MENDEL UNIVERSITY IN BRNO

Faculty of Regional Development and International Territorial Studies

Diploma Thesis

TRENDS IN ECONOMIC GROWTH AND INEQUALITY IN SOUTHERN AFRICA: A COMPARATIVE ANALYSIS AMONG THE LOW INCOME COUNTRIES

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Dedication

I dedicate this thesis to my father Mr Joaquim Zico and my
mother Mrs Cecilia Cherene, to my children Osvaldo,
Marcelo and Alicia, to my brothers and sisters, especially
to my sister Filomena Cherene Zico (in memory)

Abstract

This study investigates and compares the trends of economic growth and income inequalities in five low income countries members of Southern Africa Development Community (SADC) for the period of 1990 to 2013. It also analyses the relationship between growth and inequalities in the studied countries. It is a quantitative and qualitative study and was used the descriptive, analytical, statistical and comparative methods. The descriptive analysis indicates that the entire five economies grew in different performances and they are not absolutely convergent, but is a relative convergence among some countries. However, the inequality level trend to decrease in these countries but in very small levels. The results using econometric models and Ordinary Last Square (OLS) estimator show that the factors affecting economic growth and inequalities are not all the same and do not react in the same way for all countries. It also found out that the relationship between growth and inequality is not mutual in all countries. Therefore, growth trend to reduce inequality in Mozambique, Tanzania and Zambia, but trend to increase in Zimbabwe.

Keywords: Economic growth; Income inequality; Low income; Regional Development

Abstrakt

Práce zkoumá a porovnává trendy vývoje ekonomického růstu a důchodových nerovností v pěti nízkopříjmových zemích v rámci Jihoafrického rozvojového společenství (SADC) za období 1990 až 2013. Porovnání též vztah mezi růstem a nerovnostmi v daných zemích. Jedná se o kvantitativní a kvalitativní studii s využitím popisných, analytických, statistických a komparativních metod. Na základě popisné části je možné říci, že zkoumané země se vyvíjely různě rychle a nejedná se tedy o absolutní konvergenci. Mezi některými zeměmi je však možné mluvit o relativní konvergenci. Úroveň nerovností mezi zeměmi se pomalým tempem snižuje. Výsledy modelu založeném na metodě nejmenších čtverců ukazují, že faktory ovlivňující ekonomický růst a nerovnosti nejsou stejné a nemají ve všech zemí stejný vliv. Také se ukázalo, že vztah mezi růstem a nerovnostmi není ve všech zemích vzájemný. Redukce nerovností se projevuje v Mosambiku, Tanzanii a Zambii, avšak v případě Zimbabwe roste.

Klíčová slova: ekonomický růst; příjmové nerovnosti; nízký příjem; regionální rozvoj

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I am grateful for the overwhelming love and constant encouragement of my parents, my father Mr. Joaquim Zico and my mother Mrs. Cecilia Cherene, and my entire family. I couldn't have done this without your support.

Thank you all.

Declaration

I declare that in carried out this thesis independently and only with the cited sources, literature and professional sources. I agree that my work will be published in accordance with the section b of Act. No. 111/1998 Coll. on High Education and amended thereafter and in accordance with the guidelines on publishing university students thesis.

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In Brno, 20.5.2016

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Signature

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List of abbreviations

FAO - Food and Agriculture Organization of United Nations

IMF – International Monetary Fund

SADC - Southern Africa Development Community

SSA - Sub-Saharan Africa

UN - United Nations

UNCTAD – United Nation Conference on Trade and Development

UNDP - United Nations Development Program

WB - World Bank

CHAPTER ONE - INTRODUCTION

1.1.   General background

The world is composed by economies of all shapes and sizes. There are wealthy countries, very poor and those who are between the two extremes. These differences are not only among countries, also within a country there are rich and poor regions and those that can be considered in average development. This situation is verified because some economies grow faster while others grow slowly generating disparities.

Trends in income and wealth tell a clear story about the inequalities. The gap between the rich and poor has reached new extremes and is still growing, while power increasingly lies in the hands of elites. Worldwide, inequality of individual wealth is even more extreme. At the start of 2014, the richest 85 people on the planet owned as much as the poorest half of humanity. Today's extremes of economic inequality undermine growth and progress, and fail to invest in the potential of hundreds of millions of people (Oxfam, 2014).

Addressing about inequalities among regions, Perroux (1977) cited by Oliveira (2009), stressed that economic growth starts concentrated in some parts of the territory and then spread throughout the whole economy. In this sense when the development starts in a certain region it causes a series of attractive forces to all types of economic activities in other regions, causing regional differences within a country. Therefore, the effects of growth on the country's regions have a homogeneous character therefore depend essentially on inter-regional economic relations. Within these relationships, typically of competitive nature, some regions trend to become stagnant giving advantages to other expanding regions, while others grow however because of the complementary nature of their economy.

Studies about economic inequalities started because of injustice that the greater or lesser concentration of wealth in the hands of some people or regions creates to the aggregate. Therefore, these disparities cause in the last time a great discrepancy on the living conditions and well-being of the inhabitants of a given region creating consequently situations of social conflicts. Among many causes underlying the obvious disparities, the following ones are usually noted: historical knowledge, ethnicity and regionalism aspects, geographic position and

possibilities for capitalizing on spill-over effects, resources allocation, high level of corruption, war damages and the absence of political will, accountability and cooperativeness to minimize this problem, lack of coherent regional development policy on national level.

The African countries are not living apart of this serious problem of inequalities which is ravaging the fair and balanced growth of the world and is particularly more harmful in developing countries. Studies appoint that the sub-Saharan Africa is the most unequal region and also the weakest economy among all developing regions (Agyemang, 2014). In another hand, the Southern Africa is appointed to be one of the most unequal sub-region of all Sub-Saharan regions. However, Studies about growth and inequalities in the SADC region are scarce and sometimes contradictory. For example, Nhate and Simler (2002) measured inequalities in Mozambique using data from IAF (Household Survey of 1996 and 1997) they found that all capitals of Mozambicans provinces have an index of inequality in consumption above 46 percent between high and low income consumers, showing how it is statistically significant. In contrast, the study of James et al. (2005), whose results were presented in the *Second Action Plan for the Reduction of Absolute Poverty* (PARPA II), stresses that the evolution of economic inequality in the period 1996 to 2002 increased slightly, from 40 percent to 42 percent, and suggests that this growth of just 2% in about six consecutive years is statistically insignificant (Ali, 2009).

The goal of this thesis is to investigate the factors affecting economic growth and income inequalities in southern Africa. It also analyses the relationship between growth and inequality in the selected countries. It is a comparative study among the member countries of Southern Africa Development Community (SADC). The study is focused on low-income countries, defined according to the World Bank classification[1]. Thus, the countries of the region that are part of this sub-group are Democratic Republic of Congo (DR Congo), Lesotho, Mozambique, Malawi,

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[1] As of 1 July 2015, low-income economies are defined as those with a GNI per capita, calculated using the *World Bank Atlas method*, of $1,045 or less in 2014; middle-income economies are those with a GNI per capita of more than $1,045 but less than $12,736; high-income economies are those with a GNI per capita of $12,736 or more. Lower-middle-income and upper-middle-income economies are separated at a GNI per capita of $4,125 (WB, 2015).

Tanzania, Zambia and Zimbabwe. Therefore, the study excludes DR Congo and Lesotho for the reasons of sampling criteria which are explained in the methodology (chapter 4).

This document is structured in seven chapters. The chapter one is the introduction which gives the background of the thesis, the general characterization on SADC regional bloc. The chapter two is the aim of the thesis and are presented the goal, objectives, the justification, including motivation and possible contributions of the findings, the research questions and the hypothesis. The chapter three gives the theoretical overview, discussed the main topics related with growth and inequalities using different approaches and authors. In the chapter four is presented the methodology of research and describes the main phases, steps, methods and techniques used in the research, including the definition of variables and the models development. The chapter five is concentrated in the data trend analysis. The chapter six present the research results based on the econometric models and discussions of the final findings. The last chapter seven is reserved for the conclusions and recommendations. The references and appendices are the final aspects of the thesis.

1.2.   General characterization of SADC Region

This section gives the general characterization of SADC region. It contextualizes the economic bloc in the aspects of ambit and objectives of creation, the composition and economy.

- *Context*

SADC comprises 15 states[2] located in Southern Africa (see the map in appendix 1) and seeks to promote peace, security, and economic integration in the region. It has its origins in the organization of Frontline States (Angola, Botswana, Mozambique, Tanzania, and Zambia), which sought the political liberation of the region from colonialism and minority white rule in the mid- to late 1970s. The group expanded in 1980 when Lesotho, Malawi, Swaziland, and

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[2] Angola, Botswana, the Democratic Republic of Congo (DRC), Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, Swaziland, Tanzania, Zambia, and Zimbabwe.

newly independent Zimbabwe joined to form the Southern African Development Coordination Conference (SADCC), with the aim of reducing economic dependence on apartheid South Africa and promoting their own economic development through cooperation and integration. Namibia joined to the SADCC in 1990 and in 1992 with the Windhoek Agreement SADCC became SADC (Burgess, 2009; Shoeman, 2014).

The total population of the region in 2014 was about of 287 million inhabitants (roughly one third of Africa) and majority youthful with an unusually low life expectancy rate. The most populated country is the Democratic Republic of Congo with about 67 millions people, followed by United Republic of Tanzania with about 41 million people. The less populated country is Seychelles with 0.1 million people (Kahn and Menéndez, 2014).

The regional bloc is not composed by countries with same regional/spatial characteristics. Five SADC countries are coastal (Angola, DR Congo, Mozambique, Namibia and South Africa), other five and landlocked (Malawi, Zambia, Zimbabwe, Lesotho and Botswana, three are islands (Seychelles, Mauritius and Madagascar) and two are small kingdoms (Lesotho and Swaziland) (See the map 1 in the annex). This aspect that characterizes the regional countries influences all other aspects of the countries, such as population, economic activities and performance, environmental conditions and in the final the forms of cooperation between them, either bilaterally and multilaterally.

- *Economy*

The SADC countries have great economic potential, based on both the potential for domestic production and regional and international trade. They also differ significantly in terms of their size. The range is comprised of countries such as Malawi, which figures among the poorest states of the world, to countries such as Mauritius, a stable and prospering middle income country, including the very high growth economies of Angola, Botswana, Mozambique and Tanzania. South Africa is the leading SADC economy, and though its exports are mainly primary products, its domestic economy is highly diversified, with services comprising 66% of GDP. The combined SADC Gross Domestic Product is in the order of USD 600 billion, and is strongly based on commodities, with the agriculture sector contributing some 17% to GDP. Mining also

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plays a dominant role in economies of the region even though there have been decades-long attempts by many countries to diversify their economies through import substitution industrialization. Thus, mineralization is extensive across SADC countries (GIZ and SAIIA, n.d.; SADC, 2014).

For SADC as a whole, from 2003-2013, economies grew by an average of 4.7% annually, prompted by different reasons in different countries. Therefore, while 4.7% annual growth over the last decade seems impressive when compared to the European Union's average of about 2% per year, it lags behind other developing regions such as ASEAN[3] which grew at 7.4% per year over the same period. This clearly shows the potential for increased growth in SADC. On average, gross domestic product (GDP) per capita increased by 3% per year in SADC over the last decade. Thus, the differences between individual countries, however, are huge. While a country such as Angola enjoyed more than 7% GDP growth per capita annually over the last decade, the per capita income of a country such as Zimbabwe decreased by 2.8% annually over the same period. Looking to the individual countries participations in the regional GDP South Africa is the unchallenged economic heavy weight of the region. Its share of the region's total GDP stands at 55.5%. Angola comes in second with a share of 13.6%. On the other hand, Lesotho and Seychelles have shares of regional GDP adding to 0.4% and 0.2% respectively (GIZ and SAIIA, n.d.). (See the figure below with detailed GDP share by each country in the bloc).

The reasons for these differences vary. They include diverse factor endowments, different geographical land sizes, connections to international trading routes (some are landlocked, others not) and population sizes vary greatly. The differences in the (enabling) business environment and the corresponding government policies similarly play a significant role. The World Economic Forum Global Competitiveness Index ranks seven SADC states as factor driven economies: Lesotho, Madagascar, Malawi, Mozambique, Tanzania, Zambia, Zimbabwe; two as between factor and efficiency: Angola and Botswana; four as efficiency driven: South Africa, Swaziland, Namibia and Mauritius, with tiny Seychelles as efficiency/innovation driven.

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[3] Association of Southeast Asian Nations

Democratic Republic of Congo is not classified (GIZ and SAIIA, n.d; Kahn and Menéndez, 2014).

Figure 1.1: Countries GDP shearing in SADC in 2013(%)
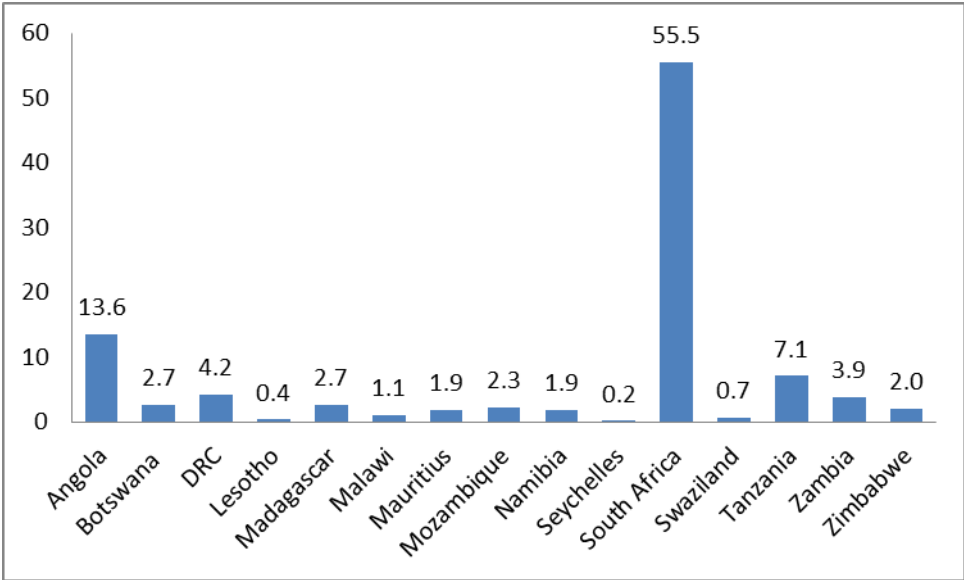
Source: author (2016); data from GIZ (n.d.)

• *Sectors contribution to regional GDP*

Figure 1.2: sectors contribution to regional GDP
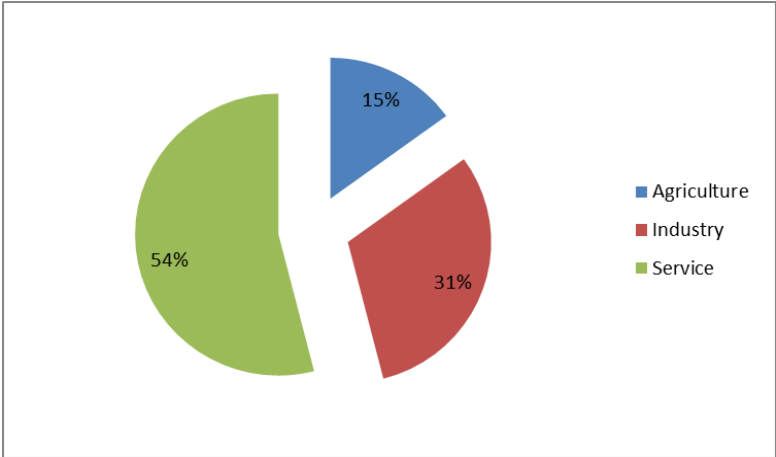
Source: author (2016); Data from GIZ and SAIIA (n.d.)

The figure 1.2 gives a spectrum a global sector contribution for all SADC region. The indications is that in the SADC region the services sector is the main driver of regional growth contributing with 54% of regional GDP, what represents more than half of the total. In the second position comes the industry sector with about 31% and in the final the Agriculture contributes about 15% of value added to GDP. What determines this situation is that the relative importance of different sectors varies quite significantly by country.

Table 1.1: countries Sectors' contribution to GDP 2013(%)

Country / Sector	Agriculture	Industry	Service
Angola	10.83	56.98	32.18
Botswana	2.54	36.91	60.55
DRC	25.16	35.09	39.75
Lesotho	7.83	36.57	55.60
Madagascar	29.11	16.00	54.89
Malawi	26.96	18.79	54.25
Mauritius	3.27	23.07	73.66
Mozambique	29.25	23.66	47.09
Namibia	7.07	29.64	63.29
Seychelles	2.09	15.42	82.49
South Africa	2.39	27.58	70.03
Swaziland	7.48	47.69	44.83
Tanzania	27.00	25.18	47.82
Zambia	17.68	37.25	45.07
Zimbabwe	12.38	31.29	56.33

Source: author (2016); data from GIZ (n.d)

The table 1.1 above gives a detailed contribution of each production sector by country. With a simple analysis of the table 1.1 is possible to denote that the service is the main economic sector for all country and with major contribution on GDP of each country, excepting Angola and Swaziland dominated by industry (56.98% and 47.69%, respectively). Seychelles is the country

with highest share in service sector to GDP in the region with 82.49% followed by Mauritius with 73.66%. These two countries derive this level of contribution in the service sector mostly due their tourism sector. The agriculture sector is dominated by Madagascar with 29.11% in their economy.

Two significant obstacles affect the development of SADC region: low status of health and education in the region. Unemployment, poverty and inequality are also strong features of all SADC member states, with Namibia and Zambia demonstrating among the highest recorded Gini coefficients. GDP per capita varies from below $1000 (Congo) to $20000 (Seychelles), with a SADC average of around $2000 per capita (Kahn and Menéndez, 2014).

CHAPTER TWO – AIM OF THE THESIS

2.1. Goal and Aim

✓ The goal of the work is to investigate the trends of regional economic disparities among five chosen low income countries in Southern Africa members of SADC regional bloc over the period of 1990 to 2013. The aim is to explain and compare the crucial factors involving economic growth and income inequalities and propose singular and cooperative recommendations to avoid negative ones and support the positive ones.

2.2. Research objectives

✓ To describe the trends of factors of growth and inequalities of each studied country in the period of 1990 to 2013.

✓ To analyse the effects of the variables on economic growth and inequalities in the studied countries using regression models with time series data from 1998 to 2013.

✓ To compare the factors affecting growth and inequalities between the five chosen countries and to understand the differences and similarities of their effects.

✓ To understand the relations between economic growth and income inequalities in the SADC countries.

2.3. Justification and contribution

The studies of economic growth and income disparities are directly related and are very important because it is almost associated with the development of the regions/countries and the improvement of the living conditions of the population. According to the related literature is also very important to understand which factors affects the development process, the well-being construction and consequently the social justice, aspects which are very influenced by the existing disparities.

The persistence of high inequality scenario between regions and consequently among people causes weakness in the productive capacity of the country. Therefore, unaware of the extent of

these disparities creates a very worst scenario, weakening all possible political, economic and social actions to achieve the well-being because the allocation of resources and the targeting of investments will not be consistent with the real priorities. In the other hand the economic performance of regions or countries influences the type and conditions of cooperation with others, determining the main sectors to cooperate and the bargaining power.

The motivation for choosing this topic is related to the importance of understanding the factors that influences the performance of economic growth of the studied countries and its connection with the income distribution. It is also very important to known whether these two factors converge or diverge and how the verified situation affects the level of equality, quality of life of individuals, welfare state and social equity and justice. On the other hand, the studied countries are all seen as low-income countries, according to the international development classifications, they have similar economic characteristics, they face common challenges and they share similar stories of development as states. These countries are simultaneously members of the same regional developing organization, the Southern Africa Development Community (SADC) and cooperate multilaterally and bilaterally apart of shearing geographical and territorial borders. Therefore, it's also important to know and compare the factors of convergence and divergence in their development processes and how they may affect their cooperation, both positively and negatively.

This study is supposed to contribute to reduce the scarcity of scientific studies on materials on economic growth and income inequality in the studies countries, particularly for Mozambique where the exploratory bibliographic research shows that the scientific scarcity in these areas is higher than other countries. On the other hand, is expected that the results of this study contribute to the governments of the mentioned states understand better some priority areas that need more attention and intervention to address a more consistent development, more proportional distribution and egalitarian income between individuals and regions, which may help turn the reduction of injustices and social conflicts. Finally, this comparative study between neighbouring countries, generally with same characteristics, which cooperate from long time ago and that are part of the same regional economic and political bloc, can help each state government to

understand better some strong and weak points of their development and how them can influence strategically the cooperation with others.

2.4. Research Questions

To understand the trend of factors of growth and inequalities in the studied countries and also the relationship between growth and inequalities were defined three main research questions which are stated below:

1. What are the trends of economic growth and inequality in the chosen Southern Africa countries during the study period?

2. Which determinant factors affect growth and inequality in these countries? Are the factors the same for all countries?

3. Is there a mutual relationship between economic growth and inequality in these countries?

2.5. Hypotheses

Below are stated the null and alternative hypotheses of this thesis. They give the possible answers about the trends in economic growth and inequality in Malawi, Mozambique, Tanzania, Zambia and Zimbabwe, the chosen Southern Africa countries, according to the defined research questions.

*H0***:** The economies of all five studied countries grew positively over the study period and trend to convergence.

H1: the economies of the five studied countries trend to decrease over the study period, taking all of them to divergence.

CHAPTER THREE - LITERATURE REVIEW

This chapter dives the theoretical framework of economic growth and Income inequalities. All the topics discussed here, according to different authors, academics and approaches, are strictly connected to the study.

3.1. Economic Growth: Definition and characterization

The concept of economic growth was much debated and still being debated by the academics to understand better its attributions. The debate is quite rich in academia, particularly in relation with its distinction with economic development.

Many academics consider economic growth as the constant increases in the level of real income and it is just a basic condition to reach development (Sunkell and Peace, 1988 in Vasconcellos and Garcia, 1998). Sandroni (1994) considers economic growth as positive increases in the product, which when accompanied by the level of improvement in the quality of life of individuals and structural changes in the economy results in economic development. For him, both growth and economic development depend on the characteristics of each country or region, that is, depends on your past history, the geographical position and extent of the demographic, cultural and natural resources they possess.

Development should result from economic growth complemented by improvement in the quality of life (Vasconcellos and Garcia 1998). In this way of thinking, the authors consider that economic growth should include changes in the product composition and allocation of resources by the different sectors of the economy in order to improve the indicators of economic and social well-being, such as the level of poverty, unemployment, inequality, health, food, education and housing.

Milone (1998) argues that to better characterize the economic development must be observed the existence of positive changes of economic growth over time, measured by some indicators, such as, real income, *per capita* income, real GDP and *per capita* GDP, reduction on the levels poverty, unemployment and inequality and improvements on the levels of health accessibility, nutrition, education, housing and transportation. Fernandes and Coelho (2002) consider that economic growth is only a quantitative measure of the increase in GDP *per capita*, being

understood as relative measure, as the statistical dimension of economic changes, but without revealing how is the growth distributed within the countries, regions and individuals.

Some academics consider the existence of two economic schools discussing on the topic of economic growth. The first looks to economic growth as the synonym of development, while the second mention that growth is essential for development, but not sufficient condition. Therefore, the development should be seen as a complex process of change and transformation in the economic, political, human and social aspects. This thinking mean that economic growth creates development by transforming the positive growth on product to meet the diverse human needs such as health, education, housing, transportation, food, leisure, among others (Sousa, 1993). However, the positive economic growth which allows the achievement of development must be in continuous high rate and must be higher than the rate of growth of the population, and in the same time should originate structural changes and improvements in the indicators of quality of life of the individuals. Therefore economic growth is the key to the solution of human problems and development.

3.2. Economic Growth Theories

This study is connected with two groups of theories of economic growth. The first one integrates the theories of convergent and divergent growth. It explains the reasons of the directions or trends of the economies. The second group is composed by the theories of endogenous and exogenous growth. These two theories are related with the origin of the factors that affects the growth of the economies. Down each of the mentioned theories are detailed discussed.

3.2.1. Theories of convergent and divergent growth

The theories do convergent and divergent growth discussed below tries to demonstrate how the economy of a particular place, region or country behaves or may behave over time. They are very important to understand if the economy is growing positively or not.

- *Theory of convergent growth*

The theory of economic growth gives three hypotheses of convergence. The first is the absolute convergence hypothesis. According to this hypothesis, regardless of their initial conditions,

countries will eventually converge to each other in terms of per capita income. It means that if this hypothesis is borne out in the real world, then income disparity is temporary. The second hypothesis is the conditional convergence. For this hypothesis, regardless of their initial conditions, countries will eventually converge to each other only if they have similar structural features such as technologies, saving rates, population growth rates. The third and last proposed hypothesis is the club convergence. This hypothesis states that depending on their initial conditions, countries might diverge from each other in the long run even if they have similar structural features. If the hypothesis of either conditional or club convergence holds in the real world, then income disparity might be permanent. However, economic policies should be targeted toward structural features in the former and initial conditions in the latter (Razak, 2006; Mathur, n.d).

The convergent vision defended by Williamson (1965) and followed by Richardson (1970) and many other academics is an optimistic theory about the economic growth process. Williamson defends the idea that the market itself promotes regional convergence pointing out that if the propellers effects overcomes the regressive effects this situation can eventually eliminate regional income inequalities. The reverse polarization model developed by Richardson is considered one of the most optimistic convergence model in which economic growth after a certain stage of development promotes "natural" way an economic devolution process. This thesis shared also by Williamson suggests that development starts concentrated in some regions until to reach a maximum point from which begins with deconcentration process reducing inequalities.

Reinforcing the discussion on the convergence growth approach, Nelson and Phelps (1966) built a model in which adopt technological progress as the most important variable. For these authors the technological progress grows in proportional rate of the growth delay of the poor countries for rich countries. Therefore they assume that the higher is the technological gap in the poor regions the higher is the rate of technological change in these regions (Santos, 2001).

In the same way of discussions presented above, other academics points out that the process of industrialization due to the technological advance is the "engine" of economic growth, determined by the establishment of high-scale industries and flexible production structure. In this

view according to Santos for poor countries/regions to achieve the same level of competitiveness of the rich countries/regions they need to stimulate industrialization through economic openness, production subsidies and tax benefits. Santos also stresses that according to the theory of convergent growth occur the reduction of disparities when the economy reaches a steady state point where occur absolute convergence of per capita incomes. If confirmed this hypothesis economies would be in development process, less inequality, more social welfare and less social injustice (Kindlenberger, 1965; Kaldor, 1977; Romer, 1994 and Lucas, 1998 all cited by Santos 2001). However, despite this expectation of convergence among the nations, which has been observed in many empirical studies is that there is little evidence about the hypothesis of convergence of per capita GDP, when taking a large number of countries in the world. Even when it is observed, the convergence occurs within specific groups of countries and the convergence rates are very low, taking the convergence process to be relatively slow (Silva Filho and Carvalho, 2001).

- *Theory of divergent growth*

Apart of convergent growth theory there is the divergent theory. Myrdal (1963) and Hirschman (1975) are the first authors advocating the divergent vision were observed the effects of the economic dynamics using the circular notion of causation and vicious cycle of poverty developed by Nurske (1957) to explain a circular motion of cumulative factors with negative impact on other factors which is concomitantly the cause and effect of regressive or propellants movements. The regressive movements (*backwash effects*) according to Myrdal arise from trade relations and unfavourable terms of trade among the richest regions, export of goods with high added value, and the poorest regions, producers of basic inputs (raw materials, agricultural products and food) from primary sector with low added value. The propellants movements (*spread effects*) come from expanding regions, for example dynamic industrial centres, and induce economic growth creating positive threads on exports and the production of inputs and commodities in which the underdeveloped regions have greater comparative advantages (Ibiden).

Between the two movements described above, which behave in opposite directions, there is a *stagnation process* that occurs when the effect caused by the regressive motions are greater than the propulsive movements, thus establishing an unfavourable relationship and a process of

cumulative resource transfer from poor regions to wealthy regions. Therefore, in the view of Myrdal (1963), economic growth does not converge to equilibrium, due to the circular causation. For the author, the games of the market forces usually tend to increase inequalities between regions rather than reduce. He advises the state's political interference to perform its allocative and redistributive function of resources, under the risk of masse growing of some regions and keeping the other poor.

In parallel to the position of Myrdal, Hirschman (1977) exposes that economic growth produces inequalities between regions. According to the author, the expansion of a region causes both favourable and unfavourable effects on the growth of other regions. The favourable effects, called creep effects (*trickling-down*), increase purchases and investments in the poorest regions, particularly if the economies have a relationship of complementary. It helps to absorb a part of unemployment, increases the labour productivity and the level per capita consumption of these regions. In another side the adverse effects, also called regressive, (*polarization effects*), puts the companies of poor regions competing in the same market with companies of developed regions, as well as they loses their technicians, managers and more skilled entrepreneurs towards the developed region. For Hirschman, if the market forces promote the durability of regressive effects than the fluency effects will be necessary the state interventions to implement economic policies and public investment to correct the situation, acting consequently to neutralize the regressive effects. Therefore, the author gives attention to the fact that public investment does not confine only to basic social capital, such as water, energy, transport, housing, etc. To generate economic growth is necessary to have good infrastructure, to encourage the installation of productive unities in the interior of poor regions because when the private sector is incipient, the development process may not achieve the desired results (Idem Ibiden).

According to the explanations above can be noted that both Myrdal and Hirschman share the idea that the process of economic development tends to create disparities between regions and consequently between people. They also call to the intervention of the government to correct this trend using allocative and redistributive policies, as well as public investment.

3.2.2. Theories of endogenous and exogenous growth

The exogenous and endogenous theories are related with the origin of the resources or factors that influences the growth of the economy. Therefore, the endogenous factors are more controllable, because they are internal of the economy or the region, and the exogenous factors are less controllable because they are external. Thus, to know about these theories is essential for this study to understand if the variables used to explain the trend of growth and inequality in the SADC countries are internal or external factors. Down each theory is described with some more details.

- *Theory of endogenous growth*

This theory is mainly based on the approaches of Roomer (1986) and Lucas (1988). The endogenous growth theory or, more simply, the new growth theory provides a theoretical framework for analysing endogenous growth, persistent Gross National Income (GNI) growth that is determined by the system governing the production process rather than by forces outside that system. In contrast to traditional neoclassical theory, these models hold GNI growth to be a natural consequence of long-run equilibrium (Todaro and Smith, 2014).

In the new economic growth theory models, growth is seen as a product of endogenous economic forces to decentralized market systems. Are these forces that drive the process more than any exogenous technological innovations on which the market have no control. In this way, the economy can achieve the perpetual balanced growth through its internal forces. Therefore, to achieve this kind of growth is necessary to eliminate the diminishing trend of returns of capital. In this way, to the new theory of increasing returns ensure support the long-term economic growth (Arraes and Teles, 2000; Silva Filho and Carvalho, 2001;).

For the supporters of this theory, factors such as endogenous technological innovation (which arise as a result of the productive agents efforts to maximize their profits), human capital (the stock of knowledge of economic agents) and institutional arrangements (including government policy and there civil society organization) plays a crucial role in the continued growth of per capita income in any economic system (Silva Filho and Carvalho, 2001).

- *Theory of exogenous growth*

The traditional neoclassic models emphasize the accumulation of capital as the driving force of economic growth. Based on the work of Solow (1956) and Swan (1956), they use a production function that seeks to satisfy the condition of flexible proportions in the use of factors, thus ensuring that private savings equals the *ex post* investment, eliminating the Keynesian unemployment and consequently ensuring the inevitable and fundamental balance stability. Thus, the traditional neoclassical model concludes that the marginal propensity to save only determines the capital-labour ratio and the speed of adjustment of the economy to the steady state, which is determined exogenously by technological progress and population growth rates (Arraes and Teles, 2000).

3.3. Defining Income Inequality

Discussing specifically the issue of inequality, Rousseau stated that there are two types of human inequalities. The first is the natural or physical which is considered that was established by nature. This disparity can be the difference of age, health, the strength of the body and the qualities of the spirit or soul. The second inequality is the moral or political, because it depends on a kind of convention and it was established or at least authorized with human consent. This second kind of inequality consists essentially of the different privileges enjoyed by some at the expense of others, such as to be richer, more honoured and more powerful than others (Rousseau, 1753 cited by Ali, 2009).

Attending the nature of that inequality some academics stresses that it happens in several ways and should be viewed as multi-dimensional aspect. In this case a country or region can be very rich and their inhabitants very poor people. In another way a country can be rich and its inhabitants enjoy a higher standard of living. What determines this difference is the profile of the wealth distribution. In the more broad analysis economists have long been concerned about the issue of income disparity among nations. This concern is based on whether income disparity is expected to be temporary or permanent. If the disparity is expected to be temporary, then the market system may be left alone to run its course. If the disparity is expected to be permanent, however, then economic policy may be called upon to intervene. Hence, an important question is

whether income disparity is likely to be temporary or permanent (Durlauf, Johnson and Temple 2004; Razak, 2006). To answer this question are used the hypotheses of absolute convergence, conditional convergence and club convergence, explained before.

In another hand it's important to explain that inequality is not only the income gap, but also can be seen according to the quality and accessibility to basic social services (education, housing and health, for instance), employment opportunities, human rights and participation in the decision making (political representation and power). In this case, the concept of inequality implies an uneven distribution or disproportionate share of opportunities, resources, income, consumption, wages, access to health services, education and other basic services by the members of the society (Therborn, 2001 and Lamas, 2005; cited by Ali, 2009).

The approaches discussed above clearly reveal that inequality is one of the major unfair elements in the society. More important than the question of more or less equal distribution, the reason that why the issue of inequality gives so much attention is the idea that the concentration of resources and opportunities to certain restricted groups than to other creates social injustice. In this sense, access to income should not be seen only as possession of money. It can be discussed into various components such as access to basic services, education, health, sanitation, clean water, adequate housing and other elements that contribute to providing a better quality of life for individuals. It can also show that a more equal distribution allows more balanced development of the economy.

However when discussing economic inequalities we cannot ignore to discuss its relationship with economic growth. Moreover inequality is the result of the process of growth and they are inherent in any economy varying only in terms of amplitude.

3.4. Relationships between economic growth and income inequalities

Economic growth and income inequalities are two topics totally linked and their theoretical relationship generally turns out to be a complex one The character of economic growth indicates the efficiency of income distribution and consequently the level of inequalities. Nowadays, the discussions about the relationships between these two subjects have been increasing in different social and economic sectors. Academics and politicians are revelling concern about this issue

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and trying to understand it in different approaches to find better solutions to deal with, especially for underdeveloped or developing countries where according with recent researches they has the major level of disparities.

The standard economic theory states that if the markets are perfectly competitive and there is no government intervention, market will achieve the most efficient allocation of resources and take the economy toward the optimal growth path. The standard theory is silent on the question whether economic growth will be at the cost of higher income inequality. But in a market economy, growth is generally believed to cause income inequalities at least at some stages of economic development (Das and Das, 2014).

The inverted-U hypothesis of Simon Kuznets has been widely discussed in development literature and it directly addresses the relationship between economic growth and income inequality. The nature of this relationship depends of the country's initial per capita income; countries with low per capita income are likely to face rising inequality, while the countries with sufficiently high per capita income will be able to reduce income inequality in the process of economic growth. The so-called Cambridge models of Kaldor (1956) and Pasinetti (1974) discuss the relationship between growth and distribution in the framework of equilibrium growth. In this model, economic growth is the result of household savings being invested in expanding production capacity. In Kaldor's model, equilibrium is attained if the warranted rate of growth of income is equal to the natural rate of growth which, in the absence of any technological change, is the exogenously determined rate of population growth. Another important aspect of Cambridge growth models as well as the neoclassical growth models is that in the process of income redistribution the real rewards going to the various economic classes do not remain constant (Ibiden).

The influence of growth in the inequalities is not considered just because of the rate but also the character of economic growth (how it is achieved, who participates, which sectors are given priority, what institutional arrangements are designed and emphasized, etc) that determine the degree to which that growth is or not reflected in improving living standard for the poor (Todaro and Smith, 2014).

Alternative theories predict that inequality can affect growth in either a positive or negative direction. In this way, is consensual that greater inequality might reduce growth. On the other hand, greater inequality might increase growth (Cingano, 2014). Razak (2006) states that the idea that income distribution affects economic growth dates back to at least as early in studies developed by Kaldor in 1957. According to Kaldor, income inequality is good for growth because concentrated wealth in the hands of a few permits greater savings, which are conducive for investment. In the 1990s, at least three alternative theoretical models were developed to challenge and counteract the Kaldor's view. According to the first model, known as the political-economy model, developed by Alesina and Rodrik (1994) and Persson and Tabellini (1994), income inequality is bad for growth because average citizens would push the government for more extensive redistributive policies, which are detrimental for investment and growth. According to the second model, known as the socio-political instability model, income inequality is bad for growth because it might create social tension which is harmful for investment. According to the third model, known as the credit constraint model, income inequality is bad for growth because it restricts the number of people who have access to costly education.

3.5. Factors of growth and inequality

Therefore, the behaviour of the behavioural trends of economic growth and inequality can be understood by their relationship with more other variables or indicators. The influence of the factors on growth and inequality is different for different situations and economic realities. Below are discussed some of the considered more expressive factors affects growth and inequalities both in developing and developed countries.

- *Real GDP*

Therefore, we know that real GDP is the total increase of the economic production of a country or region during a time period (Samuelson and Nordhaus, 2001). It just considers the final product (Paiva and Cunha 2008). Thus, the relationship between the two variables, real GDP and GDP per capita is causal. This causal relationship can be in both positive and negative directions (Krugman and Wells 2015). It means that an increase or decrease on real GDP is also supposed to create an increase or decrease on GDP per capita.

- *Population*

The population growth is also another expressive factor that affects both economic growth and inequalities. The relationship between population growth and economic growth exists in both positive and negative directions (Krugman and Wells, 2015). Population growth enlarges labour force and provides a large domestic market for the economy, therefore, increases economic growth. On the other hand low wages will increase the demand for labour and the expansion of industries (Kitov, n.d). However, increasing the labour force, a large population consequently push wages down. High population growth rate is also negatively associated to food problem and constraints on the development of savings, foreign exchange and human resources (Meier, 1995). Large population may reduce productivity because of diminishing returns to more intensive use of land and other natural resources (Tsen and Furuoka, 2005).

In the side of inequalities, results of recent econometric analysis suggest that inequality trends to increase at early stages of economic development and fall at later stages. The most important determinant of inequality is not economic growth, however, but rather changes in population age structure. These population changes occur as mortality and fertility drop during the course of economic and social modernization (Williamson and Higgins, 2003).

- *Unemployment rate*

Economic growth and unemployment are variables whose importance influence in the formation and analysis of an economic scenario. Unemployment is a multi-dimensional phenomenon. It is an economic phenomenon showing imbalance in economic activity. Unemployment is seemed to be a negative phenomenon in any human society as it adversely affect in different dimensions and directions. In addition, it refers to an economic defect affecting the community structure. Thus, the analysis of economic and social dimensions of the impact of unemployment on the growth is complex. The effects are verified by the presence of causal relation between rates of economic growth and the changing rates of unemployment prevailing in the economy. In this, way, the greater the unemployment rate the less opportunities to achieve high economic growth as well as the emergence of the negative social aspects and in contrary, any increase on rates of growth must be associated to low unemployment rates (Habees and Rumman, 2012).

- *Inflation rate*

Some studies using time series models (for example Schultz 1969; Blinder and Esak 1978) found that inflation contribute to cyclical changes in income distribution, showing a positive relationship between inequality and inflation. It means that high inequality is associated with high inflation rates, particularly in poor countries (Bulíř, 1998). Therefore, low inflation reinforces, rather than counteracts, the income-equalizing. The positive impact of price stability on income distribution is nonlinear and the reduction of inflation from hyperinflationary levels significantly lowers income inequality (CentrePiece Spring, 2005).

CHAPTER FOUR - METHODOLOGY

4.1.   Methods and Materials

This study is based on quantitative and qualitative methods. It uses the secondary data to develop descriptive analysis of trend and statistical analysis of the factors by econometric models. In terms of process organization this research followed the Punch (2000) and Punch (2014) approaches for research procedures and is composed by three main steps: research design, data collection and analysis, results and discussion. Below are describes each stage of the research.

- Research Design

The research design is the first and very important step, the point where the research is idealized, defined and strategically organized. In general, this phase is more connected with the literature review (De Vaus, 2001 and Trochim, 2006). For this research this phase is divided in three main stages: literature review; Sampling, variables definition and models specification.

a) Literature review

The literature review of this study discussed the main topics and approaches on economic growth and income inequalities and obviously the relationship between these two studied economic and social factors. It follows the approaches of Gil (1999) and Jupp (2006) about how to precede the literature review.

b) Sampling

This research uses the non-probabilistic sampling. This method is used because the population is known and well characterized (Gil, 1999, Jupp, 2006). The thesis is centred on analysis of low income countries of the SADC bloc. In this case, the population of the study is constituted by the Democratic Republic of Congo, Lesotho, Malawi, Mozambique, Tanzania, Zambia and Zimbabwe. For the effect of study, the sampling includes only the low income countries with at least 10 million populations and not on war situation. Therefore, based on these sampling criteria, two countries were excluded from the study. They are Lesotho, because of the number of population which is less than the minimal 10 million established for the study and DR Congo

because this country is in civil war and its possible problems on growth and inequalities can be explained also by this factor which is out of the objectives of this research. Thus, satisfying the mentioned criteria, the sampling of this research is composed by five countries which satisfy entirely the conditions, and they are Malawi, Mozambique, Tanzania, Zambia and Zimbabwe. This sample represents 71% of the entire population of low income countries of this sub-Saharan sub region and it seem to be representative and also the results are also representatives and reliable.

c) *Variables definition and measurement*

Variables definition is one of the central steps of the research. This study is focused on endogenous growth factors. The variables enrolled in this study to discuss the proposed issues are essentially the real GDP (RGDP), real GDP per capita (GDPpc), GDP Growth rate (GDPgr), Human Development Index (HDI), unemployment rate (UE), inflation rate (INF), population in millions (POP) and population growth rate (POPgr). These variables are described and analysed at national levels and represented in per year values from 1990 to 2013.

The economic growth is measured by GDP per capita. The GDP per capita is the most internationally used and indicator to measure the economic performance of countries and regions (WB, 2014). It results from the division of total real GDP by the total population (Radlichová, 2013). The inequality is measured using the HDI. The HDI is an analytic tool developed by the United Nations (UN) to measure and rank countries' levels of social and economic development (CASSE, n.d.). This index is the more comprehensive indicator of general welfare since in addition of per capita GDP it also considers the levels of literacy and life expectancy at birth (FAO, 1996). Is also one of the most used by national and international organizations to measure the level of inequalities among individuals of a given region or country. For each dimension, the value of the index is computed on a scale of 0–1 where 0 corresponds to the minimum, and 1 to the maximum assigned value for the corresponding indicator. It means that values near to 0 show high inequality and values near to 1 indicate more equality (Sagar and Najam, 1998; UNDP, 2015). The HDI is annually published by UNDP in the Human Development Reports. Other mentioned variables are explanatory for both economic growth and inequality.

d) Data sources

The data for this study was obtained from the databases and reports from national and international institutions, concretely the National Institute Statistics (INE), Ministries of Finance and Economy, Central Bank (CB) websites of each studied country, World Bank (WB), United Nations Development Program (UNDP), International Monetary Fund (IMF), the International Labour Organization (ILO) and United Nations Conference on Trade and Development (UNCTAD). The collection of data followed the criteria of consistency, timeliness and reliability of sources. It helps to get more reliable and statistically significant results.

Thus, for the researches based on secondary data is trickier because of difficulties to access to national databases, particularly for developing countries. Another problem in the data collection for developing countries is related to the inconsistence of data mainly when the study is based on time series analysis and the necessity of using different data sources for the same information and sometimes they seems to be contradictory.

4.2. Models specification

To determine which variables are going to be measured and how is a very important methodological step for any research. It helps to understand which factors affects the studied phenomenon and how can them be explained. For this research were developed two econometric models of multiple regression equations, one to explain the economic growth and another one to explain the inequalities. The models are own creation based in the modelling approaches of Litchfield (1999) and Durlauf, Johnson and Temple (2004). Thus, were used the same equations for all countries to possibility a uniform analysis. The mathematical specifications of the regressive models are described below:

- *Model of Economic growth analysis*

The economic growth in this study is measured using the GDP per capita. The equation (1) down gives the mathematical specification of the model to measure the factors which influenced the economic growth in all analysed countries during the studied period.

$$GDPpc_t = \beta_o + \beta_1 RGDP_t + \beta_2 POP_t + \beta_3 UE_t + \beta_4 INF_t + \beta_5 HDI_t + \varepsilon_t \ (1)$$

Where: GDPpc is the GDP per capita in time *t*, the dependent variable in the model. The variables RGDP (real GDP) POP (population in millions), UE (unemployment rate), INF (Inflation rate) and HDI the (Human Development Index), are all the independent or explanatory variables. The indicator βo is the constant and ε is the error factor. In more simple words, the model tries to explain how these five factors influences the economic growth of the studied countries. All the mentioned variables, both dependent and independent are measured based on *t* periods, as can be seen in the model. The results of this measurement are used for the comparative analysis among the all five countries.

- *Model of Inequality analysis*

The Inequality variable used to this research is the Human Development Index. The mathematical specification of the model and the description of the variables are stated in the equation (2) below:

$$HDI_t = \beta_o + \beta_1 GDPpc_t + \beta_2 POPgr_t + \beta_3 UE_t + \beta_4 INF_t + \varepsilon_t \ (2)$$

Where: HDI is the Human Development Index, the inequality indicator. This is the dependent variable in the equation which is being explained by the five subsequent independent variables on the other side of the equation: GDPpc (GDP per capita), RGDP (real GDP), POPgr (population growth rate), UE (Unemployment rate) and the INF (inflation rate). The indicators βo is the constant and ε is the error factor. In the same logic with the first equation, the model explains the influence of the four mentioned independent variables on the level of inequalities. The variables in this model are analysed in *t* periods of time.

Note that the both models, economic growth (1) and inequalities (2), are in the additive form and uses initial or original data and not in logarithmic model. The advantage of using normal scores is that the original data need not follow a normal distribution and test is relatively robust to extreme values. Normal scores tests are likely to give slightly improved power for detection of change relative to equivalent rank-based tests (Bonell and Bruijnzeed, 2005).

4.3. Data analysis

This section represents a very important phase of the research. It's from this step that depend a good understand the behaviour of the factors to be obtained on results. Here are used the descriptive and the analytical methods. First of all, the collected data was organized and described sequentially respecting the time series factor. The description of data is basically in tables. The analysis of data is showed by graphics and texts. It helps to understand and explain the temporal trends of the factors that determine economic growth and income inequalities for each country and make comparisons of these trends. This descriptive data analysis covers the whole period of 1990 to 2013. Therefore, because of some inconsistence of inequality, with a break of information for some studied countries in 1996 and 1997, the time series data used for regressions is from the period of 1998 to 2013. In this way, this research presents two data structure, one for the descriptive analysis of variables and another for the regression analysis.

4.4. Results and Discussion methods

The results of the study come from the application of the regression models. The results show the influence of different factors on economic growth and inequality for each studied country and also the relationship or not between these two indicators. Therefore, below is explained how the results are analysed and discussed based in specific methods.

- *Statistical method*

The statistical method is used to explain the results from regressions, concretely the summary of statistical information showing the relationship between the variables, the weight of relationship and significance of the results. Thus, the study also gives the summary of descriptive statistics, concretely the measures of central tendency and dispersion and the results of the robustness tests. To calculate all the mentioned statistical values were used the gretl statistical program.

- *Analytical method*

The analysis is essentially the understanding of the trends of relationship between the variables. In other words, the analysis of results is focused on understand and explain the effects of

independent variables to dependent variables. The analysis of results is based on statistical outputs from regressions.

- *Comparative method*

The comparative method is used in two stages. First is used to compare the statistic results among countries looking to the factors affecting growth and inequalities. This comparison permits to understand how the same factors react in different countries. Secondly, the method is used for discussion. The discussion is basically the comparison between the findings of the study with different approaches of the theories discussed in the literature review. The main objective of the discussion is to support the results with the theoretical base of the studied subject and it open the ways to make conclusions.

CHAPTER FIVE: ANALYSIS OF TRENDS IN ECONOMIC GROWTH AND INEQUALITIES

This chapter describes and analyses the trends in economic growth and inequalities in the five studies countries, namely Malawi, Mozambique, Tanzania, Zambia and Zimbabwe. The analysis is centred to the trends of the variables of the study, namely the real GDP, GDP per capita, unemployment rate, inflation rate, population, population growth rate and the Human Development Index. The objective of this analysis is to compare the behaviour of growth and inequality factors among the countries and to understand if the economies trend to convergence or not. The data analysed if from the period of 1990 to 2013.

5.1. Trends of the factors of Economic Growth and Inequalities

The analysis of growth of the studied economies can be divided in two periods. The first period is from 1990 to 1998 where most of the studied developing countries adopted structural and economic reforms started mostly in the decade of 80 with the aim of enhancing growth and development as well as reducing income inequality levels and poverty. The second period is from 1999 to 2013, which highlights the Zimbabwe crisis which somehow affected the regional economy. Therefore, the sections below give a spectrum of trends of the studied low income countries in southern Africa, and also discuss and make comparisons among them. The descriptive statistics of all analysed variables are in the appendix 2.

Real GDP and GDP growth rates

The tables 5.1 and 5.2 and also the figures 4.1 and 4.2 below depict the distribution and trends of the real GDP and GDP growth rates for all five countries for the period of 1990-2013. In general during the studied period all the countries increased their real GDP's in absolute values. Tanzania is the country with major real GDP in all periods mentioned above, followed by Zimbabwe. Therefore, the Zimbabwe real GDP has reduced drastically from 2000, mostly because of the land reforms implemented by the government what reduced the production and created economic and financial crisis.

Table 5.1: Distribution of real GDP among countries 1990-2013 (values in millions USD)

Real GDP					
Year/country	Mozambique	Malawi	Tanzania	Zambia	Zimbabwe
1990	2451.88	2559.66	8751.97	5413.37	7372.11
1991	2572.03	2759.33	9250.97	5307.50	7779.24
1992	2437.48	2540.84	9576.97	5215.63	7232.18
1993	2651.17	2814.48	9980.64	5570.15	7384.80
1994	2814.45	2488.31	10268.56	5091.29	7813.19
1995	2877.42	2712.81	10634.74	4964.29	7825.88
1996	3649.88	2975.21	11143.80	5291.69	8587.65
1997	4045.60	3088.04	11542.63	5466.19	8710.10
1998	4525.38	3160.85	11965.69	5364.17	8752.97
1999	4879.40	3200.04	12552.10	5483.23	8438.11
2000	4961.30	3250.59	13167.34	5679.08	7748.83
2001	5592.42	3094.72	13967.34	5952.41	7733.83
2002	6084.23	3176.88	14972.63	6149.87	7274.50
2003	6479.74	3358.15	16000.08	6465.21	6731.69
2004	6985.88	3540.17	17247.53	6814.56	6486.49
2005	7595.10	3655.89	18508.18	7178.56	6222.94
2006	8343.29	3827.72	19751.91	7625.44	5997.42
2007	8962.87	4195.18	21161.48	8097.72	5801.47
2008	9480.56	4515.68	22559.52	8557.80	5526.39
2009	10094.65	4891.75	23444.30	9105.76	8595.40
2010	10813.06	5228.02	24797.37	9799.63	9573.21
2011	11617.11	5379.73	27144.28	10469.55	10712.94
2012	12439.37	5481.48	28516.91	11235.59	11844.78
2013	13365.37	5776.79	30842.30	11965.91	12375.90

Source: author (2016); data from UNCTAD

Mozambique and Zambia have mostly the same level of GDP. However, the Mozambican economy started growing better from 1994, after the civil war ended in 1992, and the implementation of democratic governance. Malawi is the country with the lowest real GDP during the studied period. The problem of Malawi is related with their week economic productivity. The economy of Malawi is undiversified and vulnerable to external shocks. The economy is dependent to agriculture sector, with production of Maize for food security and tobacco for export as the main crops, and is affected more affected by flooding and drought conditions (World Bank, 2016).

Figure 5.1: Trends of real GDP among countries (1990 to 1993)
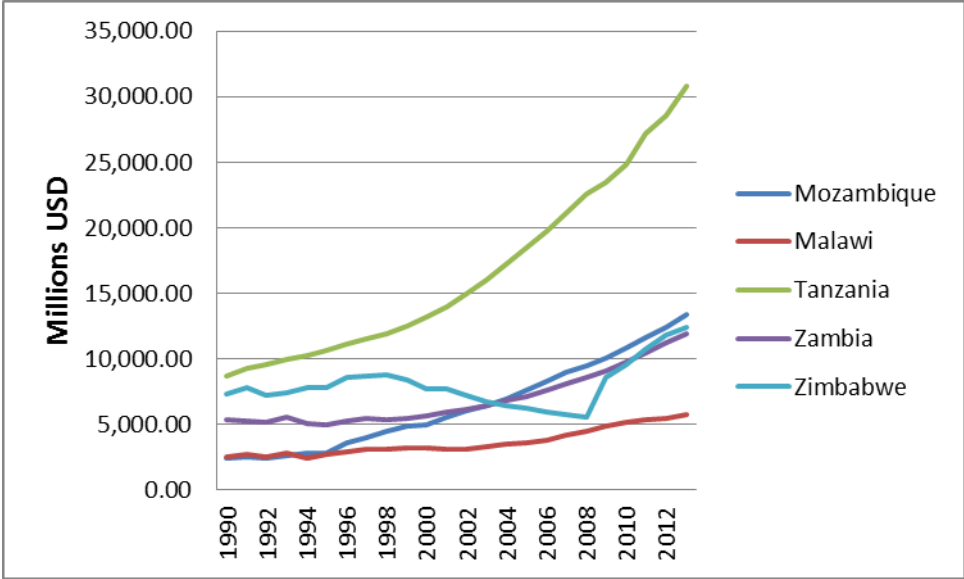
Source: Author (2016); data from UNCTAD

In the figure 5.1 is clear the trend of the five economies. They all started together at the same level but Malawi and Mozambique were worse. Therefore, Tanzania grew very fast and is now too high than others. Mozambique, Zambia and Zimbabwe, who is recovering from the crisis, trend to converge in the last years of the study. Malawi continues being the worst case scenario among all.

Table 5.2: GDP growth rates among countries (1990-2013)

Year/country	Mozambique	Malawi	Tanzania	Zambia	Zimbabwe
GDP growth rate (%)					
1990	1.00	4.77	6.83	0.75	6.98
1991	4.90	7.80	5.70	-1.96	5.52
1992	-5.23	-7.92	3.52	-1.73	-7.03
1993	8.77	10.77	4.22	6.80	2.11
1994	6.16	-11.59	2.88	-8.60	5.8
1995	2.24	9.02	3.57	-2.49	0.16
1996	26.85	9.67	4.79	6.60	9.73
1997	10.84	3.79	3.58	3.30	1.43
1998	11.86	2.36	3.67	-1.87	0.49
1999	7.82	1.24	4.90	2.22	-3.60
2000	1.68	1.58	4.90	3.57	-8.17
2001	12.72	-4.8	6.08	4.81	-0.19
2002	8.79	2.66	7.20	3.32	-5.94
2003	6.50	5.71	6.86	5.13	-7.46
2004	7.81	5.42	7.80	5.40	-3.64
2005	8.72	3.27	7.31	5.34	-4.06
2006	9.85	4.70	6.72	6.23	-3.62
2007	7.43	9.6	7.14	6.19	-3.27
2008	5.78	7.64	6.61	5.68	-4.74
2009	6.48	8.33	3.92	6.40	55.53
2010	7.12	6.87	5.77	7.62	11.38
2011	7.44	2.9	9.46	6.84	11.91
2012	7.08	1.89	5.06	7.32	10.57
2013	7.44	5.39	8.15	6.50	4.48

Source: author calculations based on real GDP data from UNCTAD

The table 5.2 above gives a detailed summary data of GDP growth rates of all five countries. As we can see at the beginning of the study period Tanzania and Zimbabwe are the countries with the highest growth rate (6.83% and 6.98 percent respectively), followed by Malawi (4.77%). From the decade of 1980s to this period Zimbabwe was one of the most robust economies in the Sub-Saharan region and was considered as a part of medium income countries. Two interesting aspects can be observed in the data below. The first thing is the indication that in 1992 all the countries apart of Tanzania had a negative growth. The second aspect is that Tanzania never had a negative growth rate, indicating that the Tanzania has the most stable and developed economy among all the five countries, as the figure 5.1 shows above.

Looking to the economic growth rates in the figure 5.2 below, we can see that generally, GDP growth has been volatile over the years for all of the countries. Coming out of the 1982-83 recession, most countries enjoyed an increase in growth from the mid-1980s. In the group of studied countries, Mozambique shows growing faster than the rest, mainly after 1994. Thus, the pick of growth in Mozambique was verified in 1996 when reached the rate of 26.85%.

Figure 5.2: Trends in GDP growth rates (1990-2013)
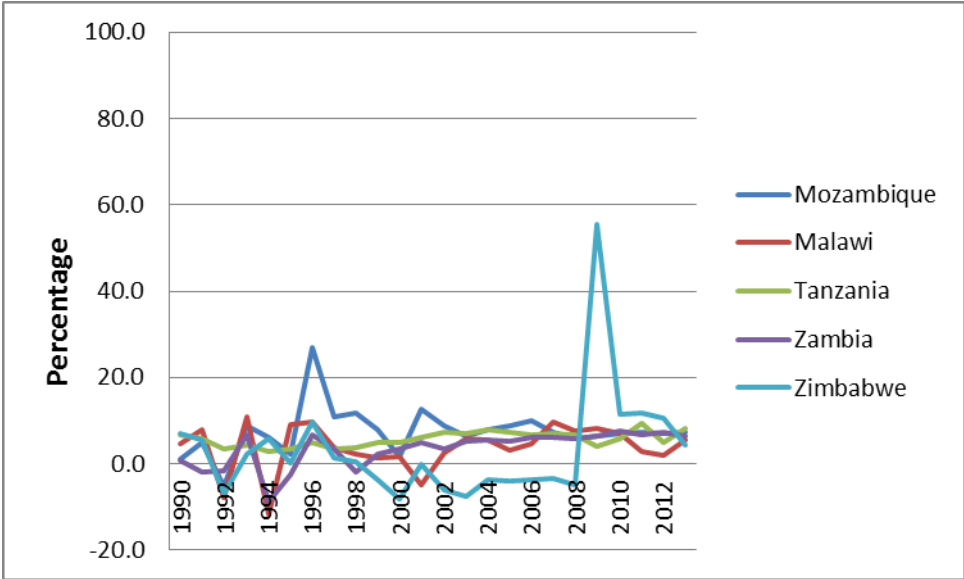
Source: Author (2016) calculations based on data from UNCTAD

Tanzania GDP growth shows to be the most stable and did not go to negative rates during the study period, differently of other countries. It means that the Tanzanian economy grew positively during all the study period. The most volatile economy is Zimbabwe which grew negatively during a long period, mostly from 1998 when the crisis started until the period of 2008 to 2009 when the economy grew positively fast reaching a rate of 55.53%. Malawi and Zambia growth rate show more volatility in the period of 1990 to 1995, growing in positive and negative trends time to time becoming little bit stable from 1996. The figure 5.2 also shows from early 2000s the GDP grew positively more stable for all the studied countries apart of Zimbabwe which grew negatively. Agyemang (2014) argues that the adoption and implementation of the PRSPs in the early 2000s led to an improvement in economic growth in these countries and in all developing world. After the early 2000s the reasons may be given to the rising of prices of natural resources and commodities. Therefore, in general, the economic growth in most developing regions from the decade of 1980s was mainly attributable to the various structural adjustment programs proposed by the Bretton Woods institutions. The programs included most developing countries opening up to international trade and relaxing restrictions on their foreign exchange and also investing in human capital.

GDP per capita

The table 5.3 and figure 5.3 give the information about the distribution and trend of the GDP per capita of the countries during the study period. Zimbabwe contrary to the situation of all economy seems to be the country with the highest GDP per capita in the period of 1990 to 1998 when started dropping drastically. We said before that Zimbabwe was one of the strongest economies in the region. This decrease is related with the economic crisis mentioned before which reduced the production affecting also the real GDP and the growth rate. The lowest value of GDP per capita is 432.29 USD from 2008 the year that the economy reached its worst level. Therefore, this value still high than Malawi in the all study period and about the same with Mozambique (432.12 USD) in 2009. But, from 2008, when the economy started to recover, the Zimbabwe GDP per capita started to increase again and nowadays seems to be the highest among the five countries.

Table 5.3: distribution of GDP per capita among countries (1990-2013)

GDP per capita (USD)					
Year/Country	**Mozambique**	**Malawi**	**Tanzania**	**Zambia**	**Zimbabwe**
1990	180.71	270.95	343.42	690.08	704.67
1991	185.12	285.72	351.25	660.28	724.79
1992	169.85	260.35	351.63	633.77	658.59
1993	178.01	287.17	354.46	661.30	658.72
1994	182.12	252.58	353.27	590.26	683.65
1995	180.05	272.26	355.15	561.49	672.36
1996	221.70	293.03	362.04	583.22	724.93
1997	239.18	296.81	365.43	586.50	723.08
1998	260.82	295.40	369.56	560.08	715.73
1999	274.15	290.58	378.27	557.29	681.33
2000	271.47	287.12	387.04	562.23	619.73
2001	297.70	266.25	400.26	574.44	614.44
2002	314.92	266.37	418.15	578.79	575.47
2003	326.05	274.39	435.25	593.44	531.18
2004	341.79	281.66	456.70	609.82	511.03
2005	361.49	282.86	476.72	625.85	489.59
2006	386.49	287.64	494.51	647.23	471.34
2007	404.25	305.91	514.63	668.70	455.37
2008	416.50	319.40	532.64	687.01	432.29
2009	432.12	335.66	537.22	710.00	666.88
2010	451.16	348.22	551.38	741.44	732.07
2011	472.60	348.03	585.58	767.91	801.94
2012	493.56	344.61	596.80	798.26	863.05
2013	517.36	353.05	626.20	823.04	874.64

Source: author (2016); data from World Bank

Zambia is also the country with high GDP per capita almost in the same level with Zimbabwe but more stable. Tanzania with the high real GDP and the less volatile GDP growth rate among all the five countries is ranking as the country with the third highest GDP per capita values during all the study period, apart of 2008 when Zimbabwe reached its lowest value, but still also most stable. This scenario can be explained by the high Tanzanian population which is 49.25 million inhabitants in 2013 (25.83 million in 2013), at about the double of population of Mozambique and 3 times the populations of Malawi (16.36 million in 2013), Zambia (14.56 million in 2013) and Zimbabwe (14.15 million in 2013). Malawi is the country with more linear trend of the GDP per capita and less than Mozambique since early 2000s, thereby becoming the country with less GDP per capita among the all. It can be explained because of the weak development of the Malawian economy as can be seen in the figures 5.1 and 5.2 discussed before.

Figure 5.3: Trends in GDP per capita among countries from 1990-2013 (in USD)
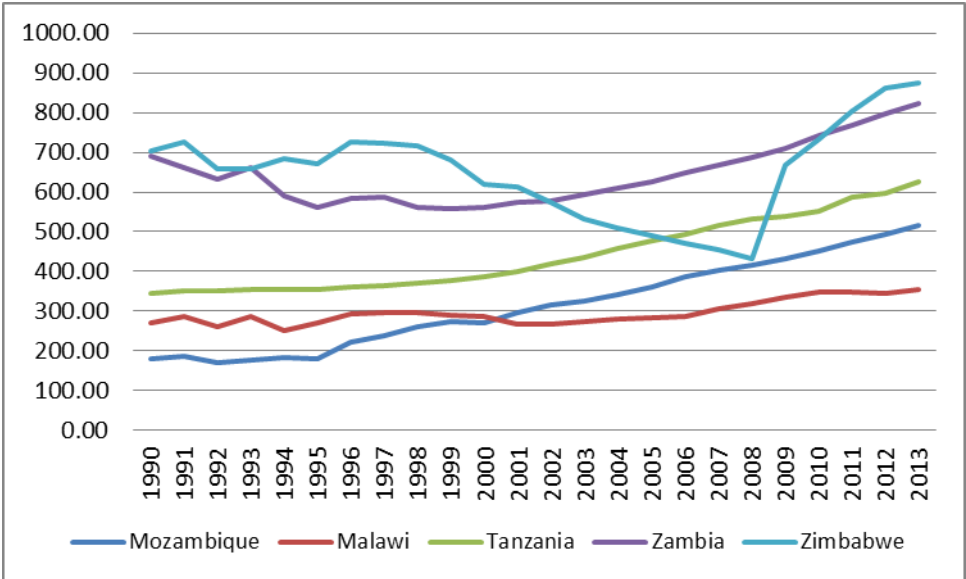
Source: Author (2016); data from the World Bank

Unemployment Rate

The table 5.4 down gives a numerical description of unemployment rates among the studied countries.

Table 5.4: Distribution of unemployment rates among countries (1991-2013)

Year/country	Mozambique	Malawi	Tanzania	Zambia	Zimbabwe
Unemployment rates					
1991	8.9	7.3	3.6	18.9	5.7
1992	9.1	7.5	3.5	19.1	5.7
1993	8.8	7.3	3.7	19.7	5.9
1994	8.8	7.6	3.9	19.0	5.0
1995	8.8	7.2	4.7	18.4	5.5
1996	8.7	7.3	5.0	15.3	6.0
1997	8.7	7.3	4.6	14.5	6.9
1998	8.6	7.4	4.8	12.0	6.5
1999	8.6	7.5	4.6	12.2	6.0
2000	8.6	7.6	5.1	12.9	6.3
2001	8.1	7.7	5.1	15.1	5.1
2002	8.4	7.7	3.6	14.5	4.8
2003	8.4	7.7	3.4	15.3	4.5
2004	8.4	7.8	2.9	15.5	4.2
2005	8.3	7.9	2.5	15.9	4.6
2006	8.3	7.8	4.3	15.7	5.1
2007	8.3	7.6	2.0	15.7	5.1
2008	8.3	7.5	2.5	15.7	5.1
2009	8.3	7.5	2.5	15.6	6.4
2010	8.3	7.5	3.0	13.2	5.5
2011	8.3	7.7	3.5	13.2	5.4
2012	8.3	7.6	3.5	13.1	5.3
2013	8.3	7.7	3.5	13.3	5.4

Source: author (2016); data from the World Bank

In general analysis we can see that Tanzania is the country with the smallest unemployment rates, with an average of 3.55% over all the study period, and also more stable, curiously followed by Zimbabwe (with an average of 5.33%) even with the economic crisis. There are two possible explanations for the low unemployment in Zimbabwe. The first one is that with the crisis more people abandoned the country and migrate to neighbouring countries, mainly to Mozambique, South Africa and Botswana, to look for job opportunities. The second one can be because more people were employed in the agricultural farms as informal workers and with no official registration in the national employment authorities and this sector is the most affected with the crisis because of the failed compulsory agriculture reform. In other hand, Zambia shows to have the highest unemployment rates, an average of 14.30% over all the period. Mozambique and Malawi are almost at same level of unemployment level with averages of 8.36% and 7.63%, respectively.

Figure 5.4: Trends in unemployment rates (1991-2013)
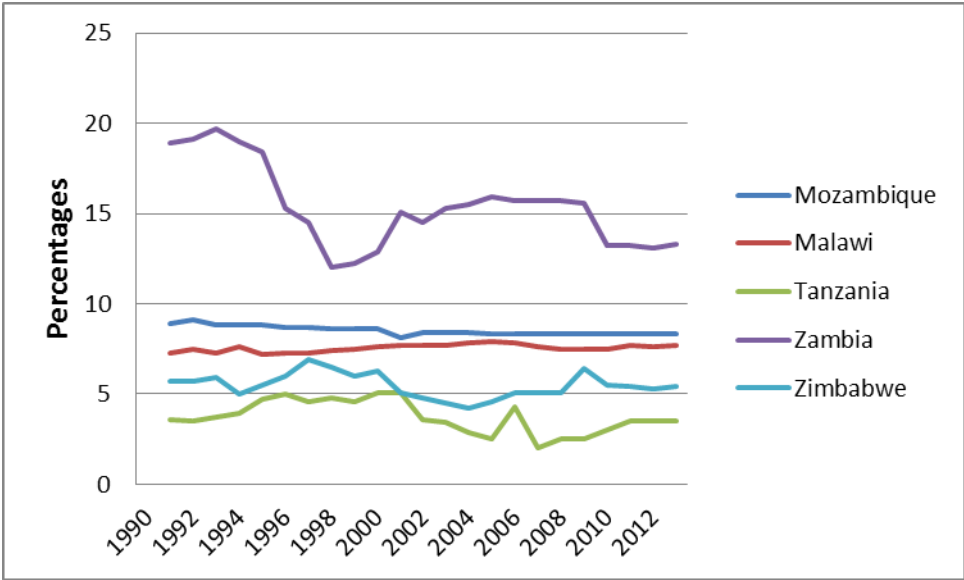
Source: Author (2016); data from World Bank and World Development Indicators

The figure 5.4 shows the changing behaviours of unemployment rates based on the values showed on table 5.4. With the analysis can be understood clearly that Tanzania and Zimbabwe are the countries with the lowest unemployment rates. Therefore, Malawi and Mozambique are the countries with the most stable unemployment rates, not more volatile, but in high rates than

the two previous ones. Thus, Zambia shows the highest volatility on unemployment rates trends. Some reasons of the high unemployment in Zambia are the weak structure of the economy, low levels of investment in sectors with high potential of employment, for example agriculture, and Weak education system that doesn't support practical work related skills (Shamenda, 2012).

Inflation rate

The table 5.5 gives the detailed distribution of Consumer Price Index (CPI) as a measure of inflation rates in all five countries. In the period from 1990 to 1998 all the studied countries present almost high levels of inflation rates, but Zambia and Mozambique were leading.

Table 5.5:Inflation rates among countries from 1990 to 2013(part 1)

Inflation rates (%)					
Year/country	Mozambique	Malawi	Tanzania	Zambia	Zimbabwe
1990	47.01	11.82	35.83	107.02	17.36
1991	32.93	12.62	28.70	97.64	23.34
1992	45.49	23.75	21.85	165.71	42.06
1993	42.20	22.77	25.28	183.31	27.59
1994	63.18	34.65	34.08	54.6	22.26
1995	54.43	83.33	27.43	34.93	22.59
1996	48.49	37.6	20.98	43.07	21.43
1997	7.37	9.14	16.09	24.42	18.74
1998	1.48	29.75	12.80	24.46	31.82
1999	2.86	44.8	7.89	26.79	58.52
2000	12.72	29.58	5.92	26.03	55.87

Source: author (2016); data from International Monetary Fund and the World Bank

Inflation rates (%)					
Year/country	Mozambique	Malawi	Tanzania	Zambia	Zimbabwe
2001	9.05	22.7	5.15	21.39	76.71
2002	16.78	14.74	5.32	22.23	140.06
2003	13.43	9.58	5.30	21.40	431.70
2004	12.66	11.43	4.74	17.97	282.38
2005	7.17	15.41	5.03	18.32	302.12
2006	13.24	13.97	7.25	9.02	1096.68
2007	8.16	7.95	7.03	10.66	24411.03
2008	10.33	8.71	10.28	12.45	-------
2009	3.25	8.42	12.14	13.40	-------
2010	12.70	7.41	6.20	8.50	3.03
2011	10.35	7.62	12.69	6.43	3.28
2012	2.68	21.27	16.00	6.58	3.92
2013	4.26	27.28	7.87	6.98	1.63

Source: author (2016); data from International Monetary Fund and the World Bank

Reading all the figures is possible to understand that Tanzania is the country with the lowest inflation rate, with an average of 7.14% over the study period, followed by Mozambique with 8.82%. Because of the economic and financial crisis started at the end of 1990s Zimbabwe presents the highest and considered abnormal values of inflation rates, mainly 2002. The average value of inflation in Zimbabwe over the study period is 4732.55%. Malawi and Zambia have the median values among all with 17.54% and 15.67% respectively.

The figure 5.5 below show the trend of inflation rates (CPI changes) for the five studied countries over the study period. The particular and extreme case is from Zimbabwe which acoording to the Federal Reserve Bank of Dallas (2011) in the early 2000s become the country with the major level of inflation in all sub-Saharan region and in the world. The most worst

scennario of Zimbabwe continued until 2006 and 2007 when the country reached the highest registered inflation rates of 1096.68% and 24411.03%, respectively, and 2008 to 2009 when, according to the more different sources reached to values of trillions percentage points. Therefore, for these two last years there are not official data published.

Figure 5.5: Trends in Inflation rates among countries (1990 to 2013)
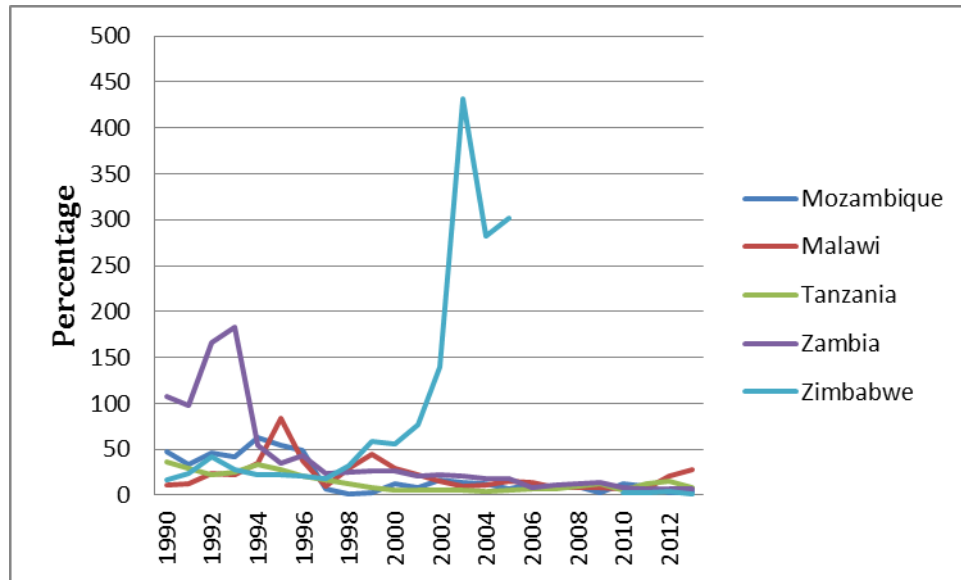
Source: Author (2016); data from IMF and WB

Apart of Zimbabwe situation in general the inflations rates among the five countries are almost convergent. Zambia shows hightest and volitile inflation rates from 1990 from 1993 and stabilized in the same level with others from 1994. Tanzania is the country showing the less volatility in the inflation rates, followed by Mozambique, Malawi and Zambia mainly from 2002.

Population and population growth

Population is another very important variable to analyze economic growth and inequalities. Both, the total number of inhambatants and the ritm of growth affects the perfomance of the economy and the distribution of income, aspects which determines the quality of life and social well-being.

The table 5.6 gives the full information about population distribution and the population growth rates among the countries over the study period.

Table 5.6: Distribution Population and population growth rates (1990-2013)

Year/var.	Mozambique		Malawi		Tanzania		Zambia		Zimbabwe	
	POP	POPgr	Pop	POPgr	POP	POPgr	POP	POPgr	POP	POPgr
1990	13.57	1.29	9.45	3.33	25.48	3.19	7.84	2.55	10.46	2.85
1991	13.89	2.37	9.66	1.83	26.34	3.29	8.04	2.44	10.73	2.56
1992	14.35	3.24	9.76	0.67	27.24	3.36	8.23	2.35	10.98	2.29
1993	14.89	3.71	9.80	0.03	28.16	3.33	8.42	2.33	11.21	2.07
1994	15.45	3.69	9.85	0.12	29.07	3.18	8.63	2.37	11.43	1.92
1995	15.98	3.36	9.96	0.72	29.94	2.97	8.84	2.47	11.64	1.83
1996	16.46	2.97	10.15	1.46	30.78	2.75	9.07	2.59	11.85	1.76
1997	16.92	2.70	10.40	2.01	31.59	2.58	9.32	2.68	12.05	1.67
1998	17.35	2.55	10.70	2.36	32.38	2.48	9.58	2.72	12.23	1.51
1999	17.80	2.55	11.01	2.72	33.18	2.46	9.84	2.70	12.38	1.26
2000	18.28	2.65	11.32	2.66	34.02	2.49	10.1	2.63	12.50	0.96
2001	18.79	2.75	11.62	2.53	34.90	2.54	10.36	2.55	12.59	0.66
2002	19.79	2.80	11.93	2.48	35.81	2.58	10.63	2.51	12.64	0.43
2003	19.32	2.82	12.24	2.48	36.76	2.63	10.89	2.50	12.67	0.25
2004	19.87	2.81	12.57	2.56	37.77	2.70	11.17	2.54	12.69	0.16
2005	20.44	2.76	12.92	2.68	38.82	2.77	11.47	2.61	12.71	0.14
2006	21.01	2.71	13.31	2.81	39.94	2.84	11.78	2.68	12.72	0.11
2007	21.59	2.67	13.71	2.90	41.12	2.91	12.11	2.75	12.74	0.12
2008	22.17	2.63	14.12	2.94	42.35	2.96	12.46	2.82	12.78	0.34
2009	22.76	2.60	14.57	2.91	43.64	2.99	12.83	2.92	12.89	0.82
2010	23.36	2.56	15.01	2.84	44.97	3.01	13.22	3.01	13.08	1.45
2011	24.58	2.53	15.46	2.77	46.35	3.03	13.63	3.10	13.36	2.13
2012	25.20	2.50	15.91	2.70	47.78	3.04	14.08	3.19	13.72	2.70
2013	25.83	2.47	16.36	2.65	49.25	3.03	14.56	3.24	14.15	3.05

Source: author (2016); data from the World Bank

The values from the table 5.6 shows clearly that Tanzania is the most populated country among all with 49.25 millions people in 2013, followed by Mozambique with 25.83 millions in the same year. On other hand, the less populated are Zimbabwe and Zambia with 14.15 millions and 14.56 million populations, respectivelly, in 2013. Tanzania has also the major average rate of population growth which is 2.88%, followed again by Mozambique with the average growth of 2.74%. The less population average growth rate is from Zimbabwe with 1.38% over the study period. Curiously, the gopulation growth rate in Zimbabwe has reduced during the period of crisis. This situation can be explained essentialy with the high rates of migration of Zimbabweans to the neighboring countries to look to better conditions of life and job opportunities.

Figure 5.6: Trend of population growth rates (1990 – 2013)
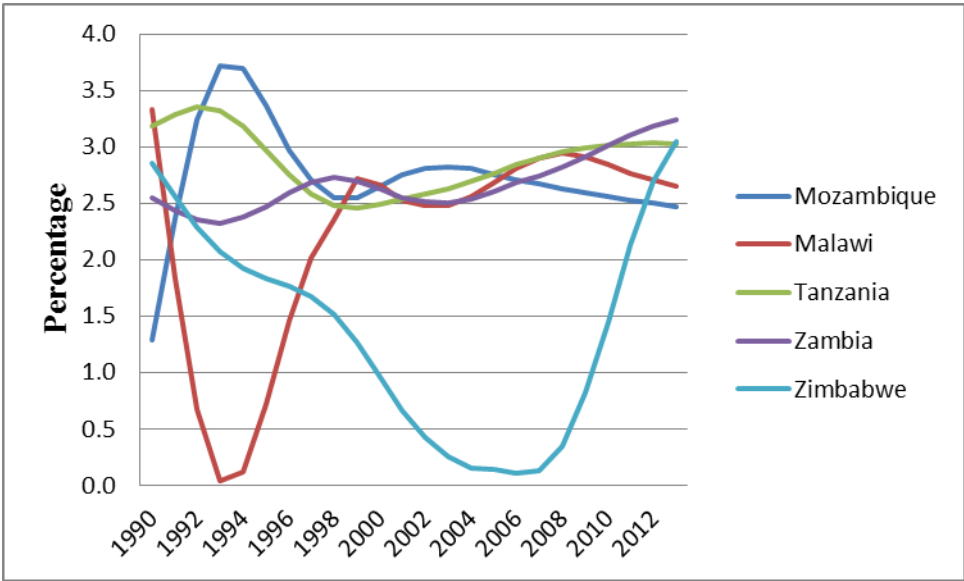
Source: Author (2016); data from the World Bank

The figure 5.6 above gives the spectrun of population growth trends which helps to understand better the volatility of demographical changes in the countries. Therefore, from the end of 1990s all the countries stabilized their population growth rates, apart of Zimbabwe which decreased drastically for the reasons mentioned before. For Mozambique, for example, the rate rised significantly from 1990 to 1992 period when started to decrease until to stabilize from 1998. This

inceasing is related with the and of civil war which demaged the country during sixteen years which incriesed the life quality and consequently the health conditions and life expectancy. In the different way Malawi population growth rate decreased from 1990 and reached te level of about 0.03% in 1993 and from 1994 started incrieasing and stabilized from 1998. In general, Zambia and Tanzania have the most stable population growth rates. At the end of the study period the countries seems to trend to a convergent situation on population growth rates.

Human Development Index

The income inequality in this study is measured by the Human Development Index (HDI). The table 5.7 below shows the detailed distribution of HDI among the five countries and the figure 5.7 demonstrates the trends of the same variable. As we can see in the table, the values of HDI are very small in all countries and are stated at the level of low income countries and regions according to the classification of the Human Development Reports of UNDP and the World Bank. Curiously, the highest and lowest values of HDI are from Zimbabwe, 0.555 in 1990 and 0.118 in 2009, respectively. The temporal break of information that we can see in the part 1 of the table and in the figure 4.7 below is because there is no official data found for the period of 1996 and 1997.

The figure 5.7 below shows that from 1990 to 2000 Zimbabwe was the country with the highest income distribution among all. From the 2000 the scenario started to be worse for Zimbabwe and between 2004 and 2005 with the intensification of the economic crisis Zimbabwe became the most unequal country among the all studied. This position prevailed until about 2010 when the economy began to recover quickly. Generally the figure 5.7 gives clear indications that the trends in income inequality in all studied countries are more unequal and volatiles. Mozambique represented the country with the lowest income distribution in all the study period. Tanzania, Malawi and Zambia looks almost in the same level of income distribution, particularly and the end of 1990s and early 2000s. Nowadays, all the countries seem to be converging but still some of the most unequal in the region.

Table 5.7: countries Human Development Index (1990-2013)

HDI					
Year/country	Mozambique	Malawi	Tanzania	Zambia	Zimbabwe
1990	0.311	0.363	0.422	0.466	0.558
1991	0.252	0.260	0.357	0.352	0.474
1992	0.246	0.330	0.364	0.425	0.559
1993	0.261	0.321	0.364	0.411	0.534
1994	0.281	0.320	0.357	0.369	0.513
1995	0.241	0.401	0.427	0.431	0.563
1996	-------	-------	-------	-------	-------
1997	-------	-------	-------	-------	-------
1998	0.367	0.385	0.415	0.420	0.555
1999	0.323	0.397	0.436	0.427	0.554
2000	0.300	0.400	0.440	0.433	0.551
2001	0.356	0.387	0.400	0.386	0.496
2002	0.354	0.388	0.407	0.389	0.491
2003	0.379	0.404	0.418	0.394	0.505
2004	0.390	0.400	0.430	0.407	0.491
2005	0.358	0.476	0.510	0.466	0.159
2006	0.397	0.484	0.519	0.473	0.353
2007	0.402	0.493	0.530	0.481	0.355
2008	0.366	0.468	0.451	0.505	0.422
2009	0.312	0.376	0.392	0.431	0.118
2010	0.401	0.385	0.398	0.438	0.140
2011	0.405	0.400	0.466	0.430	0.376
2012	0.408	0.411	0.484	0.554	0.484
2013	0.413	0.414	0.488	0.561	0.492

Source: author (2016); data from UNDP

Figure 4.7: Trends of HDI among countries (1990-2013)

Income Inequality

Legend: Mozambique, Malawi, Tanzania, Zambia, Zimbabwe
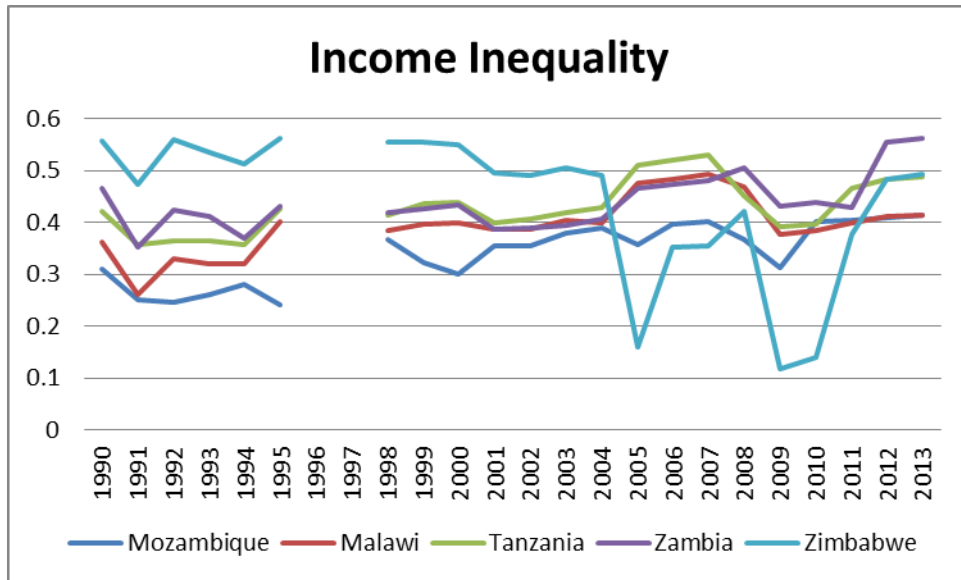
Source: Author (2016); data from UNDP

CHAPTER SIX – RESULTS AND DISCUSSIONS

5.1. Estimations and Econometric results

This topic analyses the results of econometric estimations. The analysis is made country by country. For each country were estimated and analysed the influence of factors for economic growth and income inequalities. for the estimations was used the Ordinary Least Square (OLS) technique. Were also developed the diadnostic tests to know the validation of the model and respective results, namely the normality test, the white's test for heterokedascity, the Breusch-Pagan test for heteroskedasticity, the LM test for autocorrelation up to order 1, the RESET test for specification and the test for ARCH of order 1. The results of these tests are presented in the appendix 3.

Note: in the regression results ***, **, * mean 1%, 5% and 10% of statistical significance levels, respectively. The variables are represented in following figures: GDPpc (GDP per capita in USD); RGDP (real GDP in millions USD); INF (inflation rate); HDI (Human Development Index – the inequality indicator), UE (unemployment rate); GDPgr (GDP growth rate); POP (country population in millions inhabitants), POPgr (Population growth rate).

MALAWI

Economic growth

The table 6.1a below shows the summary of results of growth estimations fom Malawi. Informations from the table revails that the main factors affecting the growth of malawian economy are the real GDP, the inflation rate, the HDI (inequality indicator) and the population. The results in the table can be clearly interpreted that 1 unit increasing in real GDP contributes to an increase in 0.079 times more in the per capita GDP. The relationship is statistically significant at level of 1% significance. It implies that the perc capita GDP reacts positively to the increase of real GDP. The inflation rate contributed negatively to the per capita GDP. The result indicates that 1 unit incriesing in inflation rate contributed to the decrease in GDP per capita in 0.16 times comparing to the previous values. This is because the inflation reduces the purchasing power of

people and can weaken the production of the economy. The results are accepted with the statistical significance level of 1%.

Table 6.1a: Results economic growth model for Malawi

Model 4: OLS, using observations 1998-2013 (T = 16)

Dependent variable: GDPpc

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
const	316.658	7.4414	42.5535	<0.00001	***
RGDP_mil_	0.0788535	0.00222612	35.4219	<0.00001	***
INF_	-0.155168	0.0427237	-3.6319	0.00394	***
HDI	46.1071	10.5828	4.3568	0.00114	***
POP_mil_	-26.4459	1.25139	-21.1333	<0.00001	***
R-squared		0.998621	Adjusted R-squared		0.998119
F(4, 11)		1991.081	P-value(F)		1.20e-15
Durbin-Watson		2.205396			

Source: author (2016)

The HDI looks to be a positive contributor to growth in the Malawian case. It means that when the level of HDI increases in 1 unit the economic growth reacts with an incriese in 46.11 times more than the precious value before the increase in HDI. The result is also accepted with 1% of statistical significance. Thus, the rise on the level of HDI means that the inequalities decreases, and it means that for Malawi the growth of the economy is more sensitive to the level of inequalities. Finally we can see that the number of population contributes neganively to the malawian economic growth. In this hand, the figures in the table show that 1 unit incriesing in population affects decreasing the per capita GDP in 26.45 times. the of the result is validated with the significance of 1%. The result of Durbin-Watson test is high the the R-square and it indicates that the model is not spurious.

Inequaly

The information in the table 6.1b below indicates that inequalities in Malawi in the study period of 1998 to 2013 was affected by two variables, the unemployment rate and the population growth rate. As the figures show, both factors affected positivelly the level of HDI, meaning that they contributed to reduce the level of inequalities.

Table 6.1b: Results of inequality model for Malawi

Model 6: OLS, using observations 1998-2013 (T = 16)					
Dependent variable: HDI					
	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
const	-0.908584	0.512256	-1.7737	0.09953	*
UE_	0.130185	0.0621497	2.0947	0.05635	*
POPgr____	0.123197	0.0489151	2.5186	0.02567	**
R-squared		0.416874	Adjusted R-squared		0.327163
F(2, 13)		4.646824	P-value(F)		0.030023
Durbin-Watson		1.141411			

Source: author (2016)

Interpreting the results, we can see that 1 unit decreasing in unemployment rate contributed to the increase of HDI in 0.13 units. This result is statistically significant at level of 10%. Therefore, we can see in the data description and analysis that the unemployment in Malawi is not too high, an average of about 7.5%, and during the study period it does not faced significant changes, just some small increasing and decreasing in different years but did not passed out of the level of 7 percentage points. In the same way, 1 unit increasing in population growth rate contributed to an increase of HDI in 0.12 units. The result is statistically significant at level of 5%. What explains this behaviour of population growth to inequality is that the Malawi population grew to slow and the growth rate is on average of about 2.7%. The changes in the study period are not significant and did not move out of the level of 2 percentage points. The result of Durbin-Watson test is high than the result of R-square what means that the model is useful, is not spurious.

MOZAMBIQUE

Economic growth

The results of estimations of economic growth factors in Mozambique are presented in the table 6.2a down. The figures in the table easily show that the factors which affected the the GDP per capita in Mozambique during the study period are the real GDP, the inflation rate, the Unemployment rate and the population.

Table 6.2a: Results of economic growth model for Mozambique

Model 9: OLS, using observations 1998-2013 (T = 16)					
Dependent variable: GDPpc					
	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
const	421.836	104.793	4.0254	0.00200	***
RGDP_mil_	0.037139	0.00444327	8.3585	<0.00001	***
INF_	0.533314	0.262719	2.0300	0.06725	*
UE_	-20.2596	9.71813	-2.0847	0.06120	*
POP_mil_	-8.87792	4.69689	-1.8902	0.08536	*
R-squared	0.998165		Adjusted R-squared		0.997498
F(4, 11)	1495.805		P-value(F)		5.79e-15
Durbin-Watson	1.721972				

Source: author (2016)

The reading of the results indicates that 1 unit increasing in real GDP contributes to increase the per capita GDP in 0.037 times. The relationship is statistically significant at the level of 1% significance. It implies that the GDP per capita reacts positively to the increase of real GDP. Differently to the case of Malawi, the per capita GDP in Mozambique reacted positivelly to the inflation rate. As the figures show, it mens that 1 unit increase in inflation rate reflected to 0.53 times increasing in per capita GDP. Therefore, as we discussed before the trend of the inflation rate in Mozambique was decressive in the study period. It means that the percentage of decreasing of the inflation rate contributed to the increase of GDP per capita. The result is

statistically significal in the level of 10%. The unemployment rate looks to be substantialy bad to the Mozambican economy. The results show that 1 unit increase in unemployment rates contributes to 20.26 times decrease in GDP per capita. The population also shows a negative relationship with growth. The result on the table indicates that 1 unit increase in population rate decreased the GDP per capita in 8.88 times than the previous values. Both results, of effects of unemployment and population in GDP per capita, are statistically significant at the level of 10%.

Inequalities

The information in the table 6.2b below indicates that the level of inequalities in Mozambique was influenced by two main factors. The GDP per capita and the population growth rate. Both the factors contributed positivelly to the incriesing of values of HDI what consequentelly reduced the the level of inequalities. In this case, the results indicates that 1 unit increasing in GDP per capita contributed in about 0.0003 times incriesing in the level of HDI. This relationship is statistically significant at level of 1%.

Table 6.2b: Results of inequality model for Mozambique (1998-2013)

	Model 10: OLS, using observations 1998-2013 (T = 16)				
	Dependent variable: HDI				
	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
const	0.081457	0.217288	0.3749	0.71379	
GDPpc	0.000314927	0.000104234	3.0213	0.00983	***
POPgr_	0.0644874	0.073506	0.8773	0.39624	
R-squared		0.427726	Adjusted R-squared		0.339684
F(2, 13)		4.858200	P-value(F)		0.026572
Durbin-Watson		1.828408			

Source: author (2016)

In the same direction, an decrease in 1 unit in population growth rate promotes an increase of the in HDI 0.06 times, decreasing in this case the inequalities. What justifies this negative relationship between population growth and inequality is because Mozambique is a country with

one of the lowest population growth rates in the region and the average rate of about 2.6% is below the regional average which is about 2.7% and the rates dreceased over the study period. However, this result is not statistically significant. Thus, the value of Durbin-Watson test is 1.8 high than the 0.42 of the R-quase, and indicates that the model is usefull and not sutious.

TANZANIA

Economic growth

The table 6.3a down showing the results of estimations of economic growth in Tanzania indicates that the main factors that affected the GDP per capita are the population, the unemployment rate and the HDI.

Table 6.3a: Results of economic growth model for Tanzania

Model 8: OLS, using observations 1998-2013 (T = 16)

Dependent variable: GDPpc

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
const	222.732	15.0795	14.7705	<0.00001	***
GDPr_mil_	0.0130266	0.000249202	52.2734	<0.00001	***
UE_	-6.28597	1.46819	-4.2814	0.00107	***
HDI	59.8592	29.0963	2.0573	0.06207	*
R-squared		0.997374	Adjusted R-squared		0.996717
F(3, 12)		1518.990	P-value(F)		9.61e-16
Durbin-Watson		2.077176			

Source: Author (2016)

The results indicates that the GDP per capita in Tanzania reacted positively to chances on real GDP. In this way, 1 unit increasing in real GDP contributes to the increase of GDP per capita in 0.013 times than before. This positive relationship is statistically significant at the level of 1% significance. Contrary to the real GDP, the unemployment rate contributed negativelly to the economic growth in Tanzania. The coefficient of unemployment shows that 1 unit increase in unemployment rate contributes to 6.29 times decrease in GDP per capita. The statistical

significance of this result is stated in the level of 1%. It seems to be the same whats happened in Mozambique, just differying in the percentage of influence and the statistical significance. The HDI is another indicator that effected the growth of the economy in Tanzania in the studied period. According to the results in the table above, the relationship between HDI and GDP per capita is seen to be positive, but at the final it means that the relationship between level of inequality and economic growth is negative, because when the HDI values increase it means that the level of income inequality is decreasing, the same trend found in the Malawi results. It this case an increase in 1 units of the HDI level the GDP per capita reacts with an incriese in 59.86 times than before. The statistical significance of this result is at level of 10%.

Inequality

The results from the table 6.3b indicates that the main variables that affected the inequalities in Tanzania are DGP per capita (economic growth) and the population. In that, as the numerical signals indicates we can understant that the high and balanced growth of the Tanzanian GDP contributed posetivelly to reduce the level of inequalities but the high population of the country hurts the efficiency on income distribution.

Table 5.3b: Results of inequality model for Tanzania

Model 9: OLS, using observations 1998-2013 (T = 16)

Dependent variable: HDI

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
const	0.847772	0.163172	5.1956	0.00017	***
GDPpc	0.00406781	0.0011823	3.4406	0.00439	***
POPgr	-0.0593854	0.0181846	-3.2657	0.00614	***
R-squared		0.539744	Adjusted R-squared		0.468935
F(2, 13)		7.622569	P-value(F)		0.006449
Durbin-Watson		1.301164			

Source: Author (2016)

The information from the tambem show that 1 unit increasing on GDP per capita involves to HDI 0.004 more compared to the inicial value, and consequently to the reduction of inequalities

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on the same level. This result is statistically significant in 1%. In another side, 1 unit increasing in population growth reduced the level of HDI in 0.059 times, and it consequenlty increased the inequelities or the efficiecy on income distribution. This result is also statistically significant at level of 1%. As was said above, and according to the data description, Tanzania is the coutry with the highest population among the studied countries and is one of the most populated in the region.

<div align="center">

ZAMBIA

</div>

Economic growth

The table 6.4a down shows the result of regression model of economic growth in Zambia. The information indicates that the zambian growth was affected by the three described variables, namelly real GDP, inflation rate and Unemployment. Thus, the real GDP has a positive relationship with economic growth while inflation rate and unemployment rate had negative relationship.

Table 6.4a: Results of economic growth model for Zambia

Model 9: OLS, using observations 1998-2013 (T = 16)

Dependent variable: GDPpc

	Coefficient	Std. Error	t-ratio	p-value	
const	386.448	20.6837	18.6837	<0.00001	***
INF_	-0.853473	0.326921	-2.6106	0.02277	**
RGDP_mil_	0.0391996	0.00111621	35.1186	<0.00001	***
UE_	-1.74317	0.682585	-2.5538	0.02529	**
R-squared		0.999008	Adjusted R-squared		0.998759
F(3, 12)		4026.271	P-value(F)		2.80e-18
Durbin-Watson		1.172829			

Source: Author (2016)

Interpreting statistically the results they show that 1 unit increase in inflation rate contributed to reduce the GDP per capita in 0.85 times comparing to the previous values, reduction in this case

the growth of the economy. This result has statistical significance ate the level of 5%. In the same way, an increase in 1 unit in unemployment rate decreases the GDP per capita in 1.74 times. It means that the unemployment has a significative power in the economic growth in Zambia. The significance of this result is also of 5%. Contrary of these two variables, the real GDP affected positivelly the economy. In the final, 1 unit increasing in the real GDP increases the GDP per capita 0.039 times compared to the previous level. The significance of this result is of the level of 1%.

Inequalities

The table 6.4b below gives the results of inequality regresion analysis for Zambia. The information from the table shows that the population growth shows a positive relationship with the HDI, contributing to decrease the inequalities. In the same way, the real GDP has a positive relation with the HDI meaning that it increases the HDI resulting on decreasing of inequalities. However, the results of inequalities in Zambia are not statistically significant.

Table 5.4b: Results of inequality model for Zambia

Model 5: OLS, using observations 1998-2013 (T = 16)

Dependent variable: HDI

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
const	0.112504	0.161494	0.6966	0.49829	
POPgr____	0.0579841	0.122301	0.4741	0.64329	
GDPpc	0.000264027	0.000334053	0.7904	0.44349	
R-squared		0.445747	Adjusted R-squared		0.360477
F(2, 13)		5.227489	P-value(F)		0.021583
Durbin-Watson		1.088931			

Source: Author (2016)

In this case, the results mean that 1 unit increase in population growth rate increases the HDI in 0.058 times. It happens if the population rate trend to decrease. In the same view 1 unit increase in the GDP per capita increases the HDI 0.0003 times. This two situations contributes to the reduction of inequalities. However, the results are not statistically significant. Even that, the

model shows to be correct, is not spurious and it can be seen by the result of Durbin-Watson test result which is high than the R-square.

ZIMBABWE

Economic growth

The table 6.5a down contains the results of regression test of economic growth in Zimbabwe. Accordng to the results shown down the economic growth measured by the GDP per capita was influenced by the real GDP, the inequality (described by the HDI) and the quantity of population.

Table 6.5a: Results of economic growth model for Zimbabwe

Model 5: OLS, using observations 1998-2013 (T = 16)					
Dependent variable: GDPpc					
	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
const	824.404	15.1579	54.3877	<0.00001	***
RGDP_mil_	0.0781358	0.000300516	260.0059	<0.00001	***
HDI	-12.0497	2.8711	-4.1969	0.00124	***
POP_mil_	-64.2163	1.28724	-49.8869	<0.00001	***
R-squared		0.999904	Adjusted R-squared		0.999879
F(3, 12)		41455.33	P-value(F)		2.37e-24
Durbin-Watson		1.477516			

Source: Author (2016)

Describing the effect of each variable on the economic growth we see that the real GDP has a positive relationship with the GDP per capita. The statistics indicates that 1 unit increasing in real GDP increases the GDP per capita 0.078 times more. This result is accepted with the statistical significance of 1%. Contrary to this relationship, the HDI and the Population contributed negatively to the economic growth. We can see from the previous data analysis that Zimbabwe is the most unequal country among the all studied. Thereby an increase on inequality level in 1 unit decreased the GDP per capita in 12.05 times than the previous values. In the same

trend, 1 unit increasing in population growth decreases the GDP per capita in 64.22 times. The two results have a statistical significance of 1%.

Inequalities

The table 6.5b down gives the regression results of inequalities in Zimbabwe. The content shows that the variables affecting the inequalities are the real GDP per capita and the inflation rate. These two variables affected negativelly the HDI level, incriesing the inequalities. It means that 1 unit decreasing in GDP per capita decreased the HDI in 3.4 times, consequently increasing the inequalities. With that it contributed to the increasing of inequalities. On the other hand 1 unit increasing in inflation rate decreases the level of HDI in 5.9 times than the previous values, also increasing inequalities. These results are not statistically significant. Therefore, the result of Durbin-Watson test shows that the model is not spurious because the value is high than the value of R-Square.

Table 6.5b: Results of inequality model for Zimbabwe

Model 11: OLS, using observations 1998-2013 (T = 16)

Dependent variable: HDI

	Coefficient	Std. Error	t-ratio	p-value	
const	0.45801	0.195033	2.3484	0.03533	**
INF_	-5.8772e-06	4.26488e-06	-1.3780	0.19145	
GDPpc	-3.39903e-05	0.00029113	-0.1168	0.90884	

R-squared	0.139942	Adjusted R-squared	0.007625
F(2, 13)	1.057626	P-value(F)	0.375346
Durbin-Watson	1.217724		

Source: Author (2016)

The explaination of this situation is that whit the crisis started in 1998, the Zimbabwe economy decreased drastically and the GDP per capita also decreased. In the same negative trend of the economy the inflation rate increased and it reached ate levels of trillions percents. These two situations put the economy worse, reduced the parchasing power of the zimbabwean inhabitants and consequently it reduced the quality of life, increasing in this way the level of inequalities.

6.2. Discussions

This section discusses the results of the study. The discussion is essentially the comparison of the reseach findings with the theory. It is divided in two sections. The first section discusses the trends of growth and the second one dicusses the effects of factors or growth and inequality variables besed on the econometric results.

6.2.1. Trend in econmic growth and income inequalities

The data gives the indications that economies of the five studied have diffent chapes. Some are more stable, case of Tanzania, and other seems to be more volatile, case of Zimbabwe. The causes of these differences are different among the countries. Different locations, histories, sectors perfomances and economic policies are the main causes of the differences.

The analysis of the economic growth indicators takes to undestand that in globally all the countries grew positivelly during the study period. The increases on values of real GDP and GDP per capita satisfes this indications. This approach is clearly discussed by Sunkel and Pearce (1988) cited by Vasconcellos and Garcia (1998) and Sandroni (1994). However, this growth is not stable. The behaviours of the growth variables shows to be ciclicals, what put all economies more volatiles, apart of Tanzania. It means that there are more moments of contrations and expantions, mainly in the bigining of the study period. Therefore, it shows that these Sub-Saharan Africa low-income economies are weak, what is explained by Agyeamang (2014). Malawi looks to be stagnant an economy in the region among the all studied countries. This situation is because the Malawian economy is not diversified, dependent on agriculture, and consequently less competitive with other regional economy. It is the same vision deffended by Perroux (1977) cited by Oliverira (2009).

In general the economies are not absolutelly converging. There a partial or conditional convergence in some growth variables among some countries, cases of Mozambique, Zambia and Zimbabwe which tend to converge on real GDP. But, this partial convergence indicates that there is not economic growth converging to equilibrium among the countries. This situations are in the same sense with the approaches presented by Da Silva Filho and Carvalho (2001), Razak (2006), Mathur (n.d) and Myrdal (1963).

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The countries presents high levels of inequalities during the study period. Therefore, some countries are more unequal than others. For exemplo, Tanzania is the country with better level of equality among all the studied, following the good perfomance of the economy. Zimbabwe was the one of the less inequal countries in the region but the economic crisis started at the end of the decade of 1990s crieted a worse situation. Malawi seems to be the more unequal country as the result of poor perfomance of their economy. This country examples follows the ideias of Todaro and Smith (2014) who says that the type of growth determine the influence on inequality, and also the approach of Das and Das (2014) defending that growth cause inequality in some stage, for the concrete situation of Zimbabwe. Hence, the inequalities were high in the first years of study and tend to reduce along the years even with some flutuations. Williamson and Higgins (2003) deffend that in general inequalities in the regions start high and reduce. Thus, the main cause of this permanent inequality (Durlauf, Johnson and Temple, 2004) is because the economic growth in this countries is weak and not convergent. As stated by Kindlenberger (1965), Kaldor (1977), Romer (1994) and Lucas (1998) all cited by Santos (2001) convergent growth reduced inequalities and Santos (2001) reinforces this idea stating that there is reduction of disparities when the economies reaches the absolute convergence.

6.2.2. Factors affecting growth and inequalities

Growth factors

The econometric results indicates a positive relationstip between real GDP and the real GDP per capita in all five countries during the study period. It means that the overal product of the economy of these countries contributed for the incriase of income of their individuals. This is a tipical positive causal relationship between real GDP and economic growth measured by the GDP per capita, as stated by Krugman and Wells (2015) and Paiva and Cunha (2008). One interesting aspect is that the regression results of all countries indicates high level of statistical significance of this relationship stated in 1%.

The inflation rate seems to be a negative factor for Malawi and Zambia with 1% and 5% of statistical significance, respectively. In another hand, for Mozambique the inflation rate indicates to be a positive factor to growth with the level of significance of 10%. This ideas are discussed

by Bulíř (1998) when says that inflation contributes for cyclical changes in growth and income distribution and CentrePiece Spring (2005) when discusses a positive relationship between inflation rate and economic growth. For Tanzania and Zambia, the results rejected the existence of any relationship between inflation rate and the real GDP per capita.

The unemployment rate affected negatively the growth of the economy in Mozambique (10% significance), Tanzania (1% significance) and Zambia (5% significance). This idea that high rates of inflation rates affects the growth of the economy is well discussed by Habbes and Rumman (2012). There are no evidences of effects of unemployment rate on economic growth for Malawi and Zimbabwe.

The population growth had a negative relationship with the growth of the economy in Malawi and Zimbabwe both with 1% of level of significance and for Mozambique with 10% of statistical significance. This results are consistent with the approaches from Tsen and Furouka (2005), Krugman and Wells (2015) and Kitov (n.d) are clear when they stresses that level and structure of population affects the economic growth both in positive and negative ways. The results of Tanzania and Zambia does not show the effects of population growth on economic growth.

The inequality (HDI level) shows its relationship with the real GDP per capita in Malawi, Tanzania and Zambia. For Malawi and Tanzania the relationship is positive with 1% and 10% of statistical significance respectively. It means that the HDI of these countries indicates the reduction on the level of inequalities and it contributed positively to economic growth. In another hand, the Zimbabwe results indicates a negative relationship between inequality and economic growth. It means that the inequalities in Zimbabwe are high and it harms the perfomance of economic growth. It is discussed by Razak (2006) when says that high inequalities is harmfull for economic growth. The results of Zimbabwe have the statistical significance stated at the level of 1%. The results of Mozambique and Zambia does not show relationship between inequality and economic growth.

The comparative analysis of regression results show that there is only one commom variable affecting the economic growth (measured by the real GDP per capita) of all the five studied countries and in the same trend which the real GDP. Other factors are not commom for all and

the kind of relationship between them and economic growth shows different behaviours, apart of unemployment rate and population growth which are harmfull for all the countries that they affect.

Inequaly factors

Looking to the factors affecting inequalities, we can see that the economic growth (GDP per capita) affects the inequality level of all countries with exception of Malawi where the regression result do not show evidences. Thus, the results indicate positive relationship of GDP per capita with the Human Development Index, the measure of income inequality. This positive relationship, with a statistical significance of 1% in Mozambique and Tanzania and not significant in Zambia, explain that the good perfomance of these economies contributed to the improvement in quality of life in these countries and consequently to the reduction of inequalities, and approach clearly defended by Krugman and Wells (2015). However, Zimbabwe shows an inverse relationship. In Zimbabwe the GDP per capita contributed negativelly to the quality of life expressed by the reduction on HDI level and consequently an increase in the level of inequality. Das and Das (2014) consider also the same situation of a negative relationship between growth and income distribution, causing inequalities in this case. Therefore, this result is not statistically significant.

Another expressive variable affecting inequalities is the population growth. The population growth shows a positive relationship with the HDI in Malawi (5% significance), Mozambique (no significant) and Zambia (no significant) and negative in Tanzania (1% significance). It means that in the three first countries the low population growth contributed to the reduction of inequalities and inprovement of quality of life, and in the last one it increased the level of inqualities. This relationship is well stated by Meier (1995), Tsen and Furouka (2005) and also Krugman and Wells (2015).

The last two variables that the regression results shows to affect the inequalites are the unemployment rate and Inflation rate. For Malawi the low unemployment rate creates a positive relationship with HDI, meaning that it contributes to the increase of the level of HDI and consequently decrese of inequalities. The inflation rate appear as a negative factor for the quality

of life in Zimbabwe. It mean sthat there have a negative relationship between inflation rate and the Human Development Index, what at the last time indicated that inflation have positive relationship with inequality in Zimbabwe. As was explained before, the high inflation rates created by the economic and financial crisis in Zimbabwe reduced the purchase power of the inhabitants and it demaged their quality of life. These are the same assumptions presented by Bulíř (1998), also CentrePiece Spring (2005) and Habees and Rumman (2012).

CHAPTER SEVEN – CONCLUSIONS AND RECOMMENDATIONS

7.1. Conclusions

The economies of the studied low income countries in southern Africa show a positive growth throughout the period. The growth performances are different, influenced by different factors and economic policies of each country. Therefore, these differences make one grow at faster pace and some less accelerated.

All the countries started with low but more convergent real GDP levels in 1990. Tanzania is the country with highest real GDP level in all the period of study, and Zimbabwe was the second one until yearly 2003 when the economy started decreasing sharply because of the economic and financial crisis that affected the country. After some government efforts on reforms the Zimbabwe economy stated to recover in 2008. Zambia and Mozambique have about the same levels of real GDP since 1995 and Malawi is the country with the lowest level of real GDP. Here is verified a partial convergence on real GDP among Mozambique, Zambia and Malawi. Tanzania and Malawi diverge with others, the first because of the fast growing and the second in contrary. Thus, all countries (with exception of Tanzania) had period of negative growth, mainly from 1992 to 1995, the period of more political and economic reforms in more developing countries after the cold war. Zimbabwe lived a second period of negative growth from 1998 to 2008 because of the crisis.

Concerning to the GDP per capita, Zimbabwe leaded from the period of 1990 to 2002, but from 2003 when the crisis become more acute lost the position to Zambia which maintained the highest values among all until the last years of the study. The lowest scenarios of GDP per capita are shared by Mozambique and Malawi. Even with the highest real GDP Tanzania is not the country with the better GDP per capita among the all studied. The country is in the third position. It is justified by their population level which is the highest among all and one of the highest in the all SADC region.

Tanzania and Zimbabwe trend to converge with the lowest unemployment rates and Mozambique show a relative convergence with Malawi. Zambia is the worst case scenario with

the highest and most volatile unemployment rates. The inflation rates are almost convergent among all countries, with exception of Zimbabwe from yearly 2000s because of financial crisis.

In respect of inequality indices all countries seem to be unequal at the same level, but Zambia shows the minor levels of inequalities and Zimbabwe the highest volatility of the indices since the crisis started. Therefore, there is a partial convergence in inequality among all countries, and in general the situation does not show significant changes.

The results from regressions show that generally the countries are not affected by the same factors on growth and inequalities. The real GDP is the unique variable affecting economic growth in all countries and with the same 1% of statistical significance. This relationship is positive for all. Other factors of growth are different among countries and even some common factors affect some countries show different types of relationship and also different levels of statistical significance.

The results also indicates that the correlation between economic growth and inequality just exists in Tanzania, which is a positive correlation with 1% of statistical significance from both sides, and in Zimbabwe which is a negative correlation with different significances, 1% from inequality to economic growth and no significance from economic growth to inequality.

All the robustness tests made show that the models are not spurious and the results respond to the classical assumption. In summary we can say that the economies of all five studied countries (Mozambique, Malawi, Tanzania, Zambia and Zimbabwe) are not absolutely convergent. There are just partial or conditional convergences in some growth indicators among different countries. In general all still more unequal and the variables affecting growth and inequalities are almost different. Based on this conclusive analysis the null hypothesis is rejected.

7.2. Recommendations

The results of the empirical analysis suggest that economic growth has led to a reduction in inequality levels in Tanzania and to the increase of inequality level in Zimbabwe. It means that positive performance of the economy reduces inequality and negative performance of increases it. In other countries there is no evidence of this influence. In the other hand, the economic

growth of some countries is also influenced by inequality. Therefore, there are other factor out of this possible correlation between growth and inequality influencing the economy and the quality of life of inhabitants.

The results of this thesis imply that, countries should not only target the growth of the economy as a means of reducing inequalities, however, equally important mean is the promotion of macroeconomic stability, concretely the price stabilization, the reduction of unemployment rates and the control of economic cycles to reduce volatilities. All countries need to governments to employ monetary and fiscal policies optimally so as to obtain macroeconomic variables of full employment, economic growth and price stability.

Though economic growth has contributed to reduction in inequality levels and improved standard of living across the studied low income countries, this thesis has shown that income inequality is still a major constrain to that positive relationship, particularly in Zimbabwe. In order for countries to deal with inequality problems successfully, the thesis proposes that, governments should implement policies that aim at redistributing wealth in favor of the poor and middle class families.

Furthermore since most countries in the developing world particularly Sub-Saharan Africa are characterized by bad government policies, political and ethnic violence, corruption and lack of political will, eradicating inequality will always be a challenge, because more politicians prefer to maintain this problem as a mean to control and continue in power. For economic growth to effectively transform the lives of the people, governments should aim at stabilizing the macroeconomic environment. This is because good macroeconomic environment can guarantee stable economic growth and development, promoting good political atmosphere free from political violence, civil wars and other political unrest.

In addition, multilateral institutions, development partnerships among governments should come already to set development targets particularly with regards to the Millennium Development Goals to promote growth, macroeconomic stability and reduce inequalities.

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APPENDICES

<u>Appendix 1. Map of SADC region</u>

Source: Kahn and Menéndez (2014)

Appendix 2. Descriptive statistics

Appendix 3a: descriptive statistics – Malawi (1990-19980

Variable	Mean	Median	Minimum	Maximum	Std. Dev.
GDPr_mil_	4108.35	3741.81	3094.72	5776.79	960.872
GDPpc	305.446	292.990	266.254	353.049	31.2300
GDPgr_	4.04717	3.98436	-4.79518	9.60000	3.46825
INF_	17.5388	14.3550	7.41000	44.8000	10.8090
UE_	7.63750	7.65000	7.40000	7.90000	0.136015
HDI	0.416750	0.400000	0.376000	0.493000	0.0394098
POP_mil_	13.2975	13.1150	10.7000	16.3600	1.80081
POPg____	2.68713	2.69363	2.35934	2.94071	0.172815

Source: author (2016); calculations using data from the WB, IMF, UNCTAD and UNDP

Appendix 2b: descriptive statistics – Mozambique (1990-19980

Variable	Mean	Median	Minimum	Maximum	Std. Dev.
RGDP_mil_	8263.73	7969.20	4525.38	13365.4	2828.65
pcGDP	376.402	373.992	260.818	517.361	82.7776
GDPgr_	7.78213	7.44001	1.67850	12.7210	2.49175
INF_	8.82000	9.69000	1.48000	16.7800	4.73221
UE_	8.36250	8.30000	8.10000	8.60000	0.136015
HDI	0.370688	0.373000	0.300000	0.413000	0.0354019
POP_mil_	21.1337	20.7250	17.3500	25.8300	2.65337
POPgr_	2.64689	2.63941	2.47031	2.82498	0.117382

Source: author (2016); calculations using data from the WB, IMF, UNCTAD and UNDP

Appendix 2c: descriptive statistics – Tanzania (1990-19980

Variable	Mean	Median	Minimum	Maximum	Std. Dev.
RGDP_mil_	19787.4	19130.0	11965.7	30842.3	5985.68
GDPpc	485.058	485.613	369.559	626.200	82.5559
GDPgr_	6.34626	6.66322	3.66522	9.46435	1.57381
INF_	8.22584	7.13824	4.73580	16.0011	3.48073
UE_	3.55000	3.50000	2.00000	5.10000	0.983192
HDI	0.449000	0.438000	0.392000	0.530000	0.0454342
POP_mil_	39.9408	39.3834	32.3800	49.2531	5.36749
POPg_	2.77661	2.80253	2.45510	3.03515	0.222732

Source: author (2016); calculations using data from the WB, IMF, UNCTAD and UNDP

Appendix 2d: descriptive statistics – Zambia (1990-19980

Variable	Mean	Median	Minimum	Maximum	Std. Dev.
GDPr_mil_	7871.53	7402.00	5364.17	11965.9	2124.05
GDPpc	656.596	636.543	557.285	823.042	89.2122
GDPgr_	5.04402	5.54262	-1.86632	7.62016	2.35600
INF_	15.7881	15.6850	6.43000	26.7900	7.34256
UE_	14.3063	14.8000	12.0000	15.9000	1.40877
HDI	0.447000	0.430500	0.386000	0.561000	0.0554196
POP_mil_	11.7944	11.6250	9.58000	14.5600	1.55371
POPg____	2.77898	2.71000	2.50100	3.24030	0.243675

Source: author (2016); calculations using data from the WB, IMF, UNCTAD and UNDP

Appendix 2e: descriptive statistics – Zimbabwe (1990-19980

Variable	Mean	Median	Minimum	Maximum	Std. Dev.
GDPr_mil_	8113.55	7741.33	5526.39	12375.9	2119.01
GDPpc	627.254	617.083	432.288	874.644	143.082
GDPgr_	3.10361	-3.43223	-8.16869	55.5338	15.4483
INF_	4732.55	108.384	1.63162	24411.0	9767.07
UE_	5.33125	5.20000	4.20000	6.50000	0.679920
HDI	0.408875	0.487500	0.118000	0.555000	0.148796
POP_mil_	12.8656	12.7150	12.2300	14.1500	0.497232
POPg____	1.00608	0.739761	0.107875	3.05205	0.944840

Source: author (2016); calculations using data from the WB, IMF, UNCTAD and UNDP

Appendix 3: Diagnostic tests for the econometric models

Appendix 3a: diagnostic tests for Malawi

Diagnostic tests of economic growth model

Test	Test-statistic	P.value
Ramsey's Reset test for specification	14.8756	0.0014022
White's test for heterokedasticity	13.712	0.471381
Breusch-Pagan test for heteroskedasticity	3.06878	0.546381
Test for normality of residual	2.67742	0.262184
LM test for autocorrelation up to order 1	0.368264	0.557478
Test for ARCH of order 1	2.62877	0.104943

Diagnostic tests for inequality model

Test	Test-statistic	P.value
Ramsey's Reset test for specification	3.69063	0.0593738
White's test for heterokedasticity	12.3736	0.0300123
Breusch-Pagan test for heteroskedasticity	3.32784	0.189395
Test for normality of residual	0.438675	0.80305
LM test for autocorrelation up to order 1	2.44061	0.144204
Test for ARCH of order 1	2.63984	0.104214

Appendix 3b: Diagnostic tests for Mozambique

Diagnostic tests of economic growth model

Test	Test-statistic	P.value
Ramsey's Reset test for specification	18.4117	0.0006594
White's test for heterokedasticity	15.9272	0.317839
Breusch-Pagan test for heteroskedasticity	1.20399	0.877441
Test for normality of residual	1.94678	0.3778
LM test for autocorrelation up to order 1	0.0813052	0.781355
Test for ARCH of order 1	0.0508433	0.821602

Diagnostic tests for inequality model

Test	Test-statistic	P.value
Ramsey's Reset test for specification	3.06172	0.0876816
White's test for heterokedasticity	2.43559	0.786163
Breusch-Pagan test for heteroskedasticity	0.811095	0.666612
Test for normality of residual	5.78145	0.0555361
LM test for autocorrelation up to order 1	0.00127902	0.972059
Test for ARCH of order 1	0.285589	0.593061

Appendix 3c: diagnostic tests for Tanzania

<u>Diagnostic test of economic growth model</u>

Test	Test-statistic	P.value
Ramsey's Reset test for specification	22.8147	0.0001877
White's test for heterokedasticity	14.0896	0.119172
Breusch-Pagan test for heteroskedasticity	8.1079	0.0438336
Test for normality of residual	2.63645	0.26761
LM test for autocorrelation up to order 1	0.318591	0.583781
Test for ARCH of order 1	0.191471	0.661695

<u>Diagnostic tests for inequality model</u>

Test	Test-statistic	P.value
Ramsey's Reset test for specification	0.11464	0.892739
White's test for heterokedasticity	8.62677	0.12491
Breusch-Pagan test for heteroskedasticity	1.82713	0.401091
Test for normality of residual	0.278771	0.869893
LM test for autocorrelation up to order 1	5.15477	0.0424065
Test for ARCH of order 1	1.32708	0.249325

Appendix 3d: diagnostic tests for Zambia

<u>Diagnostic test of economic growth model</u>

Test	Test-statistic	P.value
Ramsey's Reset test for specification	4.16136	0.0484228
White's test for heterokedasticity	14.2651	0.113202
Breusch-Pagan test for heteroskedasticity	0.353206	0.94973
Test for normality of residual	0.838781	0.657447
LM test for autocorrelation up to order 1	1.14188	0.308145
Test for ARCH of order 1	0.724647	0.394624

Diagnostic test for inequality model

Test	Test-statistic	P.value
Ramsey's Reset of specification	9.8033	0.00359481
White's test for heterokedasticity	9.46805	0.0917896
Breusch-Pagan test for heteroskedasticity	4.59443	0.100539
Test for normality of residual	2.06441	0.356221
LM test for autocorrelation up to order 1	2.93274	0.112495
Test for ARCH of order 1	3.32901	0.0680679

Appendix 3e: Diagnostic tests Zimbabwe

Diagnostic test of economic growth model

Test	Test-statistic	P.value
Ramsey's Reset test of specification	11.1908	0.0028
White's test for heterokedasticity	14.7628	0.0976
Breusch-Pagan test for heteroskedasticity	4.2458	0.2361
Test for normality of residual	3.58291	0.5120
LM test for autocorrelation up to order 1	0.628074	0.44481
Test for ARCH of order 1	0.701825	0.40217

Diagnostic test for inequality model

Test	Test-statistic	P.value
Ramsey's Reset test of specification	0.316209	0.735936
White's test for heterokedasticity	3.51696	0.940242
Breusch-Pagan test for heteroskedasticity	3.65551	0.301145
Test for normality of residual	4.219	0.121299
LM test for autocorrelation up to order 1	0.116165	0.739653
Test for ARCH of order 1	0.114874	0.734662