among the case studies investigated in the thesis. Thus, this impact variation among these countries leads to heterogeneity or uneven human development among countries based on insignificance results.

RGDP, RGDPpc and RGDPg are the major proxies of economic growth that have positive and insignificant impact on HDI which in turn improves human development. The results indicate that the estimated impact of RGDP on HDI is maximum in Tanzania and minimum in Uganda but it has insignificant impact. This is because of largest size of estimated coefficient in the model brings HDI increasing in a rapid way. So, RGDP has a better influencing power for stimulating human development. The OLS result also show that RGDP affects HDI through its estimated coefficients but it shows insignificant output. This means, highest impact of RGDPpc on HDI is found in Rwanda, but lowest impact in the Kenyan economy. This average growth rate of income will change HDI by 1.7 % in Kenya and 0.2% in Tanzania.

AVA, PEE and PEH are also the major determinant of HDI, but still affect HDI differently and insignificantly which means that its impact value changed across countries. The changes in agriculture (e.g. production, productivity) can have both direct and indirect significant impacts on human development, depending on the size of coefficients in each model in Uganda economy. For example, Agricultural production performance (crop, livestock, fisheries and forestry) depending on its productivity and effectiveness of factors of production, human development can be affected positively or negatively. Since East Africa countries depends on agriculture sector, improvement in agricultural development performance can positively influence human development. Depending on the level of agriculture i.e. share of GDP of agriculture has highest impact on the performance of HDI is found in Rwanda economy. Although lowest impact of AVA on the performance of HDI is taken place in Burundi but insignificant. Thus, Rwanda's AVA will change HDI by 3.4 % but Burundi AVA will change it by 1.5 %. Moreover, public expenditure on health and education programs has a strong positive insignificant impact on HDI. As can be seen from the table, the higher impact of public expenditure on education is found in Kenya, but the lowest impact on HDI is in Burundi but in both counties there is insignificant relationship. However, the maximum impact of PEH occurs in Rwanda, but the lowest impact exists in Uganda.

The variable Pr and POVL had a negative influence in bringing down the HDI value in these countries because the beta coefficients shows negatives sign and leads to a decreasing of the HDI but insignificant relationship in all countries. Across the countries, the impact of the rate of inflation on HDI is insignificant (see table 4.2.1).

Chapter five

5. Conclusion and Recommendation

5.1. Conclusions

This study aimed at understanding the trends and performance of the major proxies of economic growth and human development of the country under investigation. The descriptive results indicate that Burundi is the poorest country of the six case studies with an annual average RGDP of 1.24 billion US\$ whereas the maximum value of average RGDP which is 19.55US\$ which corresponds to Kenya economy during 2000 to 2011. Furthermore, Burundi's economy has the minimum average annual growth rate of RGDP which accounts for 3.07% comparing to Ethiopia which has the maximum growth rate of Real GDP which is 8.18% between 2000 and 2011. As far the per capita income, the data reflects a variation in this variable among the countries under investigation. Real GDP per capital performance has been generally very low during 1990s and 2000s in all the case studies when compared to other developing counties. For instance, Burundi's real per capita income stagnated on average around 133 US\$ per year. Kenya on the other hand, has the highest among the case studies with an average of 436 US \$ per year during the same period.

Poverty is highly spread in the Burundi economy due to low level of production or income at the national level. This is because of rapid population growth, unfavorable policy and instability. Although Kenya has low level of poverty when compared with other country, in terms of economic growth, Ethiopia and Rwanda are the fastest growing countries during 2011 and 2012 because both country has registered higher growth rate of GDP during the current period .So that as indicted before, the proxies measure of

economic growth have shown a fluctuation behavior over the period between 1990 to 2011.

As far the HDI, all the six countries have the HDI value below 0.5 on the average, which means that human development is, remain low level during 1990s and 2000s. Because the average HDI of each country is still very low when compared to Latin America , Asia, and North Africa countries. The HDI value of Burundi, Ethiopia, Kenya, Rwanda, Tanzania and Uganda is 0.343, 0.371, 0.499, 0.432, 0.426 and 0.448, respectively on the average during 2000 to 2012. This figure shows variation of human development level within these countries. According to these figures, Kenya human development still better than other countries. On aggregate, the HDI value of the six countries is 0.40, on average during the same period. This still lower than the HDI value of SSA as the whole. Therefore, low HDI leads to lower human development within each country. This brings higher level of poverty in the country depending on the condition of human development items and measures generally low human development is occurring in Burundi and higher in Kenya during 2000s. This is because of the lower level of Real GDP, Real GDP per capita and higher percentage relative poverty in Burundi economy.

This study also aimed to examine the impacts of economic growth on human development and analyzes the relationship between these variables in the six countries mentioned above. The study has also investigated the relationship between such dependent and independent variables using panel dataset for the period 1990 to 2011. It also applied OLS method of estimation to know and measure the quantitative impact of economic growth on humane development.

The study has examined the macroeconomic impact of economic growth on human development index (proxy measure of human development) in Ethiopia and EAC member counties with special emphasis given to the impact of the specified explanatory variables on HDI.

As the econometric results show that each county model has a similar sign of estimated coefficients for the respective independent variables and insignificant models and its coefficients except Uganda AVA. Regarding the econometric result, real GDP, real GDP per capita, real GDP growth rate, and agricultural value added, public expenditure on education and public expenditure on health has an insignificant positive impact on the HDI in the long run. These indicators of economic growth are insignificantly affects HDI at the 5% and 10% significance level. But empirically a literature shows that such variables are strongly and positively responsive to the human development performance of a country. It also shows the rate of inflation and percentage of poor people living below one US\$ per day has a negative significant influence on the HDI by affecting the people income in the short and long run in each model. But this study estimated models for each county and develop and build estimated coefficients but the estimated models and coefficients that are insignificant.

Therefore, all countries human development model according to OLS estimation method SPSS output results shows that insignificant positive and negative impact with the human development index except Uganda AVA impact on Human development that is a positive significant impact. This is because of invalid and unreliable data i.e. poor data quality; inconsistency data from each country socio economic performance and poor data collection method and procedures. Thus, across the country of East Africa the fitted

models are not reliable and valid models at all level of significance level. However, Jointly Uganda and Burundi human development models are a good model at 5% and 10% level of significance, respectively. And also; there is a possible multicollinearity problem across some of the variables like RGDP, RGDPpc, LRGDP and LRGDpc.

Consequently the result can be adjudged not a good and reliable as the overall effect of the independent variables on the dependent variables is statistically insignificant. Also, the independent variables explain greater proportion of the changes in the human development of member countries of ECA and Ethiopia. Therefore, the result is unreliable and invalid for policy formulation and forecasting purposes in each county economy.

5.2. Recommendations

Based on the above findings and conclusion after careful empirical analysis and insignificant models and coefficients of estimated models across the sampled East Africa country, the study suggests some areas of development policy interventions in the human development sector that will apply in the member countries of EAC and Ethiopia.

1. Agricultural value added or gross value is an important determinant for human development of a country since it has a positive and significant impact on HDI. This positive relationship of agriculture value added and HDI will result in improvement of human development at micro or macro level of a country. However, in sampled countries institutional arrangements for extension services in agriculture sector are inadequate; and the extension workers are generally too ill equipped and poorly paid, and thus are unable to spread technological innovations among farmers. Moreover, increased food or agricultural production cannot be achieved without improved infrastructure in rural areas.

Because rural road networks and transport to facilitate delivery of input items and marketing of farm product, improved housing and health services, education and so forth are essential investment projects without which sampled countries of East Africa would neither be able to improve food production and agriculture nor develop their human resources. Therefore, the respective governments should assist and encourage farmers to improve their crops, animal husbandry, fisheries and forestry production techniques by supporting new technologies i.e. green revolution in agriculture sector. For example, the rearing of livestock, such as goats, pigs, sheep, cattle and poultry, through improved extension services and control of diseases would surely improve the output of meat, milk and eggs. Furthermore, governments should adopt policies to bring about a balance between food production for domestic use and cash- crop production so as to meet rising food demand. Since East Africa economy depends on agriculture sector, government should try to improve the productivity and production of the agriculture sector in order to improve the human development of rural and urban people. So, this increasing of agricultural value added will bring the improvement of social and economic welfare. Besides, there is need for a policy in agriculture to encourage an intensive cropping system with adequate and appropriate private research work in order to generate the essential skill and adaptive technology among farmers.

2. Policymakers and other concerned bodies in the education and health sector should begin to advocate for increased allocation of resources to these sectors. This recommendation is predicated on the fact that increasing funding to these sectors will lead to the enhancement of the abilities and capabilities of their most important economic asset i.e. human capital. The results support the view that health and education expenditure can be

more effective in the East Africa countries in achieving the MDGs. Thus, increases in expenditure suggested by the magnitude of the estimated coefficients would be greatly helpful in moving these countries toward the MDG target for health and education although not necessary sufficient to achieve it in all of these countries. If budgetary allocations for primary and secondary health care are to boost human development and promote there well being of the poor, policymakers and government in the member countries of EAC and Ethiopia need to pay attention to absolute expenditure in the social services. These absolute expenditures in size and efficiency are an important vehicle for promoting equity and furthering human capital development. This will ensure that education expenditures play its fundamental role of raising the welfare of the people because the finding suggests that education and health public expenditure are significant and positive in determining human development of a country. Hence, governments need to strategies the framework of social issues for appropriate implementation that will enhance the welfare of the citizen.

3. Since rate of inflation is taken as an indicator of economic growth, government has lost control over the management of the economy. Because it has capable of transmitting a negative impact on human development through its direct impact on economic growth. It was found that, there was a negative and significant association between inflation rate and human development index. So, this variable affects human development of a country by increasing the price of goods and services, and then reducing the purchasing power of citizen. Therefore, emphasis should be given to control the inflation rate towards an acceptable level through the use of appropriate policy mix (fiscal and monetary policies).For example, agricultural policy and strategy that improve agriculture value.

Therefore, the government of the EAC countries and Ethiopia are required to set sound macroeconomic policy environments which control the increasing of general as well as the specific price level of goods and services in order to promote human development in the long run and short run.

4. Finally, the descriptive result shows that the importance of increasing economic growth in all countries under investigation to stimulate human development in the long run. So, government should help to narrow the gap between low and medium human development group countries by looking the social and cultural context of the country. So that encourage and promote a positive human development items by increasing real GDP, real GDP growth rate, real GDP per capita, agriculture value added, public expenditure on education and public expenditure on education and public expenditure on health; and reducing inflation rate and level of poverty to be a member of medium human development group to the next five to ten years without affecting the environment or climatic condition of the country. Thus, country specific policy and strategies should be designed and implemented in both rural and urban areas.

Moreover, by employing advanced and appropriate techniques of econometric analysis by collecting Valid and consistence data, further in-depth research in this area will be required to analysis in detail across selected East Africa countries. Since this paper has drawn attention to difficulties with published literature review to the issue, it touched upon insights into the link between economic growth and human development. Specifically, further research at the micro and macro level will be necessary by examining the issue in greater depth to reveal the detail mechanism of affecting economic growth on human development items.

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List of Appendices

Appendix 1:

Table 1.1. Description of Variable and major Sources

Variable	Variable description	Sources
HDI _{it}	Human development index for measuring human Development of country	UNDP, Various years HDR From 1990 to 2012
RGDP	Real gross domestic product of a country	WB, Various years WDI and WDR. UNSD, National Account Statistics
RGDP _{pc}	Per capita real GDP of country for measuring Economic growth.	UNdata Website WB , WDI
RGDP _g	Average annual growth rate of real GDP of a country as a proxy measure of economic growth	UNdata Website WB , WDI
AVA	Proportion of Agriculture value added to RGDP of country.	UNdata Website WB , WDI
PEE	Proportion of public expenditures on education to GDP of country as indicator of economic growth.	UNdata Website WB , WDI
PEH	Proportion of public expenditures on Health to GDP of country as indicator of economic growth.	UNdata Website WB , WDI
Pr	Inflation rate of country as indicator of economic growth.	UNdata Website WB , WDI
POVL	Percentage of population living below \$1 PPP per day of country as indicator of economic growth.	UNdata Website WB , WDI
LRGDP	RGDP in Logarithmic form.	Own computation
LRGDP _{pc}	RGDP in Logarithmic form.	Own computation

Appendix 2:

Table 2.1: Burundi Economy Regression Result

Variables	Beta Coefficients	Std.err	t -Statistic	P-value
Constant	45.371	25.50	1.779	0.173
RGDP	7.949	0.000	1.554	0.218
RGDPg	0.433	0.005	0.900	0.435
LRGDP	8.148	1.259	1.655	0.191
LRGDPpc	0.625	0.341	1.833	0.164
AVA	0.777	0.04	1.196	0.317
PEE	0.163	0.024	0.213	0.845
PEH	0.597	0.008	1.617	0.204
Pr	-0.042	0.001	0.162	0.882
POVL	-0.048	0.012	0.133	0.900

R Squared	0.894
Adjusted R Squared	0.577
Durbin Watson	2.401
F Statistic	3.849
Prob >F	0.061

Appendix 2:

Table 2.2: Ethiopia Economy Regression Result

Variable	Beta Coefficients	Std.err	t Statistic	P-value
Constant	1.256	1.423	0.882	0.540
RGDP	3.450	0.231	0.568	0.895
RGDPg	0.018	0.003	0.034	0.979
LRGDP	6.781	0.000	0.354	0.235
LRGDPpc	0.813	0.240	0.469	0.721
AVA	0.598	0.008	0.76	0.586
PEE	0.841	0.029	1.412	0.392
PEH	0.472	0.052	0.624	0.645
Pr	-0.434	0.003	0.551	0.679
POVL	-1.087	0.005	0.676	0.622

R squared	0.868
Adjusted R squared	0.564
Durbin Watson	2.382
F Statistic	0.941
Prob F	0.683

Appendix 2:

Table 2.3. Kenya Economy Regression Result

Variable	Beta coefficients	Std.err	t Statistic	P-value
Constant	16.119	42.539	0.379	0.741
RGDP	4.825	0.000	0.381	0.740
RGDPg	1.73	0.011	1.176	0.361
LRGDP	4.141	1.776	0.388	0.733
LRGDPpc	0.288	0.705	0.189	0.868
AVA	1.165	0.023	0.564	0.603
PEE	1.69	0.069	1.242	0.340
PEH	0.628	0.123	0.823	0.497
Pr	-0.67	0.004	1.238	0.341
POVL	-1.152	0.003	1.226	0.345

R Squared	0.907
Adjusted R Squared	0.489
Durbin Watson	2.695
F Statistics	2.168
Prob F	0.355

Appendix 2:

Table 2.4: Rwanda Economy Regression Result

Variable	Beta coefficients	Std.err	t Statistic	P-value
Constant	10.192	4.077	2.500	0.130
RGDP	10.342	0.000	1.528	0.266
RGDPg	1.498	0.012	1.525	0.267
LRGDP	37.586	0.000	2.437	0.248
LRGDPpc	10.51	1.010	1.969	0.188
AVA	3.409	0.026	1.706	0.230
PEE	1.683	0.028	2.325	0.146
PEH	2.842	0.038	1.906	0.197
Pr	-0.024	0.002	0.044	0.969
POVL	-3.316	0.032	0.821	0.498

R Squared	0.922
Adjusted R Squared	0.611
Durbin Watson	2.418
F Statistics	2.965
Prob F	0.277

Appendix 2:

Table 2.5: Tanzania economy regression result

Variable	Beta coefficients	Std.err	t Statstic	P-value
Constant	5.387	9.300	0.579	0.666
RGDP	6.447	0.000	0.899	0.534
RGDPg	0.235	0.025	0.330	0.797
LRGDP	52.573	0.000	0.568	0.864
LRGDPpc	5.191	1.600	0.713	0.606
AVA	2.723	0.065	0.636	0.639
PEE	0.455	0.020	0.302	0.813
PEH	0.815	0.049	0.512	0.699
Pr	-0.372	0.020	0.395	0.761
POVL	-1.081	0.022	0.233	0.854

R Squared	0.813
Adjusted R Squared	0.684
Durbin Watson	2.242
F Statistic	0.543
Prob F	0.788

Appendix 2:

Table 2.6: Uganda economy Regression Result

Variable	Beta Coefficients	Std.err	t Statstic	P-value
Constant	4.316	7.486	0.577	0.597
RGDP	1.276	0.000	0.428	0.691
RGDPg	0.255	0.004	1.621	0.180
LRGDP	1.615	0.425	0.550	0.612
LRGDPpc	0.733	0.586	0.346	0.747
AVA	1.476	0.003	2.509	0.660
PEE	0.493	0.018	1.145	0.316
PEH	0.268	0.094	1.173	0.306
Pr	-0.251	0.002	1.094	0.335
POVL	-0.697	0.009	0.418	0.698

R Squared	0.955
Adjusted R Squared	0.855
Durbin Watson	2.890
F Statistics	9.508
Prob F	0.022

Appendix 3:

Table 3.1: Real GDP growth rate across the selected East Africa countries, on average.

Year	Burundi	Ethiopia	Kenya	Rwanda	Tanzania	Uganda	MEAN
1990-2000	-1.37	2.96	2.09	2.64	3.41	6.55	2.71
2000-2011	3.07	8.18	3.86	7.69	6.73	7.03	6.09

Sources: own computation based on World Bank and IMF data

Appendix 3:

Table 3.2: Per capita income growth rate at current market price (Nominal growth rate of GDP) across a country.

Year	Burundi	Ethiopia	Kenya	Rwanda	Uganda	Tanzania
2000	-13.3	6.9	-4.0	-13.4	2.7	-7.7
2001	-8.3	-3.2	0.5	-9.6	-0.6	0.8
2002	-7.7	-5.8	-1.5	-2.5	1.3	2.0
2003	-7.6	7.1	10.5	7.8	5.2	2.3
2004	11.5	14.0	5.2	11.5	7.1	15.8
2005	13.2	19.6	13.4	21.1	7.4	15.0
2006	10.4	20.6	17.1	17.4	-1.3	6.2
2007	3.5	24.1	18.0	16.7	13.8	19.2
2008	15.3	32.0	8.9	22.3	19.7	17.0
2009	10.3	7.7	-2.1	8.1	0.2	-2.3
2010	9.8	-8.8	2.5	3.9	4.2	3.9
2011	11.0	11.6	3.1	10.2	0.0	5.1
MEAN	4.0	10.5	6.0	7.8	6.4	5.0

Sources: Own calculation based on current per capita income data using growth rate formula.

Appendix 3:

Table 3.3: Average annual growth rate of HDIs (in Percentage) by member country of EAC and Ethiopia, 2002 to 2012

Year	Burundi	Ethiopia	Kenya	Rwanda	Tanzania	Uganda
2002	-	-	-	-	-	-
2003	11.5	2.2	-2.9	4.4	2.7	3.0
2004	1.6	1.1	3.6	0.0	2.9	-1.2
2005	-22.4	5.4	6.1	-12.2	-8.1	-18.7
2006	5.0	2.8	2.7	1.5	1.5	2.2
2007	3.2	3.0	1.1	1.7	1.7	2.4
2008	2.5	-	-8.5	1.5	1.5	2.3
2009	2.7	-	0.8	10.6	10.6	1.8
2010	2.4	-7.1	-5.8	1.7	1.7	1.1
2011	1.1	10.7	8.3	0.9	0.9	0.9
2012	0.9	9.1	2.0	1.3	1.3	0.4

Sources: Own calculation based on current per capita income data using growth rate formula.

Declaration

I, the under signed, declare that this thesis is my original work in the sampled country under investigation. And also, all sources of materials that are used for this thesis are properly acknowledged.

Name and Signature